



Service Information

File In/With: –	SI0395	
	New	718
Equipment Affected:	YMC ² Mod A	
V06 03630 OptiView Chiller Control Panel Software		

GENERAL

Beginning July 2018, enhanced software will be supplied in new production YMC² chillers and replacement microboard kit 331-03630-610. Version 06 is applicable to the 031-03630-007 microboard for YMC² Mod A chillers. The enhancements are listed below.

The Microboard, Software version and Program Card Part Number is:

031-03630-007 = Y.OPT.016.06.313 (P/N 031-03605-001)

DATALOGGING

This software release provides the ability to datalog all of the chiller operating parameters to an SD card in an Excel compatible .csv format. This eliminates the need to use a printer or a laptop for datalogging.

There is no limit on the SD card size. An 8 GB card will log well over a month’s worth of data. Data may be recorded at a user configurable rate between 0.1 and 60 seconds.

To set datalogging on, from the Home Screen press SETPOINTS>SETUP>DIAGNOSTICS>SERIAL/SD and the Serial/SD screen shown on the next page will be displayed.

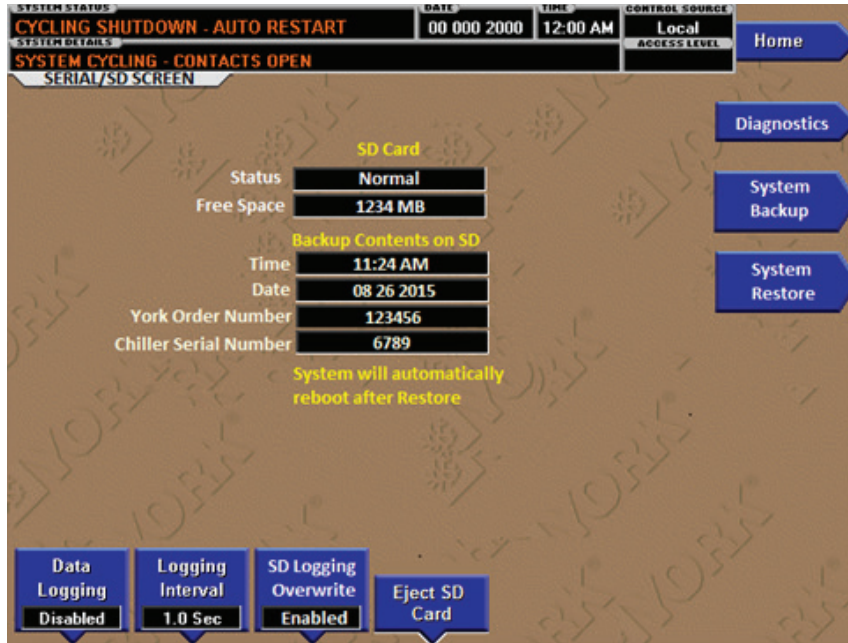
The Data Logging button may be used to select the mode of Data Logging: Disabled, Serial (to a printer or laptop PC), SD (SD card) or, Serial and SD. If “SD” or “Serial and SD” is selected, the chiller operating data shall be recorded at the Data Logging Interval into the SD card. The Data logging interval can be set on the Serial/SD Screen.

The data is stored in a folder named OOOO_SSSS where OOOO is the York Order Number and SSSS is the Chiller Serial Number.

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.



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The panel software will create a file for each day within this folder with the name YMC2B_YYYYMMDD.csv where DD equals the day of the month in addition to the Y Year and M Month fields. The format of the csv file is the same as the previous data log Hyper Terminal file format. A new YMC2B_YYYYMMDD.csv file is created at midnight.

If the SD Logging Overwrite is enabled, the SD card data logging will overwrite the oldest day csv file with a new day csv file when the SD is full. If the SD Logging Overwrite is disabled, SD card data logging will stop when the SD card is full.

Before removing the SD card the user should stop datalogging and then press the Eject SD Card button. This stops data writes to the SD card. Failure to do this before removing the SD card could corrupt the data file.

The datalog day file can be read in to Excel. The file may also be emailed to others for their review. The data headers are included. Below is a small sample of some of the points logged on a YK chiller. The format of the YMC² Mod B is similar.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
1	Date	Time	Elapsed Time	ECHLT	LCHLT	LCHLT Setp	ECLT	LCLT	Heating Setp	Evap Press	Cond Press	Delta P	Delta P/P	Motor Curr	Motor Curr Setp	Load Limit	CC State	PRV Cmd	PRV Pos	PRV State	VGd Cmd	VGd Pos	VGd State	HGBP Cmd	HGBP State	Cond Liquid Level	Cond Act Level Setp	Cond Level Ctrl State	Cond Level Ctrl Cmd	Evap Small Temp Diff	Evap Sat Temp
2	11/12/2016	00:00.0	474341.5	56.6	45.2	45	76	86.9	95	40.8	99.9	59.1	1.45	67.6	100	1	1	100	0	2	0 X.XX	1	0	1	39.6	50	6	0	-0.5	45.7	
3	11/13/2016	00:00.1	474341.6	56.6	45.2	45	76	86.9	95	40.8	99.9	59.1	1.45	67.6	100	1	1	100	0	2	0 X.XX	1	0	1	39.5	50	6	0	-0.5	45.7	
4	11/13/2016	00:00.3	474341.7	56.6	45.2	45	76	86.9	95	40.8	99.9	59.1	1.45	67.6	100	1	1	100	0	2	0 X.XX	1	0	1	39.5	50	6	0	-0.5	45.7	
5	11/13/2016	00:00.3	474341.8	56.6	45.2	45	76	86.9	95	40.8	99.9	59.1	1.45	67.6	100	1	1	100	0	2	0 X.XX	1	0	1	39.5	50	6	0	-0.5	45.7	
6	11/13/2016	00:00.4	474341.9	56.6	45.2	45	76	86.9	95	40.8	99.9	59.1	1.45	67.6	100	1	1	100	0	2	0 X.XX	1	0	1	39.5	50	6	0	-0.5	45.7	
7	11/13/2016	00:00.5	474342	56.6	45.2	45	76	86.9	95	40.8	99.9	59.1	1.45	67.6	100	1	1	100	0	2	0 X.XX	1	0	1	39.5	50	6	0	-0.5	45.7	
8	11/13/2016	00:00.6	474342.1	56.6	45.2	45	76	86.9	95	40.8	100	59.1	1.45	67.7	100	1	1	100	0	2	0 X.XX	1	0	1	39.6	50	6	0	-0.5	45.7	
9	11/13/2016	00:00.7	474342.2	56.6	45.2	45	76	86.9	95	40.8	100	59.2	1.45	67.7	100	1	1	100	0	2	0 X.XX	1	0	1	39.6	50	6	0.1	-0.5	45.7	
10	11/13/2016	00:00.8	474342.3	56.6	45.2	45	76	86.9	95	40.8	100	59.2	1.45	67.7	100	1	1	100	0	2	0 X.XX	1	0	1	39.5	50	6	0	-0.5	45.7	
11	11/13/2016	00:00.9	474342.4	56.6	45.2	45	76	86.9	95	40.8	100	59.2	1.45	67.7	100	1	1	100	0	2	0 X.XX	1	0	1	39.5	50	6	0	-0.5	45.7	
12	11/13/2016	00:01.0	474342.5	56.6	45.2	45	75.9	86.9	95	40.8	100	59.2	1.45	67.7	100	1	1	100	0	2	0 X.XX	1	0	1	39.5	50	6	0	-0.5	45.7	

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SYSTEM BACKUP AND RESTORE

This software release also provides the ability to save all of the Sales Order, Configuration and Setpoints to the SD card and transfer that information to another 03630 microboard if the original board fails. This is the equivalent of all the information which was previously stored in the BRAM chip in the 02430 microboard. Setpoints, Configuration, Sales Order etc. are all saved to the SD card.

A certain amount of space on the SD card is designated for System backup only, and will not be used for data logging. The remaining space on the SD card can be used for Datalogging so, one SD card can do both. The System backup includes all data on NOVRAM and time/date when backup is performed. The backup file is named OOOO_SSSS.ovb, where OOOO is the York Order Number and SSSS is the chiller serial number. Only one file will be created on the SD card. If the York Order Number or Chiller Serial Number is changed on the panel, the old backup file is deleted and a new backup file with changed order number and chiller serial number is created.

The panel software will backup NOVRAM data to SD card automatically each night at midnight or, the user may manually save the data by pressing the “System Backup” button on the Serial/SD. The System Backup and System Restore buttons are Only displayed when Data Logging is Disabled. When the manual backup is initiated, a security log entry is generated.

System Restore will restore the NOVRAM data from the SD card. Only one backup file will be on the SD card from the backup process. If there are multiple backup files on a SD card from copying files on a computer, the software will always use the file with the latest date and time. After the restore operation has completed, a security log entry will again be generated.

EVAPORATOR FREEZE PROTECTION

The present logic has the water low evaporator cutout trip threshold at 28.7 °F which equals 25.0 PSIG and the low evaporator pressure load limit threshold at 31.1 °F (27.0 PSIG). This effectively allowed the chiller to run just above 28.7 °F indefinitely. This could happen when the chiller is trying to unload but is unable to unload further yet will not trip due to being just above the trip threshold. This logic was developed many years ago when evaporator small temperature differences were much larger due to less efficient tubes. This allowed the refrigerant temperature to run low with a higher water temperature. Since heat exchangers have improved dramatically over the years, small temperature differences are generally much lower than in older chillers. This means that for the evaporator thresholds mentioned above, we can now run with significantly lower water temperatures which can result in a frozen evaporator.

In order to address this, the low evaporator cutout trip threshold was raised to 30.0 °F and the low evaporator pressure low limit threshold to 32.0 °F. As part of this change Smart Freeze has been changed to 2 faults to protect evaporators from freezing on all chillers regardless of LCHLT setpoint. The 2 faults replace the 2 smart freeze faults but apply to all chillers, water or brine.

NOTE “Brine Low Evaporator Cutout” has been changed to “Low Evaporator Cutout”.

PROGRAM SETTING	MODE TO CHANGE	LOW LIMIT	HIGH LIMIT	DEFAULT	CATEGORY	DEFAULT SETP
*Low Evaporator Cutout, R-134a (name changed from Brine Low Evaporator Cutout)	Liquid Type is Brine and Service Access and above	6.0 PSIG (-1.0 °F)	30.0 PSIG (34.6 °F)	26.1 PSIG (30.0 °F)	Evaporator	No
	Liquid Type is Water and Test Op Access and above	25.0 PSIG (28.7 °F)	30.0 PSIG (34.6 °F)	26.1 PSIG (30.0 °F)	Evaporator	No
*Low Evaporator Cutout, R-513A (name change from Brine Low Evaporator Cutout)	Liquid Type is Brine and Service Access and above	8.8 PSIG (-1.0 °F)	34.4 PSIG (34.6 °F)	30.2 PSIG (30.0 °F)	Evaporator	No
	Liquid Type is Water and Test Op Access and above	29.1 PSIG (28.7 °F)	34.4 PSIG (34.6 °F)	30.2 PSIG (30.0 °F)	Evaporator	No
**Local LCHLT Setpoint	Operator Access and above	W: 36.0 °F B: 10.0 °F	122.0 °F	45.0 °F	Evaporator	No

NOTE:

- All values listed in the table above will generate an entry in the security log when they are changed.
- A blank NOVRAM will result in it being set to its default value.
- Changing the Liquid Type from Brine to Water will also cause this program setting to be reset to its respective default value.

****NOTE:** W=Liquid Type is Water, B=Liquid Type is Brine

Evaporator Pressure Override Threshold

The Low Temperature Shutdown Temperature is ramped whenever a setpoint change is made.

When refrigerant type is R-134a or undefined:

Evaporator Pressure Override Threshold = Low Evaporator Cutout in PSIG + 1.7 PSIG.
(Water default of 32.0 °F = 27.8 PSIG = 26.1 PSIG + 1.7 PSIG)

When refrigerant type is R-513A:

Evaporator Pressure Override Threshold = Low Evaporator Cutout in PSIG + 1.8 PSIG.
(Water default of 32.0 °F = 32.0 PSIG = 30.2 PSIG + 1.8 PSIG)

NAME	CALCULATION	LOWEST DISPLAYED VALUE	HIGHEST DISPLAYED VALUE
*Shutdown Temperature	Selected LCHLT Setpoint - Shutdown Temperature Offset, or Lowest Value, whichever is highest (value ramped as described below)	W: 34.0 °F B: 6.0 °F	121.0 °F
*Temperature Differential	Leaving Chilled Liquid Temperature minus the Active Temperature Control Setpoint	-70.0 °F	W: 46.0 °F B: 72.0 °F

***NOTE:** W=Liquid Type is Water, B=Liquid Type is Brine

On startup the Shutdown Temperature shall be set to the calculated value.

On a Selected LCHLT Setpoint decrease or Shutdown Temperature Offset increase, the Shutdown Temperature shall be decreased at the same rate as the Active LCHLT Setpoint. (Programmable LCHLT Setpoint Ramp Rate)

On a Selected LCHLT Setpoint increase or Shutdown Temperature Offset decrease, the Shutdown Temperature shall be increased at half the rate as the Active LCHLT Setpoint. (Programmable LCHLT Setpoint Ramp Rate / 2)

LANGUAGE

This software release adds support for the Portuguese language.

NOVRAM MEMORY WRITE SPEED

Some of the NOVRAM memory components at the low end of the speed tolerance could not retain the setpoint and sales order data.

The issue displays as one or more of the following:

- The 3630 board does not boot successfully and hangs at the York logo or reboots continuously.
- Setpoints are not being saved either immediately after setting them they are lost after a power cycle.
- Sales order data is not saved and is lost after a power cycle.

To correct this problem the BUS Read/Write speed was slowed down in this software release.

DIGITAL INPUTS

The Digital Inputs were being read at the same interval as the 02430 program however with the much faster processor in the 03630 this was causing erroneous reading of the Digital Inputs occasionally. The read time has been slowed down in this software version.

REFRIGERANT SELECTION

This version of software supports the addition of refrigerant R-513A. However, this means that DIP Switch 1 is no longer used to select refrigerant. The refrigerant type is now selected in the SETPOINTS screen.