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Installation and Operation Manual

D-EIOCP00206-20_00EN

ACL – DC8

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1 SAFETY CONSIDERATIONS

1.1 General

Installation, start-up and servicing of equipment can be hazardous if certain factors particular to the installation are not considered: operating pressures, presence of electrical components and voltages and the installation site (elevated plinths and built-up up structures). Only properly qualified installation engineers and highly qualified installers and technicians, fully trained for the product, are authorized to install and start-up the equipment safely.

During all servicing operations, all instructions and recommendations, which appear in the installation and service instructions for the product, as well as on tags and labels fixed to the equipment and components and accompanying parts supplied separately, must be read, understood and followed.

Apply all standard safety codes and practices.

Wear safety glasses and gloves.

Use the proper tools to move heavy objects. Move units carefully and set them down gently.

1.2 Avoid electrocution

Only personnel qualified in accordance with IEC (International Electrotechnical Commission) recommendations may be permitted access to electrical components. It is particularly recommended that all sources of electricity to the unit be shut off before any work is begun. Shut off main power supply at the main circuit breaker or isolator.

IMPORTANT: This equipment uses and emits electromagnetic signals. Tests have shown that the equipment conforms to all applicable codes with respect to electromagnetic compatibility.

	RISK OF ELECTROCUTION: Even when the main circuit breaker or isolator is switched off, certain circuits may still be energized, since they may be connected to a separate power source.
	RISK OF BURNS: Electrical currents cause components to get hot either temporarily or permanently. Handle power cable, electrical cables and conduits, terminal box covers and motor frames with great care.
	ATTENTION: In accordance with the operating conditions the fans can be cleaned periodically. A fan can start at any time, even if the unit has been shut down.

1.3 Additional Safety Devices Info

This device needs to be connected to an external Air Conditioning unit. So, no further info can be directly integrated in the present manual.

For further info and recommendations related to safety consideration about the external units, any related equipment installed within, and the integration with a third part devices, please refer to the specific installation and operation manual of that unit itself.

1.4 Available sensors

In this first HW/SW release of this devices, no optional sensors are still integrated with it. If sensors will be integrated in future, every **info and recommendations related to safety consideration will be reported in this paragraph.**

2 GENERAL DESCRIPTION

2.1 Basic Information

The ALC DC8 panel is used to connect old McQuay Screw and Centrifugal chillers based on ***Microtech II (MTII)*** controller to ***Daikin On Site***. The core of the ALC panel is a Microtech®III controller. It manages any operation and communication between the chiller and DoS. If a BMS system is connected to the chiller via Modbus RS485 or a Bacnet IP cable/protocols, the ALC can also manage suck kind of communication by an optional Microtech module.

More in details, ALC DC8 is currently compatible with the following units:

- **MCQ "screw" units –** PFS, ALS, WHS, McAir, MTM (MNG, HPI)
- **USA/MCQ "centrifugal" units –** WDC, WSC, WPV, WCC, HSC, TSC, HDC, WMC
- a BMS already connected and compatible with mapping of abovementioned chiller units.

The ALC MTII controller can be connected to the MTIII-bases units by means of Modbus protocol, 3-wires cable and a dedicated serial card (i.e. EKAC200J model) that needs be installed on the related serial card slot of the MTII Chiller Control Unit.

Please refer to ALC DC8 to chiller units compatibility table for more details about chiller units connectable to Daikin On Site by means of ALC DC8.

2.2 Abbreviations used

In this manual, the following abbreviations are used:

A/C	Air Cooled
(ALC) DC8	(ALC) Daikin-on-site Connectable v.8
BMS	Building Management Systems
E/M	Energy Meter Module
HMI	Human Machine Interface
M2M	Machine-to-machine
UC	Unit controller (Microtech III)
W/C	Water Cooled

2.3 Controller Operating Limits

Operation (IEC 721-3-3):

- Temperature -40...+70 °C
- Restriction LCD -20… +60 °C
- Restriction Process-Bus -25….+70 °C
- Humidity < 90 % r.h (no condensation)
- Air pressure min. 700 hPa, corresponding to max. 3,000 m above sea level

Transport (IEC 721-3-2):

- Temperature -40...+70 °C
- Humidity < 95 % r.h (no condensation)
- Air pressure min. 260 hPa, corresponding to max. 10,000 m above sea level.

2.4 ALC DC8 to chiller units compatibility table

CHILLER FAMILY	UNIT NAME	MAX NUM. MAPPED DATAPOINTS	MAX NUMBER OF COMPRESSOR	MAX NUMBER OF CIRCUIT	N° OF COMPRESSOR PER CIRCUIT	BMS MODBUS/BACNETIP COMPATIBILITY*	M2M COMPATIBILITY*
Screw Chiller	**PFS**	~ 200	2	2	1	Y	Y
	ALS/WHS		4	4	1	Y	Y
	MCAIR		4	4	1	Y	Y
	MTM (MNG, HPI)		2	2	1	Y	Y
Centrifugal Chiller	**WSC, WDC, WPV, WCC, HSC, TSC HDC**	~ 130	2	1	2	Y	Y
	WMC		2	1	2	Y	Y

Table 1: ALC DC8 compatibility table

Hardware options

2.5 Standard and optional devices.

The ALC DC8 can handle different kinds of communication, the one with the chiller unit MTII controller apart. The following table shows the standard and optional modules or electronic equipment necessary to manage any main or further data communication implemented so far.

ITEM	DETAILS	NOTES
STANDARD PANEL	ALC PANEL COST WITH POL687 Controller	Standard configuration includes MTIII controller.
(Optional) DoS M2M Kit	4G Router WiFi kit.	Required if you can not connect the ALC DC8 to DoS to a LAN connection and by means of ethernet cable.
(Optional) Coms Modules and probes	Bacnet IP Communication Module POL908	In case the connection with BMS in BacNet is required
	Modbus Communication Module POL902	In case the connection with BMS in Modbus is required
	Serial card module EKAC200J	For communication with chiller MTII controller

2.6 Device Overview

Below is reported a picture that shows how is made the new ALC DC8. In particular, the components and devices used so far (blue) are reported in this paragraph and the new connections requested (light blue) are described in paragraph ALC connection diagram.

The ALC DC8 is mainly composed of the following devices:

- **Power supply** - a ***MDR-100-24 Meanwell*** power supply units that can be input powered at 85 VAC to 264 VAC or 120 VDC to 370 VDC and provide output up to 96W 24V 4A. A bit "oversized" to powering all the currently foreseen devices and in future any additional modules.
- **Main On/Off Switch** - to power on/off all the devices within the ALC DC8 cabinet.
- **Main MTIII controller** - a ***POL687.70*** which also guarantees good HW and SW potential growth.
- **(Optional) M2M Kit** – a ***Teltonika RUT240*** in case of 4G connection.
- **(Optional) BMS Communication Module** - ***POL902*** in case of BMS Modbus connection, ***POL908*** in case of BMS BacNet connection.

- **MTII Modbus communication serial card** – even if not shown in the overview image, it is necessary to install on the MTII a serial card for Modbus communication (if not already installed) between ALC DC8 and MTII. The referenced model is the ***Carel EKAC200J.***

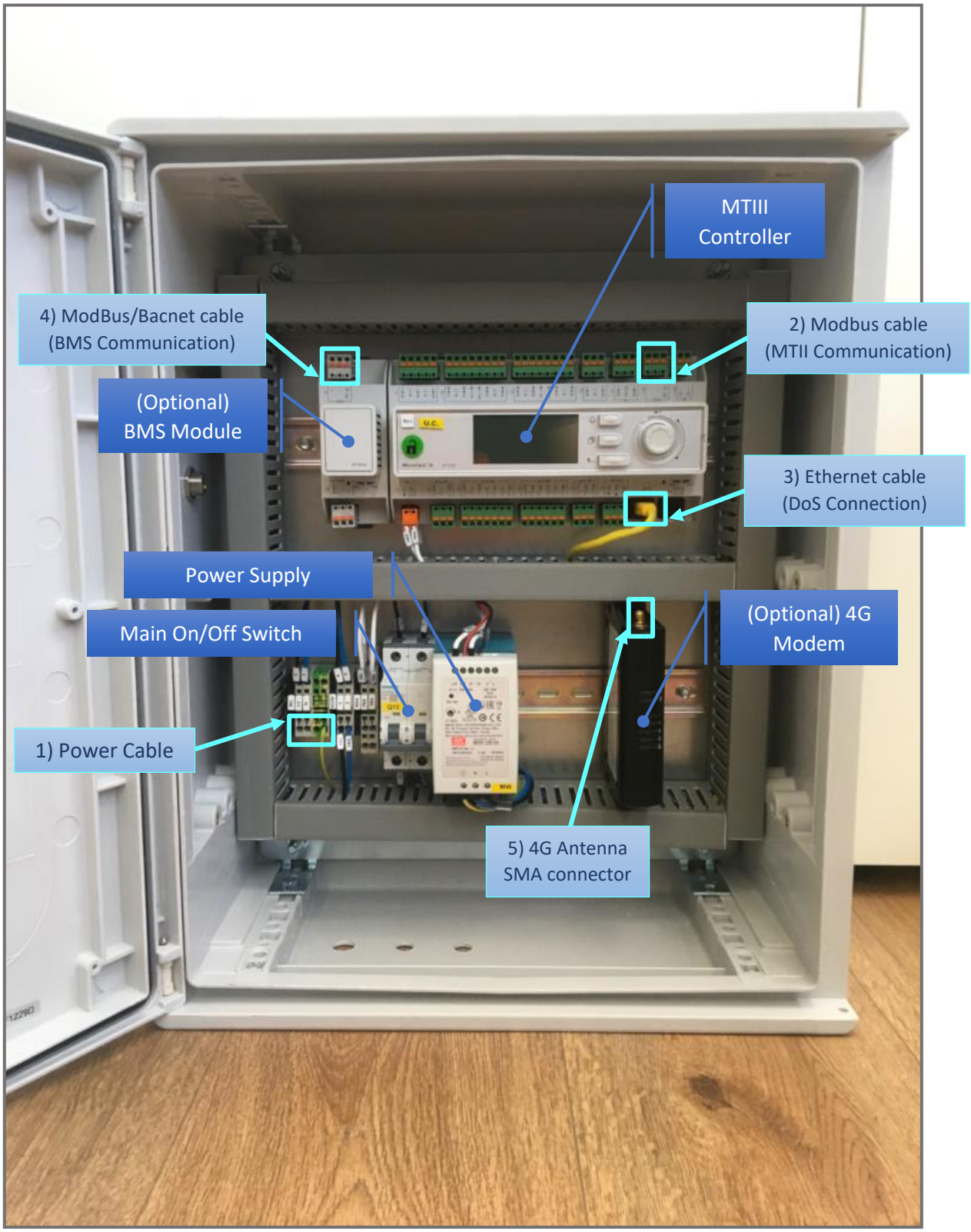


Figure 1: ALC DC8 main components

2.7 ALC connection diagram

The ALC DC8 provides new diagram connections as shown in the following figure. With respect to the previous versions of ALC, the internal MTIII controller now manages every communication.

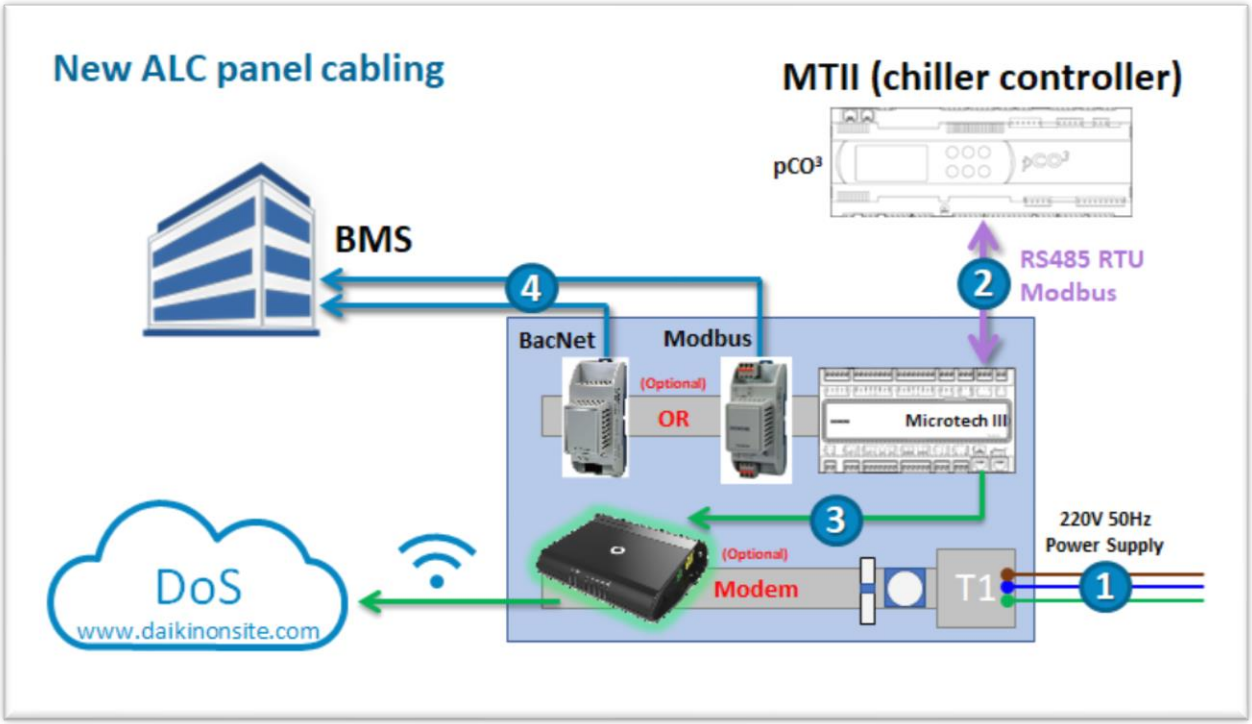


Figure 2: ALC DC8 connection diagram

As reported in the diagram, excluding the power supply cable, the type connections are mainly 5. With reference to the numbering also used in the ALC overview image, these are:

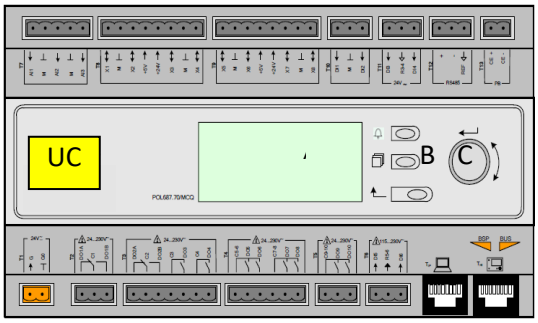
1. The new ALC operates with a single-phase power supply (100→240VAC, 50/60Hz)
2. The main communication connection, always provided, is a 3-wire cable (+ / - / Gnd ref) that allows the ALC to communicate with the MTII of the chiller unit via RS485 RTU Modbus protocol.
3. An ethernet cable that allows the ALC to reach the networks and so Daikin On Site. Optionally a 4G modem can be requested for a wireless connection.
4. (Optional) In case of link to BMS through optional POL modules, a cable that allow the ALC to communicate with the BMS itself by means of Bacnet IP or Modbus RS485 connection.
5. (Optional) In case of 4G modem, an external antenna can improve the reception of the signal. It is strongly antenna suggested to use a high gain external 4G if you are in an ambient that is not easily reachable by the 4G signal to avoid sporadic and inefficient communications.

3 Using the Controller

Knowing how to use the control system is necessary for a correct use of the same, as well as to complete the installation as indicated in the subsequent chapters or to carry out maintenance operations.

The control system consists of a unit controller (UC) to which can be connected POL extension modules or other devices that implement additional features. All POL modules communicate via an internal peripheral bus with the UC. The Microtech III continuously manages the information received from these devices. The UC incorporates a program that controls the unit.

The standard HMI consists of an inbuilt display (A) with 3 buttons (B) and a push'n'roll control (C).



The keypad/display (A) consists of a 5-line by 22 character display. The function of the three buttons (B) is described below:

🔔	Alarm status (from any page it links with the page with alarm list, alarm log and alarm snapshot if available)
🗐	Back to Main Page
↵	Back to the previous level (it can be the Main Page)

The push'n'roll command (C) is used to scroll between the different menu pages, settings and data available on the HMI for the active password level. Rotating the wheel allows to navigate between lines on a screen (page) and to increase and decrease changeable values when editing. Pushing the wheel acts as an Enter Button and will jump from a link to the next set of parameters.

3.1 General Recommendation

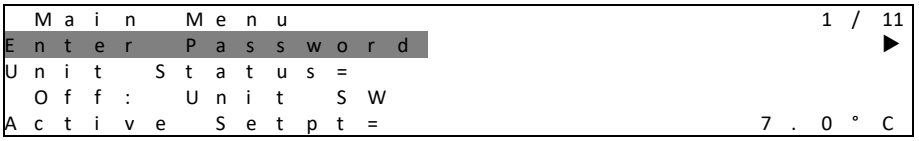
Before switching on the unit read the following recommendations:

- When all the operations and all the settings have been carried out, close all the switchbox panels
- The switchbox panels can only be opened by trained personnel
- When the UC requires to be accessed frequently the installation of a remote interface is strongly recommended
- The LCD display of the unit controller and other devices within the panel may be damaged by extremely low temperatures. For this reason, it is strongly recommended to never power off the unit during winter, especially in cold climates.

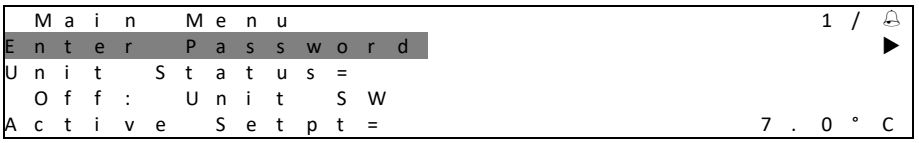
3.2 Navigating

When power is applied to the control circuit, the controller screen will be active and display the Home screen, which can also be accessed by pressing the Menu Button The navigating wheel is the only navigating device necessary, although the MENU, ALARM, and BACK buttons can provide shortcuts as explained previously.

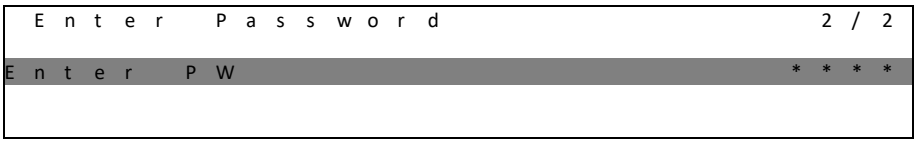
An example of the HMI screens is shown in the following picture.



A bell ringing in the top right corner will indicate an active alarm. If the bell doesn't move it means that the alarm has been acknowledged but not cleared because the alarm condition hasn't been removed. A LED will also indicate where the alarm is located between the unit or circuits.



The active item is highlighted in contrast, in this example the item highlighted in Main Menu is a link to another page. By pressing the push'n'roll, the HMI will jump to a different page. In this case the HMI will jump to the Enter Password page.



3.3 Passwords

The HMI structure is based on access levels that means that each password will disclose all the settings and parameters allowed to that password level. Basic information about the status including the active alarm list, active setpoint and controlled water temperature can be accessed without the need to enter the password. At user level, UC handles one level of passwords:

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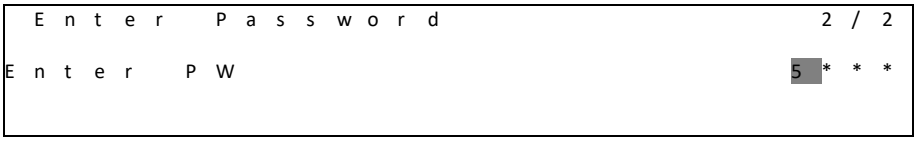
The following information will cover all data and settings accessible with the maintenance password.

ⓘ	***INFO: to access with higher level rights (i.e. Daikin Service role), please contact Daikin On Site Smart Center to assess if possible (it is up to the membership of Daikin company).***

In the Enter Password screen, the line with the password field will be highlighted to indicate that the field on the right can be changed. This represents a setpoint for the controller. Pressing the push'n'roll the individual field will be highlighted to allow an easy introduction of the numeric password. By changing all fields, the 4 digits password will be entered and, if correct, the additional settings available with that password level will be disclosed.



The password will time out after 10 minutes and is cancelled if a new password is entered or the control powers down. Entering an invalid password has the same effect as continuing without a password.

Once a valid password has been entered, the controller allows further changes and access without requiring the user to enter a password until either the password timer expires or a different password is entered. The default value for this password timer is 10 minutes. It is changeable from 3 to 30 minutes via the Timer Settings menu in the Extended Menus.

3.4 Editing

The Editing Mode is entered by pressing the navigation wheel while the cursor is pointing to a line containing an editable field. Then:

- Once in the edit mode pressing the wheel again causes the editable field to be highlighted.
- Turning the wheel clockwise while the editable field is highlighted causes the value to be increased.
- Turning the wheel counter-clockwise while the editable field is highlighted causes the value to be decreased.
- The faster the wheel is turned the faster the value is increased or decreased.
- Pressing the wheel again cause the new value to be saved and the keypad/display to leave the edit mode and return to the navigation mode.
- A parameter with an “R” is read only; it is giving a value or description of a condition.
- An “R/W indicates a read and/or write opportunity; a value can be read or changed (providing the proper password has been entered).

Example 1: Check the Model name. Start at ***Main Menu*** and scroll down by means of wheel until the submenu ***About Chiller*** is highlighted. There will be an arrow at the right side of the box, indicating that a jump to the next level is possible. Press the wheel to execute the jump. You will arrive at *About Chiller* link concerning info about the chiller itself and including the name of the model.

Example 2: Change a Set point, the *Daikin On Site Communication Start* for example. From the ***Main Menu*** select ***View/Set Unit***. The arrow indicated that this is link to a further menu. Press the wheel and jump to the next menu *View/Set Unit* and use the wheel to scroll down to ***Daikin On Site***. Select the item “*Comm Start*” and press the wheel to jump to the item change page. Rotate the wheel to adjust the set point to the desired value (*Start*). When this is done press the wheel again to confirm the new value. With the Back button it will be possible to jump back to the *Daikin On Site* menu where the new value will be displayed.

Example 3: Clear Alarms. The presence of a new alarm is indicated with a Bell ringing on the top right of the display. If the Bell is frozen one or more alarm had been acknowledged but are still active. To view the Alarm menu from the ***Main Menu,*** scroll down to the ***Alarms*** line or simply press the Alarm button on the display. Note the arrow indicating this line is a link. Press the wheel to jump to the next menu Alarms There are some lines her: Alarms are cleared from the ***Active Alarm*** link. Press the wheel to jump to the next screen. Then press again the wheel on ***Acknowledge*****.** Change this value to *Execute* to acknowledge the alarms. If the alarms can be cleared, then the alarm counter will display 0 otherwise it will display the number of alarms still active. When the alarms are acknowledged the Bell on the top right of the display will stop to ring if some of the alarms are still active or will disappear if all the alarms are cleared.

3.5 Basic Control System Diagnostic

MicroTech III controller, extension modules and communication modules are equipped with two status LED (BSP and BUS) to indicate the operational status of the devices. The BUS LED indicates the status of the communication with the controller. The meaning of the two status LED is indicated below.

Main Controller (UC)

BSP LED	Mode
Solid Green	Application running
Solid Yellow	Application loaded but not running (*) or BSP Upgrade mode active
Solid Red	Hardware Error (*)
Flashing Green	BSP startup phase. The controller needs time for starting.
Flashing Yellow	Application not loaded (*)
Flashing Yellow/Red	Fail safe mode (in case that the BSP upgrade was interrupted)
Flashing Red	BSP Error (software error*)
Flashing Red/Green	Application/BSP update or inizialization

(*) Contact Service.

Extension modules (currently not used for ALC)

BSP LED	Mode	BUS LED	Mode
Solid Green	BSP running	Solid Green	Communication running, I/O working
Solid Red	Hardware Error (*)	Solid Red	Communication down (*)
Flashing Red	BSP Error (*)	Solid Yellow	Communication running but parameter from the application wrong or missing, or uncorrect factory calibration
Flashing Red/Green	BSP upgrade mode		

Communication modules

BSP LED (same for all modules)

BSP LED	Mode
Solid Green	BPS running, communication with controller
Solid Yellow	BSP running, no communication with controller (*)
Solid Red	Hardware Error (*)
Flashing Red	BSP Error (*)
Flashing Red/Green	Application/BSP update

(*) Contact Service.

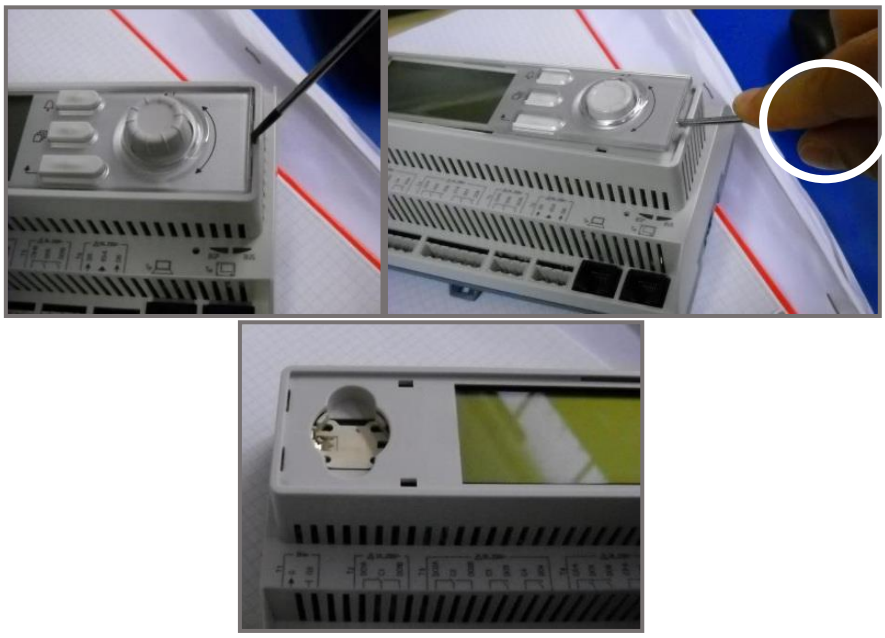
BUS LED

BUS LED	Bacnet IP	Modbus
Solid Green	Ready for Communication. The BACnet Server is started. It doesn't indicate an active communication	All Communication running
Solid Yellow	Startup. The LED stays yellow until the module receives a IP Address, therefore a link must be established.	Startup, or one configured channel not communicating to the Master
Solid Red	BACnet Server down. Automatic restart after 3 seconds is initiated.	All configured Communications down. Means no communication to the Master. The timeout can be configured. In case that the timeout is zero the timeout is disabled.

3.6 Controller maintenance

The controller requires to maintain the installed battery. Every two years it's required to replace the battery. Battery model is: *BR2032* and it is produced by many different vendors.

To replace the battery, remove the plastic cover of the controller display using a screw driver as shown in the following pictures:



Be careful to avoid damages to the plastic cover. The new battery shall be placed in the proper battery holder, which is highlighted in the following picture, respecting the polarities indicated into the holder itself.

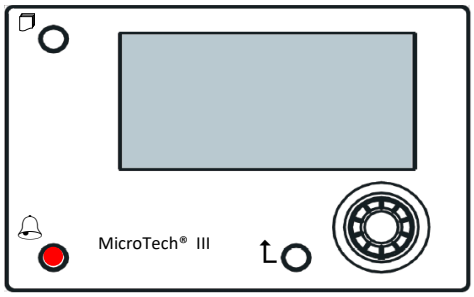
3.7 Optional Remote User Interface

As an option an external Remote HMI can be connected on the UC. The Remote HMI offers the same features as the inbuilt display plus the alarm indication done with a light emitting diode located below the bell button.

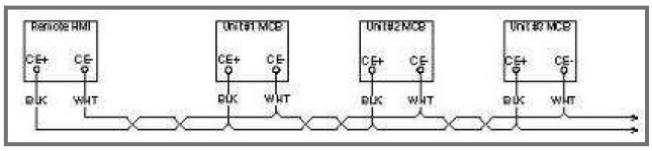
The Remote can be ordered with the unit and shipped loose as a field installed option. It can also be ordered any time after chiller shipment and mounted and wired on the job as explained on the following page. The remote panel is powered from the unit and no additional power supply is required.

All viewing and setpoint adjustments available on the unit controller are available on the remote panel. Navigation is identical to the unit controller as described in this manual.

The initial screen when the remote is turned on shows the units connected to it. Highlight the desired unit and press the wheel to access it. The remote will automatically show the units attached to it, no initial entry is required.



The Remote HMI can be extended up to 700m using the process bus connection available on the UC. With a daisy-chain connection as below, a single HMI can be connected to up to 8 units. Refer to the specific HMI manual for details.

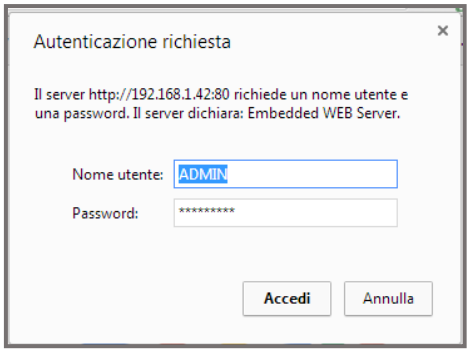


3.8 Embedded Web Interface

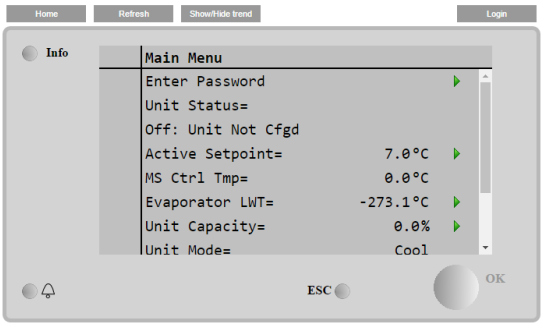
The MicroTech III controller has an embedded web interface that can be used to monitor the unit when connected to a local network. It is possible to configure the IP addressing of the MicroTech III as a fixed IP of DHCP depending on the network configuration.

With a common web browser, a PC can connect with the unit controller entering the IP address of the controller or the host name, both visible in the “About Chiller” page accessible without entering a password. When connected, it will be required to enter a username and a password. Enter the following credential to get access to the web interface:

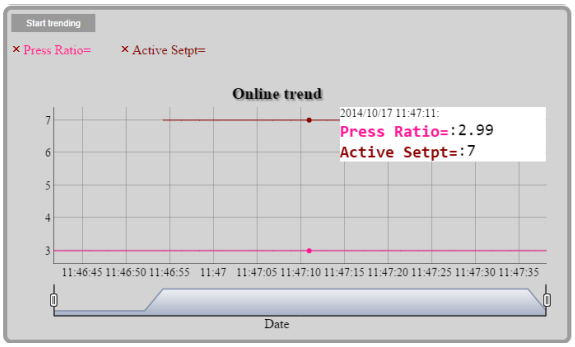
User Name: ***ADMIN***
Password: ***SBTAdmin!***



The Main Menu page will be displayed. The page is a copy of the onboard HMI and follows the same rules in terms of access levels and structure.



In addition, it allows to trend log a maximum of 5 different quantities. It's required to click on the value of the quantity to monitor and the following additional screen will become visible:



Depending on the web browser and its version the trend log feature may not be visible. It's required a web browser supporting HTML 5 like for example:

- ***Google Chrome v.37,***
- ***Mozilla Firefox v.32.***

These browsers are only an example of the supported ones and the versions indicated have to be intended as minimum versions.

4 Menu Structure

All settings are divided in different menus. Each menu collects in a single page other sub-menus, settings or data related to a specific function (for example Power Conservation or Setup) or entity (for example Unit or Circuit). In any of the following pages a grey box will indicate changeable values and the defaults.

The submenu items to which a user can have access, depend upon his role and the password entered as described in the paragraph dedicated to Passwords.

4.1 Main Menu

Setpoint/Sub-Menu	Default	Range	Description
Enter Password	▶	-	Submenu to activate access levels
View/Set Unit	▶	-	Submenu for unit data and settings
View/Set Circuit	▶	-	Submenu for circuit data and settings
Unit Status=	NULL	NULL, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	Status of the Unit
Active Setpoint=	0°C, ▶	-	Water temperature active setpoint + link to Setpoint page
Actual Capacity=	0.0%,▶	-	Unit capacity + link to “Capacity” page
Evaporator LWT=	-273.1°C, ▶	-	Evaporator leaving water temperature + link to “Temperatures” page
Unit Mode=	NULL	NULL, Ice, Cool, Heat	Unit Mode
Alarms	▶	-	Submenu for alarms; same function as Bell Button
Commission Unit	▶	-	Submenu for commission unit
Diagnostic	▶	-	Submenu for diagnostic
About Chiller	▶	-	Application Info submenu

4.1.1 View/Set Unit

Setpoint/Sub-Menu	Default	Range	Description
Thermostat Ctrl	▶	-	Submenu for Thermostatic control
Network Ctrl	▶	-	Submenu for Network control
Pumps	▶	-	Submenu for pump settings
Date/Time Schedules	▶	-	Submenu Date, Time and Quiet Night mode schedule
Power Conservation	▶	-	Submenu Unit Limiting functions
Ctrlr IP Setup	▶	-	Submenu for controller IP-address setup
Daikin on Site	▶	-	Submenu for connection to Daikin cloud DoS
Modbus	▶	-	Submenu for Modbus configuration (only with inserted CommCard)
BACnetIP	▶	-	Submenu for BACnetIP configuration (only with inserted CommCard)

4.1.1.1 Thermostat Ctrl

This page resumes all the parameters related to the unit thermostatic control.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
Start DT=	2.5°C	-	-64…64°C	Offset to start thermostat control
Stop DT=	2.0°C	-	-64…64°C	Offset to stop thermostat control
Stop to start=	180s	-	0…3600s	Compressor stop delay before start

4.1.1.2 Network Ctrl

This page resumes all settings related to Network control.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
Control Source=	Supervisor On/Off	Supervisor On/Off	Supervisor On/Off possible, Supervisor On/Off NOT possible, NULL	Local Network control selection
Netwrk En SP=	Require Unit OFF	Require Unit OFF	Require Unit OFF, Require Unit ON, NULL	Enable unit command from BMS
Netwrk Mode SP=	Cool	Cool	Null, Ice, Cool, Heat	HVAC mode
Netwrk Cap Lim=	100%	100%	0…100%	Capacity limitation from BMS
Netwrk Ice SP=	-	-3.8°C	-10…10°C	Ice setpoint from BMS

4.1.1.3 Pumps

This page resumes all settings related to the unit pumps.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
E. Pump 1 RH=	0 h	-	-64…64h	Run hours of evaporator pump #1
C. Pump 1 RH=	0 h	-	-64…64h	Run hours of condenser pump #1
Evap Pump 1 RH=	-	0 h	-64…64h	Run hours of evaporator pump #1
Cond Pump 1 RH=	-	0 h	-64…64h	Run hours of condenser pump #1
Evap Pump 2 RH=	-	0 h	-64…64h	Run hours of evaporator pump #2
Cond Pump 2 RH=	-	0 h	-64…64h	Run hours of condenser pump #2

4.1.1.4 Date/Time Schedules

This page resumes all settings related to daylight saving (DLS) mode.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
Actual Time=	hh:mm:ss	hh:mm:ss	-	Current time
Actual Date=	Mm/dd/yyyy	Mm/dd/yyyy	-	Current date
UTC Diff=	-60 min	-60 min	-	Difference from UTC
DLS Enable=	Yes	Yes	Yes, No	Daylight saving enable setpoint
DLS Strt Month=	3	3	1…12	Daylight saving start month
DLS Strt Week=	6	6	0…6	Daylight saving start weekday. Numbers between 0 and 6, where 0 is Monday and 6 is Sunday
DLS End Month=	10	10	1…12	Daylight saving end month
DLS End Week=	6	6	0…6	Daylight saving end weekday

4.1.1.5 Power Conservation

This page resumes all settings related to unit limiting functions.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
Unit Capacity=	0%	0%	-64…64%	Unit capacity actual value
Demand Limit=	0%	0%	-64…64%	Demand limit value

4.1.1.6 Ctrlr IP Setup

This page resumes all settings and data related to controller IP-address setup

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
Apply Changes=	Off	Off	On, Off	Command to restart the controller
DHCP=	On	On	On Off	Enable DHCP to assign controller IP address
M2M Modem=	None	None	None MachineLink Teltonika	Type of M2M device
Act IP=	192.168.1.42	192.168.1.42	0…255	Actual IP address assigned to controller
Act Msk=	255.255.255.0	255.255.255.0	0…255	Actual IP address assigned to network subnet mask
Act Gwy=	192.168.1.1	192.168.1.1	0…255	Actual IP address assigned to gateway
Gvn IP=	192.168.1.42	192.168.1.42	0…255	Given IP address setpoint to be assigned to controller
Gvn Msk=	255.255.255.0	255.255.255.0	0…255	Given IP address setpoint to be assigned to subnet mask
Gvn Gwy=	192.168.1.1	192.168.1.1	0…255	Given IP address setpoint to be assigned to gateway
Prim DNS=	192.168.1.1	192.168.1.1	0…255	Primary DNS IP address
Sec DNS=	0.0.0.0	0.0.0.0	0…255	Secondary DNS IP address
Host Name=	POL**********	POL**********	-	Hostname for the controller inside the network
MAC	xx-xx-xx-xx-xx-xx	xx-xx-xx-xx-xx-xx	x=0…9, A…Z	Controller MAC address

4.1.1.7 Daikin On Site

This page resumes all settings related to connect the controller to Daikin cloud DoS

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
Comm Start=	Start	Start	Off, Start	Command to enable communication with Daikin cloud
Comm State=	-	-	- , IPErr, Init, InitErr, Reg, RegErr, Description, Connected	State of the communication with cloud
Serial Number=	xxxxx	xxxxx	x=0…9	Unique serial number of the controller. The serial number can be composed by four or five numbers.
Activation Key=	xxxxxx-xxxxx-xxxxx-xxxxx-xxxxx	xxxxxx-xxxxx-xxxxx-xxxxx-xxxxx	x=1…9, A…Z	Unique alphanumeric key of 26 characters to register the controller in the cloud platform

4.1.2 View/Set Circuit

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
C1	▶	▶	-	Link for Circuit #1 page
C2	▶	-	-	Link for Circuit #2 page
C3	▶	-	-	Link for Circuit #3 page
C4	▶	-	-	Link for Circuit #4 page

4.1.2.1 View/Set Cir-*X*

This page resumes all settings and data related to the Circuit number *"-X"*, where X = 1,2,3,4.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
Data=	▶	▶	-	Link for "Data" page
Compressor=	▶	▶	-	Link for "Compressor" page
Condenser=	▶	▶	-	Link for "Condenser" page
EXV=	▶	▶	-	Link for "EXV" page

4.1.2.2 Data

This page resumes all main settings and data for the selected circuit.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
Circuit Status=	▶	▶	-	Link for "Circuit Status"
Capacity=	0%, ▶	0%	-64…64%	Actual capacity of the unit
Evap Press=	0 bar, ▶	-	-64…64 bar	Current evaporator pressure
Evap Press 1=	-	0 bar	-64…64 bar	Current evaporator pressure from probe#1
Evap Press 2=	-	0 bar	-64…64 bar	Current evaporator pressure from probe#2
Cond Press=	0 bar, ▶	-	-64…64 bar	Current condenser pressure
Cond Press 1=	-	0 bar	-64…64 bar	Current condenser pressure from probe#1
Cond Press 2=	-	0 bar	-64…64 bar	Current condenser pressure from probe#2
Evap Sat Temp=	0°C, ▶	-	-64…64°C	Current evaporator saturated temperature
Evap Sat Temp 1=	-	0°C	-64…64°C	Current evaporator saturated temperature from probe#1
Evap Sat Temp 2=	-	0°C	-64…64°C	Current evaporator saturated temperature from probe#2
C. Sat Tmp=	0°C, ▶	-	-64…64°C	Current condenser saturated temperature
C. Sat Tmp 1=	-	0°C	-64…64°C	Current condenser saturated temperature from probe#1
C. Sat Tmp 2=	-	0°C	-64…64°C	Current condenser saturated temperature from probe#2
Suct Temp=	0°C, ▶	-	-64…64°C	Current value of suction temperature
Suct Temp 1=	-		-64…64°C	Current value of suction temperature from probe#1
Suct Temp 2=	-	0°C	-64…64°C	Current value of suction temperature from probe#2
Disch Temp=	0°C, ▶	-	-64…64°C	Current value of discharge temperature
Disch Temp 1=	-	0°C	-64…64°C	Current value of discharge temperature from probe#1
Disch Temp 2=	-	0°C	-64…64°C	Current value of discharge temperature from probe#2
Oil Press=	0 bar, ▶	-	-64…64 bar	Current value of oil pressure
EXV Position	0 steps, ▶	-	-64…64 steps	Current value of expansion valve position
Evap LWT=	0°C	0°C	-64…64°C	Current value of water temperature entering the evaporator
Evap EWT=	0°C	0°C	-64…64°C	Current value of water temperature leaving the evaporator

Circuit Status

This page resumes the current state of the circuit, for each circuit.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
C1=	NULL	NULL	NULL*1*2*3*4*5*6*7*8*9*10* *11*12*13*14*15*16*17*18*19*20*21*22	Circuit status value for Circuit#1
C2=	NULL	-	NULL*1*2*3*4*5*6*7*8*9*10* *11*12*13*14*15*16*17*18*19*20*21*22	Circuit status value for Circuit#2
C3=	NULL	-	NULL*1*2*3*4*5*6*7*8*9*10* *11*12*13*14*15*16*17*18*19*20*21*22	Circuit status value for Circuit#3
C4=	NULL	-	NULL*1*2*3*4*5*6*7*8*9*10* *11*12*13*14*15*16*17*18*19*20*21*22	Circuit status value for Circuit#4

Capacity

This page resumes all the capacity value of the circuit, for each circuit.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
C1=	0%	-	-64…64%	Capacity value for Circuit#1
C2=	0%	-	-64…64%	Capacity value for Circuit#2
C3=	0%	-	-64…64%	Capacity value for Circuit#3
C4=	0%	-	-64…64%	Capacity value for Circuit#4

Evap Pressure

This page resumes all the evaporator pressures of each circuit.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
C1=	0 bar	-	-64…64 bar	Evaporator pressure for Circuit#1
C2=	0 bar	-	-64…64 bar	Evaporator pressure for Circuit#2
C3=	0 bar	-	-64…64 bar	Evaporator pressure for Circuit#3
C4=	0 bar	-	-64…64 bar	Evaporator pressure for Circuit#4

Cond Pressure

This page resumes all the condenser pressures of each circuit.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
C1=	0 bar	-	-64…64 bar	Condenser pressure for Circuit#1
C2=	0 bar	-	-64…64 bar	Condenser pressure for Circuit#2
C3=	0 bar	-	-64…64 bar	Condenser pressure for Circuit#3
C4=	0 bar	-	-64…64 bar	Condenser pressure for Circuit#4

Evap Sat Temp

This page resumes all the evaporator saturated temperatures of each circuit.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
C1=	0°C	-	-64…64°C	Evap. saturated temperature for Circuit#1
C2=	0°C	-	-64…64°C	Evap. saturated temperature for Circuit#2
C3=	0°C	-	-64…64°C	Evap. saturated temperature for Circuit#3
C4=	0°C	-	-64…64°C	Evap. saturated temperature for Circuit#4

C Sat Temp

This page resumes all the condenser saturated temperature, for each circuit.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
C1=	0°C	-	-64…64°C	Cond. saturated temperature for Circuit#1
C2=	0°C	-	-64…64°C	Cond. saturated temperature for Circuit#2
C3=	0°C	-	-64…64°C	Cond. saturated temperature for Circuit#3
C4=	0°C	-	-64…64°C	Cond. saturated temperature for Circuit#4

Suct Temp

This page restores all the suction temperatures of each circuit.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
C1=	0°C	-	-64…64°C	Suction temperature for Circuit#1
C2=	0°C	-	-64…64°C	Suction temperature for Circuit#2
C3=	0°C	-	-64…64°C	Suction temperature for Circuit#3
C4=	0°C	-	-64…64°C	Suction temperature for Circuit#4

Disch Temp

This page resumes all the discharge temperatures of each circuit.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
C1=	0°C	-	-64…64°C	Discharge temperature for Circuit#1
C2=	0°C	-	-64…64°C	Discharge temperature for Circuit#2
C3=	0°C	-	-64…64°C	Discharge temperature for Circuit#3
C4=	0°C	-	-64…64°C	Discharge temperature for Circuit#4

Oil Pressure

This page resumes all the oil pressures of each circuit.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
C1=	0 bar	-	-64…64 bar	Oil pressure for Circuit#1
C2=	0 bar	-	-64…64 bar	Oil pressure for Circuit#2
C3=	0 bar	-	-64…64 bar	Oil pressure for Circuit#3
C4=	0 bar	-	-64…64 bar	Oil pressure for Circuit#4

EXV Position

This page resumes all data relating to the expansion valve position, for each circuit.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
C1=	0steps,	-	-64…64 steps	EXV position for Circuit#1
C2=	0steps,	-	-64…64 steps	EXV position for Circuit#2
C3=	0steps,	-	-64…64 steps	EXV position for Circuit#3
C4=	0steps,	-	-64…64 steps	EXV position for Circuit#4

4.1.2.3 Compressor

This page resumes all main settings and data related to the compressor of selected circuit.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
No. Starts=	0, ▶	0, ▶	-64…64	Number of starts of compressor for selected circuit + Link to "No. Starts" page
Run Hours=	0h, ▶	0h, ▶	-64…64 h	Run hours of compressor for selected circuit + Link to "Run Hours" page
Capacity=	0%, ▶	-	-64…64%	Capacity of selected circuit + Link to "Capacity" page
Load St=	Unit not required to load	-	Unit not required to load, Unit required to load, NULL	Load state of compressor for selected circuit
Unload St=	Unit not required to unload	-	Unit not required to unload, Unit required to unload, NULL	Unload state of compressor for selected circuit

No. Starts

This page resumes all the number of starts of compressor.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
C1=	0	0	-64…64	Number of starts of compressor for Circuit#1 (MCQ); Number of starts of compressor#1 for Circuit#1 (USA);
C2=	0	0	-64…64	Number of starts of compressor for Circuit#2 (MCQ); Number of starts of compressor#2 for Circuit#1 (USA);
C3=	0	-	-64…64	Number of starts of compressor for Circuit#3 (MCQ)
C4=	0	-	-64…64	Number of starts of compressor for Circuit#4 (MCQ)

Run Hours

This page resumes all the run hours of compressor.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
C1=	0h	0h	-64…64 h	Run hours of compressor for Circuit#1 (MCQ); Run hours of compressor#1 for Circuit#1 (USA);
C2=	0h	0h	-64…64 h	Run hours of compressor for Circuit#2 (MCQ); Run hours of compressor#2 for Circuit#1 (USA);
C3=	0h	-	-64…64 h	Run hours of compressor for Circuit#3 (MCQ)
C4=	0h	-	-64…64 h	Run hours of compressor for Circuit#4 (MCQ)

4.1.2.4 Condenser

This page resumes all main settings and data related to the condenser of the selected circuit.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
C. Sat Tmp=	0°C, ▶	-	-64…64°C	Saturated temperature of condenser for the selected circuit + Link to "C Sat Temp" page
Cond Press=	0 bar, ▶	-	-64…64 bar	Condenser pressure for the selected circuit + Link to "Cond Press" page
C. Sat Tmp 1=	-	0°C	-64…64°C	Saturated temperature of condenser related to compressor#1 (single circuit)
Cond Press 1=	-	0 bar	-64…64 bar	Condenser pressure related to compressor#1 (single circuit)
C. Sat Tmp 2=	-	0°C	-64…64°C	Saturated temperature of condenser related to compressor#2 (single circuit)
Cond Press 2=	-	0 bar	-64…64 bar	Condenser pressure related to compressor#2 (single circuit)

4.1.2.5 EXV

This page resumes all main settings and data relating to the expansion valve.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
EXV Position=	0 steps, ▶	-	-64…64 steps	Position of EXV and link to "EXV Position" page
Evap Press=	0 bar, ▶	-	-64…64 bar	Evaporator pressure and link to "Evap Pressure" page

4.1.3 Active Setpoint

4.1.3.1 Tmp Setpoint

This page resumes all settings to configure the leaving water temperatures setpoints.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
Cool LWT	7.0°C	6.7°C	-64…64°C	Leaving water temperature setpoint for cooling mode
Heat LWT	45.0°C	50.0°C	-64…70°C	Leaving water temperature setpoint for heating mode
Ice LWT	-	-3.8°C	-10…10°C	Leaving water temperature setpoint for ice mode

4.1.4 Commission Unit

4.1.4.1 Configuration

Unit

This page resumes all settings to configure the unit.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
Unit Type=	Select Unit Name	Select Unit Name	PFS ALS WHS MCAIR MTM WSC WDC WPV WCC HSC TSC HDC WMC Select Unit Name	Setpoint for specifying the unit model to which ALC device is connected.

No. Of Compr.=	0	0	0, 1, 2, 3, 4	Setpoint to configure the number of: • compressors (USA) • circuits (MCQ)
Write Enable=	Write Sp Disabled	Write Sp Disabled	Write Sp Disabled, Write Sp from DoS, Write Sp from BMS	Setpoint to enable editing/writing of all setpoint (sp) values.
Setp Values=	Copy Values MT2	Copy Values MT2	Copy Values MT2, ALC default or MT3	Setpoint to choose the current values of all setpoints.
MB Comm Time Int=	5.0s	5.0s	-64…64s	Setpoint to setup the time interval of MODBUS communication protocol.
MB Comm State=	-	-	Ok, Communication ERROR!	Information on the state of MODBUS communication protocol.

Modem

This page resumes all settings and data related to the Circuit number *"-X"*, where X = 1,2,3,4.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
Modem=	None	None	None, MachineLink, Teltonika	Setpoint to configure the modem model, when the unit is connected to Internet with a M2M device.

4.1.4.2 Calibrate Sensors

This page resumes all data relating to the sensors installed on the chiller unit.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
Unit=	▶	▶	-	Submenu with information on the unit sensors.
C1=	▶	▶	-	Submenu with information on the Circuit#1.
C2=	▶	-	-	Submenu with information on the Circuit#2
C3=	▶	-	-	Submenu with information on the Circuit#3
C4=	▶	-	-	Submenu with information on the Circuit#4

Unit

This page resumes all information about unit sensors.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
Evap EWT=	0°C	0°C	-64…64°C	Current value of evaporator entering water temperature
Evap LWT=	0°C	0°C	-64…64°C	Current value of evaporator leaving water temperature
Cond EWT=	0°C	0°C	-64…64°C	Current value of condenser entering water temperature
Cond EWT=	0°C	0°C	-64…64°C	Current value of condenser leaving water temperature
Heat Rec EWT=	0°C	-	-64…64°C	Current value of heat recovery entering water temperature
Heat Rec LWT	0°C	-	-64…64°C	Current value of heat recovery leaving water temperature

C-X

This page resumes all information about circuit sensors for the circuit number *X*, where *X=1,2,3,4*.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
Evap Press=	0 bar	-	-64…64 bar	Current value of evaporator refrigerant pressure for the selected circuit
Cond Press=	0 bar	-	-64…64 bar	Current value of condenser refrigerant pressure for the selected circuit
Oil Press=	0 bar	-	-64…64 bar	Current value of oil pressure for the selected circuit
Suct Temp=	0°C	-	-64…64°C	Current value of suction temperature for the selected circuit
Disch Temp=	0°C	-	-64…64°C	Current value of discharge temperature for the selected circuit
Evap Press 1=	-	0 bar	-64…64 bar	Current value of evaporator refrigerant pressure, related to the compressor#1 (single circuit)
Evap Press 2=	-	0 bar	-64…64 bar	Current value of evaporator refrigerant pressure, related to the compressor#2 (single circuit)
Cond Press 1=	-	0 bar	-64…64 bar	Current value of condenser refrigerant pressure, related to the compressor#1 (single circuit)

Cond Press 2=	-	0 bar	-64…64 bar	Current value of condenser refrigerant pressure, related to the compressor#2 (single circuit)
Suct Temp 1=	-	0°C	-64…64°C	Current value of suction temperature, related to the compressor#1 (single circuit)
Suct Temp 2=	-	0°C	-64…64°C	Current value of suction temperature, related to the compressor#2 (single circuit)
Disch Temp 1=	-	0°C	-64…64°C	Current value of discharge temperature, related to the compressor#1 (single circuit)
Disch Temp 2=	-	0°C	-64…64°C	Current value of discharge temperature, related to the compressor#2 (single circuit)

4.1.4.3 Manual Control

This page resumes all setting for operating the unit manually.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
Unit=	▶	▶	-	Submenu with settings for the unit.
C1=	▶	▶	-	Submenu with settings for Circuit#1.
C2=	▶	-	-	Submenu with settings for Circuit#2.
C3=	▶	-	-	Submenu with settings for Circuit#3.
C4=	▶	-	-	Submenu with settings for Circuit#4.

Unit

This page resumes all information about the input/output state of unit probes and pumps.

Setpoint/Sub-Menu	Default		Range	Description
	c	USA		
Evap Flow Inp St=	Evaporator flow present	Evaporator flow present	Evaporator flow present, Evaporator flow LOSS, NULL	Status of the flow entering the evaporator.
Cond Flow Inp St=	Condenser flow present	Condenser flow present	Condenser flow present, Evaporator flow LOSS, NULL	Status of the flow entering the condenser.
E.Pmp1 Out St=	Main Pump is OFF	Main Pump is OFF	Main Pump is OFF, Main Pump is ON, NULL	Output status of the evaporator pump.
C.Pmp1 Out St=	Main Pump is OFF	Main Pump is OFF	Main Pump is OFF, Main Pump is ON, NULL	Output status of the condenser pump.

C-X

This page resumes all information about the fans state for the selected circuit.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
Fan 1 out st=	Fan #1 OFF	-	Fan #1 OFF Fan #1 ON NULL	Output state of fan#1 for the selected circuit. (MCQ only)
Fan 2 out st=	Fan #2 OFF	-	Fan #2 OFF Fan #2 ON NULL	Output state of fan#2 for the selected circuit. (MCQ only)
Fan 3 out st=	Fan #3 OFF	-	Fan #3 OFF Fan #3 ON NULL	Output state of fan#3 for the selected circuit. (MCQ only)
Fan 4 out st=	Fan #4 OFF	-	Fan #4 OFF Fan #4 ON NULL	Output state of fan#4 for the selected circuit. (MCQ only)
Fan 5 out st=	Fan #5 OFF	-	Fan #5 OFF Fan #5 ON NULL	Output state of fan#5 for the selected circuit. (MCQ only)
Fan 6 out st=	Fan #6 OFF	-	Fan #6 OFF Fan #6 ON	Output state of fan#6 for the selected circuit. (MCQ only)

			NULL	

4.1.5 Alarms

This page resumes all information about alarms.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
Alarm Active	▶	▶	-	Submenu with a list of currently active alarms.
Alarm History	▶	▶	-	Submenu with a list of all alarms.
Alarm Snapshot	▶	▶	-	Submenu with a list of alarm snapshot.
Advanced	▶	▶	-	Submenu with advanced options and information about alarms.
EventHistory	▶	▶	-	Submenu with a list of all events.

4.1.6 Diagnostic

This page resumes all information for the diagnostic of the controller.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
MT3 Run Hours=	x	x	x=0,1,2…	Operational time for MT3 controller.
Reset Cause=	Command	Command	Power, Command, Watchdog, Unexpected	Event that restart the controller.
Nr. Of Reset=	x	x	x=0,1,2…	Counter for the number of controller reset
Internal Temp=	x	x	x=-64…64°C	Controller internal temperature
Mem. Used=	x	x	x=0…100%	Percentage of used memory
Cycle Time=	110	110	94…253ms	Cycle time for the controller

4.1.7 About

This page resumes all information about MTIII unit controller and unit.

Setpoint/Sub-Menu	Default		Range	Description
	MCQ	USA		
Model name=	Select Unit Name	Select Unit Name	PFS ALS WHS MCAIR MTM WSC WDC WPV WCC HSC TSC HDC WMC Select Unit Name	Unit model to which ALC device is connected.
Unit S/N=	Enter Data	Enter Data	-	Serial number of the unit.
SW name=	ALC	ALC	-	Name of the software installed on the controller.
BSP Ver=	10.36	10.36	-	Firmware version installed on the controller.
App Ver=	8.00.A	8.00.A	-	Software version installed on the controller.

5 Device Installation and Connection

5.1 Installing and connecting ALC DC8 Hardware

Hereafter a step-by-step guide with detailed images to see how each device have to be connected to the chiller unit and to the other facilities.

5.1.1 STEP 1, Cable routing

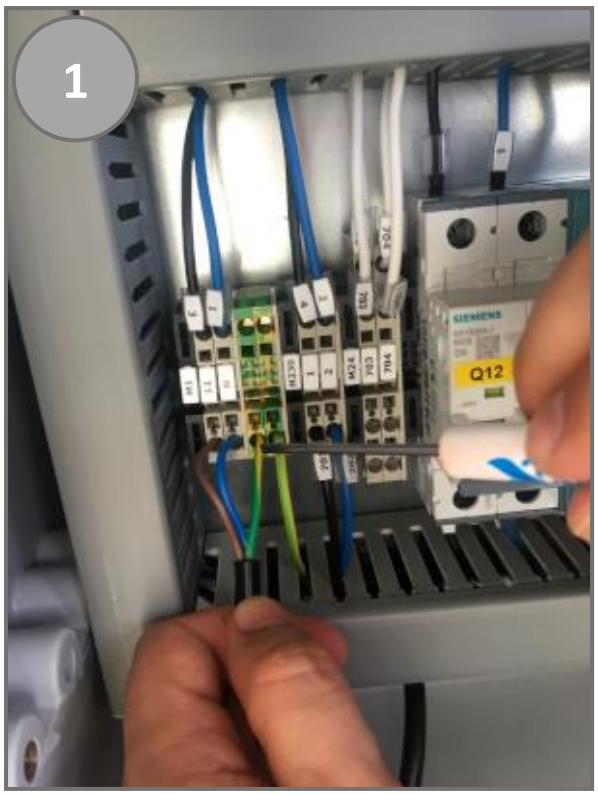
Depending on chosen ALC DC8 hardware configuration, firstly **it necessary to pass through the bottom of the cabinet some cables and secure them by means of cable clamps**. In the example below have been provided:

- An external VAC power supply cable (in black)
- An external MTII communication Modbus 3 wire cable (in grey)

Optionally it may be necessary to provide the passage of other cables, such as:

- External Ethernet Cable, in case of connection to Daikin On Site by means of LAN connection
- External 3G/4G antenna coaxial cable
- External (Modbus/Bacnet) BMS cable

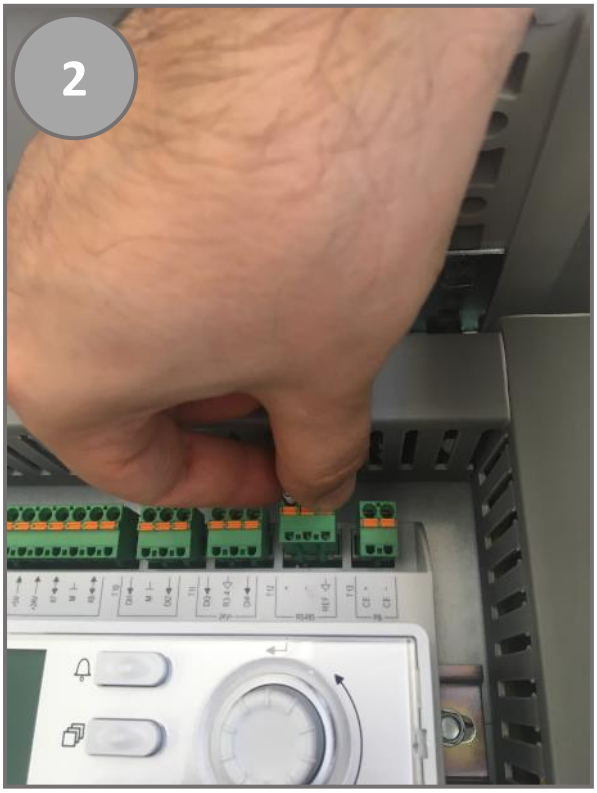
⚠	***WARNING**: To allow cables to pass through the cable clamps of the cabinet, any connector must be before disconnected.* *Also remember to reserve the correct length of each cable passed to correctly allow the connections indicated below. In this regard, it may be useful to loosen and tighten the cable clamps after making all the connections and passing the cables through the internal raceways of the cabinet* ***For configuration steps and details, please refer to the operator's manual of specific chiller unit.***



5.1.2 STEP 2, Power cable

Using a screwdriver of the right size, connect and ensure the VAC Power cable, respecting the indications on the headers with the respect to the 3-wire of the power cable itself:

- Protective earth – green/yellow wire
- Neutral (N) – blue wire
- Line, single phase(L) – brown wire



5.1.3 STEP 3, Main Modbus cable connection

Using a screwdriver of the right size, connect and ensure the 3-wires coming from the Modbus Cable on the header corresponding to the **T12-RS485** of the MTIII controller. In particular, it is suggested to note down the colors of the wires corresponding to the signals:

- +
- -
- REF

to subsequently facilitate the connection operations to the Modbus serial board of the chiller unit's MTII controller.

5.1.4 (Optional) STEP 4, Ethernet cable connection

If it has been chosen to connect the ALC to *Daikin On Site* via a local area network, instead of using a 3G / 4G modem, it is necessary to connect this cable to the **Tip - RJ45** socket of the MTIII controller.

In the **"Configuring ALC DC8 for Daikin On Site connection"** paragraph are reported the details of the configuration of the ALC for communication with Daikin On Site.

5.1.5 (Optional) STEP 5, BMS cable connection

If it has been requested to connect the ALC to a BMS it is necessary to connect this cable depending on the type of communication foreseen. In particular:

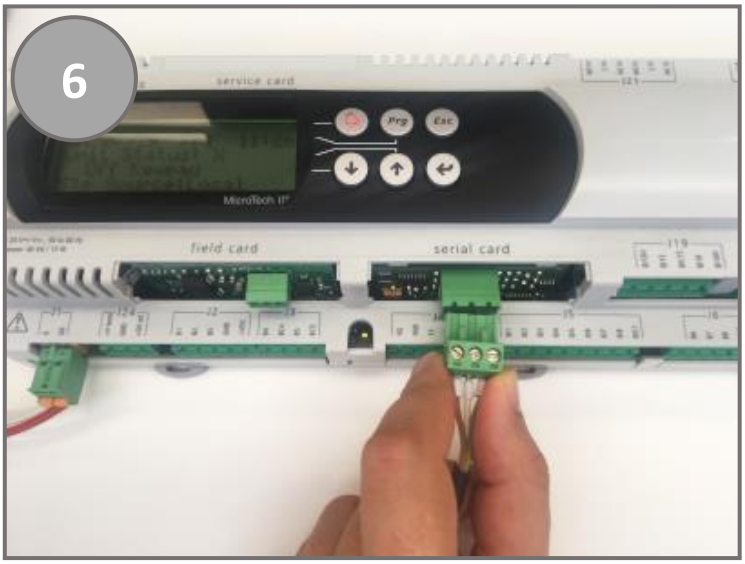
- Bacnet Communication Module **POL908** – Connect the RJ45 cable to the (only) **RJ45** connector on the module

- Modbus Communication Module **POL902** – Connect the 3-wire RTU Modbus to the header **T1-RS485** respecting polarity (+ / - / Ref) with respect to BMS cable already connected.

5.1.6 (Optional) STEP 6, Antenna coaxial cable connection

In order to improve the reception of the signal it is suggested to optionally connect an external antenna. Connect the SMA male connector of the antenna coaxial cable to the SMA female connector of the 3G/4G router and screw it to ensure connection.

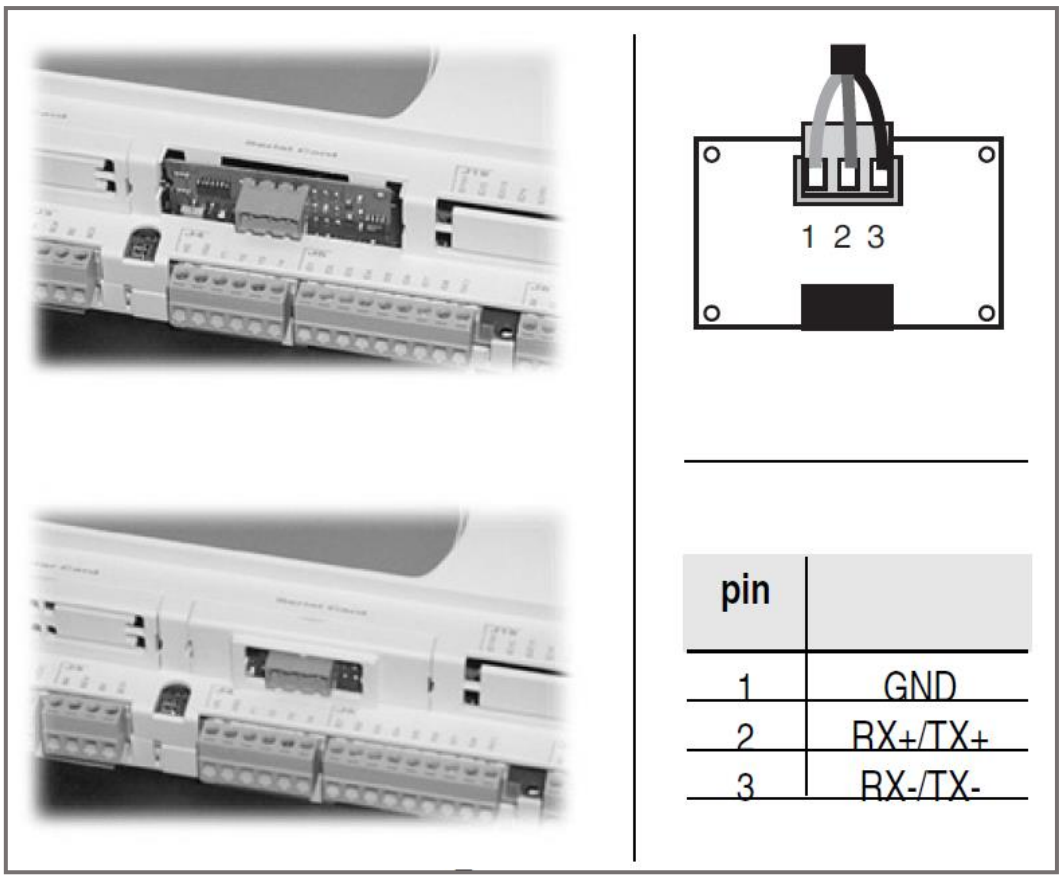
⚠	***WARNING:*** *the following steps* ***are just referred to an example of modbus communication configuration on an MTII device.*** *The example reported is valid for an ALS unit, but the steps may differ for other compatible types chiller units shown in table* ***ALC Compatibility Table****.* ***For configuration steps and details, please refer to the operator's manual of specific chiller unit.***



5.1.7 (Example) STEP 7, MTII Modbus cable connection

Connect the Modbus cable to the EKAC200J card previously inserted in the "serial card" slot of the MT2.

Remember to respect the wire polarity noted down at the step STEP 3, Main Modbus cable connection also considering the datasheet of the **EKAC200J** of which it is reported, for convenience an extract.



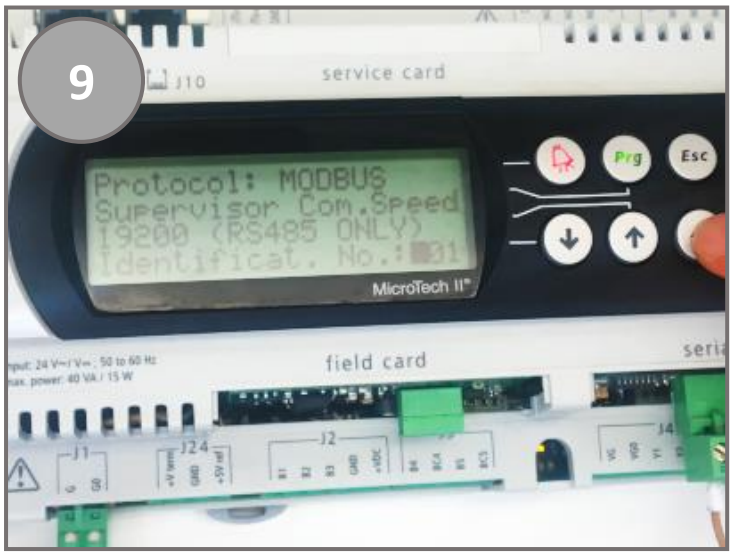
pin	
1	GND
2	RX+/TX+
3	RX-/TX-

5.1.8 (Example) STEP 8, Enter into setting menu

In order to verify or change the setting related to the Modbus connection, press "**Prog**" button on the MTII panel.

5.1.9 (Example) STEP 9, MTII access password

Insert the correct Password by using the arrows ↑ and ↓ then press ← (Enter) to proceed.



5.1.10 (Example) STEP 10, MTII access password

Enter in the Modbus configuration submenu by using the arrows ↑ and ↓ then insert the following setting values:

- Protocol : **MODBUS**
- Supervisor Com. Speed: **19200**
- Identificat. No: **1**

Then press ← (Enter) and **Esc** to proceed

ⓘ	***INFO:*** *some other setting values could be requested in the case of other units, such as* • *Number of bits :* ***8*** • *Parity:* ***None***

5.1.11 STEP 10 – Power ON ALC DC8

After completing the wiring and configuration of the MTII controller, set the ALC power switch to ON (press it up).

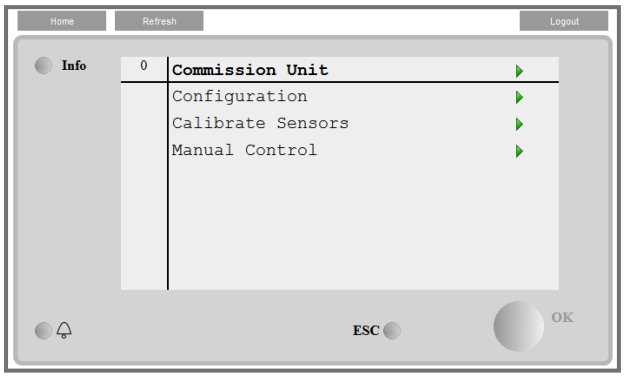
Then proceed with the **commission of the ALC (MTIII) controller** and with the **first connection to Daikin On Site** as reported in the next two chapters.

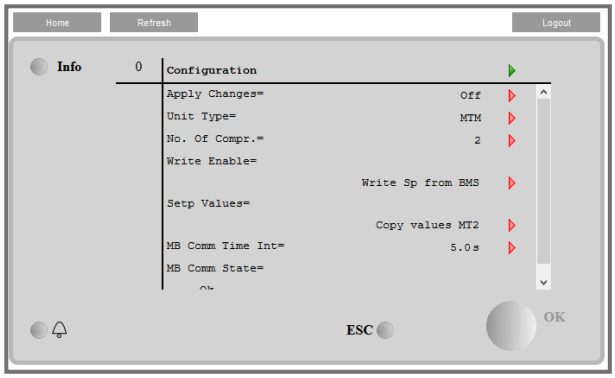
6 ALC-DC8 panel commissioning

6.1 Commissioning of standard version without BMS

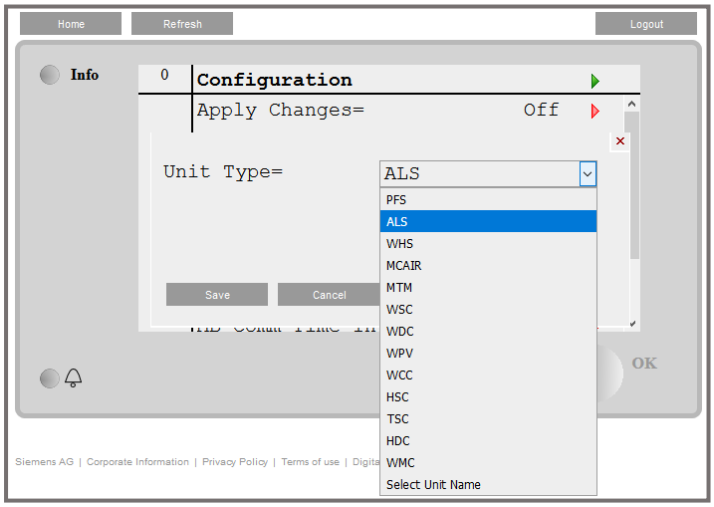
ALC DC8 panel configuration, with respect to the specific chiller unit, can be done by means of the controller HMI. Starting from the main page first of all go to the submenu path:

"Commission Unit" > "Configuration" > "Unit"



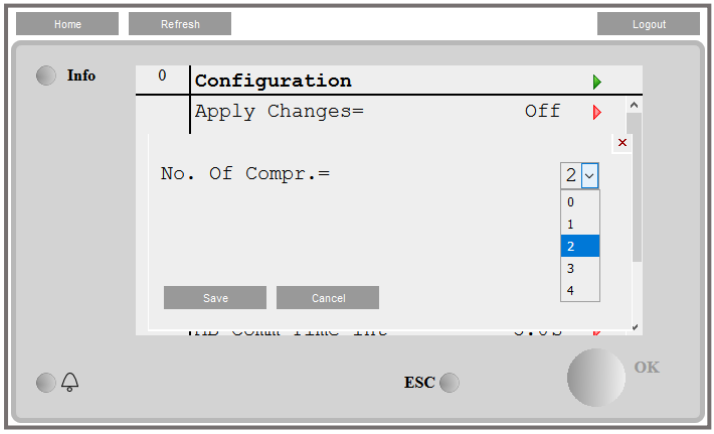


The below options can be set in the configuration menu.



- "**Unit Type**" refers to the unit model and includes the *MCQ screw units* and the *USA centrifugal unit*.

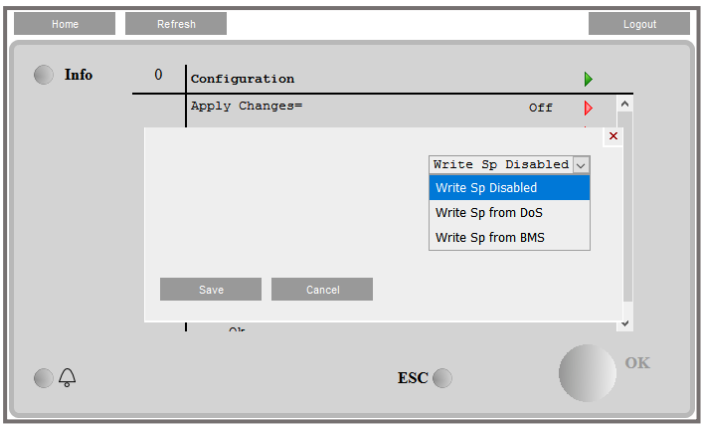
1) **PFS**
2) **ALS**
3) **WHS**
4) **MCAIR**
5) **MTM**
6) **WSC**
7) **WDC**
8) **WPV**
9) **WCC**
10) **HSC**
11) **TSC**
12) **HDC**
13) **WMC**



- "**No. of Compr.**" is the total number of compressors in the unit, counting them on all circuits (so it has different meaning for between the two unit families USA and MCQ).

Possible values 1→4

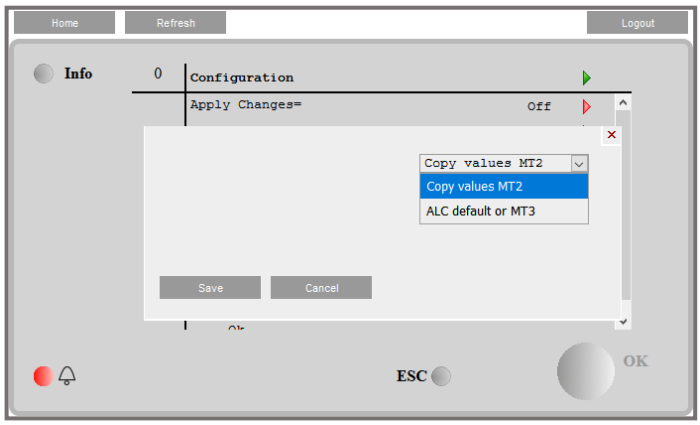
To select the correct number, please also look up the **ALC Compatibility Table** .



- "**Write Enable**" allows the modification/writing of the setpoint (sp) values. Possible values are:

0) Write Sp Disabled
1) Write Sp from DoS
2) Write Sp from BMS

ⓘ	***INFO:*** *the setting is "exclusive". Therefore it will be possible to write these values only from DoS or only from the BMS!*



- "**Setp Values**" regards the current setpoint values in case of:
  - initialization
  - reconnection of cable,
  - restore after an error

of the Modbus connection between ALC and chiller unit's MTII.

There are 2 possible setting:

1) **Copy values MT2** [extended name: **Copy chiller values (MT2)**] which is the default and suggested condition

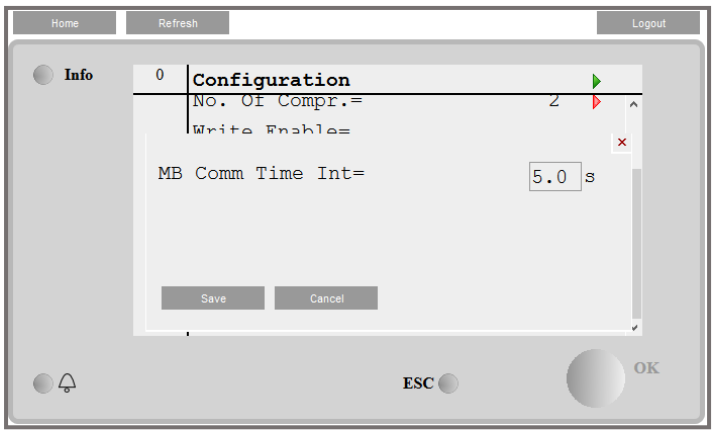
The MTII setpoints are "cloned" by ALC and maintained in case of first connection or reconnection of the MODBUS communication. This ensures that no value of what is already present on the chiller unit controlled by the MTII is changed or overwritten. Only a write request from DoS or BMS can change the values on the chiller unit's MTII.

2) **ALC default or MT3** [extended name: **ALC default or last values (MT3)**]

The setpoint values currently set on the ALC are written to the MTII chiller unit on first connection (or in case of reconnection). If they have not been changed (via BMS or via Daikin On Site), the ALC default setpoint values are written.

This option is more useful if you are installing a an old MTII-based chiller unit with setpoint not yet set or if you want to force setpoint values directly from the ALC to the MTII chiller unit first connection (or in case of reconnection).

⚠	***WARNING:*** *These settings are effective only if the previous setpoint, "**Write Enable**", has been set on* • ***"0) Write Sp Disabled"*** • ***"1) Write Sp from DoS"***. *In the case "**Write Enable**", is on:* • ***"2) Write Sp from BMS"*** ***BMS will overwrite instantly all dell'MT2 setpoint with its setpoint values just on the first connection between the BMS and ALC. Therefore, pay attention to the setpoint values preset on the BMS before connecting it to ALC.***



• "**MB Comm Time Int**" indicates the time interval between one Modbus read/write cycle and the next.

The value of 5 seconds was considered optimal following tests on some chiller units (both MCQ Screw units and USA Centrifugal units) and should not be changed.

⚠	***WARNING:*** *Changing one or more of these options requires a **controller restart**: this reset can be performed stetting the "**Apply Changes**" option to "**ON**" on the configuration submenu. The controller will restart automatically.*

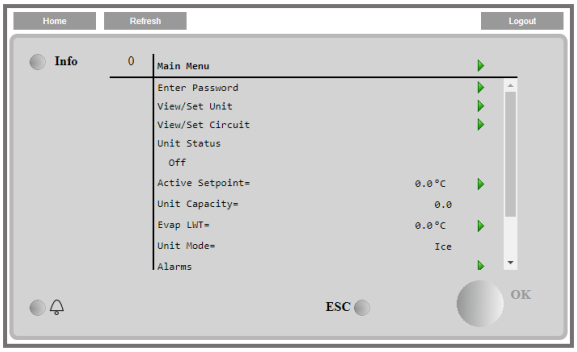
6.2 Commissioning of Modbus RS485 BMS version.

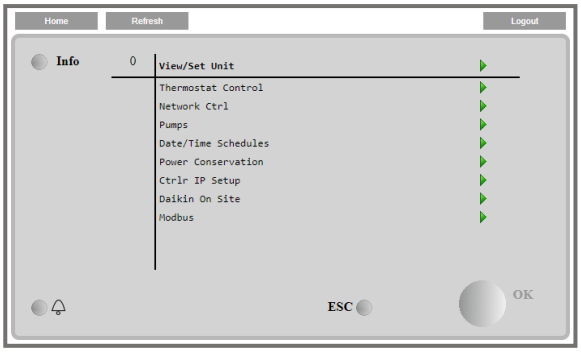
In the case of is required a communication between MT2 and an external BMS by means of RS485 Modbus protocol, it is necessary to connect the related external BMS cable to "Modbus Communication Module POL902" as indicated in paragraph **STEP4 - BMS cable connection**

To complete the commissioning, in addition to the parameters listed in previous section **ALC commissioning - basic version without BMS** it is necessary to configure some additional parameters.

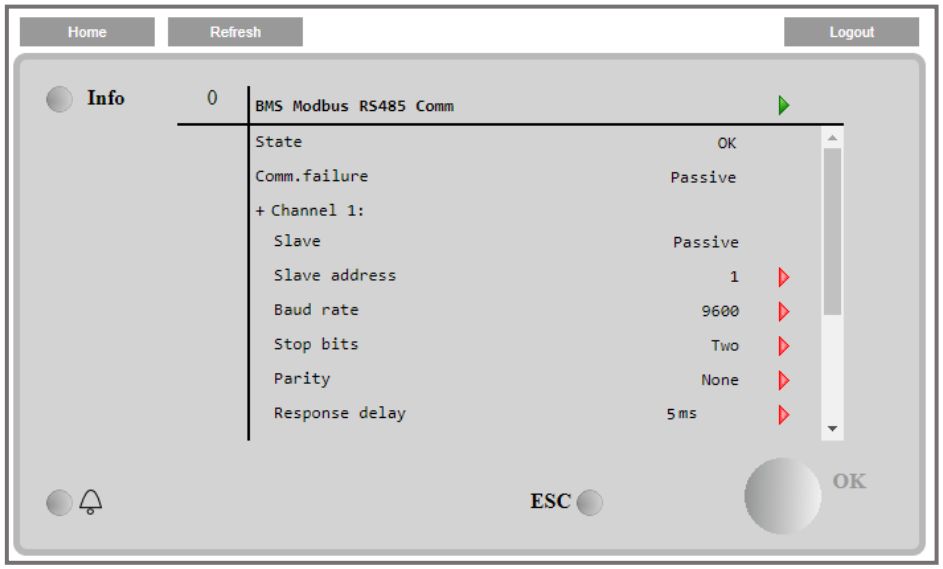
Starting from the main menu page (and entering the password) go to the submenu path:

"View/Set Unit" > "Modbus"



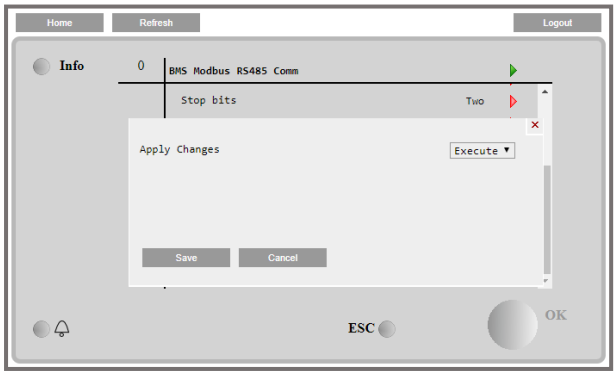


ⓘ	***INFO:** the "Modbus" submenu only appears if a POL902 module has been previously connected to the ALC controller.*



With reference to the previous HMI screen, these are the main parameters that must be set to establish a connection with the BMS via RS485 Modbus:

- **Slave Address –** The slave address expected by the BMS (Master) for ALC (Slave). Normally, this value is **1** or in any case can be reused the value previously used by the MT2 chiller unit controller (previously connected directly to the BMS).
- **Baud Rate -** The Baud Rate (speed) expected by BMS for the communication. Normally, this value is **9600** or in any case can be set the value previously used by the MT2 chiller unit controller (previously connected directly to the BMS).
- **Stop bits -** The Stop bit expected by BMS for the communication. Normally, this value is **two** (2) or in any case can be set the value previously used by the MT2 chiller unit controller (previously connected directly to the BMS).
- **Parity** - The parity check expected by BMS for the communication. Normally, this value is **None** or in any case can be set the value previously used by the MT2 chiller unit controller (previously connected directly to the BMS).



- After the new settings and in order to apply changes, scroll down on this menu, select **Apply changes** and then select in the new submenu "**Execute**".

⚠	***WARNING**: the execution on application of changes will restart the ALC DC8 controller!*

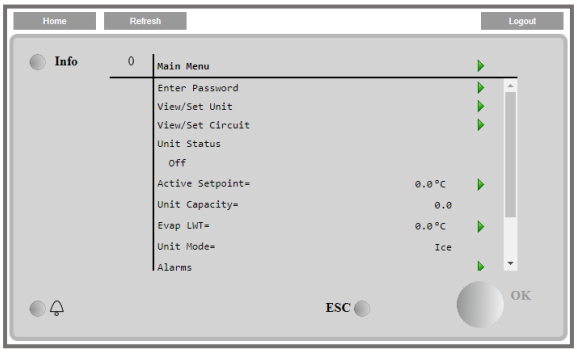
6.3 Commissioning of BACnet IP BMS version.

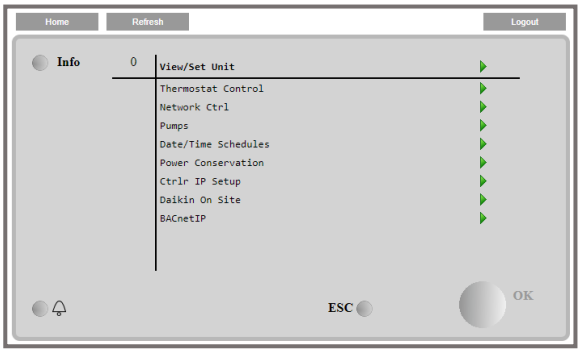
In the case of is required a communication between MT2 and an external BMS by means of BACnet IP protocol, it is necessary to connect the related external BMS cable to "BACnet IP Communication Module POL908" as indicated in paragraph **STEP4 - BMS cable connection**

To complete the commissioning, in addition to the parameters listed in previous section **ALC commissioning - basic version without BMS** it is necessary to configure some additional parameters.

Starting from the main menu page (and entering the password) go to the submenu path:

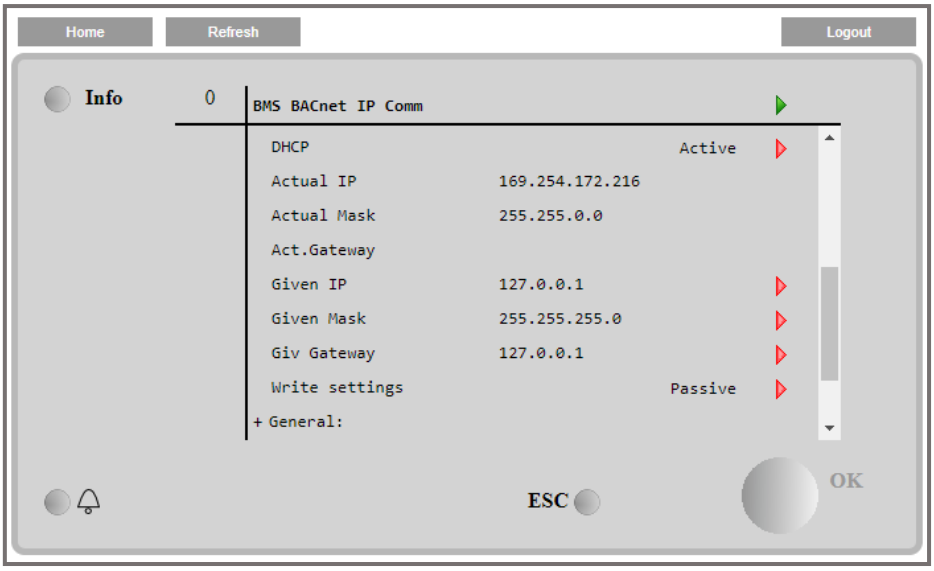
"View/Set Unit" > "BACnetIP"





⚠	***WARNING**: the execution on application of changes will restart the ALC DC8 controller!*

ⓘ	***INFO**: the "BACnetIP" submenu only appears if a POL908 has been previously connected to the ALC controller.*



With reference to the previous HMI screen, these are the main parameters that must be set to establish a connection with the BMS via BACnet IP:

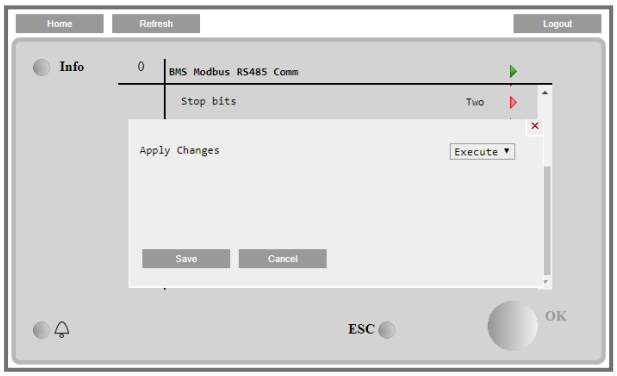
- **DHCP –** Activate/deactivate the DHCP an then the possibility to receive from a network device a network IPs configuration set automatically. This is up to the network LAN configuration and related authorization that allow for the ALC DC8 (MT3) controller to reach the BMS. If it is possible to get the IPs in this way is not necessary to apply the following setting.

It suggests, however, to configure the network so that the device will always connect to the same fixed/reserved IP and disable this option.

- **Given IP:** assigned IP for the ALC DC8 to which the BMS connect to. This is up to LAN network and have to be established according to possible IP reservation, presence of firewall or proxy.

It could be set the value previously used by the MT2 chiller unit controller (previously connected directly to the BMS). Please, contact your local IT group for more info.

- **Given Mask:** Subnet Mask IP (same considerations than Given IP).
- **Given Gateway:** Gateway IP (same considerations than Given IP).



- After the new settings and in order to apply changes, scroll down on this menu, select **Apply changes** and then select in the new submenu "**Execute**".

⚠	***WARNING**: the execution on application of changes will restart the ALC DC8 controller!*

ⓘ	***INFO**: **all configuration steps**, or configuration changes, **can also be performed by Daikin On Site Dashboards**, **Datapoints and Web Graphics views**, but at least during the commissioning and especially if the first connection has still not been finalized, it is necessary to perform this configuration via the HMI of the ALC DC8 controller.*

7 Plant Activation and first Connection to *Daikin On Site*.

The goal of this chapter is to achieve the first connection of a chiller unit connected by means of ***ALC DC8*** to ***Daikin On Site***.

7.1 Daikin on Site activation on ALC-DC8 Controller

The following indications refer to the case in which the **ALC DC8** is connected to **Daikin On Site**:

- via 4G Modem (i.e. DAE Teltonika RUT240 kit).
- by means of a local network connection that directly assigns the IP in DHCP mode without the need of further configurations (i.e. Primary DNS to be configured or selective IP assignment based on the MAC address of the ALC).

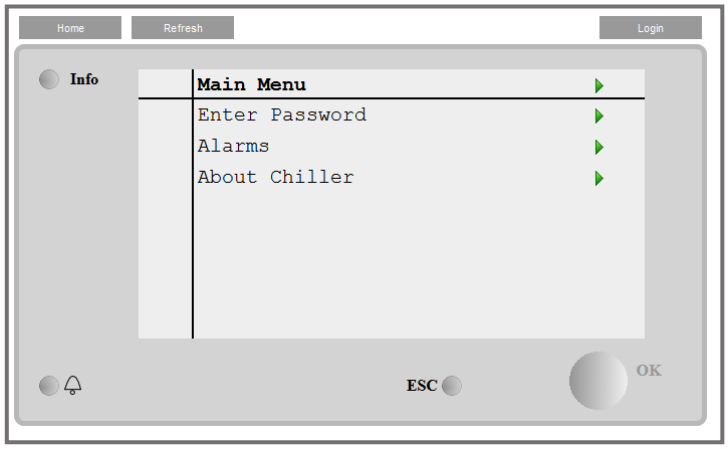
If it is necessary to configure the IP parameters in a custom way (i.e. because assigned by Company IT group), please also follow indications reported on next paragraph Configure custom IP on ALC panel.

ⓘ	***INFO**: the ALC software provides "DHCP" and "Com Start" **options activated by default**, so no actions should be required, unless it is necessary to set a assigned and fixed IP.*

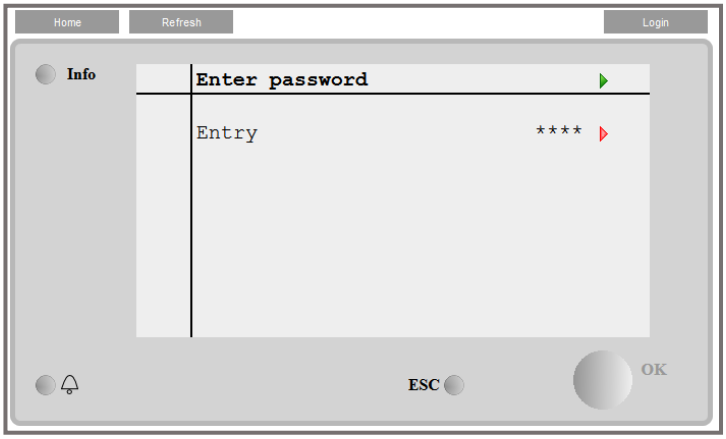
To connect the controller to Daikin on Site the requirements are:

- the "***DHCP***" option sets as "***On***"
- the "***Com Start***" option sets on "***Start***"

However, if it is suggested to verify the status of current settings, follow the steps below, using the controller HMI:

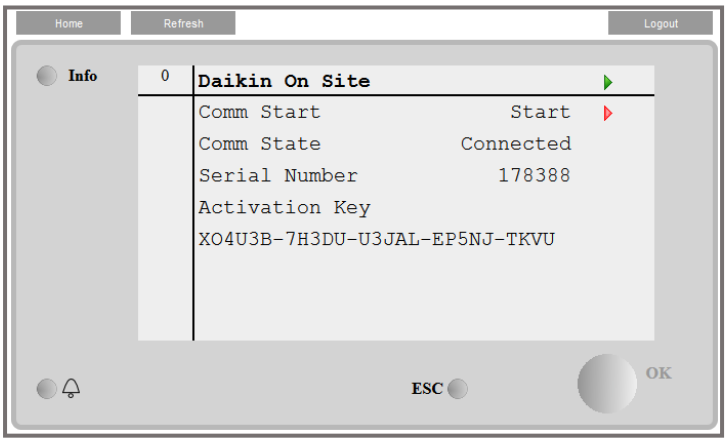


1) Enter the "***Enter Password***" submenu.



2) Insert the Password

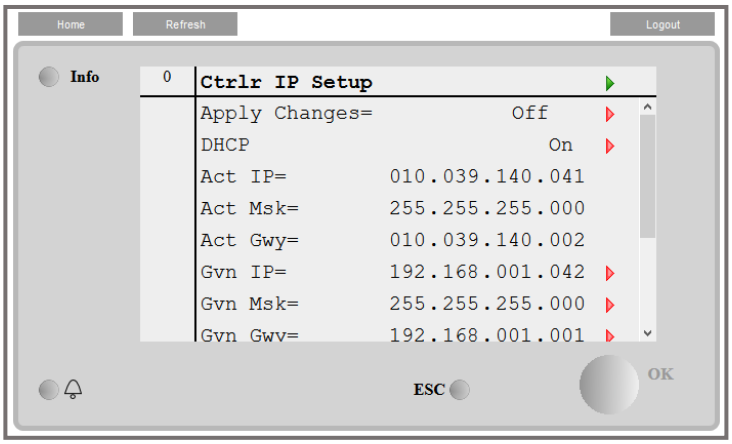
Access to these setting is up to the rights related to password entered (up to the user role). **Setting modifications is allowed only to users with the highest rights (i.e. Daikin Service roles).**



3) To verify the *Daikin On Site* connection status, go to into the submenu

"***View/Set Unit***" > "***Daikin On Site***"

Comm Start have to be set as "***Start***"



4) To verify the assigned IP address and related setting, go into the sub menu:

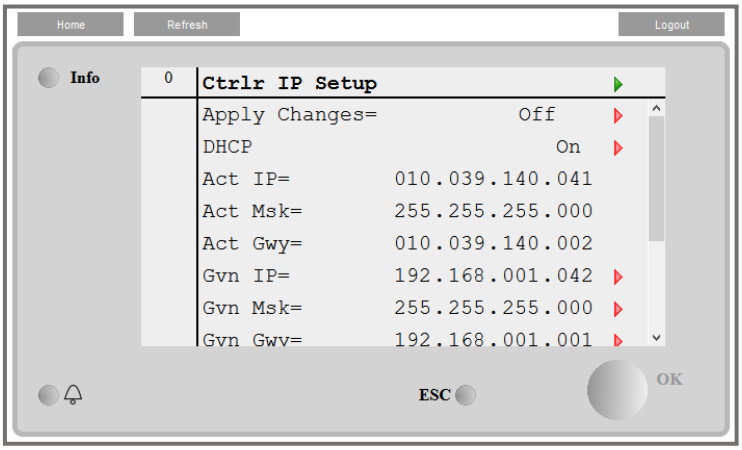
"***View/Set Unit***" > "***Ctrl IP Setup***"

7.1.1 Configure custom IP on ALC panel

If custom and fixed settings IP are required, they are necessary a few further steps to configure them. Moreover, in reserving an IP to the controller, it has to be taken into account that, to allow the device to connect to Daikin On Site Server, **that connection need to be open to the (server) URLs:**

- https://www.connectivity.ccl-siemens.com
- https://clx.connectivity.ccl-siemens.com

using the standard https port 443.



5) So, to configure a custom IP, it is necessary to access to controller HMI and (as seen in the previous section) after entering the 4-digit password navigate to the submenu

"***View/Set Unit → Ctrlr IP Setup".***

6) Then, up to the assigned network parameters, set:

- DHCP= **Off**
- Gvn IP = *assigned Ip*
- Gvn Msk = *network Mask*
- Gvn Gwy = *network Gateway*
- Primary DNS = *network primary DNS (if Any)*
- Secondary DNS = *network primary DNS (if Any)*

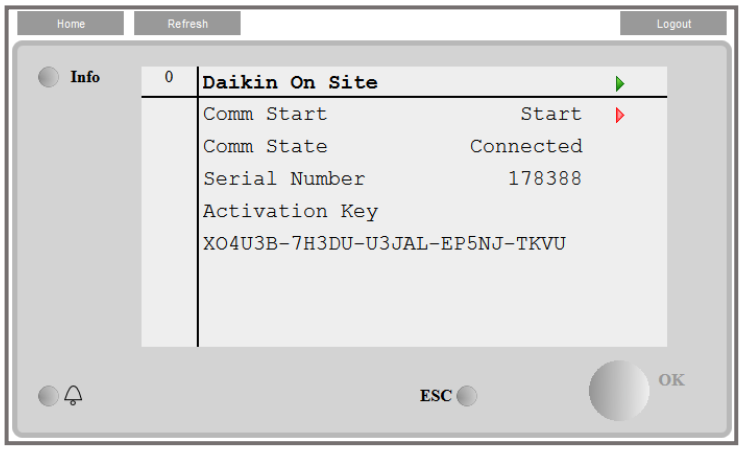
7) Apply the new configuration setting in the same submenu by setting

- **Apply Changes = Yes**.

⚠	***WARNING:*** *changing the DHCP on/off status or any Gvn (Given) value requires restarting the ALC controller by setting* ***Apply Changes = On. Then the ALC controller automatically restarts.***

The new configuration will allow the controller to negotiate and take the assigned IP address and can then connect to the Internet.

7.2 Verifying the connection and Daikin On Site Activation Key retrieving



To Verify the *Daikin On Site* connection status, go to into the submenu:

"***View/Set Unit***" **>** "***Daikin On Site***"

In particular if:

- **Comm State = Connected**

the ALC is ready to be registered as Plant on Daikin On Site. Instead if:

- **Comm State = Ip Error**

probably there are some problems in modem communications or network parameters previously set. Please refer to Daikin on Site activation on ALC-DC8 Controller to verify again all connection steps.

⚠	***WARNING**: wait 5 minutes at least!* ***I could be necessary few minutes for the modem to negotiate a valid IP with 4G cell or, in case of ethernet connection, to the controller to negotiate the network assigned IP.***

Then, in order to pre-register (or replace) a plant on Daikin On Site, **it is necessary to communicate the Activation Key to your Tenant Administrator.** In the same sub-menu, just take note of the whole Activation Key.

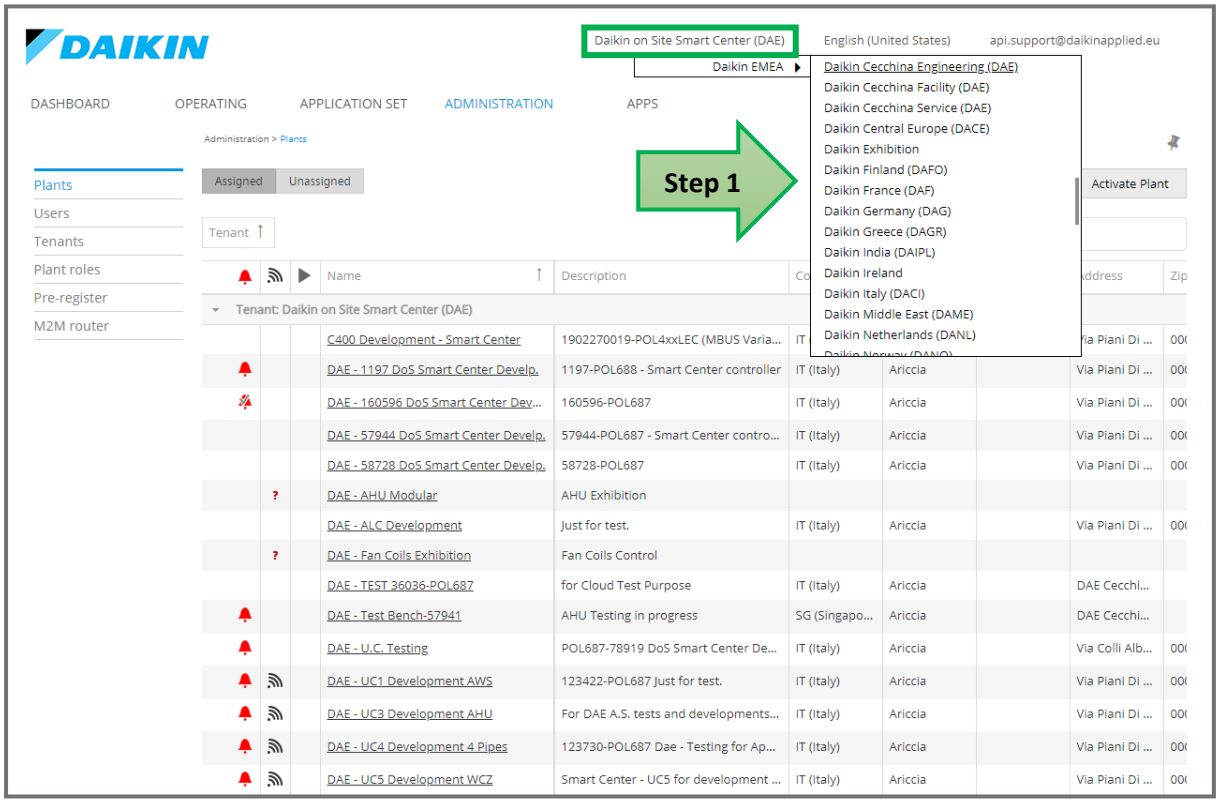
⚠	***WARNING**: wait a few seconds!* ***All the Activation Key will scroll from right to left on the screen (some characters are not immediately visible because of limitations on the number of characters of the HMI controller).***

⚠	***WARNING**: be careful in transcribing and communicating to Tenant Admin the **Activation Key!*** ***Keep into account that the DoS Activation Key can only have capital 'O' (zero, 0 is never used in a activation key).***

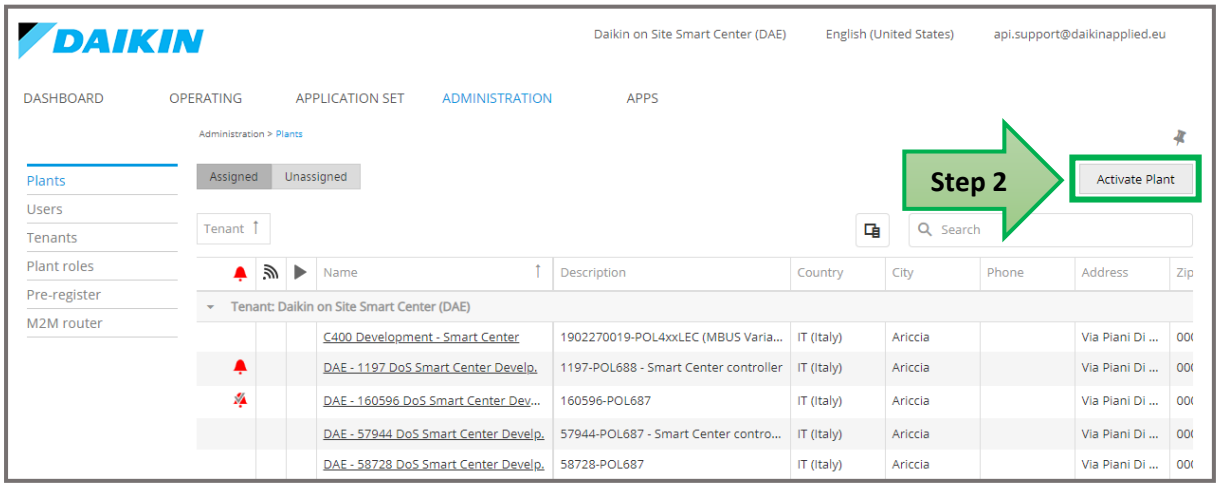
7.3 Plant Registration and Configuration

This task is up to Tenant Administrators.

STEP 1 - After login on *Daikin On Site with* by means of a **Tenant Administrator account**, select the proper tenant in which you want to register the new Plant:

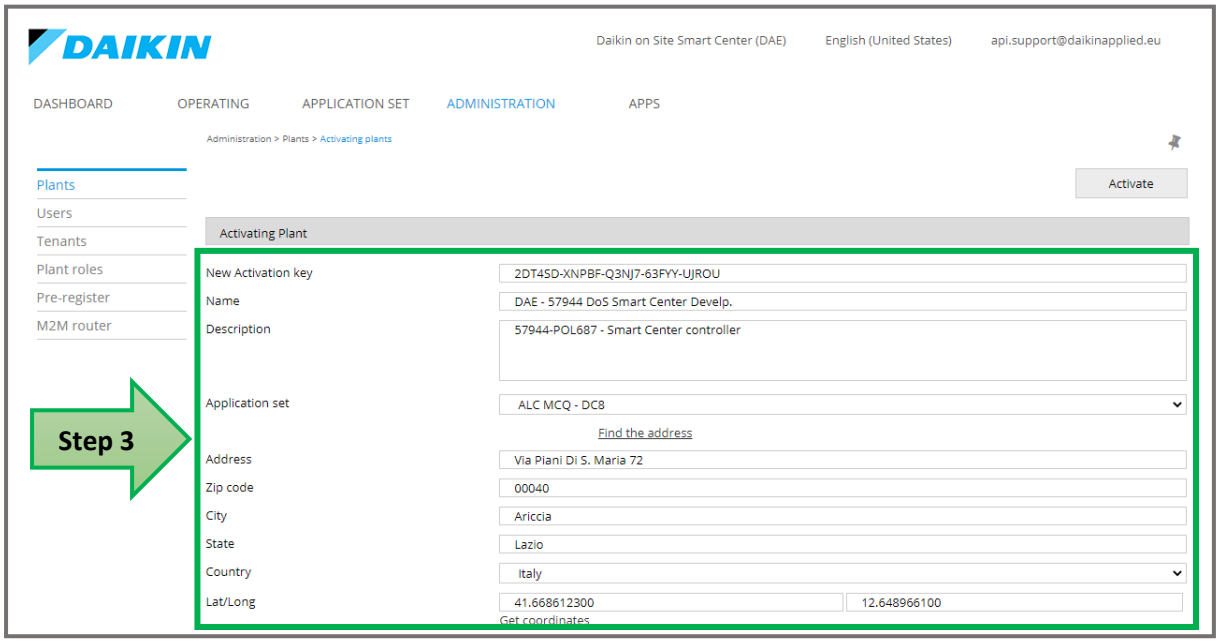


STEP 2 - Click on **ADMINISTRATION → Plants** and press the **"Activate Plant"** button**.**



STEP 3 - Insert carefully the ***Activation Key*** obtained on previous paragraph in the "New Activation Key" form. Also insert other relevant Plant information like:

- Plant **Name** (it has to be unique with respect to already existing Plants)
- A useful **Description**. It can help to better identify the plant also for other Plant users and can be helpful during a Plant research within the whole plants list. Also "order number" should be reported here.
- **Address**. It can be also obtained by using the "*Find the address*" link that uses the Google geolocation (integrated in Daikin On Site) and automatically fits all the Plant address info and related coordinates that will be in turn reported into Daikin On Site main map.
- If the Plant is connected by means of a 4G Modem, it is strongly recommended for your convenience and future support requests to also include the **ICCID** code number of the SIM in the ICCID field.

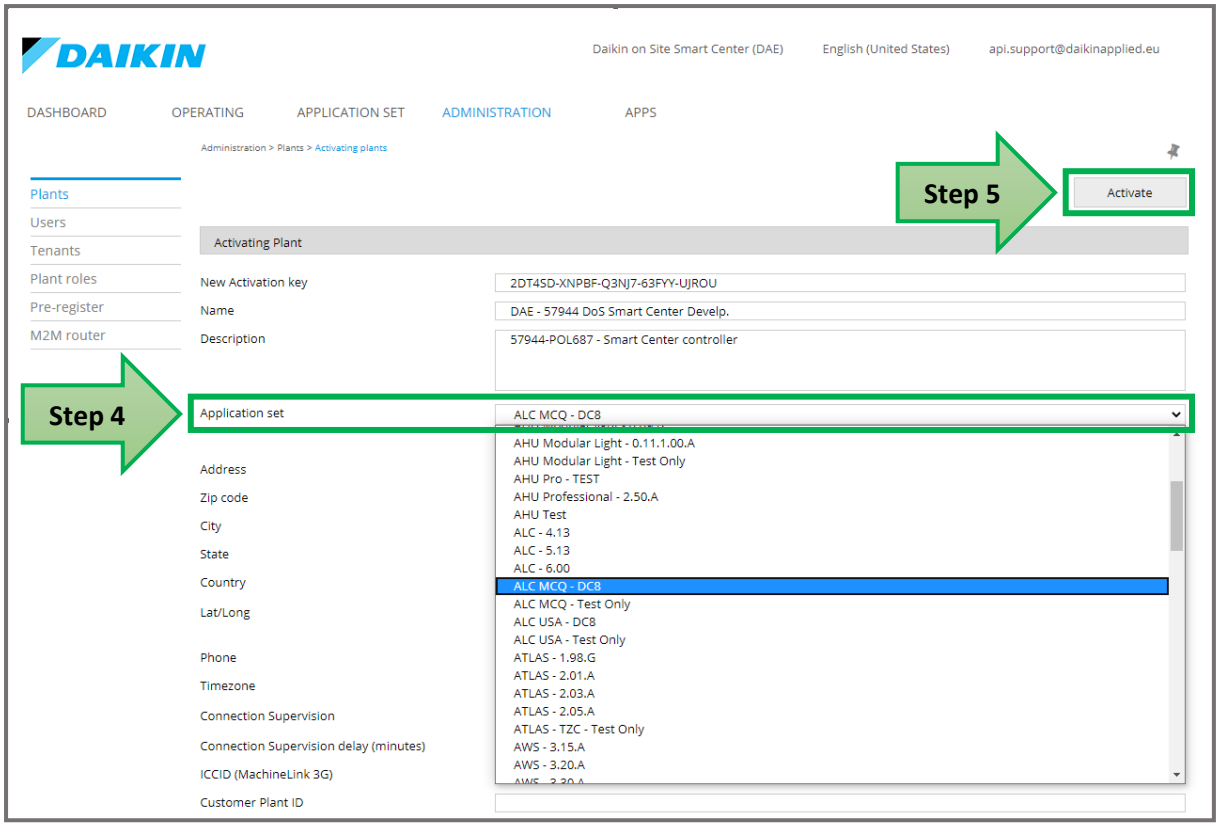


STEP 4 – Select the correct **Application Set**. The ALC software supports both *USA centrifugal chillers unit* and the *MCQ screw chillers.* For detail on supported chiller units, see the ALC DC8 to chiller units compatibility table.

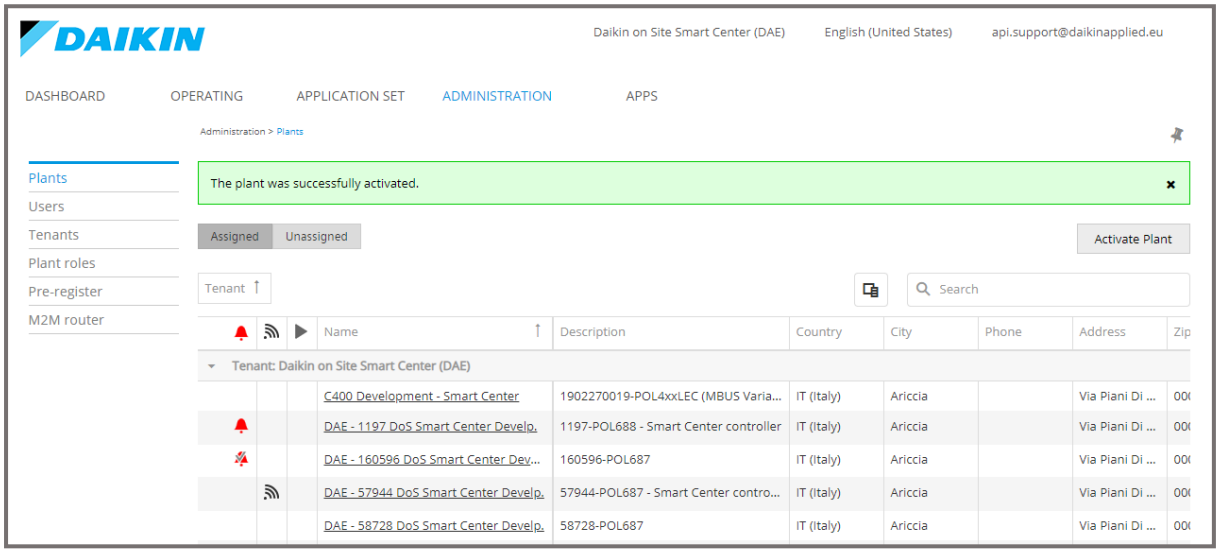
These chiller unit have a very different unit cooling circuit, datapoints, settings and configurations so on ***Daikin on Site*** have been planned **two different Application Sets** with the following names:

- **ALC MCQ – DC8**
- **ALC USA – DC8**

To select the **Application Set**, click on the dropdown menu and choose the correct one from the list up to family chiller in use.

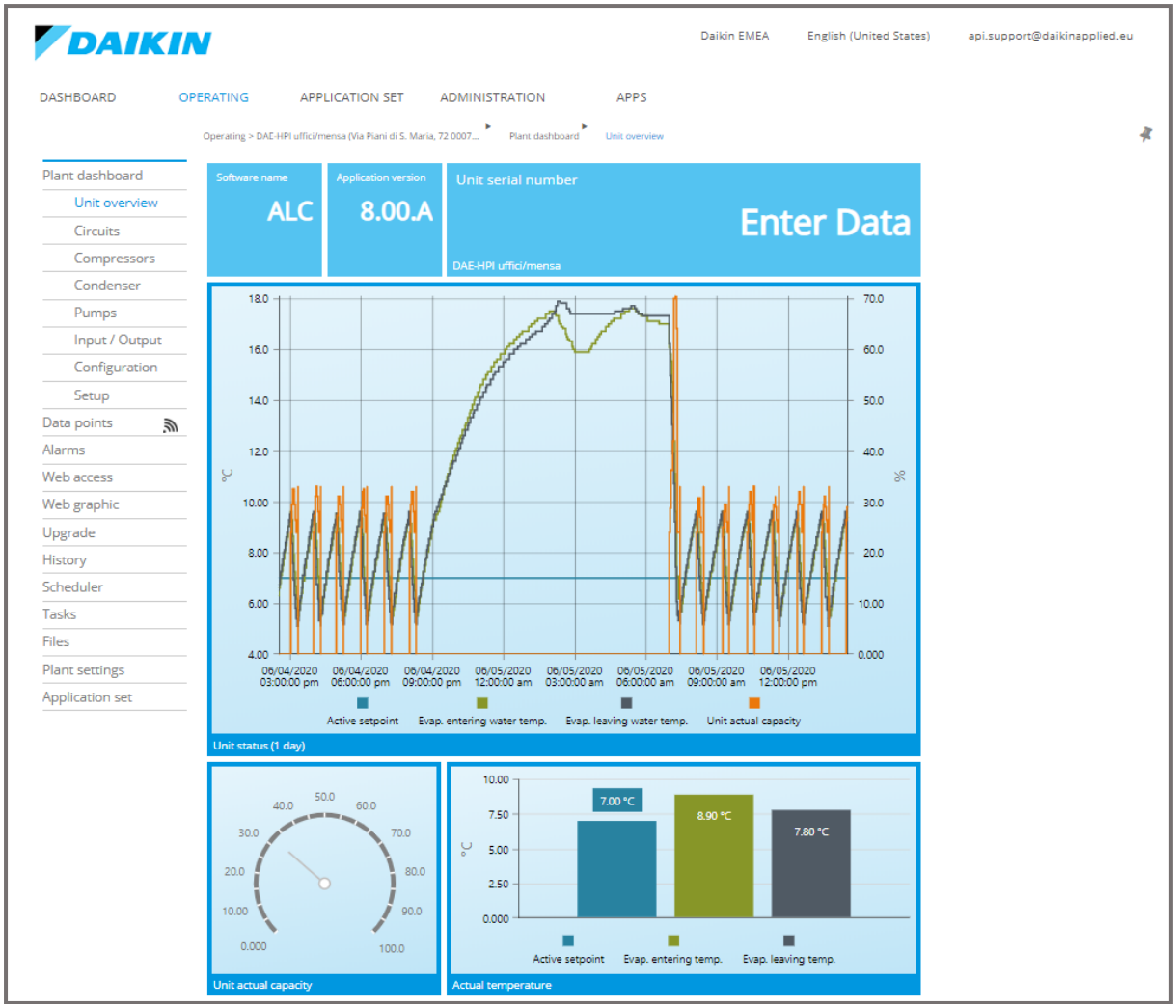


STEP 5 – Finally, press the "**Activate"** button. If the key is valid, the message "**The plants were successfully pre-registered**" will appear on a green background.



Done!

Your chiller unit is now connected to Daikin On Site. By selecting the new plant just registered, should be able to see a dashboard like the following one.



ⓘ	***INFO**: please, wait a couple of minutes at least, while Daikin On Site loads the new plant datapoint mapping.*

8 Appendix A: Mapping Table

Modbus and BACnet protocols are standard communication protocols that allow to integrate products manufactured by different vendors and to integrate external control and building services.
ALC DC8 panel can communicate with external devices by means of **Modbus RS485** and **Bacnet IP** interfaces. As explained in the paragraph ALC connection diagram, 3 different type of communication are foreseen, based on Modbus or Bacnet protocols and modules:

- Modbus RS485 connection between **ALC DC8 MTIII controller** (as Master) and **Chiller Unit MTII controller** (as Slave). This connection is of course always present for all the ALC DC8 models and doesn't require any additional module on MTIII side, while it may be necessary an additional serial card for communication with the MTII (see paragraph dedicated do Standard and optional devices.).

- (optional) **Modbus RS485** connection between **BMS** (as Master) and **ALC DC8 MTIII BMS Communication Module** (POL902 as Slave). This is present only in case of previous (or future) BMS connection with the MTII chiller.

- (optional) **Bacnet IP** connection between **BMS** (as Master) and **ALC DC8 MTIII BMS Communication Module** (POL908 as Slave). This is present only in case of previous (or future) BMS connection with the MTII chiller.

For each of these connections, a dedicated mapping has been developed.

In the following pages are reported **some tables that list all datapoints and setpoint available** from the ALC DC8 MicroTech III Controller, depending on the chiller unit model, **and all the addresses of the abovementioned mapping in some dedicated columns.**
In Particular, the main table has been splitted in 3 different sub-tables to be easily referenced:

A. **MCQ Screw Chiller datapoint and setpoint**

B. **USA Centrifugal Chiller datapoint and setpoint**

C. **Common datapoint and setpoint to both the previous two**.

For the a detailed full datapoint and setpoint table, please refer to the annex file ***"Annex A - ALC DC8 – Mapping & Alarms.xlsx".***

8.1 Note on BMS datapoint mapping and circuit elements selection.

Currently all BMS connected to MTII **MCQ Screw Chillers** or **to USA Centrifugal Chillers** manage circuit, pump or compressor selection setpoints for receiving the values of the datapoints.
For example, in order to receive all ***Circuit 1→4 suction temperature*** **datapoints** values (for a 4-Circuits MCQ Screw Chillers), the BMS needs to change the **Circuit selection** setpoint value from 1 to 4. This selection mechanism is foreseen both for BMS RS485 Modbus connection that in case of BMS BACnet IP connection.

In particular the available selections are:

- **MCQ Screw Chillers – Circuit Selection** from 1 → 4 up to the kind and the number of circuits of chiller
- **USA Centrifugal Chillers – Compressor Selection** and **Pump Selection** 1 → 2 up to the kind and the number of compressors of chiller

Each selection requires a dedicated Modbus/Bacnet read cycle, which may be slow in some modern contexts. Probably this architecture was realized on MTII side to reduce the number of information exchanged per unit or limits the number of memory locations available/required to store the unit info.

In order to avoid this "sort of polling", in parallel to current BMS mapping it has been developed **a new mapping** on the higher part of address/memory location with **a reserved address/memory location for each datapoint.**

In particular this new mapping will ensure that:

- **MCQ Screw Chillers – Circuit Selection** will become obsolete, since it will be reserved a address/memory location for "Circuit Datapoint 1", "Circuit Datapoint 2", "Circuit Datapoint 3" and "Circuit Datapoint 4", up to the kind and the number of circuits of chiller
- **USA Centrifugal Chillers – Compressor Selection** and **Pump Selection** will become obsolete, since it will be reserved a address for "Compressor Datapoint 1", "Compressor Datapoint 2" and "Pump Datapoint 1", "Pump Datapoint 2", up to the kind and the number of compressors of chiller

All parameters can be read in the same reading cycle and is no selection would be required.

NOTE: this mapping employs reserved address/memory locations that are not used by the current BMS, **so you can choose which architecture, current or new, you would like to use.**

ⓘ	***INFO: please note that the choice of which method to use IS JUST AN OPTION will not require any further ALC programming or dedicated setting.*** ***If you are not sure what to do, it is suggested to continue using the current mapping and selection method.***

ⓘ	***INFO: obviously, to use the new mapping will also need to remap the BMS in turn.***

In the mapping tables reported below, the abovementioned parameters will be reported:

- In dark orange datapoints of current mapping, requiring selection or setpoints management that deal with this selection.
- In light yellow the same datapoints that the ALC provides through dedicated address/memory locations that do not require selection/polling by means of dedicated BMS map.

ⓘ	***INFO: <u>Daikin On Site already use this new mapping, so it is not required any selection in order to allow viewing of all parameters at the same time!</u>***

8.2 MCQ Screw Chiller datapoints and setpoints mapping.

#	Chiller Data Point	VAR TYPE	DoS	New BMS	Current BMS	CLOUD object ID	Datapoint Page	R/W	Modbus Register Type	MTII to MTIII Modbus Coil/Reg	Current BMS Modbus Coil/Reg	New BMS Modbus Coil/Reg	BACnet Obj. Type	Current BMS BACnet Instance	New BMS BACnet Instance	Data Type	Unit	Range	PFS	ALS WHS	MCAIR	MTM (MNG, HPI)	Notes
1	**Chiller enable set point**	**Setpoint**	**X**	**X**	**X**	M1-CHILLERENSP	MCQ - Setpoints	R/W	Coil	2	2	2	BV	1	1	Digital	N/A (Selection/Status)	False = Require Unit Off True = Require Unit On	**X**	**X**	**X**	**X**	
2	**From BMS - Chiller enable requested setpoint**	**Datapoint**	**X**			M1-CHILLERENSPB	MCQ - Setpoints	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Digital	N/A (Status)	False = Require Unit Off True = Require Unit On	**X**	**X**	**X**	**X**	Setpoint value from BMS - Read Only value just reported as datapoint on DoS
3	**Chiller run enable state**	**Datapoint**	**X**	**X**	**X**	M1-RUNENABLEST	MCQ - Unit status	R	Coil	3	3	3	BI	2	2	Digital	N/A (Status)	False = Unit Off True = Unit On	**X**	**X**	**X**	**X**	
4	**Chiller alarm**	**Datapoint**	**X**	**X**	**X**	M1-CHILLERALARM	MCQ - Unit status	R	Coil	4	4	4	BI	3	3	Digital	N/A (Status)	False = No Active Alarms True = Alarms Active	**X**	**X**	**X**	**X**	
5	**Unit Available state**	**Datapoint**	**X**	**X**	**X**	M1-UNITAVAILABL	MCQ - Unit status	R	Coil	5	5	5	BI	4	4	Digital	N/A (Status)	False = Unit cannot start True = Unit can start	**X**	**X**	**X**	**X**	
6	**Chiller Local/Remote state**	**Datapoint**	**X**	**X**	**X**	M1-CHLOCREM	MCQ - Unit status	R	Coil	6	6	6	BI	5	5	Digital	N/A (Status)	False = Supervisor On/Off possible True = Supervisor On/Off not possible	**X**	**X**	**X**	**X**	
7	**Limitation active state**	**Datapoint**	**X**	**X**	**X**	M1-LIMITACTIVE	MCQ - Unit status	R	Coil	7	7	7	BI	6	6	Digital	N/A (Status)	False = No Unit capacity limitation active True = Unit capacity limitation active	**X**	**X**	**X**	**X**	
8	**Evaporator flow switch state**	**Datapoint**	**X**	**X**	**X**	M1-EVAPFLOWINST	MCQ - Unit status	R	Coil	8	8	8	BI	7	7	Digital	N/A (Status)	False = Evaporator flow present True = Evaporator flow loss	**X**	**X**	**X**	**X**	
9	**Condenser flow switch state**	**Datapoint**	**X**	**X**	**X**	M1-CONDFLOWINST	MCQ - Unit status	R	Coil	9	9	9	BI	8	8	Digital	N/A (Status)	False = Condenser flow present True = Condenser flow loss	**X**	**X**			
10	**Clear alarm**	**Setpoint**	**X**	**X**	**X**	M1-ALARMCLRSP	MCQ - Setpoints	R/W	Coil	25	25	25	BV	24	24	Digital	N/A (Selection/Status)	False = Off True = On	**X**	**X**	**X**	**X**	
11	**From BMS - Clear alarm requested value**	**Datapoint**	**X**			M1-ALARMCLRSPB	MCQ - Setpoints	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Digital	N/A (Status)	False = Off True = On	**X**	**X**	**X**	**X**	Setpoint value from BMS - Read Only value just reported as datapoint on DoS
12	**Evaporator pump 1 output state**	**Datapoint**	**X**	**X**	**X**	M1-EVPMP1OUTST	MCQ - Unit status	R	Coil	30	30	30	BI	29	29	Digital	N/A (Status)	False = Main Pump is Off True = Main Pump is On	**X**	**X**	**X**	**X**	
13	**Condenser pump 1 output state**	**Datapoint**	**X**	**X**	**X**	M1-CDPMP1OUTST	MCQ - Unit status	R	Coil	32	32	32	BI	31	31	Digital	N/A (Status)	False = Condenser Pump is Off True = Condenser Pump is On	**X**	**X**			
14	**Tower 1 output state**	**Datapoint**	**X**	**X**		M1-TOWER1OUTST	MCQ - Circuit #1 status	R	Coil	34	N/A	201	BI	N/A	200	Digital	N/A (Status)	False = Tower Step/Condenser Fan #1 Off True = Tower Step/Condenser Fan #1 On	**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
15	**Circuit 2 Tower 1 output state**	**Datapoint**	**X**	**X**		M2-TOWER1OUTST	MCQ - Circuit #2 status	R	Coil	34	N/A	202	BI	N/A	201	Digital	N/A (Status)	False = Tower Step/Condenser Fan #1 Off True = Tower Step/Condenser Fan #1 On	**X***	**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.

16	**Circuit 3 Tower 1 output state**	**Datapoint**	**X**	**X**		M3-TOWER1OUTST	MCQ - Circuit #3 status	R	Coil	34	N/A	203	BI	N/A	202	Digital	N/A (Status)	False = Tower Step/Condenser Fan #1 Off True = Tower Step/Condenser Fan #1 On		**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
17	**Circuit 4 Tower 1 output state**	**Datapoint**	**X**	**X**		M4-TOWER1OUTST	MCQ - Circuit #4 status	R	Coil	34	N/A	204	BI	N/A	203	Digital	N/A (Status)	False = Tower Step/Condenser Fan #1 Off True = Tower Step/Condenser Fan #1 On		**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
18	**To current BMS - Selected Circuit - Tower/Fan 1 output state**	**Datapoint**			X	M1-TOWER1OUTSTB	MCQ - old BMS selectables	R	Coil	34	34	34	BI	33	33	Digital	N/A (Status)	False = Tower Step/Condenser Fan #1 Off True = Tower Step/Condenser Fan #1 On	**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
19	**Tower 2 output state**	**Datapoint**	**X**	**X**		M1-TOWER2OUTST	MCQ - Circuit #1 status	R	Coil	35	N/A	205	BI	N/A	204	Digital	N/A (Status)	False = Tower Step/Condenser Fan #2 Off True = Tower Step/Condenser Fan #2 On	**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
20	**Circuit 2 Tower 2 output state**	**Datapoint**	**X**	**X**		M2-TOWER2OUTST	MCQ - Circuit #2 status	R	Coil	35	N/A	206	BI	N/A	205	Digital	N/A (Status)	False = Tower Step/Condenser Fan #2 Off True = Tower Step/Condenser Fan #2 On	**X***	**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
21	**Circuit 3 Tower 2 output state**	**Datapoint**	**X**	**X**		M3-TOWER2OUTST	MCQ - Circuit #3 status	R	Coil	35	N/A	207	BI	N/A	206	Digital	N/A (Status)	False = Tower Step/Condenser Fan #2 Off True = Tower Step/Condenser Fan #2 On		**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
22	**Circuit 4 Tower 2 output state**	**Datapoint**	**X**	**X**		M4-TOWER2OUTST	MCQ - Circuit #4 status	R	Coil	35	N/A	208	BI	N/A	207	Digital	N/A (Status)	False = Tower Step/Condenser Fan #2 Off True = Tower Step/Condenser Fan #2 On		**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
23	**To current BMS - Selected Circuit - Tower/Fan 2 output state**	**Datapoint**			X	M1-TOWER2OUTSTB	MCQ - old BMS selectables	R	Coil	35	35	35	BI	34	34	Digital	N/A (Status)	False = Tower Step/Condenser Fan #2 Off True = Tower Step/Condenser Fan #2 On	**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
24	**Tower 3 output state**	**Datapoint**	**X**	**X**		M1-TOWER3OUTST	MCQ - Circuit #1 status	R	Coil	36	N/A	209	BI	N/A	208	Digital	N/A (Status)	False = Tower Step/Condenser Fan #3 Off True = Tower Step/Condenser Fan #3 On	**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
25	**Circuit 2 Tower 3 output state**	**Datapoint**	**X**	**X**		M2-TOWER3OUTST	MCQ - Circuit #2 status	R	Coil	36	N/A	210	BI	N/A	209	Digital	N/A (Status)	False = Tower Step/Condenser Fan #3 Off True = Tower Step/Condenser Fan #3 On	**X***	**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
26	**Circuit 3 Tower 3 output state**	**Datapoint**	**X**	**X**		M3-TOWER3OUTST	MCQ - Circuit #3 status	R	Coil	36	N/A	211	BI	N/A	210	Digital	N/A (Status)	False = Tower Step/Condenser Fan #3 Off True = Tower Step/Condenser Fan #3 On		**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
27	**Circuit 4 Tower 3 output state**	**Datapoint**	**X**	**X**		M4-TOWER3OUTST	MCQ - Circuit #4 status	R	Coil	36	N/A	212	BI	N/A	211	Digital	N/A (Status)	False = Tower Step/Condenser Fan #3 Off True = Tower		**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.

																		Step/Condenser Fan #3 On					
28	**To current BMS - Selected Circuit - Tower/Fan 3 output state**	**Datapoint**			X	M1-TOWER3OUTSTB	MCQ - old BMS selectables	R	Coil	36	36	36	BI	35	35	Digital	N/A (Status)	False = Tower Step/Condenser Fan #3 Off True = Tower Step/Condenser Fan #3 On	**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
29	**Fan 4 output state**	**Datapoint**	**X**	**X**		M1-FAN4OUTST	MCQ - Circuit #1 status	R	Coil	37	N/A	213	BI	N/A	212	Digital	N/A (Status)	False = Condenser Fan #4 Off True = Condenser Fan #4 On		**X**	X	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
30	**Circuit 2 Fan 4 output state**	**Datapoint**	**X**	**X**		M2-FAN4OUTST	MCQ - Circuit #2 status	R	Coil	37	N/A	214	BI	N/A	213	Digital	N/A (Status)	False = Condenser Fan #4 Off True = Condenser Fan #4 On		**X***	X	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
31	**Circuit 3 Fan 4 output state**	**Datapoint**	**X**	**X**		M3-FAN4OUTST	MCQ - Circuit #3 status	R	Coil	37	N/A	215	BI	N/A	214	Digital	N/A (Status)	False = Condenser Fan #4 Off True = Condenser Fan #4 On		**X***	X*		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
32	**Circuit 4 Fan 4 output state**	**Datapoint**	**X**	**X**		M4-FAN4OUTST	MCQ - Circuit #4 status	R	Coil	37	N/A	216	BI	N/A	215	Digital	N/A (Status)	False = Condenser Fan #4 Off True = Condenser Fan #4 On		**X***	X*		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
33	**To current BMS - Selected Circuit - Fan 4 output state**	**Datapoint**			X	M1-FAN4OUTSTB	MCQ - old BMS selectables	R	Coil	37	37	37	BI	36	36	Digital	N/A (Status)	False = Condenser Fan #4 Off True = Condenser Fan #4 On		**X**	X	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
34	**Fan 5 output state**	**Datapoint**	**X**	**X**		M1-FAN5OUTST	MCQ - Circuit #1 status	R	Coil	38	N/A	217	BI	N/A	216	Digital	N/A (Status)	False = Condenser Fan #5 Off True = Condenser Fan #5 On		**X**		**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
35	**Circuit 2 Fan 5 output state**	**Datapoint**	**X**	**X**		M2-FAN5OUTST	MCQ - Circuit #2 status	R	Coil	38	N/A	218	BI	N/A	217	Digital	N/A (Status)	False = Condenser Fan #5 Off True = Condenser Fan #5 On		**X***		**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
36	**Circuit 3 Fan 5 output state**	**Datapoint**	**X**	**X**		M3-FAN5OUTST	MCQ - Circuit #3 status	R	Coil	38	N/A	219	BI	N/A	218	Digital	N/A (Status)	False = Condenser Fan #5 Off True = Condenser Fan #5 On		**X***			Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
37	**Circuit 4 Fan 5 output state**	**Datapoint**	**X**	**X**		M4-FAN5OUTST	MCQ - Circuit #4 status	R	Coil	38	N/A	220	BI	N/A	219	Digital	N/A (Status)	False = Condenser Fan #5 Off True = Condenser Fan #5 On		**X***			Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
38	**To current BMS - Selected Circuit - Fan 5 output state**	**Datapoint**			X	M1-FAN5OUTSTB	MCQ - old BMS selectables	R	Coil	38	38	38	BI	37	37	Digital	N/A (Status)	False = Condenser Fan #5 Off True = Condenser Fan #5 On		**X**		**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
39	**Units of measurement selection**	**Setpoint**	**X**	**X**	**X**	M1-UNITMEASURES	MCQ - Setpoints	R/W	Coil	54	54	54	BV	53	53	Digital	N/A (Selection/Status)	False = SI Units True = Imperial Units				**X**	
40	**From BMS - Units of measurement selection setpoint**	**Datapoint**	**X**			M1-UNITMEASUREB	MCQ - Setpoints	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Digital	N/A (Status)	False = SI Units True = Imperial Units				**X**	Setpoint value from BMS - Read Only value just reported as datapoint on DoS
41	**Enabling compressor status**	**Datapoint**	**X**	**X**		M1-ENCOMPRESST	MCQ - Circuit #1 status	R	Coil	59	N/A	221	BI	N/A	220	Digital	N/A (Status)	False = Compressor disabled True = Compressor enabled	**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
42	**Circuit 2 Enabling compressor status**	**Datapoint**	**X**	**X**		M2-ENCOMPRESST	MCQ - Circuit #2 status	R	Coil	59	N/A	222	BI	N/A	221	Digital	N/A (Status)	False = Compressor disabled True = Compressor enabled	**X***	**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
43	**Circuit 3 Enabling compressor status**	**Datapoint**	**X**	**X**		M3-ENCOMPRESST	MCQ - Circuit #3 status	R	Coil	59	N/A	223	BI	N/A	222	Digital	N/A (Status)	False = Compressor disabled True = Compressor enabled		**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
44	**Circuit 4 Enabling compressor status**	**Datapoint**	**X**	**X**		M4-ENCOMPRESST	MCQ - Circuit #4 status	R	Coil	59	N/A	224	BI	N/A	223	Digital	N/A (Status)	False = Compressor disabled True = Compressor enabled		**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.

45	**To current BMS - Selected Circuit - Enabling compressor status**	**Datapoint**			X	M1-ENCOMPRESSTB	MCQ - old BMS selectables	R	Coil	59	59	59	BI	58	58	Digital	N/A (Status)	False = Compressor disabled True = Compressor enabled	**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
46	**Pumpdown activation status**	**Datapoint**	**X**	**X**		M1-ENPUMPDWST	MCQ - Circuit #1 status	R	Coil	63	N/A	225	BI	N/A	224	Digital	N/A (Status)	False = Pumpdown not active True = Pumpdown active	**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
47	**Circuit 2 Pumpdown activation status**	**Datapoint**	**X**	**X**		M2-ENPUMPDWST	MCQ - Circuit #2 status	R	Coil	63	N/A	226	BI	N/A	225	Digital	N/A (Status)	False = Pumpdown not active True = Pumpdown active	**X***	**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
48	**Circuit 3 Pumpdown activation status**	**Datapoint**	**X**	**X**		M3-ENPUMPDWST	MCQ - Circuit #3 status	R	Coil	63	N/A	227	BI	N/A	226	Digital	N/A (Status)	False = Pumpdown not active True = Pumpdown active		**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
49	**Circuit 4 Pumpdown activation status**	**Datapoint**	**X**	**X**		M4-ENPUMPDWST	MCQ - Circuit #4 status	R	Coil	63	N/A	228	BI	N/A	227	Digital	N/A (Status)	False = Pumpdown not active True = Pumpdown active		**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
50	**To current BMS - Selected Circuit - Pumpdown activation status**	**Datapoint**			X	M1-ENPUMPDWSTB	MCQ - old BMS selectables	R	Coil	63	63	63	BI	62	62	Digital	N/A (Status)	False = Pumpdown not active True = Pumpdown active	**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
51	**Electovalves liquid injection status**	**Datapoint**	**X**	**X**		M1-EVLIQINJST	MCQ - Circuit #1 status	R	Coil	115	N/A	229	BI	N/A	228	Digital	N/A (Status)	False = Liquid line solenoid valve de-energized True = Liquid line solenoid valve energized		**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
52	**Circuit 2 Electovalves liquid injection status**	**Datapoint**	**X**	**X**		M2-EVLIQINJST	MCQ - Circuit #2 status	R	Coil	115	N/A	230	BI	N/A	229	Digital	N/A (Status)	False = Liquid line solenoid valve de-energized True = Liquid line solenoid valve energized		**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
53	**Circuit 3 Electovalves liquid injection status**	**Datapoint**	**X**	**X**		M3-EVLIQINJST	MCQ - Circuit #3 status	R	Coil	115	N/A	231	BI	N/A	230	Digital	N/A (Status)	False = Liquid line solenoid valve de-energized True = Liquid line solenoid valve energized		**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
54	**Circuit 4 Electovalves liquid injection status**	**Datapoint**	**X**	**X**		M4-EVLIQINJST	MCQ - Circuit #4 status	R	Coil	115	N/A	232	BI	N/A	231	Digital	N/A (Status)	False = Liquid line solenoid valve de-energized True = Liquid line solenoid valve energized		**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
55	**To current BMS - Selected Circuit - Electovalves liquid injection status**	**Datapoint**			X	M1-EVLIQINJSTB	MCQ - old BMS selectables	R	Coil	115	115	115	BI	114	114	Digital	N/A (Status)	False = Liquid line solenoid valve de-energized True = Liquid line solenoid valve energized		**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
56	**Compressor 1 loading status**	**Datapoint**	**X**	**X**		M1-CO1LOADINGST	MCQ - Circuit #1 compressor data	R	Coil	151	N/A	233	BI	N/A	232	Digital	N/A (Status)	False = Unit not required to load True = Unit required to load	**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
57	**Circuit 2 Compressor 1 loading status**	**Datapoint**	**X**	**X**		M2-CO1LOADINGST	MCQ - Circuit #2 compressor data	R	Coil	151	N/A	234	BI	N/A	233	Digital	N/A (Status)	False = Unit not required to load True = Unit required to load	**X***	**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
58	**Circuit 3 Compressor 1 loading status**	**Datapoint**	**X**	**X**		M3-CO1LOADINGST	MCQ - Circuit #3 compressor data	R	Coil	151	N/A	235	BI	N/A	234	Digital	N/A (Status)	False = Unit not required to load True = Unit required to load		**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
59	**Circuit 4 Compressor 1 loading status**	**Datapoint**	**X**	**X**		M4-CO1LOADINGST	MCQ - Circuit #4 compressor data	R	Coil	151	N/A	236	BI	N/A	235	Digital	N/A (Status)	False = Unit not required to load True = Unit required to load		**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.

60	**To current BMS - Selected Circuit - Compressor 1 loading status**	**Datapoint**			X	M1-CO1LOADINGSB	MCQ - old BMS selectables	R	Coil	151	151	151	BI	150	150	Digital	N/A (Status)	False = Unit not required to load True = Unit required to load	**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
61	**Compressor 1 unloading status**	**Datapoint**	**X**	**X**		M1-CO1UNLOADST	MCQ - Circuit #1 compressor data	R	Coil	155	N/A	237	BI	N/A	236	Digital	N/A (Status)	False = Unit not required to unload True = Unit required to unload	**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
62	**Circuit 2 Compressor 1 unloading status**	**Datapoint**	**X**	**X**		M2-CO1UNLOADST	MCQ - Circuit #2 compressor data	R	Coil	155	N/A	238	BI	N/A	237	Digital	N/A (Status)	False = Unit not required to unload True = Unit required to unload	**X***	**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
63	**Circuit 3 Compressor 1 unloading status**	**Datapoint**	**X**	**X**		M3-CO1UNLOADST	MCQ - Circuit #3 compressor data	R	Coil	155	N/A	239	BI	N/A	238	Digital	N/A (Status)	False = Unit not required to unload True = Unit required to unload		**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
64	**Circuit 4 Compressor 1 unloading status**	**Datapoint**	**X**	**X**		M4-CO1UNLOADST	MCQ - Circuit #4 compressor data	R	Coil	155	N/A	240	BI	N/A	239	Digital	N/A (Status)	False = Unit not required to unload True = Unit required to unload		**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
65	**To current BMS - Selected Circuit - Compressor 1 unloading status**	**Datapoint**			X	M1-CO1UNLOADSTB	MCQ - old BMS selectables	R	Coil	155	155	155	BI	154	154	Digital	N/A (Status)	False = Unit not required to unload True = Unit required to unload	**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
66	**Cooling leaving water temperature set point**	**Setpoint**	**X**	**X**	**X**	M1-COOLLWTSP	MCQ - Setpoints	R/W	Holding Register	40002	40002	40002	AV	1	1	Analog	°C/°F		**X**	**X**	**X**	**X**	
67	**From BMS - Cooling leaving water temperature requested setpoint**	**Datapoint**	**X**			M1-COOLLWTSPB	MCQ - Setpoints	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Analog	°C/°F		**X**	**X**	**X**	**X**	Setpoint value from BMS - Read Only value just reported as datapoint on DoS
68	**Active set point**	**Datapoint**	**X**	**X**	**X**	M1-ACTIVESETPT	MCQ - Unit status	R	Holding Register	40003	40003	40003	AI	2	2	Analog	°C/°F		**X**	**X**	**X**	**X**	
69	**Capacity limit set point**	**Setpoint**	**X**	**X**	**X**	M1-CAPACITYLIMS	MCQ - Setpoints	R/W	Holding Register	40004	40004	40004	AV	3	3	Analog	%		**X**	**X**	**X**	**X**	
70	**From BMS - Capacity limit requested setpoint**	**Datapoint**	**X**			M1-CAPACITYLIMB	MCQ - Setpoints	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Analog	%		**X**	**X**	**X**	**X**	Setpoint value from BMS - Read Only value just reported as datapoint on DoS
71	**Evaporator entering water temperature**	**Datapoint**	**X**	**X**	**X**	M1-EVAPENTWTEMP	MCQ - Unit status	R	Holding Register	40005	40005	40005	AI	4	4	Analog	°C/°F		**X**	**X**	**X**	**X**	
72	**Heating leaving water temperature set point**	**Setpoint**	**X**	**X**	**X**	M1-HEATLWTSP	MCQ - Setpoints	R/W	Holding Register	40006	40006	40006	AV	5	5	Analog	°C/°F		**X**	**X**	**X**	**X**	
73	**From BMS - Heating leaving water temperature requested setpoint**	**Datapoint**	**X**			M1-HEATLWTSPB	MCQ - Setpoints	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Analog	%		**X**	**X**	**X**	**X**	Setpoint value from BMS - Read Only value just reported as datapoint on DoS
74	**Evaporator leaving water temperature**	**Datapoint**	**X**	**X**	**X**	M1-EVAPLVGWTEMP	MCQ - Unit status	R	Holding Register	40007	40007	40007	AI	6	6	Analog	°C/°F		**X**	**X**	**X**	**X**	
75	**Condenser entering water temperature**	**Datapoint**	**X**	**X**	**X**	M1-CONDENTWTEMP	MCQ - Unit status	R	Holding Register	40008	40008	40008	AI	7	7	Analog	°C/°F		**X**	**X**			
76	**Condenser leaving water temperature**	**Datapoint**	**X**	**X**	**X**	M1-CONDLVGWTEMP	MCQ - Unit status	R	Holding Register	40009	40009	40009	AI	8	8	Analog	°C/°F		**X**	**X**			
77	**Unit actual capacity**	**Datapoint**	**X**	**X**	**X**	M1-ACTUALCAP	MCQ - Unit status	R	Holding Register	40011	40011	40011	AI	10	10	Analog	%		**X**	**X**	**X**	**X**	
78	**Circuit 1 suction temperature**	**Datapoint**	**X**	**X**		M1-CO1SUCTTEMP	MCQ - Circuit #1 status	R	Holding Register	40016	N/A	40301	AI	N/A	300	Analog	°C/°F			**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
79	**Circuit 2 suction temperature**	**Datapoint**	**X**	**X**		M2-CO1SUCTTEMP	MCQ - Circuit #2 status	R	Holding Register	40016	N/A	40302	AI	N/A	301	Analog	°C/°F			**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
80	**Circuit 3 suction temperature**	**Datapoint**	**X**	**X**		M3-CO1SUCTTEMP	MCQ - Circuit #3 status	R	Holding Register	40016	N/A	40303	AI	N/A	302	Analog	°C/°F			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
81	**Circuit 4 suction temperature**	**Datapoint**	**X**	**X**		M4-CO1SUCTTEMP	MCQ - Circuit #4 status	R	Holding Register	40016	N/A	40304	AI	N/A	303	Analog	°C/°F			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
82	**To current BMS - Selected Circuit - suction temperature**	**Datapoint**			X	M1-CO1SUCTTEMPB	MCQ - old BMS selectables	R	Holding Register	40016	40016	40016	AI	15	15	Analog	°C/°F			**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
83	**Circuit 1 evaporator saturated refrigerant temperature**	**Datapoint**	**X**	**X**		M1-EVAPSATREFT	MCQ - Circuit #1 status	R	Holding Register	40017	N/A	40305	AI	N/A	304	Analog	°C/°F		**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
84	**Circuit 2 evaporator saturated refrigerant temperature**	**Datapoint**	**X**	**X**		M2-EVAPSATREFT	MCQ - Circuit #2 status	R	Holding Register	40017	N/A	40306	AI	N/A	305	Analog	°C/°F		**X***	**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.

85	**Circuit 3 evaporator saturated refrigerant temperature**	**Datapoint**	**X**	**X**		M3-EVAPSATREFT	MCQ - Circuit #3 status	R	Holding Register	40017	N/A	40307	AI	N/A	306	Analog	°C/°F			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
86	**Circuit 4 evaporator saturated refrigerant temperature**	**Datapoint**	**X**	**X**		M4-EVAPSATREFT	MCQ - Circuit #4 status	R	Holding Register	40017	N/A	40308	AI	N/A	307	Analog	°C/°F			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
87	**To current BMS - Selected Circuit - evaporator saturated refrigerant temperature**	**Datapoint**			X	M1-EVAPSATREFTB	MCQ - old BMS selectables	R	Holding Register	40017	40017	40017	AI	16	16	Analog	°C/°F		**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
88	**Circuit 1 evaporator refrigerant pressure**	**Datapoint**	**X**	**X**		M1-EVAPREFPRESS	MCQ - Circuit #1 status	R	Holding Register	40018	N/A	40309	AI	N/A	308	Analog	bar/psi		**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
89	**Circuit 2 evaporator refrigerant pressure**	**Datapoint**	**X**	**X**		M2-EVAPREFPRESS	MCQ - Circuit #2 status	R	Holding Register	40018	N/A	40310	AI	N/A	309	Analog	bar/psi		**X***	**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
90	**Circuit 3 evaporator refrigerant pressure**	**Datapoint**	**X**	**X**		M3-EVAPREFPRESS	MCQ - Circuit #3 status	R	Holding Register	40018	N/A	40311	AI	N/A	310	Analog	bar/psi			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
91	**Circuit 4 evaporator refrigerant pressure**	**Datapoint**	**X**	**X**		M4-EVAPREFPRESS	MCQ - Circuit #4 status	R	Holding Register	40018	N/A	40312	AI	N/A	311	Analog	bar/psi			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
92	**To current BMS - Selected Circuit - evaporator refrigerant pressure**	**Datapoint**			X	M1-EVAPREFPRESB	MCQ - old BMS selectables	R	Holding Register	40018	40018	40018	AI	17	17	Analog	bar/psi		**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
93	**Circuit 1 discharge temperature**	**Datapoint**	**X**	**X**		M1-CO1DISCHTEMP	MCQ - Circuit #1 status	R	Holding Register	40020	N/A	40313	AI	N/A	312	Analog	°C/°F		**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
94	**Circuit 2 discharge temperature**	**Datapoint**	**X**	**X**		M2-CO1DISCHTEMP	MCQ - Circuit #2 status	R	Holding Register	40020	N/A	40314	AI	N/A	313	Analog	°C/°F		**X***	**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
95	**Circuit 3 discharge temperature**	**Datapoint**	**X**	**X**		M3-CO1DISCHTEMP	MCQ - Circuit #3 status	R	Holding Register	40020	N/A	40315	AI	N/A	314	Analog	°C/°F			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
96	**Circuit 4 discharge temperature**	**Datapoint**	**X**	**X**		M4-CO1DISCHTEMP	MCQ - Circuit #4 status	R	Holding Register	40020	N/A	40316	AI	N/A	315	Analog	°C/°F			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
97	**To current BMS - Selected Circuit - discharge temperature**	**Datapoint**			**X**	M1-CO1DISCHTEMB	MCQ - old BMS selectables	R	Holding Register	40020	40020	40020	AI	19	19	Analog	°C/°F		**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
98	**Circuit 1 condenser saturated refrigerant temperature**	**Datapoint**	**X**	**X**		M1-CONDSATREFT	MCQ - Circuit #1 status	R	Holding Register	40021	N/A	40317	AI	N/A	316	Analog	°C/°F		**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
99	**Circuit 2 condenser saturated refrigerant temperature**	**Datapoint**	**X**	**X**		M2-CONDSATREFT	MCQ - Circuit #2 status	R	Holding Register	40021	N/A	40318	AI	N/A	317	Analog	°C/°F		**X***	**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
100	**Circuit 3 condenser saturated refrigerant temperature**	**Datapoint**	**X**	**X**		M3-CONDSATREFT	MCQ - Circuit #3 status	R	Holding Register	40021	N/A	40319	AI	N/A	318	Analog	°C/°F			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
101	**Circuit 4 condenser saturated refrigerant temperature**	**Datapoint**	**X**	**X**		M4-CONDSATREFT	MCQ - Circuit #4 status	R	Holding Register	40021	N/A	40320	AI	N/A	319	Analog	°C/°F			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
102	**To current BMS - Selected Circuit - condenser saturated refrigerant temperature**	**Datapoint**			**X**	M1-CONDSATREFTB	MCQ - old BMS selectables	R	Holding Register	40021	40021	40021	AI	20	20	Analog	°C/°F		**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
103	**Circuit 1 condenser refrigerant pressure**	**Datapoint**	**X**	**X**		M1-CONDREFPRESS	MCQ - Circuit #1 status	R	Holding Register	40022	N/A	40321	AI	N/A	320	Analog	bar/psi		**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
104	**Circuit 2 condenser refrigerant pressure**	**Datapoint**	**X**	**X**		M2-CONDREFPRESS	MCQ - Circuit #2 status	R	Holding Register	40022	N/A	40322	AI	N/A	321	Analog	bar/psi		**X***	**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
105	**Circuit 3 condenser refrigerant pressure**	**Datapoint**	**X**	**X**		M3-CONDREFPRESS	MCQ - Circuit #3 status	R	Holding Register	40022	N/A	40323	AI	N/A	322	Analog	bar/psi			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
106	**Circuit 4 condenser refrigerant pressure**	**Datapoint**	**X**	**X**		M4-CONDREFPRESS	MCQ - Circuit #4 status	R	Holding Register	40022	N/A	40324	AI	N/A	323	Analog	bar/psi			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
107	**To current BMS - Selected Circuit - condenser refrigerant pressure**	**Datapoint**			**X**	M1-CONDREFPRESB	MCQ - old BMS selectables	R	Holding Register	40022	40022	40022	AI	21	21	Analog	bar/psi		**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
108	**Heat recovery entering water temperature**	**Datapoint**	**X**	**X**	**X**	M1-HEATRECENTWT	MCQ - Unit status	R	Holding Register	40023	40023	40023	AI	22	22	Analog	°C/°F					X	

109	**Heat recovery leaving water temperature**	**Datapoint**	**X**	**X**	**X**	M1-HEATRECLVGWT	MCQ - Unit status	R	Holding Register	40024	40024	40024	AI	23	23	Analog	°C/°F					X	
110	**Compressor 1 actual capacity**	**Datapoint**	**X**	**X**		M1-CO1ACTCAP	MCQ - Circuit #1 compressor data	R	Holding Register	40026	N/A	40325	AI	N/A	324	Analog	%		**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
111	**Circuit 2 Compressor 1 actual capacity**	**Datapoint**	**X**	**X**		M2-CO1ACTCAP	MCQ - Circuit #2 compressor data	R	Holding Register	40026	N/A	40326	AI	N/A	325	Analog	%		**X***	**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
112	**Circuit 3 Compressor 1 actual capacity**	**Datapoint**	**X**	**X**		M3-CO1ACTCAP	MCQ - Circuit #3 compressor data	R	Holding Register	40026	N/A	40327	AI	N/A	326	Analog	%			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
113	**Circuit 4 Compressor 1 actual capacity**	**Datapoint**	**X**	**X**		M4-CO1ACTCAP	MCQ - Circuit #4 compressor data	R	Holding Register	40026	N/A	40328	AI	N/A	327	Analog	%			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
114	**To current BMS - Selected Circuit - Compressor 1 actual capacity**	**Datapoint**			**X**	M1-CO1ACTCAPB	MCQ - old BMS selectables	R	Holding Register	40026	40026	40026	AI	25	25	Analog	%		**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
115	**Circuit oil pressure**	**Datapoint**	**X**	**X**		M1-CO1OILPRESS	MCQ - Circuit #1 status	R	Holding Register	40033	N/A	40329	AI	N/A	328	Analog	bar/psi		**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
116	**Circuit 2 Circuit oil pressure**	**Datapoint**	**X**	**X**		M2-CO1OILPRESS	MCQ - Circuit #2 status	R	Holding Register	40033	N/A	40330	AI	N/A	329	Analog	bar/psi		**X***	**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
117	**Circuit 3 Circuit oil pressure**	**Datapoint**	**X**	**X**		M3-CO1OILPRESS	MCQ - Circuit #3 status	R	Holding Register	40033	N/A	40331	AI	N/A	330	Analog	bar/psi			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
118	**Circuit 4 Circuit oil pressure**	**Datapoint**	**X**	**X**		M4-CO1OILPRESS	MCQ - Circuit #4 status	R	Holding Register	40033	N/A	40332	AI	N/A	331	Analog	bar/psi			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
119	**To current BMS - Selected Circuit - Circuit oil pressure**	**Datapoint**			**X**	M1-CO1OILPRESSB	MCQ - old BMS selectables	R	Holding Register	40033	40033	40033	AI	32	32	Analog	bar/psi		**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
120	**Demand limit value**	**Datapoint**	**X**	**X**	**X**	M1-DEMANDLIM	MCQ - Unit status	R	Holding Register	40043	40043	40043	AI	42	42	Analog	%		**X**	**X**	**X**	**X**	
121	**Analog Output 1 value**	**Datapoint**	**X**	**X**		M1-ANALOGOUT1V	MCQ - Circuit #1 status	R	Holding Register	40045	N/A	40333	AI	N/A	332	Analog	V		**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
122	**Circuit 2 Analog Output 1 value**	**Datapoint**	**X**	**X**		M2-ANALOGOUT1V	MCQ - Circuit #2 status	R	Holding Register	40045	N/A	40334	AI	N/A	333	Analog	V		**X***	**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
123	**Circuit 3 Analog Output 1 value**	**Datapoint**	**X**	**X**		M3-ANALOGOUT1V	MCQ - Circuit #3 status	R	Holding Register	40045	N/A	40335	AI	N/A	334	Analog	V			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
124	**Circuit 4 Analog Output 1 value**	**Datapoint**	**X**	**X**		M4-ANALOGOUT1V	MCQ - Circuit #4 status	R	Holding Register	40045	N/A	40336	AI	N/A	335	Analog	V			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
125	**To current BMS - Selected Circuit - Analog Output 1 value**	**Datapoint**			**X**	M1-ANALOGOUT1VB	MCQ - old BMS selectables	R	Holding Register	40045	40045	40045	AI	44	44	Analog	V		**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
126	**Analog Output 2 value**	**Datapoint**	**X**	**X**		M1-ANALOGOUT2V	MCQ - Circuit #1 status	R	Holding Register	40046	N/A	40337	AI	N/A	336	Analog	V		**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
127	**Circuit 2 Analog Output 2 value**	**Datapoint**	**X**	**X**		M2-ANALOGOUT2V	MCQ - Circuit #2 status	R	Holding Register	40046	N/A	40338	AI	N/A	337	Analog	V		**X***	**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
128	**Circuit 3 Analog Output 2 value**	**Datapoint**	**X**	**X**		M3-ANALOGOUT2V	MCQ - Circuit #3 status	R	Holding Register	40046	N/A	40339	AI	N/A	338	Analog	V			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
129	**Circuit 4 Analog Output 2 value**	**Datapoint**	**X**	**X**		M4-ANALOGOUT2V	MCQ - Circuit #4 status	R	Holding Register	40046	N/A	40340	AI	N/A	339	Analog	V			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
130	**To current BMS - Selected Circuit - Analog Output 2 value**	**Datapoint**			**X**	M1-ANALOGOUT2VB	MCQ - old BMS selectables	R	Holding Register	40046	40046	40046	AI	45	45	Analog	V		**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
131	**Circuit 1 EXV position**	**Datapoint**	**X**	**X**		M1-EXVPOS	MCQ - Circuit #1 status	R	Holding Register	40047	N/A	40341	AI	N/A	340	Integer	steps			**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
132	**Circuit 2 EXV position**	**Datapoint**	**X**	**X**		M2-EXVPOS	MCQ - Circuit #2 status	R	Holding Register	40047	N/A	40342	AI	N/A	341	Integer	steps			**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.

133	**Circuit 3 EXV position**	**Datapoint**	**X**	**X**		M3-EXVPOS	MCQ - Circuit #3 status	R	Holding Register	40047	N/A	40343	AI	N/A	342	Integer	steps			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
134	**Circuit 4 EXV position**	**Datapoint**	**X**	**X**		M4-EXVPOS	MCQ - Circuit #4 status	R	Holding Register	40047	N/A	40344	AI	N/A	343	Integer	steps			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
135	**To current BMS - Selected Circuit - Circuit 1 EXV position**	**Datapoint**			**X**	M1-EXVPOSB	MCQ - old BMS selectables	R	Holding Register	40047	40047	40047	AI	46	46	Integer	steps			**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
136	**Start-up delta T**	**Setpoint**	**X**	**X**	**X**	M1-STGUPDELTASP	MCQ - Setpoints	R/W	Holding Register	40052	40052	40052	AV	51	51	Analog	dK		**X**	**X**	**X**	**X**	
137	**From BMS - Start-up delta T requested value**	**Datapoint**	**X**			M1-STGUPDELTASB	MCQ - Setpoints	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Analog	dK		**X**	**X**	**X**	**X**	Setpoint value from BMS - Read Only value just reported as datapoint on DoS
138	**Shut-down delta T**	**Setpoint**	**X**	**X**	**X**	M1-STOPDELTASP	MCQ - Setpoints	R/W	Holding Register	40053	40053	40053	AV	52	52	Analog	dK		**X**	**X**	**X**	**X**	
139	**From BMS - Shut-down delta T requested value**	**Datapoint**	**X**			M1-STOPDELTASPB	MCQ - Setpoints	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Analog	dK		**X**	**X**	**X**	**X**	Setpoint value from BMS - Read Only value just reported as datapoint on DoS
140	**Alarm code from Master**	**Datapoint**	**X**	**X**	**X**	M1-MASTERALCD	MCQ - Unit status	R	Holding Register	40091	40091	40091	AI	90	90	Integer	N/A (word to decode)		**X**	**X**	**X**	**X**	
141	**Alarm code from Slave**	**Datapoint**	**X**	**X**	**X**	M1-SLAVEALCD	MCQ - Unit status	R	Holding Register	40092	40092	40092	AI	91	91	Integer	N/A (word to decode)		**X**		**X**	X	
142	**Alarm word 1 to BMS**	**Alarm**		**X**	**X**	M1-ALWORD01BMS	MCQ - Alarms	R	Holding Register	40130	40130	40130	IV	1	1	Integer	N/A (word to decode)		**X**	**X**	**X**	**X**	
143	**Alarm word 2 to BMS**	**Alarm**		**X**	**X**	M1-ALWORD02BMS	MCQ - Alarms	R	Holding Register	40131	40131	40131	IV	2	2	Integer	N/A (word to decode)		**X**	**X**	**X**	**X**	
144	**Alarm word 3 to BMS**	**Alarm**		**X**	**X**	M1-ALWORD03BMS	MCQ - Alarms	R	Holding Register	40132	40132	40132	IV	3	3	Integer	N/A (word to decode)		**X**	**X**	**X**	**X**	
145	**Alarm word 4 to BMS**	**Alarm**		**X**	**X**	M1-ALWORD04BMS	MCQ - Alarms	R	Holding Register	40133	40133	40133	IV	4	4	Integer	N/A (word to decode)		**X**	**X**	**X**	**X**	
146	**Alarm word 5 to BMS**	**Alarm**		**X**	**X**	M1-ALWORD05BMS	MCQ - Alarms	R	Holding Register	40134	40134	40134	IV	5	5	Integer	N/A (word to decode)		**X**	**X**	**X**	**X**	
147	**Alarm word 6 to BMS**	**Alarm**		**X**	**X**	M1-ALWORD06BMS	MCQ - Alarms	R	Holding Register	40135	40135	40135	IV	6	6	Integer	N/A (word to decode)		**X**	**X**	**X**	**X**	
148	**Alarm word 7 to BMS**	**Alarm**		**X**	**X**	M1-ALWORD07BMS	MCQ - Alarms	R	Holding Register	40136	40136	40136	IV	7	7	Integer	N/A (word to decode)		**X**	**X**	**X**	**X**	
149	**Alarm word 8 to BMS**	**Alarm**		**X**	**X**	M1-ALWORD08BMS	MCQ - Alarms	R	Holding Register	40137	40137	40137	IV	8	8	Integer	N/A (word to decode)		**X**	**X**	**X**	**X**	
150	**Alarm word 9 to BMS**	**Alarm**		**X**	**X**	M1-ALWORD09BMS	MCQ - Alarms	R	Holding Register	40138	40138	40138	IV	9	9	Integer	N/A (word to decode)		**X**	**X**	**X**	**X**	
151	**Alarm word 10 to BMS**	**Alarm**		**X**	**X**	M1-ALWORD10BMS	MCQ - Alarms	R	Holding Register	40139	40139	40139	IV	10	10	Integer	N/A (word to decode)		**X**	**X**	**X**	**X**	
152	**Alarm word 11 to BMS**	**Alarm**		**X**	**X**	M1-ALWORD11BMS	MCQ - Alarms	R	Holding Register	40140	40140	40140	IV	11	11	Integer	N/A (word to decode)		**X**	**X**	**X**	**X**	
153	**Alarm word 12 to BMS**	**Alarm**		**X**	**X**	M1-ALWORD12BMS	MCQ - Alarms	R	Holding Register	40141	40141	40141	IV	12	12	Integer	N/A (word to decode)		**X**	**X**	**X**	**X**	
154	**Alarm word 13 to BMS**	**Alarm**		**X**	**X**	M1-ALWORD13BMS	MCQ - Alarms	R	Holding Register	40142	40142	40142	IV	13	13	Integer	N/A (word to decode)		**X**	**X**	**X**	**X**	
155	**Alarm word 14 to BMS**	**Alarm**		**X**	**X**	M1-ALWORD14BMS	MCQ - Alarms	R	Holding Register	40143	40143	40143	IV	14	14	Integer	N/A (word to decode)		**X**	**X**	**X**	**X**	
156	**Alarm word 15 to BMS**	**Alarm**		**X**	**X**	M1-ALWORD15BMS	MCQ - Alarms	R	Holding Register	40144	40144	40144	IV	15	15	Integer	N/A (word to decode)		**X**	**X**	**X**	**X**	
157	**Chiller mode set point**	**Setpoint**	**X**	**X**	**X**	M1-HVACMODEINSP	MCQ - Setpoints	R/W	Holding Register	40146	40146	40146	MV	17	17	Integer	N/A (Selection/Status)	1=HEAT MODE 11=ICE MODE <>1=COOL MODE	**X**	**X**	**X**	**X**	
158	**From BMS - Chiller mode requested setpoint**	**Datapoint**	**X**			M1-HVACMODESPB	MCQ - Setpoints	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Integer	N/A (selection)	1=HEAT MODE 11=ICE MODE <>1=COOL MODE	**X**	**X**	**X**	**X**	Setpoint value from BMS - Read Only value just reported as datapoint on DoS
159	**Unit mode**	**Datapoint**	**X**	**X**	**X**	M1-UNITMODE	MCQ - Unit status	R	Holding Register	40148	40148	40148	AI	19	19	Integer	N/A (word to decode)	BIT 0-7=0 UNIT OFF BIT 0-7=1 HEAT MODE BIT 0-7=3 COOL MODE BIT 0-7=11 ICE MODE BIT 8=ALARM ACTIVE BIT 9=UNIT ON BIT 10=LOCAL/REMOTE	**X**	**X**	**X**	**X**	

																	BIT 11=LMITATION ACTIVE BIT 12=EVAP. FLOW SWITCH						
160	**Compressor 1 full load status**	**Datapoint**	**X**	**X**	**X**	M1-CO1FULLLOAD	MCQ - Unit status	R	Holding Register	40151	40151	40151	BI	22	22	Integer	N/A (Status)	BIT 0=COMPRESSOR #1 FULL LOAD	**X**	**X**	**X**	**X**	False = Not full load True = full load
161	**Circuit 1 availability to run**	**Datapoint**	**X**	**X**		M1-RUNAVALST	MCQ - Unit status	R	Holding Register	40151	N/A	40345	BI	N/A	344	Integer	N/A (Status)	BIT 1= CIRCUIT #1 AVAIL TO RUN False = Not available to run True = Available to run	**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
162	**Circuit 2 availability to run**	**Datapoint**	**X**	**X**		M2-RUNAVALST	MCQ - Unit status	R	Holding Register	40151	N/A	40346	BI	N/A	345	Integer	N/A (Status)	BIT 2= CIRCUIT #2 AVAIL TO RUN False = Not available to run True = Available to run	**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
163	**Circuit 3 availability to run**	**Datapoint**	**X**	**X**		M3-RUNAVALST	MCQ - Unit status	R	Holding Register	40151	N/A	40347	BI	N/A	346	Integer	N/A (Status)	BIT 3= CIRCUIT #3 AVAIL TO RUN False = Not available to run True = Available to run	**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
164	**Circuit 4 availability to run**	**Datapoint**	**X**	**X**		M4-RUNAVALST	MCQ - Unit status	R	Holding Register	40151	N/A	40348	BI	N/A	347	Integer	N/A (Status)	BIT 4= CIRCUIT #4 AVAIL TO RUN False = Not available to run True = Available to run	**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
165	**To current BMS - Sequence status**	**Datapoint**			**X**	M1-SEQUENCESTB	MCQ - old BMS selectables	R	Holding Register	40151	40151	40151	AI	22	22	Integer	N/A (word to decode)	BIT 0=COMPRESSOR #1 FULL LOAD BIT 1= CIRCUIT #1 AVAIL TO RUN BIT 2= CIRCUIT #2 AVAIL TO RUN BIT 3= CIRCUIT #3 AVAIL TO RUN BIT 4= CIRCUIT #4 AVAIL TO RUN	**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
166	**From current BMS - Circuit selection setpoint**	**Setpoint**			**X**	M1-CIRCUITSELB	MCQ - old BMS selectables	R/W	Holding Register	40161	40161	40161	MV	32	32	Integer	n° of circuit	1-->4	**X**	**X**	**X**	**X**	Circuit selection Setpoint just used by current BMS to select the number of circuit from which receive values (as multiplexed channel)
167	**To current BMS - Circuit selection Value**	**Datapoint**			**X**	M1-CIRCUITSELVB	MCQ - old BMS selectables	R	Holding Register	40162	40162	40162	MI	33	33	Integer	n° of circuit	1-->4	**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
168	**Unit status for ALS**	**Datapoint**	**X**	**X**		M1-UNITSTALS	MCQ - Unit status	R	Holding Register	40163	N/A	40349	MI	N/A	348	Integer	N/A (Status)	See sheet "MCQ Unit Status"		**X***			Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
169	**Unit status for MCAIR**	**Datapoint**	**X**	**X**		M1-UNITSTMCA	MCQ - Unit status	R	Holding Register	40163	N/A	40349	MI	N/A	348	Integer	N/A (Status)	See sheet "MCQ Unit Status"			**X**		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
170	**Unit status for MTM**	**Datapoint**	**X**	**X**		M1-UNITSTMTM	MCQ - Unit status	R	Holding Register	40163	N/A	40349	MI	N/A	348	Integer	N/A (Status)	See sheet "MCQ Unit Status"				**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
171	**Unit status for PFS**	**Datapoint**	**X**	**X**		M1-UNITSTPFS	MCQ - Unit status	R	Holding Register	40163	N/A	40349	MI	N/A	348	Integer	N/A (Status)	See sheet "MCQ Unit Status"	**X**				Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
172	**Unit status for WHS**	**Datapoint**	**X**	**X**		M1-UNITSTWHS	MCQ - Unit status	R	Holding Register	40163	N/A	40349	MI	N/A	348	Integer	N/A (Status)	See sheet "MCQ Unit Status"		**X**			Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.

173	**To current BMS - Unit status**	**Datapoint**			**X**	M1-UNITSTATUSB	MCQ - old BMS selectables	R	Holding Register	40163	40163	40163	MI	34	34	Integer	N/A (Status)	See sheet "MCQ Unit Status"	X	X	X	X	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
174	**Circuit 1 status for ALS**	**Datapoint**	**X**	**X**		M1-CIRSTATUSALS	MCQ - Circuit #1 status	R	Holding Register	40173	N/A	40350	MI	N/A	349	Integer	N/A (Status)	See sheet "MCQ Circuit Status"		**X***			Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs. See sheet "Circuit Status" for details on the possible values.
175	**Circuit 1 status for MCAIR**	**Datapoint**	**X**	**X**		M1-CIRSTATUSMCA	MCQ - Circuit #1 status	R	Holding Register	40173	N/A	40350	MI	N/A	349	Integer	N/A (Status)	See sheet "MCQ Circuit Status"			**X**		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs. See sheet "Circuit Status" for details on the possible values.
176	**Circuit 1 status for MTM**	**Datapoint**	**X**	**X**		M1-CIRSTATUSMTM	MCQ - Circuit #1 status	R	Holding Register	40173	N/A	40350	MI	N/A	349	Integer	N/A (Status)	See sheet "MCQ Circuit Status"				**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs. See sheet "Circuit Status" for details on the possible values.
177	**Circuit 1 status for PFS**	**Datapoint**	**X**	**X**		M1-CIRSTATUSPFS	MCQ - Circuit #1 status	R	Holding Register	40173	N/A	40350	MI	N/A	349	Integer	N/A (Status)	See sheet "MCQ Circuit Status"	**X**				Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs. See sheet "Circuit Status" for details on the possible values.
178	**Circuit 1 status for WHS**	**Datapoint**	**X**	**X**		M1-CIRSTATUSWHS	MCQ - Circuit #1 status	R	Holding Register	40173	N/A	40350	MI	N/A	349	Integer	N/A (Status)	See sheet "MCQ Circuit Status"		**X***			Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs. See sheet "Circuit Status" for details on the possible values.
179	**Circuit 2 status for ALS**	**Datapoint**	**X**	**X**		M2-CIRSTATUSALS	MCQ - Circuit #2 status	R	Holding Register	40173	N/A	40351	MI	N/A	350	Integer	N/A (Status)	See sheet "MCQ Circuit Status"		**X***			Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs. See sheet "Circuit Status" for details on the possible values.
180	**Circuit 2 status for MCAIR**	**Datapoint**	**X**	**X**		M2-CIRSTATUSMCA	MCQ - Circuit #2 status	R	Holding Register	40173	N/A	40351	MI	N/A	350	Integer	N/A (Status)	See sheet "MCQ Circuit Status"			**X**		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs. See sheet "Circuit Status" for details on the possible values.
181	**Circuit 2 status for MTM**	**Datapoint**	**X**	**X**		M2-CIRSTATUSMTM	MCQ - Circuit #2 status	R	Holding Register	40173	N/A	40351	MI	N/A	350	Integer	N/A (Status)	See sheet "MCQ Circuit Status"				**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs. See sheet "Circuit Status" for details on the possible values.
182	**Circuit 2 status for PFS**	**Datapoint**	**X**	**X**		M2-CIRSTATUSPFS	MCQ - Circuit #2 status	R	Holding Register	40173	N/A	40351	MI	N/A	350	Integer	N/A (Status)	See sheet "MCQ Circuit Status"	**X**				Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs. See sheet "Circuit Status" for details on the possible values.
183	**Circuit 2 status for WHS**	**Datapoint**	**X**	**X**		M2-CIRSTATUSWHS	MCQ - Circuit #2 status	R	Holding Register	40173	N/A	40351	MI	N/A	350	Integer	N/A (Status)	See sheet "MCQ Circuit Status"		**X***			Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs. See sheet "Circuit Status" for details on the possible values.
184	**Circuit 3 status for ALS**	**Datapoint**	**X**	**X**		M3-CIRSTATUSALS	MCQ - Circuit #3 status	R	Holding Register	40173	N/A	40352	MI	N/A	351	Integer	N/A (Status)	See sheet "MCQ Circuit Status"		**X***			Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs. See sheet "Circuit Status" for details on the possible values.
185	**Circuit 3 status for MCAIR**	**Datapoint**	**X**	**X**		M3-CIRSTATUSMCA	MCQ - Circuit #3 status	R	Holding Register	40173	N/A	40352	MI	N/A	351	Integer	N/A (Status)	See sheet "MCQ Circuit Status"			**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs. See sheet "Circuit Status" for details on the possible values.
186	**Circuit 3 status for WHS**	**Datapoint**	**X**	**X**		M3-CIRSTATUSWHS	MCQ - Circuit #3 status	R	Holding Register	40173	N/A	40352	MI	N/A	351	Integer	N/A (Status)	See sheet "MCQ Circuit Status"		**X***			Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs. See sheet "Circuit Status" for details on the possible values.

187	**Circuit 4 status for ALS**	**Datapoint**	**X**	**X**		M4-CIRSTATUSALS	MCQ - Circuit #4 status	R	Holding Register	40173	N/A	40353	MI	N/A	352	Integer	N/A (Status)	See sheet "MCQ Circuit Status"		**X***			Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs. See sheet "Circuit Status" for details on the possible values.
188	**Circuit 4 status for MCAIR**	**Datapoint**	**X**	**X**		M4-CIRSTATUSMCA	MCQ - Circuit #4 status	R	Holding Register	40173	N/A	40353	MI	N/A	352	Integer	N/A (Status)	See sheet "MCQ Circuit Status"			**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs. See sheet "Circuit Status" for details on the possible values.
189	**Circuit 4 status for WHS**	**Datapoint**	**X**	**X**		M4-CIRSTATUSWHS	MCQ - Circuit #4 status	R	Holding Register	40173	N/A	40353	MI	N/A	352	Integer	N/A (Status)	See sheet "MCQ Circuit Status"		**X***			Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs. See sheet "Circuit Status" for details on the possible values.
190	**To current BMS - Circuit Selected - Circuit status**	**Datapoint**			**X**	M1-CIRSTATUSBMS	MCQ - old BMS selectables	R	Holding Register	40173	40173	40173	MI	44	44	Integer	N/A (Status)	See sheet "MCQ Circuit Status"	**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
191	**Compressor 1 No. of starts**	**Datapoint**	**X**	**X**		M1-CO1STARTS	MCQ - Circuit #1 compressor data	R	Holding Register	40174	N/A	40354	AI	N/A	353	Integer	N/A (no eng. value)		**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
192	**Circuit 2 Compressor 1 No. of starts**	**Datapoint**	**X**	**X**		M2-CO1STARTS	MCQ - Circuit #2 compressor data	R	Holding Register	40174	N/A	40355	AI	N/A	354	Integer	N/A (no eng. value)		**X***	**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
193	**Circuit 3 Compressor 1 No. of starts**	**Datapoint**	**X**	**X**		M3-CO1STARTS	MCQ - Circuit #3 compressor data	R	Holding Register	40174	N/A	40356	AI	N/A	355	Integer	N/A (no eng. value)			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
194	**Circuit 4 Compressor 1 No. of starts**	**Datapoint**	**X**	**X**		M4-CO1STARTS	MCQ - Circuit #4 compressor data	R	Holding Register	40174	N/A	40357	AI	N/A	356	Integer	N/A (no eng. value)			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
195	**To current BMS - Circuit Selected - Compressor 1 No. of starts**	**Datapoint**			**X**	M1-CO1STARTSB	MCQ - old BMS selectables	R	Holding Register	40174	40174	40174	AI	45	45	Integer	N/A (no eng. value)		**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
196	**Compressor 1 run hours**	**Datapoint**	**X**	**X**		M1-CO1RUNHOURS	MCQ - Circuit #1 compressor data	R	Holding Register	40175	N/A	40358	AI	N/A	357	Integer	Hours		**X**	**X**	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
197	**Circuit 2 Compressor 1 run hours**	**Datapoint**	**X**	**X**		M2-CO1RUNHOURS	MCQ - Circuit #2 compressor data	R	Holding Register	40175	N/A	40359	AI	N/A	358	Integer	Hours		**X***	**X***	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
198	**Circuit 3 Compressor 1 run hours**	**Datapoint**	**X**	**X**		M3-CO1RUNHOURS	MCQ - Circuit #3 compressor data	R	Holding Register	40175	N/A	40360	AI	N/A	359	Integer	Hours			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
199	**Circuit 4 Compressor 1 run hours**	**Datapoint**	**X**	**X**		M4-CO1RUNHOURS	MCQ - Circuit #4 compressor data	R	Holding Register	40175	N/A	40361	AI	N/A	360	Integer	Hours			**X***	**X***		Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without circuit selection needs.
200	**To current BMS - Circuit Selected - Compressor 1 run hours**	**Datapoint**			**X**	M1-CO1RUNHOURSB	MCQ - old BMS selectables	R	Holding Register	40175	40175	40175	AI	46	46	Integer	Hours		**X**	**X**	**X**	**X**	Datapoint value just sent to current BMS up to Circuit selected by BMS itself.
201	**Evaporator pump 1 run hours**	**Datapoint**	**X**	**X**	**X**	M1-EVAPPUMPRH	MCQ - Unit status	R	Holding Register	40176	40176	40176	AI	47	47	Integer	Hours		**X**	**X**	**X**	**X**	
202	**Condenser pump 1 run hours**	**Datapoint**	**X**	**X**	**X**	M1-CONDPUMPRH	MCQ - Unit status	R	Holding Register	40177	40177	40177	AI	48	48	Integer	Hours		**X**	**X**			
203	**Stop to start delay**	**Setpoint**	**X**	**X**	**X**	M1-STPTOSTRTSP	MCQ - Setpoints	R/W	Holding Register	40223	40223	40223	AV	94	94	Integer	sec.		**X**	**X**	**X**	**X**	
204	**From BMS - Stop to start delay actual requested value**	**Datapoint**	**X**			M1-STPTOSTRTSPB	MCQ - Setpoints	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Integer	sec.		**X**	**X**	**X**	**X**	Setpoint value from BMS - Read Only value just reported as datapoint on DoS
205	**Minimum compressor time OFF**	**Setpoint**	**X**	**X**	**X**	M1-MINCOMPTOFFS	MCQ - Setpoints	R/W	Holding Register	40224	40224	40224	AV	95	95	Integer	sec.		**X**	**X**	**X**	**X**	
206	**From BMS - Minimum compressor time OFF requested value**	**Datapoint**	**X**			M1-MINCOMPTOFFB	MCQ - Setpoints	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Integer	sec.		**X**	**X**	**X**	**X**	Setpoint value from BMS - Read Only value just reported as datapoint on DoS

8.3 USA Centrifugal Chiller datapoints and setpoints mapping.

#	Chiller Data Point	VAR TYPE	DoS	New BMS	Current BMS	CLOUD object ID	Datapoint Page	R/W	Modbus Register Type	MTII to MTIII Modbus Coil/Reg	Current BMS Modbus Coil/Reg	New BMS Modbus Coil/Reg	BACnet Obj. Type	Current BMS BACnet Instance	New BMS BACnet Instance	Data Type	Unit	Range	WSC, WDC, WPV, WCC, HSC, TSC HDC	WMC	Notes
207	**Chiller enable set point**	**Setpoint**	**X**	**X**	**X**	U1-CHILLERENSP	USA - Setpoints	R/W	Coil	2	2	2	BV	41	41	Digital	N/A (Selection/Status)	0 = Request Chiller Off 1 = Request Chiller On Default: 0 = Request Chiller Off	**X**	**X**	Enables (starts) the chiller to run if the operating conditions are satisfied, or disables (stops) the chiller from running. When this property is read, it indicates the current operating state of the chiller.
208	**From BMS - Chiller enable requested setpoint**	**Datapoint**	**X**			U1-CHILLERENSPB	USA - Setpoints	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Digital	N/A (Status)	0 = Request Chiller Off 1 = Request Chiller On Default: 0 = Request Chiller Off	**X**	**X**	Setpoint value from BMS - Read Only value just reported as datapoint on DoS
209	**Chiller run enable state**	**Datapoint**	**X**	**X**	**X**	U1-RUNENABLEST	USA - Unit status	R	Coil	3	3	3	BI	33	33	Digital	N/A (Status)	0 = Off 1 = Run Allowed Default: NA	**X**	**X**	Indicates that the chiller can start if operating conditions are met. see "BMS Pump Select" setpoint .
210	**Chiller alarm**	**Datapoint**	**X**	**X**	**X**	U1-CHILLERALARM	USA - Unit status	R	Coil	4	4	4	BI	40	40	Digital	N/A (Status)	0 = No Alarm 1 = Alarm	**X**	**X**	Indicates whether an alarm condition has occurred. This coil must be polled for alarm notification. See the Modbus Alarm Management section for a full description of all alarm conditions supported by the MicroTech II chiller.
211	**Chiller Local/Remote state**	**Datapoint**	**X**	**X**	**X**	U1-CHLOCREM	USA - Unit status	R	Coil	6	6	6	BI	38	38	Digital	N/A (Status)	0 = Remote 1 = Local Default: NA	**X**	**X**	Indicates whether the chiller is in local control or allowed to be controlled remotely over the network.
212	**Limitation active state**	**Datapoint**	**X**	**X**	**X**	U1-LIMITACTIVE	USA - Unit status	R	Coil	7	7	7	BI	39	39	Digital	N/A (Status)	0 = Not Limited (Inactive) 1 = Limited (Active) Default: NA	**X**	**X**	Indicates the main running mode and states of the chiller, and whether conditions exist that prevent the chiller from reaching the Leaving Water Temperature setpoint.
213	**Evaporator flow switch state**	**Datapoint**	**X**	**X**	**X**	U1-EVAPFLOWINST	USA - Unit status	R	Coil	8	8	8	BI	34	34	Digital	N/A (Status)	0 = No Flow (Inactive) 1 = Flow (Active) Default: NA	**X**	**X**	The status of water flow through the evaporator.
214	**Condenser flow switch state**	**Datapoint**	**X**	**X**	**X**	U1-CONDFLOWINST	USA - Unit status	R	Coil	9	9	9	BI	35	35	Digital	N/A (Status)	0 = No Flow (Inactive) 1 = Flow (Active) Default: NA	**X**	**X**	The status of the water flow through the condenser.
215	**From Old Modbus BMS - Pump selection**	**Setpoint**			**X**	U1-PUMPSELMODB	USA - old BMS selectables	R/W	Coil	20	20	20	N/A	N/A	N/A	Digital	N/A (Status)	1 = Pump 1 2 = Pump 2 Default: 1	**X**	**X**	Selects which pump (No.1 or No. 2) supplies the data. The unit controller returns the information for the respective condenser or evaporator pump. Select the desired pump first and then interrogate it. See Condenser Pump Run Hours and Evaporator Pump Run Hours.
216	**From Old BACnet BMS - Pump selection**	**Setpoint**			**X**	U1-PUMPSELBACB	USA - old BMS selectables	R/W	N/A	N/A	N/A	N/A	MSO	47	47	Integer	N/A (Status)	1 = Pump 1 2 = Pump 2 Default: 1	**X**	**X**	Selects which pump (No.1 or No. 2) supplies the data. The unit controller returns the information for the respective condenser or evaporator pump. Select the desired pump first and then interrogate it. See Condenser Pump Run Hours and Evaporator Pump Run Hours.
217	**Clear alarm**	**Setpoint**	**X**	**X**	**X**	U1-ALARMCLRSP	USA - Setpoints	R/W	Coil	25	25	25	BV	42	42	Digital	N/A (Selection/Status)	0 = Off 1 = On	**X**	**X**	Clears all active alarms. See the Modbus Alarm Management section for additional information.
218	**From BMS - Clear alarm requested value**	**Datapoint**	**X**			U1-ALARMCLRSPB	USA - Setpoints	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Digital	N/A (Status)	0 = Off 1 = On			Setpoint value from BMS - Read Only value just reported as datapoint on DoS
219	**Evaporator pump 1 output state**	**Datapoint**	**X**	**X**	**X**	U1-EVPMP1OUTST	USA - Unit status	R	Coil	30	30	30	BI	36	36	Digital	N/A (Status)	0 = Pump Off Request 1 = Pump On Request Default: NA	**X**	**X**	Indicates whether the selected pump has been commanded on or off. see "BMS Pump Select" setpoint .
220	**Condenser pump 1 output state**	**Datapoint**	**X**	**X**	**X**	U1-CDPMP1OUTST	USA - Unit status	R	Coil	32	32	32	BI	37	37	Digital	N/A (Status)	0 = Pump Off Request 1 = Pump On Request Default: NA	**X**	**X**	Indicates whether the selected pump has been commanded on or off. see "BMS Pump Select" setpoint .

#	Chiller Data Point	VAR TYPE	DoS	New BMS	Current BMS	CLOUD object ID	Datapoint Page	R/W	Modbus Register Type	MTII to MTIII Modbus Coil/Reg	Current BMS Modbus Coil/Reg	New BMS Modbus Coil/Reg	BACnet Obj. Type	Current BMS BACnet Instance	New BMS BACnet Instance	Data Type	Unit	Range	WSC, WDC, WPV, WCC, HSC, TSC HDC	WMC	Notes
221	**Cooling leaving water temperature set point**	**Setpoint**	**X**	**X**	**X**	U1-COOLLWTSP	USA - Setpoints	R/W	Holding Register	40002	40002	40002	AV	29	29	Analog	°C/°F	10° - 120°F x 10 -12.2° - 48.9°C x 10 Default: 44°F / 6.7°C	**X**	**X**	Determines the temperature of the Leaving Chilled Water when the chiller is operating in Cooling mode. Cooling is the default mode, unless it is overridden by a change made to the Chiller Mode Setpoint. Refer to the appropriate Operation Manual for suitable variable values.
222	**From BMS - Cooling leaving water temperature requested setpoint**	**Datapoint**	**X**			U1-COOLLWTSPB	USA - Setpoints	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Analog	°C/°F	10° - 120°F x 10 -12.2° - 48.9°C x 10 Default: 44°F / 6.7°C	**X**	**X**	Setpoint value from BMS - Read Only value just reported as datapoint on DoS
223	**Active set point**	**Datapoint**	**X**	**X**	**X**	U1-ACTIVESETPT	USA - Unit status	R	Holding Register	40003	40003	40003	AI	7	7	Analog	°C/°F	-40° - 199°F x 10 -40° - 93°C x 10 Default: NA	**X**	**X**	The current setpoint used to control the temperature of the Leaving Chilled Water or Leaving Hot Water. Based on the operating mode of the chiller, this value is derived from the Cool Setpoint, Heat Setpoint, or Ice Setpoint. The default mode is Cooling and is used unless changed by Chiller Mode Setpoint.
224	**Capacity limit set point**	**Setpoint**	**X**	**X**	**X**	U1-CAPACITYLIMS	USA - Setpoints	R/W	Holding Register	40004	40004	40004	AV	32	32	Analog	%	0 - 160% x 10 Default: 100%	**X**	**X**	Sets the chiller's maximum operating capacity as a percentage of full capacity. This level may be adjusted, but not above the specified limit. The input network variable sets the operating value (input). Refer to the appropriate MicroTech II Chiller Operation Manual for suitable variable values.
225	**From BMS - Capacity limit requested setpoint**	**Datapoint**	**X**			U1-CAPACITYLIMB	USA - Setpoints	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Analog	%	0 - 160% x 10 Default: 100%	**X**	**X**	Setpoint value from BMS - Read Only value just reported as datapoint on DoS
226	**Evaporator entering water temperature**	**Datapoint**	**X**	**X**	**X**	U1-EVAPENTWTEMP	USA - Unit status	R	Holding Register	40005	40005	40005	AI	1	1	Analog	°C/°F	-40° - 245°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	The temperature of the evaporator entering water.
227	**Heating leaving water temperature set point**	**Setpoint**	**X**	**X**	**X**	U1-HEATLWTSP	USA - Setpoints	R/W	Holding Register	40006	40006	40006	AV	31	31	Analog	°C/°F	50° - 150°F x 10 10° - 65.6°C x 10 Default: Varies by model	**X**	**X**	Provides the heating setpoint (i.e. sets the temperature of the leaving evaporator water) when the chiller is operating in the heat mode. The value is ignored if the unit controller is in Cooling mode. Refer to the appropriate Operation Manual for suitable variable values.
228	**From BMS - Heating leaving water temperature requested setpoint**	**Datapoint**	**X**			U1-HEATLWTSPB	USA - Setpoints	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Analog	°C/°F	50° - 150°F x 10 10° - 65.6°C x 10 Default: Varies by model	**X**	**X**	Setpoint value from BMS - Read Only value just reported as datapoint on DoS
229	**Evaporator leaving water temperature**	**Datapoint**	**X**	**X**	**X**	U1-EVAPLVGWTEMP	USA - Unit status	R	Holding Register	40007	40007	40007	AI	2	2	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	The current temperature of the evaporator leaving chilled water.
230	**Condenser entering water temperature**	**Datapoint**	**X**	**X**	**X**	U1-CONDENTWTEMP	USA - Unit status	R	Holding Register	40008	40008	40008	AI	3	3	Analog	°C/°F	-40° - 244°F x 10	**X**	**X**	The current temperature of the water entering the condenser.
231	**Condenser leaving water temperature**	**Datapoint**	**X**	**X**	**X**	U1-CONDLVGWTEMP	USA - Unit status	R	Holding Register	40009	40009	40009	AI	4	4	Analog	°C/°F	-40° - 244°F x 10	**X**	**X**	The current temperature of the leaving condenser water.
232	**Unit actual capacity**	**Datapoint**	**X**	**X**	**X**	U1-ACTUALCAP	USA - Unit status	R	Holding Register	40011	40011	40011	AI	9	9	Analog	°C/°F	0 - 160% x 10 Default: NA	**X**	**X**	The percent of capacity the chiller is currently producing. It may be more or less than the nominal capacity of the chiller. For positive displacement chillers (those using screw and scroll compressors) this is a percentage of total compressors running. For centrifugal chillers, this data point represents the combined percent RLA of the compressors.
233	**Circuit 1 Evaporator Leaving Water Temperature for Compressor**	**Datapoint**	**X**	**X**		U1-CO1EVAPLWT	USA - Compressor #1 data	R	Holding Register	40015	N/A	40301	AI	N/A	300	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs. The current leaving chilled water temperature of the selected compressor. see "BMS Compressor Select" setpoint .
234	**To current BMS - Selected Compressor - Evaporator Leaving Water Temperature for Compressor**	**Datapoint**			**X**	U1-CONEVAPLWTB	USA - old BMS selectables	R	Holding Register	40015	40015	40015	AI	23	23	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	The current leaving chilled water temperature of the selected compressor. see "BMS Compressor Select" setpoint .
235	**Circuit 1 suction temperature**	**Datapoint**	**X**	**X**		U1-CO1SUCTTEMP	USA - Compressor #1 data	R	Holding Register	40016	N/A	40302	AI	N/A	301	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs. The current suction line refrigerant temperature. There is

#	Chiller Data Point	VAR TYPE	DoS	New BMS	Current BMS	CLOUD object ID	Datapoint Page	R/W	Modbus Register Type	MTII to MTIII Modbus Coil/Reg	Current BMS Modbus Coil/Reg	New BMS Modbus Coil/Reg	BACnet Obj. Type	Current BMS BACnet Instance	New BMS BACnet Instance	Data Type	Unit	Range	WSC, WDC, WPV, WCC, HSC, TSC HDC	WMC	Notes
																					a separate output for each compressor. see "BMS Compressor Select" setpoint .
236	**To current BMS - Selected Compressor - Suction temperature**	**Datapoint**			**X**	U1-CONSUCTTEMPB	USA - old BMS selectables	R	Holding Register	40016	40016	40016	AI	15	15	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10	**X**	**X**	The current suction line refrigerant temperature. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .
237	**Circuit 1 evaporator saturated refrigerant temperature**	**Datapoint**	**X**	**X**		U1-CO1ESATREFT	USA - Compressor #1 data	R	Holding Register	40017	N/A	40303	AI	N/A	302	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs. The current saturated refrigerant temperature in the evaporator. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .
238	**To current BMS - Selected Compressor - Evaporator saturated refrigerant temperature**	**Datapoint**			**X**	U1-CONESATREFTB	USA - old BMS selectables	R	Holding Register	40017	40017	40017	AI	14	14	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	The current saturated refrigerant temperature in the evaporator. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .
239	**Circuit 1 evaporator refrigerant pressure**	**Datapoint**	**X**	**X**		U1-CO1EVAPREFP	USA - Compressor #1 data	R	Holding Register	40018	N/A	40304	AI	N/A	303	Analog	bar/psi	-3,276.8 - 3,276.7 psi x 10 -22,592 - 22,592 kPa x 10 Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs. The current refrigerant pressure in the evaporator. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .
240	**To current BMS - Selected Compressor - Evaporator refrigerant pressure**	**Datapoint**			**X**	U1-CONEVAPREFPB	USA - old BMS selectables	R	Holding Register	40018	40018	40018	AI	13	13	Analog	bar/psi	-3,276.8 - 3,276.7 psi x 10 -22,592 - 22,592 kPa x 10 Default: NA	**X**	**X**	The current refrigerant pressure in the evaporator. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .
241	**Evaporator Water Flow Rate**	**Datapoint**	**X**	**X**	**X**	U1-EVAPFLOWRATE	USA - Unit status	R	Holding Register	40019	40019	40019	AI	49	49	Analog	g/min	0 - 65,534 GPM Default: NA	**X**	**X**	The current evaporator water flow rate. Measured in GPM only for centrifugal chillers.
242	**Circuit 1 discharge temperature**	**Datapoint**	**X**	**X**		U1-CO1DISCHTEMP	USA - Compressor #1 data	R	Holding Register	40020	N/A	40305	AI	N/A	304	Analog	°C/°F	-459.9° - 621°F x 10 -273.3°- 327.2°C x 10 Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs. The refrigerant temperature of the selected compressor. see "BMS Compressor Select" setpoint .
243	**To current BMS - Selected Compressor - Discharge temperature**	**Datapoint**			**X**	U1-CONDISCHTEMB	USA - old BMS selectables	R	Holding Register	40020	40020	40020	AI	18	18	Analog	°C/°F	-459.9° - 621°F x 10 -273.3°- 327.2°C x 10 Default: NA	**X**	**X**	The refrigerant temperature of the selected compressor. see "BMS Compressor Select" setpoint .
244	**Circuit 1 condenser saturated refrigerant temperature**	**Datapoint**	**X**	**X**		U1-CO1CSATREFT	USA - Compressor #1 data	R	Holding Register	40021	N/A	40306	AI	N/A	305	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs. The current saturated refrigerant temperature in the condenser. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .
245	**To current BMS - Selected Compressor - Condenser saturated refrigerant temperature**	**Datapoint**			**X**	U1-CONCSATREFTB	USA - old BMS selectables	R	Holding Register	40021	40021	40021	AI	17	17	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	The current saturated refrigerant temperature in the condenser. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .
246	**Circuit 1 condenser refrigerant pressure**	**Datapoint**	**X**	**X**		U1-CO1CONDREFP	USA - Compressor #1 data	R	Holding Register	40022	N/A	40307	AI	N/A	306	Analog	bar/psi	-3,276.8 - 3,276.7 psi x 10 -22,592 - 22,592 kPa x 10 Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs. The current refrigerant pressure in the selected condenser. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .
247	**To current BMS - Selected Compressor - Condenser refrigerant pressure**	**Datapoint**			**X**	U1-CONCONDREFPB	USA - old BMS selectables	R	Holding Register	40022	40022	40022	AI	16	16	Analog	bar/psi	-3,276.8 - 3,276.7 psi x 10 -22,592 - 22,592 kPa x 10 Default: NA	**X**	**X**	The current refrigerant pressure in the selected condenser. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .
248	**Condenser Water Flow Rate**	**Datapoint**	**X**	**X**	**X**	U1-CONDFLOWRATE	USA - Unit status	R	Holding Register	40025	40025	40025	AI	50	50	Analog	g/min	0 - 65,534 GPM 0 - 4,135 Liters/Sec Default: NA	**X**	**X**	The current condenser water flow rate. Flow rate for centrifugal chillers measured in GPM only.
249	**Circuit 1 percent RLA**	**Datapoint**	**X**	**X**		U1-CO1PERRLA	USA - Compressor #1 data	R	Holding Register	40026	N/A	40308	AI	N/A	307	Analog	%	0 - 110% x 10 Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs.

#	Chiller Data Point	VAR TYPE	DoS	New BMS	Current BMS	CLOUD object ID	Datapoint Page	R/W	Modbus Register Type	MTII to MTIII Modbus Coil/Reg	Current BMS Modbus Coil/Reg	New BMS Modbus Coil/Reg	BACnet Obj. Type	Current BMS BACnet Instance	New BMS BACnet Instance	Data Type	Unit	Range	WSC, WDC, WPV, WCC, HSC, TSC HDC	WMC	Notes
																					The motor current of the selected compressor. see "BMS Compressor Select" setpoint .
250	**To current BMS - Selected Compressor - Percent RLA**	**Datapoint**			**X**	U1-CONPERRLAB	USA - old BMS selectables	R	Holding Register	40026	40026	40026	AI	24	24	Analog	%	0 - 110% x 10 Default: NA	**X**	**X**	The motor current of the selected compressor. see "BMS Compressor Select" setpoint .
251	**Circuit 1 current**	**Datapoint**	**X**	**X**		U1-CO1CURRENT	USA - Compressor #1 data	R	Holding Register	40027	N/A	40309	AI	N/A	308	Analog	Ampere	0 - 65,535 Amps Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs. The number of amps being drawn from the selected compressor. see "BMS Compressor Select" setpoint .
252	**To current BMS - Selected Compressor - Current**	**Datapoint**			**X**	U1-CONCURRENTB	USA - old BMS selectables	R	Holding Register	40027	40027	40027	AI	51	51	Analog	Ampere	0 - 65,535 Amps Default: NA	**X**	**X**	The number of amps being drawn from the selected compressor. see "BMS Compressor Select" setpoint .
253	**Circuit 1 power**	**Datapoint**	**X**	**X**		U1-CO1POWER	USA - Compressor #1 data	R	Holding Register	40028	N/A	40310	AI	N/A	309	Analog	kW	0 - 65,535 kW Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs. The motor power of the selected compressor. see "BMS Compressor Select" setpoint .
254	**To current BMS - Selected Compressor - Power**	**Datapoint**			**X**	U1-CONPOWERB	USA - old BMS selectables	R	Holding Register	40028	40028	40028	AI	54	54	Analog	kW	0 - 65,535 kW Default: NA	**X**	**X**	The motor power of the selected compressor. see "BMS Compressor Select" setpoint .
255	**Circuit 1 motor voltage**	**Datapoint**	**X**	**X**		U1-CO1VOLTAGE	USA - Compressor #1 data	R	Holding Register	40030	N/A	40311	AI	N/A	310	Analog	VAC	0 - 65,535 VAC Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs. The current voltage of the selected compressor. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .
256	**To current BMS - Selected Compressor - Voltage**	**Datapoint**			**X**	U1-CONVOLTAGEB	USA - old BMS selectables	R	Holding Register	40030	40030	40030	AI	52	52	Analog	VAC	0 - 65,535 VAC Default: NA	**X**	**X**	The current voltage of the selected compressor. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .
257	**Circuit 1 oil feed pressure**	**Datapoint**	**X**	**X**		U1-CO1OILFEEDP	USA - Compressor #1 data	R	Holding Register	40033	N/A	40312	AI	N/A	311	Analog	bar/psi	-3,276.8 - 3,276.7 psi x 10 -22,592 - 22,592 kPa x 10 Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs. The current compressor oil feed pressure. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .
258	**To current BMS - Selected Compressor - Oil feed pressure**	**Datapoint**			**X**	U1-CONOILFEEDPB	USA - old BMS selectables	R	Holding Register	40033	40033	40033	AI	19	19	Analog	bar/psi	-3,276.8 - 3,276.7 psi x 10 -22,592 - 22,592 kPa x 10 Default: NA	**X**	**X**	The current compressor oil feed pressure. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .
259	**Circuit 1 oil sump pressure**	**Datapoint**	**X**	**X**		U1-CO1OILSUMPP	USA - Compressor #1 data	R	Holding Register	40034	N/A	40313	AI	N/A	312	Analog	bar/psi	-3,276.8 - 3,276.7 psi x 10 -22,592 - 22,592 kPa x 10 Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs. The current compressor oil sump pressure. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .
260	**To current BMS - Selected Compressor - Oil sump pressure**	**Datapoint**			**X**	U1-CONOILSUMPPB	USA - old BMS selectables	R	Holding Register	40034	40034	40034	AI	20	20	Analog	bar/psi	-3,276.8 - 3,276.7 psi x 10 -22,592 - 22,592 kPa x 10 Default: NA	**X**	**X**	The current compressor oil sump pressure. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .
261	**Circuit 1 oil feed temperature**	**Datapoint**	**X**	**X**		U1-CO1OILFEEDT	USA - Compressor #1 data	R	Holding Register	40035	N/A	40314	AI	N/A	313	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs. The current compressor oil feed temperature. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .
262	**To current BMS - Selected Compressor - Oil feed temperature**	**Datapoint**			**X**	U1-CONOILFEEDTB	USA - old BMS selectables	R	Holding Register	40035	40035	40035	AI	21	21	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	The current compressor oil feed temperature. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .
263	**Circuit 1 oil sump temperature**	**Datapoint**	**X**	**X**		U1-CO1OILSUMPT	USA - Compressor #1 data	R	Holding Register	40036	N/A	40315	AI	N/A	314	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs. The current compressor oil sump temperature. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .

#	Chiller Data Point	VAR TYPE	DoS	New BMS	Current BMS	CLOUD object ID	Datapoint Page	R/W	Modbus Register Type	MTII to MTIII Modbus Coil/Reg	Current BMS Modbus Coil/Reg	New BMS Modbus Coil/Reg	BACnet Obj. Type	Current BMS BACnet Instance	New BMS BACnet Instance	Data Type	Unit	Range	WSC, WDC, WPV, WCC, HSC, TSC HDC	WMC	Notes
264	**To current BMS - Selected Compressor - Oil sump temperature**	**Datapoint**			**X**	U1-CONOILSUMPTB	USA - old BMS selectables	R	Holding Register	40036	40036	40036	AI	22	22	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	The current compressor oil sump temperature. There is a separate output for each compressor. see "BMS Compressor Select" setpoint .
265	**Circuit 1 liquid temperature**	**Datapoint**	**X**	**X**		U1-CO1LIQUIDT	USA - Compressor #1 data	R	Holding Register	40037	N/A	40316	AI	N/A	315	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs. The current liquid line refrigerant temperature. There is a separate output for each compressor/circuit.
266	**To current BMS - Selected Compressor - Liquid temperature**	**Datapoint**			**X**	U1-CONLIQUIDTB	USA - old BMS selectables	R	Holding Register	40037	40037	40037	AI	11	11	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	The current liquid line refrigerant temperature. There is a separate output for each compressor/circuit.
267	**Demand limit value**	**Datapoint**	**X**	**X**	**X**	U1-DEMANDLIM	USA - Unit status	R	Holding Register	40043	40043	40043	AI	8	8	Analog	%	0 - 160% x 10 Default: NA	**X**	**X**	Measures the ratio of operating capacity to full capacity of the chiller. Indicates the current value of the Capacity Limit Setpoint.
268	**ice set point**	**Setpoint**	**X**	**X**	**X**	U1-ICESETPNETSP	USA - Setpoints	R/W	Holding Register	40051	40051	40051	AV	30	30	Analog	°C/°F	15° - 35°F x 10 -9.5° - 1.7°C x 10 Default: 25°F / -3.9°C	**X**	**X**	Determines the temperature of the leaving evaporator water. Refer to the appropriate Operation Manual for suitable variable values.
269	**From BMS - ice set point**	**Datapoint**	**X**			U1-ICESETPNETSB	USA - Setpoints	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Analog	°C/°F	15° - 35°F x 10 -9.5° - 1.7°C x 10 Default: 25°F / -3.9°C	**X**	**X**	Setpoint value from BMS - Read Only value just reported as datapoint on DoS
270	**Circuit 1 Compressor 1 cavity temperature**	**Datapoint**	**X**	**X**	**X**	U1-CO1CAVITYT	USA - Compressor #1 data	R	Holding Register	40086	40086	40086	AI	65	65	Analog	°C/°F	-4° - 212°F x 10 -20° - 100°C x 10 Default: NA		**X**	The current temperature of the compressor's motor starter cavity. Available on WMC chiller only.
271	**Circuit 1 Compressor 1 inverter temperature**	**Datapoint**	**X**	**X**	**X**	U1-CO1INVERTERT	USA - Compressor #1 data	R	Holding Register	40087	40087	40087	AI	66	66	Analog	°C/°F	32 - 212°F x 10 0 - 100°C x 10 Default: NA		**X**	The current drive temperature. There is a separate output for each compressor. Available on WMC chiller only.
272	**Circuit 1 Compressor 2 Evaporator Leaving Water Temperature**	**Datapoint**	**X**	**X**		U1-CO2EVAPLWT	USA - Compressor #2 data	R	Holding Register	40088	N/A	40088	AI	N/A	68	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	The current leaving chilled water temperature of compressor 2. Not available on all chiller models. (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
273	**Circuit 2 suction temperature**	**Datapoint**	**X**	**X**		U1-CO2SUCTTEMP	USA - Compressor #2 data	R	Holding Register	40089	N/A	40089	AI	N/A	69	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10	**X**	**X**	The current suction line refrigerant temperature for compressor 2. Not available on all chiller models. see "BMS Compressor Select" setpoint . (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
274	**Circuit 1 Compressor 2 evaporator saturated refrigerant temperature**	**Datapoint**	**X**	**X**		U1-CO2ESATREFT	USA - Compressor #2 data	R	Holding Register	40090	N/A	40090	AI	N/A	70	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	The current saturated refrigerant temperature in the evaporator for compressor 2. Not available on all chiller models. (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
275	**Circuit 1 Compressor 2 evaporator refrigerant pressure**	**Datapoint**	**X**	**X**		U1-CO2EVAPREFP	USA - Compressor #2 data	R	Holding Register	40091	N/A	40091	AI	N/A	71	Analog	bar/psi	-3,276.8 - 3,276.7 psi x 10 -22,592 - 22,592 kPa x 10 Default: NA	**X**	**X**	The current refrigerant pressure in the evaporator for compressor 2. Not available on all chiller models. (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
276	**Circuit 1 Compressor 2 discharge temperature**	**Datapoint**	**X**	**X**		U1-CO2DISCHTEMP	USA - Compressor #2 data	R	Holding Register	40092	N/A	40092	AI	N/A	72	Analog	°C/°F	-459.9° - 621°F x 10 -273.3°- 327.2°C x 10 Default: NA	**X**	**X**	The current compressor refrigerant temperature of compressor 2. Not available on all chiller models. see "BMS Compressor Select" setpoint . (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
277	**Circuit 1 Compressor 2 condenser saturated refrigerant temperature**	**Datapoint**	**X**	**X**		U1-CO2CSATREFT	USA - Compressor #2 data	R	Holding Register	40093	N/A	40093	AI	N/A	73	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	The current saturated refrigerant temperature in the condenser for compressor 2. Not available on all chiller models. (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).

#	Chiller Data Point	VAR TYPE	DoS	New BMS	Current BMS	CLOUD object ID	Datapoint Page	R/W	Modbus Register Type	MTII to MTIII Modbus Coil/Reg	Current BMS Modbus Coil/Reg	New BMS Modbus Coil/Reg	BACnet Obj. Type	Current BMS BACnet Instance	New BMS BACnet Instance	Data Type	Unit	Range	WSC, WDC, WPV, WCC, HSC, TSC HDC	WMC	Notes
278	**Circuit 1 Compressor 2 condenser refrigerant pressure**	**Datapoint**	**X**	**X**		U1-CO2CONDREFP	USA - Compressor #2 data	R	Holding Register	40094	N/A	40094	AI	N/A	74	Analog	bar/psi	-3,276.8 - 3,276.7 psi x 10 -22,592 - 22,592 kPa x 10 Default: NA	**X**	**X**	The current refrigerant pressure for compressor 2. Not available on all chiller models. (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
279	**Circuit 1 Compressor 2 percent RLA**	**Datapoint**	**X**	**X**		U1-CO2PERRLA	USA - Compressor #2 data	R	Holding Register	40095	N/A	40095	AI	N/A	75	Analog	%	0 - 110% x 10 Default: NA	**X**	**X**	The motor current of the selected compressor. see "BMS Compressor Select" setpoint . (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
280	**Circuit 1 Compressor 2 current**	**Datapoint**	**X**	**X**		U1-CO2CURRENT	USA - Compressor #2 data	R	Holding Register	40096	N/A	40096	AI	N/A	76	Analog	Ampere	0 - 65,535 Amps Default: NA	**X**	**X**	The number of amps being drawn from the selected compressor. see "BMS Compressor Select" setpoint . (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
281	**Circuit 1 Compressor 2 power**	**Datapoint**	**X**	**X**		U1-CO2POWER	USA - Compressor #2 data	R	Holding Register	40097	N/A	40097	AI	N/A	77	Analog	kW	0 - 65,535 kW Default: NA	**X**	**X**	The motor power of the selected compressor. see "BMS Compressor Select" setpoint . (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
282	**Circuit 1 Compressor 2 motor voltage**	**Datapoint**	**X**	**X**		U1-CO2VOLTAGE	USA - Compressor #2 data	R	Holding Register	40099	N/A	40099	AI	N/A	79	Analog	VAC	0 - 65,535 VAC Default: NA	**X**	**X**	The current voltage of the selected compressor. There is a separate output for each compressor. see "BMS Compressor Select" setpoint . (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
283	**Circuit 1 Compressor 2 VFD Speed**	**Datapoint**	**X**	**X**	**X**	U1-CO2VFDSPEED	USA - Compressor #2 data	R	Holding Register	40100	40100	40100	AI	80	80	Analog	%	0 - 100% Default: NA		**X**	The active VFD Speed for compressor 2. Available on WMC chiller only.
284	**Circuit 1 Compressor 2 oil feed pressure**	**Datapoint**	**X**	**X**		U1-CO2OILFEEDP	USA - Compressor #2 data	R	Holding Register	40101	N/A	40101	AI	N/A	81	Analog	bar/psi	-3,276.8 - 3,276.7 psi x 10 -22,592 - 22,592 kPa x 10 Default: NA	**X**	**X**	The current compressor oil feed pressure for compressor 2. Not available on all chiller models. (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
285	**Circuit 1 Compressor 2 oil sump pressure**	**Datapoint**	**X**	**X**		U1-CO2OILSUMPP	USA - Compressor #2 data	R	Holding Register	40102	N/A	40102	AI	N/A	82	Analog	bar/psi	-3,276.8 - 3,276.7 psi x 10 -22,592 - 22,592 kPa x 10 Default: NA	**X**	**X**	The current compressor oil sump pressure for compressor 2. Not available on all chiller models. (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
286	**Circuit 1 Compressor 2 oil feed temperature**	**Datapoint**	**X**	**X**		U1-CO2OILFEEDT	USA - Compressor #2 data	R	Holding Register	40103	N/A	40103	AI	N/A	83	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	The current compressor oil feed temperature for compressor 2. Not available on all chiller models. (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
287	**Circuit 1 Compressor 2 oil sump temperature**	**Datapoint**	**X**	**X**		U1-CO2OILSUMPT	USA - Compressor #2 data	R	Holding Register	40104	N/A	40104	AI	N/A	84	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	The current compressor oil sump temperature for compressor 2. Not available on all chiller models. (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
288	**Circuit 1 Compressor 2 liquid temperature**	**Datapoint**	**X**	**X**		U1-CO2LIQUIDT	USA - Compressor #2 data	R	Holding Register	40105	N/A	40105	AI	N/A	85	Analog	°C/°F	-40° - 244°F x 10 -40° - 118°C x 10 Default: NA	**X**	**X**	The current liquid line refrigerant temperature for compressor 2. Not available on all chiller models. (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
289	**Circuit 1 Compressor 2 cavity temperature**	**Datapoint**	**X**	**X**	**X**	U1-CO2CAVITYT	USA - Compressor #2 data	R	Holding Register	40106	40106	40106	AI	86	86	Analog	°C/°F	-4° - 212°F x 10 -20° - 100°C x 10 Default: NA		**X**	The current temperature of the compressor's motor starter cavity. Available on WMC chiller only.
290	**Circuit1 Compressor 2 inverter temperature**	**Datapoint**	**X**	**X**	**X**	U1-CO2INVERTERT	USA - Compressor #2 data	R	Holding Register	40107	40107	40107	AI	87	87	Analog	°C/°F	32 - 212°F x 10 0 - 100°C x 10 Default: NA		**X**	The current drive temperature. There is a separate output for each compressor. Available on WMC chiller only.
291	**Circuit 1 Compressor 2 active capacity limit**	**Datapoint**	**X**	**X**	**X**	U1-CO2ACTCAPLIM	USA - Compressor #2 data	R	Holding Register	40108	40108	40108	AI	88	88	Analog	%	0 - 100% Default: NA		**X**	The active capacity limit for compressor 2. Available on WMC chiller only.
292	**Alarm word 1 to BMS**	**Alarm**		**X**	**X**	U1-ALWORD01BMS	USA - Alarms	R	Holding Register	40130	40130	40130	IV	1	1	Integer	N/A (word to decode)		**X**	**X**	See spreadsheet "Alarm Words". Mapped only on JSON (not Cloud) and forwarded to BMS

#	Chiller Data Point	VAR TYPE	DoS	New BMS	Current BMS	CLOUD object ID	Datapoint Page	R/W	Modbus Register Type	MTII to MTIII Modbus Coil/Reg	Current BMS Modbus Coil/Reg	New BMS Modbus Coil/Reg	BACnet Obj. Type	Current BMS BACnet Instance	New BMS BACnet Instance	Data Type	Unit	Range	WSC, WDC, WPV, WCC, HSC, TSC HDC	WMC	Notes
293	**Alarm word 2 to BMS**	**Alarm**		**X**	**X**	U1-ALWORD02BMS	USA - Alarms	R	Holding Register	40131	40131	40131	IV	2	2	Integer	N/A (word to decode)		**X**	**X**	See spreadsheet "Alarm Words". Mapped only on JSON (not Cloud) and forwarded to BMS
294	**Alarm word 3 to BMS**	**Alarm**		**X**	**X**	U1-ALWORD03BMS	USA - Alarms	R	Holding Register	40132	40132	40132	IV	3	3	Integer	N/A (word to decode)		**X**	**X**	See spreadsheet "Alarm Words". Mapped only on JSON (not Cloud) and forwarded to BMS
295	**Alarm word 4 to BMS**	**Alarm**		**X**	**X**	U1-ALWORD04BMS	USA - Alarms	R	Holding Register	40133	40133	40133	IV	4	4	Integer	N/A (word to decode)		**X**	**X**	See spreadsheet "Alarm Words". Mapped only on JSON (not Cloud) and forwarded to BMS
296	**Alarm word 5 to BMS**	**Alarm**		**X**	**X**	U1-ALWORD05BMS	USA - Alarms	R	Holding Register	40134	40134	40134	IV	5	5	Integer	N/A (word to decode)		**X**	**X**	See spreadsheet "Alarm Words". Mapped only on JSON (not Cloud) and forwarded to BMS
297	**Alarm word 6 to BMS**	**Alarm**		**X**	**X**	U1-ALWORD06BMS	USA - Alarms	R	Holding Register	40135	40135	40135	IV	6	6	Integer	N/A (word to decode)		**X**	**X**	See spreadsheet "Alarm Words". Mapped only on JSON (not Cloud) and forwarded to BMS
298	**Alarm word 7 to BMS**	**Alarm**		**X**	**X**	U1-ALWORD07BMS	USA - Alarms	R	Holding Register	40136	40136	40136	IV	7	7	Integer	N/A (word to decode)		**X**	**X**	See spreadsheet "Alarm Words". Mapped only on JSON (not Cloud) and forwarded to BMS
299	**Alarm word 8 to BMS**	**Alarm**		**X**	**X**	U1-ALWORD08BMS	USA - Alarms	R	Holding Register	40137	40137	40137	IV	8	8	Integer	N/A (word to decode)		**X**	**X**	See spreadsheet "Alarm Words". Mapped only on JSON (not Cloud) and forwarded to BMS
300	**Alarm word 9 to BMS**	**Alarm**		**X**	**X**	U1-ALWORD09BMS	USA - Alarms	R	Holding Register	40138	40138	40138	IV	9	9	Integer	N/A (word to decode)		**X**	**X**	See spreadsheet "Alarm Words". Mapped only on JSON (not Cloud) and forwarded to BMS
301	**Alarm word 10 to BMS**	**Alarm**		**X**	**X**	U1-ALWORD10BMS	USA - Alarms	R	Holding Register	40139	40139	40139	IV	10	10	Integer	N/A (word to decode)		**X**	**X**	See spreadsheet "Alarm Words". Mapped only on JSON (not Cloud) and forwarded to BMS
302	**Alarm word 11 to BMS**	**Alarm**		**X**	**X**	U1-ALWORD11BMS	USA - Alarms	R	Holding Register	40140	40140	40140	IV	11	11	Integer	N/A (word to decode)		**X**	**X**	See spreadsheet "Alarm Words". Mapped only on JSON (not Cloud) and forwarded to BMS
303	**Alarm word 12 to BMS**	**Alarm**		**X**	**X**	U1-ALWORD12BMS	USA - Alarms	R	Holding Register	40141	40141	40141	IV	12	12	Integer	N/A (word to decode)		**X**	**X**	See spreadsheet "Alarm Words". Mapped only on JSON (not Cloud) and forwarded to BMS
304	**Alarm word 13 to BMS**	**Alarm**		**X**	**X**	U1-ALWORD13BMS	USA - Alarms	R	Holding Register	40142	40142	40142	IV	13	13	Integer	N/A (word to decode)		**X**	**X**	See spreadsheet "Alarm Words". Mapped only on JSON (not Cloud) and forwarded to BMS
305	**Alarm word 14 to BMS**	**Alarm**		**X**	**X**	U1-ALWORD14BMS	USA - Alarms	R	Holding Register	40143	40143	40143	IV	14	14	Integer	N/A (word to decode)		**X**	**X**	See spreadsheet "Alarm Words". Mapped only on JSON (not Cloud) and forwarded to BMS
306	**Alarm word 15 to BMS**	**Alarm**		**X**	**X**	U1-ALWORD15BMS	USA - Alarms	R	Holding Register	40144	40144	40144	IV	15	15	Integer	N/A (word to decode)		**X**	**X**	See spreadsheet "Alarm Words". Mapped only on JSON (not Cloud) and forwarded to BMS
307	**Chiller mode set point**	**Setpoint**	**X**	**X**	**X**	U1-HVACMODEINSP	USA - Setpoints	R/W	Holding Register	40146	40146	40146	MV	45	45	Integer	N/A (Selection/Status)	1 = Ice 2 = Cool 3 = Heat Default: 2 = Cool	**X**	**X**	Sets the mode of operation for the chiller. Refer to the appropriate MicroTech II Chiller Operating Manual for suitable variable values.
308	**From BMS - Chiller mode requested setpoint**	**Datapoint**	**X**			U1-HVACMODEINSB	USA - Setpoints	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Integer	N/A (Status)	1 = Ice 2 = Cool 3 = Heat Default: 2 = Cool	**X**	**X**	Setpoint value from BMS - Read Only value just reported as datapoint on DoS
309	**Unit status**	**Datapoint**	**X**	**X**	**X**	U1-UNITSTATUS	USA - Unit status	R	Holding Register	40147	40147	40147	MI	43	43	Integer	N/A (Status)	1 = Off 2 = Start 3 = Run 4 = Pre-shutdown 5 = Service Default: Determined by the current state of the chiller	**X**	**X**	The unit status of the chiller.
310	**Unit mode**	**Datapoint**	**X**	**X**	**X**	U1-UNITMODE	USA - Unit status	R	Holding Register	40148	40148	40148	MI	44	44	Integer	N/A (Status)	1 = Ice 2 = Cool 3 = Heat Default: 2 = Cool	**X**	**X**	The current operating mode of the chiller.
311	**From current BMS - Compressor Selection**	**Setpoint**			**X**	U1-COMPSELB	USA - old BMS selectables	R/W	Holding Register	40161	40161	40161	MV	46	46	Integer	N/A (Selection/Status)	1 - 6 (See Description column for details) Default: 1	**X**	**X**	1=Comp1, 2=Comp2, 3=Comp3, 4=Comp4, 5=Comp5, 6=Comp6
312	**Compressor 1 status**	**Datapoint**	**X**	**X**		U1-CO1STATUS	USA - Compressor #1 data	R	Holding Register	40173	N/A	40317	AI	N/A	316	Integer	N/A (Status)	0 = Off 1 = Start Oil Pump 2 = Interlock/Prelube 3 = Run 4 = Shutdown 5 = Postlube Default: NA		**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs. Operating status of the compressor that is currently selected. see "BMS Compressor Select" setpoint . Available on WMC chiller only.

#	Chiller Data Point	VAR TYPE	DoS	New BMS	Current BMS	CLOUD object ID	Datapoint Page	R/W	Modbus Register Type	MTII to MTIII Modbus Coil/Reg	Current BMS Modbus Coil/Reg	New BMS Modbus Coil/Reg	BACnet Obj. Type	Current BMS BACnet Instance	New BMS BACnet Instance	Data Type	Unit	Range	WSC, WDC, WPV, WCC, HSC, TSC HDC	WMC	Notes
313	**To current BMS - Selected Compressor - Compressor Status**	**Datapoint**			**X**	U1-CONSTATUSB	USA - old BMS selectables	R	Holding Register	40173	40173	40173	AI	123	123	Integer	N/A (Status)	0 = Off 1 = Start Oil Pump 2 = Interlock/Prelube 3 = Run 4 = Shutdown 5 = Postlube Default: NA		**X**	Operating status of the compressor that is currently selected. see "BMS Compressor Select" setpoint . Available on WMC chiller only.
314	**Compressor 1 No. of starts**	**Datapoint**	**X**	**X**		U1-CO1STARTS	USA - Compressor #1 data	R	Holding Register	40174	N/A	40318	AI	N/A	317	Integer	N/A (no eng. value)	1 - 65,535 starts Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs. The number of times the selected compressor motor has started. see "BMS Compressor Select" setpoint .
315	**To current BMS - Selected Compressor - No. of starts**	**Datapoint**			**X**	U1-CONSTARTSB	USA - old BMS selectables	R	Holding Register	40174	40174	40174	AI	25	25	Integer	N/A (no eng. value)	1 - 65,535 starts Default: NA	**X**	**X**	The number of times the selected compressor motor has started. see "BMS Compressor Select" setpoint .
316	**Compressor 1 run hours**	**Datapoint**	**X**	**X**		U1-CO1RUNHOURS	USA - Compressor #1 data	R	Holding Register	40175	N/A	40319	AI	N/A	318	Integer	hours	1 - 65,535 hours* Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Compressor selection needs. The number of hours the selected compressor motor has been running. see "BMS Compressor Select" setpoint . *Note the value returned must be multiplied by 10 to give actual run hours.
317	**To current BMS - Selected Compressor - Run hours**	**Datapoint**			**X**	U1-CONRUNHOURSB	USA - old BMS selectables	R	Holding Register	40175	40175	40175	AI	26	26	Integer	hours	1 - 65,535 hours* Default: NA	**X**	**X**	The number of hours the selected compressor motor has been running. see "BMS Compressor Select" setpoint . *Note the value returned must be multiplied by 10 to give actual run hours.
318	**Evaporator pump 1 run hours**	**Datapoint**	**X**	**X**		U1-EVAPPUMP1RH	USA - Compressor #1 data	R	Holding Register	40176	N/A	40320	AI	N/A	319	Integer	hours	0 - 65,535 hours* Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Pump selection needs. The number of hours that the selected evaporator pump has been turned on. There is a separate output for each pump. see "BMS Pump Select" setpoint . *Note the value returned must be multiplied by 10 to give actual run hours.
319	**To current BMS - Selected Pump - Selected Evaporator pump run hours**	**Datapoint**			**X**	U1-EVAPPUMP1RHB	USA - old BMS selectables	R	Holding Register	40176	40176	40176	AI	27	27	Integer	hours	0 - 65,535 hours* Default: NA	**X**	**X**	The number of hours that the selected evaporator pump has been turned on. There is a separate output for each pump. see "BMS Pump Select" setpoint . *Note the value returned must be multiplied by 10 to give actual run hours.
320	**Condenser pump 1 run hours**	**Datapoint**	**X**	**X**		U1-CONDPUMP1RH	USA - Compressor #1 data	R	Holding Register	40177	N/A	40321	AI	N/A	320	Integer	hours	0 - 65,535 hours Default: NA	**X**	**X**	Optionally usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without Pump selection needs. The number of hours that the selected condenser pump motor has been turned on. see "BMS Pump Select" setpoint .
321	**To current BMS - Selected Pump - Selected Condenser pump run hours**	**Datapoint**			**X**	U1-CONDPUMP1RHB	USA - old BMS selectables	R	Holding Register	40177	40177	40177	AI	48	48	Integer	hours	0 - 65,535 hours Default: NA	**X**	**X**	The number of hours that the selected condenser pump motor has been turned on. see "BMS Pump Select" setpoint .
322	**Evaporator pump 2 run hours**	**Datapoint**	**X**	**X**		U1-EVAPPUMP2RH	USA - Compressor #2 data	R	Holding Register	40232	N/A	40232	AI	N/A	89	Integer	hours	0 - 65,535 hours* Default: NA	**X**	**X**	The number of hours pump 2 has been running. Not available on all chiller models. (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
323	**Condenser pump 2 run hours**	**Datapoint**	**X**	**X**		U1-CONDPUMP2RH	USA - Compressor #2 data	R	Holding Register	40233	N/A	40233	AI	N/A	90	Integer	hours	0 - 32,768 hours Default: NA	**X**	**X**	The number of hours that the selected condenser pump 2 has been turned on. Not available on all chiller models. (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).

#	Chiller Data Point	VAR TYPE	DoS	New BMS	Current BMS	CLOUD object ID	Datapoint Page	R/W	Modbus Register Type	MTII to MTIII Modbus Coil/Reg	Current BMS Modbus Coil/Reg	New BMS Modbus Coil/Reg	BACnet Obj. Type	Current BMS BACnet Instance	New BMS BACnet Instance	Data Type	Unit	Range	WSC, WDC, WPV, WCC, HSC, TSC HDC	WMC	Notes
324	**Compressor 2 status**	**Datapoint**	**X**	**X**		U1-CO2STATUS	USA - Compressor #2 data	R	Holding Register	40234	N/A	40234	AI	N/A	91	Integer	N/A (Status)	0 = Off 1 = Start Oil Pump 2 = Interlock/Prelube 3 = Run 4 = Shutdown 5 = Postlube Default: NA		**X**	Operating status of the compressor that is currently selected. see "BMS Compressor Select" setpoint . Available on WMC chiller only. (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
325	**Compressor 2 No. of starts**	**Datapoint**	**X**	**X**		U1-CO2STARTS	USA - Compressor #2 data	R	Holding Register	40235	N/A	40235	AI	N/A	92	Integer	hours	2 - 65,535 starts Default: NA	**X**	**X**	The number of times the selected compressor motor has started. see "BMS Compressor Select" setpoint . (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
326	**Compressor 2 run hours**	**Datapoint**	**X**	**X**		U1-CO2RUNHOURS	USA - Compressor #2 data	R	Holding Register	40236	N/A	40236	AI	N/A	93	Integer	hours	2 - 65,535 hours* Default: NA	**X**	**X**	The number of hours the selected compressor motor has been running. see "BMS Compressor Select" setpoint . *Note the value returned must be multiplied by 10 to give actual run hours. (Already usable on a new remapped BMS by means of dedicated Modbus/Bacnet address and without any modification).
327	**Active power**	**Datapoint**	**X**	**X**	**X**	U1-ACTIVEPOWER	USA - Unit status	R	Holding Register	40245	40245	40245	AI	67	67	Integer	kW	0 - 1,000 kW Default: NA	**X**	**X**	Total kilowatts of all compressors. Available on centrifugal chillers only. Optional Solid State Starter or Magnetic Bearing compressor required.
328	**Compressor 1 max RPM**	**Datapoint**	**X**	**X**	**X**	U1-CO1MAXRPM	USA - Compressor #1 data	R	Holding Register	40246	40246	40246	AI	55	55	Integer	RPM	0 - 32,678 RPM Default: NA		**X**	The maximum (choke) RPM. This is the speed the Turbocor compressor calculates above which the efficiency of the compressor begins to decrease. Available on WMC chiller only.
329	**Compressor 1 actual RPM**	**Datapoint**	**X**	**X**	**X**	U1-CO1ACTRPM	USA - Compressor #1 data	R	Holding Register	40247	40247	40247	AI	56	56	Integer	RPM	0 - 32,678 RPM Default: NA		**X**	The actual speed of the compressor. Available on WMC chiller only.
330	**Compressor 1 min RPM**	**Datapoint**	**X**	**X**	**X**	U1-CO1MINRPM	USA - Compressor #1 data	R	Holding Register	40248	40248	40248	AI	57	57	Integer	RPM	- 32,678 RPM Default: NA		**X**	The minimum (surge) RPM. This is the speed the Turbocor compressor calculates as the minimum safe operating speed above onset of stall. Available on WMC chiller only.
331	**Compressor 1 IGV position**	**Datapoint**	**X**	**X**	**X**	U1-CO1IGVPOS	USA - Compressor #1 data	R	Holding Register	40249	40249	40249	AI	58	58	Integer	%	0 - 110% Default: NA		**X**	The current percentage that vanes are open for each compressor (0% = closed, 110% = open/full capacity). Available on WMC chiller only.
332	**Compressor 2 max RPM**	**Datapoint**	**X**	**X**	**X**	U1-CO2MAXRPM	USA - Compressor #2 data	R	Holding Register	40250	40250	40250	AI	59	59	Integer	RPM	0 - 32,678 RPM Default: NA		**X**	The maximum (choke) RPM. This is the speed the Turbocor compressor calculates above which the efficiency of the compressor begins to decrease. Available on WMC chiller only.
333	**Compressor 2 actual RPM**	**Datapoint**	**X**	**X**	**X**	U1-CO2ACTRPM	USA - Compressor #2 data	R	Holding Register	40251	40251	40251	AI	60	60	Integer	RPM	0 - 32,678 RPM Default: NA		**X**	
334	**Compressor 2 min RPM**	**Datapoint**	**X**	**X**	**X**	U1-CO2MINRPM	USA - Compressor #2 data	R	Holding Register	40252	40252	40252	AI	61	61	Integer	RPM	- 32,678 RPM Default: NA		**X**	The minimum (surge) RPM. This is the speed the Turbocor compressor calculates as the minimum safe operating speed above onset of stall. Available on WMC chiller only.
335	**Compressor 2 IGV position**	**Datapoint**	**X**	**X**	**X**	U1-CO2IGVPOS	USA - Compressor #2 data	R	Holding Register	40253	40253	40253	AI	62	62	Integer	%	0 - 110% Default: NA		**X**	The current percentage that vanes are open for each compressor (0% = closed, 110% = open/full capacity). Available on WMC chiller only.
336	**Compressor 1 Design RPM**	**Datapoint**	**X**	**X**	**X**	U1-CO1DESRPM	USA - Compressor #1 data	R	Holding Register	40254	40254	40254	AI	63	63	Integer	RPM	0 - 32,678 RPM Default: NA		**X**	Indicates the Turbocor compressor(s) calculated speed target based on conditions and request demand. Available on WMC chiller only.
337	**Compressor 2 Design RPM**	**Datapoint**	**X**	**X**	**X**	U1-CO2DESRPM	USA - Compressor #2 data	R	Holding Register	40255	40255	40255	AI	64	64	Integer	RPM	0 - 32,678 RPM Default: NA		**X**	Indicates the Turbocor compressor(s) calculated speed target based on conditions and request demand. Available on WMC chiller only.

8.4 Common (DoS) datapoints and setpoints mapping .

#	Chiller Data Point	VAR TYPE	DoS	New BMS	Current BMS	CLOUD object ID	Datapoint Page	R/W	Modbus Register Type	MTII to MTIII Modbus Coil/Reg	Current BMS Modbus Coil/Reg	New BMS Modbus Coil/Reg	BACnet Obj. Type	Current BMS BACnet Obj. Instance	New BMS BACnet Obj. Instance	Data Type	Unit	Chiller Type	Notes
338	**Actual Number of compressors**	**Datapoint**	**X**			1-NUMCMP	Configuration unit	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A (No eng. Status)	**COMMON**	Indicates number of total Compressors for current unit, checkd e coerced since typer of unit selected
339	**Number of compressors per circuit**	**Datapoint**	**X**			1-NUMCMPS	Configuration unit	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A (No eng. Status)	**COMMON**	Indicates number of Compressors per circuit for current unit
340	**Number of circuits**	**Datapoint**	**X**			1-NUMCIR	Configuration unit	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A (No eng. Status)	**COMMON**	Indicates number of circuits for current unit
341	**Modbus Communication Status**	**Datapoint**	**X**			1-MBCOMMST	Configuration unit	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A (Status)	**COMMON**	Indicates a problem on the modbus connection between MT3 (ALC) and MT2 (Unit controller). In particular: - if the value is a persistent TRUE, there is a general connection problem on the bus - if the value pulses TRUE/FALSE the connection goes in timeout
342	**Unit Name**	**Setpoint**	**X**			1-UNITNAME	Configuration unit	R/W	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A (Selection/Configuration)	**COMMON**	Name of the unit, to be selected. The Unit Type (MCQ/USA) is decoded by means of a dedicated decoder block, since the unit name.
343	**Number of Compressors (setpoint)**	**Setpoint**	**X**			1-NUMCOMPS	Configuration unit	R/W	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A (Value/Configuration)	**COMMON**	Number of compressors, to be selected. The actual value of compressors is checked and "coerced" between a minimum and maximum number by means of a dedicated decoder block, since the unit name.
344	**Write Enable**	**Setpoint**	**X**			1-WRITEENABLE	Configuration unit	R/W	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A (Selection/Configuration)	**COMMON**	Write-enable as EN setpoint: it is useful if the customer does NOT want to write MTII registers or if they are doing tests on units in operation. Possible configurations: - Write Disabled - Write from DoS - Write from BMS
345	**On Connection Setpoint Values**	**Setpoint**	**X**			1-MBPOLLINGINTE	Configuration unit	R/W	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A (Selection/Configuration)	**COMMON**	OnConnStpValues Indicates on first connection or reconnection setpoints have to be: 0 - retrieved automatically from MT2 unit (copied on first connection/reconnection from MT2) 1 - Kept as current MT3 values (set to Factory Default values on init)
346	**Modbus Polling Interval**	**Setpoint**	**X**			1-ONCONNSTPVAL	Configuration unit	R/W	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A (Value/Configuration)	**COMMON**	Set the time interval between Modbus R/W command sequence cycles
347	**Apply Change**	**Setpoint**	**X**			1-APPLYCHANGES	Configuration unit	R/W	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A (Selection/Configuration)	**COMMON**	To Apply the new configuration
348	**BMS communication module installed**	**Datapoint**	**X**			1-BMSCOMMMODULE	Configuration unit	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A (Status)	**COMMON**	Indicates a problem on the modbus connection between MT3 (ALC) and MT2 (Unit controller). In particular: - if the value is a persistent TRUE, there is a general connection problem on the bus - if the value pulses TRUE/FALSE the connection goes in timeout

8.5 Unit and Circuit Status

Some of previous datapoints listen into tables refer to a Unit, Circuit or Compressor Status. Hereafter is reported the complete table both for MCQ Screw Chillers and USA Centrifugal Chillers.

CODE	STATUS OF	MCAIR	MTM	ALS/WHS	PFS	WDC/WMC
0	**Unit**	NULL	NULL	NULL	NULL	NULL
1	**Unit**	Off Alarm	Off Alarm	Off Alarm	Off: Alarm	Off
2	**Unit**	Off Rem Com	Off Rem Com	Off Rem Com	Off: Remote Comm	Start
3	**Unit**	Off Time Schedule	Off Time Schedule	Off Time Schedule	OFF BY TIME C	Run
4	**Unit**	Off Remote Sw	Off Remote Sw	Off Remote Sw	Off: Remote Sw	Pre-Shutdown
5	**Unit**	Off Keypad	PwrLoss Enter Start	Off Keypad	Off: System Sw	Service
6	**Unit**	Off Amb. Lockout	Off Amb. Lockout	Off Amb. Lockout	-	-
7	**Unit**	Waiting Flow	Waiting Flow	Waiting Flow	Wait Evap Flow	-
8	**Unit**	Waiting Load	Waiting Load	Waiting Load	Waiting for Load	-
9	**Unit**	No Comp Available	No Comp Available	No Comp Available	-	-
10	**Unit**	FSM Operation	FSM Operation	FSM Operation	-	-
11	**Unit**	Off Local Sw	Off Local Sw	-	Off: PumpDn Sw's	-
12	**Unit**	-	Off Cool/Heat Switch	-	-	-
13	**Unit**	-	-	-	Wait Cond Flow	-
14	**Unit**	-	-	-	-	-
15	**Unit**	-	-	-	-	-
16	**Unit**	-	-	-	-	-
0	**Circuit**	NULL	NULL	NULL	NULL	-
1	**Circuit**	Off Alarm	Off Alarm	Off Alarm	Off: Alarm	-
2	**Circuit**	Off Ready	Off Ready	Off Ready	Off: Ready	-
3	**Circuit**	Off Ready	Off Ready	Off Ready	OFF BY TIME C.	-
4	**Circuit**	Off Ready	Off Ready	Off Ready	Off: Ready	-
5	**Circuit**	Off Ready	Off Ready	Off Ready	Off: Ready	-
6	**Circuit**	Off Ready	Off Ready	Off Ready	Off:PumpDnSw	-
7	**Circuit**	Off Switch	Off Switch	Off Switch	Auto %	-
8	**Circuit**	Auto %	Auto %	Auto %	Manual %	-
9	**Circuit**	Manual %	Manual %	Manual %	Off:Oil Heat	-
10	**Circuit**	Oil Heating	Oil Heating	Oil Heating	Off: Ready	-
11	**Circuit**	Ready	Ready	Ready	Cycle Time	-

CODE	STATUS OF	MCAIR	MTM	ALS/WHS	PFS	WDC/WMC
12	**Circuit**	Recycle Time	Recycle Time	Recycle Time	Off: Manual	-
13	**Circuit**	Manual Off	Manual Off	Manual Off	Download	-
14	**Circuit**	Prepurge	Prepurge	Prepurge	Pumping Down	-
15	**Circuit**	Pumping Down	Pumping Down	Pumping Down	Downl. %	-
16	**Circuit**	Downloading	Downloading	Downl. %	Starting	-
17	**Circuit**	Starting	Starting	Starting	-	-
18	**Circuit**	-	Low Disch SH	-	-	-
19	**Circuit**	-	Defrost	-	-	-
20	**Circuit**	-	Auto %	-	-	-
21	**Circuit**	-	Max VFD Load	-	-	-
22	**Circuit**	-	Off Rem SV	-	-	-
0	**Compressor**	-	-	-	-	0 = Off
1	**Compressor**	-	-	-	-	1 = Start Oil Pump
2	**Compressor**	-	-	-	-	2 = Interlock/Prelube
3	**Compressor**	-	-	-	-	3 = Run
4	**Compressor**	-	-	-	-	4 = Shutdown
5	**Compressor**	-	-	-	-	5 = Postlube
6	**Compressor**	-	-	-	-	Default: NA

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