YORK
BY JOHNSON CONTROLS

Service Information

File In/With: 160.54-O1 / 160.54-M1

SI0252

New **611**

Equipment Affected: YK Centrifugal Chillers

YK Centrifugal Chillers - Software Enhancements (V23)

GENERAL

Beginning May 2011, enhanced software will be supplied in new production YK chillers and replacement microboard kit 331-02430-601. This software is backward compatible to all previous YK chillers equipped with microboard 031-02430-000 or 031-02430-001. The enhancements are listed below.

The version and program card part number is: C.OPT.01.23.307 (P/N 031-02474-001).

HEAT PUMP DUTY

Heat Pump Duty is now an available option for certain models of YK chillers. On a Heat Pump equipped chiller, with Heat Pump Duty enabled, the chiller control can be switched between Cooling and Heating Mode. In Cooling Mode, the chiller controls the Leaving Chilled Liquid to the Leaving Chilled Liquid Temperature Setpoint. In Heating Mode, the chiller controls the Leaving Condenser Liquid Temperature to the Leaving Condenser Liquid Temperature Setpoint. All setpoints pertinent to this feature are maintained on the Heat Pump Screen.

VARIABLE GEOMETRY DIFFUSER

VGD Screens

The following enhancements have been made:

- Discharge Pressure and Condenser Pressure are now displayed.
- VGD Limit Switch is now labeled VGD Closed Limit Switch. The function is the same as before.
- The “Surge Detected” LED is replaced with a “Surge Avoidance Surge Detected” LED, which illuminates when full speed surges are detected.
- “ACC Surge Detected” LED is added when the Motor Drive Type setpoint is set to VSD and the Motor Communications Protocol setpoint is set to MODBUS. It illuminates when running at less than full speed.

Product Technical Support

Setpoints

The following enhancements have been made:

- The VGD High Limit setpoint default is changed from 0.8V to 0.6V.
- The VGD Low Limit setpoint default is changed from 0.6V to 0.5V.
- The PRV VGD Inhibit setpoint default is changed from 95% to 100%.

Operation

The VGD logic has been modified. If a stall is detected in the SURGE WAITING state, transition to the STALL REACTING state until stall is no longer detected. Once stall is no longer detected and if the surge waiting timer is still active, transition back to SURGE WAITING state. If surge waiting timer is not active, then transition out of the STALL REACTING state is as presently done.

PRE-ROTATION VANES SCREEN

The PRV feedback voltage is now always shown on this screen when the PRV potentiometer is connected directly to the microboard.

OIL SYSTEM

In previous software versions, the condition for the "Oil – Low Temperature Differential" start inhibit is checked while the chiller is stopped and during the first 10 seconds of Pre-lube. In this version, it will only be checked when the chiller is stopped. It is no longer checked during Pre-lube.

In addition to the existing required conditions, the "Warning - Standby Lube – Low Oil Pressure" warning is now set when either the Pump Oil Pressure or the Sump Oil Pressure is less than 2 PSIG.

VARIABLE SPEED DRIVE

Setpoints

The following enhancements have been made:

- The Building Automation System, via E-Link or Microgateway interface, can no longer change the VSD Frequency Control Mode setpoint (AUTO/FIXED). This is presently GPIC command object BV10 and is now deleted from the GPIC points list.
- The default value for the Frequency Control Mode Setpoint is changed from Manual to Auto.
- The programmable range of the "ACC Mapping Enable" setpoint is increased from 0.5 to 4.0ºF to 0.5 to 20.0ºF.

FAULTS

If the "VSD – High Phase (X) Instantaneous Fault" Cycling fault occurs 3 times in 10 minutes, the third shutdown becomes a Safety fault.

Warnings

The following warning has been added:

"Warning – Harmonic Filter – Not Running". This warning is set when all of the following are true for 20 continuous seconds:

- Chiller is running.
- Filter is enabled.
- Filter present status is true.

- Run Time greater than 20 seconds.
- Filter operating mode is “stopped”.

This warning is released when the chiller is stopped, but will be displayed until manually cleared using the WARNING RESET key when logged in at Operator (or higher) Access Level.

Serial Communications

When VSD – 60Hz or 50Hz is selected for the MOTOR DRIVE TYPE setpoint on the SETPOINTS screen, the microboard will poll on COM 2 alternating between Modbus ASCII Vyper/D Mod and Modbus RTU Raptyr protocols until one of them responds or until an initialization fault occurs. Once a valid response is received from either VSD type, the microboard will “remember” this, even after a power failure. This allows the correct screens to be displayed after a power failure, without repeating the poll interrogation. As long as the Motor Drive Type is not changed, once the microboard determines which VSD type is connected, it will not poll for the other. Only after a change of the Motor Drive Type setpoint, will the alternating between the two types be done again to determine the connected type.

Screens

“Temperature Differential (LCHLT – Setpoint)” is now displayed on the Surge Map screen.

HISTORY SCREEN

The following enhancements have been made:

- The “VGD Pressure Voltage” is now displayed as “Discharge Pressure”.
- The ACC Surge Count is now displayed when Motor Drive Type Setpoint is set to any VSD.
- The “VGD Limit Switch” is now displayed as “VGD Closed Limit Switch”.

TRENDING

New Slots

The following enhancements have been made:

- Surge Avoidance Surge Count is slot #8238.
- ACC Surge Count is slot #2849.

PUMP CONTROL

In previous software versions, the Chilled Water Pump contacts and the Condenser Water Pump contacts open on loss of water shutdowns. The pump control contacts will now remain closed on these shutdowns as follows:

- While the chiller is shutdown on “Leaving Chilled Liquid – Flow Switch Open” cycling shutdown, the Chilled Water Pump Contacts (TB2-44/45) remain closed until the chiller is given a stop command or has another fault.
- While the chiller is shutdown on “Condenser – Flow Switch Open” cycling shutdown, the Condenser Pump Contacts (TB2-150/151) remain closed until the chiller is given a stop command or has another fault.

In previous software versions, on those shutdowns where the Chilled Water Pump contacts (TB2-44/45) remained closed during shutdown, the contacts would open at the beginning of System Pre-lube and reclose 13 seconds into Pre-lube on a chiller restart. This allowed for the transducer Auto-Zeroing that occurred between seconds 10 to 13 of the Pre-lube. In this software version, on those chiller shutdowns where the contacts remain closed during

shutdown, when a chiller restart occurs, the contacts remain closed into and throughout the Pre-lube period and the Transducer Auto-Zeroing is not performed (the values from the last Auto-zeroing are used).

DIAGNOSTICS

COM2 RS-485 Port

In previous software versions, there was no serial port loopback test for COM2 RS-485. This software version adds a loopback test that operates like the other loopback tests. It performs the test by transferring data between COM2 and COM4a and comparing transmitted data to received data. Pass/fail criteria is the same as with the other tests. The loopback connections are as follows:

RS-485	FROM	TO
(COM 2/4a)	J13-8 (+)	J11-3 (+)
	J13-10 (-)	J11-2 (-)

Microboard Program Jumpers JP17 and JP27 must be installed in position 1 and 2.

Digital I/O

For Japanese, Korean or Chinese language, when performing offline control of the outputs, the SELECTION arrow is replaced with a green box around the selected output.

DATE FORMAT

The calendar date can now be displayed in three different formats. The format is changed using the new DATE FORMAT setpoint on the USER screen. It can be changed with Operator access level. The selectable formats are:

- DD MMM YYYY (default)
- DD.MM.YYYY

  or
- YYYY-MM-DD

SECURITY LOG – MANUAL RESET WARNINGS

In previous software versions, a generic message “Warning Reset” was added to the Security Log when any manual reset warning was acknowledged (by pressing the WARNING RESET button). In this version, the actual warning message that is being reset is entered as follows:

- Condenser or Evaporator Transducer Warning
- Standby Lube Low Oil Pressure Warning
- Excess Surge Detected Warning
- Condenser or VGD Sensor Failure warning
- Conditions Override VGD Warning Reset
- Purge High Pressure Warning
- Purge Float Switch Error Warning
- Excess Purge Warning
- Purge canister #X Full Warning
- Setpoint Override Warning
- Filter Not Running Warning