



BY JOHNSON CONTROLS

# Service Information

File In/With: N/A

SI0300

New 515

Equipment Affected: YK v.27/V0

v.27/v.0 YK OptiView Chiller Control Panel

## GENERAL

Beginning June 2015, enhanced software will be supplied in new production YK chillers and the replacement microboard kit 331-02430-601. Software version 27 is applicable to the 031-02430-000/001 microboards. The same software when used in the new 031-03630-001 microboard is called Version 0. The software is equivalent for both microboards. This software is backward compatible to all previous YK chillers equipped with microboard 031-02430-000 or 031-02430-001. Version 0 Software is only compatible with microboard 031-03630-000. The enhancements are listed below.

The panel software version and program card part numbers are:

031-02430-001/001 = C.OPT.01.27.308 (P/N 031-02474-001)

031-03630-001 = Y.OPT.01.0.308 (P/N 031-03601-001)

## LOSS OF SUBCOOLER LIQUID SEAL DETECTION IMPROVEMENTS

The logic initially released in v.25C software allowed nuisance warnings of Loss of Subcooler Liquid Seal when the entering Condenser Liquid Temperature was cold. The v.27 logic has been improved to eliminate these nuisance warnings. A Subcooler Effectiveness is now calculated and then compared to high and low acceptable values to determine if there is a Loss of Subcooler Liquid Seal.

$$\text{Subcooler Effectiveness} = \frac{(\text{Cond Sat Temp} - \text{Drop Leg Ref Temp})}{(\text{Cond Sat Temp} - \text{Entering Cond Liq Temp})}$$

The calculated Subcooler Effectiveness value is compared to the Subcooler Effectiveness Low value 0.4 and the Subcooler Effectiveness High value 1.5 (both values are adjustable if needed using an Admin password. If the calculated Subcooler Effectiveness is less than the Subcooler Effectiveness Low value or greater than the Subcooler Effectiveness High value continuously for two minutes after running for at least 30 minutes, the warning: “WARNING – LOSS OF SUBCOOLER LIQUID SEAL” will be displayed. The warning can be manually reset when any of the warning conditions are no longer in effect.

The Subcooler Effectiveness and the Low and High thresholds are displayed on the Refrigerant Level Control screen when the user is logged in at Service or Admin level.

**Work on this equipment should only be done by properly trained personnel who are qualified to work on this type of equipment. Failure to comply with this requirement could expose the worker, the equipment and the building and its inhabitants to the risk of injury or property damage.**

The instructions on this service bulletin are written assuming the individual who will perform this work is a fully trained HVAC & R journeyman or equivalent, certified in refrigerant handling and recovery techniques, and knowledgeable with regard to electrical lock out/tag out procedures. The individual performing this work should be aware of and comply with all Johnson Controls, national, state and local safety and environmental regulations while carrying out this work. Before attempting to work on any equipment, the individual should be thoroughly familiar with the equipment by reading and understanding the associated service literature applicable to the equipment. If you do not have this literature, you may obtain it by contacting a Johnson Controls Service Office.

Should there be any question concerning any aspect of the tasks outlined in this bulletin, please consult a Johnson Controls Service Office prior to attempting the work. Please be aware that this information may be time sensitive and that Johnson Controls reserves the right to revise this information at any time. Be certain you are working with the latest information.

## QUICK START – OIL HEATER CONTROL

To prevent overloading of the three phase transformer that powers the oil pump and oil heater, the Quick Start logic has been modified to **NOT** turn the Oil Heater on while the Oil pump is running. On startup the Shutdown Temperature is set to the calculated value.

## SUBCOOLER TUBE FREEZE PROTECTION

### **Condenser Pump Control**

**If the Drop Leg Temperature is Disabled** and the chiller is Stopped and the Condenser Pump is off, the pump will be turned on when the Saturated Condenser Temp is  $< 34.0^{\circ}\text{F}$ . (formerly  $35^{\circ}\text{F}$ )

If the pump is on only due to the Saturated Condenser Temp, it will be turned off when the Saturated Condenser Temp is  $> 36.0^{\circ}\text{F}$  (formerly  $40^{\circ}\text{F}$ ). If other logic calls for it to be on, it will remain on.

**If the Drop Leg Temperature is Enabled** and the chiller is stopped and the Condenser Pump is off, the pump will be turned on when the Drop Leg Temp is  $< 35.0^{\circ}\text{F}$ .

If the pump is on only due to the Drop Leg Temperature, it will be turned off when the Drop Leg Temperature is  $> 36.0^{\circ}\text{F}$  for 5 consecutive minutes. If other logic calls for it to be on, it will remain on.

### **Warning – Condenser – Freeze Threat from Low Pressure**

#### **If the Drop Leg Temperature Sensor is Enabled:**

The warning is set when All of the following are true:

- Chiller State is Stopped
- Saturated Condenser Temperature is  $< 34.0^{\circ}\text{F}$
- Drop Leg Temperature is  $< 35.0^{\circ}\text{F}$

The warning is released when Any of the following are true:

- Chiller State is not Stopped
- Saturated Condenser Temperature is  $> 36.0^{\circ}\text{F}$
- Drop Leg Temperature is  $> 38.0^{\circ}\text{F}$

#### **If the Drop Leg Temperature Sensor is Not Enabled:**

The warning is set when All of the following are true:

- Chiller State is Stopped
- Saturated Condenser Temperature is  $< 34.0^{\circ}\text{F}$

The warning is released when Any of the following are true:

- Chiller State is not Stopped
- Saturated Condenser Temperature is  $> 36.0^{\circ}\text{F}$

### **Warning - Condenser – Freeze Threat – Flow Switch Open**

#### **If the Drop Leg Temperature Sensor is Enabled:**

The warning is set when All of the following are true:

- Chiller State is Stopped
- Saturated Condenser Temperature is  $< 34.0^{\circ}\text{F}$
- Drop Leg Temperature is  $< 35.0^{\circ}\text{F}$
- Condenser Flow Switch is Open Continuously for  $> 1$  minute

The warning is released when Any of the following are true:

- Chiller State is not Stopped
- Saturated Condenser Temperature is > 36.0 °F
- Drop Leg Temperature is > 36.0 °F for 5 continuous minutes
- Condenser Flow Switch is closed

**If the Drop Leg Temperature Sensor is Not Enabled:**

The warning is set when All of the following are true:

- Chiller State is Stopped
- Saturated Condenser Temperature is < 34.0 °F
- Condenser Flow Switch is Open Continuously for > 1 minute

The warning is released when Any of the following are true:

- Chiller State is not Stopped
- Saturated Condenser Temperature is > 36.0 °F
- Condenser Flow Switch is closed

## SETUP SCREEN

On all language selections except English, the VSD communication protocol selection box was not displayed until the 02430 microboard established communications with the VSD. This prevented the user from selecting the correct VSD communication protocol. This has been corrected.

## PRV CALIBRATION SCREEN

When an ACC board is installed and the VSD communications must therefore be York Protocol, the PRV calibration voltage is monitored in the ACC board and not communicated to the microboard. The PRV Calibration Screen displayed a PRV Calibration Voltage box and title but no voltage update which was confusing to the user. The screen has been changed to not show this text and voltage box when the panel is set to the York Protocol.

## MOTOR LUBRICATION

### *Initial Panel Last Lubrication Date*

The last lubrication date was not always set properly in the factory. The program has been changed to automatically set the date of last lubrication when the factory presses the Finish Setup button.

### *Motor Auto Lubrication*

The Setup Screen has been changed to allow the Service level user the capability to select the type of Auto Lubrication system installed.

PROGRAM SETTING	SCREEN / BUTTON	MODE	LOW LIMIT	HIGH LIMIT	DEFAULT
Motor Auto Lube Type	Setup Screen	Service Access	Choices: • None • QLS401 • P203 • Sleeve		None

**None** is unchanged. The user must lubricate the motor manually and may use the Acknowledgement Button to log the completion of the lubrication

**QLS401 Auto-Lubrication System** is unchanged in operation. This system is pre-configured to inject grease into the motor bearings at a factory configured time interval set in the QLS401.

**P203 Auto-Lubrication System** A new version of the auto-luber, the Lincoln P203 allows the OptiView panel to control the lubrication timing which allows the lubrication to only be applied while the motor is not operating. The P203 also has a low grease level switch that is monitored by the OptiView to provide a message to the user that the grease reservoir must be filled.

The P203 will perform a lubrication at 900 hours of operation since the last lubrication if the motor is stopped. If the chiller runs 1400 hours since the last lubrication without stopping, a cycling fault will occur, the chiller will shut down and the bearings will be automatically lubricated. The chiller will then restart at the completion of the lubrication. Chiller startup is inhibited during the auto-lube process.

**Sleeve Bearings** Motors with sleeve bearings use oil which does not require changing as often as motors with ball bearings that require grease. Additional messages have been added to support Sleeve Bearings Lubrication.

Appropriate messages for each of the lubrication choices are displayed and user actions logged.

**Warning – Motor Oil Change Suggested** is displayed at 4000 operating hours since the last motor lubrication. A completed lube acknowledgement will clear the message.

**Warning – Motor Oil Change Required** is displayed at 5000 operating hours since the last motor lubrication. A completed lube acknowledgement will clear the message.

**Warning – Lack of Motor Oil Change** is displayed at 6000 operating hours since the last motor lubrication. A completed lube acknowledgement will clear the message. If the Shutdowns setting is set to Enabled, this third message will be treated as a Safety Fault and will therefore shut down the chiller until the motor lubrication is performed and acknowledged.

## ISOLATION VALVES

The control of Isolation Valves is changed to the following LTC I/O board locations.

BOARD	REFERENCE	HEADER / TERMINAL	ITEM
LTC I/O Board	K1	DO1/TB17-1,2	Isolation Valves Open
LTC I/O Board	K2	DO2/TB16-1,2	Isolation Valves Close
LTC I/O Board	N/A	DI4 / TB19-3,4	Isolation Valves Opened
LTC I/O Board	N/A	DI5 / TB18-1,2	Isolation Valves Closed

## HEAD PRESSURE AND HEAT RECOVERY

The minimum access level for the Head Pressure Control and Heat Recovery Screens has been changed to Operator.

## CHILLER STYLE

Program additions have been made to support the high temperature heat pump compressors Style G/U1-2 and Style G/U3-4,7.

## ERASE BRAM

The “Erase All BRAM” button has been added to the Diagnostics Screen. The “Erase All BRAM” button is only visible when the following conditions are true:

- Access Level is Admin
- Chiller is Stopped
- Panel Switch is OFF

Selection of the “Erase All BRAM” button displays a confirmation box with the string “Erase All BRAM and re-boot? If “Yes” is selected ALL data stored in the OptiView BRAM will be erased and then the panel rebooted. This includes the Sales Data so, this function must only be used when factory Product Technical Support advises to do so and issues the Admin password to allow the function.

### E-LINK CODE ADDITIONS

The following new code definitions have been added in this software release and is compatible with the E-Link data table for YK OptiView BAS (Rev K\_04a).

E-LINK CODE ADDITIONS	
<b>UNIT SAFETY FAULT CODES</b>	
CODE	DESCRIPTION
15	Motor - Lack of Motor Oil Change
<b>UNIT CYCLING FAULT CODES</b>	
CODE	DESCRIPTION
69	Motor Auto Lubrication In Progress
<b>UNIT WARNING CODES</b>	
19	Warning – Auto Lube Req'd On Next Shutdown
20	Warning – Auto Lube Grease Level Low
21	Warning – Auto Lube Failed
22	Warning – Motor Oil Change Suggested
23	Warning – Motor Oil Change Required
24	Warning – Lack of Motor Oil Change

### LANGUAGES

The panel now supports Turkish.

### LCHWT REMOTE RESET

When a BAS system changes the LCHWT setpoint up more than the Low Water Temperature Offset the chiller controller with v.24 software and later, the chiller control should have ramped the new setpoint up from the old setpoint at the rate of 0.2°F per second to allow the chiller to unload and not cause a LWT shutdown. This did not work properly and was fixed in this v.27/v.0 release.

THIS PAGE INTENTIONALLY LEFT BLANK.