



Service Information

File In/With: —

Supersedes SI0501 (622)

SI0501

REV

623

Equipment Affected:

YVAA, YVFA, YAGK IPU3 Processor and 331-03478-XXX Micro-board Replacement Kit

IPU3 Replacement Kit / Software Version V01 / Initial Release - Update

GENERAL

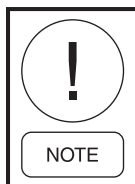
Beginning May 2022, enhanced software V01 will be supplied in the new production YVAA/YVFA/YAGK chillers and replacement Micro-board kit 331-03478-605 / 331-03478-609.

Micro-board kit part number 331-03478-609 will be superseded to part number 331-03478-605. When ordering kit 331-03478-609 you will be provided with kit 331-03478-605 which is a drop-in replacement for 331-03478-609.

The IPU2 processor for the 031-03478-XXX board is approaching end-of-life cycle. To provide floating point controls, USB port and eliminate processor obsolescence, the current IPU2/03476 software shall be ported to IUP3/03850 software processor and 031-3478-XXX boards.

IPU3 (031-03628) replaces the IPU2 processor and will utilize the same 031-03478 I/O board.

SOFTWARE UPDATE NOTES	
New Software Version	Y.ACS.30.01
Software Part Number	031-03850-010
Comms Port Change	See Important Notes
Jumper Settings Required	No



When replacing the 031-03478-101 Micro-Board make sure to order the Micro-Board Kit which will include the most current software.

Important Notes:

1. On YVAA chillers with IPU2 and currently using SC-EQ for BAS communication, TB2 is used to connect York Talk 2 to the E-link or SC EQ. When the IPU3 service kit is installed, the York Talk 2 connection must be removed from TB2 and rewired to TB3 on the 03478 board. (see *Figure 1*). Since TB3 is located further away from the SC-EQ equipment port, a longer wiring harness may be needed. If needed it can be ordered from Baltimore Parts (p/n: 592-43121-001).

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 information letter 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.

Product Technical Support

2. There is no support on a control board using IPU3, for native BAS communications (i.e., BACnet, Modbus, N2).
3. If BAS communications is desired after replacing the IPU2, a SC-EQ Communication Card must be utilized. The SC-EQ Screw Chiller Panel Installation Kit part number is **p/n: 392-41228-000**.
4. Before installing the IPU3 all programmable values should be recorded before the IPU2 is removed so they can be set after the IPU3 is installed.

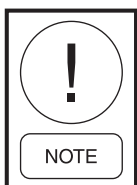
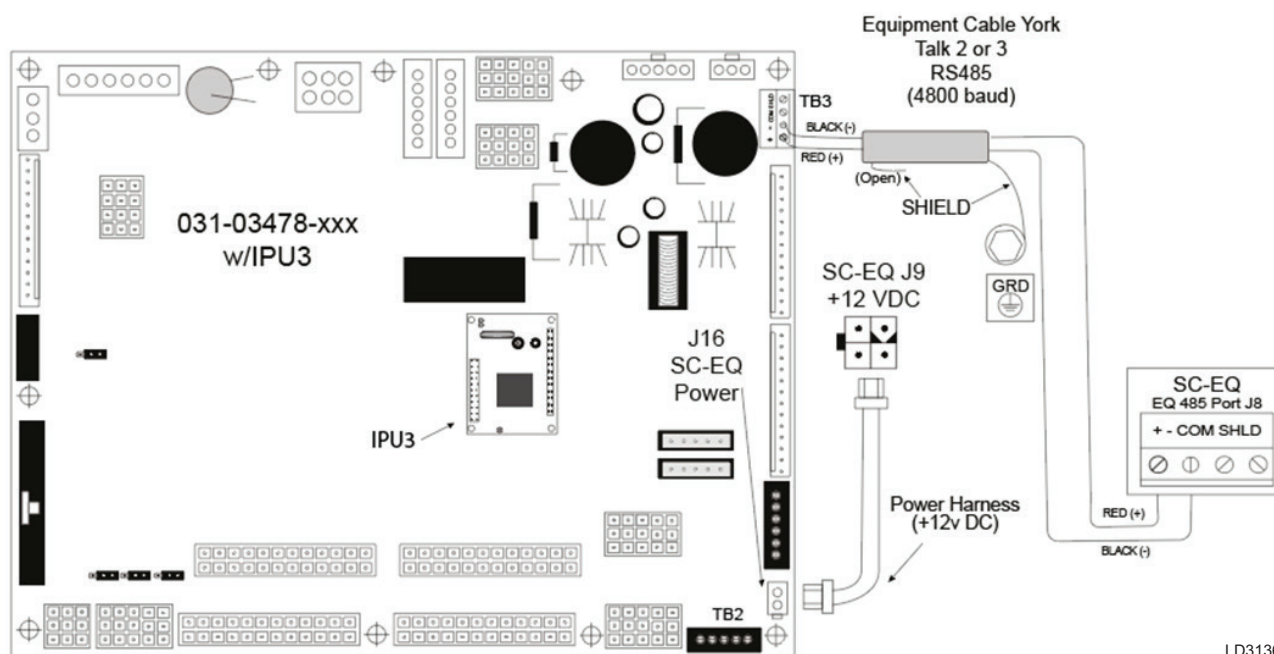
NOTE: Be sure to record the Native BAS settings before replacing the IPU2 to include:

Device Instance -
Baud Rate -
Manual MAC Address -

This information will be needed when setting up the SC-EQ Communication Card.

5. The SC-EQ BAS Points List is different than the Native BAS points list. The SC-EQ BAS Point List can now be accessed at the JCI Chiller Knowledge Exchange.
6. The SC-EQ Communication Card manual FORM 450.50-N1 can be accessed at the JCI Chiller Knowledge Exchange.

Each value from OPTIONS, PROGRAM, SETPOINTS, SCHEDULE, SETUP MODE, and FACTORY SET-UP MODE will need to be checked on IPU2 and then set or verified when IPU3 is installed. Use *Table 1* to record your setting.



A longer wiring harness may be needed to connect the SC-EQ to the 03478 board. Baltimore Parts can be contacted for a harness (p/n: 592-43121-001).
NOTE - Cable p/n: 592-43121-001 is part of the SC-EQ Screw Chiller Panel Installation Kit

FIGURE 1 - CONTROL BOARD

The current active YorkTalk protocol for the IPU3 to SC-EQ is YorkTalk 2. After updating the IPU3 software, ensure that YorkTalk 2 is selected follow the steps below:

- Connect the SC-EQ to Port 1 (TB3) on the 331- 03478-XXX I/O Board as shown.
- Access the YorkTalk settings:
- Press the PROGRAM key once.
- Enter the password 4245.
- Press the ✓ (ENTER) key to access Unit Setup. Set the following parameters:
- Navigate to YorkTalk Communication Protocol Type using the down arrow.
- Confirm YorkTalk 2 is selected.
- If YorkTalk 3 is selected, change to YorkTalk 2 and press the ✓ (ENTER) key.

TABLE 1 - LOG SETTINGS

ITEM	CHILLER RECORDED SETTINGS (COLUMN B)	SET/VERIFY SETTINGS AFTER BOARD CHANGE
SOFTWARE		
Control Panel Software Version		
Control Version		
VSD Software Version		
BAS SETTINGS Record setting to be programmed into SC-EQ		
Device Instance		
DE Modifier Address		
DE Modifier offset		
Manual MAC Address		
Baud Rate		
CONTROL PANEL SETTINGS		
Do prior to removing old board		
1. Record operating hours and starts per system below.		
2. Review the settings below and note facility/unit configuration in column B.		
OPTIONS KEY		
Language		
Local/Remote		
Display Units		
Lead/Lag Control Mode		
Remote Temp Reset Input		
Remote Current Limit Input		
Remote Sound Limit Input		
Low Ambient Temp Cutout		
Variable Water Outlet Control		
Isolation Valves		
Evaporator Pump Override (FCOL)		
PROGRAM KEY		
Suction Pressure Cutout		
Low Ambient Air Temp Cutout		
Leaving Chilled Liquid Temp Cutout		

ITEM	CHILLER RECORDED SETTINGS (COLUMN B)	SET/VERIFY SETTINGS AFTER BOARD CHANGE
Motor Current Limit		
Pulldown Motor Current Limit		
Pulldown Motor Current Limit Time		
Condenser Subcooling Setpoint		
Eductor Temp Differential (YVAA/YVFA)		
Eductor Safety Time (YVAA/YVFA)		
Motor Temperature Unload		
Unit ID Number		
Sound Limit Setpoint		
Suction Superheat Setpoint (YAGK)		
Input Current Limit		
UNIT SETUP MODE		
Sys 1 Number of Cond Fans		
Sys 2 Number of Cond Fans		
Compressor 1 Operating Hours		
Compressor 2 Operating Hours		
Compressor 1 Starts		
Compressor 2 Starts		
Clear History Buffers		
Remote Temp Reset Option		
Remote Current Limit Option		
Sound Limit Option		
Remote Inputs Service Time		
Condenser Fan Control		
Sys 1 Compressor Displacement		
Sys 2 Compressor Displacement		
Maximum Compressor Speed		
Minimum Running Speed		
Hybrid Minimum Running Speed (YVFA and QS)		
Quick Start VSD Start VSD Freq		
Sys 1 Motor Sensor to Ignore		
Sys 2 Motor Sensor to Ignore		
Fan Speed Multiplier		
Sys 1 VI Differential Temp Setpoint		
Sys 2 VI Differential Temp Setpoint		
VI Deadband		
VI Differential Temp Setpoint Offset		
Sys 1 Maximum Fan Speed %		
Sys 2 Maximum Fan Speed %		
Sys 1 Min Discharge Suction Diff		
Sys 2 Min Discharge Suction Diff		
Free Cooling Control		
Remote Evaporator		
Condenser Type		
Sys 1 Evaporator Level Control Setpoint		

ITEM	CHILLER RECORDED SETTINGS (COLUMN B)	SET/VERIFY SETTINGS AFTER BOARD CHANGE
Sys 2 Evaporator Level Control Setpoint		
Evaporator Level Ctl Valve Startup Pos		
Evaporator Level Ctl Startup Delay		
Voltage Code		
Fan Type		
Quick Start		
Discharge Pressure Cutout		
Soft Shutdown		
Update Software		
Data Logging to SD		
Serial Data Logging (IPU2)		
Data Log Time		
Anti-Recycle Timer (QS)		
Skip Frequency 1		
Skip Frequency 1 Low Limit		
Skip Frequency 1 High Limit		
Skip Frequency 2		
Skip Frequency 2 Low Limit		
Skip Frequency 2 High Limit		
Input Current Limiting		
Input Current Range (Input Current Limiting)		
Refrigerant Type		
Discharge Superheat Safety Ignore		
Chilled Liquid Cooling Mode		
FC Fan Startup Speed (YVFA)		
FC Valve Off Setpoint Offset (YVFA)		
SP Sensor Failure Bypass Time		
High Ambient Restart Freq. (GTS75)		
Economizer Backflow Control		
Economizer Offset Low		
Economizer Offset High		
Harmonic Filter		
FCCL Control with Bypass		
Opt Fan Low Oil Hold Diff		
Free Cooling Factor (YVFA)		
FC Comp Off Load Offset (YVFA)		
Free Cooling Fan Factor 1 (YVFA)		
Free Cooling Fan Factor 2 (YVFA)		
FC to Hybrid Transition Time (YVFA)		
FC Capacity Control Gain (YVFA)		
FC Fan Override to Opt Rate (YVFA)		
Flash Tank Temp Diff K1 (YVFA)		
FT Temp Diff Max Fan Rate (YVFA)		
FT High Level Fan Rate (YVFA)		
Evap Anti-Freeze Pump		

ITEM	CHILLER RECORDED SETTINGS (COLUMN B)	SET/VERIFY SETTINGS AFTER BOARD CHANGE
Enhanced Fans Minimum Fan Speed (Enhanced Fans)		
Enhanced XL Condenser Fan Speed Multiplier (Enhanced Fans XL)		
Extended Leaving Chilled Liquid Setpoint		
Quarterly Service Warning (NA when YVFA)		
Yearly Service Warning (NA when YVFA)		
3 Year Service Warning (NA when YVFA)		
5 Year Service Warning (NA when YVFA)		
Replace Oil Filter Warning (NA when YVFA)		
YorkTalk Protocol Type (IPU3)		YorkTalk2