

CONTROLS, AIR CONDITIONING & REFRIGERATION PRODUCTS

General Catalogue 2008



CONTROLS, AIR CONDITIONING & REFRIGERATION PRODUCTS

A more comfortable,
safe and sustainable world





Company profile

Johnson Controls has expanded remarkably since Professor Warren Johnson founded the company to manufacture his invention, the electric room thermostat. Since its start in 1885, Johnson Controls has grown into a global leader in automotive experience, building efficiency and power solutions. The company provides innovative automotive interiors that help make driving more comfortable, safe and enjoyable. For buildings, it offers products and services that optimize energy use and improve comfort and security. Johnson Controls also provides batteries for automobiles and hybrid electric vehicles, along with systems engineering and service expertise.

Our vision

**A more comfortable,
safe and sustainable world.**

Our values

Integrity

Honesty, fairness, respect, and safety are of the utmost importance.

Customer Satisfaction

Our future depends on us helping to make our customers successful. We are proactive and easy to do business with. We offer expert knowledge and practical solutions, and we deliver on our promises.

Employee Engagement

We foster a culture that promotes excellent performance, teamwork, inclusion, leadership and growth.

Innovation

We believe there is always a better way. We encourage change and seek the opportunity it brings.

Sustainability

Through our products, services, operations and community involvement, we promote the efficient use of resources to benefit all people and the world.

Contents



Controls

Electronic control devices

Configurable Digital Controller

FX03 Terminal Unit Controller - 230VAC Power Supply

Programmable Digital Controller

FX06 Compact Controller - 24VAC Power Supply

FX07 Field Controller - 24VAC Power Supply

FX07 Field Controller - 90 - 240VAC Power Supply

FX14 Field Controller - 24VAC Power Supply

FX15 "Classic" Field Controller - 24VAC Power Supply

FX15 "Universal" Field Controller - 24VAC Power Supply

FX16 Master Controller - 24VAC Power Supply

MD20 Master Display - 24VAC Power Supply

Accessories - Network Room Sensor Module

Accessories - Medium User Interface (MUI) Display

Accessories - Extension and Expansion I/O Modules

Accessories - Multimedia

Accessories - Software

System 91 N2. DX-9100 Controller

System 91 N2. XTM Extension/Expansion I/O Modules

System 91 N2. Terminal Unit Controller TC-910x Series

LONWORKS® Digital Controllers

Terminal Unit Controller TCU Series - 24VAC Power Supply - 2 Pipe FCU Applications

Terminal Unit Controller TCU Series - 24VAC Power Supply - 4 Pipe FCU Applications

Terminal Unit Controller TCU Series - 24VAC Power Supply - Chilled Ceiling Applications

Terminal Unit Controller TCU Series - 230VAC Power Supply - 2 Pipe FCU Applications

Terminal Unit Controller TCU Series - 230VAC Power Supply - 4 Pipe FCU Applications

Terminal Unit Controller TCU Series - 230VAC Power Supply - Chilled Ceiling Applications

Integrated Room Control AD-FCC, AD-FCD and AD-IRC Controller Series - 230VAC Power Supply

Room Sensors and Thermostats

TM-1100 Room Command Module

TM-2100 Room Command Module

RS-1100 Room Command Module

A99 Room Sensor

HT-9000 Room Sensor

LP-NRM Room Command Module

AD-RCM Room Command Module

TC-8900 Room Thermostat

TEC Networked Room Thermostat

Wireless Room Sensor

Wireless Room Sensor

Plant Sensors

TS-9100 Temperature Sensor

TE-9100 Temperature Sensor

HT-9000 Humidity and Temperature Sensor

HX-9100 Dew Point Sensor

PS-9101 Differential Pressure Sensor

PT-5215 Differential Pressure Sensor

PT-5217 Pressure Sensor

Metasys Extended Architecture

MSEA

M3i

M3i - System Network Layout

TDS Line - Touch Screen Displays

Metasys - System Network Layout

P 2000 - System Network Layout

JCI Building Efficiency as Solutions Supplier

Contents

Valves and Actuators

Terminal Unit Valves and Actuators

Terminal Unit Valves and Actuators

Threaded Control Valves and Actuators

Threaded Control Valves and Actuators

Flanged Control Valves and Actuators

Flanged Control Valves and Actuators

Rotary Actuators

Small Family / Silence Family

M9102 /M9104-AGA-xS

M9304-Axx-1N ON/OFF

M9304-GxA-1N

New Standard Family

M9108 / M9116 / M9124 / M9132-Axx-1N ON/OFF and Floating actuators

M9108 / M9116 / M9124 / M9132-GGx-1N Proportional Actuators AC/DC 24 V

M9108 / M9116 / M9124-GDx-1N Proportional Actuators AC 230 V

Springback Family

M9206-Bxx-1S ON/OFF Actuators

M9206-GGX-1 Proportional Actuators

M9210-Bxx-3 ON/OFF Actuators

M9220-Bxx-3 ON/OFF Actuators

Security Family

SFx ON/OFF Springback Actuators for Safety Dampers

SEx ON/OFF Actuators for Smoke Dampers

SFx (SLC) ON/OFF Springback Actuators for Fire Dampers

SFx (SLC) ON/OFF Springback Actuators for Fire Dampers

S9210 / S9220

Valve Family

M9108-Axx-5 ON/OFF and Floating Ball Valves Actuators

M9108-GGx-5 Proportional Valves Actuators

M9116-Axx-1N2 ON/OFF and Floating Mixer Actuator

M9116-GGx-1N2 Floating Mixer Actuators AC/DC 24V

M9116-GDx-1N2 Proportional Mixer Actuator AC 230 V

M9108-GDx-5 Proportional Ball Valves Actuator AC 230 V

Special Family

M9108 / M9116-xGx-1N4 Modulating Actuators AC/DC 24 V

SA1.2x ON/OFF and Floating Actuators

M9116-AAx-1 ON/OFF and Floating Actuators

M9108/M9116/M9124-GAx-1.01 Current Controlled Damper Actuators

M9108/M9116/M9124-GAx-1 Actuators

SASx.30 ON/OFF and Floating Actuators

SALx.30 ON/OFF and Floating Actuators

Security

Security Management System

Cardkey® P2000LE

Cardkey® P2000

Access Control Controllers

S300-DIN-RDR2SA

DVN Range of product

DVN5000 Code Number Legend

DVN5000 Real Time Ver. 2.5 & above

DVN5000 Multiplexed ver. 2.5 & above

DVN5000 IP/Network Only DVN's ver. 2.5 & above

DVN5000 Multiplexed Ver. 2.3

DVN100 Encoder/Decoder Series

DVN Software

DVN Option

External Storage Options



Contents

IFC – Intelligent Fire Controls

JCI Fire Detection Solution

JCI Fire Detection Solution - IFC Intelligent Fire Controls

XRM

Extended Room Management

JCI Hospitality Solution for room management of small and large hotels

Refrigeration Controls

Modulating Water Valves

V46 Pressure Actuated Water Valves

V46SA Two-way Pressure Actuated Water Valves, Low Flow

V47 Two-way Temperature Actuated Water Valves

V48 Three-way Pressure Actuated Water Valves

Refrigeration Field Controllers

MR. Electronic Refrigeration Controls

MS. Single and Multistage controllers for Refrigeration, Heating, Humidity and Pressure

System 27 NOVA, One- and Two-stage Thermostat, without Sensor

System 27 NOVA, Display Modules, without Sensors

System 27 NOVA Stage Modules, Incl. quick connector

System 27 NOVA Signal Converter

Fan Speed Controllers

P215 Pressure Actuated Single Phase Fan Speed Controllers

P215 Direct Mount Pressure Actuated Direct Mount Single

P215 Pressure Actuated Single Phase Fan Speed Controllers

U215LR 0-10 Vdc/4-20 mA Input Single Phase Fan Speed Controllers

A255 Temperature Actuated Fan Speed Controllers for 3-phase Motors

U255 (0 - 10 V Input) Fan Speed Controllers for 3-phase Motors

P255 Single/Dual Input Pressure Actuated Fan Speed Controllers for 3-phase Motors

P35 Mechanical Pressure Transducer for P215 / P255 series

Flow and Float Controls

F61 Flow Switches for Liquid

F62 Air Flow Switches

F63 Liquid Level Float Switches

Pressure Controls

P232 / P233 Sensitive differential pressure control

P20 Pressure control

P28 Oil protection control

P45 Oil protection control

P48 Steam pressure control

P74 Differential pressure control

P735 Single pressure control

P736 Dual pressure control

P77 Single pressure control

P78 Dual pressure control

P100 Direct Mount Pressure Switches

H735 Synthetic Flexible Hose (accessories)

Pressure Transducers

P499 Electronic Pressure Transducer

Refrigeration Temperature Controls

A19 Series IP30 - IP65, Capillary and Space Thermostats

A25 Series IP30, Rod and Tube Sensing Element

A28 Series IP30 - IP65, Two-stage Capillary and Space Thermostats

A36 Series, 3- or 4-stage Thermostats

270XT Series Freeze Protection Control, IP30

T22 and T25 One and Two-stage Room Thermostat, Line Voltage , IP20

Contents



Residential & Light Commercial

Split Systems

Minisplit

High Wall Inverter Mimetech YVHC 09 to 12
High Wall Power Inverter RVHC-E 09 to 24
High Wall High Efficiency RACC-RAHC 07 to 28
High Wall "Atlas" YJCC-YJHC 09 to 24
High Wall "Rockies" TLCC-TLHC 09 to 24

Multi Split

High Wall Multi Inverter Free Match RRHC 18 (2x1) · RRHC 27 (3x1) · RRHC 30 (4x1)
High Wall Multi Split RRHC 18-21 (2x1) · RMHC 27-30 (3x1)
Multi Inverter Free Indoor Units RRJC 18 (2x1) · RRJC 27 (3x1) · RRJC 30 (4x1)

Minisplit Floor / Ceiling

Convertible Console Inverter YOHC-D 18 to 48
Convertible Console YOHC 12 to 60

Minisplit Cassette

Cassette Inverter YKHC-D 18 to 48
Cassette YKHC 12 to 48

Minisplit Blower

Blower Inverter "Draw Through" JSI 705 to 716
Blower Inverter "Blow Through" YUHC 18 to 48
Blower "Draw Through" JSI 505 to 516
Blower "Blow Through" YUHC 18 to 60

Window & Portable

Window Y9USC/E 09 to 18 B5A/R
Portable with electrical heater intergrated PBSC09FD / PBSC12FD

VRF Systems

YDS Variable refrigerant flow system

R410A · YDMH 100, 140, 250, 280, 335, 400, 450 C
R407C · YDMH 100, 140, 280, 560, 840 B

Special Equipments

YPP Heat pump for swimming pool

YPP-A and YPP-C 7 to 120

Air Systems

Roomtop

RTC-RTH 07 to 30 L

Rooftop

Rooftop DIC-BIH-DIG 90 to 300 G
Large Rooftop DIC-BIH-DIG 360 to 480 G

Large Split

Axial fan SOC-SOH 76 to 300 K
Ductable SCOC-SOCH 70 to 300 K

YKlon

YKlon system applications



Contents



Air Handling Systems & Terminal Devices

Air Handling Units

YMA Custom Air Handling Units
YMA-C Custom Air Handling Units
YMD Modular Air Handling Units

Fan Coil Units

Fan coil with centrifugal fan 2 & 4 pipe system YFCM 130 to 740
Fan coil with tangential fan 2 & 4 pipe system YFTM 130 to 540
Fan coil LASER 2 & 4 pipe system
Fan coil LOW BODY 2 & 4 pipe system
Fan coil SAPHIR 2 & 4 pipe system
Cassette 2 & 4 pipe system YHK 20 to 110
Hydro High Wall YHH 15 to 50
Blower YEFB 130-440
Fan coil YGFC 02 to 14 ST

Close Control Units

Modular Units
Air Cooled Twin Circuit Units
DCS / FCS Chilled Water Units
Plug Fan Units
Small Systems
Unit Options

SmartPac

SmartPac



Chillers & Heat Pumps

Scroll Compressor Chillers and Heat Pumps Air to Water

Air cooled chiller-Air to water heat pump YLCA-YLHA 5 to 40
Air cooled chiller-Air to water heat pump YCSA 50 to 150
HVS Digital Scroll Split version YDC_522H / YDC_972H / YOC_762H / YOC_1522H
HVS Digital Scroll Compact version YDC_522H-C / YDC_972H-C / YOC_762H-C / YOC_1522H-C
Air cooled chiller & heat pump with centrifugal fan YLCC-2 42 to 152
Hydro kit GH 200 to 600 for YLCC-2

Scroll Compressor Chillers and Heat Pumps Air-Cooled & Water Cooled

Tempo YLAE Air-Cooled Scroll Compressor Chiller
Tempo YLAE-HP Reverse Cycle Air to Water Heat Pump-Chiller
Zafiro YCWL Water-Cooled or Remote Air-Cooled Scroll Compressor Chiller

Screw Compressor Chillers Air-Cooled & Water Cooled

Symphony YCIV Air-Cooled Variable Speed Drive Screw Compressor Chiller
YCSE Water-Cooled or Remote Air-Cooled Screw Compressor Chiller
YLCS Water-Cooled or Remote Air-Cooled Screw Compressor Chiller
YN Water-Cooled Screw Chiller Dry Cooler Application Heat Recovery Application
YR Water-Cooled Screw Compressor Chiller
YNWS/RS Water-Cooled or Remote Air-Cooled Screw Compressor Chiller
YNWH Water-Cooled Screw Chiller Brine Applications

Centrifugal Compressor Chillers Water-Cooled

YK Water-Cooled Centrifugal Compressor Chiller

Absorption Chillers Water-Cooled

YMPC-F/EX Water Cooled Mini Paraflow Direct Fired Absorption Chiller-Heater
ParaFlow YPC-F Two-Stage Direct Fired Chiller-Heater
ParaFlow YPC-ST Two-Stage Steam Fed Absorption Chiller
IsoFlow YIA Single Stage Hot Water or Steam Powered Absorption Chiller
Energy Management & Chiller Sequencing

Contents



Refrigeration

Reciprocating Compressors

- CMO single-stage
- SMC 100 single-stage
- HPO/HPC high-pressure
- CO₂/Ammonia Freeze Package (CAFP)
- Rotatune reciprocating compressors
- TCMO/TSMC two-stage reciprocating compressors
- ChillPAC packaged ammonia chillers (Water chillers)
- ChillPAC packaged ammonia chillers (Brine chillers)
- PAC chillers with reciprocating compressors (Water chillers)
- PAC chillers with reciprocating compressors (Ethylene glycol chillers)
- PLCH chillers for R410A (Water chillers)
- PLCH chillers for R410A (Ethylene glycol chillers)

Screw Compressors Chillers

- SABCube variable-speed screw compressors
- SAB screw compressors (swept volumes 200–850 m³/h)
- SAB screw compressors (swept volumes 800–10,000 m³/h)
- ChillPAC packaged ammonia chiller featuring SABCube screw compressor (Water chillers)
- ChillPAC packaged ammonia chiller featuring SABCube screw compressor (Brine chillers)
- PAC chillers with screw compressors (Water chillers)
- PAC chillers with screw compressors (Ethylene glycol chillers)

Ice Machines

- Sabroe V/VD flake ice machines

Control Systems

- Unisab III Refrigeration systems controller
- Sabvisual II Supervisory control and data acquisition (SCADA)
- Fixed-speed PAC chiller automation concept
- Comsab
- Profibus for Unisab II control systems
- Upgrading Unisab II. Advanced control system retrofit package for refrigeration compressors
- Condensing pressure optimiser for R717
- ISAC (Integrated Standard Application Concept) Control and management of refrigeration systems
- Web-enable your refrigeration equipment

Gas Detection Systems

- Unisafe II ammonia detection equipment
- Unisafe II HFC/HCFC detection equipment
- Unisafe II propane detection equipment

Spare Parts



Controls

Electronic control devices
Valves & actuators
Rotary actuators
Security
Refrigeration



Electronic control devices

Configurable digital controller

Facility Explorer

FX03 Terminal unit controller – 230VAC power supply



Features

- Field Selectable application type, communication protocol and room module, via dip-switches on controller
- Standalone or network installation for BACnet® or N2Open networks
- Power supplies for field devices (5/15/24 VAC) provided by the controller
- Modular range of Room Sensor Modules
- BACnet® MS/TP with optional preconfigured Master-Slave Controller Communication
- DIN Rail and Surface mounting

Accessories

FX03 Room Sensor Module with LCD Display and IR Receiver, Wall Mount	LP-RSM003-000C
FX03 Room Sensor Module with LCD Display and IR Receiver, Flush Mount	LP-RSM003-001C
FX03 IR Receiver with Integrated Temperature Sensor	LP-RSM003-003C
FX03 IR Hand-held Remote Control	LP-RSM003-004C
Room Sensor Module, Temperature Sensor Only	TM-2140-0000
Room Sensor Module, Occupancy button and LED	TM-2150-0000
Room Sensor Module, 12÷28°C Setpoint Dial, Occupancy button and LED	TM-2160-0000
Room Sensor Module, 12÷28°C Setpoint Dial, Occupancy button and LED, Fan speed override	TM-2160-0002
Room Sensor Module, +/- Setpoint Dial, Occupancy button and LED	TM-2160-0005
Room Sensor Module, +/- Setpoint Dial, Occupancy button and LED, Fan speed override	TM-2160-0007
Room Sensor Module, 12÷28°C Setpoint Dial	TM-2190-0000
Room Sensor Module, +/- Setpoint Dial	TM-2190-0005
Room Sensor Module with LCD Display, 12÷28°C Setpoint Dial	RS-1180-0000
Room Sensor Module with LCD Display, 12÷28°C Setpoint Dial, Fan speed override	RS-1180-0002
Room Sensor Module with LCD Display, +/- Setpoint Dial	RS-1180-0005
Room Sensor Module with LCD Display, +/- Setpoint Dial, Fan speed override	RS-1180-0007
Remote Temperature Sensor, NTC50K, Bulb with 80cm leads	LP-KIT003-010C
Remote Temperature Sensor, NTC50K, Wall Mount	LP-KIT003-011C
Remote Temperature Sensor, NTC50K, Duct Mount	LP-KIT003-012C
Average Temperature Sensor, NTC50K, Wall Mount	LP-KIT003-013C
Condensation [Dew Point] Sensor	HX-9100-8001



Input Functions								Output Functions					Cover	Ordering Code
Window Contact	Dew-Point Contact	Presence Detector	Temperature Sensor	Room Sensor Module (LP-RSM003, TM-21xxx and RS-1180 Series)	Changeover	Coil Sensor	Discharge Air Sensor	Three Speed Fan	DAO Actuators	On/Off Actuators	0-10VDC for Actuators and Variable Speed Fan	Electric Heater 2kW		
•	•	•	•	•	•	•	•	•	•	•	•	•		LP-FX03A01-000C
•	•	•	•	•	•	•	•	•	•	•	•	•	•	LP-FX03A11-000C



Electronic control devices

Programmable digital controller

Facility Explorer

FX06 Compact controller – 24VAC power supply



Features

- Freely programmable or configurable using FX Tools
- Standalone or network installation (via optional communication module for N2 Open or LonWorks® networks)
- Status report via SMS (via optional RS232C communication card using a GSM modem)
- Digital input transition counter and pulse width modulation (PWM) output
- Integral 2-line LCD display with graphical icons – freely programmable
- Choice of user interfaces, integral and optionally remote
- Equipment panel mounting and connector cables for ease of factory installation
- Multi-language database for display (up to 5 languages per application)

Communication modules

FX06 N2Open Communication Module.....	LP-NET061-000C
FX06 LonWorks® Communication Module.....	LP-NET062-000C
FX06 RS232C Communication Module.....	LP-NET063-000C

Mounting/Connection accessories

FX06 Cable Set (OEM applications)	LP-KIT006-010C
Link cable for the connection of the FX06 to the Panel Mount MUI display – 3 m (9.8 ft)	LP-KIT007-005C

I/O Details						Accessories Included					Ordering Code
Analogue Input	Digital Input	Analogue Output	PWM Output	Digital Output (Relays)	Digital Output (Traces)	Integrated Display	N2Open Communication Card	LonWorks® Communication Card	RS232C Communication Card	Cable Set	
4	5	2	-	6	-	●					LP-FX06P00-000C
4	5	2	-	6	-	●	●			●	LP-FX06P01-000C
4	5	2	-	6	-	●		●		●	LP-FX06P02-000C
4	5	2	-	6	-	●			●	●	LP-FX06P03-000C
4	5	1	1	6	-	●					LP-FX06P10-000C
4	5	1	1	6	-	●	●			●	LP-FX06P11-000C
4	5	1	1	6	-	●		●		●	LP-FX06P12-000C
4	5	1	1	6	-	●			●	●	LP-FX06P13-000C
4	5	2	-	4	2	●					LP-FX06P20-000C
4	5	2	-	4	2	●	●			●	LP-FX06P21-000C
4	5	2	-	4	2	●		●		●	LP-FX06P22-000C
4	5	2	-	4	2	●			●	●	LP-FX06P23-000C
4	5	2	-	3+1	2	●					LP-FX06P30-000C
4	5	2	-	3+1	2	●	●			●	LP-FX06P31-000C
4	5	2	-	3+1	2	●		●		●	LP-FX06P32-000C
4	5	2	-	3+1	2	●			●	●	LP-FX06P33-000C

3+1 = 3 Interlocked Relays + 1 Free Relay



Electronic control devices

Programmable digital controller

Facility Explorer

FX07 Field controller – 24VAC power supply



Features

- Freely programmable or configurable using FX Tools
- Standalone or network installation (via optional Communication Card for BACnet® or N2Open or LonWORKS® networks)
- Status report via SMS (via optional RS232C communication card using a GSM modem)
- Digital input transition counter and pulse width modulation (PWM) output
- Optional integral 2-line LCD display with graphical icons – freely programmable
- Choice of optional user interfaces, integral and remote
- DIN Rail mounting
- Multilanguage database for user display (up to 5 languages per application)

Communication cards

FX07 N2Open Communication Card LP-NET071-000C

FX07 LonWORKS® Communication Card LP-NET072-010C

FX07 RS232C Communication Card LP-NET073-000C

FX07 BACnet® Communication Card LP-NET074-000C

Mounting/Connection accessories

Link cable for the connection of the FX07/FX14/FX15/FX16

to the Panel Mount MUI display – 3 m (9.8 ft) LP-KIT007-000C

I/O Details					Accessories Included						Ordering Code
Analogue Input	Digital Input	Analogue Output	Digital Output (Relays)	Digital Output (Triacs)	Integrated Display	N2Open Communication Card	LonWORKS® Communication Card	RS232C Communication Card	BACnet® Communication Card	Removable Connectors	
4	5	2	6	-						•	LP-FX07D00-000C
4	5	2	6	-		•				•	LP-FX07D01-000C
4	5	2	6	-			•			•	LP-FX07D02-000C
4	5	2	6	-				•		•	LP-FX07D03-000C
4	5	2	6	-					•	•	LP-FX07D04-000C
4	5	2	6	-	•					•	LP-FX07D50-000C
4	5	2	6	-	•	•				•	LP-FX07D51-000C
4	5	2	6	-	•		•			•	LP-FX07D52-000C
4	5	2	6	-	•			•		•	LP-FX07D53-000C
4	5	2	6	-	•				•	•	LP-FX07D54-000C
4	5	2	4	2						•	LP-FX07D20-000C
4	5	2	4	2		•				•	LP-FX07D21-000C
4	5	2	4	2			•			•	LP-FX07D22-000C
4	5	2	4	2				•		•	LP-FX07D23-000C
4	5	2	4	2					•	•	LP-FX07D24-000C
4	5	2	4	2	•					•	LP-FX07D70-000C
4	5	2	4	2	•	•				•	LP-FX07D71-000C
4	5	2	4	2	•		•			•	LP-FX07D72-000C
4	5	2	4	2	•			•		•	LP-FX07D73-000C
4	5	2	4	2	•				•	•	LP-FX07D74-000C
4	5	2	3+1	2						•	LP-FX07D30-000C
4	5	2	3+1	2		•				•	LP-FX07D31-000C
4	5	2	3+1	2			•			•	LP-FX07D32-000C
4	5	2	3+1	2				•		•	LP-FX07D33-000C
4	5	2	3+1	2					•	•	LP-FX07D34-000C
4	5	2	3+1	2	•					•	LP-FX07D80-000C
4	5	2	3+1	2	•	•				•	LP-FX07D81-000C
4	5	2	3+1	2	•		•			•	LP-FX07D82-000C
4	5	2	3+1	2	•			•		•	LP-FX07D83-000C
4	5	2	3+1	2	•				•	•	LP-FX07D84-000C

3+1 = 3 Interlocked Relays + 1 Free Relay



Electronic control devices

Programmable digital controller

Facility Explorer

FX07 Field controller – 90-240VAC power supply



Features

- Freely programmable or configurable using FX Tools
- Standalone or network installation (via optional Communication Card for BACnet® or N2Open or LonWORKS® networks)
- Status report via SMS (via optional RS232C communication card using a GSM modem)
- Digital input transition counter and pulse width modulation (PWM) output
- Optional integral 2-line LCD display with graphical icons – freely programmable
- Choice of optional user interfaces, integral and remote
- DIN Rail mounting
- Multilanguage database for user display (up to 5 languages per application)

Communication cards

FX07 N2Open Communication Card	LP-NET071-000C
FX07 LonWORKS® Communication Card	LP-NET072-010C
FX07 RS232C Communication Card	LP-NET073-000C
FX07 BACnet® Communication Card	LP-NET074-000C

Mounting/Connection accessories

Link cable for the connection of the FX07/FX14/FX15/FX16 to the Panel Mount MUI display – 3 m (9.8 ft)	LP-KIT007-000C
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I/O Details					Accessories Included						Ordering Code
Analogue Input	Digital Input	Analogue Output	Digital Output (Relays)	Digital Output (230VAC Triacs)	Integrated Display	N2Open Communication Card	LonWORKS® Communication Card	RS232C Communication Card	BACnet® Communication Card	Removable Connectors	
4	5	2	6	-						•	LP-FX07A00-000C
4	5	2	6	-		•				•	LP-FX07A01-000C
4	5	2	6	-			•			•	LP-FX07A02-000C
4	5	2	6	-				•		•	LP-FX07A03-000C
4	5	2	6	-					•	•	LP-FX07A04-000C
4	5	2	6	-	•					•	LP-FX07A50-000C
4	5	2	6	-	•	•				•	LP-FX07A51-000C
4	5	2	6	-	•		•			•	LP-FX07A52-000C
4	5	2	6	-	•			•		•	LP-FX07A53-000C
4	5	2	6	-	•				•	•	LP-FX07A54-000C
4	5	2	4	2						•	LP-FX07A20-000C
4	5	2	4	2		•				•	LP-FX07A21-000C
4	5	2	4	2			•			•	LP-FX07A22-000C
4	5	2	4	2				•		•	LP-FX07A23-000C
4	5	2	4	2					•	•	LP-FX07A24-000C
4	5	2	4	2	•					•	LP-FX07A70-000C
4	5	2	4	2	•	•				•	LP-FX07A71-000C
4	5	2	4	2	•		•			•	LP-FX07A72-000C
4	5	2	4	2	•			•		•	LP-FX07A73-000C
4	5	2	4	2	•				•	•	LP-FX07A74-000C
4	5	2	3+1	2						•	LP-FX07A30-000C
4	5	2	3+1	2		•				•	LP-FX07A31-000C
4	5	2	3+1	2			•			•	LP-FX07A32-000C
4	5	2	3+1	2				•		•	LP-FX07A33-000C
4	5	2	3+1	2					•	•	LP-FX07A34-000C
4	5	2	3+1	2	•					•	LP-FX07A80-000C
4	5	2	3+1	2	•	•				•	LP-FX07A81-000C
4	5	2	3+1	2	•		•			•	LP-FX07A82-000C
4	5	2	3+1	2	•			•		•	LP-FX07A83-000C
4	5	2	3+1	2	•				•	•	LP-FX07A84-000C

3+1 = 3 Interlocked Relays + 1 Free Relay



Electronic control devices

Programmable digital controller

Facility Explorer

FX14 Field controller – 24VAC power supply



Features

- Freely Programmable or Configurable using FX Tools
- Standalone or Network Installation (via optional Communication Card for BACnet® or N2Open or LonWORKS® communication)
- Status report via SMS (via optional RS232C communication card using a GSM modem)
- Digital Input Transition Counter and Pulse Width Modulating output
- Optional Integral 2-lines LCD Display with graphical icons
- Choice of optional User Interfaces, Integral and Remote
- DIN-Rail Mounting
- Multilanguage Database (up to 5 languages per application)

Communication modules

FX14 N2Open Communication Card	LP-NET151-010C
FX14 BACnet® Communication Card.....	LP-NET164-000C
FX14 LonWORKS® Communication Card	LP-NET142-010C
FX14 RS232C Communication Card	LP-NET163-000C

Mounting/Connection accessories

Link cable for the connection of the FX07/FX14/FX15/FX16 to the Panel Mount MUI display – 3 m (9.8 ft)	LP-KIT007-000C
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I/O Details					Accessories Included						Ordering Code
Analogue Input	Digital Input	Analogue Output	Digital Output (Relays)	Digital Output (Triacs)	Integrated Display	N2Open Communication Card	LonWORKS® Communication Card	RS232C Communication Card	BACnet® Communication Card	Removable Connectors	
6	12	2	5	4						•	LP-FX14D10-000C
6	12	2	5	4		•				•	LP-FX14D11-000C
6	12	2	5	4			•			•	LP-FX14D12-000C
6	12	2	5	4				•		•	LP-FX14D13-000C
6	12	2	5	4					•	•	LP-FX14D14-000C
6	12	2	5	4	•					•	LP-FX14D60-000C
6	12	2	5	4	•	•				•	LP-FX14D61-000C
6	12	2	5	4	•		•			•	LP-FX14D62-000C
6	12	2	5	4	•			•		•	LP-FX14D63-000C
6	12	2	5	4	•				•	•	LP-FX14D64-000C
6	12	2	9	-						•	LP-FX14D20-000C
6	12	2	9	-		•				•	LP-FX14D21-000C
6	12	2	9	-			•			•	LP-FX14D22-000C
6	12	2	9	-				•		•	LP-FX14D23-000C
6	12	2	9	-					•	•	LP-FX14D24-000C
6	12	2	9	-	•					•	LP-FX14D70-000C
6	12	2	9	-	•	•				•	LP-FX14D71-000C
6	12	2	9	-	•		•			•	LP-FX14D72-000C
6	12	2	9	-	•			•		•	LP-FX14D73-000C
6	12	2	9	-	•				•	•	LP-FX14D74-000C



Electronic control devices

Programmable digital controller

Facility Explorer

FX15 "Classic" Field Controller – 24VAC power supply



Features

- Freely programmable or configurable using FX Tools
- Standalone or network installation (via optional communication module for N2Open or LonWorks® networks)
- Events management
- Extension possibility via I/O modules
- Possibility of connecting two optional remote MUI displays
- Choice of optional User Interfaces, Integral and Remote
- DIN Rail mounting
- Multilanguage database for user interface (up to 5 languages per application)

Communication cards

FX15 N2Open Communication Card..... LP-NET151-010C

FX15 LonWorks® Communication Card..... LP-NET152-010C

Mounting/Connection accessories

Link cable for the connection of the FX07/FX14/FX15/FX16 to the Panel Mount MUI display – 3 m (9.8 ft) LP-KIT007-000C

I/O Details					Accessories Included				Ordering Code
Analogue Input	Digital Input	Analogue Output	Digital Output (Relays)	Digital Output (Triacs)	Integrated Display	N2Open Communication Card	LonWorks® Communication Card	Removable Connectors	
6	8	4	4	5				●	LP-FX15D10-000C
6	8	4	4	5		●		●	LP-FX15D11-000C
6	8	4	4	5			●	●	LP-FX15D12-000C
6	8	4	4	5	●			●	LP-FX15D60-000C
6	8	4	4	5	●	●		●	LP-FX15D61-000C
6	8	4	4	5	●		●	●	LP-FX15D62-000C
6	8	4	9	-				●	LP-FX15D20-000C
6	8	4	9	-		●		●	LP-FX15D21-000C
6	8	4	9	-			●	●	LP-FX15D22-000C
6	8	4	9	-	●			●	LP-FX15D70-000C
6	8	4	9	-	●	●		●	LP-FX15D71-000C
6	8	4	9	-	●		●	●	LP-FX15D72-000C
6	8	4	4	5				●	LP-FX15X10-000C
6	8	4	4	5		●		●	LP-FX15X11-000C
6	8	4	4	5			●	●	LP-FX15X12-000C
6	8	4	9	-				●	LP-FX15X20-000C
6	8	4	9	-		●		●	LP-FX15X21-000C
6	8	4	9	-			●	●	LP-FX15X22-000C



Electronic control devices

Programmable digital controller

Facility Explorer

FX15 "Universal" field controller – 24VAC power supply



Features

- Freely programmable or configurable using FX Tools
- Standalone or network installation (via optional communication module for N2Open or LonWorks® networks)
- Events management
- Extension possibility via I/O modules
- Possibility of connecting two optional remote MUI displays
- Choice of optional User Interfaces, Integral and Remote
- DIN Rail mounting
- Multilanguage database for user interface (up to 5 languages per application)

Communication cards

FX15 N2Open Communication Card LP-NET151-000C

FX15 LonWorks® Communication Card LP-NET152-000C

Mounting/Connection accessories

Link cable for the connection of the FX07/FX14/FX15/FX16 to the Panel Mount MUI display – 3 m (9.8 ft) LP-KIT007-000C

I/O Details					Accessories Included			Ordering Code
Analogue Input	Digital Input	Analogue Output	Digital Output (Relays)	Digital Output (Triacs)	Integrated Display	N2Open Communication Card	LonWorks® Communication Card	
6	8	4	3	5				LP-FX15D00-000C
6	8	4	3	5		•		LP-FX15D01-000C
6	8	4	3	5			•	LP-FX15D02-000C
6	8	4	3	5	•			LP-FX15D50-000C
6	8	4	3	5	•	•		LP-FX15D51-000C
6	8	4	3	5	•		•	LP-FX15D52-000C



Electronic control devices

Programmable digital controller

Facility Explorer

FX16 Master controller – 24VAC power supply



Features

- Freely programmable or configurable using FX Tools
- Standalone or network installation (via optional communication card for BACnet®, N2Open or LONWORKS® networks)
- Direct or modem connection with PC (via optional RS232C communication card)
- Embedded Webserver
- Built-In E-mail and SMS manager
- Trend and event logging
- Extension possibility via I/O modules and/or maximum 16 “slave” controllers
- Possibility of connecting two optional remote MUI Displays
- Choice of optional user interfaces, integral and remote
- DIN rail mounting
- Multilanguage database for user display (up to 5 languages per application)

Communication cards

FX16 N2Open Communication Card.....	LP-NET161-000C
FX16 LONWORKS® Communication Card.....	LP-NET152-010C
FX16 RS232C Communication Card	LP-NET163-000C
FX07 BACnet® Communication Card	LP-NET164-000C

Mounting/Connection accessories

Link cable for the connection of the FX07/FX14/FX15/FX16 to the Panel Mount MUI display – 3 m (9.8 ft)	LP-KIT007-000C
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I/O Details					Accessories Included						Ordering Code
Analogue Input	Digital Input	Analogue Output	Digital Output (Relays)	Digital Output (Triacs)	Integrated Display	N2Open Communication Card	LONWORKS® Communication Card	RS232C Communication Card	BACnet® Communication Card	Removable Connectors	
6	8	4	9	-						•	LP-FX16X00-000C
6	8	4	9	-		•				•	LP-FX16X01-000C
6	8	4	9	-			•			•	LP-FX16X02-000C
6	8	4	9	-				•		•	LP-FX16X03-000C
6	8	4	9	-					•	•	LP-FX16X04-000C
6	8	4	4	5						•	LP-FX16X10-000C
6	8	4	4	5		•				•	LP-FX16X11-000C
6	8	4	4	5			•			•	LP-FX16X12-000C
6	8	4	4	5				•		•	LP-FX16X13-000C
6	8	4	4	5					•	•	LP-FX16X14-000C
6	8	4	9	-	•					•	LP-FX16X50-000C
6	8	4	9	-	•	•				•	LP-FX16X51-000C
6	8	4	9	-	•		•			•	LP-FX16X52-000C
6	8	4	9	-	•			•		•	LP-FX16X53-000C
6	8	4	9	-	•				•	•	LP-FX16X54-000C
6	8	4	4	5	•					•	LP-FX16X60-000C
6	8	4	4	5	•	•				•	LP-FX16X61-000C
6	8	4	4	5	•		•			•	LP-FX16X62-000C
6	8	4	4	5	•			•		•	LP-FX16X63-000C
6	8	4	4	5	•				•	•	LP-FX16X64-000C



Electronic control devices

Programmable digital controller

Facility Explorer

MD20 Master display – 24VAC power supply



Features

- Freely programmable or configurable using FX Tools
- Standalone or network installation (via N2Open and LowWorks® communication ports)
- Direct or modem connection with PC (via RS232C communication ports)
- Embedded Webserver
- Built-In E-mail, FAX and SMS manager
- Trend and event logging
- Extension possibility via I/O modules and/or maximum 8 "slave" controllers
- Serial printer port for recording events and trends
- Integrated graphical display (240x148 pixel) and selection keys
- DIN rail and panel door mounting
- Multilanguage database for user display (up to 5 languages per application)

Mounting/Connection accessories

Master Display Panel Mount Kit.....LP-KIT020-000C
MD20 Serial Commissioning Adapter LP-KIT007-015C

I/O Details		Accessories Included				Ordering Code
Digital Input	Digital Output (Relays)	Serial Printer Port	N2Open Communication Port	LowWorks® Communication Card	RS232 Communication Port	
2	2	●			●	LP-MD20D00-000C
2	8	●	●			LP-MD20D01-000C
2	8	●		●	●	LP-MD20D02-000C
2	8	●			●	LP-MD20D03-000C
2	8	●		●	●	LP-MD20D04-000C
2	8	●	●	●		LP-MD20D05-000C



Electronic control devices

Programmable digital controller

Accessories

Network Room Sensor Module

Network Room Sensor Module	Description	Compatibility						Ordering Code
		FX06	FX07	FX14	FX15	FX16	MD20	
	N2 Open Network Room Sensor Module, temperature output only - without LCD Display.	•	•	•				LP-NRM001-000C
	N2 Open Network Room Sensor Module, LCD display, temperature output and setpoint dial.	•	•	•				LP-NRM002-000C
	N2 Open Network Room Sensor Module, LCD display, temperature output, setpoint dial, °C/°F button.	•	•	•				LP-NRM052-000C
	N2 Open Network Room Sensor Module, LCD display, temperature output, setpoint dial, fan speed override.	•	•	•				LP-NRM003-000C
	N2 Open Network Room Sensor Module, LCD Display, temperature output, setpoint dial, fan speed override. °C/°F button.	•	•	•				LP-NRM053-000C

Medium User Interface (MUI) Display

MUI Display	Description	Compatibility					Ordering Code
		FX06	FX07	FX14	FX15	FX16	
	Medium User Interface v.3, (4 x26 char.) LCD blue/white backlit display, local panel mount (non-isolated version).	•	•	•	•	•	LP-DIS60P20-0C
	Medium User Interface v.3, (4 x26 char.) LCD blue/white backlit display, remote wall or panel mount (isolated version)	•	•	•	•	•	LP-DIS60P21-0C
	Link cable for the connection of FX07/FX14/FX15/FX16 to the MUI. (3m)		•	•	•	•	LP-KIT007-000C
	Link cable for the connection of FX06 to the MUI. (3m)	•					LP-KIT007-005C

Extension and Expansion I/O Modules

I/O Modules	Description	Compatibility						Ordering Code
		FX06	FX07	FX14	FX15	FX16	MD20	
	Extension Module				•	•	•	LP-XT91D00-000C
	Expansion Module: 6 AIs, 2 AOs				•	•	•	LP-XP91D02-000C
	Expansion Module: 8 DOs (triacs)				•	•	•	LP-XP91D03-000C
	Expansion Module: 4 DIs, 4 DOs (triacs)				•	•	•	LP-XP91D04-000C
	Expansion Module: 8 DIs				•	•	•	LP-XP91D05-000C
	Expansion Module: 4 DOs (relays) 230 VAC				•	•	•	LP-XP91D06-000C

Multimedia

Multimedia	Description	Compatibility						Ordering Code
		FX06	FX07	FX14	FX15	FX16	MD20	
	Modem: GSM 900/1800 FastTrack. Supreme 10	•	•	•		•	•	LP-KIT090-000C
	GSM modem plug-in antenna.	•	•	•		•	•	LP-KIT090-001C
	GSM modem magnetic mount antenna - 2.5m (8 ft) cable.	•	•	•		•	•	LP-KIT090-003C
	GSM modem panel mount antenna - 5m (16 ft) cable.	•	•	•		•	•	LP-KIT090-004C
	GSM modem power adapter, 230 VAC/12 VDC. Central European wall plug.	•	•	•		•	•	LP-KIT090-005C
	Link cable to standard modem - DB9, 1.5m (5 ft).					•	•	LP-KIT007-001C
	Link cable to GSM modem - DB15, 1.5m (5 ft).	•	•	•		•	•	LP-KIT007-002C
	Null modem link cable - RS-232, 3m (10 ft).					•	•	LP-KIT007-013C
	Null modem link cable - RS-232, 15m (49 ft).					•	•	LP-KIT007-014C

Software

FX TOOLS	Description	Compatibility						Ordering Code
		FX06	FX07	FX14	FX15	FX16	MD20	
	FX Tools Pro CD-Rom (FX Builder, FX Builder Express, FX CommPro N2, FX CommPro LON, FX CommPro BACnet®). New Users.	•	•	•	•	•	•	LP-FXTPRO-0
	FX Tools Pro CD-Rom (FX Builder, FX Builder Express, FX CommPro N2, FX CommPro LON, FX CommPro BACnet®). Update.	•	•	•	•	•	•	LP-FXTPRO-6



Electronic control devices

Programmable digital controller

System 91 N2

DX-9100 Controller – 24VAC power supply

Features

- Programmable and configurable using GX Tool
- Standalone or network installation (N2Open or LonWorks® communication)
- Time scheduling, optimal start and trending features
- Digital input transition counter and sequencer control module on digital outputs
- Optional integral LED display with selection buttons
- Choice of user interfaces, integral LED and optional local or remote DX LCD Display
- Panel DIN rail or cabinet door mounting
- Extension of inputs and outputs via XT/XP modules

Mounting Bases

Panel DIN Rail Mounting Base for DX-9100-8004 and -8454 Controller	DX-9100-8997
Cabinet Door Mounting Frame for DX-9100-8454 Controller	DX-9100-8996
FX06 Panel DIN Rail Mounting Base for DX-9121-8004 and 8454 Controller	DX-9121-8997
Cabinet Door Mounting Frame for DX-9121-8454 Controller	DX-9121-8996
Panel DIN Rail Mounting Base for DX-9200-8004 and 8454 Controller	DX-9200-8997
Cabinet Door Mounting Frame for DX-9200-8454 Controller	DX-9200-8996

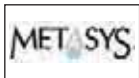
LCD Display

DX LCD Display (V3) for DX-9xxx-8454 Controller	DT-9100-8104
DX LCD Display (V4) for DX-9xxx-8004 Controller	DT-9100-8204
DX LCD Display Power Adapter	DT-9100-8901
DX LCD Display Wall Mounting Kit	DT-9100-8902

Accessories

Security Key for LED Display Operation	DC-9100-8905
DX Controller Download Cable RS232C (9 pin D-connector)	DX-9100-8992

I/O Details					Accessories Included							Ordering Code
Analogue Input	Digital Input	Analogue Output	Digital Output (Relays)	Digital Output (Triacs)	LED Display and Buttons	System 91 Communication Card	LonWorks® N2E Communication Card	LonWorks® Communication Card	RS232C Communication Port	DT-9100 LCD Display	XT Communication Port	
												Digital Controllers
8	8	8	-	6		•			•		•	DX-9100-8004
8	8	8	-	6	•	•			•		•	DX-9100-8454
8	8	8	-	6			•		•		•	DX-9121-8004
8	8	8	-	6	•		•		•		•	DX-9121-8454
8	8	8	-	6				•	•		•	DX-9200-8004x
8	8	8	-	6	•			•	•		•	DX-9200-8454x
8	8	8	-	6		•			•	•	•	DTDX-9100-8004
												Extension and Expansion I/O Modules
											•	XT-9100-8304
6	-	2	-	-								XP-9102-8304
-	-	-	-	8								XP-9103-8304
-	4	-	-	4								XP-9104-8304
-	8	-	-	-								XP-9105-8304
-	-	-	4	-								XP-9106-8304



Electronic control devices

Programmable digital controller

System 91 N2

XTM Extension/Expansion I/O modules - 24VAC power supply

Features

- Programmable and configurable using GX Tool or XTM Configurator
- Compatible with Metasys N2 Bus or DX-9100 XT Bus
- Modules with analogue inputs or analogue outputs
- Modules with digital inputs and digital outputs or two stage relay outputs
- Modules with triac outputs
- Available with an without manual override
- Panel DIN rail mounting
- Stick-on labels to identify names of inputs and outputs and manual overrides

Accessories

Labels for Module Front Panel

(Pack of 50 sheets with 12 labels each).....XST-101-0

I/O Details						Accessories Included							Ordering Code
Analogue Input	Digital Input	Analogue Output	Digital Output (Relays)	2 Stage Digital Output (Relays)	Digital Output (Triacs)	Optionally with Disconnect Terminals	Manual Override	System 91 N2 Communication Port	XT Communication Port	Compatible with Metasys NAE/NCM	Compatible with DX-9100	Compatible with FX Platform	
													Extension Modules
-	-	-	-	-	-			●		●			XTM-105
-	-	-	-	-	-				●		●		XTM-905
													Expansion I/O Modules
4	-	-	-	-	-	●				●	●		XPA-421-5
-	-	4	-	-	-	●	●			●	●		XPA-442-5
-	-	4	-	-	-	●				●	●		XPA-462-5
6	-	2	-	-	-	●				●	●		XPA-821-5
-	8	-	-	-	-	●				●	●		XPB-821-5
-	4	-	2	-	-	●	●			●	●		XPM-401-5
-	4	-	2	-	-	●				●	●		XPM-421-5
-	4	-	-	1	-	●	●			●			XPM-402-5
-	4	-	-	1	-	●				●			XPM-422-5
-	4	-	2	-	-	●	●			●	●		XPL-401-5
-	4	-	2	-	-	●				●	●		XPL-421-5
-	4	-	-	1	-	●	●			●			XPL-402-5
-	4	-	-	1	-	●				●			XPL-422-5
-	4	-	2	-	-	●	●			●	●		XPE-401-5
-	4	-	2	-	-	●				●	●		XPE-421-5
-	4	-	-	1	-	●	●			●			XPE-402-5
-	4	-	-	1	-	●				●			XPE-422-5
-	4	-	4	-	-	●	●			●	●		XPE-404-5
-	4	-	4	-	-	●				●	●		XPE-424-5
-	-	-	4	-	-	●	●			●	●		XPE-444-5
-	-	-	4	-	-	●				●	●		XPE-464-5
-	4	-	-	-	4	●	●			●	●		XPT-401-5
-	4	-	-	-	4	●				●	●		XPT-421-5
-	-	-	-	-	8	●				●	●		XPT-861-5



Electronic control devices

Programmable digital controller

System 91 N2

Terminal unit controller TC-910x Series - 24VAC power supply

Features

- Fixed configurations for fan coil and chilled ceiling applications with software commissioning tool
- Compatible with TM1100 series room modules
- Universal controller version for free configuration
- Universal controller compatible with RS-1180 room module with temperature display
- Multiple modes of operation for energy saving according to occupancy and outside temperature
- Relay outputs for fan control, 24VAC triacs or 0-10VDC for heating and cooling valves
- Panel DIN Rail or surface mounting
- System 91 N2 port for commissioning and integration in building control systems

Accessories

Unit Mount NTC 2.25K Temperature Sensor (1.5 m cable) TE-9100-8501
Condensation (Dew Point) Sensor (Strap-on) HX-9100-8001



I/O Details									Accessories Included							N2	Ordering Code
Window Contact	Occupancy Sensor	Condensation Sensor	Free Binary Inputs	Temperature Sensor	TM-1100 Series Room Module	Setpoint 12-28°C	Setpoint +/- 3K	Free Analogue Inputs	Heating Output	Cooling Output	Free Analogue Outputs 0-10VDC	Free Triac Outputs	Single Speed Fan 230VAC	Three Speed Fan 230VAC	N2 System 91 Communication		
FCU Controllers																	
●	●	-	-	●	●	●	-	-	10V	10V	-	-	●	-	●	TC-9102-0221	
●	●	-	-	●	●	●	●	-	10V	10V	-	-	●	-	●	TC-9102-0226	
●	●	-	-	●	●	●	-	-	DAT	DAT	-	-	●	-	●	TC-9102-0441	
●	●	-	-	●	●	●	●	-	DAT	DAT	-	-	●	-	●	TC-9102-0446	
●	●	-	-	●	●	●	-	-	PAT	PAT	-	-	●	-	●	TC-9102-0551	
●	●	-	-	●	●	●	●	-	PAT	PAT	-	-	●	-	●	TC-9102-0556	
●	●	-	-	●	●	●	-	-	2St	2St	-	-	●	-	●	TC-9102-0661	
●	●	-	-	●	●	●	●	-	2St	2St	-	-	●	-	●	TC-9102-0666	
●	●	-	-	●	●	●	-	-	10V	10V	-	-	-	●	●	TC-9102-0222	
●	●	-	-	●	●	●	●	-	10V	10V	-	-	-	●	●	TC-9102-0227	
●	●	-	-	●	●	●	-	-	DAT	DAT	-	-	-	●	●	TC-9102-0442	
●	●	-	-	●	●	●	●	-	DAT	DAT	-	-	-	●	●	TC-9102-0447	
●	●	-	-	●	●	●	-	-	PAT	PAT	-	-	-	●	●	TC-9102-0552	
●	●	-	-	●	●	●	●	-	PAT	PAT	-	-	-	●	●	TC-9102-0557	
●	●	-	-	●	●	●	●	-	2St	2St	-	-	-	●	●	TC-9102-0662	
●	●	-	-	●	●	●	●	-	2St	2St	-	-	-	●	●	TC-9102-0667	
Chilled Ceiling Controllers																	
-	●	●	-	●	●	●	-	-	10V	10V	-	-	-	-	●	TC-9109-0204	
-	●	●	-	●	●	●	●	-	10V	10V	-	-	-	-	●	TC-9109-0209	
-	●	●	-	●	●	●	-	-	DAT	DAT	-	-	-	-	●	TC-9109-0440	
-	●	●	-	●	●	-	●	-	DAT	DAT	-	-	-	-	●	TC-9109-0445	
-	●	●	-	●	●	-	-	-	DAT	10V	-	-	-	-	●	TC-9109-0404	
-	●	●	-	●	●	●	●	-	DAT	10V	-	-	-	-	●	TC-9109-0409	
-	●	●	-	●	●	●	●	-	PAT	PAT	-	-	-	-	●	TC-9109-0550	
-	●	●	-	●	●	●	●	-	PAT	PAT	-	-	-	-	●	TC-9109-0555	
-	●	●	-	●	●	●	-	-	PAT	10V	-	-	-	-	●	TC-9109-0504	
-	●	●	-	●	●	-	●	-	PAT	10V	-	-	-	-	●	TC-9109-0509	
Universal Controllers																	
-	-	●	2	-	-	-	-	4	-	-	3	5	-	-	●	TC-9100-0000	
-	-	●	2	-	-	-	-	4	-	-	0	7	-	-	●	TC-9100-0001	

Output types:

24VAC triac: PAT = Position Adjust Type (incremental actuator), DAT = Duration Adjust Type (thermal actuator), 2St = Two Stage On/Off

Analogue output: 10V = 0 to 10VDC



Electronic control devices

LONWORKS® digital controllers

Terminal unit controller

TCU Series - 24VAC power supply - 2 pipe FCU applications

Features

- Fixed configurations for fan coil applications with software commissioning tool
- Compatible with TM1100 series room modules
- Compatible with any LONMARK® room command module (including AD-RCM with LCD display)
- Multiple modes of operation for energy saving according to occupancy and outside temperature
- Relay outputs for fan control, 24VAC triacs or 0-10VDC for heating/cooling valve
- Spare triac output available for on/off lighting control
- Master/slave controller operation by LONWORKS® network variable binding
- Panel DIN Rail mounting
- LONWORKS® network port for commissioning and integration in building controlsystems

Accessories

Unit Mount NTC 2.25K Temperature Sensor (1.5 m cable) TE-9100-8501
Configuration and commissioning tool software COMM-PRO-0



Input Functions									Output Functions					LON	Ordering Code
Window Contact	Occupancy Sensor	Heat/Cool Select Contact	General Status	Temperature Sensor	TM-1100 Series Room Module	Setpoint 12-28°C	Setpoint +/- 3K	Aux. Temperature Sensor	Heating/Cooling Output	Lighting Output	Variable Speed Fan	Single Speed Fan 230VAC	Three Speed Fan 230VAC	LONWORKS® Communication	
															FCU Controllers
•	•	•	-	•	•	•	-	•	10V	•	-	•	-	•	AD-TCU1215-1AAA
•	•	•	-	•	•	•	-	•	10V	•	-	•	-	•	AD-TCU1215-1ABA
•	•	•	-	•	•	•	-	•	DAT	•	-	•	-	•	AD-TCU1225-1AAC
•	•	•	-	•	•	•	-	•	DAT	•	-	•	-	•	AD-TCU1225-1ABC
•	•	•	-	•	•	•	-	•	PAT	•	-	•	-	•	AD-TCU1225-1AAD
•	•	•	-	•	•	•	-	•	PAT	•	-	•	-	•	AD-TCU1225-1ABD
•	•	•	-	•	•	•	-	•	10V	•	-	•	-	•	AD-TCU1215-1EAA
•	•	•	-	•	•	•	-	•	10V	•	-	•	-	•	AD-TCU1215-1EBA
•	•	•	-	•	•	•	-	•	DAT	•	-	•	-	•	AD-TCU1225-1EAC
•	•	•	-	•	•	•	-	•	DAT	•	-	•	-	•	AD-TCU1225-1EBC
•	•	•	-	•	•	•	-	•	PAT	•	-	•	-	•	AD-TCU1225-1EAD
•	•	•	-	•	•	•	-	•	PAT	•	-	•	-	•	AD-TCU1225-1EBD
•	•	•	-	•	•	•	-	•	10V	•	-	-	•	•	AD-TCU2215-1AAA
•	•	•	-	•	•	•	-	•	10V	•	-	-	•	•	AD-TCU2215-1ABA
•	•	•	-	•	•	•	-	•	DAT	•	-	-	•	•	AD-TCU2225-1AAC
•	•	•	-	•	•	•	-	•	DAT	•	-	-	•	•	AD-TCU2225-1ABC
•	•	•	-	•	•	•	-	•	PAT	•	-	-	•	•	AD-TCU2225-1AAD
•	•	•	-	•	•	•	-	•	PAT	•	-	-	•	•	AD-TCU2225-1ABD
•	•	•	-	•	•	•	-	•	10V	•	-	-	•	•	AD-TCU2215-1EAA
•	•	•	-	•	•	•	-	•	10V	•	-	-	•	•	AD-TCU2215-1EBA
•	•	•	-	•	•	•	-	•	DAT	•	-	-	•	•	AD-TCU2225-1EAC
•	•	•	-	•	•	•	-	•	DAT	•	-	-	•	•	AD-TCU2225-1EBC
•	•	•	-	•	•	•	-	•	PAT	•	-	-	•	•	AD-TCU2225-1EAD
•	•	•	-	•	•	•	-	•	PAT	•	-	-	•	•	AD-TCU2225-1EBD

Output types:

24VAC triac: PAT = Position Adjust Type (incremental actuator), DAT = Duration Adjust Type (thermal actuator)

Analogue output: 10V = 0 to 10VDC



Electronic control devices

LONWORKS® digital controllers

Terminal unit controller

TCU Series - 24VAC power supply - 4 pipe FCU applications

Features

- Fixed configurations for fan coil applications with software commissioning tool
- Compatible with TM1100 series room modules
- Compatible with any LONMARK® room command module (including AD-RCM with LCD display)
- Multiple modes of operation for energy saving according to occupancy and outside temperature
- Relay outputs for fan control, 24VAC triacs or 0-10VDC for heating and cooling valves
- Spare triac output available for on/off lighting control
- Master/slave controller operation by LONWORKS® network variable binding
- Panel DIN Rail mounting
- LONWORKS® network port for commissioning and integration in building control systems

Accessories

Unit Mount NTC 2.25K Temperature Sensor (1.5 m cable) TE-9100-8501



Input Functions									Output Functions						LON	Ordering Code
Window Contact	Occupancy Sensor	Condensation Sensor	General Status	Temperature Sensor	TM-1100 Series Room Module	Setpoint 12-28°C	Setpoint +/- 3K	Aux. Temperature Sensor	Heating Output	Cooling Output	Lighting Output	Variable Speed Fan	Single Speed Fan 230VAC	Three Speed Fan 230VAC	LONWORKS® Communication	
																FCU Controllers
•	•	-	•	•	•	•	-	•	10V	10V	-	-	•	-	•	AD-TCU1205-1BAA
•	•	-	•	•	•	-	•	•	10V	10V	-	-	-	-	•	AD-TCU1205-1BBA
•	•	-	•	•	•	•	-	•	DAT	DAT	•	-	•	-	•	AD-TCU1225-1BAC
•	•	-	•	•	•	-	-	•	DAT	DAT	•	-	•	-	•	AD-TCU1225-1BBC
•	•	-	•	•	•	•	-	•	PAT	PAT	-	-	•	-	•	AD-TCU1225-1BAD
•	•	-	•	•	•	-	•	•	PAT	PAT	-	-	•	-	•	AD-TCU1225-1BBD
•	•	-	•	•	•	•	-	•	2St	2St	-	-	•	-	•	AD-TCU1225-1BAE
•	•	-	•	•	•	-	-	•	2St	2St	-	-	•	-	•	AD-TCU1225-1BBE
•	•	-	•	•	•	-	-	•	DAT	10V	•	-	•	-	•	AD-TCU1215-1BAG
•	•	-	•	•	•	-	•	•	DAT	10V	•	-	•	-	•	AD-TCU1215-1BBG
•	•	-	•	•	•	•	-	•	PAT	10V	-	-	•	-	•	AD-TCU1215-1BAH
•	•	-	•	•	•	-	-	•	PAT	10V	-	-	•	-	•	AD-TCU1215-1BBH
•	•	-	•	•	•	•	-	•	2St	10V	-	-	•	-	•	AD-TCU1215-1BAJ
•	•	-	•	•	•	-	•	•	2St	10V	-	-	•	-	•	AD-TCU1215-1BBJ
•	•	-	•	•	•	-	-	•	OnOff	OnOff	•	•	-	-	•	AD-TCU1215-1DAB
•	•	-	•	•	•	•	-	•	OnOff	OnOff	•	•	-	-	•	AD-TCU1215-1DBB
•	•	-	•	•	•	•	-	•	DAT	DAT	•	•	-	-	•	AD-TCU1215-1DAC
•	•	-	•	•	•	-	•	•	DAT	DAT	•	•	-	-	•	AD-TCU1215-1DBC
•	•	-	•	•	•	-	-	•	10V	10V	-	-	-	•	•	AD-TCU2205-1BAA
•	•	-	•	•	•	-	-	•	10V	10V	-	-	-	•	•	AD-TCU2205-1BBA
•	•	-	•	•	•	•	-	•	DAT	DAT	•	-	-	•	•	AD-TCU2225-1BAC
•	•	-	•	•	•	-	•	•	DAT	DAT	•	-	-	•	•	AD-TCU2225-1BBC
•	•	-	•	•	•	-	-	•	PAT	PAT	-	-	-	•	•	AD-TCU2225-1BAD
•	•	-	•	•	•	•	-	•	PAT	PAT	-	-	-	•	•	AD-TCU2225-1BBD
•	•	-	•	•	•	•	-	•	2St	2St	-	-	-	•	•	AD-TCU2225-1BAE
•	•	-	•	•	•	-	-	•	2St	2St	-	-	-	•	•	AD-TCU2225-1BBE
•	•	-	•	•	•	-	-	•	DAT	10V	•	-	-	•	•	AD-TCU2215-1BAG
•	•	-	•	•	•	-	•	•	DAT	10V	•	-	-	•	•	AD-TCU2215-1BBG
•	•	-	•	•	•	•	-	•	PAT	10V	-	-	-	•	•	AD-TCU2215-1BAH
•	•	-	•	•	•	-	-	•	PAT	10V	-	-	-	•	•	AD-TCU2215-1BBH
•	•	-	•	•	•	•	-	•	2St	10V	-	-	-	•	•	AD-TCU2215-1BAJ
•	•	-	•	•	•	-	•	•	2St	10V	-	-	-	•	•	AD-TCU2215-1BBJ

Output types:

24VAC triac: PAT = Position Adjust Type (incremental actuator), DAT = Duration Adjust Type (thermal actuator), 2St = Two Stage On/Off

Analogue output: 10V = 0 to 10VDC



Electronic control devices

LONWORKS® digital controllers

Terminal unit controller

TCU Series - 24VAC power supply - chilled ceiling applications

Features

- Fixed configurations for chilled ceiling applications with software commissioning tool
- Compatible with TM1100 series room modules
- Compatible with any LONMARK® room command module (including AD-RCM with LCD display)
- Multiple modes of operation for energy saving according to occupancy and outside temperature
- Relay outputs for fan control, 24VAC triacs or 0-10VDC for heating and cooling valves
- Spare triac output available for on/off lighting control
- Master/slave controller operation by LONWORKS® network variable binding
- Panel DIN Rail mounting
- LONWORKS® network port for commissioning and integration in building control systems

Accessories

Unit Mount NTC 2.25K Temperature Sensor (1.5 m cable) TE-9100-8501
 Condensation (Dew Point) Sensor (Strap-on) HX-9100-8001
 Configuration and commissioning tool software COMM-PRO-0



Input Functions									Output Functions						LON	Ordering Code
Window Contact	Occupancy Sensor	Condensation Sensor	General Status	Temperature Sensor	TM-1100 Series Room Module	Setpoint 12-28°C	Setpoint +/- 3K	Aux. Temperature Sensor	Heating Output	Cooling Output	Lighting Output	Variable Speed Fan	Single Speed Fan 230VAC or Damper	Three Speed Fan 230VAC	LONWORKS® Communication	
•	•	•	-	•	•	•	-	•	10V	10V	-	-	•	-	•	Chilled Ceiling Controllers
•	•	•	-	•	•	-	•	•	10V	10V	-	-	•	-	•	AD-TCU1205-1CAA
•	•	•	-	•	•	•	-	•	DAT	DAT	•	-	•	-	•	AD-TCU1205-1CBA
•	•	•	-	•	•	-	•	•	DAT	DAT	•	-	•	-	•	AD-TCU1225-1CAC
•	•	•	-	•	•	•	-	•	PAT	PAT	-	-	•	-	•	AD-TCU1225-1CBC
•	•	•	-	•	•	-	•	•	PAT	PAT	-	-	•	-	•	AD-TCU1225-1CAD
•	•	•	-	•	•	•	-	•	PAT	PAT	-	-	•	-	•	AD-TCU1225-1CBD
•	•	•	-	•	•	•	-	•	DAT	10V	•	-	•	-	•	AD-TCU1215-1CAG
•	•	•	-	•	•	-	•	•	DAT	10V	•	-	•	-	•	AD-TCU1215-1CBG
•	•	•	-	•	•	•	-	•	PAT	10V	-	-	•	-	•	AD-TCU1215-1CAH
•	•	•	-	•	•	-	•	•	PAT	10V	-	-	•	-	•	AD-TCU1215-1CBH
•	•	•	-	•	•	•	-	•	2St	10V	-	-	•	-	•	AD-TCU1215-1CAJ
•	•	•	-	•	•	-	•	•	2St	10V	-	-	•	-	•	AD-TCU1215-1CBJ

Output types:

24VAC triac: PAT = Position Adjust Type (incremental actuator), DAT = Duration Adjust Type (thermal actuator), 2St = Two Stage On/Off
 Analogue output: 10V = 0 to 10VDC



Electronic control devices

LONWORKS® digital controllers

Terminal unit controller

TCU Series - 230VAC power supply - 2 pipe FCU applications

Features

- Fixed configurations for fan coil applications with software commissioning tool
- Compatible with TM1100 series room modules
- Compatible with any LONMARK® room command module (including AD-RCM with LCD display)
- Multiple modes of operation for energy saving according to occupancy and outside temperature
- Relay outputs for fan control, 24VAC triacs (6VA max.) or 0-10VDC for heating/cooling valve
- Spare triac output available for on/off lighting control
- Master/slave controller operation by LONWORKS® network variable binding
- Panel DIN Rail mounting
- LONWORKS® network port for commissioning and integration in building control systems

Accessories

Unit Mount NTC 2.25K Temperature Sensor (1.5 m cable) TE-9100-8501
Configuration and commissioning tool software COMM-PRO-0

Input Functions									Output Functions					LON	Ordering Code
Window Contact	Occupancy Sensor	Heat/Cool Select Contact	General Status	Temperature Sensor	TM-1100 Series Room Module	Setpoint 12-28°C	Setpoint +/- 3K	Aux. Temperature Sensor	Heating/Cooling Output	Lighting Output	Variable Speed Fan	Single Speed Fan 230VAC	Three Speed Fan 230VAC	LONWORKS® Communication	
FCU Controllers															
•	•	•	-	•	•	•	-	•	10V	•	-	•	-	•	AD-TCU5215-1AAA
•	•	•	-	•	•	•	-	•	10V	•	-	•	-	•	AD-TCU5215-1ABA
•	•	•	-	•	•	•	-	•	DAT	•	-	•	-	•	AD-TCU5225-1AAC
•	•	•	-	•	•	•	-	•	DAT	•	-	•	-	•	AD-TCU5225-1ABC
•	•	•	-	•	•	•	-	•	PAT	•	-	•	-	•	AD-TCU5225-1AAD
•	•	•	-	•	•	•	-	•	PAT	•	-	•	-	•	AD-TCU5225-1ABD
•	•	•	-	•	•	•	-	•	10V	•	-	•	-	•	AD-TCU5215-1EAA
•	•	•	-	•	•	•	-	•	10V	•	-	•	-	•	AD-TCU5215-1EBA
•	•	•	-	•	•	•	-	•	DAT	•	-	•	-	•	AD-TCU5225-1EAC
•	•	•	-	•	•	•	-	•	DAT	•	-	•	-	•	AD-TCU5225-1EBC
•	•	•	-	•	•	•	-	•	PAT	•	-	•	-	•	AD-TCU5225-1EAD
•	•	•	-	•	•	•	-	•	PAT	•	-	•	-	•	AD-TCU5225-1EBD
•	•	•	-	•	•	•	-	•	10V	•	-	-	•	•	AD-TCU6215-1AAA
•	•	•	-	•	•	•	-	•	10V	•	-	-	•	•	AD-TCU6215-1ABA
•	•	•	-	•	•	•	-	•	DAT	•	-	-	•	•	AD-TCU6225-1AAC
•	•	•	-	•	•	•	-	•	DAT	•	-	-	•	•	AD-TCU6225-1ABC
•	•	•	-	•	•	•	-	•	PAT	•	-	-	•	•	AD-TCU6225-1AAD
•	•	•	-	•	•	•	-	•	PAT	•	-	-	•	•	AD-TCU6225-1ABD
•	•	•	-	•	•	•	-	•	10V	•	-	-	•	•	AD-TCU6215-1EAA
•	•	•	-	•	•	•	-	•	10V	•	-	-	•	•	AD-TCU6215-1EBA
•	•	•	-	•	•	•	-	•	DAT	•	-	-	•	•	AD-TCU6225-1EAC
•	•	•	-	•	•	•	-	•	DAT	•	-	-	•	•	AD-TCU6225-1EBC
•	•	•	-	•	•	•	-	•	PAT	•	-	-	•	•	AD-TCU6225-1EAD
•	•	•	-	•	•	•	-	•	PAT	•	-	-	•	•	AD-TCU6225-1EBD

Output types:

24VAC triac (6VA max.): PAT = Position Adjust Type (incremental actuator), DAT = Duration Adjust Type (thermal actuator)

Analogue output: 10V = 0 to 10VDC



Electronic control devices

LONWORKS[®] digital controllers

Terminal unit controller

TCU Series - 230VAC power supply - 4 pipe FCU applications

Features

- Fixed configurations for fan coil applications with software commissioning tool
- Compatible with TM1100 series room modules
- Compatible with any LONMARK[®] room command module (including AD-RCM with LCD display)
- Multiple modes of operation for energy saving according to occupancy and outside temperature
- Relay outputs for fan control, 24VAC triacs (6VA max.) or 0-10VDC for heating and cooling valves
- Spare triac output available for on/off lighting control
- Master/slave controller operation by LONWORKS[®] network variable binding
- Panel DIN Rail mounting
- LONWORKS[®] network port for commissioning and integration in building control systems

Accessories

Unit Mount NTC 2.25K Temperature Sensor (1.5 m cable) TE-9100-8501
Configuration and commissioning tool software COMM-PRO-0

Input Functions									Output Functions						LON	Ordering Code
Window Contact	Occupancy Sensor	Condensation Sensor	General Status	Temperature Sensor	TM-1100 Series Room Module	Setpoint 12-28°C	Setpoint +/- 3K	Aux. Temperature Sensor	Heating Output	Cooling Output	Lighting Output	Variable Speed Fan	Single Speed Fan 230VAC	Three Speed Fan 230VAC	LONWORKS [®] Communication	
																FCU Controllers
•	•	-	•	•	•	•	-	•	10V	10V	-	-	•	-	•	AD-TCU5205-1BAA
•	•	-	•	•	•	-	-	•	10V	10V	-	-	•	-	•	AD-TCU5205-1BBA
•	•	-	•	•	•	-	-	•	DAT	DAT	•	-	•	-	•	AD-TCU5225-1BAC
•	•	-	•	•	•	-	•	•	DAT	DAT	•	-	•	-	•	AD-TCU5225-1BBC
•	•	-	•	•	•	-	-	•	PAT	PAT	-	-	•	-	•	AD-TCU5225-1BAD
•	•	-	•	•	•	-	-	•	PAT	PAT	-	-	•	-	•	AD-TCU5225-1BBD
•	•	-	•	•	•	•	-	•	2St	2St	-	-	•	-	•	AD-TCU5225-1BAE
•	•	-	•	•	•	-	•	•	2St	2St	-	-	•	-	•	AD-TCU5225-1BBE
•	•	-	•	•	•	-	-	•	DAT	10V	•	-	•	-	•	AD-TCU5215-1BAG
•	•	-	•	•	•	-	-	•	DAT	10V	•	-	•	-	•	AD-TCU5215-1BBG
•	•	-	•	•	•	-	-	•	PAT	10V	-	-	•	-	•	AD-TCU5215-1BAH
•	•	-	•	•	•	-	•	•	PAT	10V	-	-	•	-	•	AD-TCU5215-1BBH
•	•	-	•	•	•	•	-	•	2St	10V	-	-	•	-	•	AD-TCU5215-1BAJ
•	•	-	•	•	•	-	•	•	2St	10V	-	-	•	-	•	AD-TCU5215-1BBJ
•	•	-	•	•	•	-	-	•	OnOff	OnOff	•	•	-	-	•	AD-TCU5215-1DAB
•	•	-	•	•	•	-	•	•	OnOff	OnOff	•	•	-	-	•	AD-TCU5215-1DBB
•	•	-	•	•	•	•	-	•	DAT	DAT	•	•	-	-	•	AD-TCU5215-1DAC
•	•	-	•	•	•	-	-	•	DAT	DAT	•	•	-	-	•	AD-TCU5215-1DBC
•	•	-	•	•	•	-	-	•	10V	10V	-	-	-	•	•	AD-TCU6205-1BAA
•	•	-	•	•	•	-	•	•	10V	10V	-	-	-	•	•	AD-TCU6205-1BBA
•	•	-	•	•	•	•	-	•	DAT	DAT	•	-	-	•	•	AD-TCU6225-1BAC
•	•	-	•	•	•	-	•	•	DAT	DAT	•	-	-	•	•	AD-TCU6225-1BBC
•	•	-	•	•	•	-	-	•	PAT	PAT	-	-	-	•	•	AD-TCU6225-1BAD
•	•	-	•	•	•	-	•	•	PAT	PAT	-	-	-	•	•	AD-TCU6225-1BBD
•	•	-	•	•	•	•	-	•	2St	2St	-	-	-	•	•	AD-TCU6225-1BAE
•	•	-	•	•	•	-	•	•	2St	2St	-	-	-	•	•	AD-TCU6225-1BBE
•	•	-	•	•	•	-	-	•	DAT	10V	•	-	-	•	•	AD-TCU6215-1BAG
•	•	-	•	•	•	-	•	•	DAT	10V	•	-	-	•	•	AD-TCU6215-1BBG
•	•	-	•	•	•	•	-	•	PAT	10V	-	-	-	•	•	AD-TCU6215-1BAH
•	•	-	•	•	•	-	•	•	PAT	10V	-	-	-	•	•	AD-TCU6215-1BBH
•	•	-	•	•	•	-	-	•	2St	10V	-	-	-	•	•	AD-TCU6215-1BAJ
•	•	-	•	•	•	-	•	•	2St	10V	-	-	-	•	•	AD-TCU6215-1BBJ

Output types:

24VAC triac (6VA max.): PAT = Position Adjust Type (incremental actuator), DAT = Duration Adjust Type (thermal actuator), 2St = Two Stage On/Off
Analogue output: 10V = 0 to 10VDC



Electronic control devices

LONWORKS® digital controllers

Terminal unit controller

TCU Series - 230VAC power supply - chilled ceiling applications

Features

- Fixed configurations for chilled ceiling applications with software commissioning tool
- Compatible with TM1100 series room modules
- Compatible with any LONMARK® room command module (including AD-RCM with LCD display)
- Multiple modes of operation for energy saving according to occupancy and outside temperature
- Relay outputs for fan control, 24VAC triacs (6VA max.) or 0-10VDC for heating and cooling valves
- Spare triac output available for on/off lighting control
- Master/slave controller operation by LONWORKS® network variable binding
- Panel DIN Rail mounting
- LONWORKS® network port for commissioning and integration in building control systems

Accessories

Unit Mount NTC 2.25K Temperature Sensor (1.5 m cable) TE-9100-8501
 Condensation (Dew Point) Sensor (Strap-on) HX-9100-8001
 Configuration and commissioning tool software COMM-PRO-0

Input Functions									Output Functions						LON	Ordering Code
Window Contact	Occupancy Sensor	Condensation Sensor	General Status	Temperature Sensor	TM-1100 Series Room Module	Setpoint 12-28°C	Setpoint +/- 3K	Aux. Temperature Sensor	Heating Output	Cooling Output	Lighting Output	Variable Speed Fan	Single Speed Fan 230VAC or Damper	Three Speed Fan 230VAC	LONWORKS® Communication	
																Chilled Ceiling Controllers
•	•	•	-	•	•	•	-	•	10V	10V	-	-	•	-	•	AD-TCU5205-1CAA
•	•	•	-	•	•	-	•	•	10V	10V	-	-	•	-	•	AD-TCU5205-1CBA
•	•	•	-	•	•	•	-	•	DAT	DAT	•	-	•	-	•	AD-TCU5225-1CAC
•	•	•	-	•	•	-	•	•	DAT	DAT	•	-	•	-	•	AD-TCU5225-1CBC
•	•	•	-	•	•	•	-	•	PAT	PAT	-	-	•	-	•	AD-TCU5225-1CAD
•	•	•	-	•	•	-	•	•	PAT	PAT	-	-	•	-	•	AD-TCU5225-1CBD
•	•	•	-	•	•	•	-	•	DAT	10V	•	-	•	-	•	AD-TCU5215-1CAG
•	•	•	-	•	•	-	•	•	DAT	10V	•	-	•	-	•	AD-TCU5215-1CBG
•	•	•	-	•	•	•	-	•	PAT	10V	-	-	•	-	•	AD-TCU5215-1CAH
•	•	•	-	•	•	-	•	•	PAT	10V	-	-	•	-	•	AD-TCU5215-1CBH
•	•	•	-	•	•	•	-	•	2St	10V	-	-	•	-	•	AD-TCU5215-1CAJ
•	•	•	-	•	•	-	•	•	2St	10V	-	-	•	-	•	AD-TCU5215-1CBJ

Output types:

24VAC triac (6VA max.): PAT = Position Adjust Type (incremental actuator), DAT = Duration Adjust Type (thermal actuator), 2St = Two Stage On/Off

Analogue output: 10V = 0 to 10VDC



Electronic control devices

LONWORKS® digital controllers

Integrated room control

AD-FCC, AD-FCD and AD-IRC controller series - 230VAC power supply

Features

- Configuration using any LONMARK® compatible LONWORKS® network or commissioning tool
- Single point of control for environmental comfort for the occupants - temperature, lighting, sunblinds
- Modular configuration of hardware for HVAC, lighting and sunblind control with simple serial bus
- Choice of user interfaces with LCD display for temperature/fan, back-lit buttons for lights/sunblinds
- LONWORKS® peer-to-peer communications network between rooms
- Master/slave controller operation by LONWORKS® network variable binding
- Relay outputs for fan and electric heater control, 230VAC triacs or 0-10VDC for heating and cooling valves
- Panel DIN Rail or surface mounting. Lighting and sunblind modules need no extra enclosure
- Each HVAC, lighting and sunblind control module is separately powered by 230VAC

Accessories

Connector Kit for AD-IRL1025-0 (Power + 2 x Lighting Circuit).....	AD-IRL1025CK-0
Connector Kit for AD-IRL2025-0 (Power + 2 x Lighting/Dimming Circuit).....	AD-IRL2025CK-0
Connector Kit for AD-IRS1035-0 (Power + 3 x Sunblind Circuit).....	AD-IRS1035CK-0
Connector Kit for AD-ILS1035-0 (Power + 2 x Lighting + Sunblind Circuit).....	AD-ILS1035CK-0
Serial bus cable RJ9 to RJ11 - Length 30cm	AD-IRCBL911S-0
Serial bus cable RJ9 to RJ11 - Length 6m	AD-IRCBL911L-0
Serial bus cable RJ9 to RJ9 - Length 30cm	AD-IRCBL99S-0
Serial bus cable RJ9 to RJ9 - Length 6m	AD-IRCBL99L-0
Connectors RJ9 - Pack of 50	AD-IRCKJ09-0
Connectors RJ11 - Pack of 50	AD-IRCKJ11-0
Unit Mount NTC 10K Temperature Sensor (1.5 m cable).....	TE-9100-8502

Input Functions					Output Functions							Comms		Ordering Code	
Window Contact	Auxiliary Input	Temperature Sensor	Setpoint (TM-2100 Series)	Presence Detector	Three Speed Fan 230VAC	230VAC Triac for DAO Actuators	0-10V for Actuators	Electric Heater 2KW	Lighting On/Off	Lighting On/Off with Dimming	Sunblinds	IRC Serial Bus	LowWorks® Communication Card		
														Digital Controllers	
●	●	●	●	-	●	●	-	●	-	-	-	-	●	AD-FCC4245-0	
●	●	●	-	-	●	●	-	●	-	-	-	-	●	AD-FCD4245-0	
●	●	●	-	●	●	-	●	●	-	-	-	●	●	AD-IRC4205-0	
●	●	●	-	●	●	●	-	●	-	-	-	●	●	AD-IRC4245-0	
-	-	-	-	-	-	-	-	-	2	-	1	●	-	AD-ILS1035-0	
-	-	-	-	-	-	-	-	-	2	-	-	●	-	AD-IRL1025-0	
-	-	-	-	-	-	-	-	-	-	2	-	●	-	AD-IRL2025-0	
-	-	-	-	-	-	-	-	-	-	-	3	●	-	AD-IRS1035-0	
														Integrated Room Modules	
-	-	●	C	-	C	-	-	-	-	-	-	●	-	AD-IRM1005-0	
-	-	●	C	-	C	-	-	-	-	c2	-	●	-	AD-IRM1015-0	
-	-	●	C	-	C	-	-	-	-	c2	c1	●	-	AD-IRM1025-0	
-	-	●	C	-	C	-	-	-	-	c2	c2	●	-	AD-IRM1035-0	

c = user control from room module



Electronic control devices

Room sensors and thermostats

Features room sensors / room command modules

- Temperature and relative humidity measurement
- Remote temperature setpoint adjustment
- Fan speed override
- Occupancy override
- Various analogue outputs or networked outputs (BACnet, N2 Open, LON)
- Models with and without display
- Modern aesthetic style
- Suitable to Johnson Controls and 3rd party controllers

Features Room Thermostats

- Temperature measurement
- Remote temperature setpoint adjustment
- Fan speed override
- Occupancy override
- Stand alone or networked
- Models with and without display
- Valve control
- Fan speed control



Product Series	Temperature Outputs	RH% Outputs	Remote Temperature Setpoint Adjustment	Fan Speed Override	Occupancy override	Light and Sunblinds Adjustment	Analogue outputs	Network outputs	Display	Valve Control	Fan Speed Control	Size mm		Controller Compatibility
												80x80	80x120	
TM-1100	NTC K2		•	•	•		•					•		System 91
TM-2100	NTC K10		•	•	•		•					•		Facility Explorer, System 91
RS-1100	0...10 VDC		•	•	•		•		•			•		Facility Explorer, System 91
A99	A99						•					•		Facility Explorer, System 91, Nova 27
HT-9000	various	0...10 VDC					•					•		Facility Explorer, System 91
LP-NRM	N2 Open		•	•	•			N2 Open	•			•	•	Facility Explorer
AD-RCM	LON		•	•	•			LON	•			•		System 91
TC-8900	NTC K10		•	•	•		•			•	•	•		No controllers needed
TEC	N2 Open BACnet LON		•	•	•		•	N2 Open BACnet LON	•	•	•		•	No controllers needed

Electronic control devices

Wireless room sensor



Features

Many-to-One Wireless radio frequency design
 One-to-One Wireless radio frequency design
 10dBm transmission power (CE Mark)
 1.5Vdc AA alkaline battery
 Temperature measurement
 Remote temperature and setpoint adjustment
 Occupancy Override
 Modern aesthetic style
 RF Band 2.4 GHz ISM Bands

Accessories:

Wireless Sensor System Tool WRS-SST-101

Wireless Room Sensor

Product Series	Temperature sensor type	Remote temperature set point adjustment	Occupancy Override	Power Supply	Size
WRS-TTP0000-1	NTC K10	●	●	1.5Vdc AA alkaline battery	80x120
WRS-TTR0000-1	NTC K10	-	●	1.5Vdc AA alkaline battery	80x120
WRS-TTS0000-1	NTC K10	●	●	1.5Vdc AA alkaline battery	80x120

Receiver

Product Series	System	Power Supply	Controller Compatibility
WRS-RTN0000-1	Many-to-One	24VAC	NAEs communicating with BACnet, N2 and LON field controllers
TE-7820-1	One-to-One	24VAC	AS-VMA1400 Series Field Controllers
TE-7830-1	One-to-One	24VAC	Facility Explorer, DX9100 Series Field Controllers

Electronic control devices

Plant sensors



Features

- Temperature: -40 ... 150 °C
- Humidity: 0 ... 100 %
- Dew Point
- Pressure: 0 ... 1000 kPa
- Differential pressure: -50 ... 750 Pa
- Passive (NTC K2, NTC K10, A99, Pt100, Pt1000) and active outputs
- Construction types:
 - Cable
 - Rod 160 ... 500 mm
 - Rod fast 160 ... 500 mm
 - Strap-on
 - Ceiling
 - Outdoor

Accessories:

- Mounting accessories
- Immersion Wells
- In-line Filters

Product Series	Temperature Outputs	RH% Outputs	Dew Point Detection	Pressure	Differential Pressure	Construction Type							Controller Compatibility
						Cable	Rod	Rod fast	Strap-on	Ceiling	Outdoor	DIN rail	
TS/TE-9100	various					•	•	•	•	•	•		Facility Explorer, System 91
A99	A99					•	•	•	•		•		Facility Explorer, Nova 27
HT-9000	various	0...10 VDC						•					Facility Explorer, System 91, Nova 27
HX			0...10 VDC, Open collector						•				Facility Explorer, System 91
PS-9101					0...10 VDC							•	Facility Explorer, System 91
PT-5215					0...10 VDC, 4...20 mA							•	Facility Explorer, System 91
PT-5217				0...10 VDC, 4...20 mA		•						•	Facility Explorer, System 91



MSEA Network automation engines

MSEA Network integration engines

MSEA Network control engines



NAE35/45



NAE55



NAE85A



NCE25

The Network Automation Engine (NAE) brings an entirely new generation of technology into the Metasys® Building Automation System (BAS). The NAE is an automation engine that manages facilities using information and Internet technology.

The NAE uses the communication technologies of the building automation industry, including BACnet® protocol, LonWorks® network, and the N2 Bus to monitor and supervise Heating, Ventilating, and Air Conditioning (HVAC) equipment, lighting, security, fire, and access control. The NAE55 supports a comprehensive set of supervisory features and functions for large facilities and technically advanced buildings and complexes.

The NAE45 and NAE35 extend the power of the NAE to smaller buildings and enable the wider distribution of supervisory functions in larger facilities. The NAE85 is a high-capacity NAE.

This device allows the integration of large BACnet systems and can take the place of multiple NAEs.

A single NAE or a network of multiple NAE devices within a building provides monitoring and control, alarm and event management, data exchange, trending, energy management, scheduling, and data storage.

The NAE has an embedded user interface and supports concurrently connected Web browsers with password access control and the security protection technology of the Information Technology (IT) industry.

The Metasys Network Control Engine (NCE) Series controllers combine the network supervisor capabilities and IP network connectivity of a Metasys Network Automation Engine (NAE) with the Input/Output (I/O) point connectivity and direct digital control capabilities of a Metasys Field Equipment Controller (FEC). NCE controllers provide a cost-effective solution designed for integrating central plants and large built-up air handlers into your Metasys networks.

Description

Product Code Number
MS-NAE35xx-xxx
(Base features
of each NAE85)

NAE35 Network Automation Engines: Requires a 24 VAC power supply. Each model Includes: One RS-232-C serial port, one USB serial port, one Ethernet port, and an MS-BAT1020-0 Data Protection Battery. Supports one N2 trunk (RS-485 port), Up to 50 devices. Supports one LonWorks trunk. Up to 64 devices

MS-NAE45xx-1xx
(Base features
of each NAE85)

NAE45 Network Automation Engines: Requires a 24 VAC power supply. Each model Includes: One RS-232-C serial port, one USB serial port, one Ethernet port, and an MS-BAT1020-0 Data Protection Battery. Supports one N2 trunk (RS-485 port), Up to 100 devices. Supports one LonWorks trunk. Up to 127 devices

MS-NAE55xx-xxx
(Base features
of each NAE85)

NAE55 Network Automation Engines: Requires a 24 VAC power supply. Each model Includes: Two RS-232-C serial ports, two USB serial ports, two RS-485 ports, one Ethernet port, and one MS-BAT1010-0 Data Protection Battery. Up to 100 devices are supported on each N2 trunk. Supports two N2 trunks simultaneously.

MS-NIE5xxx-xxx

NIE Network Integration Engine NIE Network Integration Engines: Requires a 24 VAC power supply. Each model includes two RS-232-C serial ports, two USB serial ports, one Ethernet port, and one MS-BAT1010-0 Data Protection Battery.

MS-NAE85xx-xxx
(Base features
of each NAE85)

NAE85 Network Automation Engine: Supports up to 25,000 objects

MS-NIE85xx-xxx

MS-NIE85xx-xxx Network Integration Engine: Supports up to 25,000 objects

MS-NCE25xx-xxx
(Base features
of each NCE25)

Each NCE25 Series model requires a 24 VAC power supply and includes one RS-232-C serial port, one RS-485 optically isolated SA Bus port, one USB serial port, one Ethernet port, and an MS-BAT1020-0 Data Protection Battery. Each NCE25 Series model has 33 integral I/O points and supports up to 128 additional I/O points on the SA Bus.

M3 Integral

JCI System solution for small buildings and flat LON systems

Competitive, flexible and scalable solution to be proposed where no web access, demand limiting and interactions are requested.

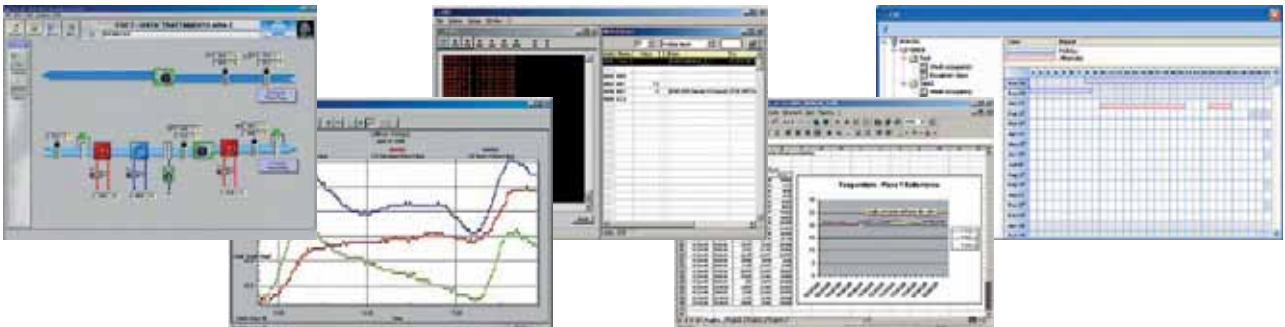
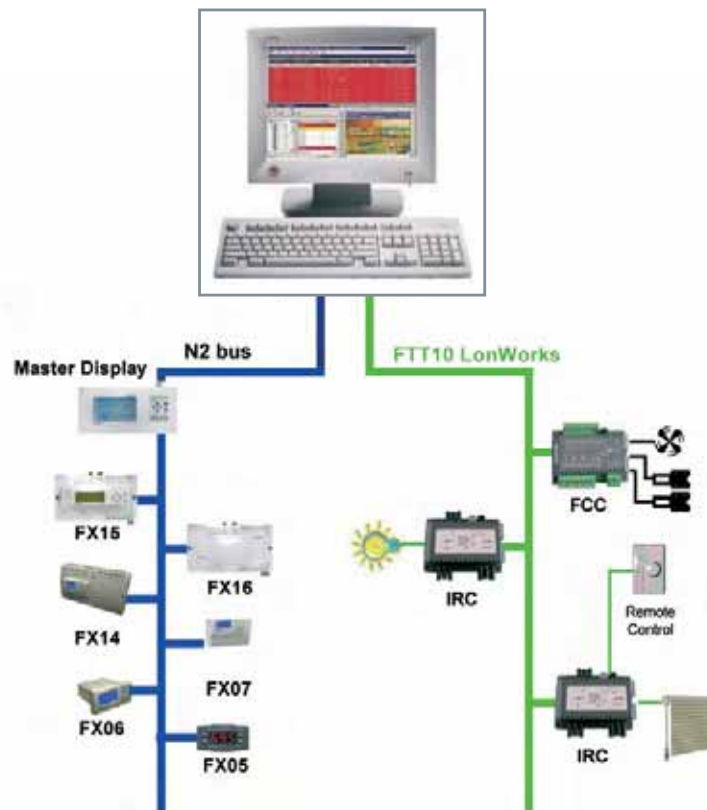
Simple solution when specifications or Customers are only considering SCADA oriented systems, including Fire&Security Supervision.

Based on M-Series graphic style.

Serial connectivity N2 and MODBUS, BACnet MSTP via router to IP, LON, EIBus, M-Bus using gateways or direct link to PC.

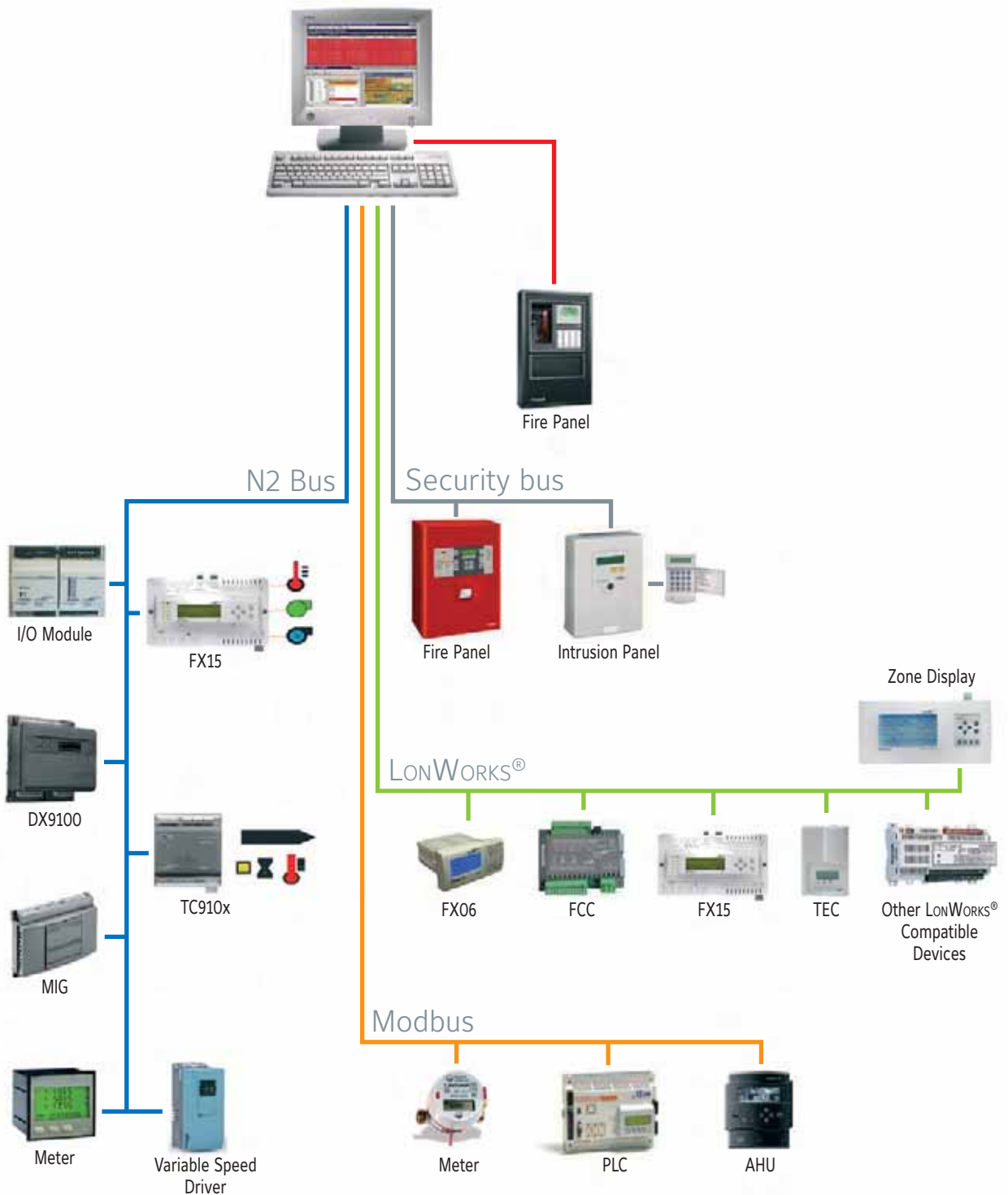
Available TCP/IP like MODBUS IP and BACnet over IP;

others on request IP tunnelling available on N2 and MODBUS.





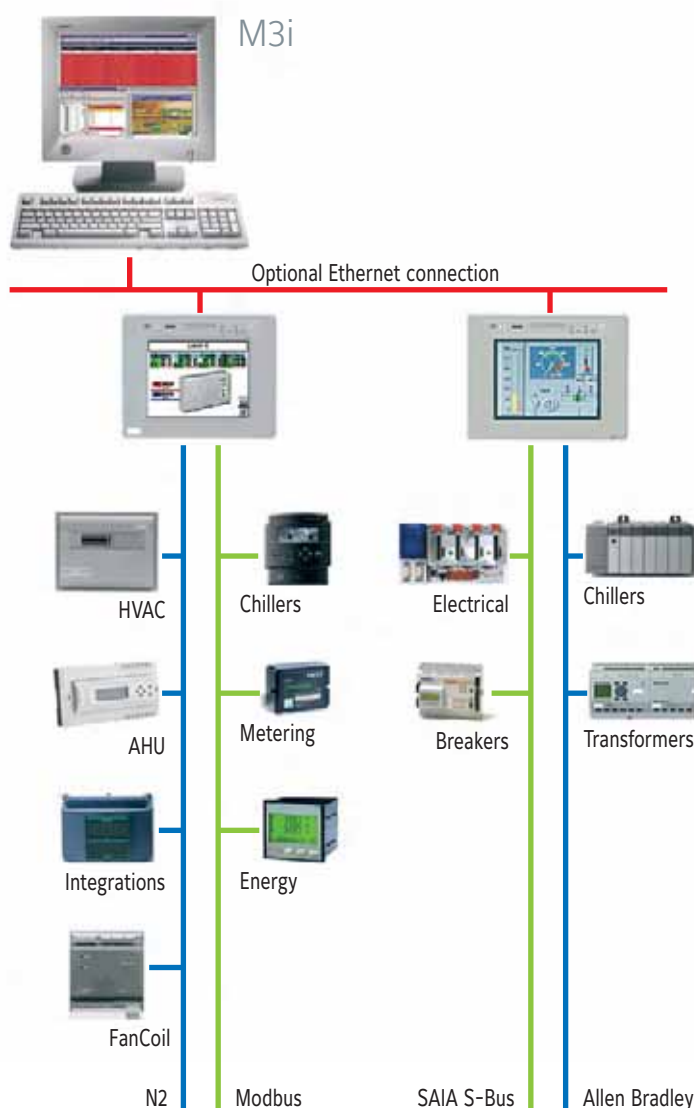
Over IP M3i System network layout



TDS Line Touch screen displays

Standard features

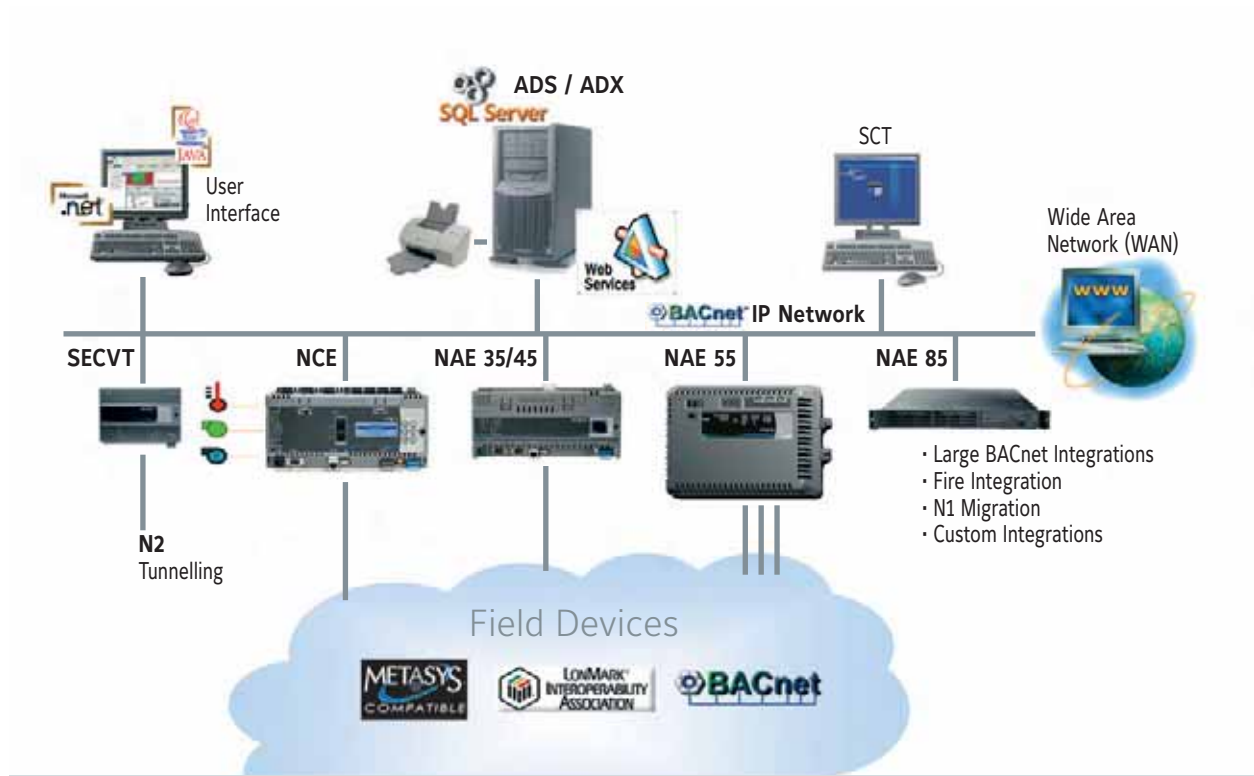
- Vector graphic and animation.
- Data acquisition and trends.
- 8 Levels Password protection.
- Programming via Ethernet, serial link or flash module programmer.
- Graphic configuration tool, full localizable.
- Cyclic data transfer.
- Communication drivers for Dual communication protocol capability:
 - N2 System91, N2Open (Mig, VND ,FX).
 - Modbus RTU / TCP
 - AB DF1
 - SAIA S-Bus / Ethernet



Model	TSD5-MON	TSD5-TFT	TSD5-STN	TSD7-TFT	TSD12-TFT	TSD15-TFT
Display	16x40 LCD B/W	16x40 TFT COLOR	16x40 STN COLOR	24x60 TFT COLOR	40x100 TFT COLOR	48x128 TFT COLOR
Graphic Resolution	320x240	320x240	320x240	640x480	800x600	1024X768
Display dimensions (mm)	121x91	121x91	121x91	154x116	246x184	304X228
Diagonal (inches)	5.7"	5.7"	5.7"	7.5"	12.1"	15"
Max current cons. (mA)	600	600	600	600	800	1200
Max panel thickness	5mm	5mm	5mm	5mm	5mm	5mm
Weight (Kg)	1.4	1.4	1.4	1.4	2.85	3.85

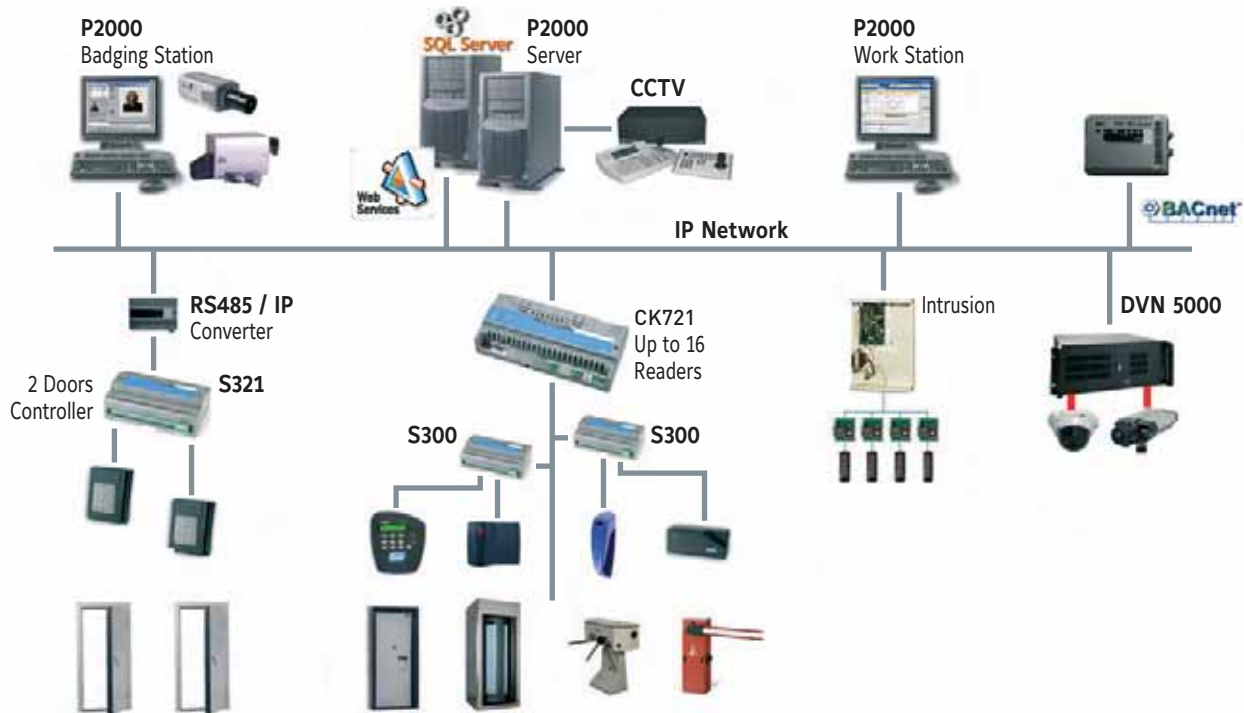


Metasys System network layout

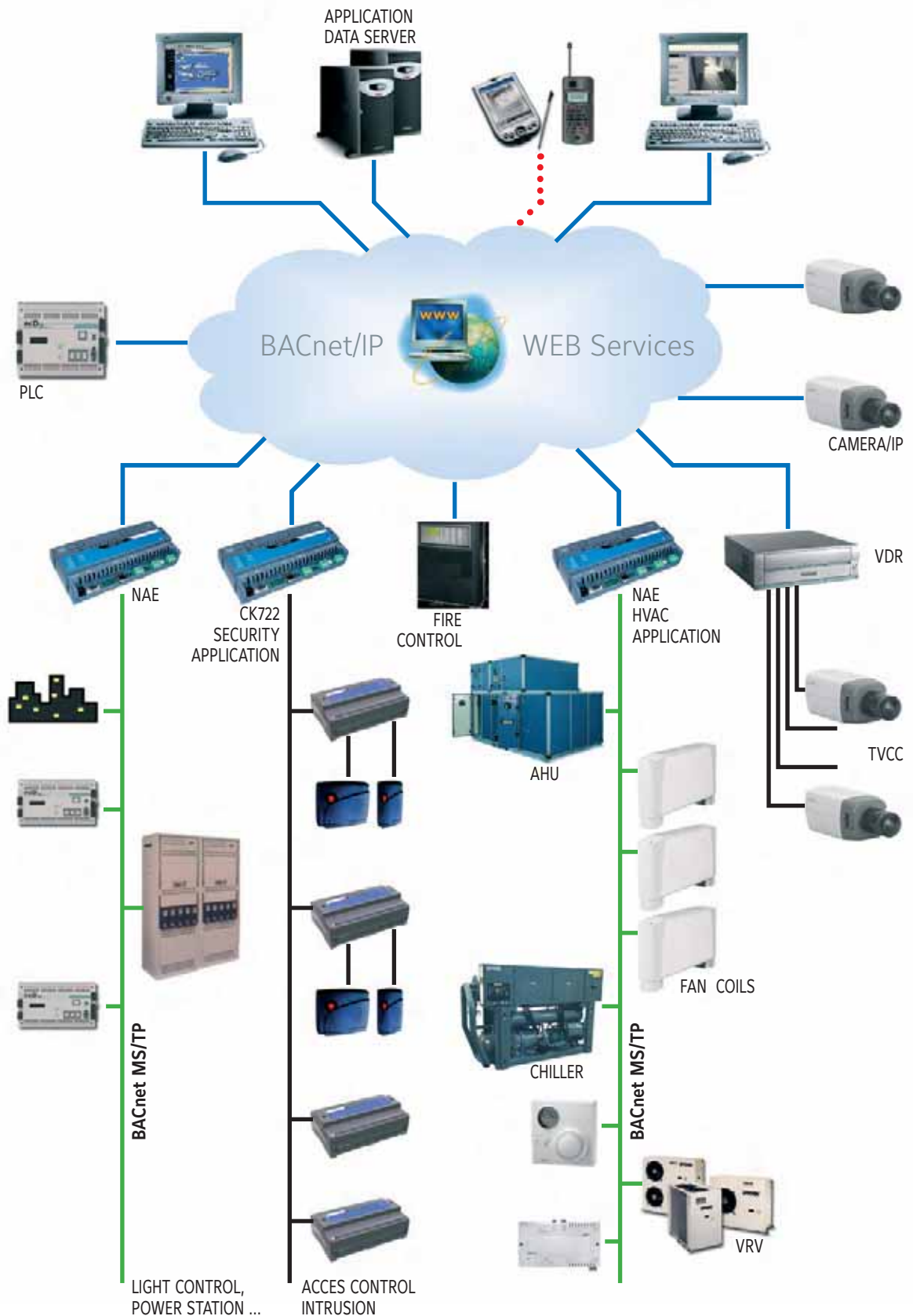


P2000

P2000 System network layout



JCI Building efficiency as solutions supplier



Valves and actuators

Terminal unit valves and actuators



Features valves

- PN16
- DN10...25
- Kvs 0.16...5.5
- 2-way, 3-way and 3-way+Bypass
- Female and male connection
- Fluid Temperature 2...120 °C
- Water / Water glycol

Features actuators

- Control Type / Supply voltage
 - Proportional / 24 Vac
 - Floating / 24 Vac
 - Thermal ON/OFF / 24 & 230 Vac/Vdc
 - ON/OFF motorized / 24 & 230 Vac
- Spring Return and Non Spring Return action



Valve Series (connection type)	Body Type	Connection Size			Actuators			
		1/2"	3/4"	1"				
VG5000 (male)	2 way	●	●	●	VA-7450 Series Proportional 24 Vac	VA-7040 Series Thermal ON/OFF	VA-7060 Series Thermal Proportional	VA-7010 Series ON/OFF
	3 way	●	●	●				
	3 way + Bypass	●	●	●				
VG5000 (female)	2 way	●	●	●	Floating 24 Vac	24 V 230 V	24 Vac	24 Vac 230 Vac
	3 way	●	●	●				
	3 way + Bypass	●	●	●				
VG6000 (male)	2 way	●	●	●	VA-747x Series Proportional 24 Vac Floating 24 Vac	VA-7030 Series Thermal ON/OFF 24 V 230 V	-	-
	3 way	●	●	●				
	3 way + Bypass	●	●	●				
V5000 (male)	2 way	●	●	●	VA-747x Series Proportional 24 Vac Floating 24 Vac	VA-7047 Series Thermal ON/OFF 24 V 230 V	VA-7067 Series Thermal Proportional 24 Vac	
	3 way	●	●	●				
	3 way + Bypass	●	●	●				

Valves and actuators

Threaded control valves
and actuators

Features valves

- PN16 and PN40
- DN15...50
- Kvs 0.25...63
- 2-way and 3-way
- Female and male connections
- Fluid Temperature -30...170 °C
- Water / Water glycol / steam



Features actuators

- Electric Actuators and Pneumatic Actuators
- Actuators with and without aux-switches and feedback
- Control Type / Supply voltage
 - Proportional / 24 Vac
 - Floating / 24 and 230 Vac
 - Pneumatic
- Spring Return and Non Spring Return action

Accessories

- Linkages for ball valve actuators

Valve Series	Body Type	DN15	DN20	DN25	DN32	DN40	DN50	Actuators
VG1000 ball valve, PN40, female connection, -30...140 °C	2 way	•	•	•	•	•	•	VA9104 Series Non Spring Return Actuators
	3 way	•	•	•	•	•	•	M9000 Series Non Spring Return and Spring Return Rotary actuators
VG7000 globe valve, PN16, female connection, 2...170 °C	2 way	•	•	•	•	•	•	VA-7310, VA-7700, VA7800 Series Non Spring Return Actuators
	3 way	•	•	•	•	•	•	VA7800 Series Spring Return Actuators Pneumatic Actuators
VGS8000 globe valve, PN16, male connection, 2...130 °C	2 way	•	•	•	•	•	•	VA-7700 and VA7800 Series Non Spring Return Actuators
	3 way	•	•	•	•	•	•	VA7800 Series Spring Return Actuators

Valves and actuators

Flanged control valves and actuators



Features valves

- PN6, PN10, PN16 and PN25
- DN15...150
- Kvs 0.16...350
- 2-way and 3-way
- DIN Flanged
- Fluid Temperature -20...280 °C
- Water / Water glycol / Steam
- Pressure Balanced Valves



Features actuators

- Electric Actuators and Pneumatic Actuators
- Control Type / Supply voltage
 - Proportional / 24 Vac
 - Floating / 24 and 230 Vac
 - Pneumatic
- Spring Return and Non Spring Return action
- Actuators with and without aux-switches and feedback

Accessories

- Glycerin cup for temperature down to -20°C
- Cooling Finn for temperature up to 280°C
- Special Trim Versions
- Actuators available with aux. switches and feedback

Valve Series	Body Type	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150	Actuators
VG9000 PN6 & PN10 0... 140°C	2 way	•	•	•	•	•	•	•	•	•			VA-7700, VA7800, VA1000, RA-3000 Series Non Spring Return VA7800; VA1000 Series Spring Return actuators
	3 way Mixing	•	•	•	•	•	•	•	•	•			
	3 way Diverting												
	3 way Diverting												
VG8000V PN16 0... 140°C	2 way	•	•	•	•	•	•	•	•	•	•	•	VA7800, VA1000, RA-3000, FA-3000 Series Non Spring Return Actuators VA7800, VA1000, Series Spring Return Actuators MP8000, PA-2000 Series Pneumatic Actuators
	3 way Mixing	•	•	•	•	•	•	•	•	•	•	•	
	3 way Diverting												
	3 way Diverting												
Valve Series	Body Type	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150	Actuators
VG8000N & VG8000H PN16 & PN25 -20... 280°C	2 way	•	•	•	•	•	•	•	•	•	•	•	VA7800, VA1000, RA-3000, FA-3000 Series Non Spring Return Actuators VA7800, VA1000, FA-2000 Series Spring Return Actuators MP8000, PA-2000 Series Pneumatic Actuators
	3 way mixing	•	•	•	•	•	•	•	•	•	•	•	
	3 way diverting	•	•	•	•	•	•	•	•	•	•	•	
	3 way diverting												
VG8300N & VG8300H PN16 & PN25 Pressure Balanced	2 way					•	•	•	•	•	•	•	VA7800, VA1000, RA-3000, Series Non Spring Return Actuators VA7800, VA1000, FA-2000 Series Spring Return Actuators MP8000, PA-2000 Series Pneumatic Actuators
	3 way mixing												
	3 way diverting												
	3 way diverting												

Rotary actuators

Small family / Silence family

M9102 /M9104-xGA-xS Floating actuators
(Joventa DAB / DAD)

M9104-GGA-xS Proportional actuators
(Joventa DMD)

M9304-Axx-1N ON/OFF and floating actuators
(Joventa DAN)

M9304-GxA-1N Proportional actuators
(Joventa DMN)



Description. THE SMALL FAMILY

The SILENCE electric damper actuator series have been developed to operate small and medium air dampers in ventilation of rotation angle make this actuator highly versatile.

Features.
THE SILENCE

- ON/OFF and Floating Control and DC 0...10 V Control
- Load-independent running time
- Up to 5 actuators in parallel operation possible
- Plug-in terminal block connection
- Simple direct mounting with universal adapter for fitting to Ø 6mm to 16mm shaft or with Z01DN adapter kit for 8, 10, 11, and 12mm square shaft 45mm min shaft length
- Selectable direction of rotation
- Limitation of rotation angle
- Manual release button
- 2 adjustable auxiliary switches
- Automatic shut-off at end position (overload switch)
- Energy saving at end positions
- Actuators available with 1m halogen-free cable
- Customized versions available
- Devices meet CE requirements

Features.
THE SMALL FAMILY

- Floating, ON/OFF and Proportional Control
- Load-independent running time
- Up to 5 actuators in parallel operation possible
- Actuators available with Plug-in terminal block connection and 1.2 m PVC cable
- Simple direct mounting with universal adapter for fitting to Ø 8...13mm or with 8...10mm square shaft
- Selectable direction of rotation
- Manual release button
- Devices meet CE requirements

The Small Family

Torque	Runing Time (s)	Damper Size (m ²)	Control Signals	2 x Adjustable Auxiliary Contacts	Supply Voltage (50/60Hz)
2 Nm	36	0.4	ON/OFF and Floating	-	AC 24 V +25% -20%
4 Nm	72	0.8	Proportional		
4 Nm	72	0.8	ON/OFF and Floating		

Silence Family

Torque	Runing Time (s)	Damper Size (m ²)	Control Signals	2 x Adjustable Auxiliary Contacts	Supply Voltage (50/60Hz)
4 Nm	35	0.8	ON/OFF and Floating	-	24 VAC/DC
				•	
				-	230 VAC
				•	
				•	48 VDC

Silence Family

Torque	Runing Time (s)	Damper Size (m ²)	Control Signals	Supply Voltage (50/60Hz)
4 Nm	35	0.8	0...10 VDC	24 VAC/DC
				48 VDC

Rotary actuators

New standard family

M9108 / M9116 / M9124 / M9132-Axx-1N ON/OFF and floating actuators (1/2) (Joventa DAS / DA / DAL / DAG)

M9108 / M9116 / M9124 / M9132-GGx-1N Proportional actuators AC/DC 24 V (Joventa DMS1 / DM1 / DML1 / DMG1)

M9108 / M9116 / M9124-GDx-1N Proportional actuators AC 230 V (Joventa DMS2 / DM2 / DML2)



Description

The STANDARD electric actuators have been specially designed for use with small and medium-sized air dampers and for terminal control units in air volume control systems. Thanks to their very small size and clever construction they are also ideal for applications where space is limited. A key feature of the design is the special JOVENTA spindle adapter which also incorporates angle-of-rotation limiting and position indication.

Features

- ON/OFF and Floaing and Proportional control.
- Load independent running time.
- Paralleling of up to 5 actuators possible.
- 2auxiliary switches
- Automatic end stops.
- Power saving at end stops.
- Customising available.
- CE approval.
- IP54.
- Plug-in terminal block connection.
- Simple direct-mount with universal adapter on 10...20 mm Ø round axis or 10...16 mm square shaft.
- 48 mm minimum damper shaft length.
- Selectable direction of rotation.
- Limitation of rotation angle.
- Manual release button.
- Actuators available with 1.0 m halogen-free cable.

Torque	Runing Time (s)	Damper Size (m2)	Control Signals	2 x Adjustable Auxiliary Contacts	Feedback Potentio-meter	Supply Voltage (50/60Hz)
8 Nm	30	1.5	ON/OFF and Floating	-		24 VAC/DC
				●		
				-	1 KOhm	
				-	140 Ohm	
				-	2 KOhm	
				-		230 VAC
				●		
				-	1 KOhm	
-	140 Ohm					
-	2 KOhm					
16 Nm	80	3		-		24 VAC/DC
				●		
				-	1 KOhm	
				-	140 Ohm	
				-	2 KOhm	
				-		230 VAC
			●			
			-	1 KOhm		
-	140 Ohm					
-	2 KOhm					

Torque	Runing Time (s)	Damper Size (m2)	Control Signals	2 x Adjustable Auxiliary Contacts	Feedback Potentio-meter	Supply Voltage (50/60Hz)
24 Nm	125	4.5	ON/OFF and Floating	-		24 VAC/DC
				●		
				-	1 KOhm	
				-	140 Ohm	
				-	2 KOhm	230 VAC
				●		
-	1 KOhm					
-	140 Ohm					
32 Nm	140	6		-	2 KOhm	24 VAC/DC AC/DC 24 V
				-		
				●		
				-	1 KOhm	
			-	140 Ohm	230 VAC AC 230 V	
			-	2 KOhm		
			-			
			●			
-	1 KOhm					
-	140 Ohm					
-	2 KOhm					

Torque	Runing Time (s)	Damper Size (m2)	Signals			2 x Adjustable Auxiliary Contacts	Supply Voltage (50/60Hz)
			Y1	Y2	U		
8 Nm	30	1.5	0(2) ...10 VDC	0(4) ...20 mA	0(2) ...10 VDC	-	24 VAC/DC AC/DC 24V
16 Nm	80	3				•	
24 Nm	125	4.5				-	
32 Nm	200	6				•	

Torque	Runing Time (s)	Damper Size (m2)	Signals			2 x Adjustable Auxiliary Contacts	Supply Voltage (50/60Hz)
			Y1	Y2	U		
8 Nm	30	1.5	0(2) ...10 VDC	None	0(2) ...10 VDC	-	230 VAC AC 230 V
16 Nm	80	3				•	
24 Nm	125	4.5				-	
32 Nm	200	6				•	

Rotary actuators

Springback family

M9206-xxx-1S
(Joventa DAFx. 06)

M9210-xxx-3
(Joventa DAF 1.10)

M9220-xxx-3
(Joventa DAF 1.20)



Description

The SPRINGBACK electric, spring return damper actuator series has been specially developed for the motorized operation of safety air dampers (anti-icing) in air conditioning systems, smoke evacuation dampers and sealing dampers. When the control signal is applied the actuator drives the damper to the operational position, while evenly tensioning the integrated spring.

After a power failure the stored energy in the spring immediately brings the damper to the safety position.

The compact design and universal adapter fitted with limitation of rotation angle make this actuator highly versatile.

Features

M9206

- ON/OFF control
- Floating control
- Proportional control
- Electrical connections with halogen-free cable
- Up to 5 actuators in parallel operation possible
- Simple direct-mount with universal adapter on Ø 10...16 mm shaft or square shaft from 10...14 mm
- Minimum damper shaft of 45 mm length
- Selectable direction of rotation
- Limitation of rotation angle
- 1 adjustable auxiliary switch
- Energy saving at end positions
- Devices meet CE requirements
- Electrical connections with halogen-free cable
- Minimum damper shaft of 45 mm length
- IP42

Features

M9210 - M9220

- ON/OFF control
- Floating
- Proportional
- Reversible Mounting Design
- Electronic Stall Detection throughout Entire Rotation Range
- Up to 5 actuators in parallel operation possible
- Integral 1.2 m (48 in.) Halogen-Free Cables with Colored and Numbered Conductors
- Integral Auxiliary Switches
- NEMA 2 (IP54) Rated Aluminum Enclosure
- Easy-to-Use Locking Manual Override with Auto Release and Crank Storage
- Integral Connectors for 3/8 in. Flexible Metal Conduit
- Tandem Operation

Rotary actuators

Security family

SFx ON/OFF springback actuators for safety dampers



Description

JOVENTA'S electric actuators have been specially designed for the motorised operation of safety dampers for purposes such as fire protection, smoke protection and tight sealing.

As the actuator moves the damper to its normal operating closing spring. Should the power supply to the actuator be interrupted, the stored energy in the spring will immediately move the damper to the safe position (damper close).

The manual locking is cancelled automatically when the actuator is operated electrically.

Features

- ON/OFF control
- 2 adjustable auxiliary switches
- 10/11/12/14 mm Square shaft adapter
- Direct connection of thermal sensor
ST 1.72 or ST 1.90 for duct interior
temperature monitoring ca. 72°C or 90°C
- Actuator thermal sensor for ambient
temperature monitoring ca. 72°C
- Screw terminal connections
- Choice of rotation
- Angle-of-rotation limiting
- Manual positioning with crank handle
- Automatic end stops
- Power saving at end stops
- Customising available
- CE approval
- IP54

Rotary actuators

Security family

SEx ON/OFF actuators for smoke dampers

Description

The JOVENTA SECURITY SMOKE electric damper actuator series have been specially developed for the motorized operation of smoke extraction dampers. The actuator drives the damper to the safety position (damper open). In the event of a power loss, the gears are mechanically locked. In doing so, this actuator, meets the demands of DIN V 18232 T6.

Features

- ON/OFF control
- Load-independent running time
- 2 adjustable auxiliary switches
- 10/11/12/14 mm steel adapter for square shaft
- Plug-in terminal block connection
- Manual operation with crank handle
- Energy saving at end positions
- Mechanical locking
- Customized versions available
- Devices meet CE requirements



Rotary actuators

Security family

SFx (SLC) ON/OFF springback actuators for fire dampers

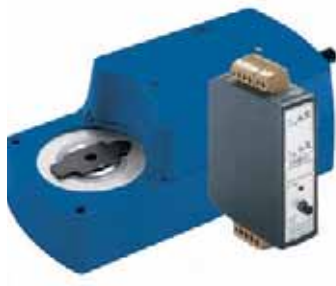
Description

The JOVENTA SECURITY FIRE electric, springback damper actuator series has been specially developed for the motorized operation of safety dampers e.g. fire and smoke protection dampers. When the control signal is applied the actuator drives the damper to the operational position, while evenly tensioning the integrated spring.

After a power failure the stored energy in the spring immediately brings the damper to the safety position. Manual operation is automatically cancelled when the actuator is in electrical operation.

Features

- 2 auxiliary switches
- 10/11/12/14 mm steel adapter for square shaft
- Plug-in terminal block connection
- Direct connection of ST 1.72N or ST 1.90N temperature sensor to monitor shaft internal temp. Switch point of temperature sensor ca. 72°C or ca. 90°C.
- Actuator temperature sensor to monitor ambient temperature, switch point of temperature sensor ca. 72°C
- Low noise level
- Manual operation with crank handle
- Energy saving at end positions
- Actuators available with 1m halogen-free cable
- Customized versions available
- Devices meet CE requirements



Rotary actuators

Security family

SFx (SLC) ON/OFF springback actuators for fire dampers



Application

The JOVENTA communication module SBKM2... has been specially developed for the control and monitoring of Series SF..SLC and SE..SLC fire protection and smoke extraction actuators. Type RMS2-SLC smoke alarms can also be connected.

Mode of operation

The communication module SBKM2... ascertains the current status of up to four damper actuators and communicates continuously with the building automation system (GA) via the RS485 interface.

All information relating to damper statuses is transmitted to the central computer. Each damper can be opened or closed individually.

Damper running time and position, as well as SLC line short circuits or SLC line interrupts, are detected, monitored and reported. In the event of a communications failure, the damper defaults to the safety position. This function is optional. If a common fault or alarm occurs, a potential-free relay contact can be used to send a conventional message. For testing purposes, each damper can be individually activated by hand, on site. The manual control function can be blocked by the building automation system.

Nomenclature / Specification / Technical data		
SBKM2.4F OSD	AC24V	for 4 SLC-Fire Dampers SF...-SLC
SBKM2.4S OSD	AC24V	for 4 SLC-Smoke Exhaust Dampers SE...-SLC
SBKM2.4K OSD	AC24V	for 4 SLC-Smoke Exhaust Dampers for ventilation applications SF...-SLC
SBKM2.0F 4SD	AC24V	for 4 SLC-Smoke Detectors RMS.2-SLC
SBKM2.2F 2SD	AC24V	for 2 SLC-Fire Dampers and 2 SLC-Smoke Detectors RMS.2-SLC

Rotary actuators

Security family

S9210 / S9220
(Joventa SAF)



Description

The S9210 and S9220 SECURITY FIRE electric, spring return damper-actuator series has been specially developed for the motorized operation of safety dampers e.g. fire and smoke protection dampers.

When the control signal is applied the actuator drives the damper to the operational position, while evenly tensioning the integrated spring.

After a power failure the stored energy in the spring immediately brings the damper to the safety position.

Features

- Integrated cables
- 48 inch, (1.2) 18 AWG halogen-free cabcables with color
- IIP54 (NEMA2) Rated Aluminium Enclosure
- Easy-to-Use Locking manual override with auto release and crank storage
- Energy saving at end position
- Two Integral gold Auxiliary switches

Benefits

- Simplify field wiring.
- Sealing the actuator against water intrusion improves
- Actuator life in hash environments.
- This includes valve installations where condensation may drip or any installation where the actuator is exposed to the elements Allows for manual positioning for the actuator hub. The single handed manual override design is much easier to use. The auto disengaging function causes the override to releasse when the actuator is powerwd up and commanded to move.
- The life of the actuator is increased by deactivating the actuator motor when an overload condition is detected.
- Accesible form both A and B side of Actuator Gold flash contacts allow switches to be utilized in low voltage situations were low contact resistance is required. Underling contact material allows switches to be rated for high voltage and current conditions

Torque Nm										10 Torque 10 Nm	20 Torque 20 Nm
Power supply										G AC/DC 24 V Power supply	D AC 230 V Power supply
Adapter										31 10 mm Squareshaft Adapter 32 11 mm Squareshaft Adapter	33 12 mm Squareshaft Adapter 34 14 mm Squareshaft Adapter
Execution										- with cables, without Sensors A with cables and with Ambient Sensor	B with cables and with Duct Sensor A with cables and with Ambient and Duct Sensor
S	92	x	-	B	x	A	-	x	x		

Rotary actuators

Valve family

VA9104-xGA-xS ON/OFF, floating and proportional ball valves actuators
(Joventa BAD / BMD)



Description

These electric actuators have been specially designed for the motorised operation of various types of water valves and fittings such as mixing valves, butterfly valves and ball valves. The mechanical design of the actuators is such that, with the aid of mounting kits, they can be used on many different types of valves and fittings.

The universal coupling between the actuator and the final controlling element is simplicity itself to use since it provides both; a positive drive and flexibility.

Features

- Proportional 0...10 VDC
- ON/OFF and Floating control
- Load independent running time
- Screw terminal connections and PVC 1m cable
- Universal adapter with knob for manual operation and position indication
- Reversible
- Automatic end stops
- Power saving at end stops
- CE approval
- IP 40/42

M9108-Axx-5 ON/OFF and floating ball valves actuators
(Joventa BAS1 / BAS2)

M9108-GGx-5 Proportional valves actuators
(Joventa BMS1.1)

M9116-Axx-1N2 ON/OFF and floating mixer actuator
(Joventa MA1 / MA2)

M9116-GGx-1N2 Floating mixer actuators AC/DC 24V
(Joventa MM1.1)

M9116-GDx-1N2 Proportional mixer actuator AC 230 V
(Joventa MM2.2)

M9108-GDx-5 Proportional ball valves actuator AC 230 V
(Joventa BMS2.2)

Features

- Proportional 0...10 VDC and 0..20 mA
- ON/OFF and Floating control
- Load independent running time
- Screw terminal connections
- Universal adapter with knob for manual operation and position indication
- Reversible
- Automatic end stops
- Power saving at end stops
- Customising available
- CE approval
- IP54

Rotary actuators

Special family

M9108 / M9116-xGx-1N4 Modulating actuators AC/DC 24 V
(Joventa SM1.1x)

SA1.2x ON/OFF and floating actuators
M9116-AAx-1 ON/OFF and floating actuators
(Joventa SAx.30)

M9108/M9116/M9124-GAx-1.01 Current controlled damper actuators
(Joventa SMxx.5)

M9108/M9116/M9124-GAx-1 Actuators
(Joventa SMxx.2)

SASx.30 ON/OFF and floating actuators
SALx.30 ON/OFF and floating actuators



Description

The SPECIAL electric actuators have been specially designed for use with medium and large air dampers. Thanks to their very small size and clever construction they are ideal for applications where space is limited. A key feature of the design is the special JOVENTA spindle adapter which also incorporates angle-of-rotation limiting and position indication.

Features

- ON/OFF control
- 0...10VDC and 0..20 mA modulating
- Paralleling of up to 5 actuators possible
- Screw terminal connections
- Universal adapter for:
 - Round spindles from 10...20 mm
 - Square spindles from 10...16 mm min. ax length 77mm
- Low noise level
- Choice of rotation
- Angle-of-rotation limiting
- Manual control by pushbutton
- Automatic end stops
- Power saving at end stops
- Customising available
- CE approval
- IP54

Security

Security management system – light edition

Cardkey® P2000LE

8 to 128 readers, max 4 workstations



Features

- Easy to use, flexible and scaleable
- Standard plus Crystal® Reports
- Auto database backup, and report from archive
- Events, triggers and action mapping
- User menu permission security
- Operator audit trail and transaction history
- Dynamic real time alarm maps
- Alarm escalation on no response
- Single user Web client included
- Standard Wiegand readers, custom formats
- Image recall on badging
- Real time activity list and printing
- Badge trace alarm
- Advanced mustering for emergencies
- Area counting for occupancy and car park control
- Anti-passback control (Note: across panels requires host connection)
- Special needs access controls
- Visitor pre-registration
- Sign off levels
- Elevator and Cabinet control
- Access templates
- Airport jetway logic
- Instant threat level security profile changes
- Industry standard readers and custom formats

Option / Accessories

- "Badgemaster" video imaging picture taking and badge printing
- Guard Tour, fixed and random tours
- ODBC interface for links to HR
- Integrated DVR control*
- Integrated intrusion control*
- MSEA - interlocks with JCI Metasys Extended Architecture
- METASYS - interlocks via BacNet with JCI Metasys
- Integrated CCTV matrix control*
- Integrated intercom control*
- XMLAPI(with OPC)- on request can enable 3rd party Scada, alarm monitoring, T&A, HR and other system integrations

*supported list, see Product manager

Technical features

	P2000LE
Server Operating System	XP, Windows 2000, Windows 2003 Server
Workstation Operating System	Windows 2000, XP
PC spec	1GB Ram
Database	MSDE – limit 2GB
Workstations	4 included
BadgeMaster workstations	Max 2 out of the 4
Web users	1 included
Readers	Scaleable 8 to 128
Card limit	5000 included
P2000LE-SWxR	X – readers (X=8,16,32,64,128)

Security

Security management system

Cardkey® P2000

128+ readers, max 40 workstations



Features

- Same as Cardkey® P2000LE
 - same security
 - same integrations
- SQL Server, large database
- Large system capability
- More badge printing stations
- Many concurrent web clients
- Standalone, multi-server, enterprise
- Multi-tenant and multi-site
- Server hardening
- Remote redundancy
- Cluster redundancy
- FDA Title 21 CFR Part 11 enabling

Option / Accessories

- Database Partitioning. Protects multi-tenant and multi-site data
- NSI-Doubletake. Allows 10km Remote
- Redundancy on non-matching servers.
- Short failover time
- NEC Cluster. Rack mounted servers with RAID. High availability.
- DL380 Cluster -single server with RAID. High availability
- Enterprise, multi-server cardholder data management
- FDA password control, database watermarks, field level audit trail

Technical features

	P2000	Alternative
Operating System	Windows 2000 Server,	Windows 2003 server
Workstation	Windows XP, SP2	
PC spec	1GB Ram	
Database	SQL Server 2003,	SQL server 2005
Workstations	5	,10,15,20,25,30,40
BadgeMaster workstations	Max 5	
Web users	1 (free)	up to 64K in 5's
Readers	128	512+ on request
Card limit	15000 included	50K+ on request

Security

Access control controllers

2 door S321 to 16 door CK721-A



Features

S321-DIN

- Up to two readers, including all door controls and monitoring. It's a reader board enabled to be a controller
- RS485. 12 lines, Max 30 per line, max 192 per system
- Use DIGI-ONE-SP for IP to 485 connection
- Same power to board and lock (protected)
- Six 4-state inputs, ten outputs
- Up to 30,000 cardholders
- Up to 8,000 transactions
- 40 Holidays
- 64 local time zones
- 20 panel card events
- Timed override
- Soft In-X-It per reader
- 4800, 9600, 19200, 38400 baud rate support
- Dynamic configuration download to flash memory
- Same card formats as CK721-A

Features

CK721-A Controller

- Up to 16 readers per panel
- Requires up to 8* reader boards
- Requires up to 8* i/o boards
- Compatible with S300 series reader and i/o boards
- 10/100 Base-T network connection
- DB9 port for configuration, commissioning and service maintenance
- Up to 100,000 cardholders. Full access control feature set.
- Accepts up to 20-digit badge numbers
- 12 facility codes per reader
- 40 Holidays
- 64 Time zones
- 8 Access group/time zone pairs per badge
- Wiegand, proximity, magnetic stripe, barium ferrite, smart card, most biometric readers and bar code card technologies are supported (custom engineered formats can also be accepted).

S321 general i/o spec

Input Power	24 VDC @ 1.5 amps maximum
Lock Output	12/24 VDC (up to 8 W)
Reader Interface	• 2-wire Wiegand (up to 256 bits) • 5/12/24 VDC (up to 5 W) • Red indicator • Green indicator
General Purpose Inputs: Outputs:	Resistive load 0-12 VDC, 2 dry contact, 8 open collector
Communications	2-wire RS-485
Certifications	• UL 294 (Access control) • UL 1076 (Burglar alarm) • CSA/CUL C22.2 No. 205 • FCC, Class B • CE Mark
Mounting Specifications	• DIN rail • Flat surface
Dimensions	7" h x 4.5" w x 2.25" d (17.5cm x 11.25cm x 5.5cm)

CK721-A Specifications

Input Power	24 VDC @ 1.5 amps maximum
Communications	2-wire RS-485 IP
Certifications	• UL 294 (Access control) • UL 1076 (Burglar alarm) • CUL (signal appliance) • FCC, Class B • CE • C-Tick
Mounting Specifications	• DIN rail • Flat surface
Dimensions	CK721 only 5.25" h x 10.50" w x 2.5" d (13cm x 26.5cm x 6.25cm)
Large Enclosure	21" h x 16" w x 5.5" d (53cm x 41cm x 14cm)
Small Enclosure	16" h x 13.5" w x 5.5" d (41cm x 34cm x 14cm)



Security

2 door i/o interface

S300-DIN-RDR2SA

2 door interface or 8 by 8 i/o board



Features

Quick to install, replace & commission
 DIN rail or flat surface mount
 Versatile power. 12/24VDC or 24VAC
 Colour coded push-fit connectors
 Address switches easy to change
 RS485 EOL termination switches
 Connections clearly labelled
 Circuit protection if same DC power used to power the mag lock or door strike
 Can use external power for lock
 Easy to calibrate 4 state inputs
 All inputs 2 or 4 state
 REX and Reader tamper can be 4 state
 Panel tamper input
 Shunt relay for 'door propped' alarm
 Red/Green led outputs for each reader

Options

No reader mode, all i/o
 10 inputs
 Inputs 2 or 4 state
 4 relay outputs
 4 open collector outputs
 Outputs timed, set, reset, fast flash or slow flash
 1 reader mode
 1 reader, lock, contact, REX
 6 spare inputs
 OR 2 spare inputs plus
 Panel tamper
 Power fail
 Reader tamper
 2 spare relay outputs
 2 spare open collector outputs
 Outputs timed, set, reset, fast flash or slow flash
 2 Reader mode
 2 readers, locks, contacts, REX
 2 spare inputs plus
 Panel tamper
 Power fail
 2 Reader tamper
 No spare outputs

Technical Specifications

Input Power	24 VDC @ 1.5 amps maximum, or 12VDC, or 24VAC
Reader Interface	• 2-wire Wiegand (up to 256 bits) • 12 VDC, 500 mA • Red indicator • Green indicator
General Purpose Inputs	Resistive load
General Purpose Outputs	0-12 VDC
Communications	2-wire RS-485
Certifications	• UL 294 (Access control) • UL 1076 (Proprietary alarm unit) • CSA/CUL C22.2 No. 205 • FCC, Class B • CE Mark • C-Tick
Mounting Specifications	• DIN rail • Flat surface
Dimensions	5.7 H x 5.9 W x 2.2 D inches (14.4 cm x 15.0 cm x 5.5 cm)
Ambient Temperature	32° to 122° F (0° to 50°C)
Humidity	10 to 90% non-condensing
Ventilation	Cabinets require free movement of air over all exposed surfaces

Security

DVN range of product

DVN5000 Code number legend (starting version 2.5):

Note: All configuration from the code legend may not be available at this time.

DVN50XXXXX-XXX

Analogue Video Inputs	Video encoding type	Chassis style	Data storage type	Data storage size
04 = 4 inputs 08 = 8 inputs 16 = 16 inputs 32 = 32 inputs	R = Real time M = Multiplexed X = IP only	S = Rackmount with DVD R = Rackmount w/o DVD D = Desktop with DVD E = Desktop w/o DVD	A = Raid0 B = Raid5 C = Non Raid E = External (SCSI) G = Internal RAID5 and External (SCSI) H = Raid 0, x analogue input, up to 2x IP cameras J = Raid 5, x analogue inputs, up to 2x IP cameras K = External (SCSI), x analogue input, up to 2x IP cameras	# of TB in 10-1 TB

Example DVN5016RRA-010 is a DVN5000 series with 16 analogue video inputs, Real time encoding, Rack mount chassis without DVD, RAID 0 storage at 1 Terabyte.

Options available for DVN5000 series include : Dome interface, Site Manager software and External storage options (if DVN has SCSI card).

Main features common to all DVN5000

- No performance degradation with unsynchronized cameras.
- True pentaplex functionality - real-time recording, playing, viewing, archiving, and transmission, regardless of image content or system activity.
- Motion detection and smart search capability
- Permanency detection (details items that are missing or left behind, e.g. abandoned baggage)
- Multiple image transmission compression algorithms (Wavelet™, MPEG4, Enpacta)
- Fully integrated multi-vendor PTZ control with minimum latency
- Multi-sector recording speeds, quality and times for each camera
- Transparent network storage management
- Seamless integration of DVN 100-NET encoders
- Seamless integration of DVN 3000 Series
- True client-server architecture with full remotecontrol via TCP/IP
- Integrated web video/audio server for connections via Microsoft® Internet Explorer
- Synchronous multi-camera playback DVN5000 Real-Time Series
- Advanced Search Capability
- Easy to Use GUI
- Flexible user management - control access to cameras, functions and bandwidth per user
- 4RU 19" rack enclosure
- USB 2.0 support
- Network interface (1 GB supported)
- Auto camera set up configuration
- Full-screen for both live and playback images
- VGA video interface
- Bi-directional audio channel
- Alarm inputs
- Relay outputs
- Pre-alarm recording
- Pre-motion recording
- Camera darkening detection
- Privacy patch
- Audio detection
- Virtual zoom
- Image touch-up
- Image print
- Image/video export & authentication
- Redundancy feature
- Embedded operating system
- Compatible with existing networks
- Software upgrade via network
- Locking front access panel
- Removable system drive and data drives
- Text insertion
- Supports up to 16 simultaneous users

Security

DVN5000 Rack mount

DVN5000 Real time ver. 2.5 & above



Description

The **DVN5000** Real-Time Series provides the highest level of performance within the **Johnson Controls®** Digital Vision Network (DVN) range of products. These systems, based on true clientserver architecture, offer exceptional levels of video and audio recording, and transmission performance for four, eight, or sixteen cameras. The **DVN5000** Real-Time Series is capable of processing up to 25 real-time images per second/per camera at full frame resolution (720x576 pixels), and can record any camera in real-time with lip-synchronized stereo audio. Conventional external alarm inputs and outputs are built-in and are configurable for every camera.

The **DVN5000** Real-Time Series can simultaneously record, play, view, transmit, and archive video and audio. This series also contains powerful network-based motion detection, suitable for internal and external conditions, permanency detection, and search tools.

Using the common **DVN** software platforms, the **DVN5000** Real-Time Series can be networked with any other **Johnson Controls DVN**, and centrally managed from a common client PC or software interface. All updates can be performed remotely via the network. The **DVN5000** Real-Time Series provides an ideal solution for casinos, airports, military, and government applications, or any other premium digital CCTV installations requiring uncompromising levels of quality and performance.

Moreover all these DVN are able to manage up to 16 IP/network cameras.

This table present the main common feature of each type model

(For all main feature common to all DVN5000 please see page 60)

	DVN5004RRx-xxx	DVN5008RRx-xxx	DVN5016RRx-xxx
Analogue Video In	4	8	16
Loop through	Yes		
Remark	These DVN can also manage up to 16 DVN100-NET or supported IP cameras in place of any video input.		
Audio In	8 mono 4 stereo	16 mono 8 stereo	32 mono 16 stereo
Audio Out		1	
Auxiliary contacts	4	8	16
Alarm contacts	4	8	16
GUI	VGA/CVBS		
Hard Drives	500 GB, 750 GB RAID 5.	0 / 500 / 1000 /1600 GB hard drives, 750 / 1200 GB RAID 5	0 / 500 / 1000 /1600 GB, 750 / 1200 GB RAID 5
IPS (to / between all cameras)	100 IPS in D1	200 IPS in D1	400 IPS in D1
Max Resolution	720x576 (D1)		
IPS per Camera	de 0.5 to 25		
Compression	MPEG4 / Enpacta / Wavelet		
Ethernet Ports	Gigabit		
Power	240 VAC @ 50 Hz		
Operating System	XP Embedded		
Dimensions (4RU 19" rack)	435 x 550 x 177 mm		

Tables below give particular details of each available models

Available 16 channels models:						
	DVN5016RRA-016	DVN5016RRB-012	DVN5016RRA-010	DVN5016RRB-007	DVN5016RRA-005	DVN5016RRE-000
Hard drive size	1,6 TB	1,2 TB RAID5	1,0 TB	750 GB RAID 5	500 GB	External storage (SCSI)
Available 8 channels models:						
	DVN5008RRA-016	DVN5008RRB-012	DVN5008RRA-010	DVN5008RRB-007	DVN5008RRA-005	DVN5008RRE-000
Hard drive size	1,6 TB	1,2 TB RAID5	1,0 TB	750 GB RAID 5	500 GB	External storage (SCSI)
Available 4 channels models:						
	DVN5004RRB-007			DVN5004RRA-005		
Hard drive size	750 GB RAID 5			500 GB		

Security

DVN5000 Rack mount

DVN5000 Multiplexed ver. 2.5 & above



Description

The **DVN5000** series provides a mid-level solution within the **Johnson Controls®** Digital Vision Network (DVN) range of products. These systems, based on true client-server architecture, offer exceptional levels of video and audio recording, and transmission performance for sixteen cameras.

The **DVN5000** series is capable of processing up to 400 IPS @ CIF, 200 IPS @ 2 CIF, and 100 IPS @ 4 CIF from sixteen camera inputs. Conventional external alarm inputs and outputs are built-in and are configurable for every camera.

The **DVN5000** series can simultaneously record, play, view, transmit, and archive video and audio. This series also contains powerful network-based motion detection, suitable for internal and external conditions, permanency detection, and search tools.

Using the common DVN software platforms, the **DVN5000** series can be networked with any other **Johnson Controls DVN** and centrally managed from a common client PC or software interface. All updates can be performed remotely via the network. The **DVN5000** series provides a high performance, cost-effective solution for installations that do not require real time 25 IPS per camera at 4 CIF. **DVN5000** models contain up to 2.0 TB internal storage.

All these DVN are able to manage up to 16 IP/network cameras.

This table present the main common feature of each type model

(For all main feature common to all DVN5000 please see page 60)

	DVN5008MRx-xxx	DVN5016MRx-xxx
Analogue Video In	8	16
Loop through	Yes	
Remark	These DVN can also manage up to 16 DVN100-NET or supported IP cameras in place of any video input	
Audio In	4 mono 8 stereo	
Audio Out	1	
Auxiliary contacts	16	
Alarm contacts	16	
GUI	VGA	
Hard drive	0 / 500 / 1000 / 1200 / 1600 GB, 750 / 1200 RAID 5	
IPS (to / between all cameras)	50 IPS in D1, 100 IPS in 2CIF, 200 in CIF	100 IPS in D1, 200 IPS in 2CIF, 400 in CIF
Max Resolution	720x576 (D1)	
IPS per Camera	from 0.5 to 25	
Compression	MPEG4	
Ethernet Ports	Gigabit	
Power	240 VAC @ 50 Hz	
Operating System	XP Embedded	
Dimensions (4RU 19" rack)	435 x 550 x 177 mm	

Tables below give particular details of each available models

Available 16 channels models:							
	DVN5016MRA-016	DVN5016MRB-012	DVN5016MRG-012	DVN5016MRA-010	DVN5016MRB-007	DVN5016MRA-005	DVN5016MRE-000
Hard drive size	1,6 TB	1,2 TB RAID5	1,2 TB RAID 5 + SCSI connection	1,0 TB	750 GB RAID 5	500 GB	External storage (SCSI)
Available 8 channels models:							
	DVN5008MRA-016	DVN5008MRB-012	DVN5008MRG-012	DVN5008MRA-010	DVN5008MRB-007	DVN5008MRA-005	DVN5008MRE-000
Hard drive size	1,6 TB	1,2 TB RAID5	1,2 TB RAID 5 + SCSI connection	1,0 TB	750 GB RAID 5	500 GB	External storage (SCSI)

Security

DVN5000 Rack mount

DVN5000 IP/Network only DVN's ver. 2.5 & above



Description

The **DVN5000X** Real-Time Series provides the highest level of performance within the **Johnson Controls® Digital Vision Network (DVN)** range of products. These systems, based on true client server architecture, offer exceptional levels of video and audio recording, and transmission performance for up to 16 cameras.

The **DVN5000X** Real-Time Series is designed for use with many MPEG4 IP cameras and/or DVN 100-NET encoders, as there is no on-board video compression. This series is also capable of processing up to 25 real-time images per second/per camera at full frame resolution (720x576 pixels).

The **DVN5000X** Real-Time Series can simultaneously record, play, view, transmit, and archive video and audio. Using the common DVN software platforms, the **DVN5000X** Real-Time Series can be networked with any other **Johnson Controls DVN**, and centrally managed from a common client PC or software interface. All updates can be performed remotely via the network. The **DVN5000X** Real-Time Series provides an ideal solution for casinos, airports, military, and government applications, or any other premium digital CCTV installations requiring uncompromising levels of quality and performance.

This table present the main common feature of each type model

(For all main feature common to all DVN5000 please see page 60)

	DVN5016XRx-xxx
Video In	16
Loop through	NO
Audio In	1
Audio Out	1
Auxiliary contacts	0
Alarm contacts	0
GUI	VGA
Hard drive	1000 / 1600 GB hard drives, 750 / 1200 GB RAID 5
IPS (to / between all cameras)	Up to 400 in D1 (depending on encoder, IP camera and network)
Max Resolution	720x576 (D1)
IPS per Camera	from 0.5 to 25
Compression	MPEG4
Ethernet Ports	Gigabit
Power	240 VAC @ 50 Hz
Operating System	XP Embedded
Dimensions (4RU 19" rack)	435 x 550 x 177 mm

Tables below give particular details of each available models

Available 16 channels models :				
	DVN5016XRA-016	DVN5016XRB-012	DVN5016XRA-010	DVN5016XRB-007
Hard drive size	1,6 TB	1,2 TB RAID 5	1 TB	750 GB RAID5

Security

DVN5000 Rack mount

DVN5000 Multiplexed ver. 2.3



Description

The **DVN5000 (Non-RT) Series** provides a mid level solution within the **Johnson Controls® Digital Vision Network (DVN)** range of products. These systems, based on true client-server architecture, offer exceptional levels of video and audio recording, and transmission performance for eight or sixteen cameras. The **DVN5000** series is capable of processing up to 100 images per second from sixteen camera inputs, with up to eight channels of synchronized stereo audio. Conventional external alarm inputs and outputs are built-in and are configurable for every camera.

The **DVN5000** series can simultaneously record, play, view, transmit, and archive video and audio. This series also contains powerful network-based motion detection, suitable for internal and external conditions, permanency detection, and search tools. Using the common DVN software platforms, the **DVN5000** series can be networked with any other Johnson Controls DVN and centrally managed from a common client PC or software interface. An auto-configuration provides simple installation within minutes, and all updates can be performed remotely via the network.

The **DVN5000** series provides a high performance, cost-effective solution for installations requiring recording rates above 3 IPS per channel, but where providing real-time 25 IPS per camera would be impractical. **DVN5000** models contain up to 750 GB of internal (RAID) storage.

This table present the main common feature of each type model

(For all main feature common to all DVN5000 please see page 60)

	DVN5008-x	DVN5016-x
Analogue Video In	8	16
Loop through	Yes	
Analogue Output	2	4
Audio In	4	8
Audio Out	1	
Auxiliary contacts	16	
Alarm contacts	16	
GUI	VGA	
Hard drive	600 GB, 750 RAID 5	
IPS (to / between all cameras)	50 IPS in D1	100 IPS in D1
Max Resolution	720x576 (D1)	
IPS per Camera	from 0.5 to 25	
Compression	Wavelet	
Ethernet Ports	Gigabit	
Power	240 VAC @ 50 Hz	
Operating System	XP Embedded	
Dimensions (4RU 19" rack)	435 x 550 x 177 mm	

Tables below give particular details of each available models

Available 16 channels models:		
	DVN5016-L	DVN5016-M
Hard drive size	750 GB RAID 5	600 GB
Available 8 channels models:		
	DVN5008-L	DVN5008-M
Hard drive size	750 GB RAID 5	600 GB

Security

DVN100

Encoder/Decoder series



Description

The DVN 100-NET is a standalone, non-PC based, fully embedded video codec capable of encoding and decoding video and audio from an analog video/audio source in real time.

Features

- **View Analog Camera Video over TCP/IP Networks** – The DVN 100-NET converts analog video to digital video for viewing over a Local Area Network (LAN), Wide Area Network (WAN), or the Internet, depending on your network configuration. The DVN 100-NET is compatible with any analog camera.
- **Control Pan-tilt-zoom (PTZ) Cameras** – The DVN 100-NET provides PTZ camera control via an RS-485 interface. PTZ controls are exceptionally responsive, with virtually no latency, regardless of the available bandwidth. PTZ-capable cameras can be controlled from any network-connected workstation. Easy, intuitive control of movement is available with the PTZ graphic control panel.
- **Light and Compact** – The DVN 100-NET's small size and light weight are beneficial for storing, transporting and installing the device.
- **Audio Input and Output Capability** – The stereo channel video input and output feature allows you to listen to encoded or decoded audio. Set up a microphone in the surveillance area to listen, not just observe, what is occurring.
- **Power Over Ethernet Compatible** – Power the unit using the 12VDC power supply or through its Ethernet port using a POE switch/hub.
- **High Quality Video Images** – The DVN 100-NET uses MPEG4 compression technology to provide up to 30 IPS (images per second) for the ultimate in crisp, clear, high resolution, full-frame images. Image resolution consists of 720x576 pixels (PAL) or 720x486 pixels (NTSC), and both image compression and image resolution can be adjusted.
- **Alarm Input and Relay Output** – Utilize the alarm input and auxiliary relay output to integrate I/O devices with the DVN 100-NET. The alarm input can be connected to an input device such as a motion detector or passive infrared detector (PIR), and can be monitored using the VisionPocket and SiteManager client software applications. When the input device triggers an alarm, VisionPocket and SiteManager can detect it in real-time, notify the user, and respond accordingly (trigger an auxiliary relay output, such as sounding an alarm or turning on a light).
- **Integrate with a DVN 5000 for Additional Features** – The DVN 100-NET can be combined with the powerful DVN 5000 Series platform for video/audio recording and playback, alarm and auxiliary handling, and intelligent motion detection.

This table present the main common feature of each type model

	DVN100 encoder mode	DVN100 decoder mode
Analogue Video In	1	NA
Loop	1	NA
Video Out	NA	1
Simultaneous Encoder	4	NA
Simultaneous Decoder	NA	1
Audio In	1	NA
Audio Out	NA	1
Auxiliary contacts	1	0
Alarm contacts	1	0
GUI	NA	NA
Hard Drives	NA	NA
IPS	25	25
Max Resolution	720x576	720x576
Compression/ Décompression	MPEG4	MPEG4 / Enpacta / wavelet
Ethernet Ports	10/100 Mbit	10/100 Mbit
Power	12 VDC / POE	12 VDC / POE
Dimensions	90W x 120D x 35H mm	90W x 120D x 35H mm

Available references

	DVN100-NET	DVN100-NET-NP	DVN-PWR-12TB
Note	Encoder or Decoder	Without power supply	Power supply only

Security DVN Software

Description

The SiteManager™ application is available as part of the Johnson Controls® Digital Vision Network (DVN) suite of products.

The DVN solution provides a fully featured digital audio/video recording and management system for 4, 8, 16, or 32 cameras. Additional functionality allows simultaneous recording, viewing, playback, archiving, and transmission of audio and video from any connected camera. SiteManager™ provides an interface to control multiple DVN systems. A PC workstation installed with SiteManager™ allows users to control and view several sites simultaneously, and offers the functionality to be able to access any number of cameras and/or servers within the DVN network.

Features

- Simultaneous Viewing of Multiple Sites.
- Logical Views, Layouts and Groups Logical: groups accessible resources (cameras, alarms, outputs and audio channels) can be grouped by logical significance.
- Screen Recorder: Ability to monitor any user's response to a triggered alarm by recording all user activity for the duration of the alarm.
- Multiple Image Export Formats.
- 2D Site Plans : BMP and WMF site plan images can be imported and populated with servers, cameras, alarms and auxiliary outputs for easy navigation.
- Fast & Easy Image Find.
- Custom Views : Display camera resources from multiple servers on a custom-made view screen. View up to 64 cameras simultaneously.
- Multiple Screen Display.
- Directed Network Alarm Display.
- Powerful Alarm Management.
- Alarm Acknowledgement User Instructions .
- Synchronized Audio.
- Live Camera Sequences.
- Synchronous Multi-camera Playback.
- Multi-camera Export.
- Instant Replay.
- Priority Call List.
- PTZ Control
- Health Monitoring: Notification when server is off-line.
- Record from Camera Video Screen : Record button allows you to save video footage on the fly and on the computer workstation's hard drive while watching the camera live.
- Browse Alarm Clips,
- View Recorded Video.

	DVN-SW-SMGRUNL	DVN-SW-SMGR5	DVN-SW-SMGR1
Note	license for unlimited users. (Required per DVN server)	license for 5 defined and active users. (Required per DVN server)	license for 1 defined and active user. (Required per DVN server)

Security DVN Option

DVN-DOMECONT
USB RS485/RS422 Interface for dome control
 (connection to USB is via a .9m detachable USB cable supplied).

Security

External storage options

External Storage Code Number Legend

(Note: All configuration from the code legend may not be available at this time)

External Storage code number legend				
DVN-STOR	NN	-	NN	NN
	External RAID Storage unit		Storage type	Number of drives
	08=8 bay unit 16=16 bay unit		25=250 Gigabyte 40=400 Gigabyte 50=500 Gigabyte	from 01-16

Features

External RAID storage unit, including 512 MB RAM, power supply, cable.
These unit can support RAID 0, 1, 3, 5 and 6.

This table presents detail of each available Configuration

	DVN-STOR16-5016	DVN-STOR16-4016	DVN-STOR08-5008	DVN-STOR08-4008	DVN-STOR08-2508	DVN-STOR08-2506
Usable hard drive capacity	7,5 TB	6 TB.	3,5 TB	2,8 TB	1,75 TB	1,25 TB

External Drive Options/Spare Parts

DVN-SCSICBL

3 foot cable used for daisy chaining external storage bays

DVN-STOR250

250 GB hard drive for add on or replacement used in JCI external storage solutions.

DVN-STOR400

400 GB hard drive for add on or replacement used in JCI external storage solutions

DVN-STOR500

500 GB hard drive for add on or replacement used in JCI external storage solutions

DVN-STOR08-0000

8 Bay sub-system for external storage for replacement or add on (does not include hard drives).

DVN-STOR16-0000

16 Bay sub-system for external storage for replacement or add on (does not include hard drives).

DVN-512MB

Additional memory for external storage sub system.



IFC – Intelligent fire controls

JCI Fire detection solution IFC Intelligent fire controls

Overview

The **IFC series** of intelligent fire alarm panels and ancillary devices offers an efficient solution for all kind of applications requiring single panel locations or interlinked buildings. Using the JCI addressable system devices and the system connectivity, the panels, the sensors and all the ancillary devices may be installed in a small system or may be distributed across several loops for big fire detection systems. The IFC panels may be also interlinked for multiple building systems where shared information or central information gathering is required.

Fire panels description

The **IFC series** are analog fire-detection microprocessor - controlled panels in compliance with EN-54.2/4 European standards (local additional approvals are available; please contact JCI for further information). The JCI - IFC intelligent fire alarm panels offers a technically sophisticated range of facilities and functions whilst remaining easy to install, program and operate.

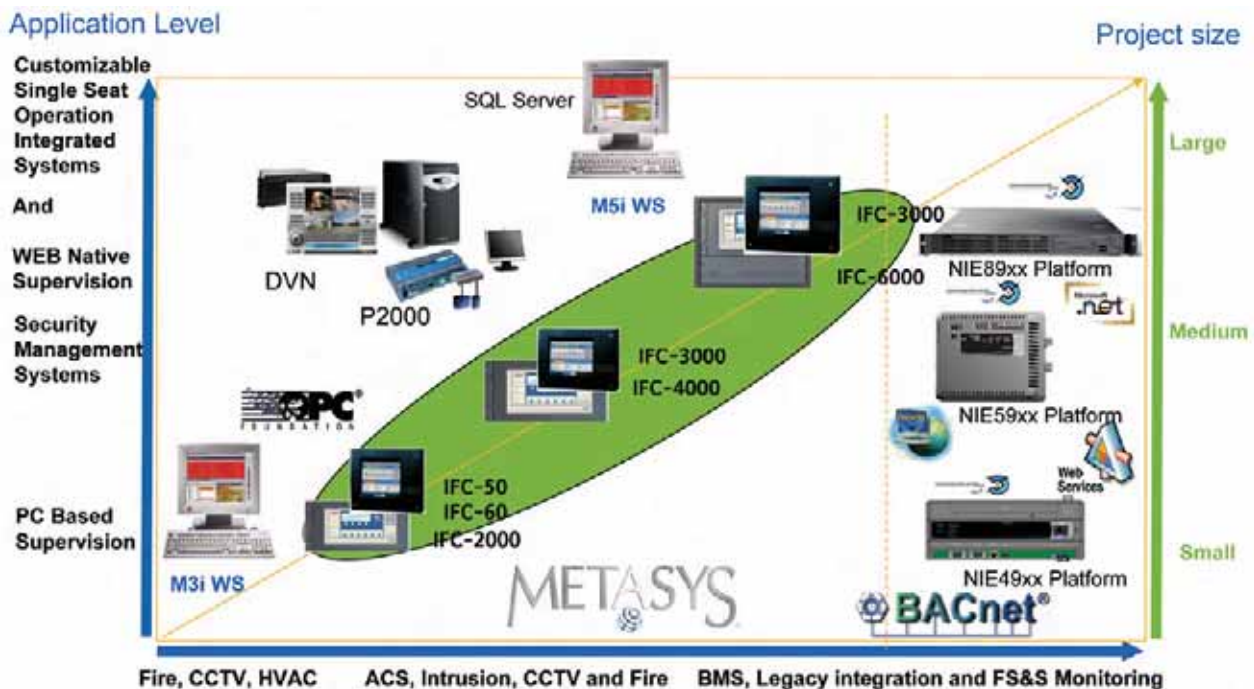
Modern styling and a variety of aesthetic options are sure to win over facility owners and architects.

A full range of intelligent sensors, advanced detection products, input and output devices, repeaters, mimic drivers, printers and other peripherals complement the IFC to bring you the most complete and versatile fire alarm system in the market place. Some of IFC control panels manage plants of type: fire and gas through special interfaces for 4÷20mA.

IFC fire control panels are available in different configurations, fixed or modular depending on the number of loops necessary for the system.



NETWORK LAYOUT





IFC – Intelligent fire controls

JCI Fire detection solution

IFC Intelligent fire controls



Access Control to Fire Detection Systems Integration

Main features of fire detection panels

- Certified to EN54 parts 2 and 4
- 99 detectors + 99 monitor/control modules per loop (198 devices).
- Serial interfaces with multiple options for RS232 port protocol
- Back-lit LCD
- Adjustable sensor sensitivity
- Drift compensation
- Network options
- Master / Slave
- Configurable day / night sensitivity adjustment
- Addressable device LED blink control
- Automatic or Manual "Loop Learn" options
- Automatic device "high test" at configured time of day
- Autoprogram option
- "Walk Test" function by zone for efficient commissioning
- History file in non-volatile memory
- Duplicate address fault monitoring
- 2 optional user configurable communication ports
- Pulsing loop powered sounders capability with steady override
- Non-alarm non-latching addressable device support for lower priority functions
- Degraded mode of operation for processor failure
- Automatic time control functions by day of week for "Control-by-Event" (CBE)
- Time of day and day of week exclusions for "CBE"
- Configurable rapid response from manual call points (less than 3 seconds)
- Coincidence detection configurable by zone or cell for "CBE"
- Fire and fault verification delays configurable by address
- Selective event log display or print by date and time
- Full configuration edit capability from panel or PC
- Standard 24V - 3A Power Supply Unit.
- 1,5 A / 24V battery-charger for 2 x 24 Ah batteries

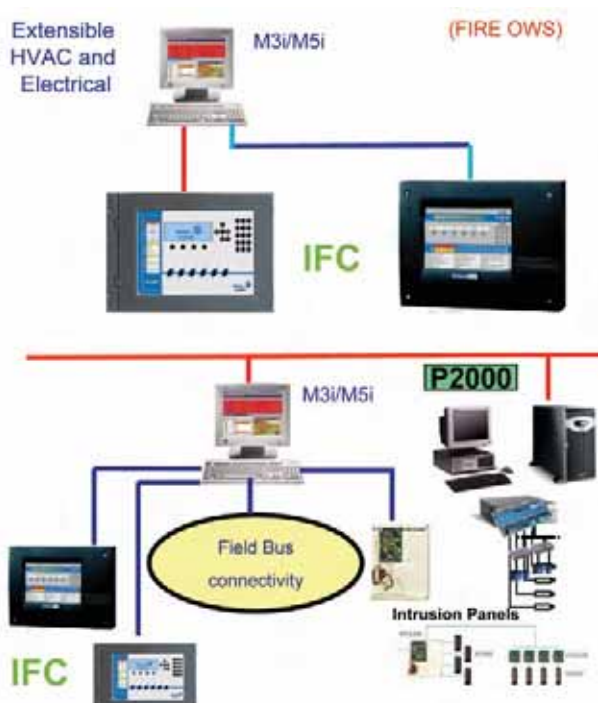
SW Main features

- Standard software in various languages
- 3 Password levels (Operator - Maintenance - Configuration).
- Programmable labels:
 - point label up to 32 characters;
 - zone description up to 32 characters;
- Real time clock with stand-by battery.
- Loop auto-programming with automatic identification of the type of devices installed.
- Automatic detection of points having the same address
- Algorithms for alarm and trouble criteria:
 - verification time for alarms and troubles.
- Optical detector maintenance warning
- Windows™ operating system compatible
- Platform for multiple product support
- Integrated "error checking"
- Cut, Copy and Paste editing functions
- Multiple options for reporting and printing data
- On-line help file



IFC – Intelligent fire controls

JCI Fire detection solution IFC Intelligent fire controls



Integration to Supervision System

Detectors description

JCI smoke sensors ensure the highest level of quality and reliability for all the needs of fire detection with the optoelectronic, temperature and rate-of-rise technologies. The JCI range of sensors is designed to meet the performance criteria of EN54 and other major international standards. Sensing chambers are sealed from back pressure air flow and are protected by a fine mesh screen to minimize contamination from dirt & insects.

This screen can be easily removed for on-site maintenance or replacement.

Additional features include interchangeable sensors (ion, rate of rise thermal, fixed temperature thermal, optical, etc.) and a full line of accessories. Direct Decade Addressing on each sensor is provided via two dials on the underside enabling the address to be "dialed" directly into the device. This eliminates the need for binary dip switches or coded card inserts and enables the address of each sensor and module to be programmed on site.

Since each sensor can be uniquely identified by the control panel, the location of a fire or fault can be quickly determined. This also enables selective maintenance of sensors should chamber contamination reach an unacceptable level.

In the Optical smoke sensor, the optical sensing chamber senses smoke particles produced from a variety of combustion sources. Smoke entering the sensing chamber causes light to scatter which is received by a photocell. The resulting signal is converted at high resolution for transmission to the panel for analysis and hence reduces the risk of unwanted alarms.

In addition JCI can offer different sensors and technology when unique hazards and environmental conditions require different sensors. So when special conditions exist we look to our "advanced detection systems." By combining the right sensors and controls, we provide the right solution to unique detection problems with a wide range of advanced detection products.

Main features of smoke detectors

- Direct Decade addressing
- 198 devices per loop (99 sensors and 99 call point/ monitor/ control modules)
- Twin LEDs for 360 degree visual alarm indication
- Removable cover for easy cleaning access
- Simple plug-in installation with electronics-free base
- Local magnet test facility
- Tamper resistant facility
- Three year warranty
- LPCB Approved to EN54
- The rate of rise heat sensor offers a Type A1R response to EN54 PT.5 with a 58°C fixed element
- The fixed temperature heat sensor provides a Type A1S response to EN54 PT.5 and has a set point of 58°C
- The high temperature sensor provides a Type BS response to EN54 PT.5 with a set point of 78°C.



IFC – Intelligent fire controls

JCI Fire detection solution IFC Intelligent fire controls

Input and output modules description

The I/O modules are designed for use with any JCI fire alarm control panel and include selectable loop isolation in every device. Direct Decade Addressing on each device is provided via two dials visible and adjustable in two planes for either plan mounting (Surface Mount Box) or end mounting when used in the DIN rail or Panel Mounting Brackets. All devices feature plug-in terminal blocks enabling both ease of installation and future module upgrades.

The Single Monitor Module allows a voltage free switch, or contact, to be regarded as an input to the control panel. It can monitor for open and short circuits in addition to alarm.

Applications include sprinkler flow switches, fireman's control switches, plant faults, etc. Also available is the small version designed to be used where space is limited.

The Single Output control module provides a monitored single output circuit for use with polarised loads (sounder circuit) which requires a suitable power source (7Vdc - 30Vdc) for the connected load.

The dual monitor module provides two supervised input device circuits that function identically to the single monitor above. The unit contains the same two Direct Decade switches with the second address being automatically assigned to the next address.

The dual input, single relay output module, as well as providing two supervised inputs also provides a single change over relay output rated at 2A @ 30Vdc making the device ideal for a shop unit interface. The unit contains the same Direct Decade addressing with the next two addresses being automatically assigned.

Whilst all of the above modules include selectable loop isolation, the isolator module provides purely loop isolation where required and is supplied in the same mechanical package. This unit does not require addressing and therefore leaves all of the 198 possible addresses on the JCI loop for input or output devices.

Alternatively the same device may be placed in to an unsupervised mode which can then be used to control any switched load up to 2A @ 30Vdc. The module may be activated as a result of pre-programmed cause and effects at the control panel. Applications include: remote sounder circuit controls; damper operation; extract fan initiation; fire door closure; etc.

Main features of input and output modules

- Analogue addressable communications
- Built-in type identification automatically identifies these devices to the control panel
- Stable communication technique with high noise immunity
- Rotary DECADE 01 to 99 address switches
- Common mounting options including Surface Mount, Panel Mount and DIN Rail Mount.
- Tri-colour LED's
- Powered directly by 2-wire loop. No additional power required
- Plug-in terminal connections for ease of field wiring
- Approved to prEN54-17



IFC – Intelligent fire controls

JCI Fire detection solution IFC Intelligent fire controls

Call points description

Call points provide a manual alarm interface to the JCI analogue addressable system. A 'Micro' Monitor Module built in to each unit provides the address electronics to the signaling loop which is fully encapsulated to prevent damage to the electronics during installation.

The module also provides two Direct Decade Addresses switches allowing the address of each unit to be simply 'dialed in' and therefore removes the requirement to be familiar with binary or other number base systems. Call points are initially provided with a 'Not In Service' plastic element which is replaced on commissioning to prevent unintended use. The units are supplied with an LED both for visual confirmation of communication to the main control panel (Programmable) and activation.

The classic call point design contains a micro switch which is held off by the edge of the glass when in situ. When the glass is broken the switch is released providing the alarm input to an in built micro monitor module which is in constant communication with the analogue addressable control panel.

A specialist key (provided) allows full testing of the unit without the need to disassemble the unit or break the glass. All glasses are supplied with a protective coating eliminating the risk of splinters causing injury.

It is also available an IP67 rated call point for external use or any area that is subject to water spray.

Main features of call points

- Up to 99 per loop (+99 Sensors)
- LPCB Approved
- 3 year warranty
- Built in LED's for confirmation of activation
- Direct Decade addressing
- Weather resistant version available IP67 rated

Other compatible devices

Many other products are available from JCI in the analogue addressable range including Duct Sensors, Multi way input output modules, Loop Powered addressable sounders, etc. In combination with a full range of control panels, the JCI analogue addressable range offers a complete system solution.

The Fire Alarm System can be also completed with Voice Evacuation System, Alarm Management, Public Address System, depending on the requirements.



IFC – Intelligent fire controls

JCI Fire detection solution

IFC Intelligent fire controls

JCI Fire panels

IFC-2000	JCI two loop intelligent fire alarm panel
IFC-4000	JCI four loop intelligent fire alarm panel
IFC-6000.4	JCI modular analogue system - four loop panel
IFC-6000.8	JCI modular analogue system - eight loop panel
IFC-6000.12	JCI modular analogue system - twelve loop panel
IFC-6000.16	JCI modular analogue system - sixteen loop panel
IFC-50A	JCI Standard single loop intelligent fire alarm panel (Language Group A). Complete with 16 zonal LED's, 4 programmable outputs, 1.5A power supply and space for 12Ah batteries. LPCB Approved. H: 385 mm W: 380 mm D: 110 mm.
IFC-60A	JCI Enhanced single loop intelligent fire alarm panel (Language Group A). Supports LASER. Complete with 16 zonal LED's, 4 programmable outputs, 1.5A power supply and space for 12Ah batteries. LPCB approved. H: 385 mm W: 380 mm D: 110 mm.
IFC-50B	JCI Standard single loop intelligent fire alarm panel (Language group B). Complete with 16 zonal LED's, sounder circuit, 1.5A power supply, space for 12Ah batteries and FBF interface. BOSEC Approved.
IFC-60B	JCI Enhanced single loop intelligent fire alarm panel (Language group B). Supports LASER. Complete with 16 zonal LED's, sounder circuit, 1.5A power supply, space for 12Ah batteries and FBF interface. BOSEC Approved.
IFC-3002A	JCI two loop intelligent control panel, which includes: back box and cover plate, basic equipment kit (language group A) containing 2 loop connections and serial ports for RS485/232 and 3 Amp power supply unit. LPCB Approved.
IFC-3004A	JCI four loop intelligent control panel, which includes: back box and cover plate, basic equipment kit (language group A) containing 2 loop connections and serial ports for RS485/232, 1 additional dual loop interface board (LIB) and 3 Amp power supply unit. LPCB Approved.
IFC-3006A	JCI 6 loop intelligent control panel, which includes: extended deep back box, main cover plate kit, extension cover kit and blank plate. Basic equipment kit (language group A) containing 2 loop connections and serial ports for RS485/232, 1 additional dual loop interface board (LIB) and 1 enhanced dual loop interface board (ELIB), 7 Amp power supply unit and dual transmission path/booster interface for PSU7A. LPCB Approved.
IFC-3008A	JCI 8 loop intelligent control panel, which includes: back box and cover plate, basic equipment kit (language group A) containing 2 loop connections and serial ports for RS485/232, 1 additional dual loop interface board (LIB) and 2 x enhanced dual loop interface boards (ELIB), 7 Amp power supply unit, dual transmission path/booster interface for PSU7A, PSU7A Status indication board and PSU7A external cabinet kit (up to 78Ah battery). LPCB Approved.
IFC-3002B	JCI two loop intelligent control panel, which includes: back box and cover plate, basic equipment kit (language group B) containing 2 loop connections and serial ports for RS485/232 and 3 Amp power supply unit. BOSEC Approved.
IFC-3004B	JCI four loop intelligent control panel, which includes: back box and cover plate, basic equipment kit (language group B) containing 2 loop connections and serial ports for RS485/232, 1 additional dual loop interface board (LIB) and 3 Amp power supply unit. BOSEC Approved.
IFC-3006B	JCI 6 loop intelligent control panel, which includes: extended deep back box, main cover plate kit, extension cover kit and blank plate. Basic equipment kit (language group B) containing 2 loop connections and serial ports for RS485/232, 1 additional dual loop interface board (LIB) and 1 enhanced dual loop interface board (ELIB), 7 Amp power supply unit and dual transmission path/booster interface for PSU7A. BOSEC Approved.
IFC-3008B	JCI 8 loop intelligent control panel, which includes: back box and cover plate, basic equipment kit (language group B) containing 2 loop connections and serial ports for RS485/232, 1 additional dual loop interface board (LIB) and 2 x enhanced dual loop interface boards (ELIB), 7 Amp power supply unit, dual transmission path/booster interface for PSU7A, PSU7A Status indication board and PSU7A external cabinet kit (up to 78Ah battery). BOSEC Approved.



XRM

Extended room management

JCI Hospitality solution

for room management of small and large hotels

Overview

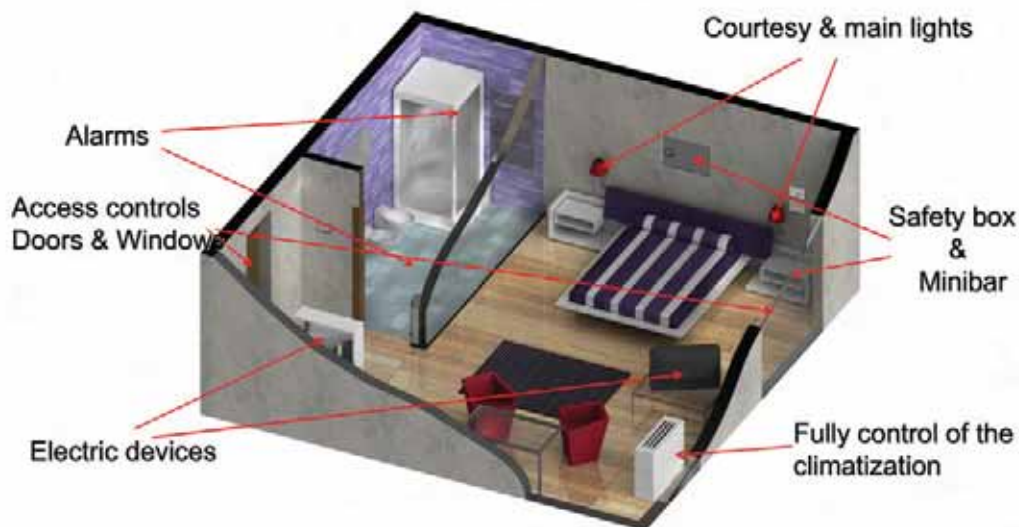
The solution consists of one or more (local or remote) control workstations, with no limit to their number, which are connected via Internet to a server which is, in turn, connected via Ethernet to zone controllers. Via standard RS485 field buses, the latter interact with specialised, intelligent terminals, which are installed in the hotel rooms and, where necessary, in the communal areas, in order to manage the hotel in a comprehensive manner.

The integrated management of the hotel using the XRM system allows you to:

- guarantee a high level of security with controlled opening of entrances using chip-cards. Each time an entrance is opened and/or closed it is recorded on the server so as to provide a comprehensive report of events;
- guarantee rapid information supply about any problems arising from various kinds of system and/or alarm malfunction, so that repair work can be carried out immediately and, with absolute certainty, directly at the critical point. This also means further optimising resources and avoiding damage due to neglect were the problem not notified;
- guarantee an effective and efficient method of temperature regulation in the rooms and communal areas, which is environmentally-friendly and means significant energy savings without restricting the comfort of the guests who are free to act within the limits of the policies chosen by the management;
- guarantee continuity of the system's critical functions, even when malfunctions may be due to external circumstances such as a cut in power supply, accidental physical interruption of the data bus or criminal damage.

An intuitive control software guides the operator (locally or remotely) and allows him to monitor the system, modify its settings, consult the historic records, create reports and speed up the flow of information.

The system can be integrated with third-party software and components.



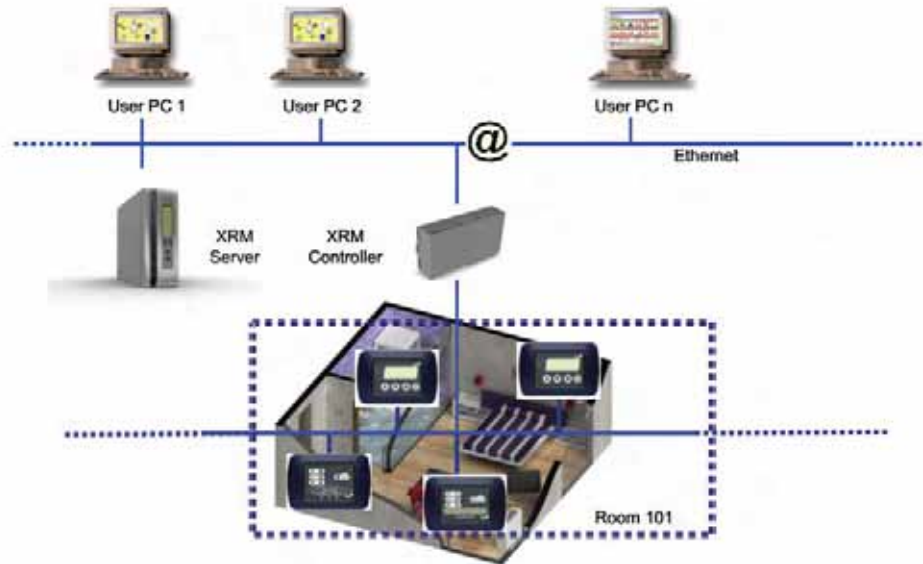


XRM

Extended room management

JCI Hospitality solution

for room management of small and large hotels



Standard features

Dedicated to receptionist

- Intuitive Graphics User Interface eases the management
- Pre and Post Checkin features
- Data Logging, Alarm Logging, Trends and Reports
- Full Room management reception, Guest oriented
- Native solution Property Management Systems (Fidelio) compatible
- Localizable
- Fully Web Based Solution

Dedicated to the Building

- Energy Saving climatization and lights
- Rooms Temperature and common area controlled
- Real Client/Server Solution
- Over 1000 Rooms controlled
- Flexible Room Configurations (libraries) and common areas
- Compatible with the Hotel IT infrastructure
- Security Authentification features

Dedicated to the guest

- Speed up the guest waiting time using the fast check in or pre-check in
- The not disturb local and remote status of the room warranty the privacy of the guest
- Increase the security and the comfort of the guest thanks to the customize alarms, calls and temperature control.
- Bath Alarm
- SOS
- Fire
- Intrusion
- Chambermaid/waiter call
- Set point override Fan speed command ... etc



Refrigeration

Modulating water valves

V46 Pressure actuated water valves



Type	Size	Range in bar	Body style
V46AA	3/8"	5-18 or 5-23	angled
V46BA	3/8"	5-18 or 5-23	straight
V46AB	1/2"	5-18 or 5-23	angled
V46BB	1/2"	5-18 or 5-23	straight
V46AC	3/4"	5-18 or 5-23	angled
V46BC	3/4"	5-18 or 5-23	straight
V46AD / BD	1"	5-18 or 10-23	straight
V46AE / BE	1 1/4"	5-18 or 10-23	straight
V46AR / BR	1 1/2"	5-18 or 7-14	straight, flanged
V46AS / BS	2"	5-11.5 or 11-18	straight, flanged
V46AT / BT	2 1/2"	5-11.5 or 11-18	straight, flanged

Description

These pressure actuated modulating valves control the quantity of water to a condenser by directly sensing pressure changes in a refrigerant circuit. The valves can be used in non-corrosive refrigerant systems. Ammonia power elements and valves designed for salt-water applications are available. The valves have a quick opening characteristic and open on pressure increase (direct acting). Reverse acting (close on pressure increase) is possible.

Features

- Pressure balanced valve design
- High refrigerant pressure resistant bellows
- Pressure actuated
- 3/8, 1/2, 3/4" are angled body type valves with high Kv value
- 3/8" up to 2" pressure valves "all range" types
- Quick opening valve characteristics
- No close fitting or sliding parts in water passages
- Easy to disassemble. All parts can be replaced
- Special bronze bodies and monel parts
- Power elements with stainless steel bellows available
- Wide range of pressure connection styles
- Nickel plated seats available for 3/8, 1/2, and 3/4" valves
- Direct/reverse action

Refrigeration

Modulating water valves

V46SA Two-way pressure actuated water valves, low flow



Type	Size	Range in bar	Body style
V46SA	3/8"	5-23	straight

Description

The V46SA is a direct acting, "all range", pressure actuated modulating valve, used to control the waterflow to a condenser by directly sensing pressure changes in a non-corrosive refrigerant circuit. The V46SA is specially designed for use on equipment requiring a low condenser waterflow such as icemakers, small heatpumps and watercoolers. The springhousing and power element are rolled to the valve body. Rubber diaphragms seal the water away from the range spring and bellows part so these are not submerged in water where they would be subject to sedimentation and corrosion. The valve can be ordered style 5 (without capillary), style 13, style 34 and style 50 (incl. 75 cm capillary).

The capillary part will be delivered separated from the valve.

Features

- Valve designed for low flow.
- "All range" power element and spring housing.
- Small dimensions.
- Pressure actuated
- Various pressure connection style
- High refrigerant pressure resistant bellows.

Refrigeration

Modulating water valves

V47 Two-way temperature actuated water valves



Type	Size	Range in °C	Body style
V47AA	3/8"	24-57 or 46-82	angled
V47AB	1/2"	24-57 or 46-82	angled
V47AC	3/4"	24-57 or 46-82	angled
V47AD	1"	24-57 or 46-82	straight
V47AE	1 1/4"	24-57 or 46-82	straight
V47AR	1 1/2"	24-57 or 46-82	straight, flanged

Description

These modulating water valves can be used for heating applications. It does have an heating element which means that the bulb temperature always must be higher than the valve body (power element). The valve opens at increasing bulb temperature. The bulb must be mounted pointing downwards up to horizontal.

Features

- Pressure balanced valve design
- 3/8, 1/2, 3/4" are angled body type valves with high Kv value
- Quick opening valve characteristics
- No close fitting or sliding parts in water passages
- Easy to disassemble. All parts can be replaced
- Special bronze bodies

Refrigeration

Modulating water valves

V48 Three-way pressure actuated water valves



Type	Size	Range in bar	Body style
V48AB	1/2"	4-16 or 4-20	straight
V48AC	3/4"	4-16 or 4-20	straight
V48AD	1"	4-16 or 6-20	straight
V48AE	1 1/4"	4-16 or 6-20	straight
V48AF	1 1/2"	6-14	straight

Description

These watervalves are especially designed for condensing units cooled either by atmospheric or forced draft cooling towers. They may be used on single, or multiple condenser hook-ups to the tower. The type V48 valve senses the compressor head pressure and allows cooling water to flow to the condenser, to by-pass the condenser, or to allow waterflow to both condenser and by-pass line in order to maintain correct refrigerant head pressure. A further advantage of this system is that the 3-way valve permits a continuous water flow to the tower so the tower can operate efficiently with a minimum of maintenance on nozzles and wetting surfaces. The valves can be used in non-corrosive refrigerant systems. Ammonia power elements and valves designed for salt-water applications are available. The valves have a quick opening characteristic.

Features

- Pressure balanced design
- Free movement of all parts
- Easy manual flushing
- High Kv values
- Pressure actuated
- Can be used as mixing or diverting valve

Refrigeration

Refrigeration field controllers

MR. Electronic refrigeration controls



Description

The MR10/40 range of controllers have been specifically designed for the control of both 'static' or 'ventilated' refrigeration units working at either positive or negative temperatures. The range includes controllers incorporating all the features required by modern units such as compressor and evaporator fan control, as well as full 'off-cycle' or 'active' defrost control. Certain variants include an additional output enabling alarm signalling, light control or defrost "master-slave" management.

The MR40 functions can be further expanded by the addition of an optional LON or Johnson Controls N2Open serial communication card. The controller can optionally be fitted with a Real Time Clock card for energy savings and real time scheduling of events such as defrost cycles when not connected to a supervisory system.

Features: Version Dependant

- Din Rail & Panel mount versions available
- 12V & 230Vac power supply models available.
- Up to 4 relays in a single package
- Heavy duty 16A thermostat output
- Accurate and interchangeable IP68 sensors
- Wide range of sensors with various enclosures available.
- SMD technology
- Keyboard lock
- LON and N2Open serial communication cards (optional)
- Real Time Clock (optional)

		MR11PM12R-1C	MR11PM230-1C	MR12PM12R-1C	MR12PM12R-A1C	MR12PM230-Z1C	MR12PM12H-1C	MR13PM12R-2C	MR14PM12R-A2C	MR14PM12R-A2C	MR1DR230-1C	MR2DR230-1C	MR12DR230-1C	MR4DR230-2C	MR42PM12R-1C	MR42PM12R-A1C	MR43PM12R-2C	MR44PM12R-A2C	MR44PM12R-PA2C
	Enclosure	Panel	Panel	Panel	Panel	Panel	Panel	Panel	Panel	Panel	Din Rail	Din Rail	Din Rail	Din Rail	Panel	Panel	Panel	Panel	Panel
	Power	12V	230V	12V	12V	230V	12V	12V	12V	12V	230V	230V	230V	230V	12V	12V	12V	12V	12V
Outputs	Compressor	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Fan								•	•			•	•			•	•	•
	Defrost							•	•	•			•	•			•	•	•
	Aux				•				•	•	•	•	•	•		•	•	•	•
	Pump Down												•						
Inputs	Sensors	1	1	1	1	1	1	2	2	2	1	1	1	2	1	1	2	2	2/PT1000
	Binary Input			•	•	•	•	•	•	•		•	•	•	•	•	•	•	•
Option Communication															•	•	•	•	•

Refrigeration

Refrigeration field controllers

MS. Single and multistage controllers for refrigeration, heating, humidity and pressure



Description

This range of versatile controllers is intended for single or multistage (2 or 4 stages) applications such as heating, cooling, humidity or pressure control.

The range incorporates all control functions as required by modern applications and it exists in both panel mount and din rail enclosures.

This complete range of microprocessor based controls offers innovative features and state of the art technology.

Features: Version Dependant

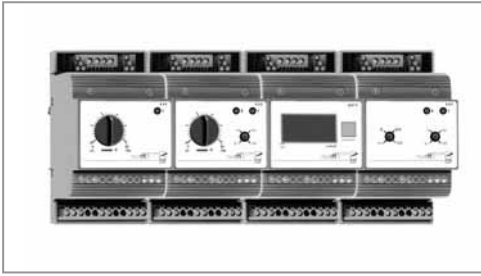
- Din Rail & Panel mount versions available
- 12V & 230Vac power supply models available.
- Up to 4 relays in a single package
- Accepts A99 and 0-10V sensor signals depending upon models.
- Power supply to sensors on 0-10V models available from controller.
- Accurate and interchangeable IP68 sensors
- Wide range of sensors with various enclosures available.
- SMD technology
- Keyboard lock

		DIS12T-1C	DIS230T-1C	DIS12V-1C	DIS230V-A1C	MS1PM12RT-Z1C	MS1PM230T-1C	MS21PM12RT-1C	MS1DR230T-1C	MS1PM12RV-1C	MS1PM230V-1C	MS1DR230V-1C	MS2PM12RT-1C	MS2DR230T-1C	MS2PM12RV-1C	MS2DR230V-1C	MS2DR48DT-1C	MS4MP12RT-1C	MS4DR230T-1C	MS4DR48T-1C
	Enclosure	Panel	Panel	Panel	Panel	Panel	Panel	Panel	Din Rail	Din Rail	Din Rail	Din Rail	Panel	Din Rail	Panel	Din Rail	Din Rail	Panel	Din Rail	Panel
	Power	12V	230V	12V	230V	12V	230V	12V	230V	12V	230V	230V	12V	230V	12V	230V	12-24-48	12V	230V	12-24-48
	Display Only	•	•	•	•															
Outputs	Stage 1					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Stage 2												•	•	•	•	•	•	•	•
	Stage 3/4																	•	•	•
	Alarm					•	•	•	•	•	•	•						•	•	•
Inputs	Temperature	•	•			•	•	•	•				•	•			•	•	•	•
	Humidity			•	•					•	•	•			•	•				
Binari Input													•	•	•	•	•	•	•	•

Refrigeration

Refrigeration field controllers

System 27 NOVA, one- and two-stage thermostat, without sensor



Description

System 27 NOVA is a family of modern modular electronic modules designed for a wide variety of control configurations in refrigeration, heating, ventilation, air-conditioning and other related fields.

The modular concept was specially designed to make control configuration easier and still offer the flexibility necessary to answer the many individual control requirements encountered today.

The temperature control modules can be used as a stand alone device or together with other modules, such as, stage modules, display modules, time switch modules, etc., to achieve a diverse number of single or multistage applications.

Features

- Modular design
- "Plug-in" quick connector wiring system
- Adjustable differential and heating/cooling setting
- Wide range of enclosures for sensing elements
- Attractive DIN-rail mount housing
- Setpoint shift output function

Application

Typical applications are:

- refrigerated/freezer display cases
- beverage coolers
- liquid chillers
- cold-room storage.

A27AxNxx	Range	R-40/40 C , 10/100 C
	Power supply	24 Vac/dc , 230 Vac
	One stage and Two stage SPDT	
P27AxNxx	Range	-1 /8 bar , 0/30 bar
	Power supply	230 Vac
	One stage and Two stage SPDT	
W27Nxx	Range	0- 99 % RH
	Power supply	24 Vac/dc , 230 Vac
	One stage and Two stage SPDT	

Refrigeration

Refrigeration field controllers

System 27 NOVA, display modules, without sensors



D27AxNx	Temperature display DIN mounted, -40 - 100 C, 230 Vac
D27WxNx	Humidity display DIN mounted, 0 - 99 % RH, 230 Vac
D27PxNx	Pressure display DIN mounted, 0- 30 bar, 230 Vac
D27AF-9100	Temperature display Panel Mount, -40 -100 C , 230 Vac

Refrigeration

Refrigeration field controllers

System 27 NOVA stage modules,
incl. quick connector



S27Ax	Stage modules , 24 Vac / 230 Vac , two stages SPDT
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Refrigeration

Refrigeration field controllers

System 27 NOVA signal converter



This converter can be used to transfer an input signal (or part of an input signal) to an output signal of 0 to 10 V or 4 to 20 V

Y27Lx	Signal Converter Temperature Input -15 /100 °C , 24 Vac/230 Vac
Y27Mx	Signal Converter Voltage Input 0 to 10 Vdc , 24 Vac/230 Vac

Refrigeration

Fan speed controllers

P215 Pressure actuated single phase fan speed controllers

	Output
P215DP-series	8A
P215ST-series	6A
P215SH-series	4A
Range	8-14 barg/14-24 barg/22-42 barg

Description

These controllers are designed for speed variation of single phase motors, especially for fan speed control on air cooled condensers.

Head pressure control of a refrigeration system, through speed variation of the fan on an air-cooled condenser, results in optimum performance throughout the year.

Using a pressure transducer as the input device to the fan speed controller, gives the most direct and fastest response to pressure variations in the refrigerant system. The controller varies the supply voltage to the motor from 45 % to at least 95 % over the proportional band using the phase cutting principle. It is recommended to confirm with the electric motor manufacturer if a controller using the phase cutting principle for speed variation can be used.

The controller used for dual pressure input varies the fan speed by directly sensing the pressure changes of two separate refrigerant circuits.

The setpoint of each pressure transducer can be separately adjusted. The controller selects the input with the greatest cooling demand to control the fan speed. The transducers can be used in non-corrosive refrigerant systems.

Features

- Condenser pressure control by fan speed variation.
- Pressure input.
- Transducers with proven reliability.
- Easy accessible setpoint screw.
- Adjustable minimum speed or cut-off selection.
- Dual input possibility (P215DP only)
- Heatpump input available (P215SH)
- IP54 enclosure
- Special bronze bodies and monel parts
- Power elements with stainless steel bellows available
- Wide range of pressure connection styles
- Nickel plated seats available for 3/8, 1/2, and 3/4" valves
- Direct/reverse action

Refrigeration

Fan speed controllers

P215 Direct mount pressure actuated fan speed controllers. (incl. built-in RFI suppression filter)

	Output
P215PR-series	4 A
Range	10-25 barg/22-42 barg

Description

These Direct Mount pressure actuated condenser fan speed controllers are designed for speed variation of single-phase motors.

Head pressure control of a refrigeration system, through speed variation of the fan on an air-cooled condenser, results in optimum performance throughout the year.

A pressure actuated device, gives the most direct and fastest response to pressure variations in the refrigerant system. The controller varies the supply voltage to the motor from 30 % to at least 95 % over the proportional band using the phase cutting principle. This provides speed variation of permanent split capacitor or shaded pole motors that do not draw more than 4 A (rms) full load current.

Cut-off models (fan stops at low pressure) as well as minimum speed models (fan keeps running at 30%) are available.

The controllers can be used in non-corrosive refrigerant systems.

Features

- Condenser pressure control by fan speed variation.
- Pressure input.
- Direct mount (Screw or Braze connection)
- Setpoint screw on top.
- Built-in suppression filter.
- IP65
- Compact design
- Attractive styling
- Quick connector plug included

Refrigeration

Fan speed controllers

P215 Pressure actuated single phase fan speed controllers



	Output
P215LR-series	3A
P215BR-series	3A
P215TR-series	3A
Range	8-14 barg/14-24 barg/22-42 barg

Description

The P215LR is a single pressure input, the P215BR is a dual pressure input and the P215TR is a triple pressure input fan speed controller for air cooled condensers with respectively single, dual and triple refrigerant circuits. The controller varies the fan speed by directly sensing the pressure changes of one, two or three separate refrigerant circuits. The setpoint of each pressure transducer can be separately adjusted. The controller selects the input with the greatest cooling demand to control the fan speed.

The controllers can be used in non corrosive refrigerant systems and vary the supply voltage to the motor from 45 % to $\geq 95\%$ of the supplied voltage using the phase cutting principle. It is recommended to confirm with the electric motor manufacturer if a controller using the phase cutting principle for speed variation can be used. If the pressure drops below the adjusted setpoint minus the proportional band, the output to the motor is zero volt or the adjusted min. speed setting.

Features

- Condenser pressure control by fan speed variation.
- Pressure input.
- Model with heatpump input available
- Transducers with proven reliability.
- Easy accessible setpoint screw.
- Adjustable minimum speed or cut-off selection. (only on LR and BR models)
- Motor speed action can be reversed by interchanging only two wires.
- Dual pressure input (BR models).
- Triple pressure input (TR models)
- Small dimensions.
- DIN rail mounted

Refrigeration

Fan speed controllers

U215LR 0-10 Vdc/4-20 mA input single phase fan speed controllers



U215LR-9110	3A
Range	0-10Vdc/4-20mA

Description

These controls can be used to modulate the fan speed in response to the demand of a control system in ventilation applications and VAV systems. A 0-10 Vdc or 4-20 mA signal coming from a (e.g. temperature/ pressure/ humidity/ flow) control loop is used as input while the U215 fan speed controller acts like an actuator.

The controller modulates the speed of single phase permanent split-capacitor or shaded pole motors which do not draw more than 3 A (rms) full load current. The device varies the supply voltage to the motor from 45 % to $\geq 95\%$ of the supplied voltage using the phase cutting principle. It is recommended to confirm with the electric motor manufacturer if a controller using the phase cutting principle for speed variation can be used.

Features

- Built-in suppression filter.
- Input galvanically separated from high voltage part.
- Adjustable minimum speed or cut-off selection.
- Input selection 0-10 V or 4-20 mA.
- Small dimensions.
- DIN rail mounted

Refrigeration

Fan speed controllers

A255 Temperature actuated fan speed controllers for 3-phase motors



A255MM-9100	3 x 5A
Range :	0-65 Degree Celcius

Note : A99 can be used for input

Description

These controllers are designed for applications where the fan speed must be controlled by a temperature sensor input signal .

The controller varies the supply voltage to the motor from 30 % to at least 96 % over the proportional band using the phase cutting principle. It is recommended to confirm with the electric motor manufacturer if a controller using the phase cutting principle for speed variation can be used. Motors that will be controlled by the A255 should not draw more than 5 A per phase.

Features

- Various temperature sensor enclosures to match many applications.
- Allows connection in both "Star" and "Delta" configurations.
- Contact input to force output to max. or off.
- Built-in direct/reverse action selector switch.
- IP54 enclosure.
- Built-in set point adjustment.
- Minimum speed or cut-off selection.
- Adjustable minimum speed or cut-off.
- Adjustable maximum speed limit.
- Proportional band adjustment.
- Adjustable hysteresis in cut-off mode.
- Cos ϕ motor adjustment.

Refrigeration

Fan speed controllers

U255 (0 - 10 V input) fan speed controllers for 3-phase motors



U255MM-9100	3 x 5A
Range :	0-10 Vdc

Note : P499 can be used for input

Description

These controllers are designed for applications where the fan speed must be controlled by a voltage input signal (e.g. 0-10V, 1-5V etc.) from a transmitter or control system. The signal from one pressure transmitter connected to electronic pressostats, indicators and fan speed control eliminates pressure connections and capillaries through which possible loss of refrigerant is reduced. Head pressure control of a refrigeration system, through speed variation of the fan on an air-cooled condenser, results in optimum performance throughout the year.

The controller varies the supply voltage to the motor from 30% to at least 96% over the proportional band using the phase cutting principle. It is recommended to confirm with the electric motor manufacturer if a controller using the phase cutting principle for speed variation can be used. Motors that will be controlled by the U255 should not draw more than 5 A per phase.

Features

- Adjustable voltage input.
- Allows connection in both "Star" and "Delta" configurations.
- Contact input to force output to max. or off.
- Built-in power supply.
- Built-in direct/reverse action selector switch.
- IP54 enclosure.
- Built-in set point adjustment.
- Minimum speed or cut-off selection.
- Adjustable minimum speed or cut-off
- Adjustable maximum speed limit.
- Proportional band adjustment.
- Adjustable hysteresis in cut-off mode.
- Cos ϕ motor adjustment.

Refrigeration

Fan speed controllers

P255 Single/Dual input pressure actuated fan speed controllers for 3-phase motors

P255MM/ML-series	3 x 5A
Range :	3.5-10/ 8-14 / 14-24 / 22-42 barg

Note : P35-series used for input

Description

These controllers are designed for speed variation of 3-phase motors, especially for fan speed control on air cooled condensers.

Head pressure control of a refrigeration system, through speed variation of the fan, results in optimum performance throughout the year.

Using a pressure transducer as the input device, gives the most direct and fastest response to pressure variations in the refrigerant system. The controller varies the supply voltage to the motor from 30% to at least 96% over the proportional band using the phase cutting principle. It is recommended to confirm with the electric motor manufacturer if a controller using the phase cutting principle for speed variation can be used. Motors that will be controlled by the P255 should not draw more than 5 A per phase.

The controller used for dual pressure input varies the fan speed by directly sensing the pressure changes of two separate refrigerant circuits. Each pressure transducer can be adjusted at a setpoint between 8 to 42 bar. The controller selects the input with the greatest cooling demand. The transducers can be used in non-corrosive refrigerant systems.

Features

- Condenser pressure control by fan speed variation.
- Pressure input.
- Dual input possibility.
- Transducers with proven reliability.
- Easy accessible setpoint screw.
- Minimum speed or cut-off selection.
- Adjustable minimum speed or cut-off.
- Adjustable maximum speed limit.
- Proportional band adjustment.
- Contact input to force output to max. or off.
- Allows connection in both "Star" and "Delta" configurations.
- Motor speed action can be reversed by interchanging only two wires.
- Adjustable hysteresis in cut-off mode.
- IP54 enclosure for electronic module.
- Cos ϕ motor adjustment

Refrigeration

Fan speed controllers

P35 Mechanical pressure transducer for P215 / P255 series

Range	3.5-10 barg / 8-14 barg / 14-24 barg / 22-42 barg
Resistance	100 Kohm / 300 Kohm / 500 Kohm

Description

The P35 is a single pressure input fan speed controller for air cooled condensers. The controller varies the fan speed by directly sensing the pressure changes in a refrigerant circuit. The point of each pressure transducer can be separately adjusted. The controller selects the input with the greatest cooling demand to control the fan speed.

Features

- Condenser pressure control by fan speed variation.
- Pressure input/Dual pressure input (BR models).
- Model with heat pump input available
- Transducers with with proven reliability.
- Easy accessible setpoint screw.
- Built-in suppression filter.
- Adjustable minimum speed or cut-off selection.
- Minimum speed or cut-off selection.
- Motor speed action can be reversed by interchanging only two wires
- Small dimensions and DIN rail mounted.

Refrigeration

Flow and float controls

F61 Flow switches for liquid



Description

The F61 liquid flow switches can be used in liquid lines carrying water, sea water, swimming pool water, ethylene glycol or other liquids not harmful to the specified materials. The switches have SPDT contacts and can be wired to energise one device and de-energise another when liquid flow either exceeds or drops below the set flow rate. Pipe insert models and the T-body types for low-flow applications are available. The IP43 versions can be used for liquid temperatures above dewpoint (for use in other environments see the Product Data Sheet). Typical applications are to shut down the compressor on liquid chiller systems, to prove flow on electric immersion heaters and to give a signal or alarm when the pump on condenser cooling system shuts down.

Features

- T-body and Pipe-insert types available
- Polycarbonate IP43 enclosure
- Vapour tight IP 67 enclosure
- Stainless steel Pipe-insert type
- Large wiring space
- Range screw easy accessible.

Type	Range in dm ³ /s	Enclosure
F61SD	0.04 to 0.07	IP43
	0.08 to 0.11	IP43
F61TD	0.04 to 0.07	IP67
F61SB	0.15 to 46	IP43
F61TB	0.15 to 46	IP67

Refrigeration

Flow and float controls

F62 Air flow switches



Description

The F62 airflow switch detects air flow or the absence of air flow by responding only to the velocity of air movement within a duct. The control can be wired to open one circuit and close a second circuit (SPDT) for either signaling or interlock purposes. Failure of air flow during normal operation of air handling systems may cause over-heating, coil icing and other conditions that may be detrimental to the equipment.

Typical applications include make-up air systems, air cooling or heating processes and exhaust systems.

Features

- Polycarbonate IP43 enclosure
- Large wiring space
- Range screw easily accessible.

Type	Adjustment	Enclosure
F62	10 m/sec	IP43

Refrigeration

Flow and float controls

F63 Liquid level float switches



Description

The F63 is a liquid level float switch for use in open or closed tanks where a desired liquid level has to be maintained and installations handling water, swimming pool water, sea water, brine, ethylene glycol or other liquids not harmful to the specified materials. The switches have SPDT contacts and can be wired to close one circuit and open a second circuit when the liquid level rises above or falls below the required level. The switch maintains the liquid level within (approx.) 13 mm.

There are three different types available. The phosphor bronze bellows version for use in applications where the liquid is not corrosive to phosphor bronze. The stainless steel bellows version for use in environments like cooling towers (water with high calcium content) and a complete stainless steel AISI 316L version. These float switches should not be used for liquids lighter than water (density less than 0.95 kg/dm³).

Type	Adjustment	Enclosure
F63	Fixed	IP67

Features

- Solid polycarbonate float
- Vapour tight IP 67 enclosure
- Convenient wiring terminals

Refrigeration Pressure controls

P232 / P233 Sensitive differential pressure control



Description

This switch senses a change in the (differential) pressure as the airflow changes. The (differential) pressure is applied to the two sides of a diaphragm in the control. The spring-loaded diaphragm moves and actuates the switch. The series P233A/F can also be used to detect small positive gauge pressure or to detect a vacuum.

Features

- One switch to measure relative pressure, vacuum or differential pressure
- Various accessories available
- Compact and durable construction
- Easy mounting and wiring, various mounting possibilities
- Standard PG 11 nipple and optional DIN 43650 connector
- Accurate and stable switch point
- SPDT contact standard

Application

This (differential) pressure switch is used to sense flow of air, single or differential air pressure.

Typical applications include:

- Detect clogged filter
- Detect frost or ice build-up on air conditioning coils
- Air proving in heating or ventilation ducts.
- Maximum airflow controller for variable air volume system.
- Detect blocked flue or vent
- Monitor fan operation

Type	Range in W.C.	Differential
P232A-B	0.2 to 1.6	< 0.1
Type	Range in mbar	Differential
P233A-4	0.5 to 4	< 0.3
P233A-6	0.5 to 6	< 0.3
P233A-10	1.4 to 10	< 0.5
P233A-50	6 to 50	< 1,2

Refrigeration Pressure controls

P20 Pressure control



Description

The P20 series high and low limit (cut-out) controls for all non-corrosive refrigerants are compact pressure controls ideally suited for commercial or residential packaged air conditioning units, heat pumps, small water chillers, ice cube machines and other applications where a semi fixed setting is acceptable or required and where mounting space is limited. The P20 series includes auto reset as well as manual reset models and is factory set. A special setting tool is available while also field (screwdriver) adjustable models can be chosen.

Features

- Field proven reliability.
- Reset tab must be released before restart.
- (Trip free manual reset).
- Compact design.
- Enclosed dust-tight switch.
- SPDT contact with special terminals.
- Test pressure 53 bar.
- Designed for at least 300000 cycles.

Type	Range in bar	Differential
P20EA	0.5 to 10	auto reset
	7 to 29	auto reset
	14 to 41	auto reset
P20FA	0.5 to 10	manual reset
P20GA	7 to 29	manual reset

Refrigeration Pressure controls

P28 Oil protection control



Type	Range in bar
P28DA	0.6 to 4.8
P28DJ	0.6 to 4.8
P28DP	0.6 to 4.8
P28DN	0.6 to 4.8

Description

These controls measure the pressure differential between the pressure generated by the oil pump and the refrigerant pressure at the crankcase. A built in time delay switch allows for pressure pick up on start and avoids nuisance shutdowns on pressure drops of short duration during the running cycle.

When the compressor is started, the time delay switch is energised. If the net oil pressure does not build up within the required time limit, the time delay switch trips to stop the compressor. If the net oil pressure rises within the required time after the compressor starts, the time delay switch is automatically de energised and the compressor continues to operate normally. If the net oil pressure should drop below setting (scale pointer) during the running cycle, the time delay switch is energised and, unless the net oil pressure returns to cut in point within the time delay period, the compressor will be shut down, and have to be manual reset. The compressor can never run longer than the predetermined time on low oil pressure.

Controls are available only for manual reset after cut-out..

Features

- Heavy duty pressure elements
- Safety lock-out with trip-free manual reset
- Ambient compensated timing
- Dust-tight Penn switch

Application

These oil protection controls are designed to give protection against low net lube oil pressure on pressure lubricated refrigeration compressors.

Refrigeration Pressure controls

P45 Oil protection control



Type	Range in bar
P45NBB	0.5 to 4
P45NCA	0.5 to 4

Description

The series P45 controls are designed to give protection against low lube-oil pressure on pressure lubricated refrigeration compressors. The controls measure the pressure differential (net oil pressure) between the pressure generated by the oil pump and the refrigerant pressure at the crankcase. A built-in time delay switch allows pressure build-up during start and avoids nuisance shut-down on pressure drops of short duration during the running cycle.

Features

- Several million in use today.
- Heavy duty pressure elements.
- Key specifications match/exceed other brands.
- Accurate 0.2 bar switch differential standard.
- Adjustable or fixed setpoint.
- Safelight output standard.
- Trip-free manual reset.
- High current rated output.
- Ambient compensated timing.

Refrigeration Pressure controls

P48 Steam pressure control



Description

The P48 series have been developed for special applications where pressure must be controlled. All models have an adjustable differential depending on the range (see type number selection table). The P48AAA-9110 and P48AAA-9120 has the power element outside the case.

All the models have phosphor bronze bellows and brass pressure connections except the P48AAA-9150. This model has a stainless steel bellows and pressure connection and is provided with a brass adapter 1/4"-18 NPT female to R3/8 male.

Features

- Generous wiring space provided
- Splash-proof enclosure (IP54)
- SPDT contacts are provided as standard on single pressure control
- Trip-free manual reset

Application

The series P48 pressure controls are designed as operating or high/low cut-out control on steam, air or (hot) water applications. Also for non-combustible gases which are not harmful to the materials in contact with these mediums. On steam applications a steam trap is recommended (see Accessories).

Type	Range in bar	Differential
P48AAA	0 to 1	auto reset
	0.2 to 4	auto reset
	-0.2 to 10	auto reset
	1 to 16	auto reset
	3 to 30	auto reset
P48BEA	4 to 16	manual reset

Refrigeration Pressure controls

P74 Differential pressure control



Description

The P74 series of differential pressure switches incorporate two opposing pressure elements and an adjustable range setpoint spring with a calibrated scale. The control switches at the indicated setpoint on an increase in differential pressure and switches back to the normal position when the differential pressure decreases to the setpoint less the mechanical switching differential.

Features

- Heavy duty pressure elements.
- These controls may be used in combination with series P28 lube oil protection control on two compressor, single motor units

Application

These controls are designed to sense pressure differences between two points and may be used as operating or limit controls. Typical applications are to detect flow across a chiller or water cooled condenser, to detect flow in a heating system and sensing lube oil pressure differential on refrigeration compressors.

Type	Range in bar
P74DA	0.6 to 4.8
P74EA	0.6 to 4.8
P74FA	0 to 1 or 2 to 8

Refrigeration Pressure controls

P735 Single pressure control



Description

The P735 series pressure controls may be used for control functions or limit functions, depending on model number. All models are provided with alarm contacts. All standard models have phosphor bronze bellows and brass pressure connections. Models for use with ammonia are provided with stainless steel bellows and connectors.

Features

- Generous wiring space
- SPDT contacts are provided as standard on single pressure controls
- Trip-free manual reset

Application

These pressure controls are designed for use in a variety of applications involving refrigeration high or low pressure. Models supplied have a "whole range" design, enabling them to be used with all non-corrosive refrigerants which are within the operating range of the control. They may also be used for other high or low pressure applications such as air, water etc. Models which can be used with ammonia are included in the program).

Type	Range in bar	Differential
P735AAA	-0.2 to 10	auto reset
	-0.5 to 7	auto reset
	3 to 30	auto reset
	3.5 to 21	auto reset
P735BCA	-0.5 to 7	manual reset
P735BEA	3 to 30	manual reset
P735AAW	-0.5 to 7	auto reset
	3 to 30	auto reset
P735BCB	-0.5 to 7	manual reset
P735BEB	3 to 30	manual reset

Refrigeration Pressure controls

P736 Dual pressure control



Description

The P736 series pressure controls may be used for control functions or limit functions, depending on model number. All models are provided with alarm contacts (except P736ALA). All standard models have phosphor bronze bellows and brass pressure connections. Models for use with ammonia are provided with stainless steel bellows and connectors.

Features

- Generous wiring space
- Trip-free manual reset
- Separate alarm contacts for both low pressure and high pressure cut-out (except P736ALA)

Application

These dual pressure controls are designed for use in a variety of applications involving refrigeration high or low pressure. Models supplied have a "whole range" design, enabling them to be used all non-corrosive refrigerants which are within the operating range of the control. They may also be used for other high or low pressure applications such as air, water etc. Models which can be used with ammonia are included in the program).

Type	Range in bar	Differential	
		left	right
P736LCA	-0.5 to 7 / 3 to 30	auto reset	auto reset
P736MCA	-0.5 to 7 / 3 to 30	auto reset	manual reset
P736PGA	-0.5 to 7 / 3 to 30	manual reset	manual reset
P736ALA	3.5 to 21 / 3.5 to 21	auto reset	auto reset
P736LCW	-0.5 to 7 / 3 to 30	auto reset	auto reset
P736MCB	-0.5 to 7 / 3 to 30	auto reset	manual reset
P736MCS	-0.5 to 7 / 3 to 30	auto reset	manual reset
P736PGB	-0.5 to 7 / 3 to 30	manual reset	manual reset
P736PLM	3 to 30 / 3 to 30	manual reset	manual reset

Refrigeration Pressure controls

P77 Single pressure control



Description

The P77 series pressure controls may be used for control functions or limit functions, depending on model number. All models are provided with alarm contacts. All standard models have phosphor bronze bellows and brass pressure connections. Models for use with ammonia are provided with stainless steel bellows and connectors. Devices conforming to DIN 32733 have a double bellows on the high pressure versions. Their IP54 classification means that these pressure controls are suitable for almost all applications.

Features

- Generous wiring space
- Splash-proof enclosure (IP54)
- SPDT contacts are provided as standard on single pressure controls
- Trip-free manual reset
- Available with different pressure connections

Application

These pressure controls are designed for use in a variety of applications involving refrigeration high or low pressure. Models supplied have a "whole range" design, enabling them to be used with refrigerants R22, R134A, R404A, R410A and all other non-corrosive refrigerants which are within the operating range of the control. They may also be used for other high or low pressure applications such as air, water etc. Models which can be used with ammonia as well as controls tested, conforming to DIN 32733, and approved by TÜV are included in the program.

Type	Range in bar	Differential
P77AAA	-0.2 to 10	auto reset
	-0.3 to 2	auto reset
	-0.5 to 7	auto reset
	3 to 30	auto reset
	3.5 to 21	auto reset
P77BCA	-0.5 to 7	manual reset
P77BEA	3 to 30	manual reset
P77AAW	-0.5 to 7	auto reset
	3 to 30	auto reset
	3 to 42	auto reset
P77BCB	-0.5 to 7	manual reset
P77BEB	3 to 30	manual reset
	3 to 42	manual reset
P77BES	3 to 30	manual reset

Refrigeration Pressure controls

P78 Dual pressure control



Description

The P78 series pressure controls may be used for control functions or limit functions, depending on model number. All models are provided with alarm contacts (except P78ALA). All standard models have phosphor bronze bellows and brass pressure connections. Models for use with ammonia are provided with stainless steel bellows and connectors. Devices conforming to DIN 32733 have a double bellows on the high pressure versions. Their IP54 classification means that these pressure controls are suitable for almost all applications.

Features

- Generous wiring space
- Splash-proof enclosure (IP54)
- Trip-free manual reset
- Patented separate alarm contacts for both low pressure and high pressure cut-out (except P78ALA)
- Available with different pressure connections

Application

These dual pressure controls are designed for use in a variety of applications involving refrigeration high or low pressure. Models supplied have a "whole range" design, enabling them to be used with refrigerants R22, R134A, R404A and all other non-corrosive refrigerants which are within the operating range of the control. They may also be used for other high or low pressure applications such as air, water etc. Models which can be used with ammonia as well as controls tested, conforming to DIN 32733, and approved by TÜV are included in the program.

Type	Range in bar	Differential	
		left	right
P78LCA	-0.5 to 7 / 3 to 30	auto reset	auto reset
P78MCA	-0.5 to 7 / 3 to 30	auto reset	manual reset
P78PGA	-0.5 to 7 / 3 to 30	manual reset	manual reset
P78ALA	3.5 to 21 / 3.5 to 21	auto reset	auto reset
P78LCW	-0.5 to 7 / 3 to 30	auto reset	auto reset
P736MCB	-0.5 to 7 / 3 to 30	auto reset	manual reset
P736MCS	-0.5 to 7 / 3 to 30	auto reset	manual reset
P736PGB	-0.5 to 7 / 3 to 30	manual reset	manual reset
P736PLM	3 to 30 / 3 to 30	manual reset	manual reset

Refrigeration Pressure controls

P100 Direct mount pressure switches



P100AP-series	Auto Reset Normally open contacts SPST	Max. 6 Amp
P100CP-series	Auto Reset Normally closed contacts SPST	Max. 6 Amp

Description

The P100 Series are encapsulated, non-adjustable, direct mount pressure controls typically used for low and high-pressure cut-outs for OEM applications.

The P100 series are produced according to switchpoint requirements of customers.

The small dimensions, weight and protection class makes the P100 series applicable for use without the need of additional mounting brackets.

The P100 Series can be used for all non-corrosive refrigerants like R134a; R22; R404, R410A and CO₂ (Pressure up to 150 bar).

Features

- Auto Reset
- Compact size and light weight
- Encapsulated, dust tight switch IP67
- Broad variety of electrical and pressure connections

Application

- Computer room air conditioning
- Refrigeration/ Air conditioning condensers
- Commercial refrigeration
- Ice machines
- Food service equipment

Refrigeration Pressure controls

P100 Direct mount pressure switches



P100AA-series	Auto Reset Normally open contacts SPST	Max. 2,9 Amp
P100CA-series	Auto Reset Normally closed contacts SPST	Max. 2,9 Amp
P100DA-series	Manual Reset Normally closed contacts SPST	Max. 2,9 Amp
P100AE-series	Auto Reset Normally open contacts SPST	Max. 25 Amp (Resistive load)
P100CE-series	Auto Reset Normally closed contacts SPST	Max. 25 Amp (Resistive load)
P100EE-series	Auto Reset Normally closed contacts SPDT	Max. 25 Amp (Resistive load)

Description

The P100 Series are encapsulated, non-adjustable, direct mount pressure controls typically used for low and high-pressure cut-outs for OEM applications.

The P100 series are produced according to switchpoint requirements of customers.

The small dimensions, weight and protection class makes the P100 series applicable for use without the need of additional mounting brackets.

The P100 Series can be used for all non-corrosive refrigerants like R134a; R22; R404, R410A and others.

Features

- Auto Reset or Manual Reset
- Compact size and light weight
- Encapsulated, dust tight switch IP67
- Manual reset models have a trip-free design
- Models with gold-plated contacts available
- Broad variety of electrical and pressure connections

Application

- Computer room air conditioning
- Refrigeration/ Air conditioning condensers
- Commercial refrigeration
- Ice machines
- Food service equipment

Refrigeration

Pressure controls accessories

H735 Synthetic flexible hose



Description

The synthetic hoses consist of a seamless PA compound inner layer reinforced with a braided layer of high performance synthetic fibre.

This reinforcement is protected by an oil, weather and abrasion resistant Polyester Elastomer Compound. The standard assembly length is 0,9 meter with one straight and one elbow 90 degree hose fitting. The fitting connection is 1/4" metal tube with 7/16"-20 UNF swivel nut connection suitable for 1/4" SAE male flare. Other lengths and/or fitting connections configurations (Style 50, 51 straight or elbow) are available on request (quantity orders only).

Features

- Very flexible
- Low minimum bend radius (30 mm)
- One straight and one 90° elbow pressure connection
- Polyester Elastomer Compound construction
- High pressure safety ratio
- Low effusion

Application

These synthetic hoses are designed for pressure measuring connections.

They provide, for example, a very flexible connection between a refrigerant compressor and pressure controls. The hoses can be used for all non-corrosive refrigerants including R134a, R22, R404a, R407c and R410A with pressures within the maximum pressure range of the hose. Hoses are tested with common compressor oils in combination with above mentioned refrigerants.

Type	Length (cm)
H735AA-30C	30
H735AA-40C	40
H735AA-50C	50
H735AA-70C	70
H735AA-90C	90
H735AA-100C	100
H735AA-150C	150
H735AA-200C	200

Refrigeration

Pressure transducers

P499 Electronic pressure transducer



Description

- Pressure port machined from solid piece of stainless Steel (17-4PH)
- CE/UL compliance
- Environmentally Sealed Electronics
- Reliable, Repeatable Performance and Long Operating Life
- Slender Body Design
- Available in several pressure ranges up to 50 bar

P499xxx-401C	Range : -1 / 8 barg
P499xxx-402C	Range : -1 / 15 barg
P499xxx-404C	Range : 0 / 30 barg
P499xxx-405C	Range : 0 / 50 barg
General information	
Output	Ratiometric / 4-20 mA / 0-10 Vdc
Pressure connection	1/4" SAE male / female
Electrical connection	2 meter cable / DIN connector / Packard connector

Refrigeration

Refrigeration temperature controls

A19 Series IP30 - IP65, Capillary and space thermostats



A19 Serie IP30



A19 Serie IP65

Description

These thermostats are available with fixed or adjustable differential. The various control ranges cover a broad range of temperature applications with a minimum number of models. On request a built-in high or low limit stop is possible and can be adjusted quickly and easily in the field. All models have a universal way of adjustment. For this purpose a knob and sealing cap are enclosed. All are equipped with a NEMA1 enclosure. All A19 style 1 wholesaler code models have a bulb clamp plus screw also enclosed.

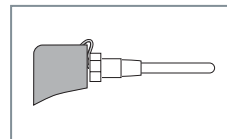
Features

- Liquid filled sensing element
- Dust tight Penn switch
- Trip free manual reset
- Front adjustment

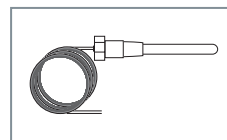
Application

These thermostats are designed for refrigeration, cooling, heating, ventilation and air-conditioning applications. Standard models are provided for remote sensing or room sensing. Models with manual reset are available for low or high limit functions.

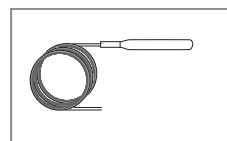
Type	Range in °C	Differential	Enclosure
A19AAC	-35 to 10	fixed, standard	IP30
	-10 to 14	fixed, standard	IP30
	-5 to 28	fixed, standard	IP30
	0 to 10	fixed, standard	IP30
	1 to 60	fixed, standard	IP30
	35 to 150	fixed, standard	IP30
	40 to 120	fixed, standard	IP30
A19AAF	90 to 290	fixed, standard	IP30
	0 to 10	fixed, close	IP30
	5 to 32	fixed, close	IP30
A19ABC	-35 to 40	adjustable	IP30
	-35 to 10	adjustable	IP30
	-5 to 28	adjustable	IP30
	1 to 60	adjustable	IP30
	40 to 120	adjustable	IP30
A19ACC	-35 to 10	manual reset	IP30
	-5 to 28	manual reset	IP30
A19ADC	40 to 120	manual reset	IP30
A19BAC	-35 to 10	fixed, standard	IP30
	-5 to 28	fixed, standard	IP30
	0 to 43	fixed, standard	IP30
A19BBC	-35 to 40	adjustable	IP30
A19DAC	40 to 120	fixed, standard	IP30
A19DAF	92 to 116	fixed, close	IP30
A19AQC	-35 to 10	fixed, standard	IP65
	-5 to 55	fixed, standard	IP65
	-5 to 28	fixed, standard	IP65
	-5 to 5	fixed, standard	IP65
	0 to 13	fixed, standard	IP65
A19AQF	0 to 13	fixed, close	IP65
A19ARC	-35 to 40	adjustable	IP65
	-35 to 10	adjustable	IP65
	-20 to 65	adjustable	IP65
	-10 to 50	adjustable	IP65
	1 to 60	adjustable	IP65
	5 to 50	adjustable	IP65
	40 to 120	adjustable	IP65
A19BRC	-35 to 40	adjustable	IP65
	-35 to 10	adjustable	IP65
	-5 to 25	adjustable	IP65
	-5 to 28	adjustable	IP65
	0 to 43	adjustable	IP65
A19BQC	-5 to 25	fixed, standard	IP65



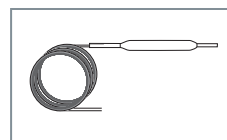
Style 2



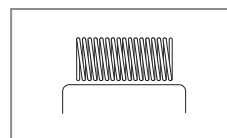
Style 4H



Style 1a



Style 1b

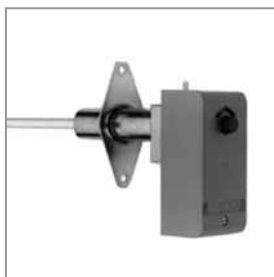


Style 3

Refrigeration

Refrigeration temperature controls

A25 Series IP30, rod and tube sensing element



Type	Range in °C	Differential	Enclosure
A25CN	0 to 100	manual reset	IP30

Description

A rod and tube type sensing element actuates the switch contacts. Main contacts (1-2) are normally closed, and open when the temperature at the element rises to the dial setpoint. Contacts are re-closed only by operation of the reset lever. The reset lever is "trip-free" and cannot be used to block contacts in a closed positions.

Features

- Rod and tube type of element
- Adjustable duct mounting flange
- Trip-free manual reset
- Dust-tight Penn switch

Application

These warm air limit controls "lock out" on a temperature increase to the control setpoint. Manual reset is required to re-close the electrical contacts. A typical application is to stop air-conditioning or ventilating fans in the event of excessive return air temperature, as from a fire.

Refrigeration

Refrigeration temperature controls

A28 Series IP30 - IP65, two-stage capillary and space thermostats



A28 Series IP30



A28 Series IP65

Type	Range in °C	Adjustable diff. between stage	Enclosure
A28AA	-35 to 40	1 to 4	IP30
	-35 to 10	1 to 4	IP30
	-5 to 28	1 to 4	IP30
	1 to 60	1 to 4	IP30
A28QA	-35 to 40	1 to 4	IP65
	-35 to 10	1 to 4	IP65
	-5 to 28	1 to 4	IP65
	0 to 43	1 to 4	IP65
	1 to 60	1 to 4	IP65
	20 to 40	1 to 4	IP65
A28QJ	10 to 95	1 to 5	IP65

Description

Controls are compact with fixed differential per stage and (on most models) adjustable differential between stages. Liquid filled element provides wide range, constant differential over whole range and no influence from barometric pressure. Since the bulb contains the major portion of the total fill the thermostat may be considered as cross-ambient, capillary and cup temperature variations affect the operating point only slightly due to the small amount of fill they contain.

For quantity orders it is possible to have the below stated optional constructions

- Without case and cover for panelmounting
- Close differential per stage
- Different capillary lengths

All standard IP30 enclosure models have a universal way of adjustment. For this purpose a knob and sealing cap are enclosed.

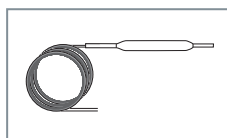
Features

- Liquid filled sensing element
- Dust tight Penn switch
- IP65 protection class models available
- Front adjustment

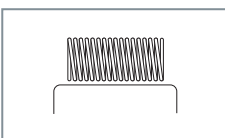
Application

These thermostats are designed for various types of heating, cooling, ventilation, or air-conditioning applications. All models have two SPDT switches providing the following control possibilities:

- 2 stage heating
- 2 stage cooling
- Heating/cooling with automatic changeover



Style 1b



Style 3



Refrigeration

Refrigeration temperature controls

A36 Series, 3- or 4-stage thermostats

Description

Models are available in 'open' construction for panel mounting. Single knob adjustment moves the entire staging band up and down within the range of the control. The differential on each stage and sequencing between stages are factory set.

This permits the OEM to completely engineer the cycling of their equipment without the hazard of field mis-adjustments and erratic sequencing.

Features

- Dust-tight SPDT switches
- Cushion mounted
- Operation from a single, liquid filled element
- Case compensation standard on all models

Application

Designed for multi-stage thermostatic operation of electrically controlled equipment such as:

- packaged liquid chillers
- heat pumps
- electric duct heaters
- computer room airconditioners

Type	Range in °C	# of stage	Differential
A36AGA	-18 to 35	3	standard
	15 to 35	3	standard
A36AGB	-18 to 20	3	close
A36AHA	-18 to 20	4	standard
	-16 to 20	4	standard
	15 to 35	4	standard
A36AHB	-18 to 20	4	close
	-15 to 30	4	close
	10 to 95	4	close



Refrigeration

Refrigeration temperature controls

270XT Series freeze protection control, IP30

Description

Sensing element is 3 or 6 meters long to permit attaching across the surface of a coil to guard against freezing at any point. When any 30 cm or more of this element senses a temperature as low as the control setpoint, it will "switch off".

A special version is available with bulb and 2 m capillary, range $24/+18^{\circ}\text{C}$ for clamp on or immersion purposes.

SPDT change over contacts permit the use of an alarm signal.

Features

- Dust tight Pennswitch
- SPDT contacts
- 270XTAN provided with trip-free manual reset
- Controls have adjustable range

Application

These controls are designed for protection against freeze up of hydronic heating coils, cooling coils and similar application.

Type	Range in °C	Differential	Element	Enclosure
270XT	-24 to 18	fixed	bulb	IP30
	-10 to 12	fixed	capillary	IP30
270XTAN	-24 to 18	manual reset	bulb	IP30
	-10 to 12	manual reset	capillary	IP30

Refrigeration

Refrigeration temperature controls

T22 and T25 One and two-stage room thermostat, line voltage , IP20



Description

These thermostats with a sturdy steel cover are provided with a liquid filled sensing element. This element is formed to achieve maximum sensitivity to surrounding air temperature changes. Coupled with a highly efficient diaphragm and leverage mechanism, the element operates a totally enclosed Penn switch contact with a close differential switching action without the use of "heat or cool" anticipators.

Features

- Liquid filled elements.
- Dust tight Penn switch.
- Small differential.
- Two Stage Thermostats with dead band and automatic change over

Application

These room thermostats are designed to control heating and/or cooling equipment, in commercial industrial or residential installations. Typical uses are for unit heaters, fan coils, cooling rooms etc. Type T22SRX can be used for either heating or cooling. Type T25B (2 stages) can be used for:

- two stages heating
- two stages cooling
- heating/cooling with dead band and automatic change over

Type	Range in °C	Adjustable diff. between stage	Enclosure
T22SRX	5 to 32	1 to 3	IP20
T25B	5 to 32	1 to 3	IP20



Residential & Light Commercial

Split systems
YDS system
Air systems

R410A

Split system

High wall inverter "Mimetech"

YVHC 09 to 12

A complete range from 2.5 kW to 3.5 kW



Features

- Flat stylish indoor unit
- Low noise levels
- BIO-Filter
- Ice preventing heater cable in outdoor unit (option)
- Automatic restart
- ON/OFF timer
- Automatic air sweep
- Service valve protection cover
- Rustproof casing

Remote controller

- Wireless
- 5 operation modes (Cool/Heat/Auto/Dry/Fan)
- Sleep mode
- Room temperature setting
- Fan speed selection
- Timer
- Air flow direction setting
- LCD display

Technical features

Set reference		YVHC	
Models	Sizes	09	12
Cooling capacity	kW	2.5 (1.0 - 3.2)	3.6 (1.4 - 4.6)
Heating capacity	kW	2.7 (1.1 - 3.5)	3.8 (1.5 - 4.9)
Power supply	V/Ph/Hz	230 / 1 / 50 + E	
EER / COP		3.3 / 3.5	3.2 / 3.4
Energy Class	cooling	A	A
	heating	B	B
Sound pressure at 1 m	Indoor (L/M/H) dB(A)	32 / 35 / 38	33 / 36 / 40
	Outdoor dB(A)	50	50
Dimensions	H (mm)	290 / 540	290 / 540
	Indoor / Outdoor W (mm)	1 005 / 848	1 005 / 848
	D (mm)	150 / 320	150 / 320
Net weight	Indoor unit kg	11	11
	Outdoor unit kg	40	40
Operating limits -cooling / heating- mode min/max		+18°C - +50°C / -15°C - +24°C	

Nominal cooling capacity based on : - Indoor Air Temp. 27°C DB / 19°C WB - Outdoor Air Temp. 35°C DB

Nominal heating capacity based on : - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

Piping length : 5 m with initial charge

R410A

Split system High wall "Power Inverter"

RVHC 09 to 24

A complete range from 2.7 kW to 7.3 kW



Features

- High EER / COP
- Compressor heater
- Ice preventing heater cable in outdoor unit (option) (sizes 09, 12 and 18)
- Low noise levels
- Low ambient kit (option) (sizes 09 and 12)
- Automatic restart
- Active carbon electrostatic filter
- ON/OFF timer
- Automatic air sweep
- Service valve protection cover
- Rustproof casing

Remote controller

- Wireless
- 5 operation modes (Cool/Heat/Auto/Dry/Fan)
- Sleep mode
- Room temperature setting
- Fan speed selection
- Timer
- Air flow direction setting
- LCD display
- Turbo mode

Technical features

Set reference		RVHC			
Models	Sizes	09 D	12 D	18 D	24 D*
Cooling capacity	kW	2.7 (1.1-3.4)	3.5 (1.4-4.4)	5.1 (2.8-5.2)	7.3 (3.1-9.1)
Heating capacity	kW	2.9 (1.1-3.6)	3.7 (1.5-4.5)	5.4 (3.0-6.0)	7.9 (3.8-9.8)
Power supply	V/Ph/Hz	230 / 1 / 50 + E			
EER / COP		4.0 / 4.2	3.6 / 3.8	3.2 / 3.4	3.2 / 3.4
Energy Class	cooling	A	A	A	A
	heating	A	A	B	B
Sound pressure at 1 m	Indoor (L/M/H)	dB(A)	29 / 35 / 38	30 / 35 / 39	38 / 41 / 45
	Outdoor	dB(A)	50	50	54
Dimensions	Indoor / Outdoor	H (mm)	265 / 590	265 / 590	292 / 695
		W (mm)	790 / 762	790 / 762	920 / 845
		D (mm)	193 / 275	193 / 275	225 / 335
Net weight	Indoor unit	kg	9	9	12
	Outdoor unit	kg	41	41	52
Operating limits -cooling / heating- mode		min/max	0°C - +50°C / -15°C - +24°C		

Nominal cooling capacity based on : - Indoor Air Temp. 27°C DB / 19°C WB - Outdoor Air Temp. 35°C DB

Nominal heating capacity based on : - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

Piping length : 7.5 m with initial charge

* Preliminary data.

R410A

Split system

High wall "High efficiency"

RACC-RAHC 07 to 28

A complete range from 2.1 kW to 8.2 kW



Class A



Features

- High efficiency Class A
- Automatic restart
- Active carbon electrostatic filter
- ON/OFF timer
- Automatic air sweep
- 2 speed outdoor fan for sizes 24 & 28
- Service valve protection cover
- Rustproof casing

Remote controller

- Wireless
- 5 operation modes (Cool/Heat/Auto/Dry/Fan)
- Sleep mode
- Room temperature setting
- Fan speed selection
- Timer
- Air flow direction setting
- LCD display
- Turbo mode

Technical features

Set reference		RACC-RAHC					
Models	Sizes	07F	09F	12F	18F	24F	28F
Cooling capacity	kW	2.1	2.6	3.5	5.3	7.0	8.2
Heating capacity	kW	2.4	3.2	3.7	5.6	7.9	8.5
Power supply	V/Ph/Hz	230 / 1 / 50 + E					
Power input (cooling/heating)	kW	0.6 / 0.7	0.8 / 0.9	1.1 / 1.1	1.8 / 1.8	2.5 / 2.5	2.6 / 2.7
EER / COP		3.2 / 3.4	3.2 / 3.6	3.2 / 3.4	3.0 / 3.2	2.9 / 3.2	2.8 / 3.2
Energy Class (cooling/heating)		A / B	A / B	A / B	B / C	C / C	C / C
Sound pressure at 1 m	Indoor	dB(A)	30 / 32 / 34	31 / 34 / 37	34 / 37 / 40	37 / 40 / 44	39 / 42 / 45
	Outdoor	dB(A)	51	52	55	55	57
Dimensions	Indoor / Outdoor	H (mm)	250 / 535	250 / 540	265 / 590	292 / 695	330 / 695
		W (mm)	710 / 700	710 / 780	790 / 760	920 / 845	1 080 / 845
		D (mm)	190 / 235	195 / 250	193 / 285	225 / 335	225 / 335
Net weight	Indoor unit	kg	8.5	8.5	10.5	13.5	17
	Outdoor unit	kg	30	36	41	55	61
Operating limits -cooling / heating- mode		min/max	+18°C ~ +43°C / -15°C ~ +24°C				

Nominal cooling capacity based on : - Indoor Air Temp. 27°C DB / 19°C WB - Outdoor Air Temp. 35°C DB

Nominal heating capacity based on : - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

Piping length : 7.5 m with initial charge

R410A

Split system High wall "Atlas"

YJCC-YJHC 09 to 24

A complete range from 2.6 kW to 7.0 kW



Features

- Automatic restart
- ON/OFF timer
- Automatic air sweep
- Rustproof casing

Remote controller

- Wireless
- 5 operation modes (Cool/Heat/Auto/Dry/Fan)
- Sleep mode
- Room temperature setting
- Fan speed selection
- Timer
- Air flow direction setting
- LCD display

R407C

• Available also in R407C upon request
(contact Johnson Controls)

Technical features

Set reference			YJCC-YJHC			
Models	Sizes		09	12	18	24
Cooling capacity	kW		2.6	3.4	5.1	7.0
Heating capacity	kW		2.7	3.5	5.2	7.3
Power supply	V/Ph/Hz		230 / 1 / 50 + E			
EER / COP			3.2 / 3.5	3.2 / 3.2	3.1 / 3.0	2.8 / 2.7
Energy Class (cooling/heating)			A / B	A / C	A / D	C / D
Sound pressure at 1 m	Indoor	dB(A)	39	40	46	50
	Outdoor	dB(A)	50	51	56	58
Dimensions	Indoor / Outdoor	H (mm)	290 / 480	290 / 540	292 / 680	330 / 770
		W (mm)	800 / 600	800 / 790	860 / 813	1 080 / 885
		D (mm)	196 / 250	196 / 245	205 / 310	220 / 365
Net weight	Indoor unit	kg	10	10	12	15
	Outdoor unit	kg	26	37	47	70
Operating limits -cooling / heating- mode		min/max	+16°C ~ +43°C / -7°C ~ +24°C			

Nominal cooling capacity based on : - Indoor Air Temp. 27°C DB / 19°C WB - Outdoor Air Temp. 35°C DB

Nominal heating capacity based on : - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

Piping length : 7.5 m with initial charge

R410A

Split system High wall "Rockies"

TLCC-TLHC 09 to 24

A complete range from 2.5 kW to 7.0 kW



Features

- Automatic restart
- ON/OFF timer
- Automatic air sweep
- Service valve protection cover
- Rustproof casing

Remote controller

- Wireless
- 5 operation modes (Cool/Heat/Auto/Dry/Fan)
- Sleep mode
- Room temperature setting
- Fan speed selection
- Timer
- Air flow direction setting
- LCD display

R407C

• Available also in R407C upon request
(contact Johnson Controls)

Technical features

Set reference			TLCC-TLHC				
Models		Sizes	09	12	18	21	24
Cooling capacity		kW	2.5	3.5	5.0	6.2	7.0
Heating capacity		kW	2.6	3.8	5.3	7.0	7.9
Power supply		V/Ph/Hz	230 / 1 / 50 + E				
EER / COP			3.0 / 3.4	3.0 / 3.4	3.1 / 3.5	3.0 / 3.4	3.1 / 3.4
Energy Class (cooling/heating)			B / B	B / B	B / B	B / B	B / B
Sound pressure at 1 m	Indoor	dB(A)	37	42	44	45	46
	Outdoor	dB(A)	52	54	58	59	61
Dimensions	Indoor / Outdoor	H (mm)	190 / 416	190 / 540	198 / 590	221 / 695	221 / 695
		W (mm)	790 / 680	790 / 780	940 / 760	1 030 / 845	1 030 / 845
		D (mm)	275 / 260	275 / 250	275 / 285	313 / 335	313 / 335
Net weight	Indoor unit	kg	8	8.5	10	13	13.5
	Outdoor unit	kg	25	34	41	58	62
Operating limits -cooling / heating- mode		min/max	+18°C ~ +43°C / -7°C ~ +24°C				

Nominal cooling capacity based on : - Indoor Air Temp. 27°C DB / 19°C WB - Outdoor Air Temp. 35°C DB

Nominal heating capacity based on : - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

Piping length : 7.5 m with initial charge

R410A

Split system

High wall multi inverter "Free Match"

RRHC 18 (2x1) / RRHC 27 (3x1) / RRHC 30 (4x1)

A complete range from 5.4 kW to 8.2 kW

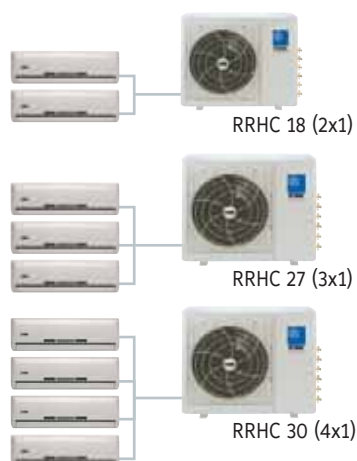


Features

- Free match indoor/outdoor
- Strong heating at low ambient
- Automatic restart
- Active carbon electrostatic filter
- ON/OFF timer
- Automatic air sweep
- Service valve protection cover
- Rustproof casing

Remote controller

- Wireless
- 5 operation modes (Cool/Heat/Auto/Dry/Fan)
- Sleep mode
- Room temperature setting
- Fan speed selection
- Timer
- Air flow direction setting
- LCD display



Technical features

Set reference		RRHC		
Outdoor units (RRJC)	Sizes	18	27	30
Indoor units (RRKC)	number	2 indoor units	3 indoor units	4 indoor units
Cooling capacity	kW	5.3 (2.7 / 5.6)	6.5 (2.8 - 9.5)	8.2 (2.1 - 10.6)
Heating capacity	kW	6.3 (3.1 / 6.7)	7.5 (3.4 - 10.4)	8.5 (2.6 - 11.0)
EER / COP		2.9 / 3.2	2.8 / 2.9	3.0 / 3.0
Energy Class (cooling/heating)		B / C	C / D	B / D
Sound pressure at 1 m (outdoor)	dB(A)	58	59	59
Dimensions in mm	Indoor unit size 7	HxWxD 250 x 710 x 190		
	Indoor unit size 9	HxWxD 250 x 710 x 195		
	Indoor unit size 12	HxWxD 265 x 790 x 193		
	Outdoor unit	HxWxD 695 x 845 x 335		860 x 895 x 330
Net Weight (Outdoor unit)	kg	71	72	80
Operating limits -cooling / heating- mode	min/max	0°C - +45°C / -15°C - +34°C		

Nominal cooling capacity based on : - Indoor Air Temp. 27°C DB / 19°C WB - Outdoor Air Temp. 35°C DB

Nominal heating capacity based on : - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

Piping length : 75 m with initial charge

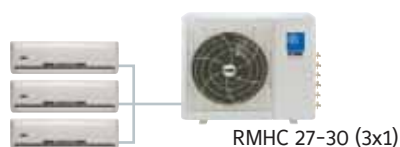
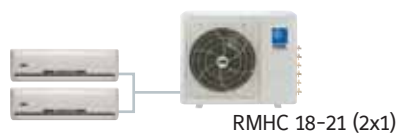
R410A

Split system

High wall multi split

RMHC 18-21 (2x1) / RMHC 27-30 (3x1)

A complete range from 5.2 kW to 8.7 kW



Features

Condensing units

- 2 circuits / 2 compressors running in same mode
- Low ground space requirements
- Rustproof casing

Indoor units

- Automatic restart
- Active carbon Electrostatic filter
- ON/OFF timer
- Automatic air sweep

Remote controller

- Wireless
- 5 operation modes (Cool/Heat/Auto/Dry/Fan)
- Sleep mode
- Room temperature setting
- Fan speed selection
- Timer
- Air flow direction setting
- LCD display

R407C

• Available also in R407C upon request
(contact Johnson Controls)

Technical features

Set reference		RMHC			
Models	Sizes	18	21	27	30
Cooling capacity	kW	2 x 2.6	2.6 + 3.5	3 x 2.6	2 x 2.6 + 3.5
Heating capacity	kW	2 x 2.9	2.9 + 3.8	3 x 2.9	2 x 2.9 + 3.8
Power supply	V/Ph/Hz	230 / 1 / 50 + E			
EER / COP		2.9 / 3.0	2.9 / 3.1	2.8 / 3.1	3.0 / 3.3
Energy Class (cooling/heating)		C / D	C / D	C / D	C / C
Sound pressure at 1 m (indoor) L/M/H	dB(A)	31 / 34 / 37	31 / 34 / 37	31 / 34 / 37	31 / 34 / 37
Sound pressure at 1 m (outdoor)	dB(A)	56	56	58	58
Dimensions in mm	Indoor unit size 9 HxWxD	250 x 710 x 195	250 x 710 x 195	250 x 710 x 195	250 x 710 x 195
	Indoor unit size 12 HxWxD	-	265 x 790 x 193	-	265 x 790 x 193
	Outdoor unit HxWxD	655 x 895 x 345	655 x 895 x 345	830 x 860 x 330	830 x 860 x 330
Net Weight (Indoor / Outdoor)	kg	8.5 x 2 / 75	8.5 + 10.5 / 76	8.5 x 3 / 81	8.5 x 2 + 10.5 / 81
Operating limits -cooling / heating- mode	min/max	+18°C ~ +43°C / -15°C ~ +24°C			

Nominal cooling capacity based on : - Indoor Air Temp. 27°C DB / 19°C WB - Outdoor Air Temp. 35°C DB

Nominal heating capacity based on : - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

Piping length : 7.5 m with initial charge

R410A

Split system

Multi inverter "Free indoor units"

RRJC 18 (2x1) / RRJC 27 (3x1) / RRJC 30 (4x1)

A complete range from 5.3 kW to 8.2 kW



Features

- Free match indoor/outdoor
- Automatic restart
- ON/OFF timer
- Automatic air sweep
- Service valve protection cover
- Rustproof casing

Remote controller

- Wireless
- 5 operation modes (Cool/Heat/Auto/Dry/Fan)
- Sleep mode
- Room temperature setting
- Fan speed selection
- Timer
- Air flow direction setting
- LCD display

* DC Multi Inverter will be available in mid '08 with complete combinations available.

Technical features

Set reference		RRJC		
Outdoor units (RRJC)	Sizes	18	27	30
Indoor units	number	2 indoor units	3 indoor units	4 indoor units
Cooling capacity	kW	5.3 (2.7 / 5.6)	6.5 (2.8 / 9.5)	8.2 (2.1 / 10.6)
Heating capacity	kW	6.3 (3.1 / 6.7)	7.5 (3.5 / 10.4)	8.5 (2.6 / 11.0)
Power supply	V/Ph/Hz	230 / 1 / 50 + E		
EER / COP		2.9 / 3.2	2.8 / 2.9	3.0 / 3.0
Energy Class (cooling/heating)		B / C	C / D	B / D
Sound pressure at 1 m (outdoor)	dB(A)	58	59	59
Dimensions	H (mm)	695	695	860
	W (mm)	845	845	895
	D (mm)	335	335	330
Net Weight (Outdoor unit)	kg	71	72	80
Operating limits -cooling / heating- mode	temp.max	0°C ~ +45°C / -15°C ~ +24°C		

Nominal cooling capacity based on : - Indoor Air Temp. 27°C DB / 19°C WB - Outdoor Air Temp. 35°C DB

Nominal heating capacity based on : - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

Piping length : 7.5 m with initial charge

R410A

Split system

Convertible console inverter

YOHC-D 18 to 48

A complete range from 5.3 kW to 13.0 kW

Low
Ambient
Kit

Features

- Low ambient kit
- Convertible - floor or ceiling
- Horizontal and vertical air sweep function
- Wide angle air distribution
- Slim profile - flush mounting
- Service valve protection cover
- Rustproof casing

Remote controller

- Wireless
- 5 operation modes (Cool/Heat/Auto/Dry/Fan)
- Sleep mode
- Room temperature setting
- Fan speed selection
- Timer
- Air flow direction setting
- LCD display

Technical features

Set reference			YOHC-D			
Models	Sizes		18	24	36	48
Cooling capacity	kW		5.3 (2.1 / 6.4)	6.5 (2.6 / 7.8)	10.5 (4.2 / 12.6)	13.0 (5.2 / 15.6)
Heating capacity	kW		5.8 (2.3 / 7.0)	7.2 (2.9 / 8.6)	12.6 (5.0 / 15.1)	14.1 (5.6 / 16.9)
Power supply	V/Ph/Hz		230 / 1 / 50 + E		400 / 3 / 50 + E + N	
EER / COP			3.0 / 3.4	3.0 / 3.2	3.1 / 3.4	3.0 / 3.3
Energy Class (cooling/heating)			B / B	B / C	B / C	B / C
Sound pressure at 1 m	Indoor (L/M/H)	dB(A)	37 / 39 / 41	39 / 41 / 43	41 / 44 / 45	49 / 50 / 52
	Outdoor	dB(A)	48	52	57	58
Dimensions	Indoor / Outdoor	H (mm)	660 / 710	660 / 860	660 / 960	680 / 1 245
		W (mm)	995 / 880	995 / 930	1 285 / 990	1 670 / 940
		D (mm)	198 / 340	198 / 330	198 / 360	240 / 340
Net weight	Indoor unit	kg	28	30	35	50
	Outdoor unit	kg	52	75	101	110
Operating limits -cooling / heating- mode		min/max	-10°C ~ +43°C / -15°C ~ +24°C			

Nominal cooling capacity based on : - Indoor Air Temp. 27°C DB / 19°C WB - Outdoor Air Temp. 35°C DB

Nominal heating capacity based on : - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

Piping length : 7.5 m with initial charge

R410A

Split system Convertible console

YOHC 12 to 60

A complete range from 3.4 kW to 15.2 kW

Low
Ambient
Kit

Features

- Low ambient kit
- Convertible - floor or ceiling
- Horizontal and vertical air sweep function
- Wide angle air distribution
- Slim profile - flush mounting
- Service valve protection cover
- Rustproof casing

Remote controller

- Wireless
- 5 operation modes (Cool/Heat/Auto/Dry/Fan)
- Sleep mode
- Room temperature setting
- Fan speed selection
- Timer
- Air flow direction setting
- LCD display



• Available also in R407C upon request
(contact Johnson Controls)

Technical features

Set reference			YOHC					
Models	Sizes		12	18	24	36	48	60
Cooling capacity	kW		3.4	5.3	6.4	10.5	13.6	15.2
Heating capacity	kW		3.8	5.8	7.3	11.4	15.1	17.1
Power supply	V/Ph/Hz		230 / 1 / 50 + E			400 / 3 / 50 + E + N		
EER / COP			2.9 / 3.2	2.9 / 3.3	2.8 / 3.0	2.8 / 3.2	2.8 / 3.2	2.8 / 3.2
Energy Class (cooling/heating)			C / C	C / C	C / D	C / C	C / C	C / C
Sound pressure at 1 m	Indoor (H/M/L)	dB(A)	43 / 41 / 38	43 / 41 / 38	45 / 43 / 40	46 / 45 / 42	47 / 46 / 44	47 / 46 / 44
	Outdoor	dB(A)	43	48	55	57	58	59
Dimensions	Indoor / Outdoor	H (mm)	660 / 590	660 / 695	660 / 860	660 / 960	680 / 1 245	
		W (mm)	995 / 760	995 / 845	995 / 895	1 285 / 990	1 670 / 940	
		D (mm)	198 / 285	198 / 335	198 / 330	198 / 360	240 / 360	
Net weight	Indoor unit	kg	30	30	30	34	52	52
	Outdoor unit	kg	44	57	68	90	112	112
Operating limits -cooling / heating- mode		min/max	-10°C ~ +43°C / -15°C ~ +24°C					

Nominal cooling capacity based on : - Indoor Air Temp. 27°C DB / 19°C WB - Outdoor Air Temp. 35°C DB

Nominal heating capacity based on : - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

Piping length : 7.5 m with initial charge

R410A

Split system Cassette inverter

YKHC-D 18 to 48

A complete range from 5.3 kW to 13.5 kW

Low
Ambient
Kit

Features

- Condensate pump
- Low ambient kit
- Fresh air intake for sizes 24, 36 and 48
- Auto restart
- Service valve protective cover
- Rustproof casing

Remote controller

- Wireless
- 5 operation modes (Cool/Heat/Auto/Dry/Fan)
- Sleep mode
- Room temperature setting
- Fan speed selection
- Timer
- LCD display

Technical features

Set reference		YKHC-D			
Models	Sizes	18	24	36	48
Cooling capacity	kW	5.3 (2.1 / 6.4)	6.5 (2.6 / 7.8)	10.7 (4.3 / 12.8)	13.5 (5.4 / 16.2)
Heating capacity	kW	5.5 (2.2 / 6.6)	7.0 (2.8 / 8.4)	11.6 (4.6 / 13.9)	14.3 (5.7 / 17.1)
Power supply	V/Ph/Hz	230 / 1 / 50 + E		400 / 3 / 50 + E + N	
EER / COP		3.0 / 3.2	3.1 / 3.2	3.1 / 3.2	3.1 / 3.3
Energy Class (cooling/heating)		B / C	B / C	B / C	B / C
Sound pressure at 1 m	Indoor (L/M/H)	dB(A)	38 / 39 / 41	39 / 40 / 41	43 / 44 / 45
	Outdoor	dB(A)	48	52	57
Dimensions	Indoor / Outdoor	H (mm)	254 / 695	310 / 860	310 / 960
		W (mm)	580 / 845	840 / 930	840 / 990
		D (mm)	580 / 335	840 / 330	840 / 360
	Panel H / W / D	mm	30 / 650 / 650	40 / 950 / 950	40 / 950 / 950
Net weight	Indoor unit	kg	38	38	38
	Outdoor unit	kg	55	79	101
Operating limits -cooling / heating- mode		min/max	-10°C ~ +50°C / -15°C ~ +24°C		

Nominal cooling capacity based on : - Indoor Air Temp. 27°C DB / 19°C WB - Outdoor Air Temp. 35°C DB

Nominal heating capacity based on : - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

Piping length : 75 m with initial charge

R410A

Split system Cassette

YKHC 12 to 48

A complete range from 3.7 kW to 13.2 kW

Low
Ambient
Kit

Features

- Condensate pump
- Low ambient kit
- Fresh air intake for sizes 24 to 48
- 600 x 600 mm (size 12 & 18)
- Auto restart
- Service valve protective cover
- Rustproof casing

Remote controller

- Wireless
- 5 operation modes (Cool/Heat/Auto/Dry/Fan)
- Sleep mode
- Room temperature setting
- Fan speed selection
- Timer
- LCD display

R407C

- Available also in R407C upon request (contact Johnson Controls)

Technical features

Set reference		YKHC					
Models	Sizes	12	18	24	30	36	48
Cooling capacity	kW	3.7	5.3	7.1	8.8	10.5	13.2
Heating capacity	kW	4.0	6.0	8.0	9.4	11.4	14.0
Power supply	V/Ph/Hz	230 / 1 / 50 + E			380 / 3 / 50 + E		
EER / COP		3.1 / 3.5	2.8 / 3.2	2.9 / 3.2	2.8 / 3.2	2.8 / 3.4	2.8 / 2.9
Energy Class (cooling/heating)		B / B	C / C	C / C	C / C	C / C	C / D
Sound pressure at 1 m	Indoor (Hi / Lo)	dB(A)	38 / 35	43 / 40	43 / 40	47 / 44	47 / 44
	Outdoor	dB(A)	43	48	55	57	58
Dimensions	H (mm)	254 / 590	254 / 695	240 / 860	310 / 960	310 / 960	310 / 1 245
	Indoor / Outdoor W (mm)	580 / 760	580 / 845	840 / 895	840 / 990	840 / 990	840 / 940
	D (mm)	580 / 285	580 / 335	840 / 330	840 / 360	840 / 360	840 / 360
	Panel H / W / D mm	30 / 650 / 650	30 / 650 / 650	40 / 950 / 950	40 / 950 / 950	40 / 950 / 950	40 / 950 / 950
Net weight	Indoor unit	kg	24	24	42	46	46
	Outdoor unit	kg	40	55	79	101	110
Operating limits -cooling / heating- mode		min/max	-10°C ~ +43°C / -15°C ~ +24°C				

Nominal cooling capacity based on : - Indoor Air Temp. 27°C DB / 19°C WB - Outdoor Air Temp. 35°C DB

Nominal heating capacity based on : - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

Piping length : 75 m with initial charge

R410A

Split system

Blower inverter "Draw through"

JSI 705 to 716

A complete range from 5.0 kW to 16.0 kW



Features

- Inverter DC compressor
- Air filter included
- Condensate pump standard (for sizes 24 to 60)
- Fresh air intake
- Indoor unit with centrifugal fan
- Large distances between indoor and outdoor units
- Indoor units with high pressure
- Quiet operation
- Wired control with weekly timer
- Infrared remote control

Wired control

- 5 operation modes (Cool/Heat/Auto/Dry/Fan)
- Sleep mode
- Room temperature setting
- Fan speed selection
- Timer
- LCD display

Remote controller

- Wireless
- 5 operation modes (Cool/Heat/Auto/Dry/Fan)
- Sleep mode
- Room temperature setting
- Fan speed selection
- Timer
- LCD display

Technical features

Set reference			JSI 705 BGY	JSI 707 BGY	JSI 710 BGY	JSI 712 BGY	JSI 716 BGY
Sizes			18	24	36	42	60
Cooling capacity		kW	5.0	7.0	10.0	12.0	16.0
Heating capacity		kW	5.8	8.0	11.0	14.5	19.0
Power supply		V/Ph/Hz	230.1.50		230.1.50 or 400.3.50		400.3.50
EER / COP			3.1 / 3.2	3.2 / 3.4	3.2 / 3.4	3.1 / 3.4	3.0 / 3.2
Energy Class (cooling/heating)			B / C	A / B	A / B	B / B	B / C
Sound pressure at 1 m	Indoor	dB(A)	38*	40*	44*	46*	48*
	Outdoor	dB(A)	50	52	55	58	60
Dimensions	Indoor / Outdoor	H (mm)	276 / 530	268 / 700	290 / 950	320 / 1 250	330 / 1 250
		W (mm)	980 / 760	1 270 / 950	1 251 / 840	1 160 / 950	1 251 / 950
		D (mm)	736 / 250	504 / 412	744 / 412	770 / 412	788 / 412
Net weight	Indoor unit	kg	36	37	57	66	66
	Outdoor unit	kg	59	59	90	112	123
Operating limits -cooling / heating- mode			min/max				
			+18°C - +50°C / -15°C - +24°C				

Nominal cooling capacity based on : - Indoor Air Temp. 27°C DB / 19°C WB - Outdoor Air Temp. 35°C DB

Nominal heating capacity based on : - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

Piping length : 5 m with initial charge

* With ducts

R410A

Split system

Blower inverter "Blow through"

YUHC-D 18 to 48

A complete range from 5.4 kW to 13.7 kW



Low Ambient Kit



Features

- Low ambient kit
- Air filter included
- Low headroom requirement
- Quiet operation
- Accessibility
- Service valve protective cover
- Rustproof casing

Wired control

- 5 operation modes
Cool/Heat/Auto/Dry/Fan)
- Sleep mode
- Room temperature setting
- Fan speed selection
- Timer
- LCD display

Technical features

Set reference			YUHC-D			
Models	Sizes		18	24	36	48
Cooling capacity	kW		5.4 (2.2 / 6.5)	6.5 (2.6 / 7.8)	10.4 (4.2 / 12.5)	13.7 (5.5 / 16.4)
Heating capacity	kW		5.7 (2.3 / 6.8)	6.9 (2.8 / 8.3)	12.3 (4.9 / 14.8)	14.0 (5.6 / 16.8)
Power supply	V/Ph/Hz		230 / 1 / 50 + E		400 / 3 / 50 + E + N	
EER / COP			3.0 / 3.4	3.1 / 3.2	3.1 / 3.4	3.1 / 3.3
Energy Class (cooling/heating)			B / B	B / C	B / C	B / C
Sound pressure at 1 m	Indoor (L/M/H)	dB(A)	37 / 38 / 40	39 / 41 / 42	41 / 43 / 44	43 / 45 / 47
	Outdoor	dB(A)	48	52	57	58
Dimensions	Indoor / Outdoor	H (mm)	290 / 710	290 / 860	298 / 960	320 / 1 245
		W (mm)	1 095 / 880	1 095 / 930	1 350 / 990	1 350 / 940
		D (mm)	805 / 340	805 / 330	800 / 360	800 / 340
Net weight	Indoor unit	kg	33	33	47	48
	Outdoor unit	kg	55	79	101	110
Operating limits -cooling / heating- mode			min/max			
			-10°C ~ +50°C / -15°C ~ +24°C			

Nominal cooling capacity based on : - Indoor Air Temp. 27°C DB / 19°C WB - Outdoor Air Temp. 35°C DB

Nominal heating capacity based on : - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

Piping length : 7.5 m with initial charge

R410A

Split system Blower "Draw through"

JSI 505 to 516

A complete range from 5.1 kW to 16.3 kW



Features

- Air filter included
- Condensate pump standard (for sizes 24 to 60)
- Fresh air intake
- Indoor unit with centrifugal fan
- Large distances between indoor and outdoor units
- Indoor units with high pressure
- Quiet operation
- Wired control with weekly timer
- Infrared remote control

Wired control

- 5 operation modes Cool/Heat/Auto/Dry/Fan
- Sleep mode
- Room temperature setting
- Fan speed selection
- Timer
- LCD display

Remote controller

- Wireless
- 5 operation modes V(Cool/Heat/Auto/Dry/Fan)
- Sleep mode
- Room temperature setting
- Fan speed selection
- Timer
- LCD display

Technical features

Set reference		JSI 505 BGY	JSI 507 BGY	JSI 510 BGY	JSI 512 BGY	JSI 516 BGY
Sizes		18	24	36	42	60
Cooling capacity	kW	5.1	7.2	10.3	12.4	16.3
Heating capacity	kW	5.8	8.0	11.0	14.5	17.2
Power supply	V/Ph/Hz	230.1.50	230.1.50	400.3.50	400.3.50	400.3.50
EER / COP		2.8 / 3.2	2.7 / 3.3	2.6 / 3.3	2.4 / 3.1	2.6 / 3.2
Energy Class (cooling/heating)		C / C	D / C	D / C	E / D	D / C
Sound pressure at 1 m	Indoor	dB(A)	40*	42*	46*	50*
	Outdoor	dB(A)	52	55	58	62
Dimensions	Indoor / Outdoor	H (mm)	276 / 660	268 / 700	290 / 950	320 / 1 250
		W (mm)	980 / 950	1 270 / 950	1 251 / 840	1 160 / 950
		D (mm)	736 / 340	504 / 412	744 / 412	770 / 412
Net weight	Indoor unit	kg	36	37	57	66
	Outdoor unit	kg	59	59	90	112
Operating limits -cooling / heating- mode		min/max	+18°C - +43°C / -15°C - +24°C			

Nominal cooling capacity based on : - Indoor Air Temp. 27°C DB / 19°C WB - Outdoor Air Temp. 35°C DB

Nominal heating capacity based on : - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

Piping length : 5 m with initial charge

* With ducts

R410A

Split system Blower "Blow through"

YUHC 18 to 60

A complete range from 5.3 kW to 17.6 kW

Low
Ambient
Kit

Features

- Low ambient kit
- Air filter included
- Low headroom requirement
- Quiet operation
- Accessibility
- Service valve protective cover
- Rustproof casing

Wired control

- 5 operation modes
Cool/Heat/Auto/Dry/Fan)
- Sleep mode
- Room temperature setting
- Fan speed selection
- Timer
- LCD display

R407C

• Available also in R407C upon request
(contact Johnson Controls)

Technical features

Set reference			YUHC					
Models	Sizes		18	24	30	36	48	60
Cooling capacity	kW		5.3	7.0	8.8	10.6	14.1	17.6
Heating capacity	kW		6.2	8.0	9.4	11.7	15.5	19.9
Power supply	V/Ph/Hz		230 / 1 / 50 + E			380 / 3 / 50 + E		
EER / COP			2.9 / 3.2	2.8 / 3.2	2.8 / 2.9	2.8 / 3.2	3.0 / 3.1	2.9 / 3.2
Energy Class (cooling/heating)			C / C	C / C	C / D	C / C	C / D	C / C
Sound pressure at 1 m	Indoor	dB(A)	38	38	44	44	46	47
	Outdoor	dB(A)	45	55	57	57	58	58
Dimensions	Indoor / Outdoor	H (mm)	298 / 695	298 / 860	298 / 960	298 / 960	298 / 1 245	320 / 1 245
		W (mm)	1 000 / 845	1 000 / 895	1 350 / 990	1 350 / 990	1 350 / 940	1 350 / 940
		D (mm)	805 / 335	800 / 330	800 / 360	800 / 360	800 / 360	800 / 360
Net weight	Indoor unit	kg	36	38	48	48	50	70
	Outdoor unit	kg	55	79	101	101	110	110
Operating limits -cooling / heating- mode			min/max					
			-10°C ~ +43°C / -15°C ~ +24°C					

Nominal cooling capacity based on : - Indoor Air Temp. 27°C DB / 19°C WB - Outdoor Air Temp. 35°C DB

Nominal heating capacity based on : - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

Piping length : 7.5 m with initial charge

R407C

Split system Window

Y9USC/E 09 / 12 / 18 B5A - Y9USC/E 09 / 12 / 18 B5R

A complete range from 2.6 kW to 5.3 kW



MANUAL CONTROL
Y9USC 09 / 12 / 18 B5A
Y9USE 09 / 12 / 18 B5A



Features

- Super compact design
- Quiet design
- Easy removed panel
- Fresh air switch
- Sliding chassis
- Two drainage methods
- Slinger-up system

Remote controller

- Wireless
- 3 operation modes
Cool/Heat/Fan)
- Room temperature setting
- Fan speed selection
- Timer



REMOTE CONTROL
Y9USC 09 / 12 / 18 B5R
Y9USE 09 / 12 / 18 B5R



Technical features

Models	Sizes	Y9USC 09 B5A	Y9USC 12 B5A	Y9USC 18 B5A	Y9USE 09 B5A	Y9USE 12 B5A	Y9USE 18 B5A
		Y9USC 09 B5R	Y9USC 12 B5R	Y9USC 18 B5R	Y9USE 09 B5R	Y9USE 12 B5R	Y9USE 18 B5R
Cooling capacity	kW	2.6	3.5	5.3	2.6	3.5	5.3
Heating capacity	kW	-	-	-	2.6	3.5	5.3
Power supply	V/Ph/Hz	230 / 1 / 50 + E					
EER / COP		2.6 / -	2.6 / -	2.5 / -	2.6 / 2.8	2.6 / 2.8	2.5 / 2.7
Sound pressure at 1 m (H / L)	dB(A)	47 / 43	46 / 42	52 / 47	47 / 43	46 / 42	52 / 47
Net dimensions W / H / D	mm	450 / 346 / 535	600 / 380 / 560	660 / 435 / 650	450 / 346 / 535	600 / 380 / 560	660 / 435 / 650
Net weight	kg	35	48	55	37	54	59

Nominal cooling capacity based on : - Indoor Air Temp. 27°C DB / 19°C WB - Outdoor Air Temp. 35°C DB
 Nominal heating capacity based on : - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

R410A

Split system Portable with electrical heater integrated

PBSC09FD / PBSC12FD

A complete range from 2.9 kW to 3.5 kW



Control panel

Class **A**

Features

- Class A
- Ionizer
- Evacuation of condensate water through hose
- LCD and LED screen

Remote controller

- Wireless
- 5 operation modes (Cool/Heat/Auto/Dry/Fan)
- Room temperature setting
- Fan speed selection
- Timer

Technical features

Models		PBSC 09 FD	PBSC 12 FD
Cooling capacity	kW	2.9	3.5
Heating capacity	kW	1.7	1.7
Compressor	Type	Rotary	
Refrigerant		R410A	
Expansion device		Capillary	
Power supply		230 / 1 / 50 + E	
EER		2.8	2.6
Energy Class		A	B
Indoor airflow (high / medium / low speed)	m ³ /h	460 / 330 / 200	460 / 330 / 200
Noise level (high / medium / low speed)	dB(A)	54 / 52 / 50	54 / 52 / 50
Dimensions	H (mm)	840	840
	W (mm)	372	372
	D (mm)	460	460
Nett weight	kg	42	42
Applicable area	m ²	16-22	18-25

Nominal cooling capacity based on : - Indoor Air Temp. 27°C DB / 19°C WB - Outdoor Air Temp. 35°C DB

Nominal heating capacity based on : - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB



YDS Digital Scroll Technology

VRF system

YDS Variable refrigerant flow system

YDMH 100, 140, 252, 280, 335, 400, 450 C

Cooling capacities 11.0 kW to 180.0 kW



YDS System

- Operating range of nominal power (10% - 100 %)
- Digital Scroll Technology
- Low noise levels
- High performance
- Flexible and quickly installation

Comfort – Quality

- Capacities from 11 to 180 kW
- Cooling and heating
- Connection up to 64 indoor units per refrigeration circuit (4 outdoor units)
- Complete range in R410A
- Reduced space of ground
- Is appropriate particularly for existing buildings
- Cooling to -10°C to +48°C (outdoor temperature)
- Heating to -15°C to +30°C (outdoor temperature)



YDS Technical features – Single module outdoor unit

Model		YDMH 100C	YDMH 140C	YDMH 252C	YDMH 280CB	YDMH 335CB	YDMH 400CB	YDMH 450CB
Cooling capacity	kW	11.00	14.00	25.20	28.00	33.50	40.00	45.00
Heating capacity	kW	12.00	16.00	27.00	31.50	35.00	43.00	47.00
Noise level at 1 m	dB(A)	55	55	58	58	58	60	60

YDS Technical features – Outdoor units with two module combinations

Model		YDMH 532C	YDMH 560C	YDMH 615C	YDMH 680C	YDMH 730C	YDMH 785C	YDMH 850C	YDMH 900C
Module combinations		1x YDMH252 1x YDMH280	2x YDMH280	1x YDMH280 1x YDMH335	1x YDMH280 1x YDMH400	1x YDMH280 1x YDMH450	1x YDMH335 1x YDMH450	1x YDMH400 1x YDMH450	2x YDMH450
Cooling capacity	kW	53.20	56.00	61.50	68.00	73.00	78.50	85.00	90.00
Heating capacity	kW	58.50	63.00	66.50	74.50	78.50	82.00	90.00	94.00
Noise level at 1 m	dB(A)	62	62	62	62	62	63	63	63

YDS Technical features – Outdoor units with three module combinations

Model		YDMH 960C	YDMH 1010C	YDMH 1065C	YDMH 1130C	YDMH 1180C	YDMH 1235C	YDMH 1300C	YDMH 1350C
Module combinations		2x YDMH280 1x YDMH400	2x YDMH280 1x YDMH450	1x YDMH280 1x YDMH335 1x YDMH450	1x YDMH280 1x YDMH400 1x YDMH450	1x YDMH280 2x YDMH450	1x YDMH335 2x YDMH450	1x YDMH400 2x YDMH450	3x YDMH450
Cooling capacity	kW	96.00	101.00	106.50	113.00	118.00	122.50	130.00	135.00
Heating capacity	kW	106.00	110.00	113.50	121.50	125.50	129.00	137.00	141.00
Noise level at 1 m	dB(A)	64	64	64	64	64	64	64	64

YDS Technical features – Outdoor units with four module combinations

Model		YDMH 1405C	YDMH 1455C	YDMH 1520C	YDMH 1570C	YDMH 1630C	YDMH 1685C	YDMH 1750C	YDMH 1800C
Module combinations		3x YDMH335 1x YDMH400	3x YDMH335 1x YDMH450	2x YDMH335 1x YDMH400 1x YDMH450	2x YDMH335 2x YDMH450	1x YDMH280 3x YDMH450	1x YDMH335 3x YDMH450	1x YDMH400 3x YDMH450	4x YDMH450
Cooling capacity	kW	140.50	145.50	152.00	156.00	163.00	168.50	175.00	180.00
Heating capacity	kW	148.00	152.00	160.00	164.00	172.50	176.00	184.00	188.00
Noise level at 1 m	dB(A)	65	65	65	65	65	65	65	65

R407C

YDS Digital Scroll Technology

VRF system

YDS Variable refrigerant flow system

YDMH 100, 140, 280, 560, 840 B

Cooling capacities 11,0 kW to 91,0 kW

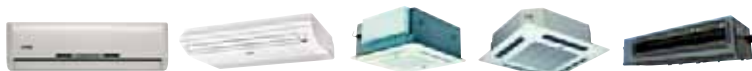


YDS System

- Operating range of nominal power (10% - 100 %)
- Digital Scroll Technology
- Long connecting distance between outdoor and indoor units
- Real step less capacity adjustment
- Improved oil return
- Does not produce electromagnetic interferences

Comfort – Quality

- Capacities from 11 to 91 kW
- Cooling and heating
- Connection up to 32 indoor units to each outdoor unit
- Complete range in R407C
- Reduced space of ground
- Flexible installation and easy selection
- Is appropriate particularly for existing buildings
- Cooling to +15°C to +45°C (outdoor temperature)
- Heating to -7°C to +24°C (outdoor temperature)



Technical features

Model		YDMH 100 B	YDMH 140 B	YDMH 280 B	YDMH 560 B	YDMH 840 B
Cooling capacity	kW	11.0	14.0	29.0	60.0	91.0
Heating capacity	kW	12.0	16.0	30.0	67.2	105.0
Air flow	m ³ /h	5 000	5 000	10 000	20 000	30 000
Noise level at 1 m	dB(A)	54	54	68	70	72
Electrical features						
Power supply		3/N/ 400V 50Hz				
Power input in cooling	kW	3.5	4.6	9.1	19.2	28
Power input in heating	kW	3.4	4.5	8.9	18.9	27.7
Rated current	A	7.1	7.7	18.5	35.9	53.3
Starting current	A	70	35	35	35	35
Compressor						
Type		Digital Scroll	Digital Scroll	Digital Scroll + Fixed Scroll	Digital Scroll + 3 x Fixed Scroll	Digital Scroll + 5 x Fixed Scroll
Brand		Copeland	Copeland	Copeland	Copeland	Copeland
Dimensions and Weight						
Height x Width x Length	mm	960 x 990 x 360	960 x 990 x 360	1830 x 997 x 880	1920 x 1992 x 880	1920 x 2987 x 880
Weight	kg	101	101	245	520	780

R410A

METASYS
COMPATIBLE

Special equipments

YPP

Heat pump for swimming pool

YPP-A and YPP-C 7 to 120

A complete range from 7.0 kW to 120 kW



YPP-A-22T



YPP-A-39T

Features

- The cheapest solution to heat the water of your outdoor or indoor swimming pool, with high COP around 5!
- Large range to heat from a spa till a 25-metre length pool, with 2 ranges available:
 - YPP-A with axial fan
 - YPP-C with centrifugal fan to be installed inside the building
- "PLUG and PLAY" unit with very easy electric and water connections.
- As accessory, 2 sizes of titanium plate heat exchanger alone to be connected between a standard heat pump (as YLHA units) and the pool installation.

Technical Details

- Special scroll plate heat exchanger in TITANIUM.
- Well-protected unit with mechanical flow switch, high and low pressure automatic pressostat and Gold-Fins coil (for small YPP-A).
- Thermodynamic defrost system included with 4-way valve to heat till -15°C outside temperature.
- Water pump is not included as we use the filtration pump of the pool installation.

Technical features horizontal air discharge

Models		YPP-A-7M	YPP-A-10M	YPP-A-14M	YPP-A-17M	YPP-A-14T	YPP-A-22T
Heating capacity at 15°C of water and 15°C ambient air	kW	7	10	14	17	14	22
COP		5	4.7	5	4.4	4.9	4.9
Sound pressure level L_p at 10m	dB(A)	40	40	41	48	41	48
Dimensions	Height	653	762	965	1 270	965	1 270
	Length	866			905		
	Depth	373			405		
Nett weight	kg	59	95	118	140	118	143

Technical features vertical air discharge

Cooling only models		YPP-A-30T	YPP-A-39T	YPP-A-45T	YPP-A-56T	YPP-A-73T	YPP-A-91T	YPP-A-120T
Heating capacity at 15°C of water and 15°C ambient air	kW	30	39	44.2	56	73	91	120
COP		3.94	4.24	3.62	3.83	3.72	3.86	3.92
Dimensions	Height	1 028		1 180		1 230	1 180	1 452
	Length		894		1 644		1 629	1 976
	Depth			1 284			2 019	2 454
Nett weight	kg	268	376	342	450	495	610	940

R410A

METASYS
COMPATIBLEAir systems
Roomtop

RTC-RTH - L

A complete range from 7 kW up to 30 kW



YKlon√3

Features

- YKlon √3 board
- Scroll Compressors
- High COP and EER
- 1/4 turn on electrical panel
- Expansion valves for models 20, 25 and 30
- High external static pressure on evaporator and condenser
- Thermostat and indoor air filter included

Options / Accessories

- Electrical heaters (in duct)
- Low ambient regulation
- Copper-copper coil unit
- Anti-corrosion blue fin coil

Technical features

Cooling only models			RTC 07 L	RTC 10 L	RTC 15 L	RTC 20 L	RTC 25 L	RTC 30 L
Cooling capacities		kW	7.60	9.90	14.60	19.90	22.20	27.00
In duct outdoor side sound power level		dB(A)	71	71	72	74	77	81
In duct indoor side sound power level		dB(A)	70	71	71	73	75	75
Heat pump models			RTH 07 L	RTH 10 L	RTH 15 L	RTH 20 L	RTH 25 L	RTH 30 L
Cooling capacities		kW	7.40	9.30	14.10	19.90	22.20	26.80
Heating capacities		kW	7.40	11.70	13.80	17.80	20.80	25.40
In duct outdoor side sound power level		dB(A)	71	72	74	74	81	81
In duct indoor side sound power level		dB(A)	70	72	73	73	81	81
Common characteristics								
Power supply			230V/1/50Hz		400V/3 + N/ 50Hz			
Nett dimensions	Height	mm	480	557	557	585	650	650
	Length	mm	1 102	1 155	1 312	1 575	1 750	1 770
	Depth	mm	1 102	1 155	1 312	1 575	1 656	2 056
Nett weight	RTC	kg	172	180	235	305	358	420*
Nett weight	RTH	kg	178	190	243	317	379	434*

All the data are at EUROVENT conditions with 230V/1/50Hz or 400V/3+N/50Hz.

Cooling : Entering indoor coil temp. 27°C / 19°C WB and outdoor temperature 35°C - Heating : Entering indoor coil temp. 20°C and outdoor temperature 7°C / 6°C WB

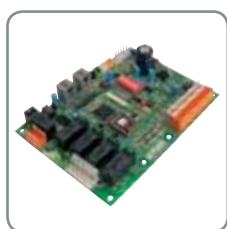
* Preliminary data

R407C

METASYS
COMPATIBLEAir systems
Rooftop

DIC-BIH-DIG 090 to 300 G

A complete range from 24 kW up to 90 kW



YKlon√3

Features

- YKlon √3 board
- Duct work configuration side or down flow
- Cooling, heat pump, gas and electric heating
- Compact and with proven reliability
- Wide range of accessories
- Suitable for use in harsh climates
- New indoor motor power input

Options / Accessories

- Thermostat DPC-1
- Dry bulb triple input economizer or motorized air damper with rain hood
- Enthalpy probes
- Indoor air quality sensor
- Power Exhaust
- Barometric relief damper and rain hood
- Fresh air or barometric damper and rain hood
- Fresh air damper and rain hood
- High speed drive
- Low ambient control
- Copper-copper coil and anti-corrosion blue fin coil
- Side duct flanges
- Fixed roof curb and adjustable roof curb
- Filter dirty switch
- Smoke detector and fire detection thermostat
- Hot water coil with control
- Electric heaters
- Propane conversion kit and high heat gas conversion kit
- Washable air filter

Technical features

Cooling only models		D5IC 090G	D5IC 120G	D5IC 150G	D5IC 180G	D5IC 240G	D5IC 300G
Net cooling capacities	kW	25.30	32.00	40.20	46.60	61.50	88.00
Heat pump models		B5IH 090G	B5IH 120G	B5IH 150G	B5IH 180G	B5IH 240G	B5IH 300G
Net cooling capacities	kW	23.20	31.00	37.00	46.50	58.30	86.60
Heating capacities	kW	24.30	32.30	37.70	50.60	70.00	80.00
Cooling only + Gas heating		D5IG 090G	D5IG 120G	D5IG 150G	D5IG 180G	D5IG 240G	D5IG 300G
Net cooling capacities	kW	25.30	32.00	40.20	46.60	61.50	88.00
Standard Heating capacities	kW	47.5 + 1.5	57 + 2.2	57 + 4	76 + 4	76 + 5.5	76 + 9.2
High Heating capacities	kW	-	-	-	90 + 4	90 + 5.5	90 + 9.2
Technical characteristics for D5IC and D5IG							
Ambient outdoor side sound power level	dB(A)	87	87	88	90	90	91
In duct indoor side sound power level	dB(A)	81	83	84	82	85	87
Nett dimensions	Height / Length / Depth	mm 855 / 2552 / 1800	1007 / 2552 / 1800	1210 / 2552 / 1800	1235 / 3180 / 2337	1337 / 3460 / 2337	1337 / 3460 / 2337
Nett weight DIC / DIG	kg	437 / 472	472 / 537	590 / 642	860 / 970	957 / 1 066	1 238 / 1 353
Technical characteristics for B5IH							
Ambient outdoor side sound power level	dB(A)	83	83	83	91	91	92
In duct indoor side sound power level	dB(A)	79	79	79	84	87	88
Nett dimensions	Height / Length / Depth	mm 855 / 2552 / 1800	1210 / 2552 / 1800	1210 / 2552 / 1800	1235 / 3180 / 2337	1337 / 3460 / 2337	1337 / 3460 / 2337
Nett weight BIH	kg	477	637	743	953	1 043	1 279

All the data are at EUROVENT conditions with 400V/3+N/50Hz.

Cooling : Entering indoor coil temp. 27°C / 19°C WB and outdoor temperature 35°C - Heating : Entering indoor coil temp. 20°C and outdoor temperature 7°C / 6°C WB

R407C

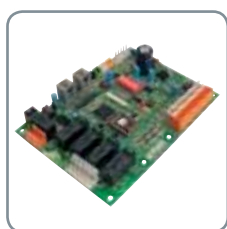
METASYS
COMPATIBLE

Air systems

Large rooftop

DIC-BIH-DIG 360 to 480 G

A complete range from 120 kW up to 155 kW



YKlon√3

Features

- YKlon √3 board
- Duct work configuration side or down flow
- Cooling and heat pump models
- Compact unit
- Wide range of accessories
- Suitable for use in harsh climates

Options / Accessories

- Thermostat DPC-1
- Dry bulb triple input economizer or motorized air damper with rain hood
- Enthalpy probe
- Indoor air quality sensor
- Power exhaust
- Barometric relief damper + rain hood
- Fresh air damper and rain hood
- High pressure drive
- Low ambient control
- Hot water coil with control
- Electrical heaters 37, 50 and 60 kW (2 stages)
- Washable air filter set G4 (EU4)
- Dirty filter switch
- Smoke detector and fire detection thermostat
- Fixed roof curb and adjustable roof curb

Technical features

Models		D4IC 360 G	D4IC 480 G	B4IH 360 G	B4IH 480 G	D4IG 360 G	D4IG 480 G
Gross cooling capacities	kW	119.1	155.6	115.1	151.0	119.1	155.6
Power input in cooling	kW	31.4	37.2	32.0	44.5	31.4	37.2
Heating capacities	kW	-	-	127.1	163.3	-	-
Power input in heating	kW	-	-	41.9	56.7	-	-
Cooling capacities	kW	111.6	144.6	107.6	140.0	111.6	144.6
Power input in cooling	kW	42.4	52.2	43.0	59.5	42.4	52.2
Heating capacities	kW	-	-	127.1	163.3	-	-
Power input in heating	kW	-	-	41.9	56.7	-	-
Gas heating capacities	kW					117 + 9.2	117 + 11
Natural gas 2ND-H, G20	m3/h					12.8	12.8
Power supply		400V/3 + N/ 50Hz					
Nett dimensions	Height	mm	1.815				
	Length	mm	4.580				
	Depth	mm	2.200				
Nett weight	kg	2 010	2 295	2 060	2 350	2 125	3 410

All the data are at EUROVENT conditions with 400V/3+N/50Hz.

Cooling : Entering indoor coil temp. 27°C / 19°C WB and outdoor temperature 35°C - Heating : Entering indoor coil temp. 20°C and outdoor temperature 7°C / 6°C WB

R407C

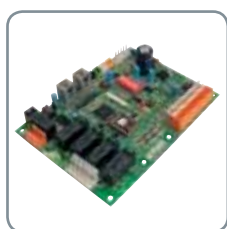
METASYS
COMPATIBLE

Air systems

Large split (Axial fan)

SOC-SOH 076 to 300 K

A complete range from 20 kW up to 70 kW



YKlon√3

Features

- YKlon √3 board
- Low ambient control as standard
- Scroll compressors
- Digital thermostat included
- LED fault diagnosis with remote alarm
- "Quick connect" accessories
- Two levels of safety: Lockout & incident
- Adjustable parameters with dip switches
- New packing allows stacking of stock units (76 to 120 models only)
- Improved condenser coil protection (76 to 120 models only)

Accessories or options for outdoor units

- Low speed condenser motor
- Copper-copper coil
- Anti-corrosion blue fin coil

Accessories or options for indoor units

- Electrical Heaters (Inside the unit)
- Electrical Heaters (in duct)
- Hot water coil only
- Vertical discharge Kit
- High speed drive
- High speed drive and motor
- Copper-copper coil
- Anti-corrosion blue fin coil

Technical features

Indoor units		SICH	76	90	120	150	180	240	300
Cooling only and heat pump									
Outdoor units		SOC	76	90	120	150	180	240	300
Cooling only models									
Cooling capacities	kW		22.00	29.00	33.40	41.80	53.00	68.00	85.00
Heat pump models		SOH	76	90	120	150	180	240	300
Cooling capacities	kW		22.00	29.00	33.40	38.50	54.00	68.00	83.00
Heating capacities	kW		23.00	30.00	34.00	43.00	55.50	67.80	89.00
Ambient outdoor side sound power level SOC/SOH	dB(A)		73 / 75	80 / 74	77 / 79	86 / 86	86 / 83	82 / 82	86 / 86
In duct indoor side sound power level	dB(A)		70	84	84	85	89	77	86
Nett dimensions outdoor	Height	mm	1 028	1 180	1 180	1 180	1 230	1 180	1 782
	Length	mm	1 245	1 245	1 245	1 245	1 245	1 983	2 454
	Depth	mm	885	885	1 632	1 632	1 632	1 635	1 976
Nett dimensions indoor	Height	mm	590	663	663	663	762	838	838
	Length	mm	1 357	1 738	1 738	2 038	2 239	2 639	2 639
	Depth	mm	725	725	725	725	777	857	857
Nett weight	SOC / SOH	kg	234 / 258	234 / 268	318 / 336	415 / 450	430 / 495	575 / 610	925 / 940
	SICH	kg	120	165	165	195	240	310	310

All the data are at EUROVENT conditions with 400V/3+N/50Hz.

Cooling : Entering indoor coil temp. 27°C / 19°C WB and outdoor temperature 35°C - Heating : Entering indoor coil temp. 20°C and outdoor temperature 7°C / 6°C WB

R407C

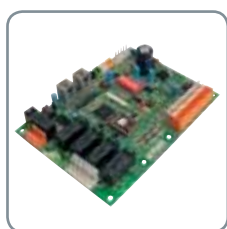
METASYS
COMPATIBLE

Air systems

Large split (Ductable)

SCOC-SCOH 070 to 300 K

A complete range from 18 kW up to 90 kW



YKlon√3

Features

- YKlon √3 board
- Scroll Compressors
- Digital thermostat included
- LED fault diagnosis with remote alarm
- "Quick connect" accessories
- Two levels of safety: Lockout & incident
- Adjustable parameters with dip switches
- Vertical or horizontal air discharge for the indoor and outdoor units

Accessories or options for outdoor units

- Low ambient regulation
- Copper-copper coil
- Anti-corrosion blue fin coil
- Vertical discharge kit

Accessories or options for indoor units

- Electrical Heaters (Inside the unit)
- Electrical Heaters (in duct)
- Hot water coil only
- Vertical discharge Kit
- High speed drive
- High speed drive and motor
- Copper-copper coil
- Anti-corrosion blue fin coil

Technical features

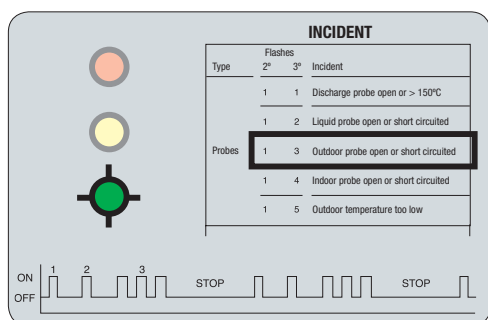
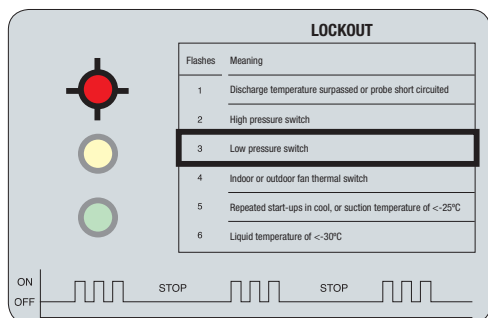
Indoor units		SICH	70	76	90	120	150	180	240	300
Cooling only and heat pump										
Outdoor units		SCOC	---	76	90	---	150	180	---	---
Cooling only models										
Cooling capacity		kW		21,00	29,00		40,00	54,00		
Heat pump models		SCOH	70	76	90	120	150	180	240	300
Cooling capacities		kW	18,60	21,00	30,00	33,30	39,50	54,00	69,00	86,00
Heating capacities		kW	18,60	22,30	33,50	34,40	44,00	56,00	69,00	88,00
In duct outdoor side sound power level SCOC / SCOH		dB(A)	- / 71	79 / 74	79 / 77	- / 91	78 / 78	80 / 80	- / 80	- / 80
In duct indoor side sound power level		dB(A)	81/ 70	81/ 70	81/ 77	84	85	86	86	86
Nett dimensions outdoor	Height	mm	1 392	1 392	1 526	1 526	1 592	1 641	1 794	1 794
	Length	mm	1 360	1 360	1 738	1 738	2 040	2 239	2 639	2 639
	Depth	mm	728	728	725	725	728	777	857	857
Nett dimensions indoor	Height	mm	590	590	663	663	663	762	838	838
	Length	mm	1 357	1 357	1 738	1 738	2 038	2 239	2 639	2 639
	Depth	mm	725	725	725	725	725	777	857	857
Nett weight	SCOC / SCOH	kg	- / 305	315 / 325	370 / 375	- / 385	555 / 560	645 / 650	- / 720	- / 750
	SICH	kg	120	120	165	165	195	240	310	310

All the data are at EUROVENT conditions with 400V/3+N/50Hz.

Cooling : Entering indoor coil temp. 27°C / 19°C WB and outdoor temperature 35°C - Heating : Entering indoor coil temp. 20°C and outdoor temperature 7°C / 6°C WB

Air systems Control system

Led Diagnostic Code



YKlon✓3

The YKlon is a controller regulating all components and accessories. It will pro actively manage cool and heat stages to maintain a stable room temperature.

Additionally, the benefits are:

- Redundancy on cool and heat stages (if one step is locked out, the PCB starts another one automatically).
- Random start between units to minimise electrical tariff.
- All stages will start in sequence to reduce peak inrush.
- Reduces nuisance calls by using 3 times "you are out" on all safeties before a hard lockout occurs.
- Automatic restart after power failure.
- Compressors run time priority.
- Alarm output relay and led diagnostic code.
- No parameters to check before starting.
- Lockout and incident level of protection.
- Use a standard 2-stage thermostat but get 98% of YKlon features.
- Last 10 lockouts stored in a non-volatile memory.
- 4 heating stages on hot water heating.

YKphone485

The YKPhone485 is a complete communication pack that YORK can offer in order to provide a local network between units. Without any specific communication protocol knowledge, you can download the software and have a direct access to the units, change thermostat parameters, reset lockout, etc.... For more detail, see the following pages or contact you local agency.



YKtool

Features and benefits YKtool

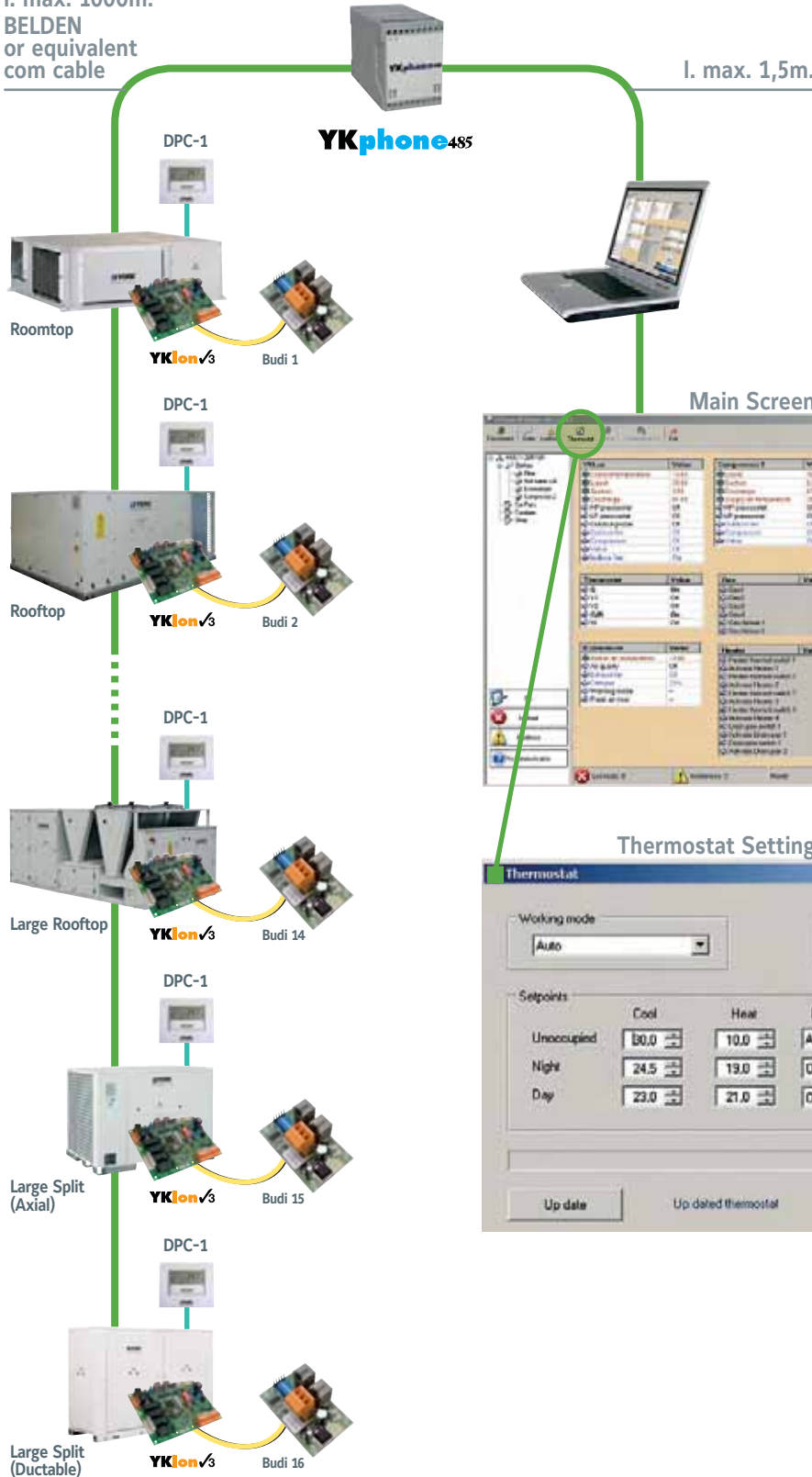
- Cooling and defrost test.
- Reverse cycle, gas, hot water and electrical heating test.
- Give access to input and output of the YKlon.
- Give access to accessories status and read the probe values.

Air systems YKphone485

Do it yourself!

l. max. 1000m.
BELDEN
or equivalent
com cable

l. max. 1,5m.



- YKPhone485 is a simple monitoring tool to be used with a maximum of 16 units equipped with YKlon√3 board or superior
- It have been developed for internal or external maintenance team in supermarket, factory, etc...
- Consult all main parameters as Inputs, Outputs, Temperatures & Accessories
- Consult & modify thermostat DPC-1 setting (communication)
- Reset the unit

Main Screen



Thermostat Setting





Air Handling Systems & Terminal Devices

Air handling units
Fan coil units
Close control units
SmartPac



Airside products YMA

CUSTOM AIR HANDLING UNITS

Air volume range 0.25m³/s to 50m³/s



The YMA family of air handling units consists of a range of custom designed and manufactured units up to 50m³/s. To ensure maximum flexibility and the best solution for your application, units are available in 50mm increments in both height and width.

Unit frames are constructed from extruded aluminium profiles and have flush fitting panels and doors to provide aesthetically pleasing lines, all panels are completely removable.

The thermally insulated rigid enclosure is fully sealed and gives good acoustic performance. The complete YMA range is Eurovent certified for guaranteed performance and peace of mind.

Accurate computer selection ensures cost effective matching of all components to satisfy the specified conditions.

YMA Air Handling Units can be manufactured in varied configurations, with a wide selection of components, to meet customer requirements.

Units are also available in line with the requirements of hospital sector specifications.

Units may include combinations of any of the following:

- Single or double decked units.
- Indoor or outdoor applications – Outdoor units are available with a flat or sloping roof, louvres, rainhoods, birdscreens and special finishes.
- Site assembled units.
- Where space constraints restrict the size of a single item modules can easily be aligned and locked together by gaskets and stainless steel bolts inserted into factory predrilled assembly holes.
- Air mixing boxes.
- Various filter options.
- Gas fired burners.
- Cooling and heating coils.
- Humidifiers.
- Heat recovery systems.
- UV sterilising lamps.
- Dessicant and thermal wheels.
- Sound attenuation.
- ATEX Certification.
- Factory fitted controls and sensors with YORK SmartPAC Factory Packaged Controls.

These include all necessary piping, wiring, controls and refrigeration equipment to provide a complete central air conditioning plant.





Airside products YMA-C

CUSTOM AIR HANDLING UNITS

Air volume range 0.8m³/s to 60m³/s



YORK YMA-C AHU'S have been specifically designed to address all of these factors:

- Mechanical Performance
- Thermal Efficiency
- Air Leakage and Cleanliness

The YMA-C is an Air Handling Unit manufactured from 88mm thick sheet metal panels insulated with CFC free PU foam. In other types of Air Handling Unit construction, the majority of air leakage occurs between the frame and the panels. YMA-C Air Handling Units comprise an extremely rigid sealed frame construction, therefore gaps between panel junctions are minimal, and consequently air leakage is greatly reduced.

The unit also includes a non-metallic isolating frame around the internal perimeter of each panel, which serves to all but eliminate Thermal Transmission through the casing. An external aluminium profile maintains structural integrity and air-tightness without compromising the thermal-bridging characteristics of the unit.

The construction of the units achieves the highest classification available for both thermal transmittance (T1) and thermal bridge factor (TB1) when measured against Eurovent test standards of EN 1886.

A range of YORK 'Hygienic' Air Handling Units, offering unique solutions to the application of Central Station Air Conditioning in a sterile environment.

There are many factors affecting air quality, comfort conditions and the efficient operation of Air Handling Units.

These include:

- Mechanical Performance
- Thermal transmission through the Air Handling Unit casing
- Air leakage
- Noise transmission
- Bacteria protection
- Air cleanliness and filter efficiency
- Fan and motor efficiency
- Dehumidification
- Humidification

These factors are valid for the air conditioning of commercial buildings and hotels etc, as well as hygiene sensitive environments such as hospitals, laboratories, clean rooms, food processing and a variety of other process systems.





Airside products YMD

MODULAR AIR HANDLING UNITS

0.4 to 17 m³/s

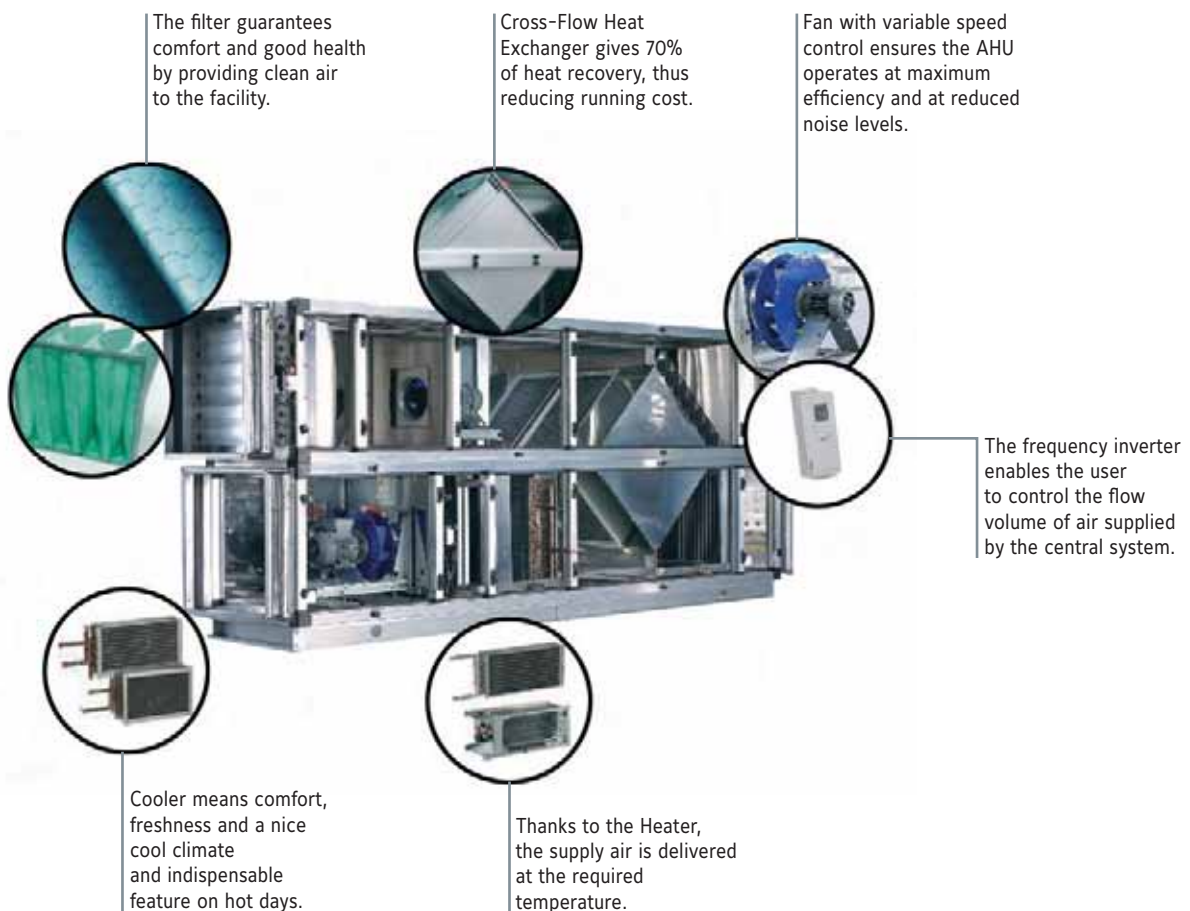


Features

- Fixed aspect ratio design
- Choice of configurations
- Short lead time
- Units fitted with plug fans and frequency inverter as standard
- Suitable for internal or external mounting
- Web based selection tool

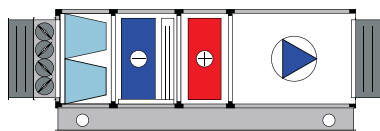
Options / Accessories

- Choice of heat recovery devices with up to 70% efficiency
- Can be supplied with YORK SmartPac Factory Packaged Controls
- Hygienic type construction option
- CFC free foam or mineral wool infill
- Sound attenuator option for noise reduction

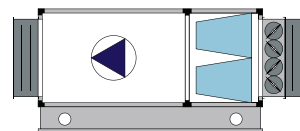


Airside products YMD TYPES OF HANDLING UNITS

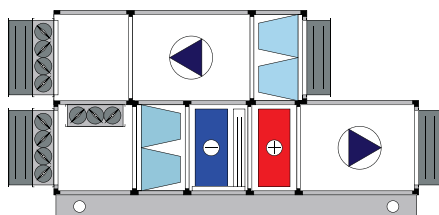
Supply (H)



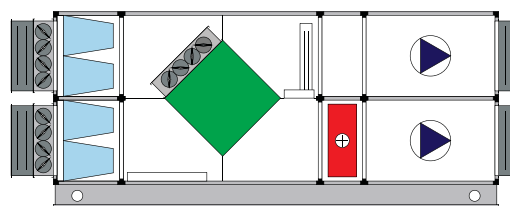
Exhaust (W)



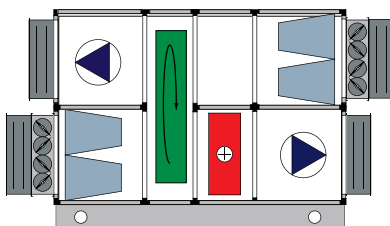
Supply-Exhaust (NW)
with Mixing Chamber



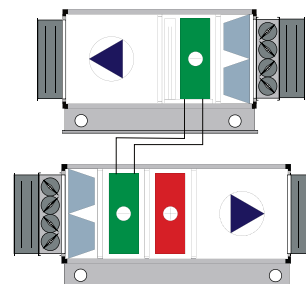
Supply-Exhaust (NW)
with Cross.Flow heat Exchanger (X)



Supply-Exhaust (NW)
with Rotary Heat Exchanger (O)



Supply-Exhaust (NW)
with Glycol Heat Exchanger (G)



Side of execution

The side of execution shows the location of the connectors of the exchangers and the location of the drainage of condensate.

In the case of supply and exhaust units, the designation in the unit code is used both for the supply and ventilating part.

Left-hand version



Right-hand version



Airside products

YMD

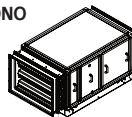
MODULAR AIR HANDLING UNITS

0,4 to 17 m³/s



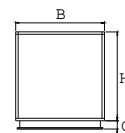
Configuration of air handlers

MONO

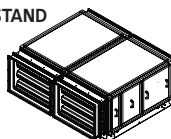


Standard configuration, used in the following Air Handling Units

- Supply and Exhaust N and W
- with the Mixing Chamber NW
- with the Glycol Heat Exchanger G

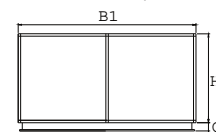


STAND

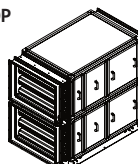


The Air Handling Unit Sections are placed next to each other; the Supply and the Exhaust Units are divided by a side wall:

- with the Mixing Chamber NW
- with the Cross-Flow Heat Exchanger X
- with the Glycol Heat Exchanger G



TOP

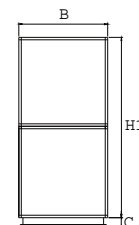


The Air Handling Unit Sections are one above the other; the Supply and the Exhaust units are divided by the floor.

This configuration is used in the following

Air Handling Units types:

- with the Mixing Chamber NW
- with the Cross-Flow Heat Exchanger X
- with the Rotary eat exchanger O
- with the Glycol heat Exchanger G



Dimensions of standard and roof air handing units

Unit size	External dimensions				
	B (mm)	B1 (mm)	H (mm)	H1 (mm)	C (mm)
0	753	-	520	1040	120
1	753	-	753	1506	120
2	1018	-	753	1506	120
3	1018	-	1018	2036	120
4	1320	-	1018	2036	120
5	1320	-	1320	2640	120
6	1700	-	1320	2640	160
7	1700	-	1700	3400	160
8	2000	-	1700	3400	160
8,5*	-	3400	2000	-	160
9	2040	4080	2040	-	160
10	2640	-	2040	-	160
10,5*	-	4080	2640	-	160
11	2640	5280	2640	-	160
12	3240	-	2640	-	160
12,5*	-	5280	3240	-	160

* regards horizontal units with cross-flow exchangers



Airside products

Fan coil unit with centrifugal fan 2 & 4 pipe system

YFCM 130 to 740

Cooling capacities from 1.5 kW to 7.5 kW

Heating capacities from 2.06 kW to 10.10 kW



Selection
software

Features

- 7 sizes (300 - 1400 m3/h)
- Low noise levels
- Centrifugal fan
- Casing with or without frontal air intake
- Models with or without casing
- Single coil: 3 or 4 rows
- Double coil: 3 or 4 rows (cooling)
& 1 row (heating)
- Valve kit
- Large range of controls

Options / Accessories

- Mounting feet
- Auxiliary condensate drain horizontal
or vertical
- Frontal grill air intake
- Fresh air damper
- Frontal air intake kit
- Back panel painted
- Condensate drain in PVC
- Valve 3 way ON/OFF
for electric heater 2 & 4 pipe system
- Electrical heater kit
- ON/OFF basic control, 3 speeds
- Thermostat with manual
or auto speed selector
- Minimum temperature thermostat
- Automatic change over



System Fan Coil Control
BACnet, Lon, N2 Open BMS Networks
Remote User Interface
Room Command Module

Technical data 2 pipe system

YFCM Model		130	140	230	240	330	340	430	440	530	540	630	640	730	740
Cooling capacity	W	1500	1800	2500	2800	3500	3900	4000	4600	4800	5700	5950	6600	6310	7500
Heating capacity	W	2060	2300	3300	3500	4450	4800	5200	5800	6600	7400	8000	8800	9070	10100
Air flow	m3/h	300	300	450	450	600	600	750	750	1000	1000	1200	1200	1400	1400
Noise press. level	dB(A)	40	42	43	45	42	42	45	45	50	49	51	51	54	54
Dimensions	H mm	530	530	530	530	530	530	530	530	530	530	530	530	530	530
	L mm	770	770	985	985	1200	1200	1200	1200	1415	1415	1415	1415	1415	1415
	D mm	225	225	225	225	225	225	225	225	225	225	255	255	255	255

Technical data 4 pipe system

YFCM Model		130-1	140-1	230-1	240-1	330-1	340-1	430-1	440-1	530-1	540-1	630-1	640-1	730-1	740-1
Cooling capacity	W	1500	1800	2500	2800	3500	3900	4000	4600	4800	5700	5950	6600	6310	7500
Heating capacity	W	1750	1750	2700	2700	3600	3600	3690	3690	5300	5300	550	5500	6100	6100
Air flow	m3/h	300	300	450	450	600	600	750	750	1000	1000	1200	1200	1400	1400
Noise press. level	dB(A)	40	42	43	45	42	42	45	45	50	50	51	51	57	57
Dimensions	H mm	530	530	530	530	530	530	530	530	530	530	530	530	530	530
	L mm	770	770	985	985	1200	1200	1200	1200	1415	1415	1415	1415	1415	1415
	D mm	225	225	225	225	225	225	225	225	225	225	255	255	255	255

With fan running at maximum speed. Data accordingly at Eurovent conditions.

COOLING: Ambient temperature + 27°C DB., + 19°C WB. - Water inlet temperature + 7°C, + 12°C outlet.

HEATING: Ambient temperature + 20°C - Water inlet temperature + 70°C, + 60°C outlet.

The sound pressure levels are less than 9 dB(A) in a 100 m3 room and a reverberation time of 0,5 sec.



Airside products

Fan coil unit with tangential fan 2 & 4 pipe system

YFTM 130 to 540

Cooling capacities from 1.4 kW to 5.3 kW

Heating capacities from 2.1 kW to 6.9 kW



Selection software

Features

- 5 sizes (300 - 1000 m³/h)
- Low noise levels
- Tangential fan
- Casing with or without frontal air intake
- Models with or without casing
- Single coil: 3 or 4 rows
- Double coil: 3 or 4 rows (cooling) & 1 row (heating)
- Valve kit
- Large range of controls

Options / Accessories

- Mounting feet
- Auxiliary condensate drain horizontal or vertical
- Frontal grill air intake
- Fresh air damper
- Frontal air intake kit
- Back panel painted
- Condensate drain in PVC
- Valve 3 way ON/OFF for electric heater 2 & 4 pipe system
- Electrical heater kit
- ON/OFF basic control, 3 speeds
- Thermostat with manual or auto speed selector
- Minimum temperature thermostat
- Automatic change over



System Fan Coil Control
BACnet, Lon, N2 Open BMS Networks
Remote User Interface
Room Command Module

Technical data 2 pipe system

Model YFTM		130	140	230	240	330	340	430	440	530	540
Cooling capacity	W	1400	1700	2400	2600	3400	3700	4100	4500	4600	5300
Heating capacity	W	2100	2300	3100	3300	4300	4700	5000	5600	6300	6900
Air flow	m ³ /h	300	300	450	450	600	600	750	750	1000	1000
Noise press. level	dB(A)	39	39	38	39	39	38	43	43	46	47
Dimensions	H mm	530	530	530	530	530	530	530	530	530	530
	L mm	775	775	990	990	884	884	884	884	1099	1099
	D mm	225	225	225	225	225	225	225	225	225	225

Technical data 4 pipe system

Model YFTM		130-1	230-1	330-1	430-1	530-1
Cooling capacity	W	1400	2400	3400	4100	4200
Heating capacity	W	1400	2600	3500	4000	4400
Air flow	m ³ /h	300	450	600	750	1000
Noise pressure level	dB(A)	39	38	39	45	45
Dimensions	H mm	530	530	530	530	530
	L mm	775	990	884	884	1099
	D mm	225	225	225	225	225

With fan running at maximum speed. Data accordingly at Eurovent conditions.

COOLING: Ambient temperature + 27°C DB., + 19°C WB. - Water inlet temperature + 7°C, + 12°C outlet.

HEATING: Ambient temperature + 20°C - Water inlet temperature + 70°C, + 60°C outlet.

The sound pressure levels are less than 9 dB(A) in a 100 m³ room and a reverberation time of 0,5 sec.



Airside products

Fan coil unit LASER

2 & 4 pipe system

A complete range from 1 kW up to 9.5 kW



Selection software

Features

- Option front air intake
- 6 speed fan
- Cabinet factory fitted
- Valve factory fitted
- Electrical heater factory fitted
- optional inlet and discharge plenums
- Up to 110 pa static pressure
- Thermal or modulating valve
- Service valve

Options / Accessories

- Mounting feet
- Auxiliary condensate drain horizontal or vertical
- Frontal grill air intake
- Fresh air damper
- Frontal air intake kit
- Back panel painted
- Condensate drain in PVC
- Valve 3 way ON/OFF for electric heater 2 & 4 pipe system
- Electrical heater kit
- ON/OFF basic control, 3 speeds
- Thermostat with manual or auto speed selector
- Minimum temperature thermostat
- Automatic change over



System Fan Coil Control
BACnet, Lon, N2 Open BMS Networks
Remote User Interface
Room Command Module

Technical features

Model		YLV, YLV-AF, YLH, YLH-AF, YLIV, YLIV-AF, YLIH, YLIH-AF									
		110	112	114	216	218	220	222	224	226	228
Cooling capacity (1)	W	1169	1746	2291	3467	3804	4664	5570	6789	7599	9974
Heating capacity (2)	W	1628	2296	2981	4514	5076	6013	7604	8677	9800	12739
Pressure drop (4)	kPa	3.9	7.6	6.5	13.8	13.6	23.1	31.6	18.8	20.9	37.1
Power supply	V/Ph/Hz	230 / 1 / 50 + E									
Input	W	46	48	57	81	86	89	119	145	156	200
Sound power level (3)	dB(A)	49	50	53	53	55	55	59	60	63	67
Sound pressure level at 3 m (3)	dB(A)	31	32	35	35	37	37	41	42	45	49
Water connections	inch	1/2 "									

(1) Cooling capacities based on 7°C EWT Δt 5°C indoor temperature 27°C DB / 19°C WB - (2 pipes - high speed fan) (2 rows)

(2) Heating capacities based on 50°C EWT at nominal flow rate indoor temperature 20°C - (2 pipes - high speed fan) (2 rows)

(3) Sound level at high speed fan

(4) In cooling mode



Airside products

Fan coil unit LOW BODY

2 & 4 pipe system

A complete range from 0.8 kW up to 2.7 kW



Selection software

Features

- 6 speed fan
- Cabinet factory fitted
- Valve factory fitted
- Electrical heater factory fitted
- Thermal or modulating valve
- Service valve

Options / Accessories

- Mounting feet
- Auxiliary condensate drain horizontal or vertical
- Frontal grill air intake
- Fresh air damper
- Frontal air intake kit
- Back panel painted
- Condensate drain in PVC
- Valve 3 way ON/OFF for electric heater 2 & 4 pipe system
- Electrical heater kit
- ON/OFF basic control, 3 speeds
- Thermostat with manual or auto speed selector
- Minimum temperature thermostat
- Automatic change over



System Fan Coil Control
BACnet, Lon, N2 Open BMS Networks
Remote User Interface
Room Command Module

Technical features

Model		YLVR - YLIVR				
		110	112	114	216	218
Cooling capacity (1) 2 rows	W	759	1070	1583	2116	2630
Cooling capacity (1) 3 rows	W	942	1460	2115	2719	3372
Heating capacity (2) 1 row	W	1159	1839	2432	3270	3656
Pressure drop (3)	kPa	6.1	1.4	5.4	9.1	24.2
Power supply	V/Ph/Hz	230 / 1 / 50 + E				
Sound power level (3)	dB(A)	49	50	53	53	55
Sound pressure level at 3 m	dB(A)	31	32	35	35	37
Water connections	inch	1/2 "				

(1) Cooling capacities based on 7°C EWT Δt 5°C indoor temperature 27°C DB / 19°C WB - (2 pipes - high speed fan)

(2) Heating capacities based on 70°C EWT Δt 10°C indoor temperature 20°C - (2 pipes - high speed fan)

(3) In cooling mode 2 rows



Airside products

Fan coil unit SAPHIR

2 & 4 pipe system

A complete range from 0.8 kW up to 3.5 kW



Selection software

Features

- Inner frame, made of galvanized steel and lined with self-extinguishing thermal insulation material.
- Coil for 2 pipe systems, independent of the inner frame and provided with antitorison structure.
- Centrifugal fan deck independent of the inner frame, dynamically balanced; it includes the insulated condensate tray.
- 3 speed single phase motor.
- Terminal board for the electric connections easily removable.
- Outer casing, made of white (RAL 9001) ABS plastic (YSF and YSW models).
- Panel frontage of the same colour of the casing (YSF and YSW models).
- Air intake group (YSF and YSW models) and air delivery grilles (model YSW), both made of heat-resistant ABS plastic.
- Protection grill on the air delivery, made of heat-resistant ABS plastic (YSF and YSW models).
- Feet set (only YSF model), made of the same material and colour of the casing.
- Foldaway filter, easily removable

Options / Accessories

- Mounting feet
- Auxiliary condensate drain horizontal or vertical
- Frontal grill air intake
- Fresh air damper
- Frontal air intake kit
- Back panel painted
- Condensate drain in PVC
- Valve 3 way ON/OFF for electric heater 2 & 4 pipe system
- Electrical heater kit
- ON/OFF basic control, 3 speeds
- Thermostat with manual or auto speed selector
- Minimum temperature thermostat
- Automatic change over



System Fan Coil Control
BACnet, Lon, N2 Open BMS Networks
Remote User Interface
Room Command Module

Technical features

Model		130	140	230	240
Total cooling capacity [kW]	(1) max / med / min	1.56 / 1.23 / 0.84	2.09 / 1.68 / 1.22	2.92 / 2.36 / 1.83	3.62 / 3.14 / 2.35
Heating capacity 2 pipes [kW]	(2) max / med / min	2.05 / 1.57 / 1.04	2.81 / 2.20 / 1.55	3.61 / 2.86 / 2.17	4.57 / 3.90 / 2.84
Heating capacity 2 pipes [kW]	(3) max / med / min	3.51 / 2.68 / 1.75	4.85 / 3.76 / 2.63	6.08 / 4.80 / 3.63	7.74 / 6.58 / 4.76
Heating capacity 4 pipes [kW]	(3) max / med / min	1.91 / 1.58 / 1.13	2.37 / 1.98 / 1.53	3.08 / 2.65 / 2.17	3.60 / 3.23 / 2.63
Air flow [m³/h]	max / med / min	275 / 201 / 125	390 / 288 / 190	425 / 330 / 246	550 / 460 / 325
Sound power level [dB(A)]	max / med / min	43 / 35 / 23	52 / 44 / 34	47 / 42 / 34	54 / 49 / 40
Sound pressure level [dB(A)]	(4) max / med / min	34 / 25 / 18	43 / 35 / 24	37 / 32 / 24	44 / 39 / 31
Power supply [V-ph-Hz]		230 - 1- 50			

(1) Room temperature 27°C d.b., 19°C w.b. - Water temperature 7/12 °C

(2) Room temperature 20°C - Water inlet temperature: 50°C

(3) Room temperature 20°C - Water inlet temperature: 70/60°C

(4) Sound pressure level in a 100 m³ room, at 1,5 m distance and riverberating time of 0,3 s.



Airside products

Cassette 2 & 4 pipe system

YHK 20 to 110

A complete range from 1.3 kW to 11.1 kW



Features

- Cooling duty from 1.3 to 11.1 kW
- 2 & 4 pipes systems in all range
- 2 sizes: 600 x 600 & 800 x 800
- Possible to choice between 6 fan speeds
- Condensate pump integrated in all range
- 2/3 way valves fitted or supplied loose in all range
- Coloured versions, possible to change the colour of the grill and the frame
- Possible to select a complete range of controls
- Electric heater fitted as an option for all range (2 pipe only)
- All metal parts insulated to avoid condensations

Wired controls



BR - Remote three speeds controller

TR - BR + Electronic thermostat and Summer/Winter switch

ATR - Automatic TR



DTR - Digital Automatic Remote controller

TMO 503 SV2

Digital Automatic Remote controller to be mounted in the standard light wall box

DRC - DI

Centralized controller up to 60 terminals



Infrared control



Coloured versions available as a option



System Fan Coil Control
BACnet, Lon, N2 Open BMS Networks
Remote User Interface
Room Command Module

2 pipe system

Model		YHK 20-2	YHK 25-2	YHK 40-2	YHK 50-2	YHK 65-2	YHK 95-2	YHK 110-2
Cooling capacity	kW	1.3 / 1.6 / 2.0	1.8 / 2.3 / 2.7	2.3 / 3.3 / 4.3	2.9 / 3.9 / 5.0	4.2 / 4.9 / 6.2	5.3 / 6.8 / 9.5	5.3 / 8.5 / 11.1
Heating capacity	kW	1.6 / 2.1 / 2.6	2.2 / 2.9 / 3.4	2.6 / 3.9 / 5.2	3.4 / 4.6 / 6.2	5.1 / 6.0 / 7.8	6.1 / 8.0 / 11.7	6.1 / 10.3 / 14.0
Airflow	m ³ /h	310 / 420 / 610	310 / 420 / 520	320 / 500 / 710	430 / 610 / 880	630 / 820 / 1140	710 / 970 / 1500	710 / 1280 / 1820
Sound power level	dB(A)	33 / 40 / 49	33 / 40 / 45	33 / 45 / 53	41 / 49 / 59	33 / 40 / 48	34 / 40 / 53	34 / 48 / 58
Dimensions (H x W x D)	mm	275 x 575 x 575					303 x 820 x 820	
Panel (W x D)	mm	670 x 670					965 x 965	

Cooling capacities based on 7/12°C EWT - Indoor temperature 27°C DB / 19°C WB - Heating capacities based on 50°C EWT at nominal flow rate Indoor temperature 20°C
All data are in Low / Medium / High speed.

4 pipe system

Model		YHK 20-4	YHK 25-4	YHK 40-4	YHK 50-4	YHK 65-4	YHK 95-4	YHK 110-4
Cooling capacity	kW	1.5 / 2.0 / 2.3	1.9 / 2.4 / 2.7	1.9 / 2.7 / 3.3	2.4 / 3.0 / 3.8	4.1 / 5.0 / 6.3	4.5 / 5.7 / 7.7	4.5 / 6.9 / 8.9
Heating capacity	kW	2.0 / 2.5 / 3.0	2.4 / 3.0 / 3.5	2.4 / 3.5 / 4.4	3.1 / 4.0 / 5.0	5.9 / 7.2 / 9.1	6.5 / 8.1 / 11.0	6.5 / 10.0 / 12.7
Airflow	m ³ /h	310 / 420 / 610	310 / 420 / 520	320 / 500 / 710	430 / 610 / 880	630 / 820 / 1140	710 / 970 / 1500	710 / 1280 / 1820
Sound power level	dB(A)	33 / 40 / 50	33 / 40 / 45	33 / 45 / 53	41 / 49 / 59	33 / 40 / 48	34 / 40 / 53	34 / 48 / 58
Dimensions (H x W x D)	mm	275 x 575 x 575					303 x 820 x 820	
Panel (W x D)	mm	670 x 670					965 x 965	

Cooling capacities based on 7/12°C EWT - Indoor temperature 27°C DB / 19°C WB - Heating capacities based on 70/60°C EWT - Indoor temperature 20°C
All data are in Low / Medium / High speed.

Airside products

Hydro high wall

YHH 15 to 50

A range from 1.4 kW to 4.0 kW



Features

- Wired control or infrared control
- Automatic Air Sweep
- Integrated Valve kit
- Condensate pump (accessory)
- Stylish front cover
- Master-Slave control

Infrared remote control

- Wireless
- 5 operation modes (Cool/Heat/Auto/Dry/Fan)
- Sleep Mode
- Room Temperature setting
- Fan speed selection
- Timer
- LCD display
- LED Diagnostic function in the unit

Wired control

- 5 operation modes (Cool/Heat/Auto/Dry/Fan)
- Room temperature Display and setting
- Fan speed selector (Auto, low, medium and high)
- Possible to use with the infrared controller
- Weekly timer
- Master/Slave Function

 Infrared
Remote
Control

 Wired
Control

Valve kit

- 3 way valve
- Flexible water connections
- Insulated flexible pipes


**Condensate pump
AMP01C**

Technical features

Model		YHH 15	YHH 30	YHH 50
Cooling capacity	kW	1.4	2.3	4.0
Heating capacity	kW	2.2	3.2	5.7
Air flow (H / M / L)	m³/h	360 / 240 / 150	474 / 318 / 198	648 / 450 / 264
Power supply	V/Ph/Hz	230 / 1 / 50 + E		
Sound pressure level at 1 m (L / M / H)	dB(A)	32 / 34 / 35	32 / 35 / 38	39 / 42 / 45
Height	mm	270	320	330
Width	mm	870	1 030	1 160
Depth	mm	176	196	198
Weight	kg	11.5	13.5	16.5

Cooling capacities based on 7°C EWT Δt 5°C Indoor temperature 27°C DB / 19°C WB
 Heating capacities based on 50°C EWT at nominal flow rate Indoor temperature 20°C



Airside products Blower

YEFB 130-440

A complete range from 4 kW up to 24 kW



Features

- Horizontal air return
- Twin centrifugal fans
- High static pressure up to 250 Pa
- 2 and 4 pipe systems
- Air distribution plenum
- Electric heater option
- Optional paint finish

Thermostats



CSR00 (Wall mounted)

Fan speed selector



CMR00 (Wall mounted)

Thermostat with manual fan speed and S/W change over



CER00 (Wall mounted)

Thermostat with manual fan speed and automatic change over

CER20 (Wall mounted)

Thermostat with auto. fan speed and automatic change over

CER30 (Wall mounted)

Thermostat with auto. fan speed and automatic change over for modulating valve



System Fan Coil Control
BACnet, Lon, N2 Open BMS Networks
Remote User Interface
Room Command Module

Technical features at 50 Pa external static pressure

Model	YEFB	130	140	230	240	330	340	430	440
Total cooling capacity [kW]	max	6.00	6.91	8.81	10.60	11.15	14.06	17.86	23.31
	(1) med	5.13	5.81	7.27	8.55	9.39	11.58	16.28	20.95
	min	3.22	3.49	6.08	7.01	7.51	9.00	14.39	18.20
Heating capacity [kW]	max	7.89	8.90	12.34	14.62	15.20	18.84	24.38	30.36
	(2) med	6.61	7.32	9.83	11.36	12.48	15.06	21.83	26.79
	min	3.96	4.20	8.01	9.04	9.70	11.33	18.90	22.77
Air volume [m³/h]	max	1153	1130	2158	2116	2639	2587	4129	4048
	med	916	898	1553	1523	1994	1955	3505	3436
	min	494	484	1174	1151	1422	1394	2853	2797
Max. available external static pressure [Pa]		100	100	175	175	250	250	250	250
Sound pressure level [dB(A)](3)	max	49.3	49.3	55.6	55.6	58.7	58.7	65.4	65.4
	med	48.3	48.3	52.6	52.6	54.2	54.2	63.1	63.1
	min	44.4	44.4	49.1	49.1	48.5	48.5	61.5	61.5
Power supply [V-ph-Hz]		230 - 1- 50							

(1) Room temperature 27°C d.b., 48% R.H. - Water temperature 7/12 °C

(2) Room temperature 20°C, 50% R.H. - Water inlet temperature: 50°C

(3) Sound pressure level in 1 meter distance open field and 0 Pa external static pressure

Airside products

Fan coil units YGFC

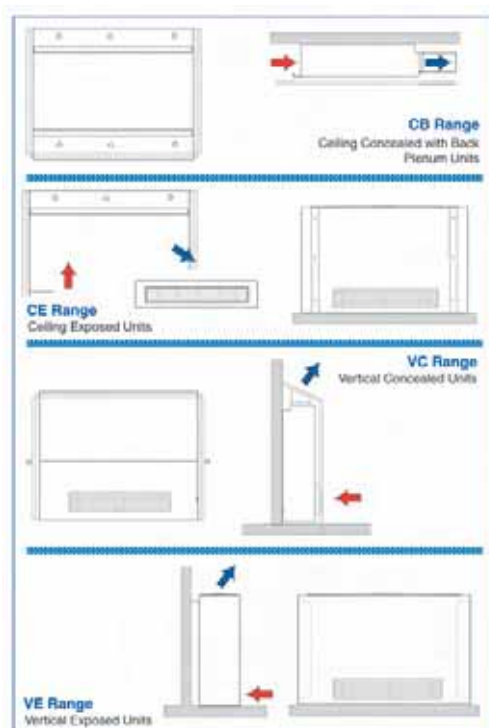
YGFC 02 to 14 ST

High performance,
low noise fan coil units from 1.9 kW to 14 kW



Features

- 10 model sizes with different coil configurations to closely match load requirement
- 3 speed whisper quiet fans
- Compact size
- Range of coil protection options for added product longevity
- Electric heater option
- Up to 60Pa static pressure
- District cooling coil option allows reduction in pump power and increase in system efficiency
- Available in four configurations:
 - CB** - horizontal concealed
 - VC** - vertical concealed
 - VE** - vertical exposed
 - CE** - ceiling exposed



Technical features

Model		YGFC CEILING CONCEALED TYPE				
		02 ST CB	03 ST CB	04 ST CB	05 ST CB	06 ST CB
cooling capacity (1)	W	2300	3560	4180	5100	5940
heating capacity (2)	W	2200	2830	3540	4360	5490
pressure drop (4)	kPa	16.1	37.1	17	23.4	32
power supply	V/ph/Hz	230 - 1- 50				
power input	kW	0.037	0.049	0.066	0.089	0.12
sound power level (3)	dB(A)	53	54	56	59	62
water connections	inch	3/4"				

(1) cooling capacity based on 7 °C EWT, 12 °C LWT, indoor temperature 27 °C DB / 19 °C WB, 4 pipe system, 3+1 row coil, medium speed

(2) heating capacity based on 50 °C at nominal flow rate, indoor temperature 20 °C, 4 pipe system, 3+1 row coil, medium speed

(3) sound level at medium speed, 0Pa ESP

(4) in cooling mode

Airside products Fan coil units YGFC

YGFC 02 to 14 ST

High performance,
low noise fan coil units from 1.9 kW to 14 kW



			CB	VC	VE	CE
GENERAL	Colls	Standard Cooling Coll				
		District Cooling Coll				
		Cooling + Heating Coll*				
	Motor Protection	IP 23 - 50 Hz				
OPTIONS	Drain Pan	Standard Drain Pan				
		Extended Drain Pan				
	Motor Protection	IP 54 - 50 Hz				
		8mm. Base Rail				
		6mm. Synthetic Filter				
		25mm. Aluminium Filter				
SPECIAL REQUEST	Filters & Rails	29mm. Base Rail for Filter				
		Blue Fin				
		Black Fin				
	Fin Protection	Copper Fin				
		Plenum Insulat				
	Flange	Cooling 6mm. Plenum Insulation				
		Inlet Flange				
	Heater & Terminal Box	Heater				
		Extra Terminal Box				
	Powder Coating	Powder Coating for Casing				
	Drain Pan	Stainless Steel Drain Pan				
		Extended Stainless Steel Drain Pan				

LEGEND: ● Standard ● Other Construcccion ● Option ● Special Request

Technical features

Model		YGFC CEILING CONCEALED TYPE				
		07 ST CB	08 ST CB	10 ST CB	12 ST CB	14 ST CB
cooling capacity (1)	W	6740	7360	8200	10100	12400
heating capacity (2)	W	6940	7740	7390	9150	11300
pressure drop (4)	kPa	22.7	27	12.5	19.9	32.6
power supply	V/ph/Hz	230 - 1- 50				
power input	kW	0.145	0.139	0.202	0.214	0.257
sound power level (3)	dB(A)	63	60	63	64	64
water connections	inch	3/4"				

(1) cooling capacity based on 7 °C EWT, 12 °C LWT, indoor temperature 27 °C DB / 19 °C WB, 4 pipe system, 3+1 row coil, medium speed

(2) heating capacity based on 50 °C at nominal flow rate, indoor temperature 20 °C, 4 pipe system, 3+1 row coil, medium speed

(3) sound level at medium speed, 0Pa ESP

(4) in cooling mode

Airside products Close control MODULAR UNITS



- 4 module sizes providing nominal capacities of 10, 15, 20, 25, 30, 35 & 40 kW per module.
- Configurations with top, bottom, front and rear return options.
- Cooling media = direct expansion using air or water/glycol and chilled water.
- additional ECX free cooling coil can be provided on direct expansion type units. resulting in significant energy saving.
- As standard the Modular Range Units are equipped with: Scroll Compressors, Electrode Steam Boiler Humidifiers, Stainless Steel Tubular Finned Electric Reheat, EU4 Filtration, Belt Driven forward curved Centrifugal Fans, R407C Refrigerant

Airside products Close control AIR COOLED TWIN CIRCUIT UNITS



- 3 sizes providing nominal capacities of 30, 40, 50, 60, 70 & 80 in 10kW increments.
- Units are twin circuit in a single frame and available in Upflow and Downflow configurations with top, bottom, front and rear return options.
- Built in pressure activated fan speed control as standard.
- Air cooled condensers are single split circuit for 30 & 35°C ambient while two number condensers are utilised for 40 & 45°C ambient, 1 per refrigerant circuit.
- Cooling media = air cooled direct expansion only.
- As standard the Twin Circuit Air Cooled range units are equipped with: Scroll Compressors, Electrode Steam Boiler Humidifiers, Stainless Steel Tubular Finned Electric Reheat Elements, EU4 Filtration, belt driven forward curved Centrifugal Fans, R407C Refrigerant.

Airside products DCS / FCS CHILLED WATER UNITS



- 3 sizes providing nominal capacities of 60, 80 & 100 kW.
- Units are available in Upflow and Downflow configurations with top, bottom, front and rear return options.
- Ideal for very large data centre applications where Air Cooled or Water/Glycol Cooled Units would be impractical due to the size of the building close control cooling load.
- As standard the DCS/FCS range of Close Control Chilled Water units are equipped with: high SHR Cooling Coils, EU4 Filtration, 3 Port Control Valve with bypass DRV, Twin Belt driven forward curved Centrifugal Fans, Water Leak Detection, Autosequence/Autorotate, Volt Free Contacts for unit status, Common Alarm, Remote Start Stop.

Airside products Close control PLUG FAN UNITS



- 3 sizes providing nominal capacities of 15-100 kW in 8 models in the Chilled Water version and 15-80 kW in 7 models in the DX version.
- Designed for 24 hour, year-round use.
- Unit simultaneously controls air temperature, humidity, distribution and cleanliness in the conditioned space.
- Fitted with a central microprocessor controller which ensures accurate stepped response to room load changes.

Airside products Small systems



- 2 module sizes providing nominal capacities of 6, 12 and 18 kW per module.
- Units are available in Downflow with Top return and Upflow with front return.
- Cooling media include direct expansion using air and chilled water.
- Units are equipped with: Scroll Compressors, Electrode Steam Boiler Humidifiers, Stainless Steel Tubular Finned Electric Reheat, EU4 Filtration, Belt Driven forward curved Centrifugal Fans, R407C Refrigerant.

Airside products Unit options



A wide range of options are available for the various ranges, including: Humidifier, Electric or LTHW reheat, high efficiency filters, 3 Way Discharge Plenums, Graphic Display, Drain Trap, Smoke Detection, Fire Detection, Floorstand, loss of Chilled Water Flow Switch and Condensate Pump. Please contact your local branch to determine option availability and compatibility.



Airside products SmartPac

Joined up thinking - from YORK

- HVAC equipment
- Unit controls
- System integration



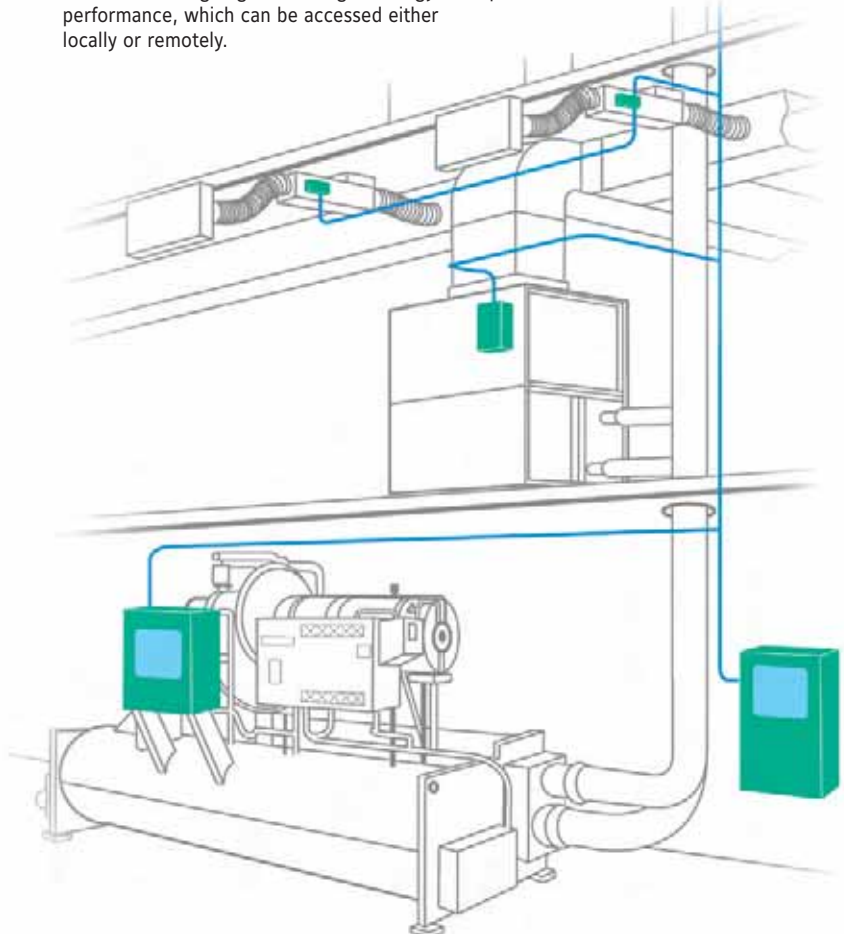
YORK has combined its expertise in air conditioning equipment and control systems to bring you **YORK SmartPac** - an unrivalled concept to provide a complete solution to manage the air conditioning and Building Management Systems within any building.

With **YORK SmartPac**, each intelligent component is connected to create the most proficient system available on the market. Building environment, climate, and energy consumption can all be controlled and managed by **YORK** equipment incorporating **YORK SmartPac**.

How does it work?

All the HVAC controls are fitted and pre-programmed at our factory and test facility. Once on site, all that is left to do is simply make the final inter-connections and power up.

With this philosophy, contractors, consultants and end users alike can specify a **SINGLE** integrated air conditioning and control system from a leading HVAC manufacturer who knows about controls and has the experience and knowledge to install and maintain the whole system. Once installed, **YORK SmartPac** provides all the essential ongoing monitoring of energy and optimised performance, which can be accessed either locally or remotely.





Airside products SmartPac

Joined up thinking - from YORK

- HVAC equipment
- Unit controls
- System integration

The Result

- **reduced installation & commissioning** equipment arrives on site tested, programmed and ready to run. Installation and site coordination problems are removed, enabling a quick and easy start-up while simultaneously reducing site labour and installation costs.
- **reduced running & maintenance** costs our equipment is programmed with control strategies that ensure increased operating efficiency and optimised control levels
- **improved fault identification** – using Internet software the faults can be quickly diagnosed, allowing faster solution and minimising equipment 'down time'
- **single integrated system.** YORK SmartPac is a pre-engineered, pre-designed, pre-commissioned system that negates the need to integrate different controller languages from different suppliers single source eases the supply chain process and simplifies the synchronising of supplier deliveries, site works and meetings. The process also ensures that once equipment is up and running, one call gets you the information you want, when you want.
- **Training & Support.** The best controls manufacturers need to provide comprehensive product training and support.

Central Units Master Controllers

- Coordinated Control of Mechanical Equipment or Central plants with Multiple Components
- Centralized Monitoring for Small to Medium size Buildings, Zones or Central plants

Features and Benefits

Embedded Web Server	Allows remote user access to all the data available in the control system with a Web browser(Microsoft® Internet Explorer software Version 5.5 or later).
Communication Services	Provides automatic reporting of important events by e-mail or fax, or by Short Message Service (SMS) with user acknowledgement.
Supervisory Options	Allows integration into an N2 Open compatible building automation system.
Monitoring and Control	Gathers data from multiple controllers and devices over a local network and provides interlocking of control systems with automatic and scheduled commands.
Distributed Application	Provides the ability to control complex systems by coordinating the activities of multiple controllers.
Onboard Trend and Event Logging	Provides information useful in analyzing the control system's performance.
Integral Display and Keyboard	Presents data clearly in text or graphic format with a menu-driven user interface to manage the control system.
Local Printer Option	Creates an easy to read permanent record of events and trends for non-technical personnel in remote buildings and for systems that are not centrally monitored.
Freely Programmable	Adapts to a wide range of HVAC or refrigeration system control applications using the flexible programming features of the FX Tools Pro software package.



Chillers & Heat Pumps

Scroll compressor chillers

Air-cooled
Water-cooled
Heat pumps

Screw compressor chillers

Air-cooled
Water-cooled

Centrifugal compressor chillers

Water-cooled

Absorption chillers

Water-cooled



R410A

METASYS
COMPATIBLE

Water systems

Air cooled chiller
Air to water heat pump

YLCA-YLHA 5 to 40

A complete range from 5 kW up to 40 kW



Features

- Very compact units
- New Design
- Leaving and Return Water Temperature control
- Hydro Pack Standard
- Buffer Tank supresion function
- Dynamic Set Point Function
- Fan Speed Control as standard
- Very safety units: including filter and sight glass
- Anti-corrosion coated condenser fins as standard

Options / Accessories

- Unit available without Hydro Pack
- Anticorrosion condenser fins
- BMS Communication
- Remote control
- Remote Terminal
- High Pressure Fans
- Auxiliat Electric heater
- External Buffer tank
- Water filter (for units without Hydro Pack)
- Flow switch (for units without Hydro Pack)
- Copper condenser fins
- Condenser protection grill



Technical data

Models		YLCA / YLHA G1									
		5 M-MC	7 M-MC	7 T-TC	9 M-MC	9 T-TC	12 T-TC	15 T-TC	20 T-TC	27 T-TC	40 T-TC
Cooling capacity cooling only units (1)	kW	5.4	7.1	7.1	8.6	8.6	12.0	14.5	19.5	25.6	39.7
Total Input Power (1)	kW	2.0	2.6	2.6	3.3	3.3	4.2	5.4	6.9	9.1	13.3
Cooling capacity heat pump units (1)	kW	5.2	6.9	6.9	8.6	8.6	11.6	14.6	19.2	25.6	37.8
Heating capacity heat pump units (1)	kW	5.8	7.9	7.9	9.8	9.8	12.6	15.9	20.1	26.3	38.6
Total Input Power cooling/heating mode (1)	kW	2.0 / 2.1	2.7 / 2.9	2.7 / 2.9	3.4 / 3.2	3.4 / 3.2	4.2 / 4.1	5.8 / 5.3	7.0 / 6.6	9.1 / 8.6	13.3 / 12.6
Capacity steps	%	0 / 100									
Sound power level	dB(A)	70	70	70	71	71	73	73	74	78	81
Sound pressure level at 10 m	dB(A)	40	40	40	41	41	43	43	44	48	51

YLCA: Cooling only units models. YLHA: Air to water heat pump models.

(1) net values at Eurovent nominal conditions

Nominal conditions: Cooling capacities in kW given for 7°C water leaving temperature Δt 5°C and 35°C ambient temperature

Heating capacities in kW given for 45°C water leaving temperature and 7°C ambient temperature



Water systems

Air cooled chiller

Air to water heat pump

YCSA 50 to 150

A complete range from 40 kW up to 156 kW



Features

YCSA 50 to 100

- 2 capacity steps
- LWT & RWT Control
- Hydro Pack standard
- Buffer Tank
- Plate heat exchanger
- FSC standard (low ambient operation -10°C)
- Condenser protection grille

YCSA 120 to 150

- Same features as YCSA 50 to 100
- 4 capacity steps
- High efficiency at full and partial load
- Hydro Pack standard
- LWT & RWT control
- Standard low ambient operation (-18°C)
- Reduced noise levels
- 1/4 turn lock for easy access

Options / Accessories

- Unit without pack
- Anti corrosion condenser fins
- Pressostatic LAK (-18°C) (cooling only units)
- BMS Communication
- Remote control
- Remote terminal
- Water filter (unit without Hydro Pack)
- Flow switch (unit without Hydro Pack)
- Low noise version
- Dual pump version
- Antivibration mountings



Technical data

Models		YCSA / YCSA-H					
		50 T-TP	60 T-TP	80 T-TP	100 T-TP	120 T-TP	150 T-TP
Cooling capacity cooling only units (1)	kW	49.2	61.2	78.6	96	119	156
Total Input Power (1)	kW	17.9	23.8	27.2	38.47	43	50
Cooling capacity heat pump units (1)	kW	45.4	65.3	74.3	90	114	145
Heating capacity heat pump units (1)	kW	54.4	62.5	81.2	101	119.6	150
Total Input Power cooling/heating mode (1)	kW	18.6 / 19.3	22.5 / 21.9	28 / 29.4	37.7 / 36.5	43.3 / 39.6	51.3 / 53.5
Capacity steps	%	0-50-100%				0-25-50-75-100%	
Sound power level	dB(A)	84	85	88	89	86	88
Sound power level Low Noise version	dB(A)	78	82	85	86	82	84

(1) net values at Eurovent nominal conditions.

Nominal conditions: Cooling capacities in kW given for 7°C water leaving temperature Δt 5°C and 35°C ambient temperature
 Heating capacities in kW given for 45°C water leaving temperature and 7°C ambient temperature



Water systems

HVS chiller & heat pump digital scroll split version

YDC_522H / YDC_972H / YOC_762H / YOC_1522H

A complete range from 15 kW up to 72 kW



Features

- Variable capacity compressor (10% to 100%)
- Constant water temperature
- Energy savings up to 35%
- BMS communication
- Easy selection software
- FSC standard (low ambient operation)
- Plate heat exchanger, no buffer tank needed
- Flexible in use
- No glycol required
- Water filter standard

Options / Accessories

- Condenser protection grilles
- High static pressure fans
- Anticorrosion Epoxy coils
- Sound attenuation
- Softstarter kit
- DX Unit
- Antifreeze heater for heat exchanger
- Interface card for LON Bus
- 3 way valve for external heating system
- Anti vibration mounting
- Outdoor temperature sensor
- Valve kits
- Relay box for several FCU applications
- Fan coil load identification



Technical data

Models		YDCC 522H	YDCC 972H	YDCC1732 H	YDCC 2502 H
		YDCH 522H	YDCH 972H	YDCH 1732 H	YDCH 2502 H
Cooling capacity cooling only units (1)	kW	15.0	28.0	50.0	72.0
Heating capacity heat pump units (1)	kW	16.5	30.5	53.5	76.5
Total Input Power	kW	5	9	9.7 + 6.1	9.7 + 12.3
Capacity steps	%	10 - 100	6 - 100	4 - 100	3 - 100
Sound pressure level at 1 m	dB(A)	58	59	62	63

Nominal cooling capacity based on: leaving water temperature: +7°C - Ambient air temperature: 35°C DB

Nominal heating capacity based on: leaving water temperature: +40°C - Ambient air temperature: 7°C DB / 6°C WB

(1) Only for heat pump units

R407C

METASYS
COMPATIBLE

Water systems

HVS chiller & heat pump
digital scroll compact versionYDC_522H-C / YDC_972H-C / YOC_762H-C / YOC_1522H-C
A complete range from 15 kW up to 72 kW

Features

- Variable capacity compressor (10% to 100%)
- Constant water temperature
- Energy savings up to 35%
- BMS communication
- Easy selection software
- FSC standard (low ambient operation)
- Plate heat exchanger, no buffer tank needed
- Integrated hydro kit
- Water filter standard

Options / Accessories

- Condenser protection grilles
- High static pressure fans
- Anticorrosion Epoxy coils
- Sound attenuation
- Softstarter kit
- Antifreeze heater for heat exchanger
- Interface card for LON Bus
- 3 way valve for external heating system
- Anti vibration mounting
- Outdoor temperature sensor
- Valve kits
- Relay box for several FCU applications
- Fan coil load identification



Technical data

Models		YDCC 522H-C	YDCC 972H-C	YDCC1732 H-C	YDCC 2502 H-C
		YDCH 522H-C	YDCH 972H-C	YDCH 1732 H-C	YDCH 2502 H-C
Cooling capacity cooling only units (1)	kW	15.0	28.0	50.0	72.0
Heating capacity heat pump units (1)	kW	16.5	30.5	53.5	76.5
Total Input Power	kW	5	9	9.7 + 6.1	9 + 12.3
Capacity steps	%	10 - 100	6 - 100	4 - 100	3 - 100
Sound pressure level at 1 m	dB(A)	58	59	62	63

Nominal cooling capacity based on: leaving water temperature: +7°C - Ambient air temperature: 35°C DB

Nominal heating capacity based on: leaving water temperature: +40°C - Ambient air temperature: 7°C DB / 6°C WB

(1) Only for heat pump units

R407C

METASYS
COMPATIBLE

Water systems

Air cooled chiller & heat pump
with centrifugal fan

YLCC-2 42 to 152

A complete range from 40 kW up to 137 kW



Features

- Centrifugal fan
- Scroll compressor
- Vertical or horizontal discharge
- Coaxial heat exchanger
- Ductable (inlet/outlet)
- Hydro kit (option)
- Electronic control

Options / Accessories

- LAK (-18°C)
- Shut off valve HP/LP
- Anti corrosion coated condenser fins
- Antivibration mounting
- Flow switch
- Remote control
- BMS communication
- Hydro kit GH



Technical data

Models		YLCC / YLCC-H					
		42	62	82	102	122	152
Cooling capacity cooling only units	kW	40.2	64	71	96.1	116	137
Cooling capacity heat pump units	kW	42.2	59.5	71	96	108	130
Heating capacity heat pump units	kW	45.2	64.2	81.5	87	112	122
Capacity steps	%	0-50-100%				0-25-50-75-100%	
Sound power level	dB(A)	79	81	82	84	90	87
Sound pressure level at 10 m	dB(A)	51	53	54	56	58	62

Nominal cooling capacity based on: leaving water temperature: +7°C - Ambient air temperature: 35°C DB

Nominal heating capacity based on: leaving water temperature: +45°C - Ambient air temperature: 7°C DB / 6°C WB

H = Heat pump



Water systems

Hydro kit GH for YLCC-2

GH 200 to 600

From 200 to 605 litres



Features

- Pump
- Expansion tank
- Buffer tank
- Differential flow switch
- Air bleeding valve
- Service valve
- Automatic filling valve
- Draining valve
- Direct connection to the chiller

Technical data

Models			GH 200	GH 260	GH 600 S	GH 600 P
Corresponding unit			YLCC 42	YLCC 62-82	YLCC 102-122	YLCC 152
Buffer tank	Capacity	Litres	201	258	605	605
	Expansion vessel	Capacity	12	18	35	35
Pump	Power supply	V/Ph/Hz	400/3/50			
	Motor	kW	1.05	1.46	1.9	3
Dimensions	Height	mm	1 184	1 440	1 980	
	Width	mm	883	928	1 383	
	Depth	mm	883	883	1 000	
Weight		kg	137	172	387	427

R410A

METASYS
COMPATIBLE

Water systems

Tempo YLAE

Air-cooled scroll compressor chiller
Cooling capacities: 172-465 kW


Features

All year economical operating costs

Tempo has high full and part load efficiencies and provides two levels of operating efficiency:

- Standard efficiency SE.
- High efficiency HE.

Each efficiency level has a selection of acoustic options:

- Low sound model with acoustically lined compressor enclosure and fixed low speed fans.
- Two speed fans.
- Acoustically lined compressor enclosure.
- Acoustically lined compressor enclosure and two speed fans.

Non-corrosive stainless steel plate evaporator

Plain language 40 character display

- Tempo has a microprocessor controller with a 40 character plain language display of temperatures, pressures, operating hours, number of starts and start stop/holiday times

Options / Accessories

• Fast and easy installation

A single electrical power connection and optional, factory fitted water circulating pumps/ expansion device, water filter and flow switch provides fast and easy installation.

• Power Factor Correction

• BAS Interface

Provides means of remotely resetting the leaving chilled liquid temperature.

• BACnet or MODBUS protocol interface.

• Evaporator extension kit

To provide left or right hand liquid connections. Includes flow switch and water filter.

• Victaulic coupling and flange kits

Used to connect the evaporator to an associated grooved pipe fitting.

• Wire mesh or louvred protection guards.



Standard efficiency models

YLAE-SE Model	0190	0215	0235	0255	0305	0330	0375	0395	0450	0490
Cooling Capacity kW (1)	172-178	194-201	214-222	235-243	266-277	292-304	331-344	347-361	394-410	432-450
Energy Efficiency Ratio (1)	2.7-2.8	2.7-2.8	2.5-2.6	2.5-2.6	2.5-2.7	2.3-2.5	2.5-2.7	2.4-2.6	2.4-2.6	2.3-2.5
SPL @ 10 metres	52-58	52-59	55-61	55-61	54-61	55-62	56-63	57-64	57-64	57-64
L/W/H metres	2.5/2.2/2.1	2.5/2.2/2.1	2.5/2.2/2.1	3.0/2.2/2.1	3.6/2.2/2.1	3.6/2.2/2.1	3.6/2.2/2.1	3.6/2.2/2.1	4.6/2.2/2.1	4.6/2.2/2.1
Operating Weight kg	1573	1671	1771	1782	2301	2491	2763	2879	3043	3109

High efficiency models

YLAE-HE Model	0195	0220	0240	0265	0315	0355	0380	0405	0465	0510
Cooling Capacity kW (1)	175-181	197-205	219-227	235-244	274-286	315-328	335-349	355-370	406-423	447-465
Energy Efficiency Ratio (1)	2.8-2.9	2.8-2.9	2.6-2.7	2.6-2.8	2.6-2.8	2.7-2.9	2.7-2.8	2.6-2.8	2.6-2.8	2.5-2.7
SPL @ 10 metres	50-58	52-59	53-61	54-61	54-61	55-62	56-63	57-64	57-64	57-64
L/W/H metres	3.0/2.2/2.1	3.0/2.2/2.1	3.0/2.2/2.1	3.6/2.2/2.1	3.6/2.2/2.1	4.6/2.2/2.1	4.6/2.2/2.1	4.6/2.2/2.1	4.6/2.2/2.1	4.6/2.2/2.1
Operating Weight kg	1640	1737	1837	2204	2348	2491	2763	2879	3043	3109

(1) At 7°C chilled water and 35°C ambient.

R410A

METASYS
COMPATIBLE

Water systems

Tempo YLAE-HP

Reverse cycle air to water heat pump-chiller

Heating capacities: 187-469 kW

Cooling capacities: 183-426 kW



Features

All year economical operating costs

The Tempo heat pump provides high full and part load efficiencies when warming water in winter and chilling water in summer.

Specifically designed for low sound operation

• As heat pumps normally operate both day and night low sound is an important feature.

Non-corrosive stainless steel plate evaporator**Plain language 40 character display**

• Tempo has a microprocessor controller with a 40 character plain language display of temperatures, pressures, operating hours, number of starts and start stop/holiday times

Options / Accessories

• Fast and easy installation

A single electrical power connection and optional, factory fitted water circulating pumps/ expansion device, water filter and flow switch provides fast and easy installation.

• Power Factor Correction**• BAS Interface**

Provides means of remotely resetting the leaving chilled liquid temperature.

• BACnet or MODBUS protocol interface.**• Evaporator extension kit**

Provides left or right hand liquid connections. It includes flow switch and water filter.

• Victaulic coupling and flange kits

Used to connect the evaporator to an associated grooved pipe fitting.

• Wire mesh protection guards.

Heat Pump models

YLAE-HP Model	0200	0240	0260	0300	0330	0370	0440	0480
Heating Capacity kW (1)	187	225	247	287	322	361	421	469
Coefficient of Performance (1)	2.67	2.81	2.82	2.9	2.85	2.71	2.68	2.67
Cooling Capacity kW (2)	183	218	237	269	298	342	387	426
Energy Efficiency Ratio (2)	2.52	2.67	2.67	2.75	2.70	2.51	2.52	2.42
SPL @ 10 metres	54-59	57-61	56-61	57-62	57-62	59-64	59-64	59-64
L/W/H metres	3.0/2.2/2.4	3.0/2.2/2.4	3.0/2.2/2.4	3.6/2.2/2.4	3.6/2.2/2.4	3.9/2.2/2.4	5.0/2.2/2.4	5.0/2.2/2.4
Operating Weight kg	1978	2449	2265	2525	2614	3235	3694	3728

(1) At 45°C warm water and 7°C ambient.

(2) At 7°C chilled water and 35°C ambient.



Water systems

Symphony YCIV

Air-cooled variable speed drive

screw compressor chiller

Cooling capacities: 540 –1405 kW



Features

All year economical operating costs

Super efficient variable speed drive compressors provide high full and part load efficiencies. There are four levels of operating efficiency:

- Standard YCIV with standard capacity control.
- Standard YCIV with optimised capacity control.
- High efficiency YCIV with standard capacity control.
- High efficiency YCIV with optimised capacity control.

Each efficiency level has a selection of three acoustic options.

- Standard sound level (SE and HE models).
- Reduced sound level (RS).
- Low sound level (LS).

0.95 Power Factor at all operating conditions.

Provides a further reduction in operating costs.

Compressor has 50% less moving parts

Having no slide valves, return springs or control solenoids there are 50% less moving parts than a conventional compressor.

Soft start

Starting current never exceeds full load amps.

This eliminates starting stress and reduces the size of any installed standby generator.

Chiller will continue to operate

Load limiting controls ensure that if maximum operating conditions are exceeded the chiller will continue to operate within safety limits.

Plain language 80 character display

- Symphony has a microprocessor controller with a 80 character plain language display of temperatures, pressures, motor currents, operating hours, number of starts and start stop/holiday times.

Options / Accessories

• BAS Interface

Provides means of remotely resetting the leaving chilled liquid temperature.

- Condenser coils epoxy post-coated or pre-coated fins.
- Copper condenser coil fins.
- Wire mesh or louvered protection guards.

Standard efficiency models

YCIV-SE Model	0600	0650	0720	0770	0840	0920	1000	1070	1180	1340	1500
Cooling Capacity kW (1)	547-562	604-620	660-678	708-727	772-793	847-870	929-948	968-994	1075-1104	1217-1250	1368-1405
Energy Efficiency Ratio (1)	2.7-2.9	2.7-2.9	2.8-3.0	2.7-3.0	2.80-3.0	2.80-3.0	2.8-3.0	2.8-3.0	2.8-3.0	2.8-3.0	2.8-3.0
SPL @ 10 metres	78-69	57-69	59-70	58-69	60-72	60-71	60-71	60-73	61-74	64-75	64-76
L/W/H metres	5.8/2.2/2.4	5.8/2.2/2.4	7.0/2.2/2.4	7.0/2.2/2.4	7.0/2.2/2.4	8.1/2.2/2.4	8.1/2.2/2.4	9.7/2.2/2.4	9.7/2.2/2.4	10.9/2.2/2.4	12.0/2.2/2.4
Operating Weight kg	5500	6000	6200	6900	7000	7300	7300	10500	11100	11600	12000

High efficiency models

YCIV-HE Model	0590	0630	0700	0760	0800	0830	0930	1050	1120	1220	1380
Cooling Capacity kW (1)	541-555	579-595	643-661	695-714	740-760	770-791	853-876	957-983	1019-1047	1109-1139	1255-1289
Energy Efficiency Ratio (1)	2.9-3.2	3.0-3.2	2.9-3.2	2.9-3.1	3.0-3.2	3.0-3.2	2.9-3.1	2.9-3.2	2.9-3.2	2.9-3.2	2.9-3.1
SPL @ 10 metres	57-67	58-68	57-69	58-66	58-70	60-72	60-70	59-71	60-72	61-73	61-74
L/W/H metres	5.8/2.2/2.4	7.0/2.2/2.4	7.0/2.2/2.4	7.0/2.2/2.4	8.1/2.2/2.4	8.1/2.2/2.4	8.1/2.2/2.4	9.7/2.2/2.4	10.9/2.2/2.4	10.9/2.2/2.4	12.0/2.2/2.4
Operating Weight kg	6000	6200	6400	7400	6800	6900	7300	10600	11000	11600	12000

(1) At 7°C chilled water and 35°C ambient.



Water systems YCSE

**Water-cooled or remote air-cooled
screw compressor chiller**
Cooling capacities: 134-320 kW



Features

Efficient screw compressors

Highly efficient the YCSE offers the highest standard of reliability and economical operation utilising twin-screw rotor technology and fully modulating compressor slide valve unloading, together with low inrush current star delta starters. To further improve the operating efficiency the leaving liquid temperature can be remotely reset.

Quiet operation

The compressor has been designed so that there is minimal external gas pulsations and integral oil separators resulting in very low sound and vibration levels.

Small footprint and robust design

The compact design is ideally suited for reduced base area locations. Both single and twin circuit designs require a single liquid inlet and outlet connection. The unit frame is manufactured from heavy gauge galvanised steel coated with baked-on powder paint.

Options / Accessories

- Remote control switch unit.
- BMS interface.
- Compressor circuit breakers.
- Evaporator heater.
- Flow switch.
- Differential pressure switches.
- Suction pressure relief valves.
- Anti-vibration rubber mounts.
- Water connection flanges.
- Discharge and/or suction stop valves.
- High condenser water temperature and glycol options.

Technical data

YCSE-SB Model	040	050	060	080	100
Cooling Capacity kW (1)	134	160	194	232	320
Coefficient of Performance (1)	4.00	4.00	3.95	4.26	4.00
SPL @ 1 metre	68	69	71	71	72
L/W/H metres	1.0/0.9/1.5	1.0/0.9/1.5	1.1/0.9/1.5	1.1/0.9/1.5	1.1/1.5/1.7
Operating Weight kg	780	800	875	1000	1655

(1) At 7°C leaving chilled water and 35°C leaving condenser water.

R407C

METASYS
COMPATIBLE

Water systems

Zafiro YCWL

Water-cooled or remote air-cooled
scroll compressor chiller

Cooling capacities: 188 –580 kW



Features

All year economical operating costs

Zafiro has high full and part load efficiencies and provides two levels of operating efficiency:

- Standard efficiency SE.
- High efficiency HE.

One chiller many applications

Designed to operate with leaving liquid temperatures from -12°C to +15°C and condenser water temperatures from 18°C to 50°C.

As quiet as a whisper

Zafiro has been specifically designed to get the maximum performance with the minimum of sound and vibration.

Saving you valuable floor space

The compact design delivers up to 173 kW per m² of floor area making the most of available space. It can fit through a standard single door, with no disassembly required, making it the ideal chiller for both new and retrofit installations. Zafiro has a single point electrical power connection and fully accessible victaulic water connections for easy installation.

Easy to operate

Zafiro has a new IPU microprocessor controller, which includes the latest technology to provide accurate control of the leaving chilled liquid temperature while minimising the compressor power input. This controller includes BACnet™ communication protocol and that allows it to be fully integrated with a BMS system. Zafiro has a 40-character plain language display of system parameters for easy operation.

Options/Accessories

- **Electrical Options:** Soft Starters, Power Factor Correction.
- **Control Options:** BAS/EMS Interface, Non-reversible Heat Pump.
- **Language for LCD and Keypad:** English, German, French, Italian or Spanish.
- **Condenser Options:** Heat Recovery Condenser and Cu/Ni Condenser.
- **Relief Valve kits:** Dual relief valves kit.
- **Sound Reduction Option:** Compressor Acoustic Blankets.
- **Liquid Flow Detection:** Flow Switch or Pressure Differential Switch.
- **Vibration Isolators:** Neoprene pads or spring isolators.

Standard efficiency models

YCWL-SE Model	0240	0290	0345	0395
Cooling Capacity kW (1)	227	273	322	369
Coefficient of Performance (1)	4.7	4.9	4.8	4.8
SPL @ 1 metre	67	67	70	71
L/W/H metres	3.2/0.9/1.8	3.2/0.9/1.8	3.2/0.9/1.8	3.2/0.9/1.8
Operating Weight kg	1895	2297	2303	2366

High efficiency models

YCWL-HE Model	0200	0230	0260	0300	0345	0385	0425	0445	0530	0610
Cooling Capacity kW (1)	188	220	248	286	342	377	410	434	506	580
Coefficient of Performance (1)	5.1	5.1	5.2	5.2	5.2	5.2	5.2	5.2	5.0	4.9
SPL @ 1 metre	64	65	67	67	70	68	71	69	71	73
L/W/H metres	3.2/0.9/1.6	3.2/0.9/1.9	3.2/0.9/1.9	3.2/0.9/1.9	3.2/0.9/1.9	3.7/0.9/2.0	3.2/0.9/1.9	3.7/0.9/2.0	3.7/0.9/2.0	3.7/0.9/2.0
Operating Weight kg	6000	6200	6400	7400	6800	6900	7300	10600	11000	11600

(1) At 7°C leaving chilled water and 35°C leaving condenser water.



Water systems YLCS

**Water-cooled or remote air-cooled
screw compressor chiller**
Cooling capacities: 336-1090 kW



Features

Efficient screw compressors

Highly efficient the YCSE offers the highest standard of reliability and economical operation utilising twin-screw rotor technology and fully modulating compressor slide valve unloading, together with low inrush current star delta starters. To further improve the operating efficiency the leaving liquid temperature can be remotely reset.

Quiet operation

The compressor has been designed so that there is minimal external gas pulsations and integral oil separators resulting in very low sound and vibration levels.

Small footprint and robust design

The compact design is ideally suited for reduced base area locations. Both single and twin circuit designs require a single liquid inlet and outlet connection. The unit frame is manufactured from heavy gauge galvanised steel coated with baked-on powder paint.

Options / Accessories

- Remote control switch unit.
- BMS interface.
- Compressor circuit breakers.
- Evaporator heater.
- Flow switch.
- Differential pressure switches.
- Suction pressure relief valves.
- Anti-vibration rubber mounts.
- Water connection flanges.
- Discharge and/or suction stop valves.
- High condenser water temperature and glycol options.

Technical data

YLCS-SA Model	0350	0415	0480	0530	0575	0620
Cooling Capacity kW (1)	336	407	474	511	556	600
Coefficient of Performance (1)	4.3	4.4	4.4	4.4	4.4	4.3
SPL @ 1 metre	83	85	86	87	88	88
L/W/H metres	3.3/0.9/2.1	3.3/0.9/2.1	3.3/0.9/2.1	3.3/0.9/2.1	3.6/0.9/2.1	3.6/0.9/2.1
Operating Weight kg	3420	4030	4170	4270	4370	4540

YLCS-SA Model	0660	0725	0840	0955	1050	1110
Cooling Capacity kW (1)	654	736	837	964	1008	1090
Coefficient of Performance (1)	4.3	4.5	4.4	4.4	4.3	4.5
SPL @ 1 metre	89	90	90	91	91	92
L/W/H metres	3.6/0.9/2.1	3.9/1.2/2.1	4.0/1.2/2.1	4.0/1.2/2.1	4.0/1.2/2.1	4.0/1.2/2.1
Operating Weight kg	4640	5300	5700	5950	6360	6610

(1) At 7°C leaving chilled water and 35°C leaving condenser water.

R134a

METASYS
COMPATIBLE

Water systems

YN

Water-cooled screw chiller

Dry cooler application

Heat recovery application

Cooling capacities: 570 –1300 kW

Coefficient of performance as high as 6.0

Features

High Efficiency Screw Compressor:

Maximum Reliability - Minimum Maintenance

The open drive twin rotary screw compressor has been engineered and constructed to meet the exact requirements of the industrial refrigeration market. It utilises state-of-the-art technology to provide the most reliable compressor, with high energy efficiency at all operating conditions.

Heat Exchangers:

Maximum Efficiency - Maximum COP

Shells - The flooded type evaporator and condenser shells are fabricated from rolled carbon steel plates with fusion welded seams. Carbon steel tube sheets, drilled and reamed to accommodate the tubes, are welded to the end of each shell.

Intermediate tube supports are fabricated from 12 mm carbon steel plates.

Tubes - The copper alloy heat exchanger tubes are externally and internally enhanced to provide optimum performance.

Smooth and Accurate Capacity Control

Capacity control is achieved by use of a slide valve which provides fully modulating control from 100% to 10% of full load, depending upon the unit selection. The slide valve is actuated by oil pressure controlled by external solenoid valves via the OptiView control centre

Equipped with the optional Solid State Starter, the YN screw chiller starts "softly," putting less stress on the motor and compressor, extending their life. In addition, the Solid State Starter includes an impressive array of safety controls that protect the chiller against: phase loss, phase reversal, phase imbalance, under-voltage, over-voltage, and over-current

Technical data

YN Model	RB RB S2	RB RD S2	RD RB S2	RD RD S2	RB RB S3	RB RD S3	RD RB S3	RD RD S3	RB RB S4	RB RD S4	RD RB S4
Cooling Capacity kW (1)	576.2	576.6	585	585.6	750.4	751.7	769.1	770.5	970.2	971.9	999.8
L/W/H metres	3.6/1.6/2.4	3.6/1.6/2.4	3.6/1.6/2.4	3.6/1.6/2.4	3.6/1.6/2.4	3.6/1.6/2.4	3.6/1.6/2.4	3.6/1.6/2.4	3.6/1.6/2.4	3.6/1.6/2.4	3.6/1.6/2.4
Operating Weight kg	5017	5127	5157	5267	5097	5207	5237	5347	5476	5586	5616

(1) At 7°C leaving chilled water and 32°C leaving condenser water.

YN Model	RD RD S4	SA SA S4	SA SD S4	SD SA S4	SD SD S4	RD RB S5	RD RD S5	SA SA S5	SA SD S5	SD SA S5	SD SD S5
Cooling Capacity kW (1)	1001.8	1036.2	1036.7	1054.2	1055.1	1231.6	1235.1	1285.5	1286.8	1316.6	1318.7
L/W/H metres	3.6/1.6/2.4	4.2/1.7/2.5	4.2/1.7/2.5	4.2/1.7/2.5	4.2/1.7/2.5	3.6/1.6/2.4	3.6/1.6/2.4	4.2/1.7/2.5	4.2/1.7/2.5	4.2/1.7/2.5	4.2/1.7/2.5
Operating Weight kg	5726	6832	7321	7073	7562	5787	5897	7003	7492	7244	7733

(1) At 7°C leaving chilled water and 32°C leaving condenser water.



Water systems

YR

Water-cooled screw compressor chiller

Cooling capacities: 700 – 1350 kW

Coefficient of performance as high as 6.0



Features

High Efficiency Screw Compressor:

Maximum Reliability - Minimum Maintenance

The semi-hermetic twin rotary screw compressor has been engineered and constructed to meet the exacting requirements of the air-conditioning market. It utilises state-of-the-art technology to provide the most reliable compressor, with high energy efficiency at all operating conditions.

Heat Exchangers: Maximum Efficiency - Maximum COP

Shells - The flooded type evaporator and condenser shells are fabricated from rolled carbon steel plates with fusion welded seams. Carbon steel tube sheets, drilled and reamed to accommodate the tubes, are welded to the end of each shell.

Intermediate tube supports are fabricated from 12 mm carbon steel plates.

Tubes - The copper alloy heat exchanger tubes are externally and internally enhanced to provide optimum performance.

Each tube is roller expanded into the tube sheets providing a leak-proof seal.

Smooth and Accurate Capacity Control

Capacity control is achieved by use of a slide valve which provides fully modulating control from 100% to 20% of full load, depending upon the unit selection. The slide valve is actuated by oil pressure controlled by external solenoid valves via the OptiView control centre.

OptiView™: Easy to Read - Easy to Operate

The full coloured screen display provides animation of the chiller, chiller sub-systems and system parameters. Several operating parameters can be viewed at the same time. In addition, the operator may view a graphical representation of the operational history of the chiller as well as the current operation.

The control panel, supplied as standard on each chiller, provides the ultimate in efficiency and chiller protection. State of-the-art microelectronics assure precise, reliable chiller control logic and safety annunciations. The control centre can be directly interfaced with the JCI Integrated Systems Network building automation system, allowing complete integration of chiller, airside, and building automation controls.

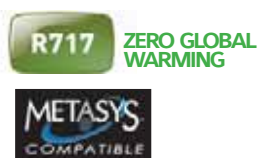
Solid-State Starter: Extends Motor Life

Equipped with the optional Solid State Starter, the YR screw chiller starts "softly," putting less stress on the motor and compressor, extending their life. In addition, the Solid State Starter includes an impressive array of safety controls that protect the chiller against: phase loss, phase reversal, phase imbalance, under-voltage, over-voltage, and over-current.

The solid-state starter is a reduced voltage starter that controls and maintains a constant current flow to the motor during start-up.

Technical data

YR	Shell Codes		Leaving Chilled Water	Leaving Cooling Water	Cooling Capacity
Compressor					
Code	Evaporator	Condenser	°C	°C	kW
T0	TA,TB,TC,TD	TA,TB,TC,TD	6	35	730
	VB,VC,VD	VB,VC,VD			770
T1	TA,TB,TC,TD	TA,TB,TC,TD	6	35	859
	VB,VC,VD	VB,VC,VD			905
	WA,WB,WC,WD	WA,WB,WC,WD			920
T2	VB,VC,VD	VB,VC,VD	6	35	1040
T2	WA,WB,WC,WD	WA,WB,WC,WD			1070
	XB,XC,XD	XB,XC,XD			1110
T3	WA,WB,WC,WD	WA,WB,WC,WD	6	35	1280
	XB,XC,XD	XB,XC,XD			1320



Water systems YNWS/RS

Water-cooled or remote air-cooled screw compressor chiller

Cooling capacities: 470 – 1790 kW

Coefficient of performance as high as 5.5



Features

High Efficiency Screw Compressor:

Maximum Reliability - Minimum Maintenance

The open drive twin rotary screw compressor has been engineered and constructed to meet the exact requirements of the industrial refrigeration market. It utilises state-of-the-art technology to provide the most reliable compressor, with high energy efficiency at all operating conditions.

Heat Exchangers:

Maximum Efficiency - Maximum COP

Shells - The flooded type evaporator and condenser shells are fabricated from rolled carbon steel plates with fusion welded seams. Carbon steel tube sheets, drilled and reamed to accommodate the tubes, are welded to the end of each shell. Intermediate tube supports are fabricated from 12 mm carbon steel plates.

Tubes - The copper alloy heat exchanger tubes are externally and internally enhanced to provide optimum performance.

Smooth and Accurate Capacity Control

Capacity control is achieved by use of a slide valve which provides fully modulating control from 100% to 10% of full load, depending upon the unit selection. The slide valve is actuated by oil pressure controlled by external solenoid valves via the OptiView control centre

Equipped with the optional Solid State Starter, the YN screw chiller starts "softly," putting less stress on the motor and compressor, extending their life. In addition, the Solid State Starter includes an impressive array of safety controls that protect the chiller against: phase loss, phase reversal, phase imbalance, under-voltage, over-voltage, and over-current

Technical data

YNWS Model	DC FC S0	DC GC S0	EC FC S0	EC GC S0	DC FC S1	DC GC S1	EC FC S1	EC GC S1	EC GC S2	EC HC S2	EC JC S2
Cooling Capacity kW (1)	482	485	511	515	575	579	631	636	809	814	848
L/W/H metres	3.7/1.4/1.9	3.7/1.4/1.9	3.7/1.4/1.9	3.7/1.4/1.9	3.7/1.4/1.9	3.7/1.4/1.9	3.7/1.4/1.9	3.7/1.4/1.9	3.7/1.4/1.9	3.7/1.4/1.9	3.7/1.4/1.9
Operating Weight kg	4114	4114	4114	4974	4150	4540	4540	5010	5449	5449	5449

YNWS Model	FC JC S2	EC HC S3	EC JC S3	EC KC S3	FC HC S3	FC JC S3	FC KC S3	FC KC S4	FC LC S4	FC MC S4	FC NC S4
Cooling Capacity kW (1)	856	1012	1015	1019	1084	1088	1093	1347	1352	1354	1395
L/W/H metres	3.7/1.45/1.9	3.7/1.4/2.0	3.7/1.4/2.0	3.7/1.4/2.0	3.7/1.4/2.0	3.7/1.4/2.0	3.8/1.5/2.3	3.9/1.6/2.3	3.9/1.6/2.3	3.9/1.6/2.3	3.9/1.6/2.3
Operating Weight kg	6669	6010	6010	6010	6010	6010	7335	8412	8412	8412	8412

YNWS Model	GC KC S4	GC LC S4	GC MC S4	GC NC S4	FC LC S5	FC MC S5	FC NC S5	GC LC S5	GC MC S5	GC NC S5
Cooling Capacity kW (1)	1475	1481	1484	1488	1623	1625	1630	1780	1784	1790
L/W/H metres	3.9/1.6/2.3	3.9/1.6/2.3	3.9/1.6/2.3	3.9/1.8/2.5	3.9/1.7/2.3	3.9/1.7/2.3	3.9/1.7/2.3	3.9/1.7/2.3	3.9/1.7/2.3	3.9/1.8/2.5
Operating Weight kg	8412	8412	8412	10142	9635	9635	10950	10950	10950	10950

(1) At 6°C leaving chilled water and 32°C leaving condenser water.



Water systems YNWH

Water-cooled screw chiller

Brine applications

Cooling capacities: 300–1200 kW



Features

High Efficiency Screw Compressor:

Maximum Reliability - Minimum Maintenance

The semi-hermetic twin rotary screw compressor has been engineered and constructed to meet the exacting requirements of the air-conditioning market. It utilises state-of-the-art technology to provide the most reliable compressor, with high energy efficiency at all operating conditions.

Heat Exchangers: Maximum Efficiency - Maximum COP

Shells - The flooded type evaporator and condenser shells are fabricated from rolled carbon steel plates with fusion welded seams. Carbon steel tube sheets, drilled and reamed to accommodate the tubes, are welded to the end of each shell.

Intermediate tube supports are fabricated from 12 mm carbon steel plates.

Tubes - The copper alloy heat exchanger tubes are externally and internally enhanced to provide optimum performance.

Each tube is roller expanded into the tube sheets providing a leak-proof seal.

Smooth and Accurate Capacity Control

Capacity control is achieved by use of a slide valve which provides fully modulating control from 100% to 20% of full load, depending upon the unit selection. The slide valve is actuated by oil pressure controlled by external solenoid valves via the OptiView control centre.

OptiView™: Easy to Read - Easy to Operate

The full coloured screen display provides animation of the chiller, chiller sub-systems and system parameters. Several operating parameters can be viewed at the same time. In addition, the operator may view a graphical representation of the operational history of the chiller as well as the current operation.

The control panel, supplied as standard on each chiller, provides the ultimate in efficiency and chiller protection. State of-the-art microelectronics assure precise, reliable chiller control logic and safety annunciations. The control centre can be directly interfaced with the JCI Integrated Systems Network building automation system, allowing complete integration of chiller, airside, and building automation controls.

Solid-State Starter: Extends Motor Life

Equipped with the optional Solid State Starter, the YR screw chiller starts "softly," putting less stress on the motor and compressor, extending their life. In addition, the Solid State Starter includes an impressive array of safety controls that protect the chiller against: phase loss, phase reversal, phase imbalance, under-voltage, over-voltage, and over-current.

The solid-state starter is a reduced voltage starter that controls and maintains a constant current flow to the motor during start-up.

Technical data

YNWH Model	16 12 S0	16 12 S1	20 20 S2	20 20 S3	28 24 S4	28 24 S5
Capacity kW (1)	315	380	533	683	962	1169
L/W/H metres	3.7/1.5/1.7	3.7/1.5/1.7	3.9/1.6/2.0	3.9/1.6/2.0	4.3/2.0/2.3	4.4/2.0/2.3
Operating Weight kg	3700	3900	6000	6300	9000	9800

(1) At -10°C leaving chilled water and 32°C leaving condenser water.

R134a

METASYS
COMPATIBLE

Water systems

YK

Water-cooled centrifugal compressor chiller

Cooling capacities: 800 – 8500 kW

Coefficient of performance as high as 7.0

Features

High Efficiency Centrifugal Compressor:**Maximum Reliability – Minimum Maintenance**

The compressor is a single-stage centrifugal type powered by an open-drive electric motor. The impeller is designed for balanced thrust and is dynamically balanced and over-speed tested. The open-drive compressor shaft seal is oil-flooded at all times and is pressure-lubricated during operation.

High Efficiency Heat Exchangers:**Maximum Efficiency – Maximum COP****Evaporator**

The evaporator is a shell and tube, flooded type. A distributor trough provides uniform distribution of refrigerant over the entire shell length. Stainless steel mesh eliminators or suction baffles are located above the tube bundle to prevent liquid refrigerant carryover into the compressor.

Condenser

The condenser is a shell and tube type, with a discharge gas baffle to prevent direct high velocity impingement on the tubes. A separate subcooler is located in the condenser to enhance performance.

OptiView™:**Easy to Read – Easy to Operate**

The full coloured screen display allows provides animation of the chiller, chiller sub-systems and system parameters. Several operating parameters can be viewed at the same time. In addition, the operator may view a graphical representation of the operational history of the chiller as well as the current operation.

The control panel, supplied as standard on each chiller, provides the ultimate in efficiency and chiller protection. State-of-the-art micro-electronics assure precise, reliable chiller control logic and safety annunciations. The control centre can be directly interfaced with the JCI Integrated Systems Network building automation system, allowing complete integration of chiller, airside, and building automation controls.

Solid-State Starter:**Extends Motor Life**

Equipped with the optional Solid State Starter, the YK centrifugal chiller starts “softly,” putting less stress on the motor and compressor, extending their life. In addition, the Solid State Starter includes an impressive array of safety controls that protect the chiller against: phase loss, phase reversal, phase imbalance, under-voltage, over-voltage, and over-current.

The solid-state starter is a reduced voltage starter that controls and maintains a constant current flow to the motor during start-up.

Variable Speed Drive:**The Key of Success for Energy Savings**

An optional 400V – 3-Ph – 60/50Hz Variable Speed Drive can be factory packaged with the chiller. It is designed to vary the compressor motor speed and pre-rotation vane position by controlling the frequency and voltage of the electrical power to the motor. The control logic automatically adjusts motor speed and compressor pre-rotation vane position for maximum part load efficiency by analysing information fed to it by sensors located throughout the chiller.

The VSD eliminates the need for a starter and has a soft starting characteristic that never exceeds 100% of full load amps. It also provides automatic power factor correction. An optional harmonic filter limits electrical power supply distortion from the variable speed drive and further improves power factor correction. Variable Speed Drive improves the performances of the YK centrifugal chiller and can generate an average of 30% annual Energy Savings.



Technical data

YK Centrifugal Compressor Code	Leaving Chilled Water °C	Leaving Cooling Water °C	Cooling Capacity kW
Q3 to Q7	6	35	900 kW to 2300 kW
P8 to P9	6	35	2200 kW to 3100 kW
H9 to K5	6	35	2800 kW to 8500 kW



Water systems YMPC-F/EX

Water-cooled mini paraflow direct fired absorption chiller-heater

Cooling capacities: 106-352 kW

Coefficient of performance as high as 1.14

Heating capacities: 86-286 kW

Features

Refrigerant Cycle

The YMPC two stage absorption chiller-Heater uses water as the refrigerant and lithium bromide as the absorbent. This solution is non-caustic, non-toxic and non-flammable. It is the strong affinity that these two substances have for each other that makes the cycle work. The entire process occurs in hermetic vessels in a near complete vacuum. By using the environmentally friendly ADVAGuard 750 inhibitor the internal corrosion rate and hydrogen generation is up to 8 times less than using lithium molybdate.

Burner

YMPC units can be operated using natural gas or fuel oil. The nitrogen oxide emission is only 80 mg/kWh (40 ppm) when using a gas burner and the 200 mg/kWh (100 ppm) when using a fuel oil burner.

Unique Automatic Purge System

When accumulated non-condensable gases reach a preset level a sensor automatically activates a water ejector type purging system.

Advanced Control System

The Mini-Paraflow has excellent part load performance as a result of the refrigerant storage proportional control that is incorporated to provide stable control and reduced energy consumption. The burner is cycled and the solution and refrigerant pumps are kept in continuous operation to transfer the residual heat of the generators into useful cooling capacity. This results in the saving of large amounts of energy that would otherwise be wasted.

Low Sound Operation

Units are fully enclosed in a metal casing and as the absorption system does not have a compressor sound levels are low.

Operation

No special operator qualifications are required to operate this unit. The unit operates in vacuum conditions and is not subject to boiler regulations.

Technical data

YMPC-F/EX Model	3	4	5	6	7	8	10
Cooling Capacity kW	106	141	176	211	246	281	352
Heating Capacity kW	86	114	143	172	200	229	286
SPL @ 1 metre	63	63	64	67	67	68	70
L/W/H metres	2.3/1.5/2.0	2.3/1.5/2.0	2.3/1.5/2.0	2.6/1.5/2.0	2.9/1.6/2.0	2.9/1.6/2.0	3.0/1.7/2.0
Operating Weight kg	2550	2920	3020	3340	3940	4080	4790

Leaving chilled liquid 7°C Entering Tower Water 30°C.

Leaving Hot Water 60°C.



Water systems

ParaFlow YPC-F

Two-stage direct fired chiller-heater

Cooling capacities: 703 –2373 kW

Heating capacities: 563 –1969 kW



Features

YPC-F is designed to provide both chilled or hot water. Both cooling and heating operations, with hot water up to 60°C, are performed through the evaporator as standard. Optionally an additional hot water heat exchanger providing hot water up to 79.4°C can be installed. With this option a parallel cooling and heating operation is possible.

Refrigerant cycle

The YORK YPC high efficiency two-stage absorption refrigeration cycle uses water as the refrigerant and lithium bromide as the absorbent. It is the strong affinity that these two substances have for each other that makes the cycle work. The entire process occurs in hermetic vessels in a near complete vacuum.

YORK's exclusive two-way split of solution flow allows the unit to operate at much lower solution concentrations and temperatures than in series flow systems. This dramatically increases the efficiency of the unit and virtually eliminates crystallisation problems. By using the environmental friendly ADVAGuard 750 inhibitor the internal corrosion rate and hydrogen generation is up to 8 times less than using lithium molybdate.

Burner

YPC-F units can be operated by either natural gas, propane gas or fuel oil. Capacity control is accomplished by modulating the burner's firing rate.

ISN Control Center

The ISN control panel combines the very best in chiller protection with the optimum in system efficiency. As standard equipment on all chillers it is a major development in absorption chiller technology, providing the most precise and reliable control and safety. Vital chiller operating information is shown on the 40 character alphanumeric display. All information is in clear language.

Stainless Steel spray heads

YORK's advanced spray head design provides an extremely uniform and soft mist that eliminates hot and cold spots in the absorber and evaporator tubes, resulting in longer tube life and increased efficiency.

Unique Automatic Purge System

When accumulated non-condensable gases reach a preset level a sensor automatically activates the purge system, with a motor-driven purge pump. This negates the need for time consuming periodic purging of the unit by the operator.

Refrigerant Pumps

The unique construction of the hermetic pumps ensures low energy consumption and long trouble-free operation. Service inspections are usually carried out every 50,000 hours. Maintenance of the pumps can be carried out quickly and easily due to built-in isolation valves.

Technical data

YPC-F Model	12SC	13SC	14SC	15SL	16S	16SL	17S	18S	19S
Cooling Capacity kW (1)	703	809	1055	1231	1407	1547	1705	2039	2373
Heating Capacity kW (2)	563	675	844	1013	1125	1268	1407	1688	1969
L/W/H metres	4.0/1.9/2.3	4.0/2.0/2.3	5.0/1.9/2.3	5.0/2.5/2.7	5.0/2.5/2.7	6.0/2.6/2.8	6.0/2.6/2.8	7.0/2.7/3.0	8.0/2.7/3.0
Operating Weight kg	9490	10830	12130	17360	17580	21180	21580	25190	29720

Leaving chilled liquid 7°C Entering Tower Water 30°C.
Leaving Hot Water 60°C.



Water systems

ParaFlow YPC-ST

Two-stage steam fed absorption chiller

Cooling capacities: 1055 – 2373 kW

Coefficient of performance as high as 1.11



Features

YPC-ST is designed to provide chilled water only.

Refrigerant cycle

The YORK YPC high efficiency two-stage absorption refrigeration cycle uses water as the refrigerant and lithium bromide as the absorbent. It is the strong affinity that these two substances have for each other that makes the cycle work. The entire process occurs in hermetic vessels in a near complete vacuum.

YORK's exclusive two-way split of solution flow allows the unit to operate at much lower solution concentrations and temperatures than in series flow systems. This dramatically increases the efficiency of the unit and virtually eliminates crystallisation problems. By using the environmental friendly ADVAGuard 750 inhibitor the internal corrosion rate and hydrogen generation is up to 8 times less than using lithium molybdate.

ISN Control Center

The ISN control panel combines the very best in chiller protection with the optimum in system efficiency. As standard equipment on all chillers it is a major development in absorption chiller technology, providing the most precise and reliable control and safety. Vital chiller operating information is shown on the 40 character alphanumeric display. All information is in clear language.

Stainless Steel spray heads

YORK's advanced spray head design provides an extremely uniform and soft mist that eliminates hot and cold spots in the absorber and evaporator tubes, resulting in longer tube life and increased efficiency.

Unique Automatic Purge System

When accumulated non-condensable gases reach a preset level a sensor automatically activates the purge system, with a motor-driven purge pump. This negates the need for time consuming periodic purging of the unit by the operator.

Refrigerant Pumps

The unique construction of the hermetic pumps ensures low energy consumption and long trouble-free operation. Service inspections are usually carried out every 50,000 hours. Maintenance of the pumps can be carried out quickly and easily due to built-in isolation valves.

Technical data

YPC-ST Model	14SC	16SL	17S	18S	19S
Cooling Capacity kW (1)	1055	1547	1705	2039	2373
L/W/H metres	5.1/1.9/2.3	6.0/2.3/2.6	5.9/2.3/2.6	7.0/2.3/2.8	8.0/2.3/2.8
Operating Weight kg	11030	17150	17510	20780	24190

Leaving chilled liquid 7°C Entering Tower Water 30°C.
Entering Steam 8 psi.



**ZERO CO₂ EMISSION
FROM WASTE HEAT COOLING**



Water systems IsoFlow YIA

**Single stage hot water or steam powered
absorption chiller**

Cooling capacities: 420 –4840 kW



Features

YIA chillers are available using low pressure steam or hot water. Compared to electrically driven chillers YIA chillers can dramatically lower system operating costs when using waste heat.

Applications particularly well suited to the YORK YIA absorption chiller include cogeneration, waste heat recovery from diesel or gas engine jacket water, turbine air inlet cooling and district heating and cooling installations.

Hot water units

Hot water units can operate with entering water temperature from 80 to 128°C.

Steam units

Steam units can operate with a steam pressure at generator inlet from 0,2 barg to 0,95 barg.

Refrigerant cycle

The YORK YIA high efficiency single-stage absorption refrigeration cycle uses water as the refrigerant and lithium bromide as the absorbent. It is the strong affinity and ease of separation that these two substances have for each other that makes the cycle work. The entire process occurs in hermetic vessels in a near complete vacuum. By using the environmental friendly ADVAGuard 750 inhibitor the internal corrosion rate and hydrogen generation is up to 8 times less than using lithium molybdate.

ISN Control Center

The ISN control panel combines the very best in chiller protection with the optimum in system efficiency. Vital chiller operating information is shown on the plain language 40 character alphanumeric display.

The control panel automatic capacity control varies the steam or hot water flow rate using a fuzzy-logic control algorithm to maintain the programmed setpoint for the chilled water leaving temperature in the load range between 10% and 100%.

Early Warning System

The integrated early warning systems warns before a safety shutdown of the unit and limits heating input rate supply until correcting actions have been taken. This system guarantees a stable operation even in abnormal operating conditions.

Automatic Decrystallization

Each IsoFlow absorption chiller is delivered with a protection system that quickly eliminates any minor crystallization that may occur under extreme conditions. In the unlikely event of a problem, a control-center signal immediately opens the stabilizer valve, sending pure water to dilute the most concentrated solutions in the machine. Additionally the Automatic Decrystallization pipe sends hot solution to warm the solution heat exchanger.

Refrigerant Pumps

The unique construction of YORK's hermetic pumps ensures low energy consumption and long trouble-free operation. Service inspections are usually carried out every 50000 hours. Maintenance of the pumps can be carried out quickly and easily due to built-in isolation valves ahead and behind each internal pump.

Technical data

YIA Model	1A1	1A2	2A3	2A4	2B1	3B2	3B3	4B4	4C1	5C2	5C3
Cooling Capacity kW (1)	420	550	600	720	830	960	1090	1170	1280	1440	1570
L/W/H metres	3.7/1.8/2.3	4.3/1.4/2.3	4.9/1.4/2.3	5.6/1.4/2.3	4.9/1.6/2.6	5.6/1.6/2.6	6.2/1.6/2.6	6.8/1.6/2.6	5.6/1.8/3.0	6.2/1.8/3.0	6.8/1.8/3.0
Operating Weight kg	4950	5500	6130	6590	7900	8540	9490	10490	11400	12260	13620

Water systems
Energy management
& chiller sequencing



Bringing together Johnson Control technology and York air-conditioning equipment provides the ultimate in modern building environmental control and energy efficiency.

No matter what the challenge we can supply the appropriate solution. Supported by skilled service and maintenance personnel, located in most major cities, and fast access to spare parts we can ensure system operating security.



Refrigeration

Reciprocating compressors
Screw compressors
Chillers
Ice machines
Control systems
Gas detection systems

Reciprocating compressors

CMO

single-stage



Significant advantages

The advantages of the Sabroe CMO compressor design include

- High coefficient of performance (COP), with excellent part-load characteristics.
- Excellent accessibility and few requirements for spare parts.
- Any necessary repairs can normally be undertaken without having to remove the compressor.
- Chromium piston rings, gas-dampened discharge valves and hardened cylinder liner surfaces.
- Spring-loaded safety heads, balanced refrigerant-tight shaft seal, asbestos-free gaskets and an internal bypass valve to prevent excessive pressure.

Customer benefits

For the customer, the benefits of the Sabroe CMO compressor design include

- ▶ Lower power consumption, especially when operating at part load. This greatly reduces operating costs.
- ▶ Easy maintenance, resulting in low service costs and minimal downtime.
- ▶ All repairs can be carried out on site at the customer's own premises, reducing both repair costs and downtime.
- ▶ Extended service life for all moving parts.
- ▶ The special design ensures low noise and low vibration levels, with safe, environmentally friendly operation.



Model	Number of cylinders	Bore x store mm	Swept volume at max. 1500 rpm m³/h	Swept volume at max. 1800 rpm m³/h	Nominal capacities kW at 1500 rpm					Dimensions Direct coupled unit mm			Weight excl. motor	Sound pressure level
					R717			R22						
					Single/high stage		Booster	Single/high stage						
					-10/+35°C	0/+35°C	-40/-10°C	0/+35°C	-10/+35°C	L	W	H		
CMO 24	4	70 x 70	97	116	53	85	14	81	53	1400-1750	690	1000	425	69
CMO 26	6	70 x 70	145	175	79	127	21	121	79	1400-1750	690	1000	475	71
CMO 28	8	70 x 70	194	233	105	170	28	162	105	1400-1750	690	1000	500	72
CMO 34	4	70 x 82	114	136	62	100	17	97	62	1400-1750	690	1000	425	70
CMO 36	6	70 x 82	170	204	93	149	25	145	93	1400-1750	690	1000	475	72
CMO 38	8	70 x 82	227	273	123	199	33	193	123	1400-1750	690	1000	500	73

Nominal capacities are based on 1500 rpm and 5°C liquid subcooling.

Reciprocating compressors

SMC 100

single-stage



Significant advantages

The advantages of the Sabroe SMC 100 compressor design include

- High coefficient of performance (COP), with excellent part-load characteristics.
- Excellent accessibility and few requirements for spare parts.
- Any necessary repairs can normally be undertaken without having to remove the compressor.
- Chromium piston rings, gas-dampened discharge valves and hardened cylinder liner surfaces.
- Spring-loaded safety heads, balanced refrigerant-tight shaft seal, asbestos-free gaskets and an internal bypass valve to prevent excessive pressure.

Customer benefits

For the customer, the benefits of the Sabroe SMC 100 compressor design include

- ▶ Lower power consumption, especially when operating at part load. This greatly reduces operating costs.
- ▶ Easy maintenance, resulting in low service costs and minimal downtime.
- ▶ All repairs can be carried out on site at the customer's own premises, reducing both repair costs and downtime.
- ▶ Extended service life for all moving parts.
- ▶ The special design ensures low noise and low vibration levels, with safe, environmentally friendly operation.



Model	Number of cylinders	Bore x store mm	Max. rpm ¹⁾	Swept volume at max. rpm m³/h	Nominal capacities KW					Dimensions Direct-coupled unit mm			Weight excl. motor kg	Sound pressure level dB(A)
					R717			R22						
					Single/high stage		Booster	Single/high stage						
					-10/+35°C	0/+35°C	-40/-10°C	0/+35°C	-10/+35°C	L	W	H		
SMC 104 S	4	100 x 80	1500	226	129	209	35	229	150	1800-2300	995	1095	830	80
SMC 104 L	4	100 x 100	1500	283	167	266	46	199	132	1800-2300	995	1095	830	81
SMC 104 E	4	100 x 120	1500	339	206	324	57	NA	NA	1800-2300	995	1095	830	81
SMC 106 S	6	100 x 80	1500	339	194	313	52	343	225	1850-2450	995	1130	925	81
SMC 106 L	6	100 x 100	1500	424	251	398	70	299	198	1850-2450	995	1130	925	82
SMC 106 E	6	100 x 120	1500	509	309	486	86	NA	NA	1850-2450	995	1130	925	82
SMC 108 S	8	100 x 80	1500	452	259	417	70	457	300	1900-2500	1005	1125	990	82
SMC 108 L	8	100 x 100	1500	565	335	531	93	398	264	1900-2500	1005	1125	990	83
SMC 108 E	8	100 x 120	1500	679	412	648	115	NA	NA	1900-2500	1005	1125	990	83
SMC 112 S	12	100 x 80	1500	679	388	626	106	686	450	2425-3000	1095	1335	1660	83
SMC 112 L	12	100 x 100	1500	848	502	796	140	597	396	2425-3000	1095	1335	1660	83
SMC 112 E	12	100 x 120	1500	1018	618	972	172	NA	NA	2425-3000	1095	1335	1660	83
SMC 116 S	16	100 x 80	1500	905	517	834	141	914	600	2475-3200	1135	1335	1760	84
SMC 116 L	16	100 x 100	1500	1131	669	1062	187	796	528	2475-3200	1135	1335	1760	84
SMC 116 E	16	100 x 120	1500	1357	824	1297	230	NA	NA	2475-3200	1135	1335	1760	84

Nominal capacities are based on 5°C subcooling and max. rpm

1) SMC 100S : max. rpm 1800 for R22 - SMC 100L : max. rpm 1200 for R22

Reciprocating compressors

HPO/HPC

high-pressure



Significant advantages

The advantages of the Sabroe HPO/HPC high-pressure compressor design include

- Automatic capacity control and high coefficient of performance (COP), with excellent part-load characteristics.
- Excellent accessibility – including simple-to-clean water covers and externally accessible oil pump/filter (HPC only) – and few requirements for spare parts.
- Any necessary repairs can normally be undertaken without having to remove the compressor.
- Lightweight pistons, chromium piston rings, gas-dampened discharge valves and hardened cylinder liner surfaces.
- Spring-loaded safety heads, balanced refrigerant-tight shaft seal, asbestos-free gaskets and an internal bypass valve to prevent excessive pressure.

Customer benefits

For the customer, the benefits of the Sabroe HPO/HPC high-pressure compressor design include

- Lower power consumption, especially when operating at part load. This greatly reduces operating costs.
- Easy maintenance, resulting in low service costs and minimal downtime.
- All repairs can be carried out on site at the customer's own premises, reducing both repair costs and downtime.
- Extended service life for all moving parts.
- The special design ensures low noise and low vibration levels, with safe, environmentally friendly operation.

Model	Number of cylinders	Bore x stroke mm	Max. rpm	Swept volume at max. 1500 rpm m ³ /h	Nominal capacities kW					Approximate dimensions Direct coupled unit mm			Approx. weight without motor kg	Sound pressure level dB(A) ¹⁾
					Heating	Cooling	Cooling	Cooling	Cooling					
					R717 +35/+75°C	R717 0/+55°C	R410A -0/+35°C	R744 50/-10°C	R744 -40/-5°C					
HPO 24	4	70 x 70	1500	97	278	71	117	96	142	1580-1930	835	985	510	74
HPO 26	6	70 x 70	1500	146	418	106	176	144	213	1600-1950	940	985	550	76
HPO 28	8	70 x 70	1500	194	557	141	235	192	284	1620-1970	940	985	580	77
HPC 104S	4	100 x 80	1500	226	657	168	284	233	344	1920-2270	1030	1100	850	81
HPC 106S	6	100 x 80	1500	339	985	252	426	349	517	2010-2460	1085	1130	1025	82
HPC 108S	8	100 x 80	1500	452	1313	335	568	465	689	2040-2490	1235	1130	1100	83

Nominal capacities for R744 are based on no subcooling in cascade cooler.

Nominal capacities are at 1450 rpm.

1) The sound pressure has been calculated for -50/-10°C with R744 at 1450 rpm

Reciprocating compressors CO₂/Ammonia Freeze Package (CAFP)



Significant advantages

The advantages of the Sabroe CAFP package include

- Extremely low power consumption, even at part load.
- Compact design, and the unit can relatively easily be moved to other locations.
- Very small ammonia charge.
- Entire ammonia charge is located on the unit itself, restricting ammonia use to the machine room.
- Clear separation of ammonia and CO₂.
- Automatic oil recovery system in both CO₂ and ammonia circuits.
- EOL-tested with refrigerants before dispatch.

Customer benefits

For the customer, the benefits of the Sabroe CAFP package include

- Low operating costs.
- Saves space, and gives greater flexibility in production.
- Makes it possible to install large-capacity, low-temperature plants with only limited refrigerant restrictions.
- No risk of ammonia leaks in production areas, cold stores and working areas. Less risk of product damage.
- Eliminates risk of panic or damage in production and working area in case of leaks, and can also save on insurance rates.
- Only minimum maintenance required.
- Short commissioning time.

Model	Evaporation °C	Capacity at Evaporation ¹⁾ kW	Power consumption ²⁾ kW	Compressors R744 / R717	NH ₃ charge approx. kg	Max. CO ₂ charge l	Dimensions approx. L x W x H mm	Weight ³⁾ kg	Sound pressure level dB(A)
CAFP 80	-50	87	64	HPC 24 / SMC 104 S	45	800	5200 x 2600 x 2800	8000	78
CAFP 80	-45	112	74	HPO 24 / SMC 104 L	45	800	5200 x 2600 x 2800	8500	80
CAFP 80	-40	144	84	HPO 24 / SMC 104 E	45	800	5200 x 2600 x 2800	9000	79
CAFP 80	-35	144	82	HPO 24 / SMC 106 S	45	800	5200 x 2600 x 2800	9000	79
CAFP 120	-50	131	94	HPO 26 / SMC 106 S	55	800	5200 x 2600 x 2800	9500	80
CAFP 120	-45	169	110	HPO 26 / SMC 106 L	55	800	5200 x 2600 x 2800	9500	80
CAFP 120	-40	217	126	HPO 26 / SMC 106 E	55	800	5200 x 2600 x 2800	9500	80
CAFP 120	-35	264	137	HPO 26 / SMC 108 L	55	800	5200 x 2600 x 2800	10000	82
CAFP 160	-50	174	125	HPO 28 / SMC 108 S	60	800	5200 x 2600 x 2800	10500	80
CAFP 160	-45	223	147	HPO 28 / SMC 108 L	60	800	5200 x 2600 x 2800	11000	82
CAFP 160	-40	288	167	HPO 28 / SMC 108 E	60	800	5200 x 2600 x 2800	11000	82
CAFP 160	-35	363	188	HPO 28 / SMC 112 L	60	800	5900 x 2800 x 3000	12000	83
CAFP 200	-50	211	150	HPC 104 / SMC 106 E	80	800	5200 x 2600 x 2800	12000	80
CAFP 200	-45	277	177	HPC 104 / SMC 108 E	80	800	5200 x 2600 x 2800	12000	82
CAFP 200	-40	353	200	HPC 104 / SMC 112 L	80	800	5900 x 2800 x 3000	13500	82
CAFP 200	-35	415	214	HPC 104 / SMC 112 L	80	800	5900 x 2800 x 3000	13500	83
CAFP 300	-50	324	228	HPC 106 / SMC 112 L	120	1650	6300 x 3200 x 3100	14000	82
CAFP 300	-45	416	263	HPC 106 / SMC 112 E	120	1650	6300 x 3200 x 3100	14000	82
CAFP 300	-40	511	290	HPC 106 / SMC 116 L	120	1650	6300 x 3200 x 3100	15000	83
CAFP 300	-35	599	310	HPC 106 / SMC 116 L	120	1650	6300 x 3200 x 3100	15500	83
CAFP 400	-50	421	296	HPC 108 / SMC 112 E	155	1650	6300 x 3200 x 3100	16000	82
CAFP 400	-45	520	332	HPC 108 / SMC 116 L	155	1650	6300 x 3200 x 3100	17000	83
CAFP 400	-40	667	375	HPC 108 / SMC 116 E	155	1650	6700 x 3200 x 3200	17000	83
CAFP 400	-35	793	398	HPC 108 / SMC 116 E	155	1650	6700 x 3200 x 3200	18000	83

1) Capacity is based on 50 Hz. In addition, 25°C/30°C cooling water to/from condenser – 2) Power consumption applies to compressors only – 3) Dry weight (approx.)

Reciprocating compressors

Rotatune



Significant advantages

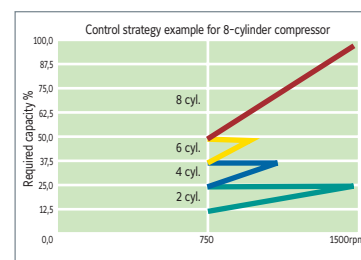
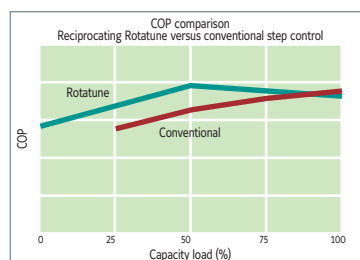
The Sabroe Rotatune range features all the advantages of the corresponding standard Sabroe reciprocating compressor range, with the following additions

- ▶ Excellent part-load characteristics.
- ▶ Stepless control of the compressor capacity.
- ▶ Low starting current and low reactive power.
- ▶ Average operating speed lower than maximum speed.

Customer benefits

For the customer, the benefits of the Sabroe Rotatune reciprocating compressor include

- ▶ Extremely low power consumption at part load. This results in significantly reduced operating costs.
- ▶ Ability to control temperature/pressure with great precision.
- ▶ Savings due to no extra electricity costs associated with starting current peaks and high reactive power.
- ▶ Extended service life for all moving parts and lower average noise level.



Model	Number of cylinders	Bore x stroke mm	Min./max. rpm ¹⁾	Swept volume at min./max. rpm m ³ /h	Capacity control range % ²⁾	Nominal capacity kW ³⁾	Approx. dimensions L x W x H mm	Sound pressure level at max. rpm dB(A)
CMO 24	4	70 x 70	900/1800	58-116	12-100	102	1800-2100 x 800 x 1700	69
CMO 26	6	70 x 70	900/1800	87-175	8-100	153	1800-2100 x 800 x 1700	70
CMO 28	8	70 x 70	900/1800	116-233	6-100	204	1800-2100 x 800 x 1700	71
CMO 34	4	70 x 82	900/1800	68-136	12-100	119	1800-2100 x 800 x 1700	69
CMO 36	6	70 x 82	900/1800	102-204	8-100	179	1800-2100 x 800 x 1700	70
CMO 38	8	70 x 82	900/1800	136-273	6-100	239	1800-2100 x 800 x 1700	71
SMC 104 S	4	100 x 801	700/1500	106-226	12-100	209	2400-2900 x 1000 x 1900	80
SMC 104 L	4	100 x 100	700/1500	132-283	12-100	266	2400-2900 x 1000 x 1900	81
SMC 104 E	4	100 x 120	700/1500	158-339	12-100	324	2400-2900 x 1000 x 1900	81
SMC 106 S	6	100 x 801	700/1500	158-339	8-100	313	2500-3100 x 1000 x 1900	81
SMC 106 L	6	100 x 100	700/1500	198-424	8-100	398	2500-3100 x 1000 x 1900	82
SMC 106 E	6	100 x 120	700/1500	238-509	8-100	486	2500-3100 x 1000 x 1900	82
SMC 108 S	8	100 x 801	700/1500	211-452	6-100	417	2600-3100 x 1000 x 1900	82
SMC 108 L	8	100 x 100	700/1500	264-565	6-100	531	2600-3100 x 1000 x 1900	83
SMC 108 E	8	100 x 120	700/1500	317-679	6-100	648	2600-3100 x 1000 x 1900	83
SMC 112 S	12	100 x 801	700/1500	317-679	8-100	626	3000-3600 x 1100 x 1900	83
SMC 112 L	12	100 x 100	700/1500	396-848	8-100	796	3000-3600 x 1100 x 1900	83
SMC 112 E	12	100 x 120	700/1500	475-1018	8-100	972	3000-3600 x 1100 x 1900	83
SMC 116 S	16	100 x 801	700/1500	422-905	6-100	834	3100-3800 x 1150 x 1900	84
SMC 116 L	16	100 x 100	700/1500	528-1131	6-100	1062	3100-3800 x 1150 x 1900	84
SMC 116 E	16	100 x 120	700/1500	633-1357	6-100	1297	3100-3800 x 1150 x 1900	84

1) The max. rpm indicated is the most common, and can vary depending on operating conditions and refrigerant.

2) Extended unloading included - 3) Nominal capacity is at 100% load, R717, 0°C / 35°C and 5°C subcooling.

Reciprocating compressors

TCMO/TSMC

two-stage



Significant advantages

The advantages of the Sabroe TCMO/TSMC compressor design include

- Extremely low power consumption, even at part load.
- Compact design, and the unit can relatively easily be moved to other locations.
- Very small ammonia charge.
- Entire ammonia charge is located on the unit itself, restricting ammonia use to the machine room.
- Clear separation of ammonia and CO₂.
- Automatic oil recovery system in both CO₂ and ammonia circuits.
- EOL-tested with refrigerants before dispatch.

Customer benefits

For the customer, the benefits of the Sabroe TCMO/TSMC compressor design include

- Lower power consumption, especially when operating at part load. This greatly reduces operating costs.
- Easy maintenance, resulting in low service costs and minimal downtime.
- All repairs can be carried out on site at the customer's own premises, reducing both repair costs and downtime.
- Extended service life for all moving parts.
- The special design ensures low noise and low vibration levels, with safe, environmentally friendly operation.
- Only minimum maintenance required.
- Short commissioning time.



Model	Number of cylinders Low/High pressure side	Bore x store mm	Max. rpm ¹⁾	Low-presure side swept volume at max. rpm, m³/h	Nominal capacities in kW at 1500 rpm					Dimensions in mm Direct-coupled unit without intermediate cooler			Weight excl. motor kg	Sound pressure level dB(A)
					R717	R22	R134a	R404A	R507	L	W	H		
					-40/+35°C	-40/+35°C	-40/+35°C	-40/+35°C	-40/+35°C					
TCMO 28	6 / 2	70 x 70	1800	175	20	24	11	27	28	1400–1750	700	1000	500	71
TCMO 38	6 / 2	70 x 82	1800	204	23	30	14	32	33	1400–1750	700	1000	500	71
TSMC 108 S	6 / 2	100 x 80	1500	339	50	61	30	66	70	1900–2500	1050	1125	1000	82
TSMC 108 L	6 / 2	100 x 100	1500	424	66	63 1)	31 1)	68 1)	72 1)	1900–2500	1050	1125	1000	83
TSMC 108 E	6 / 2	100 x 120	1500	509	82	NA	NA	NA	NA	1900–2500	1050	1125	1000	83
TSMC 116 S	12 / 4	100 x 80	1500	669	100	122	60	132	139	2475–3200	1150	1335	1800	84
TSMC 116 L	12 / 4	100 x 100	1500	848	133	126 1)	62 1)	136 1)	144 1)	2475–3200	1150	1335	1800	84
TSMC 116 E	12 / 4	100 x 120	1500	1018	163	NA	NA	NA	NA	2475–3200	1150	1335	1800	84

Nominal capacities are based on 2°C subcooling from condenser, 2°C superheat and liquid subcooling in intermediate cooler to 10°C above intermediate temperature.
Nominal capacities are at max. rpm except for: 1) at 1200 rpm

Screw compressors

SABCube

variable-speed



Significant advantages

Customer benefits

Hear less ...

- Sound level lower than 80 dB(A).

- ▶ • Better working environment.

See less ...

- Very small footprint, which saves space.

- ▶ • Better use of space, making it easy to upgrade from existing equipment.

Experience more ...

- The multiple advantages of variable-speed drive (VSD) – such as high efficiency, accurate control, economiser COP increase – result in benefits in all part-load situations.

- ▶ • Remarkable efficiency at part load – up to 30% energy savings compared with conventional compressors.

- The compressor package components – motor, VSD, filters, oil cooler, valves, etc. – are 100% integrated.

- ▶ • Maximum reliability, because both structural resonance and leaks are avoided.

- No motor bearings, coupling, oil pump or slide valve – resulting in fewer wearing parts.

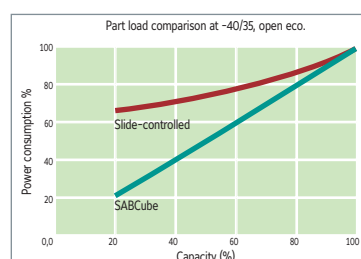
- ▶ • Less service work needed – up to 25% savings on total service costs.

- Worldwide product support 24 hours a day, 7 days a week.

- ▶ • Maximum operating uptime.

- Attractive service concept based on preventive maintenance that reflects the actual load profile.

- ▶ • Maintenance downtime is easy to plan, with savings on service costs.



Technical data R717

Model	Swept volume m ³ /hour at max. speed	Rotor		Operating conditions with R717			Dimensions L x W x H m	Weight [kg]	Sound pressure dB(A)
		Dia. [mm]	L/D ratio	-10/35°C Q [kW]	-40/35°C ¹⁾ Q [kW]	0/35°C Q [kW]			
SAB 109 M	289	109	1.4	182	53	272	2.0 x 1.15 x 1.6	1650	73
SAB 109 L	361	109	1.4	228	66	340	2.0 x 1.15 x 1.6	1650	75
SAB 133 T	525	133	1.4	331	96	494	2.0 x 1.15 x 1.6	1850	75
SAB 133 M	543	133	1.4	343	100	512	2.0 x 1.15 x 1.6	1850	75
SAB 133 N	633	133	1.4	400	116	597	2.0 x 1.15 x 1.6	1850	76
SAB 133 L	679	133	1.4	N/A	125 ²⁾	N/A	2.0 x 1.15 x 1.6	1850	77
SAB 159 M	947	159	1.4	599	174	893	2.0 x 1.15 x 1.6	1970	77
SAB 159 L	1184	159	1.4	N/A	225 ²⁾	N/A	2.0 x 1.15 x 1.6	1970	79

5 K suction gas superheat

5 K liquid subcooling

1) Open flash economiser system

2) On request

N/A Not applicable

Screw compressors

SAB

(swept volumes 200–850 m³/h)



Significant advantages

- Fitted with an IEC flange-mounted motor as standard. Alignment is machined into the parts at the factory.
- Highly effective SuperFilter II™ oil filter captures 99% of all particles larger than 5 microns.
- Special Cold Start valve™ that ensures immediate oil pressure at start-up. This lubricates the compressor without requiring an oil pump.
- Infinite capacity control ensures that capacity is always adjusted to suit requirements.
- Automatic internal volume ratio (Vi) control, which adjusts the compressor volume ratio during operation to the most efficient of three possible settings.
- Rotor design, combined with an internal gear drive to increase rotor tip speed, brings unprecedented efficiency to screw compressors in this size range.
- Compressor features an antifriction bearing design for reduced power consumption, improved efficiency and reduced maintenance.
- All SAB screw compressor packages are supplied with Unisab II control systems, ready to operate.

Customer benefits

- Eliminates both cold and hot alignment. Longer service life for bearings and shaft seal.
- Efficient oil management helps ensure longer bearing life, providing maximum reliability and savings on both maintenance and replacement.
- Lower operating costs and reduced maintenance.
- Maximum part-load efficiency and lowest possible operating cost.
- Lowest possible operating costs. The automatic setting ensures optimum performance regardless of variations in operating conditions.
- Maximum efficiency reduces operating costs.
- Minimum operating costs.
- This makes efficient equipment management easy, ensuring better operating economics, less downtime and longer service life.

Capacities in kW

Model	R717		R404A		With economiser	
	High stage	Booster	High stage		R717	R404A
	-10/+35°C	-40/-10°C	-10/35°C	0/+40°C	-40/+35°C	
SAB 120 S	121	36	115	157	36	47
SAB 120 M	156	48	152	207	47	63
SAB 120 L	200	61	195	265	61	80
SAB 120 E	270	83	261	355	82	107
SAB 151 S	305	97	305	416	87	126
SAB 151 M	369	117	367	500	105	151
SAB 151 L	469	149	466	635	133	192
SAB 151 E	568	180	560	763	161	231

Based on 5K liquid subcooling and 5K suction gas superheat.

Model	Swept volume m ³ /h ¹⁾	Dimensions in mm L x W x H	Weight kg ²⁾	Sound pressure level dB(A) ³⁾
SAB 120 S	204	2200 x 1300 x 1500	1171	85
SAB 120 M	255	2200 x 1300 x 1500	1171	86
SAB 120 L	316	2200 x 1300 x 1500	1273	88
SAB 120 E	413	2200 x 1300 x 1500	1273	89
SAB 151 S	484	2800 x 1300 x 1700	2279	90
SAB 151 M	571	2800 x 1300 x 1700	2279	91
SAB 151 L	708	2800 x 1300 x 1800	2339	91
SAB 151 E	847	2800 x 1300 x 1800	2339	92

1) at 50 Hz power supply.

2) Including oil cooler and excluding drive motor, oil and refrigerant charge.

3) Free field, over reflecting plane and one metre distance from the unit (values are derived from test data for similar units and are indicative of the actual noise level measured in one or more applications).

Due to variations in equipment configurations, the dimensions and weights shown here are only guidelines. Use only certified drawings for erection.

Drive motor can increase overall height.

Screw compressors

SAB

(swept volumes 800–10.000 m³/h)



Significant advantages

- Fitted with an IEC flange-mounted motor as standard. Alignment is machined into the parts at the factory.
- Highly effective SuperFilter II™ oil filter captures 99% of all particles larger than 5 microns.
- Special Cold Start valve™ that ensures immediate oil pressure at start-up. This lubricates the compressor without requiring an oil pump.
- Stepless capacity control ensures that capacity is always adjusted to suit requirements.
- Patented method of matching the internal volume ratio (Vi) to the system volume ratio.
- Integrated design with oil separator, compressor block, oil coolers, filters, etc.
- External oil cooling is available using high-efficiency thermosyphon or water-cooled oil cooler based on advanced plate heat exchanger technology.
- All SAB screw compressor packages are supplied with Unisab II control systems, ready to operate.

Customer benefits

- Eliminates both cold and hot alignment. Longer service life for bearings and shaft seal.
- Efficient oil management helps ensure longer bearing life, providing savings on both maintenance and replacement.
- Lower operating costs and reduced maintenance.
- Maximum part-load efficiency and lowest possible operating cost.
- Lowest possible operating costs. The automatic setting ensures optimum performance regardless of variations in operating conditions.
- Saves on space and reduces construction costs. The compact design also boosts reliability and extends service life. Easy access for operation and service.
- Eliminates capacity and power penalties and thus reduces operating costs.
- This makes efficient equipment management easy, ensuring better operating economics, less downtime and longer service life.

Capacities in kW

Model	R717		R404A		With economiser	
	High stage	Booster	High stage		R717	R404A
	-10/+35°C	-40/-10°C	-10/35°C	0/+40°C	-40/+35°C	
SAB 193 S	541	164	524	779	155	213
SAB 193 L	723	220	709	1041	207	289
SAB 233 S	974	292	922	1404	271	379
SAB 233 L	1220	366	1199	1760	340	492
SAB 233 E	1520	456	1472	2191	424	606
SAB 283 S	1767	530	1694	2544	500	707
SAB 283 L	2215	664	2079	3190	627	874
SAB 283 E	2667	800	2524	3841	755	1064
SAB 355 S	2785	836	2649	4033	786	1116
SAB 283 X	3033	910	2832	4367	844	1185
SAB 355 L	3771	1131	3418	5459	1065	1457
SAB 355 E	4793	1438	4300	6940	1354	1838
SAB 355 X	5992	1796	4944	8676	1681	2139

Based on 5K liquid subcooling and 5K suction gas superheat.

Technical data

Model	Swept volume m ³ /h ¹⁾	Dimensions in mm L x W x H ²⁾	Weight kg ³⁾	Sound pressure level dB(A) ⁴⁾
SAB 193 S	838	3191 x 1349 x 2027	2450	84
SAB 193 L	1118	3191 x 1349 x 2065	2550	84
SAB 233 S	1475	3388 x 1497 x 2317	3350	86
SAB 233 L	1856	3388 x 1497 x 2342	3450	86
SAB 233 E	2258	4118 x 1775 x 2534	4550	86
SAB 283 S	2640	4121 x 1858 x 2590	5700	88
SAB 283 L	3326	4121 x 1858 x 2647	5850	88
SAB 283 E	3998	4406 x 2075 x 2813	7650	88
SAB 355 S	4134	4832 x 2455 x 3440	9300	89
SAB 283 X	4516	4582 x 2075 x 2815	8950	88
SAB 355 L	5638	4994 x 2618 x 3675	9450	89
SAB 355 E	7175	5271 x 2758 x 3834	10250	89
SAB 355 X	9053	5271 x 2758 x 3834	10500	89

1) at 50 Hz power supply

2) Due to variations in equipment configurations, the dimensions and weights shown here are only guidelines. Use only certified drawings for erection. Drive motor can increase overall height.

3) Including oil cooler and excluding drive motor, oil and refrigerant charge.

4) Free field, over reflecting plane and one metre distance from the unit. Values are derived from test data for similar units and are indicative of the actual noise level measured in one or more applications.



Packaged ammonia chillers

ChillPAC
(Water chillers)

Significant advantages

- The standard ChillPAC range is factory-assembled and based on world-renowned reciprocating compressor products developed and optimised by Sabroe.
- The Sabroe ChillPAC design is based on the flooded evaporating system, using ammonia only. This provides very high COP, outstanding part-load performance and no limitations on the condenser pressure because the condensing temperatures make full use of the ambient temperature differences.
- The completely new ChillPAC compact design is unique compared with conventional chiller designs. The ChillPAC has lower weight, uses less than half the amount of refrigerant and less than half the footprint. In terms of size, it is equal to or smaller than HFC/HCFC chillers.
- All Sabroe ChillPAC units are operationally tested with refrigerant at the specialist End of Line (EOL) Test Centre before dispatch. A capacity test is also available as an option.

Customer benefits

- Full advantage of well-tested Sabroe standard solutions that feature top-quality industrial components. This improves safety, ensures maximum reliability and low operating costs, and provides easy access to service and parts worldwide.
- Ammonia is the most environmentally acceptable and future-compatible refrigerant currently available. Exceptional reliability and very low energy consumption also result in the lowest possible life cycle costs.
- Significantly reduced installation costs due to smaller size, and additional energy savings achieved from the low differential pressure on the secondary side. Provides you with an easy, safe and cost-effective upgrade path for when you are ready to replace your existing HCFC chillers.
- Factory testing confirms specified performance and ensures trouble-free on-site start-up and operation as soon as the refrigerant charge has been added and utility connections made. Shorter, safer start-up and commissioning periods reduce overall costs significantly.

Water chillers (Water: inlet 12°C, outlet 7°C)

Type	Cooling capacity kW	E-motor kW	R717 charge kg	Dry weight kg	Dimensions			Sound level ¹⁾ dB(A)
					L mm	W mm	H mm	
ChillPAC 104S-A	233	45	14	2301	2900	1000	2000	78
ChillPAC 104L-A	294	55	15	2410	2900	1000	2000	79
ChillPAC 106S-A	346	75	17	2727	2900	1000	2000	79
ChillPAC 104E-A	357	75	17	2652	2900	1000	2000	79
ChillPAC 106L-A	440	90	21	2950	2900	1000	2000	80
ChillPAC 108S-A	464	90	22	3060	2900	1000	2000	80
ChillPAC 106E-A	536	110	24	3225	3100	1000	2000	81
ChillPAC 108L-A	588	110	26	3526	3100	1000	2000	82
ChillPAC 112S-A	690	132	29	4315	4000	1000	2200	82
ChillPAC 108E-A	715	132	30	3880	3300	1000	2000	82
ChillPAC 112L-A	878	160	36	4738	4500	1000	2200	83
ChillPAC 116S-A	921	200	37	5044	4500	1000	2200	83
ChillPAC 112E-A	1066	200	41	5196	4600	1000	2200	83
ChillPAC 116L-A	1167	250	45	5556	4700	1000	2200	83
ChillPAC 116E-A	1398	315	49	5878	5000	1000	2200	84

Condenser: water inlet 30°C, outlet 35°C – Motor: 3 x 400V, 50 Hz, 1460 rpm

The above data are only valid for the stated temperatures and operating conditions.

Capacities are nominal.

A = The A after the type designation stands for air conditioning application (Temperature above 0°C).

1) Mean sound pressure levels in free field over reflecting plane, distance at 1 m.

All data are based on sound power measurements made according to ISO 9614-2.

Packaged ammonia chillers

ChillPAC
(Brine chillers)

Significant advantages

- The standard ChillPAC range is factory-assembled and based on world-renowned reciprocating compressor products developed and optimised by Sabroe.
- The Sabroe ChillPAC design is based on the flooded evaporating system, using ammonia only. This provides very high COP, outstanding part-load performance and no limitations on the condenser pressure because the condensing temperatures make full use of the ambient temperature differences.
- The completely new ChillPAC compact design is unique compared with conventional chiller designs. The ChillPAC has lower weight, uses less than half the amount of refrigerant and less than half the footprint. In terms of size, it is equal to or smaller than HFC/HCFC chillers.
- All Sabroe ChillPAC units are operationally tested with refrigerant at the specialist End of Line (EOL) Test Centre before dispatch. A capacity test is also available as an option.

Customer benefits

- ▶ Full advantage of well-tested Sabroe standard solutions that feature top-quality industrial components. This improves safety, ensures maximum reliability and low operating costs, and provides easy access to service and parts worldwide.
- ▶ Ammonia is the most environmentally acceptable and future-compatible refrigerant currently available. Exceptional reliability and very low energy consumption also result in the lowest possible life cycle costs.
- ▶ Significantly reduced installation costs due to smaller size, and additional energy savings achieved from the low differential pressure on the secondary side. Provides you with an easy, safe and cost-effective upgrade path for when you are ready to replace your existing HCFC chillers.
- ▶ Factory testing confirms specified performance and ensures trouble-free on-site start-up and operation as soon as the refrigerant charge has been added and utility connections made. Shorter, safer start-up and commissioning periods reduce overall costs significantly.

Brine chillers (Ethylene glycol 30%: inlet -4°C, outlet -8°C)

Type	Cooling capacity kW	E-motor kW	R717 charge kg	Dry weight kg	Dimensions			Sound level ¹⁾ dB(A)
					L mm	W mm	H mm	
ChillPAC 104S-C	116	37	13	2253	2700	1000	2000	78
ChillPAC 104L-C	150	55	15	2378	2900	1000	2000	79
ChillPAC 106S-C	172	55	15	2505	2900	1000	2000	79
ChillPAC 104E-C	185	75	17	2586	2900	1000	2000	79
ChillPAC 106L-C	222	75	18	2701	2900	1000	2000	80
ChillPAC 108S-C	227	75	18	2766	2900	1000	2000	80
ChillPAC 106E-C	272	90	20	2866	2900	1000	2000	80
ChillPAC 108L-C	295	110	22	3091	3100	1000	2000	82
ChillPAC 112S-C	339	110	24	3696	3800	1000	2200	82
ChillPAC 108E-C	363	132	25	3523	3300	1000	2000	82
ChillPAC 112L-C	440	160	29	4290	4200	1000	2200	83
ChillPAC 116S-C	450	160	29	4390	4200	1000	2200	83
ChillPAC 112E-C	544	200	35	4733	4300	1000	2200	83
ChillPAC 116L-C	586	200	37	4898	4300	1000	2200	83
ChillPAC 116E-C	718	250	43	5322	4300	1000	2200	83

Condenser: water inlet 30°C, outlet 35°C – Motor: 3 x 400V, 50 Hz, 1460 rpm

The above data are only valid for the stated temperatures and operating conditions.

Capacities are nominal.

C = The C after the type designation stands for brine chiller application (Temperature below 0°C)

1) Mean sound pressure levels in free field over reflecting plane, distance at 1 m.

All data are based on sound power measurements made according to ISO 9614-2.

Packaged ammonia chillers

ChillPAC

featuring SABCube screw compressor (Water chillers)



Significant advantages

Sabroe ChillPAC designs feature the following advantages

- The standard Sabroe ChillPAC screw range is factory-assembled, based on an innovative Sabroe screw compressor design.
- The Sabroe ChillPAC design is based on the flooded evaporating system, using ammonia only. This provides very high COP, outstanding part-load performance – and no limitations on the condenser pressure, because the condensing temperatures make full use of the ambient temperature differences.
- The new ChillPAC compact design is unique compared with conventional chiller designs. The ChillPAC weighs less, uses less than half the amount of refrigerant and has less than half the footprint. In terms of size, it is equal to or smaller than HFC/HCFC chillers.
- All Sabroe ChillPAC units are operationally tested with refrigerant at the specialist End of Line (EOL) Test Centre before dispatch. A capacity test is also available.

Customer benefits

Sabroe ChillPAC designs provide customers with the following benefits

- ▶ Use of well-tested Sabroe standard solutions that feature top-quality industrial components improves safety as well as ensuring maximum reliability and low operating costs. It also provides easy worldwide access to service and parts.
- ▶ Ammonia is the most environmentally acceptable and future-compatible refrigerant currently available. Exceptional reliability and very low energy consumption also result in the lowest possible life cycle costs.
- ▶ Significantly reduced installation costs due to smaller size, and additional energy savings achieved from the low differential pressure on the secondary side. Provides an easy, safe and cost-effective upgrade path for replacing existing HCFC chillers.
- ▶ Factory testing confirms specified performance as well as trouble-free on-site start-up and operation as soon as the refrigerant charge has been added and utility connections made. Shorter, safer start-up and commissioning reduce overall costs significantly.

Water chillers (Evaporator water: inlet +12°C, outlet +7°C)

Type	Cooling capacity kW	Heating capacity kW	Power consumption kW	E-motor size kW	R717 charge kg	Dry weight kg	Dimensions			Sound level dB(A)
							L mm	W mm	H mm	
ChillPAC 109 M-A	303	338	65	75	19	4100	3600	1150	1850	74
ChillPAC 109 L-A	376	423	81	86	22	4300	3600	1150	1850	75
ChillPAC 133 T-A	549	612	117	158	32	4800	3600	1150	1850	75
ChillPAC 133 M-A	566	632	122	129	32	4800	3600	1150	1850	75
ChillPAC 133 N-A *	659	740	142	152	37	5900	4800	1150	1850	76
ChillPAC 159 M-A **	990	1105	202	207	56	6900	4800	1150	1850	77

Condenser: water inlet +30°C, outlet +35°C

Single secondary water/brine connections.

* Double secondary water/brine connections evaporator.

** Double secondary water/brine connections evaporator and condenser.

Motor: 3 x 400V/50Hz, L = 7500 rpm, N = 7000 rpm,
M = 6000 rpm and T = 5800 rpm

Capacities are nominal.

A = Temperature above 0°C

The above data are only valid for the stated temperatures and operating conditions.

For other temperatures and conditions contact Johnson Controls.

Packaged ammonia chillers

ChillPAC

featuring SABCube screw compressor (Brine chillers)



Significant advantages

Sabroe ChillPAC designs feature the following advantages

- The standard Sabroe ChillPAC screw range is factory-assembled, based on an innovative Sabroe screw compressor design.
- The Sabroe ChillPAC design is based on the flooded evaporating system, using ammonia only. This provides very high COP, outstanding part-load performance – and no limitations on the condenser pressure, because the condensing temperatures make full use of the ambient temperature differences.
- The new ChillPAC compact design is unique compared with conventional chiller designs. The ChillPAC weighs less, uses less than half the amount of refrigerant and has less than half the footprint. In terms of size, it is equal to or smaller than HFC/HCFC chillers.
- All Sabroe ChillPAC units are operationally tested with refrigerant at the specialist End of Line (EOL) Test Centre before dispatch. A capacity test is also available.

Customer benefits

Sabroe ChillPAC designs provide customers with the following benefits

- Use of well-tested Sabroe standard solutions that feature top-quality industrial components improves safety as well as ensuring maximum reliability and low operating costs. It also provides easy worldwide access to service and parts.
- Ammonia is the most environmentally acceptable and future-compatible refrigerant currently available. Exceptional reliability and very low energy consumption also result in the lowest possible life cycle costs.
- Significantly reduced installation costs due to smaller size, and additional energy savings achieved from the low differential pressure on the secondary side. Provides an easy, safe and cost-effective upgrade path for replacing existing HCFC chillers.
- Factory testing confirms specified performance as well as trouble-free on-site start-up and operation as soon as the refrigerant charge has been added and utility connections made. Shorter, safer start-up and commissioning reduce overall costs significantly.

Brine chillers (Evaporator ethylene glycol 30%: inlet -4°C, outlet -8°C)

Type	Cooling capacity kW	Heating capacity kW	Power consumption kW	E-motor size kW	R717 charge kg	Dry weight kg	Dimensions			Sound level dB(A)
							L mm	W mm	H mm	
ChillPAC 109 M-C	166	191	59	75	15	4000	3600	1150	1850	74
ChillPAC 109 L-C	207	240	76	86	18	4100	3600	1150	1850	75
ChillPAC 133 T-C	302	346	110	158	27	4500	3600	1150	1850	75
ChillPAC 133 M-C	312	358	114	129	27	4500	3600	1150	1850	75
ChillPAC 133 N-C*	364	420	133	152	31	5500	4800	1150	1850	76
ChillPAC 159 M-C**	542	724	198	207	48	6500	4800	1150	1850	77

Condenser: water inlet +30°C, outlet +35°C

Single secondary water/brine connections.

* Double secondary water/brine connections evaporator.

** Double secondary water/brine connections evaporator and condenser.

Motor: 3 x 400V/50Hz, L = 7500 rpm, N = 7000 rpm,
M = 6000 rpm and T = 5800 rpm

Capacities are nominal.

C = Temperature below 0°C

The above data are only valid for the stated temperatures and operating conditions.

For other temperatures and conditions contact Johnson Controls.

Chillers with reciprocating compressors

PAC
(Water chillers)

Significant advantages

Sabroe PAC chiller designs feature the following advantages

- The standard Sabroe PAC chiller range is factory-assembled, based on world-renowned reciprocating compressor products.
- Sole use of natural ammonia (R717) as refrigerant.
- The Sabroe PAC chiller design is based on the flooded evaporator system, which is a relatively simple construction.
- All Sabroe ChillPAC units are operationally tested with refrigerant at the specialist End of Line (EOL) Test Centre before dispatch. A capacity test is also available.

Customer benefits

Sabroe PAC chiller designs provide customers with the following benefits

- ▶ Full advantage of well-tested Sabroe standard solutions that feature top-quality industrial components. This improves safety, ensures maximum reliability and provides easy access to service and parts worldwide.
- ▶ Ammonia has the highest COP (coefficient of performance) available for chillers. It is also the most environmentally friendly and future compatible refrigerant currently available.
- ▶ The most reliable operation with outstanding part-load performance, maximum energy efficiency and very low operating cost.
- ▶ Factory testing ensures trouble-free on-site start-up and operation as soon as the refrigerant charge has been added and water and electricity connections made. Shorter, safer start-up and commissioning periods reduce overall costs significantly.

Water: inlet 12°C, outlet 6°C

Type	Capacity kW	E-motor kW	R717 charge kg	Dry weight kg	Dimensions			Sound level ¹⁾ dB(A)
					L mm	W mm	H mm	
NSPAC 24-A	92	22	20	1400	2500	1500	2200	67
NSPAC 34-A	108	22	21	1450	2500	1500	2200	68
NSPAC 26-A	138	30	22	1450	2500	1500	2200	68
NSPAC 36-A	162	30	28	1600	2700	1500	2200	69
NSPAC 28-A	184	37	32	1600	2700	1500	2200	69
NSPAC 38-A	215	45	34	1650	2900	1500	2200	70
PAC 104 S-A	226	45	48	3100	3300	1850	2300	77
PAC 104 L-A	286	55	49	3250	3300	1850	2300	77
PAC 106 S-A	338	75	51	3500	3300	1850	2300	78
PAC 104 E-A	341	75	51	3400	3300	1850	2300	78
PAC 106 L-A	429	75	54	3550	3300	1850	2300	79
PAC 108 S-A	451	90	54	3700	3300	1850	2300	79
PAC 106 E-A	523	90	57	3700	3550	1850	2300	79
PAC 108 L-A	572	110	58	3900	3550	1850	2300	80
PAC 112 S-A	677	132	73	4650	4130	1850	2450	80
PAC 108 E-A	697	132	74	4300	3850	1850	2450	80
PAC 112 L-A	858	160	78	5000	4130	1850	2450	81
PAC 116 S-A	902	160	79	5350	4130	1850	2450	81
PAC 112 E-A	1046	200	84	5300	4550	1850	2450	81
PAC 116 L-A	1144	200	88	5650	4900	1850	2450	82
PAC 116 E-A	1394	250	137	6300	5750	2000	2600	82

Condenser: water inlet 25°C, outlet 30°C – Motor: 3 x 400V, 50 Hz, 1460 rpm – The above data are only valid for the stated temperatures and operating conditions. Capacities are nominal. A = Temperature above 0°C

1) Sound pressure levels in free field. All sound measuring has been carried out according to ISO 9614-2 at a distance of 1 m.

Chillers with reciprocating compressors

PAC

(Ethylene glycol chillers)



Significant advantages

Sabroe PAC chiller designs feature the following advantages

- The standard Sabroe PAC chiller range is factory-assembled, based on world-renowned reciprocating compressor products.
- Sole use of natural ammonia (R717) as refrigerant.
- The Sabroe PAC chiller design is based on the flooded evaporator system, which is a relatively simple construction.
- All Sabroe chiller units are operationally tested with refrigerant at the specialist End Of Line (EOL) Test Centre before dispatch. A capacity test is also available.

Customer benefits

Sabroe PAC chiller designs provide customers with the following benefits

- ▶ Full advantage of well-tested Sabroe standard solutions that feature top-quality industrial components. This improves safety, ensures maximum reliability and provides easy access to service and parts worldwide.
- ▶ Ammonia has the highest COP (coefficient of performance) available for chillers. It is also the most environmentally friendly and future compatible refrigerant currently available.
- ▶ The most reliable operation with outstanding part-load performance, maximum energy efficiency and very low operating cost.
- ▶ Factory testing ensures trouble-free on-site start-up and operation as soon as the refrigerant charge has been added and water and electricity connections made. Shorter, safer start-up and commissioning periods reduce overall costs significantly.

Ethylene glycol 30%: inlet -4°C, outlet -8°C

Type	Capacity kW	E-motor kW	R717 charge kg	Dry weight kg	Dimensions			Sound level ¹⁾ dB(A)
					L mm	W mm	H mm	
NSPAC 24-C	47	15	19	1400	2500	1500	2200	68
NSPAC 34-C	55	22	20	1400	2500	1500	2200	68
NSPAC 26-C	71	22	21	1450	2500	1500	2200	68
NSPAC 36-C	83	30	22	1500	2600	1500	2200	69
NSPAC 28-C	94	30	30	1550	2600	1500	2200	69
NSPAC 38-C	110	37	32	1600	2700	1500	2200	70
PAC 104 S-C	113	37	47	3000	3300	1850	2300	76
PAC 104 L-C	147	45	48	3050	3300	1850	2300	77
PAC 106 S-C	170	55	49	3250	3300	1850	2300	78
PAC 104 E-C	183	55	50	3200	3300	1850	2300	77
PAC 106 L-C	220	75	51	3450	3300	1850	2300	79
PAC 108 S-C	227	75	52	3550	3300	1850	2300	79
PAC 106 E-C	279	90	56	3600	3300	1850	2300	79
PAC 108 L-C	294	90	55	3650	3300	1850	2300	80
PAC 112 S-C	340	110	68	4400	4130	1850	2450	80
PAC 108 E-C	371	110	74	4100	3600	1850	2450	80
PAC 112 L-C	441	132	74	4600	4130	1850	2450	81
PAC 116 S-C	453	160	74	5150	4130	1850	2450	81
PAC 112 E-C	557	160	83	5050	4130	1850	2450	81
PAC 116 L-C	588	200	80	5400	4130	1850	2450	82
PAC 116 E-C	743	250	132	6000	4550	2000	2600	83

Condenser: water inlet 25°C, outlet 30°C – Motor: 3 x 400V, 50 Hz, 1460 rpm – The above data are only valid for the stated temperatures and operating conditions. Capacities are nominal. C = Temperature below 0°C

1) Sound pressure levels in free field. All sound measuring has been carried out according to ISO 9614-2 at a distance of 1 m.

Chillers with screw compressors

PAC (Water chillers)



Significant advantages

Sabroe PAC chiller designs feature the following advantages

- The standard Sabroe PAC chiller range is factory-assembled, based on world-renowned screw compressor products.
- Sole use of natural ammonia (R717) as refrigerant.
- The Sabroe PAC chiller design is based on the flooded evaporator system, which is a relatively simple construction.
- All Sabroe chiller units are operationally tested with refrigerant at the specialist End Of Line (EOL) Test Centre before dispatch. A capacity test is also available as an option.

Customer benefits

Sabroe PAC chiller designs provide customers with the following benefits

- ▶ Full advantage of well-tested Sabroe standard solutions that feature top-quality industrial components. This improves safety, ensures maximum reliability and provides easy access to service and parts worldwide.
- ▶ Ammonia has the highest COP (coefficient of performance) available for chillers. It is also the most environmentally friendly and future compatible refrigerant currently available.
- ▶ The most reliable operation with maximum energy efficiency and a very low operating cost.
- ▶ Factory testing ensures trouble-free on-site start-up and operation as soon as the refrigerant charge has been added and water and electricity connections made. Shorter, safer start-up and commissioning periods reduce overall costs significantly.

Water: inlet 12°C, outlet 7°C

Type	Capacity kW	E-motor kW	R717 charge kg	Operational weight kg	Dimensions			Sound level ²⁾ dB(A)
					L mm	W mm	H mm	
PAC 120 S-A	197	55	38	4000	4310	1870	2260	82
PAC 120 M-A	254	75	40	4150	4310	1870	2260	83
PAC 120 L-A	326	75	50	4550	4310	1870	2260	84
PAC 120 E-A	441	110	54	4800	4560	1870	2360	86
PAC 151 S-A	496	132	55	5600	3800	2070	2360	88
PAC 151 M-A	600	132	59	5700	5700	2070	2360	89
PAC 128 HR-A ¹⁾	669	160	73	4550	4200	2050	2450	82
PAC 151 L-A	761	200	75	6200	3940	2090	2450	89
PAC 193 S-A	885	200	81	6400	4600	2350	2450	82
PAC 151 E-A	921	200	80	6350	4600	2090	2450	90
PAC 193 L-A	1180	250	91	7000	5300	2350	2450	82
PAC 163 HR-A ¹⁾	1437	315	172	8500	5200	2350	3200	82
PAC 233 S-A	1595	355	169	11500	5500	2900	3200	83
PAC 233 L-A	2009	400	184	12500	6700	3000	3200	83
PAC 233 E-A	2481	500	211	15200	6700	3050	3400	84
PAC 283 S-A	2859	630	230	17000	7500	3400	3400	85
NSPAC 283 L-A	3596	800	350	20500	7300	3700	4500	83
NSPAC 283 E-A	4367	900	391	25500	8500	3700	4700	83
NSPAC 355 S-A	4516	1000	410	28000	8500	4000	4700	83
NSPAC 283 X-A	4939	1000	450	30000	9100	4000	4700	83
NSPAC 355 L-A	6180	1250	700	40000	10000	4000	6000	83

Condenser: water inlet 30°C, outlet 35°C - Motor: 3 x 400V, 50 Hz, 2960 rpm - The above data are only valid for the stated temperatures and operating conditions.

Capacities are nominal. A = Outlet temperature above 0°C

1) at 6000 rpm - 2) Sound pressure levels in free field. All sound measuring has been carried out according to ISO 9614-2 at a distance of 1 m.

Chillers with screw compressors

PAC (Ethylene glycol chillers)



Significant advantages

Sabroe PAC chiller designs feature the following advantages

- The standard Sabroe PAC chiller range is factory-assembled, based on world-renowned screw compressor products.
- Sole use of natural ammonia (R717) as refrigerant.
- The Sabroe PAC chiller design is based on the flooded evaporator system, which is a relatively simple construction.
- All Sabroe chiller units are operationally tested with refrigerant at the specialist End Of Line (EOL) Test Centre before dispatch. A capacity test is also available as an option.

Customer benefits

Sabroe PAC chiller designs provide customers with the following benefits

- ▶ Full advantage of well-tested Sabroe standard solutions that feature top-quality industrial components. This improves safety, ensures maximum reliability and provides easy access to service and parts worldwide.
- ▶ Ammonia has the highest COP (coefficient of performance) available for chillers. It is also the most environmentally friendly and future compatible refrigerant currently available.
- ▶ The most reliable operation with maximum energy efficiency and a very low operating cost.
- ▶ Factory testing ensures trouble-free on-site start-up and operation as soon as the refrigerant charge has been added and water and electricity connections made. Shorter, safer start-up and commissioning periods reduce overall costs significantly.

Ethylene glycol 30%: inlet -4°C, outlet -8°C

Type	Capacity kW	E-motor kW	R717 charge kg	Operational weight kg	Dimensions			Sound level ²⁾ dB(A)
					L mm	W mm	H mm	
PAC 120 S-C	109	55	38	4000	4310	1870	2260	82
PAC 120 M-C	141	75	39	4150	4310	1870	2260	83
PAC 120 L-C	180	75	49	4500	4310	1870	2360	84
PAC 120 E-C	243	110	53	4700	4310	1870	2360	86
PAC 151 S-C	275	110	54	5550	3940	2070	2360	88
PAC 151 M-C	333	132	57	5600	3940	2070	2360	89
PAC 128 HR-C ¹⁾	377	132	72	4450	4000	2050	2450	84
PAC 151 L-C	422	160	73	6100	3940	2090	2450	89
PAC 193 S-C	489	200	78	6250	4600	2350	2450	82
PAC 151 E-C	512	200	77	6200	4290	2090	2450	90
PAC 193 L-C	653	250	87	6750	5000	2350	2450	82
PAC 163 HR-C ¹⁾	798	315	89	8800	5440	2080	2450	84
PAC 233 S-C	880	315	161	11250	5200	2750	3200	84
PAC 233 L-C	1103	400	175	12100	5800	2750	3200	84
PAC 233 E-C	1373	500	198	14700	6500	2800	3400	84
PAC 283 S-C	1597	560	211	16350	6700	3150	3400	86
PAC 283 L-C	1995	710	230	19000	7100	3700	3400	88
NSPAC 283 E-C	2412	900	374	24500	7300	3700	4500	84
NSPAC 355 S-C	2525	900	380	26000	8000	4000	4700	84
NSPAC 283 X-C	2752	1000	400	28000	8500	4000	4700	84
NSPAC 355 L-C	3418	1200	600	38000	9500	4000	6000	84

Condenser: water inlet 30°C, outlet 35°C - Motor: 3 x 400V, 50 Hz, 2960 rpm - The above data are only valid for the stated temperatures and operating conditions. Capacities are nominal. C = Outlet temperature below 0°C

1) at 6000 rpm - 2) Sound pressure levels in free field. All sound measuring has been carried out according to ISO 9614-2 at a distance of 1 m.

Chillers for R410A

PLCH

(Water chillers)



Significant advantages

Sabroe PLCH chiller designs feature the following advantages

- The standard PLCH chiller range is factory-assembled and based on world-renowned reciprocating compressor products developed and optimised by Sabroe. The range includes both small/medium CMO/SMC compressors and special high-pressure models (HPO/HPC) that operate at up to 40 bar.
- The Sabroe PLCH chiller range uses R410A, the most environmentally acceptable HFC refrigerant currently available.
- Use of the thermodynamically efficient, high-pressure R410A requires a smaller refrigerant charge. For any given compressor displacement, R410A has a capacity about 1.5 times greater than R22, and between 1.7 and 2.3 times greater than that of other commonly used HFCs.
- All Sabroe chiller units are operationally tested with refrigerant at the specialist End Of Line (EOL) Test Centre before dispatch. A capacity test is also available as an option.

Customer benefits

Sabroe PLCH chiller designs provide customers with the following benefits

- Full advantage of well-tested Sabroe standard solutions that feature top-quality industrial components. This improves safety, ensures maximum reliability and provides easy access to service and parts worldwide.
- Use of R410A reduces environmental impact and also boosts safety because it is non-toxic.
- A very high COP (coefficient of performance) only requires a smaller charge. The compressor, heat exchangers, piping and base frame are therefore all significantly smaller and less expensive. This compactness results in both space savings and lower installation costs.
- Factory testing ensures trouble-free on-site start-up and operation as soon as the refrigerant charge has been added and water and electricity connections made. Shorter, safer start-up and commissioning periods reduce overall costs significantly.

Water: inlet 12°C, outlet 6°C

Type	Capacity kW	E-motor kW	R410A charge kg	Dry weight kg	Dimensions			Sound level ¹⁾ dB(A)
					L m	W m	H m	
PLCH24-A	117	30	32	1650	2.5	1.3	1.8	71
PLCH26-A	176	45	32	1800	2.5	1.3	1.8	73
PLCH24-A-T	221	2 x 30	39	2500	3.9	1.6	1.9	73
PLCH28-A	232	55	47	2050	2.6	1.4	1.8	74
PLCH104-A	286	75	63	2900	3.6	1.5	2.1	78
PLCH26-A-T	350	2 x 45	68	3300	3.9	1.6	1.9	72
PLCH106-A	424	110	79	3800	3.7	1.6	2.1	80
PLCH28-A-T	474	2 x 55	99	3800	3.9	1.6	1.9	77
PLCH104-A-T	565	2 x 75	95	4900	5.0	1.8	2.2	79
PLCH108-A	566	132	95	4200	3.7	1.6	2.1	81
PLCH106-A-T	847	2 x 110	170	7100	5.0	1.8	2.2	80
PLCH108-A-T	1061	2 x 132	170	7400	5.0	1.8	2.2	81

Condenser: water inlet 25°C, outlet 30°C - Motor: 3 x 400V, 50 Hz, 1450 rpm -

The above data are only valid for the stated temperatures and operating conditions.

Capacities are nominal. A = Temperature above 0°C - T = Twin

1) Sound pressure levels in free field. All sound measuring has been carried out according to ISO 9614-2 at a distance of 1 m.

Chillers for R410A

PLCH

(Ethylene glycol chillers)



Significant advantages

Sabroe PLCH chiller designs feature the following advantages

- The standard PLCH chiller range is factory-assembled and based on world-renowned reciprocating compressor products developed and optimised by Sabroe. The range includes both small/medium CMO/SMC compressors and special high-pressure models (HPO/HPC) that operate at up to 40 bar.
- The Sabroe PLCH chiller range uses R410A, the most environmentally acceptable HFC refrigerant currently available.
- Use of the thermodynamically efficient, high-pressure R410A requires a smaller refrigerant charge. For any given compressor displacement, R410A has a capacity about 1.5 times greater than R22, and between 1.7 and 2.3 times greater than that of other commonly used HFCs.
- All Sabroe chiller units are operationally tested with refrigerant at the specialist End Of Line (EOL) Test Centre before dispatch. A capacity test is also available as an option.

Customer benefits

Sabroe PLCH chiller designs provide customers with the following benefits

- Full advantage of well-tested Sabroe standard solutions that feature top-quality industrial components. This improves safety, ensures maximum reliability and provides easy access to service and parts worldwide.
- Use of R410A reduces environmental impact and also boosts safety because it is non-toxic.
- A very high COP (coefficient of performance) only requires a smaller charge. The compressor, heat exchangers, piping and base frame are therefore all significantly smaller and less expensive. This compactness results in both space savings and lower installation costs.
- Factory testing ensures trouble-free on-site start-up and operation as soon as the refrigerant charge has been added and water and electricity connections made. Shorter, safer start-up and commissioning periods reduce overall costs significantly.

Ethylene glycol 30%: inlet -4°C, outlet -8°C

Type	Capacity kW	E-motor kW	R410 charge kg	Dry weight kg	Dimensions			Sound level ¹⁾ dB(A)
					L m	W m	H m	
PLCH24-C	60	30	32	1550	2.5	1.3	1.8	71
PLCH26-C	90	45	32	1700	2.5	1.3	1.8	74
PLCH24-C-T	119	2 x 30	39	2400	3.9	1.6	1.9	73
PLCH28-C	118	55	47	1950	2.6	1.4	1.8	74
PLCH104-C	143	55	63	2800	3.6	1.5	2.1	78
PLCH26-C-T	179	2 x 37	68	3200	3.9	1.6	1.9	73
PLCH106-C	216	90	79	3550	3.6	1.5	2.1	79
PLCH28-C-T	236	2 x 55	99	3555	3.9	1.6	1.9	74
PLCH104-C-T	292	2 x 55	95	4650	5.0	1.8	2.2	77
PLCH108-C	283	110	95	3850	3.7	1.6	2.1	81
PLCH106-C-T	431	2 x 90	170	6560	5.0	1.8	2.2	78
PLCH108-C-T	569	2 x 110	170	6860	5.0	1.8	2.2	80

Condenser: water inlet 25°C, outlet 30°C – Motor: 3 x 400V, 50 Hz, 1450 rpm –

The above data are only valid for the stated temperatures and operating conditions.

Capacities are nominal. C = Temperature below 0°C – T = Twin

1) Sound pressure levels in free field. All sound measuring has been carried out according to ISO 9614-2 at a distance of 1 m.

Flake ice machines

Sabroe V/VD



Significant advantages

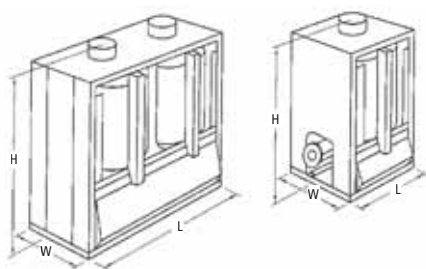
The advantages of the Sabroe V/VD flake ice machine design include

- ice produced on the outside of the drum.
- freezing drum surface based on a dual-layer coating (nickel and chromium).
- simple change of the ice removal knife makes it easy to change application.
- sturdy, compact design featuring freezing drum with built-in separator for connection to compressor or pump circulation system.
- drum rotation speed can be varied steplessly.
- flake ice production on a continuous basis.
- produces ice with a brittle consistency and large surface area.

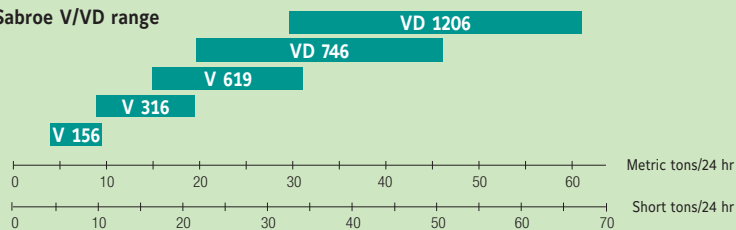
Customer benefits

For the customer, the benefits of the Sabroe V/VD flake ice machine design include

- easy to inspect ice production directly.
- very corrosion-resistant compared with other ice machines with only single-layer chromium coating. This results in long service life and low service costs.
- provides considerable versatility and easy shift between using fresh water and sea water, with installation both on land and for maritime applications.
- the small footprint saves space and makes it possible to use the machine in many different locations.
- easy to adjust ice thickness and consistency to comply with specific application and product requirements.
- no defrosting required. The ice is ready for immediate use, with no crushing required. The ice is also extremely durable when subcooled.
- the consistency and lack of sharp edges make the ice mix gently around the product and enclose it tightly, with a rapid, intensive cooling effect. The uniform consistency also makes it easy to store, handle and dose the ice by weight and volume, and to use it with a wide range of different products.



Sabroe V/VD range



Type		H	W	L	Motor(s)		Refrigerant charge				Connection size			Net weight	Shipping volume
		mm/in	mm/in	mm/in	Drum(s)	Pump(s)	R717	R22	R404A	R507	Suction	Liquid	Water	kg/lbs	m3/cu ft
V 156	Metric	1850	1145	1200	0.37	0.37	45	85	75	75	100	25	25	1100	3.9
V 156	British	72.6	45	47.2	0.5	0.5	99	187	165	165	4	1	1	2425	137
V 316	Metric	2500	1165	1200	0.37	0.37	90	180	160	160	100	25	25	1360	5.1
V 316	British	98.2	45.8	49.2	0.5	0.5	198	396	355	355	4	1	1	2998	180
V 619	Metric	3830	1265	1200	0.75	0.37	150	305	265	265	100	25	25	1900	7.7
V 619	British	142.6	49.8	47.2	1.0	0.5	330	671	590	590	4	1	1	4189	272
VD 746	Metric	2800	1210	1960	2 x 0.37	2 x 0.37	2 x 105	2 x 210	2 x 185	2 x 185	2 x 100	2 x 25	25	3350	8.9
VD 746	British	110.3	47.5	77.2	2 x 0.5	2 x 0.5	2 x 231	2 x 462	2 x 410	2 x 410	2 x 4	2 x 1	1	7385	314
VD 1206	Metric	3700	1280	1960	2 x 0.75	2 x 0.37	2 x 150	2 x 305	2 x 265	2 x 265	2 x 100	2 x 25	25	4400	12.1
VD 1206	British	145.8	50.3	77.2	2 x 1.0	2 x 0.5	2 x 330	2 x 671	2 x 590	2 x 590	2 x 4	2 x 1	1	9700	427

Control systems

Unisab III

Refrigeration systems controller - networks with your equipment



Electronic control systems for refrigeration compressors are now widely accepted as an integrated solution that brings considerable added value – as well as big reductions in operating costs – to any refrigeration system.

The Unisab III refrigeration systems controller, however, is the first of a new generation of extremely versatile control units that take the whole idea of connectivity between compressor equipment and remote monitoring and control units to a completely new level.

Significant advantages

Customer benefits

- | | |
|---|--|
| <ul style="list-style-type: none"> Compatible with virtually all types and makes of refrigeration compressor equipment currently available. Also compatible with previous-generation Unisab II controller units. | <ul style="list-style-type: none"> Makes sure that refrigeration installations have the best possible performance, maximum up-time and lowest possible operating costs. |
| <ul style="list-style-type: none"> Easy to integrate into the vast majority of industrial control systems, with no need for expensive additional equipment. | <ul style="list-style-type: none"> Seamless transfer of data between systems ensures effective monitoring, control and diagnostics. |
| <ul style="list-style-type: none"> One consistent control system for virtually all compressors, featuring an intuitive, easy-to-use interface. | <ul style="list-style-type: none"> Consistent "look and feel" for operating and monitoring equipment requires fewer operator skills, resulting in lower training costs. |
| <ul style="list-style-type: none"> Compressor sequencing and load sharing are possible without additional equipment. | <ul style="list-style-type: none"> Optimised, energy-saving operation of multiple compressors keeps power consumption to a minimum and reduces operating costs. |
| <ul style="list-style-type: none"> Monitoring, control and diagnostics capabilities combined in one compact, integrated design. | <ul style="list-style-type: none"> A single integrated control solution does away with the need for additional equipment, resulting in significant savings on installation costs. |

Technical data

Applications	Monitoring, control and diagnostics of reciprocating compressors, screw compressors and chillers
Connectivity	Multiple communication ports, including Ethernet, Profibus DP and Sequence Bus are available as standard (RS485 for optional protocols)
Sequencing	As many as 14 refrigeration compressors and chillers of different makes and types can be linked in sequence to ensure load sharing and capacity optimisation
Diagnostics	Detailed operating information about 30 shut-down situations can be captured and stored for subsequent analysis
Refrigerants	Includes data about all refrigerants normally used
Languages	Multiple languages are available as standard or options
Display	5.7-inch black-and-white VGA screen
Enclosure	IP54
Ambient temperature	0–55°C
Power supply	85–250 VAC, 50–60 Hz
Dimensions	H x W x D: 380 x 300 x 210 mm
Weight	6.5 kg

Control systems Sabvisual II

Supervisory control and data acquisition (SCADA)



The Sabroe Sabvisual II is a complete monitoring and data acquisition system that is linked directly to the Unisab II control system and to one or more PLC systems. Together, these provide a unique, highly economical tool for ensuring the easy, energy-conscious running and operation of refrigeration systems.

Significant advantages

Sabvisual provides highly advanced technology that is easy and straightforward to use. Advantages include

- complete SCADA (supervisory control and data acquisition) system prepared for the control and monitoring of refrigeration equipment
- scalable for low-end, intermediate and high-end refrigeration systems using an upgrade option
- purpose-designed system for use with Unisab II / Unisab III control systems and PLC systems
- suitable for new installations as well as the upgrade of existing refrigeration installations.

Customer benefits

The Sabvisual II monitoring and control system provides major operating benefits that include

- trend curves that provide an excellent overview of plant performance as a tool for adjusting performance and maximising energy savings
- immediate, easy-to-understand compressor and plant overview, making centralised operation straightforward and reliable
- full plant information that makes it possible to track irregularities immediately and easily using alarm and event logs
- access to plant information and alarms can be routed to remote locations for maximum staffing flexibility.

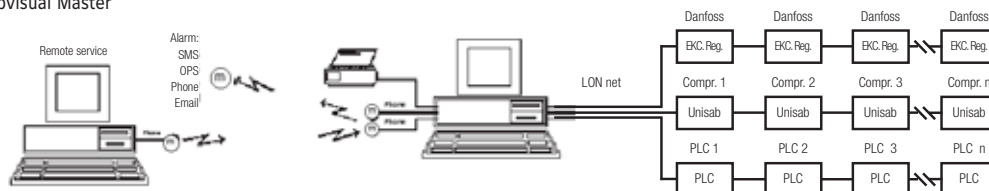
Sabvisual Basic



Sabvisual Light



Sabvisual Master



Control systems

Fixed-speed PAC

chiller automation concept



The Sabroe chiller automation concept means all Packaged Ammonia Chillers (PACs) can act as fully automated "plug-and-play" packages.

This important automation concept has been applied to all the electrical equipment on the Sabroe PAC chiller design, including the Unisab II / Unisab III controller and starter control panel, and to the electrical installation. Every package in the entire system is modular and can therefore be adapted to meet specific customer requests.

Significant advantages

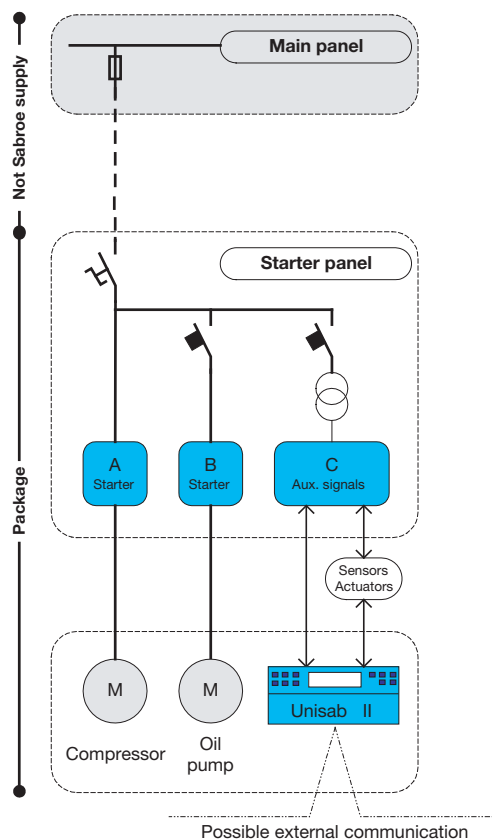
The Sabroe automation concept for PAC chillers uses highly advanced technology yet it is easy and straightforward to use. The advantages include

- considerable flexibility for use in many applications
- easy operation of a complex system
- optimum functionality
- a well-proven and tested control system
- exceptional reliability
- a comprehensive documentation package including documentation for FAT (factory acceptance test) testing.

Customer benefits

The Sabroe PAC chiller control system provides major operating benefits that include

- easy installation and start-up with low installation costs
- reduced risk because Sabroe is responsible for the electrical installation on the package, resulting in safe, reliable operation with a minimum of unintended downtime
- lower operating costs.



Control systems

Comsab



Comsab module

All Sabroe Unisab II units feature a communication interface as standard component. This allows the units to exchange data with each other as well as to communicate with third-party systems. This is crucial for the efficient control, monitoring and operation of refrigeration equipment and systems. To ensure that Unisab II can be integrated seamlessly into a wide range of industry-standard automation systems, Sabroe provides standard, ready-to-use communication interfaces.

The Comsab communication module and Sabcom communication software are available to ensure the problem-free exchange of information between Unisab II and third-party computers and control systems. The Comsab module is normally used for communication with PLC, BMS and similar systems.

Significant advantages

The advantages include

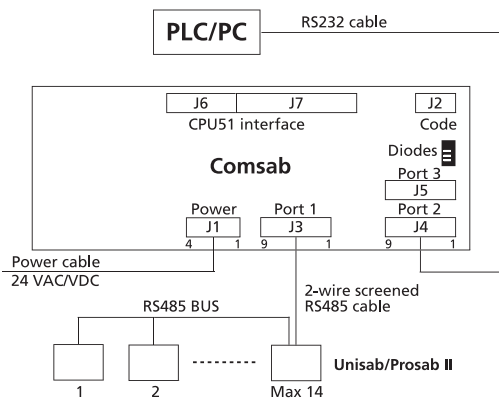
- easy to install
- no complicated set-up or configuration
- no maintenance or service needed
- easy to extend with additional Unisab II units.

Customer benefits

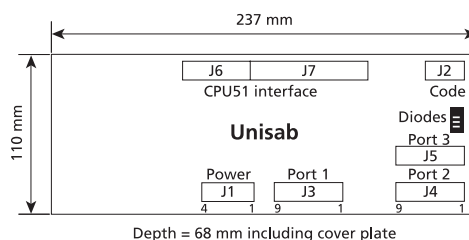
The customer benefits include

- very cost-competitive way to establish data exchange
- low installation costs
- system extension at low cost
- no maintenance or service costs involved.

Comsab installation



Dimensions



Control systems

Profibus for Unisab II control systems



Sabroe Profibus cards are designed to supplement the communication options currently available in the Unisab II range, including Comsab II. Profibus is a standard communication interface in Unisab II.

Significant advantages

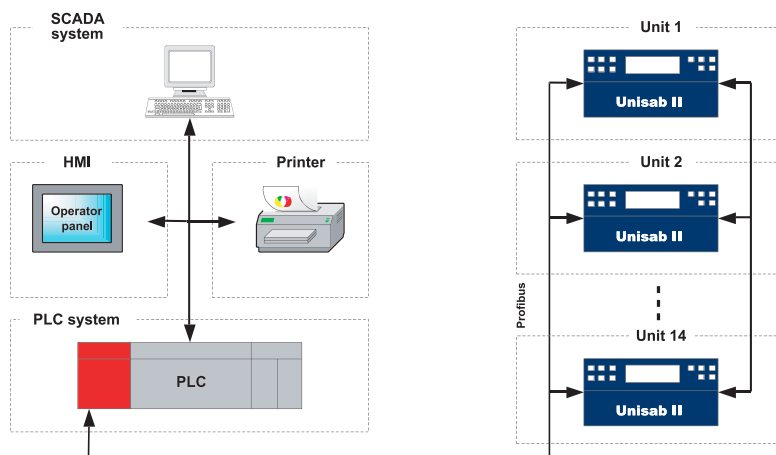
The Unisab II Profibus option uses advanced technology yet is easy and straightforward both to install and to use. The advantages include

- Unisab II is able to connect directly to most PLC systems
- easy installation and commissioning because no on-site configuration or set-up is required.
- two separate networks operate independently –for maximum safety– with data transfer via Profibus and compressor sequence control using a Danbus network interface.

Customer benefits

The Unisab II Profibus option is both powerful and very cost-effective. The customer benefits include

- direct control and monitoring of Unisab II for total plant integration and optimisation
- a complete Unisab II communication package.
- No additional costs except the communication cable
- cost savings because no time-consuming software testing is necessary, and operation is simple
- an easy upgrade path for existing Unisab II units, with no need for specialist staff. It only requires adding the Profibus card and connecting the unit to the network.



Control systems

Upgrading Unisab II

Advanced control system retrofit package for refrigeration compressors



With one easy ready-to-install upgrade package, it is now possible to update a compressor control system to monitor and control a large number of different refrigeration compressor types, using a Unisab control system specially developed for the efficient, reliable operation of reciprocating and screw compressors.

Retrofitting Sabroe Unisab II controllers improves the operation and control of a refrigeration plant in an efficient, user-friendly way that provides a substantial boost to a company's operational competitiveness.

Significant advantages

Retrofitting the Unisab II control system provides highly advanced technology that is easy and straightforward to use. Advantages include

- improved performance
- safe operation/reduced downtime
- effective compressor operation and sequencing
- completely flexible communication for integration with other systems.

Customer benefits

The Unisab II retrofit control system provides absolute reliability at no additional cost. The customer benefits include

- easy upgrade of compressors with a simple on/off control to take advantage of all the monitoring and control features provided by the Unisab II system
- more efficient use of energy due to optimised compressor sequencing
- remote compressor control options that make it possible to connect compressor control with the main plant control systems, for full integration and optimal operation
- remote monitoring and control from a central computer or connection to a PC for remote supervision via Sabvisual, with access to operation logs, event logs and trend curves
- plant is able to achieve its full operational potential and reduced downtime boosts production.

Compressors	Control of screw and reciprocating compressors as well as combinations of both types
Refrigerants	All refrigerants normally used
Display	LCD display with 4 lines of 20 characters each
Read-out values	5 on each screen
Communication	RS 485 interface. Communication speed at 19,200 Baud
Diagnostic functions	Storage/analysis of up to 30 alarms
External control	Possible via 4–20 mA or via external communication
Vi regulation	0–100%
Configuration check	Possible during operation
Sequential operation	Unisab II controls and monitors virtually any combination of up to 14 screw and reciprocating compressors through the built-in Multisab program
Emergency stop	Included
Dimensions	Cabinet 450 x 210 x 130 mm
Voltage	24/115/230 V AC
Retrofit	Unisab II can easily be fitted onto most existing compressors. Unisab II also communicates with previous Unisab and Prosab II systems
Factory test	A computer test is performed on all Unisab II units and a test certificate is issued

Control systems

Condensing pressure optimiser for R717



Many R717 refrigeration systems that feature an evaporative condenser are operated using a fixed set point, in order to maintain a constant condensing pressure. From an energy consumption point of view, this is rarely ideal, as the energy consumption of the compressors typically increases by 3% for every °C the condensing pressure increases.

There is no benefit in maintaining the condensing pressure at the minimum level possible, as this also requires energy, and may be undesirable as regards efficient operation of the refrigeration plant. The condensing pressure can now be optimised using a small Sabroe CP Optimiser control unit that constantly calculates the ideal condensing pressure and converts it to a 4–20 mA/0–10 VDC signal for use by the condenser control.

Significant advantages

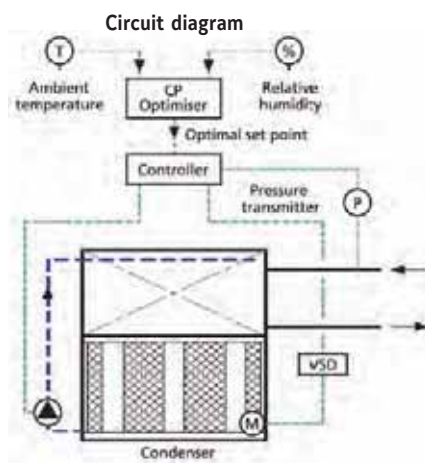
The advantages of installing the Sabroe CP Optimiser unit include

- easy to install, no special requirements for mounting.
- the output signal can be connected directly to a PLC or a frequency converter.
- no programming or complicated set-up.
- no special operator skills required.

Customer benefits

Customer benefits include

- optimisation of condensing pressure.
- potential for considerable savings on operating costs.
- automatic, maintenance-free system.
- no need for comprehensive integration into plant control systems.



Supply voltage	24 VDC
Power consumption transmitter	Max. 80 mA excl. heater element
Power consumption heater element	Max. 100 mA, separate supply
Inputs	Temperature 4–20 mA/0–50°C Relative humidity 4–20 mA/0–100% RH
Outputs	Set point signal (bar) 4–20 mA or Set point signal (bar) 0–10 VDC or Set point signal (°C saturated) 4–20 mA or Set point signal (°C saturated) 0–10 VDC
Dip switch block no. 1	Output signal setting (bar or °C saturated)
Dip switch block no. 2	Output signal type
Dimensions	L x W x D = 115 x 90 x 55 mm
Cable connections	4 x PG7

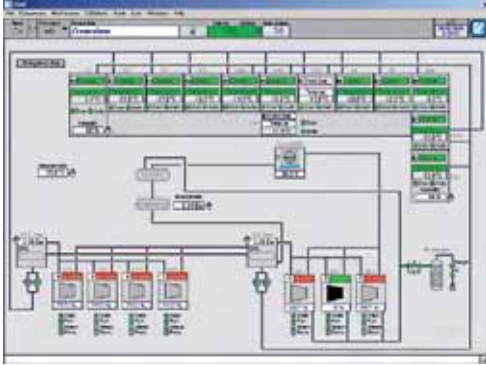
Temperature and relative humidity sensors are not included with the Sabroe CP Optimiser, but are available as optional extra equipment. Controller (PLC) not included.

Control systems

ISAC

(Integrated Standard Application Concept)

Control and management of refrigeration systems



Significant advantages

The ISAC concept features the following advantages

- Complete SCADA refrigeration plant control system in one compact, integrated design.
- Can be used for almost any refrigeration application, featuring standardised icons and the same interface.
- Plant information can be routed to remote locations as required, for maximum staffing flexibility.
- Password-protected monitoring and logging of all operating data, with continuous generation of trend curves.
- Automatic generation of documentation about running conditions.

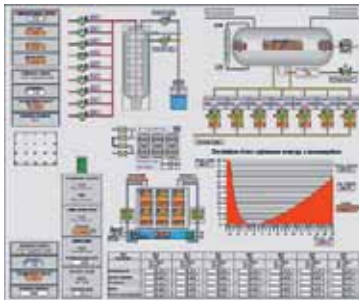
Customer benefits

The ISAC concept provides customers with the following benefits

- Easy to understand, and makes centralised operation easy and straightforward.
- No special operator skills required, which cuts down on training costs.
- Reduced need for on-site manual surveillance, which releases manpower for other purposes.
- Plant operations can be constantly analysed and predicted, paving the way to optimisation that boosts performance and cuts costs.
- Meets all traceability and documentation requirements from relevant authorities.

Graphics

ISAC provides a wide range of standard graphic items and modules.



ISAC Toolbox

ISAC provides a wide range of different tools that make configuration of the control system an easy process.



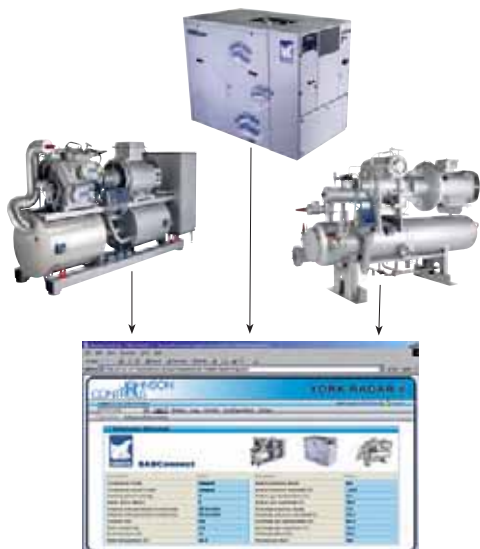
Standard compressor interface

The standard Sabvisual II compressor interface is an integrated part of the ISAC software package.



Control systems

Web-enable your refrigeration equipment



A SABConnect screen

The SABConnect is a complete, web-based remote monitoring system supplied as one single plug-in package, ready to be linked up to virtually any refrigeration compressor that is fitted with the Unisab compressor controller.

Significant advantages

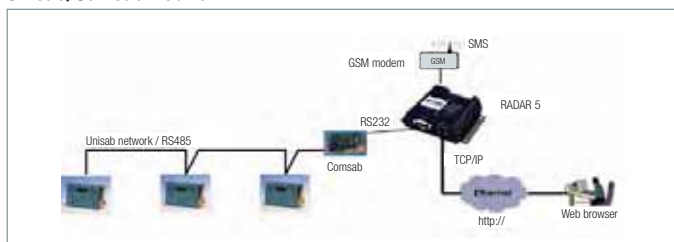
- Ready-made standard remote or local monitoring system with pre-engineered screens that can be installed straight into any refrigeration compressor/Unisab application.
- Provides a complete overview, featuring event/alarm logs and trending of all the compressors linked to the system. Notification about any operating irregularities can be sent by e-mail and/or SMS notification, depending on the type of network connection.
- Designed as an easy-to-operate system that is pre-configured specifically for either 1, 3 or 6 refrigeration packages, including chillers.
- Can be used with both new and existing installations that feature any type of refrigeration compressor equipped with the Unisab controller.
- Extensive server storage capacity can be made available (optional) for compressor operating data with analysis and statistics to improve compressor plant performance and reduce operating costs.

Customer benefits

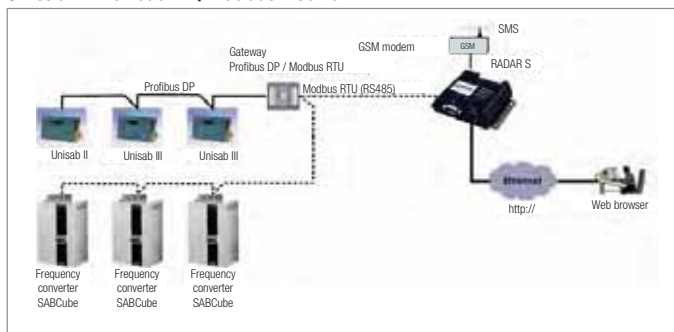
- Does away with costly, time-consuming on-site installation work. The only connections needed are a link to the Unisab network via the Internet or an analogue or GSM modem.
- The information available in the screens and in data storage make SABConnect an effective tool for ensuring maximum compressor up-time. The historic data displayed as trend curves provides the data necessary to achieve rapid diagnostics, improved performance and reduced energy consumption.
- The 1- and 3-compressor software packages are easy to upgrade via downloads from the Internet or from a local PC. This ensures an extremely cost-effective upgrade path, with no need for add-ons or equipment replacements.
- It provides an easy, direct way to achieve comprehensive mapping and documentation of an existing compressor set-up as a basis for improving its performance.
- Server connections provide access to extended logs, statistics for operating data, calculation, trending and compressor operation analysis. This paves the way to system optimisation and better compressor performance.

Configurations

Unisab/Comsab network



Unisab - Profibus DP/Modbus network



Ambient temperature	0-55°C
Power supply	100-240VAC/50-60Hz
Humidity	10-90% RH
Enclosure	IP65
Panel size	H x W x D = 400 x 400 x 200 mm
Weight	12 kg

Gas detection systems

Unisafe II ammonia detection equipment



Stand-alone ammonia detector with remote sensor

Significant advantages

- The Sabroe product range is extremely comprehensive and is backed by the requisite know-how and experience.
- Available in a wide range of preset configurations and easy to adjust to specific plant requirements and to individual detection profile requirements.
- Basic product design for reliable function and easy maintenance.
- Early detection of gas leakage.

Customer benefits

- ▶ Best product and best price/performance is available for every situation.
- ▶ Low installation and commissioning costs.
- ▶ Long service life, low maintenance cost and easy troubleshooting.
- ▶ Compliance with safety requirements as well as both national and international rules and regulations.

Technical information

Special Sabroe Unisafe II ammonia detection equipment makes it possible to detect even small leakages so that the appropriate action and remedial measures can be taken at an early stage.

Sabroe Unisafe II ammonia detection equipment consists of a wide range of detectors and monitoring units. These in turn employ a range of different sensor technologies, including

- semi-conductive/chemosorption.
- electrochemical.
- catalytic.
- infrared absorption.

Sabroe provides ammonia detection equipment that covers the whole spectrum of requirements. It can be installed as stand-alone units, connected to a Sabroe monitoring unit, or to any other appropriate control and surveillance system.



Example of a Unisafe ammonia application

Gas detection systems

Unisafe II HFC/HCFC
detection equipment

Stand-alone detector
for tough environment

Significant
advantages

- The Sabroe product range is extremely comprehensive and is backed by the requisite know-how and experience.
- Available in a wide range of preset configurations and easy to adjust to specific plant requirements and to individual detection profile requirements.
- Basic product design for reliable function and easy maintenance.
- Early detection of any leakage provides an alarm long before any major alteration in temperature.

Customer
benefits

- ▶ Best product and best price/performance is available for every situation.
- ▶ Low installation and commissioning costs.
- ▶ Long service life, low maintenance cost and easy troubleshooting.
- ▶ Avoids any risk of spoiled goods and need for new refrigerant charge, thus saving money.

Technical information

Special Sabroe Unisafe II HFC/HCFC detection equipment makes it possible to detect even small leakages so that the appropriate action and remedial measures can be taken at an early stage.

Sabroe Unisafe II HFC/HCFC detection equipment consists of a wide range of detectors and monitoring units. These in turn employ a range of different sensor technologies, including

- semi-conductive/chemosorption
- infrared absorption.

Sabroe provides HFC/HCFC detection equipment that covers the whole spectrum of requirements. It can be installed as stand-alone units, connected to a Sabroe monitoring unit, or to any other appropriate control and surveillance system.



Example of a Unisafe HFC/HCFC application

Gas detection systems

Unisafe II propane detection equipment



ATEX-approved detector
for combustible and
flammable gases

Significant advantages

- The Sabroe product range is extremely comprehensive and is backed by the requisite know-how and experience.
- Available in a wide range of preset configurations and easy to adjust to specific plant requirements and to individual detection profile requirements.
- Basic product design for reliable function and easy maintenance.
- Early detection of any leakage provides an alarm long before any risk of explosion arises.

Customer benefits

- ▶ Best product and best price/performance is available for every situation.
- ▶ Low installation and commissioning costs.
- ▶ Long service life, low maintenance cost and easy troubleshooting.
- ▶ Reduced risk of damage to material assets and property. Improved safety.

Technical information

Sabroe Unisafe II propane detection equipment consists of a range of detectors and monitoring units. These in turn employ a range of different sensor technologies, including

- semi-conductive/chemosorption
- electrochemical
- catalytic
- infrared absorption.

Because propane is both flammable and explosive, Unisafe II propane detection units are often specified for use in ATEX-classified environments. Specific Unisafe II units are available for areas with all different ATEX classifications.



Example of a Unisafe propane application

Replacement HVAC&R Parts from Johnson Controls

Access to fast, reliable and economic sourcing and supply of spare parts is vital to the smooth operation of your business and key to maintaining your customer relationships. At some point in the life of an air conditioning or refrigeration component or system, a replacement spare part or additional supplies will be required, often urgently. Understanding this need makes the Johnson Controls Parts Centres your ideal spares partner.

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This extensive portfolio is continually updated and restocked to ensure we have the right part at the right time to meet customers' needs.

Our unparalleled global network enables us to source spares quickly, and at highly competitive prices.



Online information

Identifying and selecting parts is made easy thanks to the Johnson Controls parts website www.allparts.eu

Once registered, you can gain online access to detailed parts information, stock availability, kits, tools and the knowledge base.

Johnson Controls European Parts Centres

Our specialist parts centres can be contacted either online at www.allparts.eu or at the following addresses:

Johnson Controls HVAC Parts Centre
Mayne House, Fenton Way
Basildon, Essex, SS15 6RZ, England
Tel: +44 (0)1268 246400

Johnson Controls Refrigeration Parts Centre
Christian X's Vej 201,
8270 Højbjerg, Denmark
Tel: +45 87 36 70 00

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In addition to original manufacturer's spare components and accessories, Johnson Controls European Parts Centres also offer any generic part; tool or consumable that you require, plus technical manuals and online parts identification assistance. We also offer service sets and kits that include all the parts necessary for any kind of service job. The sets and kits make it easy and quick to select and quote complex service contracts by reducing time spent on researching, identifying and ordering many individual parts for each job.



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