



## FRIO MODBUS/BACNET POINTS LIST

BACnet							Modbus RTU	
Object	Name	Type	Units	Range/Options	Read/Write	Description	Type	Address
A11	Current	Analog Input	Amperes	0-50 A	R	Current consumption of connected heat trace.  <i>NOTE: The controller is only rated to 30 A</i>	Input Register	30001-30002
A12	Voltage	Analog Input	Volts AC	0-300 V	R	Voltage measurement from power supply to controller.  <i>NOTE: The controller is only rated to 277 V</i>	Input Register	30003-30004
A13	RTD Temperature C	Analog Input	°C	-100°C to 600°C	R	Temperature reading from RTD in Celsius, if connected.  <i>NOTE: If RTD is not connected the read value will be 65535.</i>	Input Register	30005-30006
A14	Thermistor Temperature C	Analog Input	°C	-40°C to 105°C	R	Temperature reading from thermistor in Celsius, if connected.  <i>NOTE: If Thermistor is not connected the read value will be 65535.</i>	Input Register	30007-30008
A15	RTD Temperature F	Analog Input	°F	-148°F to 1112°F	R	Temperature reading from RTD in Fahrenheit, if connected.  <i>NOTE: If RTD is not connected the read value will be 65535.</i>	Input Register	30009-30010
A16	Thermistor Temperature F	Analog Input	°F	-40°F to 221°F	R	Temperature reading from thermistor in Fahrenheit, if connected.  <i>NOTE: If Thermistor is not connected the read value will be 65535.</i>	Input Register	30011-30012
A17	Controller Mode	Analog Input	No Units	0 = ALWAYS_OFF 1 = ALWAYS_ON 2 = THERMOSTAT_FP 3 = THERMOSTAT_TM 4 = CLOUD_CONTROL	R	Current controller setting. <ul style="list-style-type: none"> <li>ALWAYS_OFF = Local manual control heater is always OFF.</li> <li>ALWAYS_ON = Local manual control heater is always ON.</li> <li>THERMOSTAT_FP = Local thermostat control for freeze protection</li> <li>THERMOSTAT_TM = Local thermostat control for temperature maintenance</li> <li>CLOUD_CONTROL = Cloud-based control for all smart control modes</li> </ul>	Input Register	30013

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Object	Name	Type	Units	Range/Options	Read/Write	Description	Type	Address
A18	State	Analog Input	No Units	0 = CLOUD_CONTROL 1 = LOCAL_CONTROL 2 = OVERRIDE 3 = CRITICAL_ERROR 4 = MODBUS_CONTROL	R	<p>Current operational state of the control state machine.</p> <p>Possible State/Sub-state combinations:</p> <ul style="list-style-type: none"> <li>• CLOUD_CONTROL               <ul style="list-style-type: none"> <li>○ CLOUD_CONTROL - Device online and controlled by the Frio Cloud Platform</li> <li>○ THERMOSTAT_FP - Offline fallback to thermostat control for freeze protection</li> <li>○ THERMOSTAT_TM - Offline fallback to thermostat control for temperature maintenance</li> <li>○ ALWAYS_ON - Offline fallback to always ON.</li> <li>○ ALWAYS_OFF - Offline fallback to always OFF.</li> </ul> </li> <li>• LOCAL_CONTROL               <ul style="list-style-type: none"> <li>○ THERMOSTAT_FP - Local thermostat control for freeze protection</li> <li>○ THERMOSTAT_TM - Local thermostat control for temperature maintenance</li> <li>○ ALWAYS_ON - Local manual control heater is always ON.</li> <li>○ ALWAYS_OFF - Local manual control heater is always OFF.</li> </ul> </li> <li>• OVERRIDE               <ul style="list-style-type: none"> <li>○ ALWAYS_ON - Heater ON due to Local or Cloud override command</li> <li>○ ALWAYS_OFF - Heater OFF due to Local or Cloud override command</li> </ul> </li> <li>• CRITICAL_ERROR               <ul style="list-style-type: none"> <li>○ ALWAYS_OFF - The system has a critical error and the heater is OFF</li> </ul> </li> </ul> <p><i>NOTE: User must perform a manual test/reset cycle from the HMI to exit the critical error state.</i></p> <ul style="list-style-type: none"> <li>• MODBUS_CONTROL               <ul style="list-style-type: none"> <li>○ ALWAYS_ON - Heater is ON due to Modbus force on command</li> <li>○ ALWAYS_OFF - Heater is OFF due to Modbus force off command</li> </ul> </li> </ul>	Input Register	30014
A19	Sub-state	Analog Input	No Units	0 = THERMOSTAT_FP 1 = THERMOSTAT_TM 2 = ALWAYS_ON 3 = ALWAYS_OFF 4 = CLOUD_CONTROL	R	<p>Current operational sub-state of the control state machine. See above for detailed description of possible State/Sub-state combinations.</p>	Input Register	30015

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Object	Name	Type	Units	Range/Options	Read/Write	Description	Type	Address
<b>BI1</b>	Alarm	Binary Input	No Units	0 = No Alarms 1 = One or more alarms present	R	Alarm summary indicating whether any alarms are present on the device.	Discrete Input	10001
<b>BI2</b>	Heater Relay State	Binary Input	No Units	0 = Relay is open, heater is OFF 1 = Relay is closed, heater is ON	R	Current state of the heater.	Discrete Input	10002
<b>AO1</b>	Force On/Off	Analog Output	No Units	0=DO_NOTHING 1=FORCE_ON 2=FORCE_OFF	R/W	Force relay into On/Off state, ignoring device's control mode. <ul style="list-style-type: none"> <li>DO_NOTHING = Device will operate according to the control mode in settings</li> <li>FORCE_ON = Device will enter the MODBUS_CONTROL/ALWAYS_ON State/Sub-state</li> <li>FORCE_OFF = Device will enter the MODBUS_CONTROL/ALWAYS_OFF State/Sub-state</li> </ul> <p><i>NOTE: Modbus override takes priority over local and cloud override.</i></p>	Holding Register	40001