YORK®	PACKAGED ROOFTOP AIR CONDITIONING UNITS	
QUICK START-UP GUIDE	New Release	Form 100.50-SU3 (1207)

035-21972-200

eco2™

Packaged Rooftop Air Conditioning Units

YPAL 050
YPAL 051
YPAL 060
YPAL 061
DESIGN LEVEL F
SIMPLICITY CONTROL

LD13271

ASHRAE 90.1 COMPLIANT

U.S. GREEN BUILDING COUNCIL MEMBER

EPA Energy BUILDINGS ALLY

IMPORTANT!
READ BEFORE PROCEEDING!
GENERAL SAFETY GUIDELINES

This equipment is a relatively complicated apparatus. During installation, operation, maintenance or service, individuals may be exposed to certain components or conditions including, but not limited to: refrigerants, oils, materials under pressure, rotating components, and both high and low voltage. Each of these items has the potential, if misused or handled improperly, to cause bodily injury or death. It is the obligation and responsibility of operating/service personnel to identify and recognize these inherent hazards, protect themselves, and proceed safely in completing their tasks. Failure to comply with any of these requirements could result in serious damage to the equipment and the property in which it is situated, as well as severe personal injury or death to themselves and people at the site.

This document is intended for use by owner-authorized operating/service personnel. It is expected that this individual possesses independent training that will enable them to perform their assigned tasks properly and safely. It is essential that, prior to performing any task on this equipment, this individual will have read and understood this document and any referenced materials. This individual will also be familiar with and comply with all applicable governmental standards and regulations pertaining to the task in question.

SAFETY SYMBOLS

The following symbols are used in this document to alert the reader to areas of potential hazard:

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

CAUTION identifies a hazard which could lead to damage to the machine, damage to other equipment and/or environmental pollution. Usually an instruction will be given, together with a brief explanation.

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

NOTE is used to highlight additional information which may be helpful to you.

External wiring, unless specified as an optional connection in the manufacturer's product line, is not to be connected inside the micro panel cabinet. Devices such as relays, switches, transducers and controls may not be installed inside the micro panel. No external wiring is allowed to be run through the micro panel. All wiring must be in accordance with JOHNSON CONTROL's published specifications and must be performed only by qualified JOHNSON CONTROL personnel. JOHNSON CONTROL will not be responsible for damages/problems resulting from improper connections to the controls or application of improper control signals. Failure to follow this will void the manufacturer's warranty and cause serious damage to property or injury to persons.

CHANGEABILITY OF THIS DOCUMENT

In complying with JOHNSON CONTROL's policy for continuous product improvement, the information contained in this document is subject to change without notice. While JOHNSON CONTROL makes no commitment to update or provide current information automatically to the manual owner, that information, if applicable, can be obtained by contacting the nearest JOHNSON CONTROL Applied Systems Service office.

It is the responsibility of operating/service personnel to verify the applicability of these documents to the equipment in question. If there is any question in the mind of operating/service personnel as to the applicability of these documents, then prior to working on the equipment, they should verify with the owner whether the equipment has been modified and if current literature is available.

NOMENCLATURE

BASE MODEL NUMBER

Base Model Number
YPAL050-061

1 Base	2 Product	3	4 Type		5	6	7	
Y				:YORK	0	5	0	:50 Ton Capacity
	P			:Packaged Rooftop	0	5	1	:50 Ton Capacity
		A		:Air Cooled	0	6	0	:60 Ton Capacity
			L	:Scroll	0	6	1	:65 Ton Capacity

8 Application	9	10 Refrigerant
C :Cooling Only	C :Constant Volume	B :R-407C
N :Staged Natural Gas Heat	V :VAV, VFD	C :R-22
G :Staged Natural Gas Heat SS HX	F :Flexsys	E :R-410A
M :Full Modulating Gas Heat		
F :Full Modulating Gas Heat SS Staged HX		
E :Electric Heat		
H :Hot Water Heat		
S :Steam Heat		

11	12	
2	5	:208/3/60
		:230/3/60
4	6	:460/3/60
5	8	:575/3/60
4	0	:380/3/60
4	5	:400/3/50

13 Supply Openings	14 Return Openings	15 Design	16 Special
L :Left Supply	B :Bottom Return	F :Revision Level F	X :Standard
R :Right Supply	R :Rear Return		S :Special
	S :Side Return		A :Standard
			B :Standard

LD12725A

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QUICK START GUIDE – YPAL UNITS

This quick-start guide indicates required field wiring, miscellaneous connections, and minimum programming to provide proper unit operation. This guide does not include required basic installation practices discussed in the Installation, Operation, and Maintenance manual (Form 100.50-NOM6, 50 - 61 Ton, Mod F). The IOM should be reviewed to ensure all proper procedures and safety precautions are followed when installing this equipment.

In addition, any system alarms indicated by the User Interface should be diagnosed as referenced in the Installation, Operation, and Maintenance manual - refer to the Fault Description Table, located in the Service section of that manual.

This Quick Start-up Guide is indexed according to unit type and options. Units are categorized as either Constant Volume by type of control (thermostat, zone sensor, or communicated zone sensor); Variable Air Volume (VAV) by type of supply air reset (hard wired, outdoor air temperature, return air temperature, or supply fan speed); or FlexSys. Refer to applicable section for required field wiring, miscellaneous connections, and programming.

References to "Programming" indicates the setpoints that should be programmed/verified, under the respective key on the User Interface keypad (Setpoint, Program Options, Date/Time, and Schedule Keys).

Unit options should be programmed based on the unit configuration as supplied by the factory.

Refer to Appendix 1 for Installation and Programming information before using this quick-start guide.

Appendix 2 outlines the sequence of operation of the Factory Run Test feature of the control. The unit software, as shipped from the factory, contains the Factory Run Test program. The Factory Run Test feature is used by the factory to verify proper operation of the unit. However, this feature can also be used in the field during start up. By running the program you can easily determine that all the key electrical components of the unit are working properly. See Appendix 2 for directions on how to turn on the Factory Run Test feature as well as a description of the operation of the test sequence.

* FlexSys VAV is YORK's VAV Underfloor Air Unit.

ALL UNITS

OCCUPIED / UNOCCUPIED – HARD WIRED

Field Wiring

Field supplied contacts connected to terminals "R" and "OCC" on the Simplicity control board.

Closure of the contact places the unit in the occupied mode.

The 24 VAC switch voltage must be sourced from terminal "R" on the Simplicity control board.

Misc. Connections

No additional connections required.

OCCUPIED / UNOCCUPIED – INTERNAL TIME CLOCK

Field Wiring

No connection between terminals "R" and "OCC" on the Simplicity control board.

Misc. Connections

No additional connections required.

Programming

The weekly schedule can be programmed using the WEEKLY SCHEDULE SETTINGS tab in the Simplicity PC software package.

OCCUPIED / UNOCCUPIED – BAS SYSTEM

Field Wiring

No connection between terminals "R" and "OCC" on the Simplicity control board.

Connect the communication wires to the RS-485 terminal block on the Simplicity control board.

Misc. Connections

No additional connections required.

Programming

"OCCUPIED INPUT ENABLE" must be enabled using Parameter 71 under the PROGRAM key on the Simplicity control board or under the SYSTEMS OPTIONS tab in the Simplicity PC software package.

OCCUPIED / UNOCCUPIED – SPACE SENSOR OVERRIDE BUTTON

No connection between terminals "R" and "OCC" on the Simplicity control board.

A space sensor with an Unoccupied Override Button must be connected ST and GND of the P8 connector on the Simplicity control board.

Misc. Connections

No additional connections required.

Programming

"UNOCCUPIED OVERRIDE TIME" must be programmed using Parameter 9 under the PROGRAM key on the Simplicity control board or under the SYSTEMS OPTION tab in the Simplicity PC software package.

CONSTANT VOLUME UNITS

THERMOSTAT CONTROL – COOLING

Field Wiring

Connect the thermostat wiring to the field wiring screw connections on the Unit Controller *(see Appendix 1)*.

Misc. Connections

No additional connections required.

Programming

"COOLING MODE OPERATION ENABLED" – Must be set to ON using Parameter 53 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package.

"CV OCCUPIED COOLING SETPOINT" – Must be set using Parameter 10 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package. For thermostat operation this should be set to 99.0º F.

"CV UNOCCUPIED COOLING SETPOINT" – Must be set using Parameter 12 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package. For thermostat operation this should be set to 99.0º F.

THERMOSTAT CONTROL – HEATING

Field Wiring

Connect the thermostat wiring to the field wiring screw connections on the Unit Controller *(see Appendix 1)*.

Misc. Connections

No additional connections required.

Programming

"HEATING MODE OPERATION ENABLED" – Must be set to ON using Parameter 54 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package.

"CV OCCUPIED HEATING SETPOINT" – Must be set using Parameter 11 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package. For thermostat operation this should be set to 45.0º F.

"CV UNOCCUPIED HEATING SETPOINT" – Must be set using Parameter 13 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package. For thermostat operation this should be set to 45.0º F.

"STAGES OF HEATING AVAILABLE" - Must be set using Parameter 81 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package.

HARDWIRED OR COMMUNICATED SPACE SENSOR CONTROL – COOLING

Field Wiring

Connect the space sensor wiring to the field wiring screw connections on the Unit Controller *(see Appendix 1)*.

Misc. Connections

No additional connections required.

Programming

"COOLING MODE OPERATION ENABLED" – Must be set to ON using Parameter 53 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package.

"CV OCCUPIED COOLING SETPOINT" – Must be set using Parameter 10 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package. Settable between 45.0º F and 99.0º F. The default value is 72.0º F.

"CV UNOCCUPIED COOLING SETPOINT" – Must be set using Parameter 12 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package. Settable between 45.0º F and 99.0º F. The default value is 85.0º F.

HARDWIRED OR COMMUNICATED SPACE SENSOR CONTROL – HEATING

Field Wiring

Connect the space sensor wiring to the field wiring screw connections on the Unit Controller *(see Appendix 1)*.

Misc. Connections

No additional connections required.

Programming

"HEATING MODE OPERATION ENABLED" – Must be set to ON using Parameter 54 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package.

"CV OCCUPIED HEATING SETPOINT" – Must be set using Parameter 11 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package. Settable between 45.0º F and 99.0º F. The default value is 68.0º F.

"CV UNOCCUPIED HEATING SETPOINT" – Must be set using Parameter 13 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package. Settable between 45.0º F and 99.0º F. The default value is 60.0º F.

"STAGES OF HEATING AVAILABLE" - Must be set using Parameter 81 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package.

STAND ALONE CONTROL – COOLING

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"COOLING MODE OPERATION ENABLED" – Must be set to ON using Parameter 53 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package.

"CV OCCUPIED COOLING SETPOINT" – Must be set using Parameter 10 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package. Settable between 45.0º F and 99.0º F. The default value is 72.0º F.

"CV UNOCCUPIED COOLING SETPOINT" – Must be set using Parameter 12 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package. Settable between 45.0º F and 99.0º F. The default value is 85.0º F.

STAND ALONE CONTROL – HEATING

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"HEATING MODE OPERATION ENABLED" – Must be set to ON using Parameter 54 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package.

"CV OCCUPIED HEATING SETPOINT" – Must be set using Parameter 11 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package. Settable between 45.0º F and 99.0º F. The default value is 68.0º F.

"CV UNOCCUPIED HEATING SETPOINT" – Must be set using Parameter 13 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package. Settable between 45.0º F and 99.0º F. The default value is 60.0º F.

"STAGES OF HEATING AVAILABLE" - Must be set using Parameter 81 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package.

VARIABLE AIR VOLUME UNITS

THERMOSTAT CONTROL – COOLING

Field Wiring

Connect the thermostat wiring to the field wiring screw connections on the Unit Controller *(see Appendix 1).*

Misc. Connections

Pneumatic tubing must be field-supplied and installed from the duct static transducer "high" side connection to a field supplied static pressure probe that is installed approximately two-thirds down the trunk line in the duct work. The duct static transducer is mounted in the control compartment.

An atmospheric static pressure probe with a bracket is factory supplied (shipped in the return section of the unit) and is to be installed on the specified support post *(see Appendix 1).* A barbed fitting is already factory installed on the support post, and should be used to connect the atmospheric probe using field supplied pneumatic tubing.

The black cap on the atmospheric sensor probe should be positioned at top. See Appendix 1 for details on the installation of the probe.

Programming

"COOLING MODE OPERATION ENABLED" – Must be set to ON using Parameter 53 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package.

"VAV COOLING SUPPLY AIR TEMP UPPER SETPOINT" – Must be set using Parameter 23 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package. Settable between 40.0º F and 70.0º F. The default value is 60.0º F.

"VAV COOLING SUPPLY AIR TEMP LOWER SETPOINT" – Must be set using Parameter 24 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package. Settable between 40.0º F and 70.0º F. The default value is 55.0º F.

"DUCT PRESSURE SETPOINT" – Must be set using Parameter 30 under the PROGRAM key on the Simplicity control board or under the FAN tab in the Simplicity PC software package. Settable between 0.0 and 5.0 INWC. The default value is 1.5 INWC.

"DUCT PRESSURE SHUTDOWN SETPOINT" – Must be set under the FAN tab in the Simplicity PC software package. Settable between 0.0 and 5.0 INWC. The default value is 4.5 INWC.

THERMOSTAT CONTROL – HEATING

Field Wiring

Connect the thermostat wiring to the field wiring screw connections on the Unit Controller *(see Appendix 1).*

Misc. Connections

Pneumatic tubing must be field-supplied and installed from the duct static transducer "high" side connection to a field supplied static pressure probe that is installed approximately two-thirds down the trunk line in the duct work. The duct static transducer is mounted in the control compartment.

An atmospheric static pressure probe with a bracket is factory supplied (shipped in the return section of the unit) and is to be installed on the specified support post *(see Appendix 1).* A barbed fitting is already factory installed on the support post, and should be used to connect the atmospheric probe using field supplied pneumatic tubing.

The black cap on the atmospheric sensor probe should be positioned at top. See Appendix 1 for details on the installation of the probe.

Programming

"VAV OCCUPIED HEATING ENABLED" – Must be set to ON using Parameter 26 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package.

"HEATING MODE OPERATION ENABLED" – Must be set to ON using Parameter 54 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package.

"STAGES OF HEATING AVAILABLE" - Must be set using Parameter 81 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package.

"DUCT PRESSURE SETPOINT" – Must be set using Parameter 30 under the PROGRAM key on the Simplicity control board or under the FAN tab in the Simplicity PC software package. Settable between 0.0 and 5.0 INWC. The default value is 1.5 INWC.

"DUCT PRESSURE SHUTDOWN SETPOINT" – Must be set under the FAN tab in the Simplicity PC software package. Settable between 0.0 and 5.0 INWC. The default value is 4.5 INWC.

HARDWIRED OR COMMUNICATED SPACE SENSOR CONTROL – COOLING

Field Wiring

Connect the space sensor wiring to the field wiring screw connections on the Unit Controller *(see Appendix 1)*.

Misc. Connections

Pneumatic tubing must be field-supplied and installed from the duct static transducer "high" side connection to a field supplied static pressure probe that is installed approximately two-thirds down the trunk line in the duct work. The duct static transducer is mounted in the control compartment.

An atmospheric static pressure probe with a bracket is factory supplied (shipped in the return section of the unit) and is to be installed on the specified support post *(see Appendix 1)*. A barbed fitting is already factory installed on the support post, and should be used to connect the atmospheric probe using field supplied pneumatic tubing.

The black cap on the atmospheric sensor probe should be positioned at top. See Appendix 1 for details on the installation of the probe.

Programming

"COOLING MODE OPERATION ENABLED" – Must be set to ON using Parameter 53 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package.

"VAV COOLING SUPPLY AIR TEMP UPPER SETPOINT" – Must be set using Parameter 23 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package. Settable between 40.0º F and 70.0º F. The default value is 60.0º F.

"VAV COOLING SUPPLY AIR TEMP LOWER SETPOINT" – Must be set using Parameter 24 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package. Settable between 40.0º F and 70.0º F. The default value is 55.0º F.

"VAV SUPPLY AIR TEMP RESET SETPOINT" - – Must be set using Parameter 25 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package. Settable between 40.0º F and 85.0º F. The default value is 72.0º F.

"DUCT PRESSURE SETPOINT" – Must be set using Parameter 30 under the PROGRAM key on the Simplicity control board or under the FAN tab in the Simplicity PC software package. Settable between 0.0 and 5.0 INWC. The default value is 1.5 INWC.

"DUCT PRESSURE SHUTDOWN SETPOINT" – Must be set under the FAN tab in the Simplicity PC software package. Settable between 0.0 and 5.0 INWC. The default value is 4.5 INWC.

HARDWIRED OR COMMUNICATED SPACE SENSOR CONTROL – HEATING

Field Wiring

Connect the space sensor wiring to the field wiring screw connections on the Unit Controller *(see Appendix 1)*.

Misc. Connections

Pneumatic tubing must be field-supplied and installed from the duct static transducer "high" side connection to a field supplied static pressure probe that is installed approximately two-thirds down the trunk line in the duct work. The duct static transducer is mounted in the control compartment.

An atmospheric static pressure probe with a bracket is factory supplied (shipped in the return section of the unit) and is to be installed on the specified support post *(see Appendix 1)*. A barbed fitting is already factory installed on the support post, and should be used to connect the atmospheric probe using field supplied pneumatic tubing.

The black cap on the atmospheric sensor probe should be positioned at top. See Appendix 1 for details on the installation of the probe.

Programming

"HEATING MODE OPERATION ENABLED" – Must be set to ON using Parameter 54 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package.

"VAV OCCUPIED HEATING ENABLED" – Must be set to ON using Parameter 26 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package.

"VAV OCCUPIED HEATING SETPOINT" – Must be set using Parameter 27 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package. Settable between 40.0º F and 85.0º F. The default value is 68.0º F.

"MORNING WARM-UP / VAV RETURN AIR TEMP SETPOINT" – Must be set using Parameter 29 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package. Settable between 50.0º F and 85.0º F. The default value is 70.0º F.

"STAGES OF HEATING AVAILABLE" - Must be set using Parameter 81 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package.

"DUCT PRESSURE SETPOINT" – Must be set using Parameter 30 under the PROGRAM key on the Simplicity control board or under the FAN tab in the Simplicity PC software package. Settable between 0.0 and 5.0 INWC. The default value is 1.5 INWC.

"DUCT PRESSURE SHUTDOWN SETPOINT" – Must be set under the FAN tab in the Simplicity PC software package. Settable between 0.0 and 5.0 INWC. The default value is 4.5 INWC.

STAND ALONE CONTROL – COOLING

Field Wiring

No additional connections required.

Misc. Connections

Pneumatic tubing must be field-supplied and installed from the duct static transducer "high" side connection to a field supplied static pressure probe that is installed approximately two-thirds down the trunk line in the duct work. The duct static transducer is mounted in the control compartment.

An atmospheric static pressure probe with a bracket is factory supplied (shipped in the return section of the unit) and is to be installed on the specified support post *(see Appendix 1)*. A barbed fitting is already factory installed on the support post, and should be used to connect the atmospheric probe using field supplied pneumatic tubing.

The black cap on the atmospheric sensor probe should be positioned at top. See Appendix 1 for details on the installation of the probe.

Programming

"COOLING MODE OPERATION ENABLED" – Must be set to ON using Parameter 53 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package.

"VAV COOLING SUPPLY AIR TEMP UPPER SETPOINT" – Must be set using Parameter 23 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package. Settable between 40.0º F and 70.0º F. The default value is 60.0º F.

"VAV COOLING SUPPLY AIR TEMP LOWER SETPOINT" – Must be set using Parameter 24 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package. Settable between 40.0º F and 70.0º F. The default value is 55.0º F.

"VAV SUPPLY AIR TEMP RESET SETPOINT" - – Must be set using Parameter 25 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package. Settable between 40.0º F and 85.0º F. The default value is 72.0º F.

"SPACE SENSOR FAULT OVERRIDE ENABLED" – Must be set to ON using Parameter 8 under the PROGRAM key on the Simplicity control board or under the SYSTEM OPTIONS tab in the Simplicity PC software package.

"DUCT PRESSURE SETPOINT" – Must be set using Parameter 30 under the PROGRAM key on the Simplicity control board or under the FAN tab in the Simplicity PC software package. Settable between 0.0 and 5.0 INWC. The default value is 1.5 INWC.

"DUCT PRESSURE SHUTDOWN SETPOINT" – Must be set under the FAN tab in the Simplicity PC software package. Settable between 0.0 and 5.0 INWC. The default value is 4.5 INWC.

STAND ALONE CONTROL – HEATING

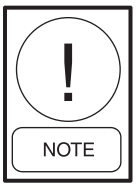
Field Wiring

No additional connections required.

Misc. Connections

Pneumatic tubing must be field-supplied and installed from the duct static transducer "high" side connection to a field supplied static pressure probe that is installed approximately two-thirds down the trunk line in the duct work. The duct static transducer is mounted in the control compartment.

An atmospheric static pressure probe with a bracket is factory supplied (shipped in the return section of the unit) and is to be installed on the specified support post *(see Appendix 1)*. A barbed fitting is already factory installed on the support post, and should be used to connect the atmospheric probe using field supplied pneumatic tubing.



The black cap on the atmospheric sensor probe should be positioned at top. See Appendix 1 for details on the installation of the probe.

Programming

"HEATING MODE OPERATION ENABLED" – Must be set to ON using Parameter 54 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package.

"VAV OCCUPIED HEATING SETPOINT" – Must be set using Parameter 27 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package. Settable between 40.0º F and 85.0º F. The default value is 68.0º F.

"MORNING WARM-UP / VAV RETURN AIR TEMP SETPOINT" – Must be set using Parameter 29 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software package. Settable between 50.0º F and 85.0º F. The default value is 70.0º F.

"SPACE SENSOR FAULT OVERRIDE ENABLED" – Must be set to ON using Parameter 8 under the PROGRAM key on the Simplicity control board or under the SYSTEM OPTIONS tab in the Simplicity PC software package.

"STAGES OF HEATING AVAILABLE" - Must be set using Parameter 81 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software package.

"DUCT PRESSURE SETPOINT" – Must be set using Parameter 30 under the PROGRAM key on the Simplicity control board or under the FAN tab in the Simplicity PC software package. Settable between 0.0 and 5.0 INWC. The default value is 1.5 INWC.

"DUCT PRESSURE SHUTDOWN SETPOINT" – Must be set under the FAN tab in the Simplicity PC software package. Settable between 0.0 and 5.0 INWC. The default value is 4.5 INWC.

OPTIONS

ECONOMIZER – CONSTANT VOLUME – DRY BULB

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"ECONOMIZER INSTALLED" – must be turned ON using Parameter 32 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software.

"ECONOMIZER FIRST STAGE SETPOINT" – must be programmed using Parameter 33 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software. The range is 40.0º F – 65.0º F with a default valve of 55.0º F.

"ECONOMIZER SECOND STAGE SETPOINT" – must be programmed using Parameter 34 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software. The range is 40.0º F – 65.0º F with a default valve of 50.0º F.

"ECONOMIZER OUTSIDE AIR TEMP ENABLE SETPOINT" – must be programmed using Parameter 39 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software. The range is 40.0º F – 80.0º F with a default valve of 55.0º F.

ECONOMIZER – CONSTANT VOLUME – SINGLE ENTHALPY

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"ECONOMIZER INSTALLED" – must be turned ON using Parameter 32 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software.

"ECONOMIZER FIRST STAGE SETPOINT" – must be programmed using Parameter 33 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software. The range is 40.0º F – 65.0º F with a default valve of 55.0º F.

"ECONOMIZER SECOND STAGE SETPOINT" – must be programmed using Parameter 34 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software. The range is 40.0º F – 65.0º F with a default valve of 50.0º F.

"ECONOMIZER OUTSIDE AIR ENTHALPY SETPOINT" – must be programmed using Parameter 37 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software. The range is 10 – 50 BTU/LB with a default valve of 27 BTU/LB.

"OUTSIDE AIR HUMIDITY SENSOR INSTALLED" – must be turned ON using Parameter 36 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software.

ECONOMIZER – CONSTANT VOLUME – DUAL ENTHALPY

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"ECONOMIZER INSTALLED" – must be turned ON using Parameter 32 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/ EXHAUST tab in the Simplicity PC software.

"ECONOMIZER FIRST STAGE SETPOINT" – must be programmed using Parameter 33 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software. The range is 40.0º F – 65.0º F with a default valve of 55.0º F.

"ECONOMIZER SECOND STAGE SETPOINT" – must be programmed using Parameter 34 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software. The range is 40.0º F – 65.0º F with a default valve of 50.0º F.

"OUTSIDE AIR HUMIDITY SENSOR INSTALLED" – must be turned ON using Parameter 36 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software.

"RETURN AIR HUMIDITY SENSOR INSTALLED" – must be turned ON using Parameter 38 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software

"DIFFERENTIAL ENTHALPY MODE ENABLED" – must be turned ON under the ECONOMIZER/ EXHAUST tab in the Simplicity PC software

ECONOMIZER – VARIABLE AIR VOLUME – DRY BULB

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"ECONOMIZER INSTALLED" – must be turned ON using Parameter 32 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/ EXHAUST tab in the Simplicity PC software.

"ECONOMIZER OUTSIDE AIR TEMP ENABLE SETPOINT" – must be programmed using Parameter 39 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software. The range is 40.0º F – 80.0º F with a default valve of 55.0º F.

ECONOMIZER – VARIABLE AIR VOLUME – SINGLE ENTHALPY

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"ECONOMIZER INSTALLED" – must be turned ON using Parameter 32 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/ EXHAUST tab in the Simplicity PC software.

"ECONOMIZER OUTSIDE AIR ENTHALPY SETPOINT" – must be programmed using Parameter 37 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software. The range is 10 – 50 BTU/LB with a default valve of 27 BTU/LB.

"OUTSIDE AIR HUMIDITY SENSOR INSTALLED" – must be turned ON using Parameter 36 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software.

ECONOMIZER –VARIABLE AIR VOLUME – DUAL ENTHALPY

"DUCT PRESSURE SETPOINT" – Must be set using Parameter 30 under the PROGRAM key on the Simplicity control board or under the FAN tab in the Simplicity PC software package. Settable between 0.0 and 5.0 INWC. The default value is 1.5 INWC.

"DUCT PRESSURE SHUTDOWN SETPOINT" – Must be set under the FAN tab in the Simplicity PC software package. Settable between 0.0 and 5.0 INWC. The default value is 4.5 INWC.

"OUTSIDE AIR HUMIDITY SENSOR INSTALLED" – must be turned ON using Parameter 36 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software.

"RETURN AIR HUMIDITY SENSOR INSTALLED" – must be turned ON using Parameter 38 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software.

"DIFFERENTIAL ENTHALPY MODE ENABLED" – must be turned ON under the ECONOMIZER/EXHAUST tab in the Simplicity PC software.

ECONOMIZER LOADING

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"ECONOMIZER LOADING ENABLE" – must be turned ON under the COOLING SETUP tab in the Simplicity PC software.

"SUPPLY AIR TEMP LIMIT FOR COOLING" – must be turned ON under the COOLING SETUP tab in the Simplicity PC software.

"SUPPLY AIR TEMP LIMIT COOLING SETPOINT" – must be programmed under the COOLING SETUP tab in the Simplicity PC software. The default valve is 50.0º F.

BAS ECONOMIZER

Field Wiring

Connect an external 2-10 VDC source to terminals BAS ECON + and BAS ECON – on the Simplicity control board *(see Appendix 1)*.

Misc. Connections

No additional connections required.

Programming

"ECONOMIZER INSTALLED" – must be turned OFF using Parameter 32 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software.

"OUTSIDE AIR HUMIDITY SENSOR INSTALLED" – must be turned OFF using Parameter 36 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software.

"RETURN AIR HUMIDITY SENSOR INSTALLED" – must be turned OFF using Parameter 38 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software.

"THIRD PART BAS ECONOMIZER INSTALLED" – must be turned ON using Parameter 58 under the PROGRAM key on the Simplicity control board or under the EQUIPMENT INSTALLATION tab in the Simplicity PC software.

FIXED MINIMUM VENTILATION

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"ECONOMIZER INSTALLED" – must be turned ON using Parameter 32 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/ EXHAUST tab in the Simplicity PC software.

"ECONOMIZER MINIMUM POSITION" – must be programmed using Parameter 35 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software. The range is 0 – 100% with a default valve of 20%.

DEMAND VENTILATION

Field Wiring

Connect a CO2 sensor to DV+ and DV- terminals of the P20 connector on the Simplicity control board *(see Appendix 1).*

Misc. Connections

No additional connections required.

Programming

"ECONOMIZER INSTALLED" – must be turned ON using Parameter 32 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/ EXHAUST tab in the Simplicity PC software.

"ECONOMIZER MINIMUM POSITION" – must be programmed using Parameter 35 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software. The range is 0 – 100% with a default valve of 20%.

"DEMAND VENTILATION (IAQ) ENABLED" – must be turned ON using Parameter 40 under the PROGRAM key on the Simplicity control board or under the COMFORT / DEMAND VENTILATION tab in the Simplicity PC software.

"IAQ SENSOR RANGE" – must be programmed using Parameter 41 under the PROGRAM key on the Simplicity control board or under the COMFORT / DEMAND VENTILATION tab in the Simplicity PC software. The range is 0 –5000 ppm with a default valve of 2000 ppm.

"IAQ SETPOINT" – must be programmed using Parameter 42 under the PROGRAM key on the Simplicity control board or under the COMFORT / DEMAND VENTILATION tab in the Simplicity PC software. The range is 0 –5000 ppm with a default valve of 1000 ppm.

"MAXIMUM IAQ ECONOMIZER POSITION" – must be programmed under the DEMAND / VENTILATION tab in the Simplicity PC software. The range is 0 – 100% with a default valve of 50%

COMFORT VENTILATION

Field Wiring

Connect a CO2 sensor to DV+ and DV- terminals of the P20 connector on the Simplicity control board *(see Appendix 1).*

Misc. Connections

No additional connections required.

Programming

"COMFORT VENTILATION FOR COOLING ENABLED" – must be turned ON under the COOLING SETUP tab in the Simplicity PC software.

"COMFORT VENTILATION FOR HEATING ENABLED" – must be turned ON under the HEATING SETUP tab in the Simplicity PC software.

"COMFORT VENTILATION UPPER SETPOINT" – must be programmed under the COOLING SETUP or HEATING SETUP tab in the Simplicity PC software. The default value is 80.0º F.

"COMFORT VENTILATION LOWER SETPOINT" – must be programmed under the COOLING SETUP or HEATING SETUP tab in the Simplicity PC software. The default value is 70.0º F.

EXCESSIVE SUPPLY AIR TEMPERATURE CONTROL (COOLING)

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"SUPPLY AIR TEMP LIMIT FOR COOLING ENABLED" – must be turned ON using Parameter 14 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software.

"SUPPLY AIR TEMP LIMIT COOLING SETPOINT" – must be programmed using Parameter 15 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software. The range is 40.0º F – 65.0º F with a default valve of 50.0º F.

EXCESSIVE SUPPLY AIR TEMPERATURE CONTROL (HEATING)

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"SUPPLY AIR TEMP LIMIT FOR HEATING ENABLED" – must be turned ON using Parameter 16 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software.

"SUPPLY AIR TEMP LIMIT HEATING SETPOINT" – must be programmed using Parameter 17 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software. The range is 100.0º F – 180.0º F with a default valve of 135.0º F.

VENTILATION – LOW AMBIENT MINIMUM POSITION RESET

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"ECONOMIZER INSTALLED" – must be turned ON using Parameter 32 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/ EXHAUST tab in the Simplicity PC software.

"ECONOMIZER MINIMUM POSITION" – must be programmed using Parameter 35 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software. The range is 0 – 100% with a default valve of 20%.

"LOW AMBIENT ECONOMIZER SETPOINT" – must be programmed under the ECONOMIZER/EXHAUST tab in the Simplicity PC software. The range is 0.0º F – 60.0º F with a default valve of 0.0 F. When set to 0.0º F the feature is DISABLED.

"LOW AMBIENT ECONOMIZER MINIMUM POSITION" – must be programmed under the ECONOMIZER/EXHAUST tab in the Simplicity PC software. The range is 0 – 99% with a default valve of 0%.

HYDRONIC HEAT

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"HEATING MODE ENABLED FOR OPERATION" – must be turned ON using Parameter 54 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software.

"HYDRONIC HEATING ENABLED" – must be turned ON using Parameter 18 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software.

"HYDRONIC HEATING STAGE #1 SUPPLY AIR SETPOINT" – must be programmed using Parameter 19 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software. The range is 80.0º F – 180.0º F with a default valve of 120.0º F.

"HYDRONIC HEATING STAGE #2 SUPPLY AIR SETPOINT" – must be programmed using Parameter 19 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software. The range is 80.0º F – 180.0º F with a default valve of 150.0º F.

MORNING WARM-UP

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"MORNING WARM-UP ENABLE" – must be turned ON using Parameter 28 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software.

"MORNING WARM-UP/VAV RETURN AIR TEMP SETPOINT" – must be programmed using Parameter 29 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software. The range is 50.0º F – 85.0º F with a default valve of 70.0º F.

"HEATING MODE ENABLE FOR OPERATION" – must be turned ON using Parameter 54 under the PROGRAM key on the Simplicity control board or under the HEATING SETUP tab in the Simplicity PC software.

EXHAUST FAN – ON/OFF CONTROL BASED ON OUTDOOR DAMPER POSITION

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"POWER EXHAUSR INSTALLED" – must be turned ON using Parameter 43 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER / EXHAUST tab in the Simplicity PC software.

"ECONOMIZER DAMPER POSITION FOR EXHAUST FAN TO TURN ON" – must be programmed using Parameter 48 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/ EXHAUST tab in the Simplicity PC software. The range is 0 – 100% with a default valve of 60%.

"ECONOMIZER DAMPER POSITION FOR EXHAUST FAN TO TURN OFF" – must be programmed using Parameter 49 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/ EXHAUST tab in the Simplicity PC software. The range is 0 – 100% with a default valve of 20%.

EXHAUST FAN – ON/OFF CONTROL BASED ON BUILDING PRESSURE

Field Wiring

No additional connections required.

Misc. Connections

Pneumatic tubing must be field-supplied and installed from the building pressure transducer "high" side connection to a field supplied pressure probe installed in the conditioned space. The probe should be installed in a location where the building pressure is most critical. The building static pressure transducer is mounted in the control compartment.

An atmospheric static pressure probe with a bracket is factory supplied (shipped in the return section of the unit) and is to be installed on the specified support post *(see Appendix 1).* A barbed fitting is already factory installed on the support post, and should be used to connect the atmospheric probe using field supplied pneumatic tubing.

Programming

"POWER EXHAUSR INSTALLED" – must be turned ON using Parameter 43 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER / EXHAUST tab in the Simplicity PC software.

"BUILDING STATIC PRESSURE SENSOR INSTALLED" – must be turned ON using Parameter 85 under the PROGRAM key on the Simplicity control board or under the EQUIPMENT INSTALLATION tab in the Simplicity PC software.

"BUILDING PRESSURE SETPOINT" – must be programmed using Parameter 31 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER / EXHAUST tab in the Simplicity PC software. The range is –0.25 TO +0.25 INWC with a default valve of +0.1 INWC.

EXHAUST FAN – MODULATING DAMPER WITH FIXED SPEED EXHAUST

Field Wiring

No additional connections required.

Misc. Connections

Pneumatic tubing must be field-supplied and installed from the building pressure transducer "high" side connection to a field supplied pressure probe installed in the conditioned space. The probe should be installed in a location where the building pressure is most critical. The building static pressure transducer is mounted in the control compartment.

An atmospheric static pressure probe with a bracket is factory supplied (shipped in the return section of the unit) and is to be installed on the specified support post *(see Appendix 1).* A barbed fitting is already factory installed on the support post, and should be used to connect the atmospheric probe using field supplied pneumatic tubing.

Programming

"POWER EXHAUSR INSTALLED" – must be turned ON using Parameter 43 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER / EXHAUST tab in the Simplicity PC software.

"BUILDING STATIC PRESSURE SENSOR INSTALLED" – must be turned ON using Parameter 85 under the PROGRAM key on the Simplicity control board or under the EQUIPMENT INSTALLATION tab in the Simplicity PC software.

"BUILDING PRESSURE SETPOINT" – must be programmed using Parameter 31 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER / EXHAUST tab in the Simplicity PC software. The range is –0.25 TO +0.25 INWC with a default valve of +0.1 INWC.

"MODULATING POWER EXHAUST INSTALLED" – must be turned ON using Parameter 44 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER / EXHAUST tab in the Simplicity PC software.

"EXHAUST DAMPER POSITION FOR EXHAUST FAN TO TURN ON" – must be programmed using Parameter 46 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software. The range is 0 – 100% with a default valve of 80%.

"EXHAUST DAMPER POSITION FOR EXHAUST FAN TO TURN OFF" – must be programmed using Parameter 47 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER/EXHAUST tab in the Simplicity PC software. The range is 0 – 100% with a default valve of 20%.

EXHAUST – MODULATING WITH A VFD

Field Wiring

No additional connections required.

Misc. Connections

Pneumatic tubing must be field-supplied and installed from the building pressure transducer "high" side connection to a field supplied pressure probe installed in the conditioned space. The probe should be installed in a location where the building pressure is most critical. The building static pressure transducer is mounted in the control compartment.

An atmospheric static pressure probe with a bracket is factory supplied (shipped in the return section of the unit) and is to be installed on the specified support post *(see Appendix 1).* A barbed fitting is already factory installed on the support post, and should be used to connect the atmospheric probe using field supplied pneumatic tubing.

Programming

"POWER EXHAUST INSTALLED" – must be turned ON using Parameter 43 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER / EXHAUST tab in the Simplicity PC software.

"BUILDING STATIC PRESSURE SENSOR INSTALLED" – must be turned ON using Parameter 85 under the PROGRAM key on the Simplicity control board or under the EQUIPMENT INSTALLATION tab in the Simplicity PC software.

"*BUILDING PRESSURE SETPOINT"* – must be programmed using Parameter 31 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER / EXHAUST tab in the Simplicity PC software. The range is –0.25 TO +0.25 INWC with a default valve of +0.1 INWC.

"EXHAUST VFD INSTALLED" – must be turned ON using Parameter 45 under the PROGRAM key on the Simplicity control board or under the ECONOMIZER / EXHAUST tab in the Simplicity PC software.

PRE-OCCUPANCY PURGE

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"PRE-OCCUPANCY PURGE ENABLE" – must be turned ON under the SYSTEM OPTIONS tab in the Simplicity PC software.

"PRE-OCCUPANCY PURGE TIME (hours of day)" – must be programmed under the SYSTEM OPTIONS tab in the Simplicity PC software.

"PRE-OCCUPANCY PURGE TIME (minutes of day)" – must be programmed under the SYSTEM OPTIONS tab in the Simplicity PC software.

OUTDOOR AIR HEATING LOCKOUT

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"OUTDOOR AIR TEMP HEATING LOCKOUT" – must be turned ON under the HEATING SETUP tab in the Simplicity PC software.

HOT GAS BYPASS

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

" HOT GAS BY PASS PRESENT ON COMPRESSOR #1" – must be turned ON using Parameter 79 under the PROGRAM key on the Simplicity control board or under the COOLING SETUP tab in the Simplicity PC software.

SPACE TEMPERATURE ALARM

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"SPACE TEMP TRENDING ALARM TEMP" – must be programmed under the SYSTEM OPTIONS tab in the Simplicity PC software. 0% DISABLES.

"SPACE TEMP TRENDING ALARM TIME" – must be programmed under the SYSTEM OPTIONS tab in the Simplicity PC software. 0 MINUTES DISABLES.

SAT ALARM FOR HEATING

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"SUPPLY AIR TEMP ALARM SETPOINT FOR HEATING" – must be programmed under the HEATING SETUP tab in the Simplicity PC software. The range is 1.0º F – 120.0º F. Entering 0º F disables the feature.

SAT ALARM FOR COOLING

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"SUPPLY AIR TEMP ALARM SETPOINT FOR COOLING" – must be programmed under the COOLING SETUP tab in the Simplicity PC software. The range is 1.0º F – 80.0º F. Entering 0º F disables the feature.

INTELLI-START

Field Wiring

No additional connections required.

Misc. Connections

No additional connections required.

Programming

"INTELLI-START OPERATION ENABLE" – must be turned ON under the SYSTEMS OPTION tab in the Simplicity PC software.

SPACE SENSOR WITH SETPOINT ADJUSTMENT

Field Wiring

A connection must be made between the space Sensor Reset Potentiometer and terminals SSO and GND on the Simplicity control board *(see Appendix 1)*.

Misc. Connections

No additional connections required.

Programming

"SPACE SENSOR OFFSET RANGE" – Must be programmed using Parameter 56 under the PROGRAM key on the Simplicity control board or under the SYSTEMS OPTIONS tab in the Simplicity PC software. The range is –5.0º F to +5.0º F. The default value is 0.0º F.

REMOTE CONTROL

Field Wiring

A 0 to 10 VDC signal must be connected to terminals REM+ and REM- on the Simplicity control board *(see Appendix 1)*.

Misc. Connections

No additional connections required.

Programming

"REMOTE CONTROL INPUT ENABLE FOR THIRD PARTY BAS" – Must be turned ON using Parameter 22 under the PROGRAM key on the Simplicity control board or under the SYSTEMS OPTIONS tab in the Simplicity PC software.

DIRTY FILTER

Field Wiring

No additional connections.

Misc. Connections

A dirty filter switch must be connected between terminals 1 and 2 of the P22 connector on the Simplicity control board.

Programming

"DIRTY FILTER SWITCH INSTALLED" – Must be turned ON using Parameter 51 under the PROGRAM key on the Simplicity control board or under the EQUIPMENT INSTALLATION tab in the Simplicity PC software.

METRIC OPERATION

Field Wiring

No additional connections.

Misc. Connections

No additional connections.

Programming

"METRIC OPERATION" – Must be turned ON using Parameter 57 under the PROGRAM key on the Simplicity control board.

APPENDIX 1
USER INTERFACE
HOW TO PROGRAM USER INTERFACE

UNIT CONTROLLER INTERFACE

Four buttons located on the control board allow for viewing and access to setpoints, alarms, functions, etc. The buttons are used in conjunction with the two numerical character displays located on the board. The character display is a convenient way to access information on the controller when a computer is not available. Three of the buttons have multiple functions. The button functions are discussed in detail below.

PROGRAM BUTTON

This button puts the board into the program mode. In the program mode, the control displays the parameter number of the two-digit display and the data for the parameter of the four-digit display.

For example, the Occupied Cooling Setpoint is parameter address 10. The addresses are listed on the Parameter Points list. Pressing the program button once places the board in program mode. The two-digit display shows address 1 and the four-digit display shows the current setting for that address. To scroll up to address 10, press the Test/Up button until address 10 appears on the two-digit display. Address 10 is the Occupied Cooling Setpoint. The factory default setting for this parameter is 72º F. To change this setpoint, address the Alarm/Change button one time. The temperature is now flashing and may be increased or decreased by pressing the Test/Up button or the Address/Down button. When the desired temperature has been selected, pressing the Alarm/Change button accepts and stores the change.

If the program button is pushed while in the program mode, the control will exit the program mode and store any changed data even if the operator failed to press the Alarm/Change button to accept any changes.

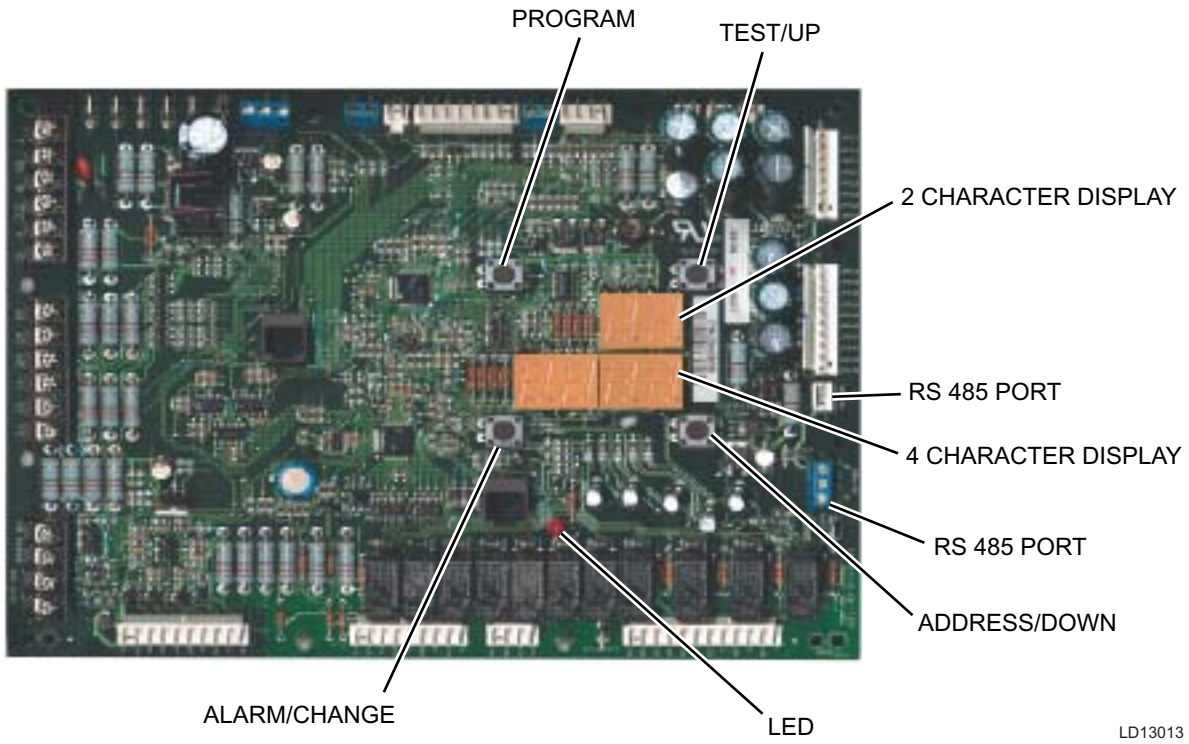


FIG. 6-1 – UNIT CONTROLLER INTERFACE

TEST/UP BUTTON

When not in the program mode, if the Test/Up button is pushed and released once within five seconds, the control skips any short cycle delays for one cycle. This is a useful aid for the technician servicing the system without having to wait for delays to time out.

If this button is pressed and released twice within five-seconds a lock-out is released. This serves the same function as temporally breaking the 24 VAC circuit to the Unit Controller.

When in the program mode this button scrolls up through the parameter addresses. *See the Parameter Points list to identify the desired parameter.* Parameters are items that can be viewed and changed in the control such as setpoints, year, date, time, time delays, etc.

ADDRESS/DOWN BUTTON

When in the program mode this button scrolls down through the parameter addresses.

This button is also used to set the controller up on a network. When wired to a network through the RS-485 terminals on the board, pushing this button once when not in the program mode causes the control to scan the communication bus. The control automatically locates the first vacant communications address and changes its address to that address. It will then display the address on the display for two seconds. The controller is then connected to the network.

When connected to a network, pressing the button twice within five-seconds causes the network address to be displayed for two seconds.

Pressing this button three times within five-seconds resets the network address to one.

ALARM/CHANGE

When this button is pressed and released one time within five-seconds, it automatically scrolls through the five alarms held in memory. The first alarm displayed is the latest and the last displayed is the oldest.

When this button is pressed and released twice within five-seconds, it clears all alarms in memory.

When in the program mode and with a parameter selected, this button when pressed once causes the data value for that parameter to begin flashing. At this point the data value can be increased or decreased using the Test/Up and Address/Down buttons. When pressed again the current data setting is accepted and stored.

CHARACTER DISPLAY ADDRESSES & CODES

Table 6-2 shows the address for each control function as well as the unit of measurement for that function, the available range of adjustment and the factory setting as the unit left the factory.

TABLE 6-1 - PARAMETER POINTS LIST

ADDRESS NUMBER	DESCRIPTION	UNITS OF ADJUSTMENT	RANGE OF ADJUSTMENT	CURRENT SETTING
1	RUN TEST	PARAMETER BIT	0 = OFF, 1 = ON	OFF
2	HEAT FAN ON DELAY	SECONDS	0-30	30
3	HEAT FAN OFF DELAY	SECONDS	0-255	60
4	COOL FAN ON DELAY	SECONDS	0-30	0
5	COOL FAN OFF DELAY	SECONDS	0-255	30
6	ADDRESS	DATA	1-250	1
7	TURN OFF CONTINUOUS FAN WHEN STARTING	PARAMETER BIT	0 = OFF, 1 = ON	OFF
8	CONSTRUCTION MODE	PARAMETER BIT	0 = OFF, 1 = ON	OFF
9	UNOCCUPIED OVERRIDE TIME PERIOD	DATA MINUTES	0-240 0 = DISABLED	60 MINUTES
10	CV OCCUPIED COOLING SETPOINT	DEGREES F	45º - 99º	72º
11	CV OCCUPIED HEATING SETPOINT	DEGREES F	45º - 99º	68º
12	CV UNOCCUPIED COOLING SETPOINT	DEGREES F	45º - 99º	85º
13	CV UNOCCUPIED HEATING SETPOINT	DEGREES F	45º - 99º	60º
14	SUPPLY AIR TEMP LIMIT FOR COOLING ENABLE	PARAMETER BIT	0 = OFF, 1 = ON	ON
15	SUPPLY AIR TEMP LIMIT COOLING SETPOINT	DEGREES F	40º - 65º	50º
16	SUPPLY AIR TEMP LIMIT FOR HEATING ENABLED	PARAMETER BIT	0 = OFF, 1 = ON	ON
17	SUPPLY AIR TEMP LIMIT HEATING SETPOINT	DEGREES F	100º - 180º	135º
18	HYDRONIC HEATING ENABLED	PARAMETER BIT	0 = OFF, 1 = ON	OFF
19	HYDRONIC HEATING STAGE #1 SUPPLY AIR SETPOINT	DEGREES F	80º - 180º	120º
20	HYDRONIC HEATING STAGE #2 SUPPLY AIR SETPOINT	DEGREES F	80º - 180º	150º
21	HYDRONIC HEAT ACTUATOR VALVE REVERSE ACTING	PARAMETER BIT	0 = OFF, 1 = ON	OFF
22	REMOTE CONTROL INPUT ENABLE FOR THIRD PARTY BAS	PARAMETER BIT	0 = OFF, 1 = ON	OFF
23	VAV COOLING SUPPLY AIR TEMP UPPER SETPOINT	DEGREES F	40º - 70º	60º
24	VAV COOLING SUPPLY AIR TEMP LOWER SETPOINT	DEGREES F	40º - 70º	55º
25	VAV SUPPLY AIR TEMP RESET SETPOINT	DEGREES F	40º - 85º	72º
26	VAV OCCUPIED HEATING ENABLED	PARAMETER BIT	0 = OFF, 1 = ON	OFF
27	VAV OCCUPIED HEATING SETPOINT	DEGREES F	40º - 85º	68º
28	MORNING WARM-UP ENABLE	PARAMETER BIT	0 = OFF, 1 = ON	ON
29	MORNING WARM-UP / VAV RETURN AIR TEMP SETPOINT	DEGREES F	50º - 85º	70º
30	DUCT PRESSURE SETPOINT	PRESSURE - INCHES OF H2O	0.000 - 5.000	1.500
31	BUILDING PRESSURE SETPOINT	PRESSURE - INCHES OF H2O	-.250 -.250	0.1
32	ECONOMIZER INSTALLED	PARAMETER BIT	0 = OFF, 1 = ON	ON
33	ECONOMIZER FIRST STAGE SETPOINT	DEGREES F	40º - 65º	55º
34	ECONOMIZER SECOND STAGE SETPOINT	DEGREES F	40º - 65º	50º
35	ECONOMIZER MINIMUM POSITION	PERCENT	0 - 100%	20%

Continued on next page

TABLE - 6-1 - PARAMETER POINTS LIST (CONT.)

ADDRESS NUMBER	DESCRIPTION	UNITS OF ADJUSTMENT	RANGE OF ADJUSTMENT	CURRENT SETTING
36	OUTSIDE AIR HUMIDITY SENSOR INSTALLED	PARAMETER BIT	0 = OFF, 1 = ON	OFF
37	ECONOMIZER OUTSIDE AIR ENTHALPY SETPOINT	BTUS PER POUND	10 - 50	27
38	RETURN AIR HUMIDITY SENSOR INSTALLED	PARAMETER BIT	0 = OFF, 1 = ON	OFF
39	ECONOMIZER OUTSIDE AIR TEMP ENABLE SETPOINT	DEGREES F	40º - 80º	55º
40	DEMAND VENTILATION (IAQ) ENABLED	PARAMETER BIT	0 = OFF, 1 = ON	OFF
41	IAQ SENSOR RANGE	PARTS PER MILLION	0 - 5000 PPM	2000
42	IAQ SETPOINT	PARTS PER MILLION	0 - 5000 PPM	1000
43	POWER EXHAUST INSTALLED	PARAMETER BIT	0 = OFF, 1 = ON	ON
44	MODULATING POWER EXHAUST INSTALLED	PARAMETER BIT	0 = OFF, 1 = ON	OFF
45	EXHAUST VFD INSTALLED	PARAMETER BIT	0 = OFF, 1 = ON	OFF
46	EXHAUST DAMPER POSITION FOR EXHAUST FAN TO TURN ON (MODULATING ONLY)	PERCENT OF ECONOMIZER POSITION	0 - 100%	80%
47	EXHAUST DAMPER POSITION FOR EXHAUST FAN TO TURN OFF	PERCENT OF ECONOMIZER POSITION	0 - 100%	20%
48	ECONOMIZER DAMPER POSITION FOR EXHAUST FAN TO TURN ON (NON-MODULATING ONLY)	PERCENT OF ECONOMIZER POSITION	0 - 100%	60%
49	ECONOMIZER DAMPER POSITION FOR EXHAUST FAN TO TURN OFF (MODULATING ONLY)	PERCENT OF ECONOMIZER POSITION	0 - 100%	20%
50	APS DATA	0 = CLOSED, 1 = OPEN	0 = CLOSED, 1 = OPEN	OPEN
51	DIRTY FILTER SWITCH INSTALLED	PARAMETER BIT	0 = OFF, 1 = ON	OFF
52	DIRTY FILTER SWITCH DATA	0 = CLOSED, 1 = OPEN	0 = OPEN, 1 = CLOSED	OPEN
53	COOLING MODE OPERATION ENABLE	PARAMETER BIT	0 = OFF, 1 = ON	ON
54	HEATING MODE ENABLED FOR OPERATION	PARAMETER BIT	0 = OFF, 1 = ON	ON
55	CONTINUOUS INDOOR FAN OPERATION WITH SENSOR	PARAMETER BIT	0 = OFF, 1 = ON	ON
56	SPACE TEMPERATURE OFFSET RANGE	DEGREES F	-5º F - 5º F	0º F
57	METRIC OPERATION	PARAMETER BIT	0 = OFF, 1 = ON	OFF
58	THIRD PARTY BAS ECONOMIZER ENABLED	PARAMETER BIT	0 = OFF, 1 = ON	OFF
59	YEAR	YEAR (BCD)	00 - 99	4
60	MONTH	MONTH	1 - 12	1
61	DAY OF MONTH	DAY OF MONTH	1 - 31	1
62	DAY OF WEEK	DAY OF WEEK	1 - 7	1
63	HOUR	HOURS	0 - 23	0
64	MINUTE	MINUTES	0 - 59	0
65	SUPPLY AIR TEMP	DEGREES F	-40º - 180º	0
66	RETURN AIR TEMP	DEGREES F	-40º - 180º	0
67	OUTSIDE AIR TEMP	DEGREES F	-40º - 180º	0
68	SPACE TEMP	DEGREES F	-40º - 180º	0
69	OUTSIDE AIR HUMIDITY	HUMIDITY	0% - 100%	0
70	RETURN AIR HUMIDITY	HUMIDITY	0% - 100%	0
71	OCCUPIED INPUT ENABLE	PARAMETER BIT	0 = OFF, 1 = ON	OFF

Continued on next page

TABLE - 6-1 - PARAMETER POINTS LIST (CONT.)

ADDRESS NUMBER	DESCRIPTION	UNITS OF ADJUSTMENT	RANGE OF ADJUSTMENT	CURRENT SETTING
72/73/74/ 75/76	ALARM ARRAY	DATA - 5 CHARACTERS	0 - 255	0
77	VAV / CV SELECTION	READ ONLY FLAG	CV = 0 VAV = 1	0
78	HOT GAS REHEAT	PARAMETER BIT	0 = OFF, 1 = ON	OFF
79	HOT GAS PRESENT ON COMPRESSOR # 1	PARAMETER BIT	0 = OFF, 1 = ON	OFF
80	COMPRESSORS AVAILABLE FOR COOLING	PARAMETER BIT	2 - 4	2
81	STAGES OF HEAT AVAILABLE	PARAMETER BIT	0 - 3 0 = DISABLED	2
82	DUCT STATIC READING	PRESSURE - INCHES OF H2O	0.000 - 5.000	0000
83	BUILDING STATIC PRESSURE	PRESSURE - INCHES OF H2O	0.000 - 5.000	0000
84	LOW AMBIENT KIT INSTALLED	PARAMETER BIT	0 = OFF, 1 = ON	OFF
85	BUILDING STATIC PRESSURE SENSOR INSTALLED	PARAMETER BIT	0 = OFF, 1 = ON	OFF
86	ERV INSTALLED	PARAMETER BIT	0 = OFF, 1 = ON	OFF
87	ERV UNOCCUPIED FAN ENABLE	PARAMETER BIT	0 = OFF, 1 = ON	OFF
88	DUCT STATIC SHUTDOWN SETPOINT	PRESSURE - INCHES OF H2O	0.000 - 5.000	4.500

FIELD CONTROL WIRING CONNECTIONS

Wiring Notes:

1. Wiring shown indicates typical wiring. *Refer to the IOM manual for more detailed wiring methods and options.*
2. All wiring is Class 2, low voltage.
3. Maximum power available from the 24 VAVC terminal is 40 VA.
4. Use shielded wire where shown.

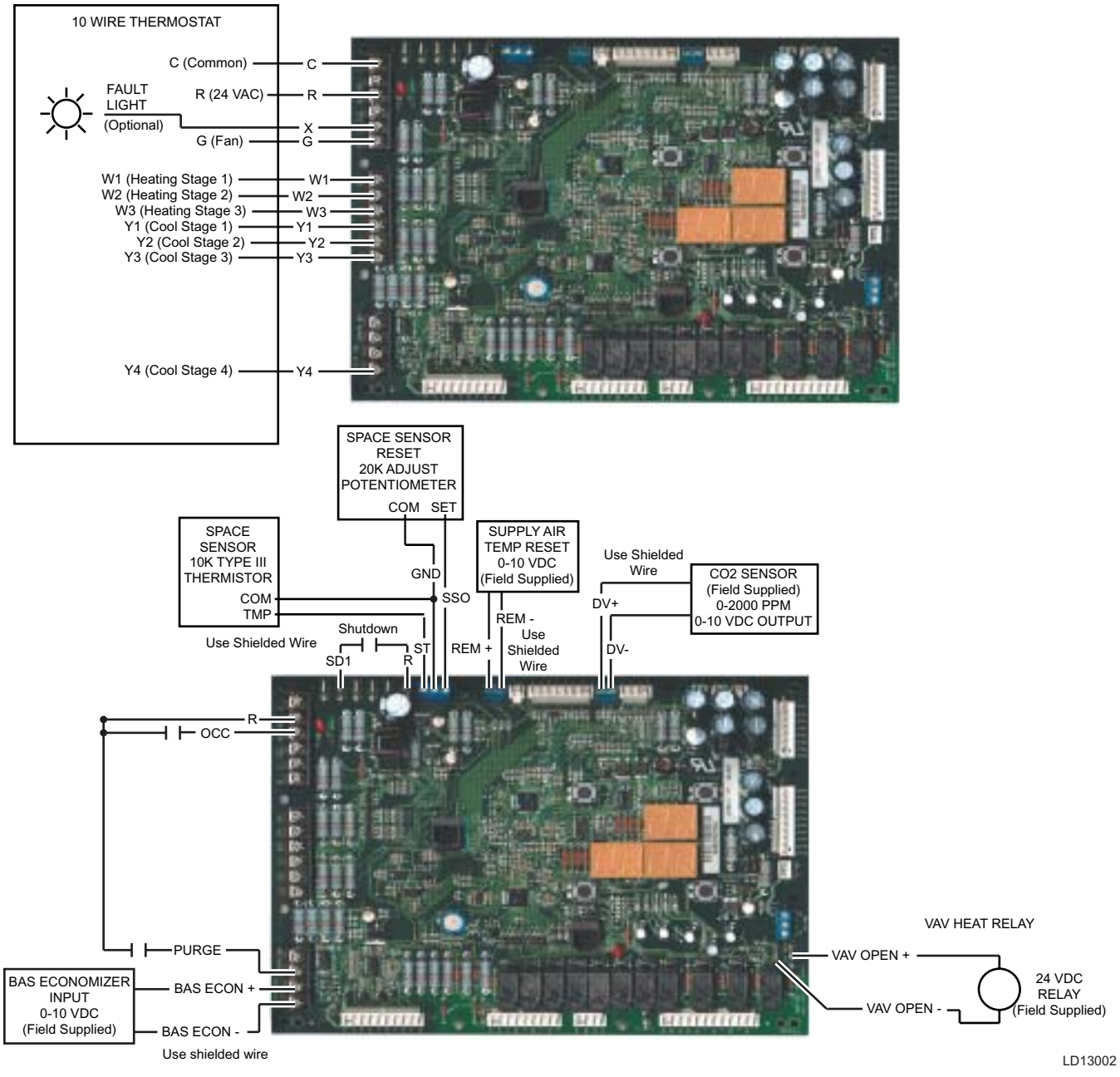


FIG. 2-8 – FIELD CONTROL WIRING CONNECTIONS

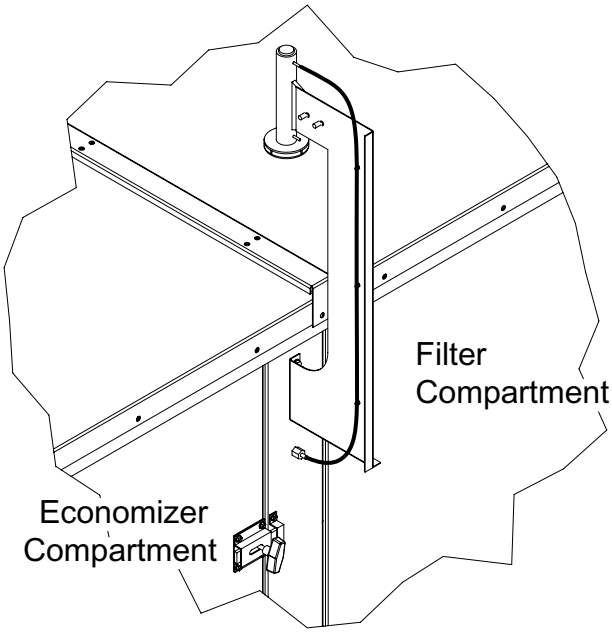


FIG. 4 – ATMOSPHERIC SENSOR PROBE

The atmospheric probe should be mounted on the support post on the control side of the unit between the Economizer and Filter Compartment.

APPENDIX 2
FACTORY RUN TEST PROCEDURE

GENERAL

Each unit undergoes a final QA check before the unit is shipped from the factory. This final check includes a complete operational test that verifies the operation of all of the systems and installed options on the unit. The Run Test is built into and performed by the Unit Controller. The Run Test can also be used in the field to verify operation at start up.

The unit will arrive in the field with all the ordered options already configured. As part of start up you may need to change set points and turn features ON or OFF based on the desires of the customer. Once configured the Run Test mode can be used to verify operation.

RUN TEST INITIATION

The Run Test sequence is initiated by performing the following:

- Press the "Program" button one time. This places the Unit Controller in the program mode. The two-digit display will show the first parameter, 01, which is the Run Test parameter. The four-digit display will show a 0. The 0 indicates that the Run Test is off.
- Press the "Alarm/Advance" button one time. This places the Unit Controller in the change mode.
- Press the "Address/Down" key one time to change the 0 to a 1.
- Press the "Program" button one more time to initiate the Run Test mode.

RUN TEST SEQUENCE

The run test sequence is as follows:

- If the supply fan is not on at the start of the test it will be energized. On a VAV unit the fan will operate at the programmed minimum speed.
- The Unit Controller will energize the binary output for compressor #1 and condenser fan #1. 15 seconds later the Unit Controller will energize the output for the compressor #2. 15 seconds later the Unit Controller will energize the binary output for compressor #3 and condenser fan #3. 15 seconds later the Unit Controller will energize the binary output for compressor #4.
- The Unit Controller will operate each compressor for 3 minutes. This results in the compressors turning off in reverse order.
- There will be a 2-minute delay between when the last compressor turns off and the start of the heating sequence.
- The Unit Controller will energize the binary output for each of the staged heat sections in 15-second increments.
- The Unit Controller will operate each staged heat sections for 3 minutes. This results in the staged heat sections turning off in reverse order.
- If the unit is equipped with hydronic heat the Unit Controller will send a 10 VDC, direct acting, 2 VDC, reverse acting, signal to the hydronic valve for 2 minutes.

- The Unit Controller will then send a 10 DCV analog signal to the Economizer Damper. This will place the outdoor damper in the full open position and place the return damper in the full closed position. The Unit Controller will also energize the binary output for the Exhaust Fan and send a 10 DCV signal to the Exhaust Damper if installed. This will result in the Exhaust Fan operating at full speed and the Exhaust Damper in the full open position.
- After five minutes the Economizer Damper will close to its programmed minimum position, the Exhaust Fan will turn off, the Exhaust Damper will close and the unit will resume normal operation.
- During the Run Test the control will read all installed sensors and verify their operation. If an error is detected, the control will display the appropriate error and log it to the software for viewing.

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