

Honeywell

TC300 Thermostats

Modbus Integration Guide



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Declaration


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Waste Electrical and Electronic Equipment (WEEE)

WEEE: Waste Electrical and Electronic Equipment Directive	
	<ul style="list-style-type: none">• At the end of the product life, dispose of the packaging and product in an appropriate recycling center.• Do not dispose of the device with the usual domestic refuse.• Do not burn the device.

FCC Part 15 compliant

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Regulation (EC) No 1907/2006

According to Article 33 of Reach Regulation, be informed that the substances listed below may be contained in these products above the threshold level of 0.1% by weight of the listed article.

Product/Part Code	Substance Name	CAS Number
Only TC300 thermostats main board PCBA	Lead	7439-92-1
	Lead oxide	1317-36-8

Important Safety Information and Installation Precautions

Read all instructions.

Failure to follow all instructions may result in equipment damage or a hazardous condition. Read all instructions carefully before installing equipment.

When performing any work (installation, mounting, start-up), all manufacturer instructions and in particular the TC300 thermostats Mounting Instructions (31-00642) are to be observed.

- TC300 thermostats may be installed and mounted only by authorized and trained personnel.
- It is recommended that devices be kept at room temperature for at least 24 hours before applying power. This is to allow any condensation resulting from low shipping/storage temperatures to evaporate.
- Do not open TC300 thermostats, as they contains no user-serviceable parts inside!
- Investigated according to United States Standard UL60730-1 and UL60730-2-9.
- Investigated according to Canadian National Standard(s) C22.2, No. 205-M1983 (CNL-listed).
- CE declarations according to LVD Directive 2014/35/EU and EMC Directive 2014/30/EU.
- Product standards are EN 60730-1 and EN 60730-2-9.
- TC300 thermostats are Class B digital apparatus and complies with Canadian ICES-003.

Local codes and practices

Always install equipment in accordance with the National Electric Code and in a manner acceptable to the local authority that have jurisdiction.

Electrostatic sensitivity

This product and its components may be susceptible to electrostatic discharge (ESD). Use appropriate ESD grounding techniques while handling the product. When possible, always handle the product by its non-electrical components.



High voltage safety test

Experienced electricians, at first contact, always assume that hazardous voltages may exist in any wiring system. A safety check using a known, reliable voltage measurement or detection device should be made immediately before starting work and when work resumes.

Lightning and high-voltage danger



Most electrical injuries involving low-voltage wiring result from sudden, unexpected high voltages on normally low voltage wiring. Low voltage wiring can carry hazardous high voltages under unsafe conditions. Never install or connect wiring or equipment during electrical storms. Improperly protected wiring can carry a fatal lightning surge for many miles. All outdoor wiring must be equipped with properly grounded and listed signal circuit protectors, which must be installed in compliance with local, applicable codes. Never install wiring or equipment while standing in water.

Wiring and equipment separations



All wiring and controllers must be installed to minimize the possibility of accidental contact with other potentially hazardous and disruptive power and lighting wiring. Never place 24 VAC or communications wiring near other bare power wires, lightning rods, antennas, transformers, or steam or hot water pipes. Never place wire in any conduit, box, channel, duct, or other enclosure containing power or lighting circuits of any type. Always provide adequate separation of communications wiring and other electrical wiring according to code. Keep wiring and controllers at least six feet from large inductive loads (power distribution panels, lighting ballasts, motors, etc.). Failure to follow these guidelines can introduce electrical interference and cause the system to operate erratically.

Warning



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Safety Information as per EN60730-1

TC300 thermostats are intended for commercial and residential environments.

TC300 thermostats are independently mounted electronic control system with fixed wiring.

TC300 thermostats are used for the purpose of building HVAC control and is suitable for use only in non-safety controls for installation on or in appliances.

INTRODUCTION

Topics covered

- [Scope of the document](#)
- [Reference documents](#)
- [Terms, Acronyms, and Abbreviations](#)
- [Configuring Modbus connection](#)

Scope of the document

The Modbus Integration document contains information related to Modbus Objects and the properties of the thermostat that help engineers to integrate and configure the settings via a Modbus tool.

Reference documents

- TC300 Commercial Thermostats User Guide (31-00644)
- TC300 Commercial Thermostats Datasheet (31-00645)
- TC300 Commercial Thermostats Mounting Instructions (31-00642)
- TC300 Commercial Thermostats Pocket Guide(31-00648)
- TC300 Deco Plate Pocket Guide (31-00657)
- TC300 Safety Sheet (31-00643)
- TC300 thermostats BACnet Integration Guide (31-00646)
- TC300 thermostats Modbus Integration Guide (31-00670)

Terms, Acronyms, and Abbreviations

Table 1 Terms, Acronyms, and Abbreviations

Term, Acronym, Abbreviation	Definition
UI	Universal Input
UIO	Universal Input/Output
DO	Digital Output
Cfg	Configuration
BAS	Building Automation System
ni	Network Input
no	Network Output
NC	Network Configuration

Configuring Modbus connection

The Modbus network can be configured while setting up the thermostat. Refer to the TC300 commercial thermostats user guide - 31-00644 or follow the steps below.

To connect thermostat via Modbus


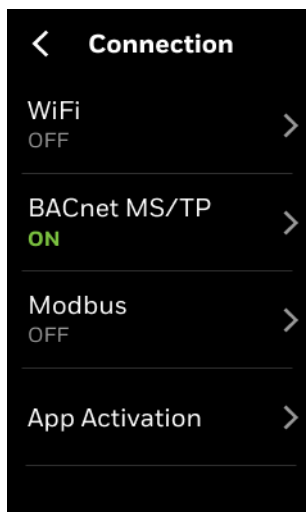
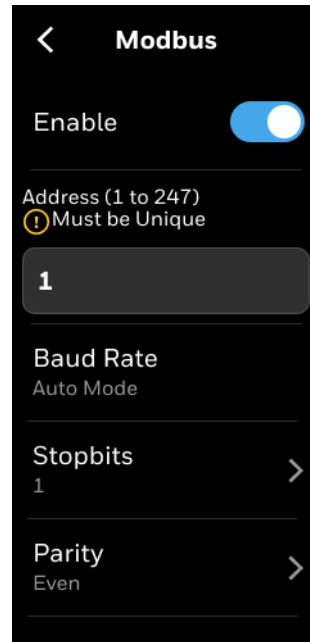
1. Swipe left from the Home screen.
2. On the Quick access screen of the thermostat, tap  > **Connection**.
The Connection screen appears.

Fig 1. Thermostat connection



3. Tap Modbus and enable it.
The Modbus setting screen appears.

Fig 2. Modbus setting screen



4. Enter a unique address for the thermostat. It should be different from other TC300 thermostats.
5. Set the Baud Rate, Stopbits, and Parity from the list.
6. Tap the back arrow button to navigate back to the connection screen.

Baud rate

Modbus supports automatic baud rate and manual baud rate configuration, It can support the following Baud rate: 1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, and 115200.

Auto Baud rate

The default for the first startup is Auto Baud rate. This detection process will last 5 minutes after TC300 thermostats start to detect there is data communication from Modbus master. If there is no right baud rate matched during this 5 minutes, TC300 thermostats will work as the last-detected baud rate, or default to 19200 bps.

Manual Baud rate

After the default Auto Baud rate matches, TC300 thermostats will enter manual baud mode, then can configure the desired Baud rate.

Modbus Serial port settings

- **Data Bits:** 8
- **Stop Bits:** 1

- **Parity:** None/Even/odd (Default: Even)

Notes:

- Both Modbus word order and Byte order are big-endian.
- The value of float type data stored in Modbus is an integer value of the real value enlarged by 1/scale, so it is equal to the true value divided by the value of the scale.

TERMINAL INPUT AND NETWORK OUTPUT

Topics covered

Sensor objects

Heating, cooling, and fan status

Alerts objects

Other thermostat parameters

Sylk sensor

Schedule

Sensor objects

Table 2 Sensor objects

*Note: Supported only in TC3XXB models						
Register Count = 1 Access = Read Memory Type = Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
6501	ChangeoverSwitch	Discrete Input	Close = 0 Open = 1	0	1	2-Pipe changeover switch status
101	Discharge Air Sensor	Input	-40 to 200 °F (-40 to 93 °C)		0.01°F	Discharge air sensor output value.
6502	Drain Pan Sensor	Discrete Input	Off = 0 On = 1	0	1	Drain pan sensor status
6503	Occupancy Sensor	Discrete Input	Off = 0 On = 1	0	1	Occupancy sensor status
6504	Proof of Airflow	Discrete Input	Off = 0 On = 1	0	1	Proof of air flow sensor status
102	Pipe Sensor	Input	-40 to 260 °F (-40 to 126 °C)		0.01°F	Pipe sensor temperature output value
6506	Shutdown Sensor	Discrete Input	Off = 0 On = 1		1	Shutdown sensor status.
103	Space Temp Sensor	Input	-40 to 150 °F (-40 to 65 °C)		0.01°F	Space temperature sensor output value
6404*	Proof of Waterflow	Discrete Input	Off = 0 On = 1	0	1	Proof of waterflow status.
105	Outdoor Air Sensor	Input	-40 to 200 °F (-40 to 93 °C)		0.01°F	Outdoor air sensor value.
6407	Freeze Switch	Dics	Close=0, Open=1	0	1	Freeze switch status.
6408	Entry Door Switch	Dics	Close=0, Open=1	0	1	Entry door switch status.
6409	Balconcy/Window Switch	Dics	Close=0, Open=1	0	1	Balconcy/window switch status.

Heating, cooling, and fan status

Table 3 Heating, cooling, and fan status

*Note: Supported only in TC3XXB models					
Register Count=1 Access = Read Memory Type = Volatile					
Reg Address	Name	Register Type	Range	Scaling	Description
201	Six-way Valve Cooling	Input	0 to 100 %	0.01 %	6-way valve cooling control output
202	Six-way Valve Heating	Input	0 to 100 %	0.01 %	6-way valve heating control output
203	Modulating Cool	Input	0 to 100 %	0.01 %	Modulating cool control output

Table 3 Heating, cooling, and fan status (Continued)

*Note: Supported only in TC3XXB models					
Register Count=1 Access = Read Memory Type = Volatile					
Reg Address	Name	Register Type	Range	Scaling	Description
204	Modulating Heat	Input	0 to 100 %	0.01 %	Modulating heat control output
205	Variable Fan	Input	0 to 100 %	0.01 %	Variable fan control output
6001	Auxiliary Heat	Discrete Input	Off = 0 On = 1	1	Auxiliary heat control output
6002	ChangeOver Valve	Discrete Input	Off = 0 On = 1	1	Change over valve control output
6004	Cooling Valve (ON/Off)	Discrete Input	Off = 0 On = 1	1	Cooling on/off valve output status
6005	Heating Valve (ON/Off)	Discrete Input	Off = 0 On = 1	1	Heating on/off valve output status
6006*	Cooling Floating Open	Discrete Input	Off = 0 On = 1	1	Cooling floating valve open control output.
6007*	Cooling Floating Close	Discrete Input	Off = 0 On = 1	1	Cooling floating valve close control output.
6008*	heating Floating Open	Discrete Input	Off = 0 On = 1	1	Heating floating valve open control output.
6009*	Heating Floating Close	Discrete Input	Off = 0 On = 1	1	Heating floating valve close control output.
6010	High Speed Fan	Discrete Input	Off = 0 On = 1	1	High speed fan on/off status
6011	Low Speed Fan	Discrete Input	Off = 0 On = 1	1	Low speed fan on/off status
6012	Medium Speed Fan	Discrete Input	Off = 0 On = 1	1	Medium speed fan on/off status
6014	Modulating Cooling Stage1	Discrete Input	Off = 0 On = 1	1	Modulating cool stage1 on/off status
6015	Modulating Heating Stage1	Discrete Input	Off = 0 On = 1	1	Modulating heat stage1 on/off status
6016*	WaterFlowValve	Discrete Input	Off = 0 On = 1	1	Water flow valve control output.
6017*	ReversingValve	Discrete Input	Off = 0 On = 1	1	Revering valve control output.
6609*	Humidifier	Discrete Input	Off = 0 On = 1	1	Humidifier control output.
6070*	Conventional Cool Stage 2	Discrete Input	Off = 0 On = 1	1	Convention cool stage2 on/off status
6071*	Conventional Heat Stage 2	Discrete Input	Off = 0 On = 1	1	Convention heat stage2 on/off status
7075	CO2 Output Binary Logical Value	Discrete Input	Off = 0 On = 1	1	CO2 Output Binary Logical Value

Table 3 Heating, cooling, and fan status (Continued)

*Note: Supported only in TC3XXB models					
Register Count=1 Access = Read Memory Type = Volatile					
Reg Address	Name	Register Type	Range	Scaling	Description
58	CO2 Output Analog Logical Value	Input	0~100	1	CO2 Output Analog Logical Value
6576	Lighting Control Output	Discrete Input	Off = 0 On = 1	1	Lighting control output status.
6577	Occupancy Output	Discrete Input	Off = 0 On = 1	1	Occupancy output status.
5092	Enable Onboard Occupancy Sensor	Coil	Off = 0 On = 1	1	Users can enable or disable the control of the onboard occupancy sensor.

Alerts objects

Table 4 Alert objects

*Note: Supported only in TC3XXB models					
Register Count = 1 Memory Type = Volatile Scaling = 1					
Reg Address	Name	Register Type	Access	Range	Description
7002	Proof of Air Flow Alarm	Discrete Input	Read	Inactive = 0 Active = 1	Supply fan status mismatch alarm & priority
7049	Space Freeze Protection Alarm	Discrete Input	Read	Inactive = 0 Active = 1	If the space temperature has dropped below 43°F and after 120 seconds of delay, the high priority alarm is created.
7057*	Proof of Water Flow Alarm	Discrete Input	Read	Inactive = 0 Active = 1	Proof of water flow alarm & priority.
7050	Unknown Time Alarm	Discrete Input	Read	Inactive = 0 Active = 1	Time lost alarm
81	Temp Sensor Faulty Alarm	Discrete Input	Read	BIT0 = Inactive BIT1 = High BIT2 = MEDIUMN_ONBOARD BIT3 = MEDIUMN_REMOTE BIT4 = MEDIUMN_SYLK	<p>High Priority:</p> <ol style="list-style-type: none"> 1. Only local sensor configured & even if any one of the on-board temperature sensor is in alarm. 2. Onboard and remote temperature sensors are reporting null values. 3. Configured as multi sensor & both the remote sensor & on-board configured sensor has failed. <p>Medium priority:</p> <ol style="list-style-type: none"> 1. Configured to use multiple sensors & only the on-board sensor has failed. but getting reliable value from the Sylk sensors. 2. Configured for multiple temperature sensors (onboard and external). Either the onboard or Sylk sensor(s) has failed with values available from sensors. <p>When at least one temperature sensor value is available then this will remain medium priority alarm.</p>

Table 4 Alert objects (Continued)

*Note: Supported only in TC3XXB models					
Register Count = 1 Memory Type = Volatile Scaling = 1					
Reg Address	Name	Register Type	Access	Range	Description
82	Humidity Sensor Faulty Alarm	Input	Read	BIT0 = Inactive BIT1 = High BIT2 = MEDIUMN_ONBOARD BIT4 = MEDIUMN_SYLK	High Priority: 1. Only local sensor configured & on-board humidity sensor is in alarm. 2. Remote Sylk bus sensor addr 2 is giving null value and digital output is configured for Humidification and Dehumidification. 3. Onboard and remote temperature sensors are reporting null values. Medium priority: 1. Configured to use multiple sensors & only the on-board sensor has failed, but getting reliable value from the Sylk sensors. 2. Configured for multiple humidity sensors (onboard and external). Either the onboard or Sylk sensor(s) has failed with values available from sensors. When at least one humidity sensor value is available then this will remain medium priority alarm.
83	Sylk Device Comm. Failure Alarm	Input	Read	Normal = 1 SylkAddr2Fail = 2 SylkAddr3Fail = 3 SylkAddr4Fail = 4 SylkAddr5Fail = 5 SylkAddr10Fail = 10 ManySylkFail = 16	Sylk communication failure alarm. If more than 1 Sylk sensor has failed then 'ManySylkFail' alarm would be generated & installer has to check the BACnet points related to all Sylk sensor to understand which sensor has failed.
84	Space Temp Out of Range Alarm	Input	Read	BIT0 = Inactive BIT1 = High BIT2 = MEDIUMN_ONBOARD BIT3 = MEDIUMN_REMOTE BIT4 = MEDIUMN_SYLK BIT5 = MEDIUMN_NETWORKINPUT OUTFRANGE	High priority: All space temperature are out of range. No other resource can be used. Medium priority: Some of space temperatures are out of range, other resource can be used for controlling.
29	Discharge Air Temp Sensor Faulty Alarm	Input	Read	Inactive = 1 Medium = 2 High = 3	High priority: Discharge air sensor failure. Medium priority: Discharge air sensor out of range.

Table 4 Alert objects (Continued)

*Note: Supported only in TC3XXB models					
Register Count = 1 Memory Type = Volatile Scaling = 1					
Reg Address	Name	Register Type	Access	Range	Description
42	Outdoor Air Temp Sensor Alarm	Input	Read	Inactive = 1 Medium = 2 High = 3	High priority: Outdoor air sensor failure. Medium priority: Outdoor air sensor out of range.
7011	Shutdown Alarm	Discrete Input	Read	Inactive = 0 Active = 1	The system activates the shutdown alarm when it receives the shutdown signal from the network input or terminal.
30	Pipe Sensor failure	Input	Read	Inactive = 1 Active = 3	Pipe sensor failure occurs.
85	Pipe Sensor Temp Heat Or Cool Threshold	Input	Read	BIT0 = INACTIVE BIT1 = Heating Threshold BIT2 = Cooling Threshold	For 2 pipe single coil heat & cool: Water temperature is not suitable for heating/cooling.
7051	Room Temp Trend failure	Discrete Input	Read	Inactive = 0 Active = 1	Room temperature changing trend is reversed with system operating mode.
7052	Drain Pan Sensor Alarm Status	Discrete Input	Read	Inactive = 0 Active = 1	Alarm occurs when condensation Leak alarm/Pan drain sensor alarm detect
31	Pipe Sensor Out of Range	Input	Read	Inactive = 1 Active = 3	Pipe sensor temperature out of range.
2932	Proof of Air Flow Alarm Config	Holding	Read/Write	BIT0 = primary heating and cooling On Off BIT1 = PopUpOnHomeScreen BIT2 = Acknowledged BIT3 = Auxiliary heat On Off	Bits 0 False – Will not turn off Heat/Cool Outputs when alarm is triggered. Bits 0 True – Turn off Heat/Cool Outputs when alarm is triggered. Bits 3 False – Will not turn off Auxiliary heat Outputs when alarm is triggered. Bits 3 True – Turn off Auxiliary heat Outputs when alarm is triggered.
3193*	Proof of Water Flow Alarm Config	Holding	Read/Write	BIT0 = Primary heating and cooling On Off BIT1 = PopUpOnHomeScreen BIT2 = Acknowledged BIT3 = Auxiliary heat On Off	Bit0 False - Keep compressor outputs running. Bit0 True - Turn off compressor outputs. Bit3 False - Keep auxiliary heat running. Bit3 True - Turn off auxiliary heat.
2741	Space Temp Sensor Faulty Alarm Config	Holding	Read/Write	BIT0 = Reserved BIT1 = PopUpOnHomeScreen BIT2 = Acknowledged BIT3 = SuspendsAllEquipmentFunctions BIT4 = RevertToLocalSensor	If the remote space temperature sensor gives an invalid reading, the user can switch to the local sensor or suspend all equipment functions.

Table 4 Alert objects (Continued)

*Note: Supported only in TC3XXB models					
Register Count = 1 Memory Type = Volatile Scaling = 1					
Reg Address	Name	Register Type	Access	Range	Description
2942	Room Temp Trend Config	Holding	Read/Write	BIT0 = shutdown all digital outputs On off BIT1 = PopUpOnHomeScreen BIT2 = Acknowledged	BIT 0 False - Don't shut down all digital outputs. BIT0 True - Shut down all digital outputs.
2944	Drain Pan Sensor Alarm Config	Holding	Read/Write	BIT0 = ShutdownCooling BIT1 = PopUpOnHomeScreen BIT2 = Acknowledged BIT3 = ShutdownHeat BIT4 = ShutdownFanWhenInVentilationMode}	Bit0 False - Don't shut down Cooling when alarm occurs. Bit0 True - Shut down cooling when alarm occurs. Bit3 False - Don't shut down Heating when alarm occurs. Bit3 True - Shut down Heating when alarm occurs. Bit4 False - Fan will run in ventilation mode when alarm occurs. Bit4 True - Fan will not run in ventilation mode when alarm occurs.
7035	Generic Alarm	Discrete Input	Read	Inactive = 0 Active = 1	General alarm flag
74	Occupancy Sensor Alarm	Discrete Input	Read	Inactive = 1 Active = 3	Occupancy sensor alarm & priority.
75	Light Sensor Failure Alarm	Discrete Input	Read	Inactive = 1 Active = 3	Light sensor alarm & priority.
76	Balcony/Window Open Alarm	Discrete Input	Read	Inactive = 1 Active = 3	Balcony/Window sensor alarm & priority.
77	Entry Door Open Alarm	Discrete Input	Read	Inactive = 1 Active = 3	Entry door open sensor alarm & priority.
78	Space CO2 Sensor Alarm	Discrete Input	Read	Inactive = 1 Medium = 2 High = 3	when the CO2 sensor has hardware fault, high alarm is reported
7008	CO2LevelHiLoLimitAlarm Alarm	Discrete Input	Read	Inactive = 0 Active = 1	When the value of CO2 sensor exceeds the threshold, alarm is reported.
7010	CoilFreezeProtectionAlarm	Discrete Input	Read	Inactive = 0 Active = 1	When the space freeze protection alarm is not triggered, the Freeze switch signal is activated and the corresponding valve is opened according to the alarm configuration. Only applicable to fan coil system

Table 4 Alert objects (Continued)

*Note: Supported only in TC3XXB models					
Register Count = 1 Memory Type = Volatile Scaling = 1					
Reg Address	Name	Register Type	Access	Range	Description
2775	CoilFreezeProtectionAlarm Config	Holding	Read/Write	{ BIT0 = PrimaryHeatOnOff, BIT1 =PopUpOnHomeScreen, BIT2 =Acknowledged, BIT3 =PrimaryCoolOnOff}	"Bit0 False – Will not turn on cool outputs when alarm is triggered, Bit0 True – Turn on cool outputs when alarm is triggered. Bit3 False – Will not turn on heat outputs when alarm is triggered. Bit3 True – Turn on heat outputs when alarm is triggered."
2291	CO2 Alarm High Limit		1 ppm	400~2000	When the CO2 value reaches the alarm high limit setting, an alarm report will be generated.

Other thermostat parameters

Table 5 Other thermostat parameters

*Note: Supported only in TC3XXB models						
Access = Read Memory Type = Volatile						
Reg Address	Name	Register Type	Register Count	Range	Scaling	Description
7067	Customized1DigitalOutput	Discrete Input	1	Off = 0 On = 1	1	Customized1 sensor digital output
449	Customized1VoltageOutput	Input	1	0 to 100 %	0.01	Customized1 sensor voltage output percentage
450	Customized1TempOutput	Input	1	-40 to 260 °F (-40 to 126 °C)	0.01	Customized1 sensor temperature output
7068	Customized2DigitalOutput	Discrete Input	1	Off = 0 On = 1	1	Customized2 sensor digital output
451	Customized2VoltageOutput	Input	1	0 to 100 %	0.01	Customized2 sensor voltage output percentage
452	Customized2TempOutput	Input	1	-40 to 260 °F (-40 to 126 °C)	0.01	Customized2 sensor temperature output
7069	Customized3DigitalOutput	Discrete Input	1	Off = 0 On = 1	1	Customized3 sensor digital output
453	Customized3VoltageOutput	Input	1	0 to 100 %	0.01	Customized3 sensor voltage output percentage
454	Customized3TempOutput	Input	1	-40 to 260 °F (-40 to 126 °C)	0.01	Customized3 sensor temperature output
329	HeatOATLockOut	Input	1	None = 1 HeatLockout = 2 CompressorLockout = 3 AuxiliaryHeatLockout = 4	1	Outdoor air temperature heat lockout flag
7059	CoolOATLockOut	Discrete Input	1	Off = 0 On = 1	1	Outdoor air temperature Cool lockout flag
326	CoolCtrLRunTimeAccumulate	Input	2	0 to 270737hours	1 hour	Outputs the actual run time of cooling control
313	Local Occupancy Sensor State	Input	1	Occupied = 1 Unoccupied = 2 Unused = 3	1	Local Occupancy sensor state
328	AuxHeatTermLdOut	Input	1	-200 to 0% (Default 0)	0.01%	Terminal load for auxiliary heat

Table 5 Other thermostat parameters (Continued)

*Note: Supported only in TC3XXB models						
Access = Read Memory Type = Volatile						
Reg Address	Name	Register Type	Register Count	Range	Scaling	Description
314	Effective Occupancy State	Input	1	Commercial Occupied = 1 Unoccupied = 2 Bypass = 3 Standby = 4 NoOverride = 5 Residential Wake = 1 Away = 2 Return = 3 Sleep = 4 NoOverride = 5 Custom = 6 Vacation = 7 Hospitality Occupied = 1 Unoccupied = 2 Unrented = 8	1	Effective occupancy state
330	CoolStg1_RunTimeAccumulate	Input	2	0 to 270737hours	1 hour	Outputs the actual run time of cooling stage 1
332	HeatCtrL_RunTimeAccumulate	Input	2	0 to 270737hours	1 hour	Outputs the actual run time of heating control
334	HeatStg1_RunTimeAccumulate	Input	2	0 to 270737hours	1 hour	Outputs the actual run time of heating stage 1
336	Fan_RunTimeAccumulate	Input	2	0 to 270737hours	1 hour	Outputs the actual run time of Fan
470*	CoolStage2_RunTimeAccumulate	Input	2	0 to 270370hours	1 hour	Output the actual run time of cooling stage 2
471*	HeatStage2_RunTimeAccumulate	Input	2	0 to 270370hours	1 hour	Output the actual run time of heating stage 2.
7015	OccupancyState	Discrete Input	1	UnOccupied = 0 Occupied = 1	1	System is in occupied/ unoccupied state.
7016	HeatDatLockout	Discrete Input	1	Off = 0 On = 1	1	Discharge Air High Limit output: DAT heating lockout flag
7017	IsAuxHeatDisable	Discrete Input	1	Off = 0 On = 1	1	Auxiliary heating enabled/ disabled
7018	IsHeatDisable	Discrete Input	1	Off = 0 On = 1	1	Heating enabled/ disabled
7019	IsFanOnly	Discrete Input	1	Off = 0 On = 1	1	Fan only mode enabled/ disabled
338	Effective Setpoint	Input	1	40 to 120°F (5 to 48°C)	0.01°F	Effective setpoint

Table 5 Other thermostat parameters (Continued)

*Note: Supported only in TC3XXB models						
Access = Read Memory Type = Volatile						
Reg Address	Name	Register Type	Register Count	Range	Scaling	Description
316	Effective Temperature Mode	Input	1	CoolMode = 1 ReheatMode = 2 HeatMode = 3 EmergencyHeat = 4* Off = 5 Ventilation = 6	1	Effective Temperature Mode
339	EffAuxHeatSetpoint	Input	1	40 to 120 °F (5 to 48 °C)	0.01	Effective auxiliary heat setpoint.
7020	SystemDisable	Discrete Input	1	Off = 0 On = 1	1	System disable
7021	Dehumidification	Discrete Input	1	Inactive = 0 Active = 1	1	Dehumidification Active/ Inactive
7022	BypassState	Discrete Input	1	NoBypass = 0 Bypass = 1	1	Bypass state output
317	ManualOverride	Input	1	Occupied = 1 Unoccupied = 2 Bypass = 3 Standby = 4 Null = 5	1	Manual override
318	EffOccSensState	Input	1	Occupied = 1 Unoccupied = 2 Unused = 3	1	Effective occupancy sensor state
7023	CoolDatLockout	Discrete Input	1	Off = 0 On = 1	1	Discharge air temperature cooling lockout flag
342	CoolTermLdOut	Input	1	0 to 200 %	0.01%	Terminal load for cooling.
7025	IsCoolDisable	Discrete Input	1	Enable = 0 Disable = 1	1	Cooling enabled/ disabled
344	HeatTermLdOut	Input	1	-200 to 0%	0.01%	Terminal load for heating
7026	Fan Start	Discrete Input	1	Off = 0 On = 1	1	Fan start command
346	Discharge Air Temp	Input	1	-40 to 200 °F (-40 to 93 °C)	0.01°F	Discharge air temperature
347	Pipe Temp	Input	1	-40 to 260 °F (5 to 48 °C)	0.01°F	Pipe sensor temperature

Table 5 Other thermostat parameters (Continued)

*Note: Supported only in TC3XXB models						
Access = Read Memory Type = Volatile						
Reg Address	Name	Register Type	Register Count	Range	Scaling	Description
319	Current Schedule	Input	1	Commercial Occupied = 1 Unoccupied = 2 Bypass = 3 Standby = 4 NoOverride = 5 Residential Wake = 1 Away = 2 Return = 3 Sleep = 4 NoOverride = 5 Custom = 6 Vacation = 7 Hospitality Occupied = 1 Unoccupied = 2 Unrented = 8	1	Current Schedule State to Network
320	Next Schedule	Input	1	Commercial Occupied = 1 Unoccupied = 2 Bypass = 3 Standby = 4 NoOverride = 5 Residential Wake = 1 Away = 2 Return = 3 Sleep = 4 NoOverride = 5 Custom = 6 Vacation = 7 Hospitality Occupied = 1 Unoccupied = 2 Unrented = 8	1	Next schedule state to network
348	Minutes to Next Event	Input	1	0 to 11520 minutes	1 minute	TUNCOS is the difference between the future change in event & current event in minutes to the network.

Table 5 Other thermostat parameters (Continued)

*Note: Supported only in TC3XXB models						
Access = Read Memory Type = Volatile						
Reg Address	Name	Register Type	Register Count	Range	Scaling	Description
349	Override Remaining Time	Input	1	0 to 1080 minutes	1	This point gives out the exact remaining time for the bypass to reset once the system is in override condition.
350	Control Space Temperature	Input	1	-40 to 150 °F (-40 to 65 °C)	0.01°F	Control space temperature output (Only for testing purpose)
7030	Recovery Status	Discrete Input	1	Normal = 0 Recovery = 1	1	This point gives out when the system is in recovery mode.
351	Terminal Load Output	Input	1	-200 to 200 %	1%	Common terminal load output for heating and cooling. This is an output showing the terminal load, which is a percentage between -200% and +200% based on the control output level. Negative values indicate heating load and positive values indicate cooling load.
352	Effective SetDATpoint	Input	1	40 to 150 °F (5 to 65 °C)	0.01°F	Effective discharge air control setpoint
506	Light Sensor Value	Input	1	0~1000	0.01 Lux	Effective occupancy state.
2797	ADR Offset	Input	1	1 ~ 10	0.01°F	User can set the offset value of the ADR.
5079	EnableADR	COIL	0	Off= 0 , On= 1	1	User can configure to enable ADR function

Sylk sensor

Table 6 Sylk sensor

Register Type = Input Register Count = 1 Access = Read Memory Type = Volatile				
Reg Address	Name	Range	Scaling	Description
223	Sylk2Temp	-40 to 150°F (-40 to 65°C)	0.01 °F	TR40-H-CO2: Temperature (May also use models TR40, TR40-H, TR40-CO2, TR40-H-CO2)

Table 6 Sylk sensor

Register Type = Input Register Count = 1 Access = Read Memory Type = Volatile				
Reg Address	Name	Range	Scaling	Description
224	Sylk2Hum	0 to 100RH%	0.01 %	TR40-H-CO2: Humidity (May also use models TR40, TR40-H, TR40-CO2, TR40-H-CO2)
225	Sylk2CO2	0 to 2000ppm	1 ppm	TR40-H-CO2: CO2. (May also use models TR40-CO2, TR40- H-CO2)
226	Sylk3Temp	-40 to 150°F (-40 to 65°C)	0.01 °F	Address 3 TR40: Temperature
227	Sylk4Temp	-40 to 150°F (-40 to 65°C)	0.01 °F	Address 4 TR40: Temperature
228	Sylk5Temp	-40 to 150°F (-40 to 65°C)	0.01 °F	Address 5 TR40: Temperature
505	Sylk6Temp	-40 to 150°F (-40 to 65°C)	0.01 °F	TR100 Em TR75: Temperature.
230	Sylk6Hum	0 to 100 RH%	0.01 %	TR100 Em TR75: Humidity.
231	Sylk8Temp	-40 to 200°F (-40 to 93°C)	0.01 °F	Address 8 C7400S: Temperature.
232	Sylk8Hum	0 to 100RH%	0.01%	Address 8 C7400S: Humidity.
235	Sylk10Temp	-40 to 200°F (-40 to 93°C)	0.01 °F	Address 10 C7400S: Temperature
236	Sylk10Hum	0 to 100RH%	0.01%	Address 10 C7400S: Humidity

Schedule

Table 7 Schedule

Register Type = Input Register Count = 1 Access = Read/Write Memory Type = Volatile Scaling = 1					
Reg Address	Name	Range			Description
		Commercial	Residential	Hospitality	
65	Schedule Current State	Occupied = 1 Unoccupied = 2 Temporary = 3 Standby = 4	Wake = 1 Away = 2 Return = 3 Sleep = 4 Custom = 5 Vacation = 6	Occupied = 1 Unoccupied = 2 Unrented = 7	Current schedule state
20	Schedule Next State	Occupied = 1 Unoccupied = 2 Temporary = 3 Standby = 4	Wake = 1 Away = 2 Return = 3 Sleep = 4 Custom = 5 Vacation = 6		Next schedule state
21	Schedule Time To Next	1 to 11520 minutes			Time to next schedule state
5072	Schedule Vacation System Switch Auto Mode	Off= 0 On= 1			Users can configure system mode to switch to Auto mode during vacation
3754	ScheduleType	Commercial = 1 Residential = 2 FixedSetpoint = 3 Hospitality = 4			Users can choose commercial, residential, or fixed setpoint schedule
513	Hospitality Schedule Points Value	0~10000			Hospitality status points value
79	ScheduleActive	enum {None= 1 , Weekly= 2 , Holiday= 3 , SpecialEvent= 4 , Vacation= 5 }			Schedule activation status.

APPLICATION CONFIGURATION

Topics covered

- Aux heat configuration
- Compressor
- Cooling and Heating advanced settings
- Hum Config
- Dehumidification
- Fan configuration
- Fan speed by operating mode
- IO configuration

Aux heat configuration

Table 8 Aux heat configuration

Register Count = 1 Memory Type = Non Volatile Access = Read/Write					
Reg Address	Name	Register Type	Range	Scaling	Description
5039	Auxiliary Heat Enable	Coil	Off = 0 On = 1 (Default 0)	1	Auxiliary heat enable
2903	Auxiliary Heat Mode	Holding	Peripheral = 1 Supplemental = 2 (Default 1)	1	Auxiliary heat type
3718	Auxiliary Heat Peripheral Droop	Holding	0 to 10 $\Delta^{\circ}\text{F}$ (0 to 5 $\Delta^{\circ}\text{C}$) (Default 0 $\Delta^{\circ}\text{F}/0\Delta^{\circ}\text{C}$)	0.01 $^{\circ}\text{F}$	Peripheral aux heat droop
3719	Auxiliary Heat Supplemental Droop	Holding	0 to 10 $\Delta^{\circ}\text{F}$ (0 to 5 $\Delta^{\circ}\text{C}$) (Default 2 $\Delta^{\circ}\text{F}/1\Delta^{\circ}\text{C}$)	0.01 $^{\circ}\text{F}$	Supplemental aux heat droop
5001	Aux Heat Fan On/OFF	Coil	Off = 0 On = 1 (Default 1)	1	Fan run On/Off when aux heat on
3050	Auxiliary Heat OAT Lockout	Holding	30 to 120 $^{\circ}\text{F}$ (-2 to 48 $^{\circ}\text{C}$) (Default 65 $^{\circ}\text{F}/18.3^{\circ}\text{C}$)	0.01	Outdoor air temperature auxiliary heat lockout
3215	Upstage Timer	Holding	30 to 960 minutes (Default 30 minutes)	1	Up stage timer value
5055	Upstage TimerEnable	Coil	Off = 0 On = 1 (Default 0)	1	Up stage timer enable
3053	Auxiliary Heat Ramp Factor	Holding	0 to 100 (Default 2)	0.01	Auxiliary heat recovery ramp factor
4465*	EnableCompressorOATLockout	Coil	Disable = 0 Enable = 1 (default 1)	1	Enable compressor outdoor air temperature lockout.
4466*	EnableAuxiliaryHeatatOATLocuout	Coil	Disable = 0 Enable = 1 (default 1)	1	Enable auxiliary heat outdoor air temperature lockout

Compressor

Table 9 Compressor

*Note: Supported only in TC3XXB models					
Register Count = 1 Memory Type = Non Volatile Access = Read/Write					
Reg Address	Name	Register Type	Range	Scaling	Description
2954*	Compressor Delay	Holding	15 to 120 seconds (Default 90 seconds)	1	Compressor delay time value.
3051*	Compressor OAT Lockout	Holding	0 to 70 °F (-17 to 21 °C) (Default 30 °F/-1.1 °C)	0.01	Outdoor air temperature compressor lockout.

Cooling and Heating advanced settings

Table 10 Cooling and Heating advanced settings

*Note: Supported only in TC3XXB models					
Register Type = Holding Register Count = 1 Access = Read/Write Memory Type = Non Volatile					
Reg Address	Name	Range	Default	Scaling	Description
3041	Cooling Throttling Range	0 to 30 Δ°F (0 to 16 Δ°C)	4 Δ°F (2.2 Δ°C)	0.01°F	Cooling throttling range
3042	Cooling Integral Time	0 to 5000 seconds	2500 seconds	1 second	Cooling integral time 0 = Disable (i.e. proportional only)
3044*	Cooling System Response	2 to 20 cycles per hour	3 cycles per hour	1	Cooling system response.
3045*	Cooling Min On Time	0 to 300 seconds	120 seconds	1 second	Cooling stage minimum on time.
3082*	Cooling Min Off Time	0 to 300 seconds	60 seconds	1 second	Cooling stage minimum off time.
3046*	OAT Cooling Lockout	-40 to 120 °F (-40 to 48 °C)	35 °F (1.7 °C)	0.01°F	Outdoor air temperature cool lockout.
3047	DAT Cooling Low Limit	-40 to 60°F (-40 to 15 °C)	45 °F (7.2 °C)	0.01°F	Discharge air temperature low limit setpoint.
3054	Heating Throttling Range	0 to 30 Δ°F (0 to 16 Δ°C)	4 Δ°F (2.2 Δ°C)	0.01°F	Heating throttling range
3055	Heating Integral Time	0 to 5000 seconds	2500 seconds	1 second	Heating integral time 0 = Disable (i.e. proportional only)
3057	Heating System Response	2 to 20 cycles per hour	6 cycles per hour	1	Heating system response.

Table 10 Cooling and Heating advanced settings (Continued)

*Note: Supported only in TC3XXB models					
Register Type = Holding Register Count = 1 Access = Read/Write Memory Type = Non Volatile					
Reg Address	Name	Range	Default	Scaling	Description
3058*	Heating Min On Time	0 to 300 seconds	120 seconds	1 second	Heating stage minimum on time.
3059*	Heating Min Off Time	0 to 300 seconds	60 seconds	1 second	Heating stage minimum off time.
3060*	OAT Heating Lockout	40 to 120 °F (-40 to 48 °C)	70 °F (21.2 °C)	0.01	Outdoor air temperature heat lockout.
3061	DAT Heating High Limit	60 to 200°F (16 to 93 °C)	150 °F (65.5 °C)	0.01°F	Discharge air temperature high limit setpoint.
3745*	Heat_FuelType	Gas/Oil = 1 Electric = 2	Gas/Oil = 1	1	Fuel type selection. Based on the fuel type the default CPH will vary.
3101	Thermostat Deadband	2 to 9 Δ°F (2 to 5 Δ°C)	3 Δ°F (1.7 Δ°C)	0.01°F	Temperature differential between heat and cool setpoint
3014	Initial delay to start control after power cycle	0 to 300 seconds	10 seconds	1 second	Initial delay to start control after power cycle
3018	Cooling recovery max setpoint ramp	0 to 20 Δ°F/hr (0 to 11 Δ°C/hr)	6 Δ°F/hr (3.3 Δ°C/hr)	0.01°F/hr	Maximum cooling setpoint ramp
3016	Cooling recovery min setpoint ramp	0 to 20 Δ°F/hr (0 to 11 Δ°C/hr)	2 Δ°F/hr (1.1 Δ°C/hr)	0.01°F/hr	Minimum cooling setpoint ramp.
3017	OAT at the maximum cool setpoint ramp	-40 to 120 °F (-40 to 48 °C)	70 °F (21.1 °C)	0.01	Outdoor air temperature at the maximum cool setpoint ramp
3015	OAT at the minimum cool setpoint ramp	-40 to 120 °F (-40 to 48 °C)	90 °F (32.2 °C)	0.01	Outdoor air temperature at the minimum cool setpoint ramp
3022	Heating recovery max setpoint ramp	0 to 36 Δ°F/hr (0 to 20 Δ°C/hr)	8 Δ°F/hr (4.4 Δ°C/hr)	0.01 °F/hr	Maximum cooling setpoint ramp
3020	Heating recovery min setpoint ramp	0 to 36 Δ°F/hr (0 to 20 Δ°C/hr)	2 Δ°F/hr (1.1 Δ°C/hr)	0.01 °F/hr	Minimum heating setpoint ramp
3021	OAT at the maximum heat setpoint ramp	-40 to 120 °F (-40 to 48 °C)	60 °F (15.5 °C)	0.01	Outdoor air temperature at the maximum heat setpoint ramp
3019	OAT at the minimum heat setpoint ramp	-40 to 120°F (-40 to 48 °C)	0°F (-17.8 Δ°C)	0.01	Outdoor air temperature at the minimum heat setpoint ramp

Table 10 Cooling and Heating advanced settings (Continued)

*Note: Supported only in TC3XXB models					
Register Type = Holding Register Count = 1 Access = Read/Write Memory Type = Non Volatile					
Reg Address	Name	Range	Default	Scaling	Description
3051*	EnableCompressorOATLockout	Disable = 0 Enable = 1	1	1	Enable compressor outdoor air temperature lockout
4467*	EnableCoolOATLockout	Disable = 0 Enable = 1	1	1	Enable cool outdoor air temperature lockout
4464*	EnableHeatOATLockout	Disable = 0 Enable = 1	1	1	Enable heat outdoor air temperature lockout

Hum Config

Table 11 Hum config

*Note: Supported only in TC3XXB models					
Register Count = 1 Access = Read/Write Memory Type = Non Volatile					
Reg Address	Name	Register Type	Range	Scaling	Description
5056*	Humidification Enable	Coil	Off = 0 On = 1 (Default 0)	1	Humidification enable.
2062*	Humidification Space Relative Humidity Low Limit setpoint	Holding	0 to 100%RH (Default 35)	0.01	Space relative humidity (RH) low limit setpoint.

Dehumidification

Table 12 Dehumidification

Register Count = 1 Access = Read/Write Memory Type = Non Volatile					
Reg Address	Name	Register Type	Range	Scaling	Description
5040	Dehumidification Enable	Coil	Off = 0 On = 1 (Default 0)	1	Enable/disable dehumidification
3048	Dehumidification Space Relative Humidity High Limit setpoint	Holding	30 to 100RH% (Default 65RH%)	0.01%	Space relative humidity (RH) high limit setpoint
3722	Dehumidification Over Cool Offset	Holding	-5 to 0 Δ°F (-2 to 0 Δ°C) (Default -2 Δ°F/-1 Δ °C)	0.01°F	Dehumidification overcool offset
4133	Dehumidification Staged Reheat Operation Enable	Coil	Disable = 0 Enable = 1 (Default 0)	1	Staged reheat operation enable
5041	Dehumidification Aux Heat for Reheat	Coil	Disable = 0 Enable = 1 (Default 0)	1	Aux heat reheat enable

Fan configuration

Table 13 Fan configuration

Register Type = Holding Register Count = 1 Access = Read/Write Memory Type = Non Volatile					
Reg Address	Name	Range	Default	Scaling	Description
2012	Fan Type	SingleSpeed = 1 TwoSpeed = 2 ThreeSpeed = 3 VariableSpeed = 4	1	1	Fan can be configured as single speed, 2 speed or as a variable speed fan.
2089	Fan Default Mode	Auto = 1 Circulate = 2 Continuous = 3	1	1	Fan Mode of operation config by user & supervisor.
3039	Fan Off_Cool_Delay	0 to 180 seconds	0 second	1 second	Fan run on time after all cooling terminal turns off.
3040	Fan On heat Delay	0 to 30 seconds	30 seconds	1 second	Fan run on delay time after heating terminal turns on.
3717	Fan Off_heat Delay	0 to 180	120 seconds	0.01 second	Fan run on time after all heating terminal turns off.
2583	Manual Fan speed	Auto = 1 Low = 2 Medium = 3 High = 4 Off = 5 Circulate = 6 Variable = 7	1	1	Fan speed
2902	Fan Config	BIT0 = Auto BIT1 = Manual BIT2 = Circulate	15	1	Fan configuration. BIT0 Auto must be set as 1, Manual and Circulate can be set as 1 or 0.
4010	FanOnHeat	Off= 0 , On= 1	1	1	Disable:Supply fan controlled by external duct thermostat during heat mode. Enable:Supply fan controller by digital output during heat mode.
5074	Heat pump auxiliary heat disable compress stage	Off= 0 , On= 1	1	1	

Fan speed by operating mode

Table 14 Fan speed by operating mode

*Note: Supported only in TC3XXB models					
Register Type = Holding Register Count = 1 Access = Read/Write Memory Type = Non Volatile					
Reg Address	Name	Range	Default	Scaling	Description
2772	Manua1 Fan Variable Speed	0 to 100	20	0.01	The user can manually set the speed of the variable fan.
3763	Fan Switch Type	Three Speed = 1 Variable Speed = 2	1	1	User can select variable fan speed switch type.
3762	Residential Fan Speed Setting	Fixed = 1 Auto Control = 2	1	1	User can select the fan speed setting to the residential schedule.
3755	Residential Wake Fan Mode	Auto = 1 Circulate = 2 Continuous = 3	1	1	User can set the fan mode to the residential wake status.
3756	Residential Away Fan Mode	Auto = 1 Circulate = 2 Continuous = 3	1	1	User can set the fan mode to the residential away status.
3757	Residential Return Fan Mode	Auto = 1 Circulate = 2 Continuous = 3	1	1	User can set the fan mode to the residential schedule return status.
3758	Residential Sleep Fan Mode	Auto = 1 Circulate = 2 Continuous = 3	1	1	User can set the fan mode to the residential schedule sleep status.
3759	Residential Custom Fan Mode	Auto = 1 Circulate = 2 Continuous = 3	1	1	User can set the fan mode to the residential schedule custom status.
3760	Residential Vacation Fan Mode	Auto = 1 Circulate = 2	1	1	User can set the fan mode to the residential schedule vacation status.
2585	Fan Coil Two Speed Vent Mode	Low = 1 High = 2	1	1	Fan speed for ventilation mode

Table 14 Fan speed by operating mode (Continued)

*Note: Supported only in TC3XXB models					
Register Type = Holding Register Count = 1 Access = Read/Write Memory Type = Non Volatile					
Reg Address	Name	Range	Default	Scaling	Description
2586	Fan Coil Three Speed Vent Mode	Low = 1 Medium = 2 High = 3	1	1	Fan speed for ventilation mode
2581*	Fan Coil Two Speed Char	MultipleOutputsAtATime = 1 OneOutputAtATime = 2	2	1	Two speed fan output type.
2582*	Fan Coil Three Speed Char	MultipleOutputsAtATime = 1 OneOutputAtATime = 2	2	1	Three speed fan output type.
3570	Variable Speed Fan Vent Mode	0 to 100 %	20%	0.01%	Variable speed fan speed for ventilation mode
2015*	Fan Speed Compressor Single Mode	Low = 1 High = 2 Auto = 3	2	1	Heat pump two speed compressor single mode.
3741*	Fan Speed Cool Single Mode	Low = 1 High = 2 Auto = 3	2	1	Conventional two speed cool single mode.
2017*	Fan Speed Heat Single Mode	Low = 1 High = 2 Auto = 3	2	1	Conventional two speed heat single mode.
3743*	Fan Speed Aux Heat Mode	Low = 1 High = 2 Auto = 3	2	1	Heat pump two speed auxiliary heat single mode.
3568	Variable Speed Fan Cool Mode Min Speed	0 to 100 %	20 %	0.01 %	Variable speed fan min speed for cool
3569	Variable Speed Fan Cool Mode Max Speed	0 to 100 %	100 %	0.01 %	Variable speed fan max speed for cool
3573	Variable Speed Fan Heat Mode Min Speed	0 to 100 %	10 %	0.01 %	Variable speed fan min speed for heat
3574	Variable Speed Fan Heat Mode Max Speed	0 to 100 %	50 %	0.01 %	Variable speed fan max speed for heat
2018*	Fan Speed Heat Multi Mode	Low = 1 High = 2 Auto = 3	2	1	Conventional two speed heat multi mode.
3761*	Fan Speed Cool Multi Mode	Low = 1 High = 2 Auto = 3	2	1	Conventional two speed Cool multi mode.

Table 14 Fan speed by operating mode (Continued)

*Note: Supported only in TC3XXB models					
Register Type = Holding Register Count = 1 Access = Read/Write Memory Type = Non Volatile					
Reg Address	Name	Range	Default	Scaling	Description
2773	Variable Speed Fan Adjustable Mode Low Speed	20 to 100 %	20 %	0.01 %	Variable speed fan low speed for adjustable mode
2774	Variable Speed Fan Adjustable Mode High Speed	20 to 100 %	100 %	0.01 %	Variable speed fan high speed for adjustable mode

IO configuration

Table 15 IO configuration

*Note: Supported only in TC3XXB models						
Register Count = 1 Access = Read/Write Memory Type = Non Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
4031	Occupancy sensor type	Coil	NormallyOpen = 0 NormallyClosed = 1	0	1	Occupancy sensor input characteristics selection.
4033	Airflow status sensor type	Coil	NormallyOpen = 0 NormallyClosed = 1	0	1	Airflow status input characteristics selection.
3185	DAT Sensor Offset	Holding	-10 to 10 $\Delta^{\circ}\text{F}$ (-5 to 5 $\Delta^{\circ}\text{C}$)	0 $\Delta^{\circ}\text{F}$ (0 $\Delta^{\circ}\text{C}$)	1 $^{\circ}\text{F}$	Universal input discharge air temperature calibration offset.
3186	OAT Sensor Offset	Holding	-10 to 10 $\Delta^{\circ}\text{F}$ (-5 to 5 $\Delta^{\circ}\text{C}$)	0 $\Delta^{\circ}\text{F}$ (0 $\Delta^{\circ}\text{C}$)	1 $^{\circ}\text{F}$	Outdoor air temperature calibration offset.
4383*	Waterflow status sensor type	Coil	NormallyOpen = 0 NormallyClosed = 1	0	1	Waterflow sensor input characteristics selection.
2372	SpaceTemp sensor type	Holding	NTC10K Type II = 1 NTC10K Type III = 2 NTC20K = 3	3	1	Space temperature sensor characteristic selection.
3564	SpaceTemp Sensor Offset	Holding	-10 to 10 $\Delta^{\circ}\text{F}$ (-5 to 5 $\Delta^{\circ}\text{C}$)	0 $\Delta^{\circ}\text{F}$ (0 $\Delta^{\circ}\text{C}$)	0.01 $^{\circ}\text{F}$	Space temperature calibration offset.
3575	Modulating Heat Min Output	Holding	0 to 9 V	2	0.01 V	Minimum output voltage when modulating heating is enabled.
4380	Modulating Heat Control Action	Coil	Direct = 0 Reverse = 1	0	1	Modulating heat polarity selection.
3576	Modulating Cool Min Output	Holding	0 to 9 V	2	0.01 V	Minimum output voltage when modulating cooling is enabled.
4381	Modulating Cool Control Action	Coil	Direct = 0 Reverse = 1	0	1	Modulating cool polarity selection.
2373	Variable speed fan type	Holding	0-10V = 1 2-10V = 2	2	1	Variable fan speed Type characteristic selection.
3577	Modulating Heat Max Output	Holding	1 to 10 V	10	0.01V	Maximum voltage on heating output.
3578	Modulating Cool Max Output	Holding	1 to 10 V	10	0.01V	Maximum voltage on cooling output.

Table 15 IO configuration

*Note: Supported only in TC3XXB models						
Register Count = 1 Access = Read/Write Memory Type = Non Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
2905	Pipe sensor type	Holding	NTC10K Type II = 1 NTC10K Type III = 2 NTC20K = 3	3	1	Pipe sensor type
2502	OAT sensor type	Holding	NTC10K Type II = 1 NTC10K Type III = 2 NTC20K = 3	3	1	Outdoor air sensor type.
2503	DAT sensor type	Holding	NTC10K Type II = 1 NTC10K Type III = 2 NTC20K = 3	3	1	Discharge air sensor type
4455	Leak detector sensor type	Coil	NormallyOpen = 0 NormallyClosed = 1	1	1	Leak detector/Drain pan sensor characteristics.
4034	ShutdownSensorType	Coil	NormallyOpen = 0 NormallyClosed = 1	0	1	Shutdown sensor type.
2946	Customized1SensorType	Holding	enum{DigitalInput = 1 VoltageInput = 2 TemperatureSensor = 3	1	1	Customized1 input type of the sensor.
5061	Customized1DigitalInputType	Coil	NormallyOpen = 0 NormallyClosed = 1	0	1	Customized1 digital input type of the sensor.
5062	Customized1VoltageInputControlAction	Coil	Direct = 0 Reverse = 1	0	1	Customized1 sensor the polarity of the voltage input.
2743	Customized1VoltageMinInput	Holding	0 to 9 V	2	0.01	Customized1 minimum voltage input for the sensor.
2744	Customized1VoltageMaxInput	Holding	1 to 10 V	10	0.01	Customized1 maximum voltage input for the sensor.
2947	Customized1TempSensorType	Holding	NTC10K Type II = 1 NTC10K Type III = 2 NTC20K = 3	3	1	Customized1 temperature sensor input type.
2948	Customized2SensorType	Holding	DigitalInput = 1 VoltageInput = 2 TemperatureSensor = 3	1	1	Customized2 input type of the sensor.
5063	Customized2DigitalInputType	Coil	NormallyOpen = 0 NormallyClosed = 1	0	1	Customized2 digital input type of the sensor.
5064	Customized2VoltageInputControlAction	Coil	Direct = 0 Reverse = 1	0	1	Customized2 sensor the polarity of the voltage input.
2745	Customized2VoltageMinInput	Holding	0 to 9 V	2	0.01	Customized2 minimum voltage input for the sensor.

Table 15 IO configuration

*Note: Supported only in TC3XXB models						
Register Count = 1 Access = Read/Write Memory Type = Non Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
2746	Customized2VoltageMaxInput	Holding	1 to 10	10	0.01	Customized2 maximum voltage input for the sensor.
2949	Customized2TempSensorType	Holding	NTC10K Type II = 1 NTC10K Type III = 2 NTC20K = 3	3	1	Customized2 temperature sensor input type.
2950	Customized3SensorType	Holding	DigitalInput = 1 VoltageInput = 2 TemperatureSensor = 3	1	1	Customized3 input type of the sensor.
5065	Customized3DigitalInputType	Coil	NormallyOpen = 0 NormallyClosed = 1	0	1	Customized3 digital input type of the sensor.
5066	Customized3VoltageInputControlAction	Coil	Direct = 0 Reverse = 1	0	1	Customized3 sensor the polarity of the voltage input.
2747	Customized3VoltageMinInput	Holding	0 to 9	2	0.01	Customized3 minimum voltage input for the sensor.
2748	Customized3VoltageMaxInput	Holding	1 to 10	10	0.01	Customized3 maximum voltage input for the sensor.
2951	Customized3TempSensorType	Holding	NTC10K Type II = 1 NTC10K Type III = 2 NTC20K = 3	3	1	Customized3 temperature sensor input type.
5057	CO2 Output Enable	Coil	Off= 0 , On= 1	0	1	Enable CO2 output.
3765	CO2 Device Type	Holding	enum {Analog= 1 , Binary= 2 }	1	1	The user selects the CO2 device type.
3866	CO2 Analog Type	Holding	enum {0-10V= 1 , 2-10V= 2 }	2	1	The user selects the CO2 analog type.
5076	CO2 Binary Type	Coil	NormallyOpen= 0 , NormallyClosed= 1	0	1	The user selects the CO2 binary type.
2785	CO2 Threshold Limit	Holding	500~2000	800	0.01	The user set the trigger threshold for the CO2 binary type.
2787	CO2 Threshold Deadband	Holding	-300~ -100	-100	0.01	The user can set the CO2 threshold deadband.
2788	Entry Door Delay Time to Action	Holding	30 ~ 300	120 seconds	0.01	The user can set the delay time for the Entry door switch sensor to trigger the action

Table 15 IO configuration

*Note: Supported only in TC3XXB models						
Register Count = 1 Access = Read/Write Memory Type = Non Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
3867	Entry Door Open Action	Holding	enum {NoAction= 1 , DisableHVACSystem= 2 , SwitchToUnoccupiedMode= 3 , AlarmOnly= 4 }	1	1	The user can set the action to open the Entry door switch sensor.
2789	Balcony/Window Delay Time to Action	Holding	30 ~ 300	120 seconds	0.01	The user can set the delay time for the balcony/window sensor to trigger the action
3868	Balcony/Window Open Action	Holding	enum {DisableHVACSystem= 1 , SwitchToUnoccupiedMode= 2 , AlarmOnly= 3 }	1	1	Balcony/Window Open Action
5077	Lighting Control Output Type	Coil	NormallyOpen= 0 , NormallyClosed= 1	0	1	The user can set the type of lighting control output.
2790	Lighting Delay time Of Turn Off	Holding	0~255	2 minutes	0.01	The user set the time delay for turning off the lighting.
5085	Lighting Control Output Enable	Coil	Off= 0 , On= 1	0	1	Enable Lighting Control Output.
2791	Occupancy Sensor Delay Time	Holding	0~120	30 minutes	0.01	The user set the time delay for occupancy sensor.
5078	Occupancy Output Type	Coil	NormallyOpen= 0 , NormallyClosed= 1	0	1	The user set the occupancy type.
5086	Occupancy Output Enable	Coil	Off= 0 , On= 1	0	1	Enable Occupancy Output.
5071	Freeze Swtich Type	Coil	NormallyOpen= 0 , NormallyClosed= 1	1	1	Freeze switch sensor input characteristics selection.
5080	Entry Door Sensor Type	Coil	NormallyOpen= 0 , NormallyClosed= 1	0	1	Entry door sensor input characteristics selection.
5081	Balcony/Window Sensor Type	Coil	NormallyOpen= 0 , NormallyClosed= 1	0	1	Balcony/Window sensor input characteristics selection.

COMMON CONFIGURATION

Topics covered

- Device
- Equipment
- General
- Setpoints
- Residential Setpoints
- Fixed Setpoints
- Indoor temperature limits
- IO assignment
- IO status
- Multi-sensor settings
- Occupancy setpoints
- Special functions
- Service mode
- Discharge air control
- Sylk calibration offsets
- Sensor fault settings
- Sylk sensor configuration
- User permission
- Operating settings

Device

Table 16 Device

Scaling = 1							
Reg Address	Name	Register Type	Reg Count	Access	Memory Type	Range	Description
5500	Device Configured	Coil	1	Read/Write	Non Volatile	Not Configured = 0 Configured = 1 (Default 0)	Device configured
3408	Display Options	Holding	1	Read/Write	Non Volatile	BIT1 = Time Status BIT2 = Schedule Status BIT3 = Outdoor Temp. BIT4 = Outdoor Humidity BIT5 = Indoor CO2 BIT6 = Indoor Humidity BIT7 = System Mode BIT8 = Fan	Display options
800	Last Restart Reason	Input	1	Read	Non Volatile	ColdStart = 0 WarmStart = 1 StartFirmwareDownload = 126 startdlssettingsdownload = 130 enddlssettingsdownload = 131 (Default 0)	Last restart reason
801	Time Of Device Restart	Input	2	Read	Volatile		Time Of Device Restart. The maximum seconds is about 136 years.
3800	DeviceName	Holding	5	Read/Write	Non Volatile		Device Name
3833	ContractorName	Holding	16	Read/Write	Non Volatile		Contractor Name
3849	ContractorTel	Holding	16	Read/Write	Non Volatile		Contractor Telephone number
1000	ModelName	Input	8	Read	Non Volatile		Model Name
1008	SerialNumber	Input	8	Read	Non Volatile		Serial Number
1016	FirmwareVersion	Input	2	Read	Non Volatile		Firmware Version
1018	AppVersion	Input	2	Read	Non Volatile		Application Version

Table 16 Device (Continued)

Scaling = 1							
Reg Address	Name	Register Type	Reg Count	Access	Memory Type	Range	Description
1020	BootVersion	Input	2	Read	Non Volatile		Bootloader Version
1022	WirelessVersion	Input	2	Read	Non Volatile		Wireless Version
3823	Custom Brand Name	Holding	5	Read/Write	Non Volatile	Max 18 Characters	Custom brand name configuration
3865	Residential Custom Event Name	Holding	8	Read/Write	Non Volatile		Residential schedule custom event name configuration

Equipment

Table 17 Equipment

*Note: Supported only in TC3XXB models						
Register Count = 1 Access = Read/Write Memory Type = Non Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
2007*	Equipment Type	Holding	FanCoil = 1 Conventional = 2 HeatPump = 3	1	1	Equipment type.
4013*	HeatPumpReversing Valve	Coil	EnergizeOnHeat = 0 EnergizeOnCool = 1	1	1	Heat pump reversing valve type.
3738*	WaterFlowValveConfig	Holding	None = 1 NormallyClosed = 2 NormallyOpen = 3	1	1	Water flow valve type.
3739*	HeatPumpType	Holding	AirSource = 1 WaterSource = 2	1	1	Heat pump source type.
3740*	ConventionalMode	Holding	1StageHeat&1StageCool = 1 1StageHeatOnly = 2 1StageCoolOnly = 3 2StageHeatOnly = 4 2StageCoolOnly = 5	1	1	Conventional mode.
4035	Stage 1 Heat to enable Modulating	Coil	Disable = 0 Enable = 1	0	1	Modulating heat stage mode
3096	Minimum Output when Modulating Heat enabled	Holding	0 to 100%	20%	0.01%	Modulating heat minimum output when enabled.
2087	Four Pipe Single Coil Valve Type	Holding	Regulating&ChangeOve = 1 6-WayValve = 2	1	1	4-pipe single coil valve type
3733	Changeover Switch Characteristic	Holding	ClosedWithHeat = 1 ClosedWithCool = 2	0	1	Changeover switch polarity type
3734	Two-pipe single coil heat and cool changeover method type	Holding	PipeSensor = 1 NetworkInput = 2 ChangeoverSwitch = 3 ManualChangeover = 4	1	1	2-pipe single coil heat & cool system mode changeover method.
4377	Stage 1 Cool to enable Modulating	Coil	Disable = 0 Enable = 1	0	1	Modulating cool use stage 1 as enabled.
3561	Minimum Output when Modulating Cool enabled	Holding	0 to 100%	20	0.01%	Modulating cool minimum output when enabled.

Table 17 Equipment (Continued)

*Note: Supported only in TC3XXB models						
Register Count = 1 Access = Read/Write Memory Type = Non Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
2575	Fan Coil Type	Holding	4 PipeDualCoil = 1 4PipeSingleCoil = 2 2PipeSingleCoil = 3	1	1	Fan coil type
2576	Fan Coil Heating Type	Holding	None = 1 OnOff = 2 Floating = 3* Modulating = 4	2	1	4 pipe dual coil heating valve type, 4 pipe single coil/2 pipe single coil valve type.
2577	Fan Coil Cooling Type	Holding	None = 1 OnOff = 2 Floating = 38* Modulating = 4	2	1	4 pipe dual coil cooling valve type.
3621*	Run Time Valve for heating	Holding	0 to 240 seconds	90	1 second	4 pipe dual coil floating heating drive time, 4 pipe single coil/2 pipe single coil valve drive time.
3622*	Run Time Valve for cooling	Holding	0 to 240 seconds	90	1 second	4 pipe dual coil floating cooling drive time.
2580	Two-pipe Single Coil Type	Holding	Heat&Cool = 1 HeatOnly = 2 CoolOnly = 3	1	1	2-pipe single coil type
2578*	Fan coil Heating Floating Type	Holding	Direct = 1 Reverse = 2	1	1	4 pipe dual coil floating heating drive type, 4 pipe single coil/2 pipe single coil floating valve drive type.
2579*	Fan coil Cooling Floating Type	Holding	Direct = 1 Reverse = 2	1	1	4 pipe dual coil floating cooling drive time.

Table 17 Equipment (Continued)

*Note: Supported only in TC3XXB models						
Register Count = 1 Access = Read/Write Memory Type = Non Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
4453*	FanCoilHtgFloatingSyncEn	Coil	Disable = 0 Enable = 1	1	1	4 pipe dual coil floating heating sync enable, 4 pipe single coil/2 pipe single coil floating valve sync enable.
4462*	FanCoilClgFloatingSyncEn	Coil	Disable = 0 Enable = 1	1	1	4 pipe dual coil floating cooling sync enable.
4459	FanCoilClgONOFFCHAR	Coil	NormallyClosed = 0 NormallyOpen = 1	0	1	4-pipe dual coil on/off Cooling valve characteristic
4458	FanCoilHtgONOFFCHAR	Coil	NormallyClosed = 0 NormallyOpen = 1	0	1	4-pipe dual coil on/off heating valve characteristic, 4 pipe single coil/2-pipe single coil on/off valve characteristic
3707*	FanCoilClgValveMinimum Output	Holding	0 to 100 %	5	0.01 %	4 pipe dual coil floating Cooling valve minimum output when enabled.
3708*	FanCoilHtgValveMinimum Output	Holding	0 to 100%	5	0.01 %	4 pipe dual coil floating heating valve minimum output when enabled, 4 pipe single coil/2 pipe single coil floating valve minimum output when enabled.
5036	ChangeOver Valve Type	Coil	EnergizeOnHeat = 0 EnergizeOnCool = 1	0	1	4-pipe single coil changeover valve type.

Table 17 Equipment (Continued)

*Note: Supported only in TC3XXB models						
Register Count = 1 Access = Read/Write Memory Type = Non Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
5037	Six-way Valve Output	Coil	0-10V = 0 2-10V = 1	1	1	6-way valve type
5038	Six-way Valve Drive Type	Coil	Direct = 0 Reverse = 1	0	1	6-way valve direct/reverse enable flag
3766	Six-way Valve Heating Min Output	Holding	0 to 10 V	2	0.01 V	6-way valve heat min output
3767	Six-way Valve Heating Max Output	Holding	0 to 10 V	5.7	0.01 V	6-way valve heat max output
3768	Six-way Valve Cooling Min Output	Holding	0 to 10 V	6.3	0.01 V	6-way valve cool min output
3769	Six-way Valve Cooling Max Output	Holding	0 to 10 V	10	0.01 V	6-way valve cool max output

General

Table 18 General

Register Count = 1 Memory Type = Non Volatile Access = Read/Write						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
4136	Temp. Units	Coil	Fahrenheit = 0 Celsius = 1	0	1	Thermostat unit definition (Imperial/ Metric)
4137	Temp. Communication Units	Coil	Fahrenheit = 0 Celsius = 1	0	1	Thermostat communication unit definition (Imperial/ Metric).
3400	Backlight	Holding	20 to 100 %	80	1 %	Backlight
3452	Time Format	Holding	12 Hour = 0 24 Hour = 1	0	1	Time format
2505	Brand Type	Holding	Honeywell = 1 Alerton = 2 None = 3 Custom = 4	1	1	Vendor ID and vendor name will be changed when modify brand type.
3753	Language	Holding	English = 1 Spanish = 2 French = 3 Italian = 4 German = 5	1	1	User can switch HMI language

Setpoints

Table 19 Setpoints

Register Count = 1							
Reg Address	Name	Register Type	Access	Memory Type	Range	Scaling	Description
1	Indoor Temperature	Input	Read	Volatile	-40 to 150 °F (-40 to 65°C)	0.01 °F	Space temperature
2	Indoor Humidity	Input	Read	Volatile	0 to 100 RH%	0.01 %	Space humidity
3	Effective Heat Setpoint	Input	Read	Volatile	40 to 120 °F (5 to 48 °C)	0.01°F	Effective heating setpoint
4	Effective Cool Setpoint	Input	Read	Volatile	40 to 120 °F (5 to 48 °C)	0.01°F	Effective cooling setpoint

Table 19 Setpoints (Continued)

Register Count = 1							
Reg Address	Name	Register Type	Access	Memory Type	Range	Scaling	Description
5	Setpoint Status	Input	Read	Volatile	Commercial Occupied = 1 Unoccupied = 2 Bypass = 3 Standby = 4 NoOverride = 5 Residential Wake = 1 Away = 2 Return = 3 Sleep = 4 NoOverride = 5 Custom = 6 Vacation = 7 Hospitality Occupied = 1 , Unoccupied = 2 , Unrented = 10	1	When the setpoint is adjusted by user, no_setpointsts shifts to 'Temporary'. When the setpoint is not adjusted it will represent the current system state.
439	Outdoor Temp	Input	Read	Volatile	-40 to 200 °F (-40 to 93 °C)	0.01	Outdoor air temperature.
440	Outdoor Humidity	Input	Read	Volatile	0 to 100 RH%	0.01	Outdoor air Humidity.
442	CO2 Level	Input	Read	Volatile		1	Space CO2
5034	Standby Config	Coil	Read/Write	Non Volatile	StandbyAsUnoccupied = 0 StandbyAsOccupied = 1 (Default 0)	1	Standby action
3256	Temporary cool setpoint adjustment	Holding	Read/Write	Volatile	-45 to 45 Δ°F (-25 to 25 Δ°C)	0.01 °F	Temporary cool setpoint adjustment from user or from the supervisor.
3257	Temporary heat setpoint adjustment	Holding	Read/Write	Volatile	-45 to 45°F (-25 to 25 Δ°C)	0.01 °F	Temporary heat setpoint adjustment from user or from the supervisor.

Residential Setpoints

Table 20 Residential Setpoints

Register Count = 1							
Reg Address	Name	Register Type	Access	Memory Type	Range	Scaling	Description
2758	Residential Wake Heat Setpoint	Holding	Read/Write	Non Volatile	40 to 105 °F (5 to 40 °C) (Default 68)	0.01 °F	User can set the residential heat setpoint in wake state.
2759	Residential Wake Cool Setpoint	Holding	Read/Write	Non Volatile	50 to 115 °F (10 to 46 °C) (Default 76)	0.01 °F	User can set the residential cool setpoint in wake state.
2760	Residential Away Heat Setpoint	Holding	Read/Write	Non Volatile	40 to 105 °F (5 to 40 °C) (Default 55)	0.01 °F	User can set the residential heat setpoint in away state.
2761	Residential Away Cool Setpoint	Holding	Read/Write	Non Volatile	50 to 115 °F (10 to 46 °C) (Default 85)	0.01 °F	User can set the residential cool setpoint in away state.
2762	Residential Return Heat Setpoint	Holding	Read/Write	Non Volatile	40 to 105 °F (5 to 40 °C) (Default 68)	0.01 °F	User can set the residential heat setpoint in return state.
2763	Residential Return Cool Setpoint	Holding	Read/Write	Non Volatile	50 to 115 °F (10 to 46 °C) (Default 76)	0.01 °F	User can set the residential cool setpoint in return state.
2764	Residential Sleep Heat Setpoint	Holding	Read/Write	Non Volatile	40 to 105 °F (5 to 40 °C) (Default 62)	0.01 °F	User can set the residential heat setpoint in sleep state.
2765	Residential Sleep Cool Setpoint	Holding	Read/Write	Non Volatile	50 to 115 °F (10 to 46 °C) (Default 82)	0.01 °F	User can set the residential cool setpoint in sleep state.
2766	Residential Custom Heat Setpoint	Holding	Read/Write	Non Volatile	40 to 105 °F (5 to 40 °C) (Default 68)	0.01 °F	User can set the residential heat setpoint in custom state.
2767	Residential Custom Cool Setpoint	Holding	Read/Write	Non Volatile	50 to 115 °F (10 to 46 °C) (Default 76)	0.01 °F	User can set the residential cool setpoint in custom state.
2768	Residential Vacation Heat Setpoint	Holding	Read/Write	Non Volatile	40 to 105 °F (5 to 40 °C) (Default 62)	0.01 °F	User can set the residential heat setpoint in vacation state.

Table 20 Residential Setpoints (Continued)

Register Count = 1							
Reg Address	Name	Register Type	Access	Memory Type	Range	Scaling	Description
2769	Residential Vacation Cool Setpoint	Holding	Read/Write	Non Volatile	50 to 115 °F (10 to 46 °C) (Default 82)	0.01 °F	User can set the residential cool setpoint in vacation state.

Fixed Setpoints

Table 21 Fixed Setpoints

Register Count = 1							
Reg Address	Name	Register Type	Access	Memory Type	Range	Scaling	Description
2756	FixedSetpoint Heat Setpoint	Holding	Read/Write	Non Volatile	40 to 105 °F (5 to 40 °C) (Default 68)	0.01 °F	FixedSetpoint heating setpoint.
2757	FixedSetpoint Cool Setpoint	Holding	Read/Write	Non Volatile	50 to 115 °F (10 to 46 °C) (Default 76)	0.01 °F	FixedSetpoint cooling setpoint.

Hospitality Control Setpoint

Table 22 Hospitality Control Setpoint

Register Count = 1							
Reg Address	Name	Register Type	Access	Memory Type	Range	Scaling	Description
2809	Target Setpoint	Holding	Read/Write	Non Volatile	50 to 90°F, 10 to 32°C (Default 72)	0.01	Users can set the target setpoint in hospitality
2810	Occupied Heat/Cool Differential	Holding	Read/Write	Non Volatile	±1 to ±4 °F, ±0.6 to 2.2 °C (Default 1)	0.01	Users can set the differential value of the target setpoint in the occupied state..
2778	Rented/Unoccupied Heat/Cool Differential	Holding	Read/Write	Non Volatile	±1 to ±10°F, ±0.6 to 5.6 °C (Default 4)	0.01	Users can set the differential value of the heat or cool setpoint in the rented and unoccupied state..
2779	Unrented Heat Setpoint	Holding	Read/Write	Non Volatile	40 to 90°F, 5 to 32°C (Default 55)	0.01	Users can set the unrented heat setpoint in hospitality.

Table 22 Hospitality Control Setpoint (Continued)

Register Count = 1							
Reg Address	Name	Register Type	Access	Memory Type	Range	Scaling	Description
2780	Unrented Cool Setpoint	Holding	Read/Write	Non Volatile	50 to 100°F 10 to 37°C (Default 85)	0.01	Users can set the unrented cool setpoint in hospitality
2816	Target Setpoint Low Limit	Holding	Read/Write	Non Volatile	50 to 90°F, 10 to 32°C (Default 65)	0.01	The minimum limit of the target setpoint
2817	Target Setpoint High Limit	Holding	Read/Write	Non Volatile	50 to 90°F, 10 to 32°C (Default 80)	0.01	The maximum limit of the target setpoint
2818	Setpoint adjustment	Holding	Read/Write	Non Volatile	-40 to 40°F, -6 to 10°C (Default 0)	0.01	The user adjusts the relative value of the setpoint.

Hospitality Control Configuration

Table 23 Hospitality Control Configuration

Register Count = 1							
Reg Address	Name	Register Type	Access	Memory Type	Range	Scaling	Description
2781	Delay Time Before Points Logic	Holding	Read/Write	Non Volatile	10~90	0.01	User can set delay time before occupancy status change logic.
2782	Awake Points per minute	Holding	Read/Write	Non Volatile	0.5~12	0.01	User can set awake time until unoccupied state.
2783	Sleepy points per minute	Holding	Read/Write	Non Volatile	0.5~12	0.01	User can set sleep time until unoccupied state.
2784	Awake Light Level Threshold	Holding	Read/Write	Non Volatile	0~500	0.01	User can set awake light level threshold.
2832	UnrentedToOccupiedDelayTime	Holding	Read/Write	Non Volatile	0~5, 1 minute	0.01	In hospitality, users can set the delay time for switching from the "unrented" state to the "occupied" state.

Indoor temperature limits

Table 24 Indoor temperature limits

Register Type = Holding Register Count = 1 Access = Read/Write Memory Type = Non Volatile Scaling = 0.01°F				
Reg Address	Name	Range	Default	Description
3254	IndoorTempHighLimit	90 to 150 °F (33 to 65°C)	90 °F (32.2 °C)	Space temperature alarm high limit
3255	IndoorTempLowLimit	0 to 60 °F (-17 to 15 °C)	45 °F (7.2 °C)	Space temperature alarm low limit
3332	DischargeTempHighLimit	70 to 180 °F (22 to 82 °C)	140 °F (60 °C)	Discharge air temperature alarm high limit
3333	DischargeTempLowLimit	35 to 65 °F (2 to 18 °C)	45 °F (7.2 °C)	Discharge air temperature alarm low limit
3770	Pipe Temp Heat Threshold	70 to 90 °F (22 to 32 °C)	80 °F (26.7 °C)	Pipe sensor threshold for heating
3771	Pipe Temp Cool Threshold	45 to 65 °F (8 to 18 °C)	60 °F (15.6 °C)	Pipe sensor threshold for cooling
3772	Pipe Temp High Limit	70 to 220 °F (22 to 104 °C)	180 °F (82.2 °C)	Pipe temperature alarm high limit
3773	Pipe Temp low Limit	30 to 60 °F (-1 to 15 °C)	40 °F (4.4 °C)	Pipe temperature alarm low limit
3774	PipeSpaceHeatTempOffset	5 to 10 Δ°F (3 to 5 Δ°C)	5 Δ°F (2.8 Δ°C)	2-pipe single coil hybrid control space temperature offset for heating
3775	PipeSpaceCoolTempOffset	-10 to -5 Δ°F (-5 to -2 Δ°C)	-5 Δ°F (-2.8 Δ°C)	2-pipe single coil hybrid control space temperature offset for cooling
2737	Outdoor Air Temp High Limit	70 to 150 °F (22 to 65 °C)	150 °F (65.5 °C)	Outdoor air temperature alarm high limit.
2738	Outdoor Air Temp Low Limit	-40 to 60 °F (-40 to 15 °C)	-40 °F (-40 °C)	Outdoor air temperature alarm low limit.

IO assignment

Table 25 IO assignment

Note: *Supported in TC3XXB models, not in TC3XXC models.				
Register Type = Holding Register Count = 1 Access = Read/Write Memory Type = Non Volatile				
Scaling = 1				
Reg Address	Name	Range	Default	Description
2026	UIO1	None = 1 6-WayValve = 2 ModulatingCool = 3 ModulatingHeat = 4 ModulatingValve = 5 VariableSpeedFan = 6 DischargeAirSensor = 7 DrainPanSensor = 8 OccupancySensor = 9 ProofOfAirflow = 10 PipeSensor = 11 SpaceTempSensor = 12 ChangeoverSwitch = 13 ProofOfWaterFlow = 14* OutDoorAirSensor = 15 ShutdownSensor = 16 Customized1 = 17 Customized2 = 18 Customized3 = 19 FreezeSwitch= 20 , EntryDoorSwitch= 21 , Balcony/Window= 22 , CO2Output= 31	1	None = 1 6-WayValve = 2 ModulatingCool = 3 ModulatingHeat = 4 ModulatingValve = 5 VariableSpeedFan = 6 DischargeAirSensor = 7 DrainPanSensor = 8 OccupancySensor = 9 ProofOfAirflow = 10 PipeSensor = 11 SpaceTempSensor = 12 ChangeoverSwitch = 13 ProofOfWaterFlow = 14* OutDoorAirSensor = 15 ShutdownSensor = 16 Customized1 = 17 Customized2 = 18 Customized3 = 19 FreezeSwitch= 20 , EntryDoorSwitch= 21 , Balcony/Window= 22 , CO2Output= 31
2027	UIO2	None = 1 6-WayValve = 2 ModulatingCool = 3 ModulatingHeat = 4 ModulatingValve = 5 VariableSpeedFan = 6 DischargeAirSensor = 7 DrainPanSensor = 8 OccupancySensor = 9 ProofOfAirflow = 10 PipeSensor = 11 SpaceTempSensor = 12 ChangeoverSwitch = 13 ProofOfWaterFlow = 14* OutDoorAirSensor = 15 ShutdownSensor = 16 Customized1 = 17 Customized2 = 18 Customized3 = 19 FreezeSwitch= 20 , EntryDoorSwitch= 21 , Balcony/Window= 22 , CO2Output= 31	1	None = 1 6-WayValve = 2 ModulatingCool = 3 ModulatingHeat = 4 ModulatingValve = 5 VariableSpeedFan = 6 DischargeAirSensor = 7 DrainPanSensor = 8 OccupancySensor = 9 ProofOfAirflow = 10 PipeSensor = 11 SpaceTempSensor = 12 ChangeoverSwitch = 13 ProofOfWaterFlow = 14* OutDoorAirSensor = 15 ShutdownSensor = 16 Customized1 = 17 Customized2 = 18 Customized3 = 19 FreezeSwitch= 20 , EntryDoorSwitch= 21 , Balcony/Window= 22 , CO2Output= 31

Table 25 IO assignment (Continued)

Note: *Supported in TC3XXB models, not in TC3XXC models.				
Register Type = Holding Register Count = 1 Access = Read/Write Memory Type = Non Volatile				
Scaling = 1				
Reg Address	Name	Range	Default	Description
2904	UIO3	None = 1 6-WayValve = 2 ModulatingCool = 3 ModulatingHeat = 4 ModulatingValve = 5 VariableSpeedFan = 6 DischargeAirSensor = 7 DrainPanSensor = 8 OccupancySensor = 9 ProofOfAirflow = 10 PipeSensor = 11 SpaceTempSensor = 12 ChangeoverSwitch = 13 ProofOfWaterFlow = 14* OutDoorAirSensor = 15 ShutdownSensor = 16 Customized1 = 17 Customized2 = 18 Customized3 = 19 FreezeSwitch= 20 , EntryDoorSwitch= 21 , Balcony/Window= 22 , CO2Output= 31	1	None = 1 6-WayValve = 2 ModulatingCool = 3 ModulatingHeat = 4 ModulatingValve = 5 VariableSpeedFan = 6 DischargeAirSensor = 7 DrainPanSensor = 8 OccupancySensor = 9 ProofOfAirflow = 10 PipeSensor = 11 SpaceTempSensor = 12 ChangeoverSwitch = 13 ProofOfWaterFlow = 14* OutDoorAirSensor = 15 ShutdownSensor = 16 Customized1 = 17 Customized2 = 18 Customized3 = 19 FreezeSwitch= 20 , EntryDoorSwitch= 21 , Balcony/Window= 22 , CO2Output= 31
2028	DO1	None = 1 HeatingOn/Off = 2 HeatingFloatingOpen = 3* CoolingFloatingOpen = 4* ValveOn/Off = 5 ValveFloatingOpen = 6* ChangeoverValve = 11 FanCommand = 12* HighSpeedFan = 13* MediumSpeedFan = 14* LowSpeedFan = 15* AuxiliaryHeat = 16 HeatStage1 = 30 ValveStage1 = 32 CoolStage1 = 31* Dehumidifier = 35* Humidifier = 36 CO2Output= 52 , LightingControlOutput= 53** OccupancyOutput= 54	2	None = 1 HeatingOn/Off = 2 HeatingFloatingOpen = 3* CoolingFloatingOpen = 4* ValveOn/Off = 5 ValveFloatingOpen = 6* ChangeoverValve = 11 FanCommand = 12* HighSpeedFan = 13* MediumSpeedFan = 14* LowSpeedFan = 15* AuxiliaryHeat = 16 HeatStage1 = 30 ValveStage1 = 32 CoolStage1 = 31* Dehumidifier = 35* Humidifier = 36 CO2Output= 52 , LightingControlOutput= 53** , OccupancyOutput= 54

Table 25 IO assignment (Continued)

Note: *Supported in TC3XXB models, not in TC3XXC models.				
Register Type = Holding Register Count = 1 Access = Read/Write Memory Type = Non Volatile Scaling = 1				
Reg Address	Name	Range	Default	Description
2029	DO2	None = 1 HeatingFloatingClose = 7* CoolingFloatingClose = 8* CoolingOn/Off = 9 ValveFloatingClose = 10* ChangeoverValve = 11 FanCommand = 12* HighSpeedFan = 13* MediumSpeedFan = 14* LowSpeedFan = 15* AuxiliaryHeat = 16 CoolStage1 = 31 ReversingValve = 34* Dehumidifier = 35* Humidifier = 36 HeatStage2 = 50* CoolStage2 = 51* CO2Output= 52 , LightingControlOutput= 53** , OccupancyOutput= 54	9	None = 1 HeatingFloatingClose = 7* CoolingFloatingClose = 8* CoolingOn/Off = 9 ValveFloatingClose = 10* ChangeoverValve = 11 FanCommand = 12* HighSpeedFan = 13* MediumSpeedFan = 14* LowSpeedFan = 15* AuxiliaryHeat = 16 CoolStage1 = 31 ReversingValve = 34* Dehumidifier = 35* Humidifier = 36 HeatStage2 = 50* CoolStage2 = 51* CO2Output= 52 , LightingControlOutput= 53** , OccupancyOutput= 54
2030	DO3	None = 1 CoolingFloatingOpen = 4* ChangeoverValve = 11 FanCommand = 12* HighSpeedFan = 13* MediumSpeedFan = 14* LowSpeedFan = 15 AuxiliaryHeat = 16 HeatStage1 = 30 CoolStage1 = 31 WaterFlowValve = 33* Dehumidifier = 35* Humidifier = 36 CO2Output= 52 , LightingControlOutput= 53** , OccupancyOutput= 54	1	None = 1 CoolingFloatingOpen = 4* ChangeoverValve = 11 FanCommand = 12* HighSpeedFan = 13* MediumSpeedFan = 14* LowSpeedFan = 15 AuxiliaryHeat = 16 HeatStage1 = 30 CoolStage1 = 31 WaterFlowValve = 33* Dehumidifier = 35* Humidifier = 36 CO2Output= 52 , LightingControlOutput= 53** , OccupancyOutput= 54

Table 25 IO assignment (Continued)

Note: *Supported in TC3XXB models, not in TC3XXC models.				
Register Type = Holding Register Count = 1 Access = Read/Write Memory Type = Non Volatile				
Scaling = 1				
Reg Address	Name	Range	Default	Description
2031	DO4 (TC3xxB-G is DIO1, and TC3xxC-G is DO4)	None = 1 CoolingFloatingClose = 8* ChangeoverValve = 11 FanCommand = 12* HighSpeedFan = 13* MediumSpeedFan = 14 LowSpeedFan = 15* AuxiliaryHeat = 16 DischargeAirSensor = 18* DrainPanSensor = 19* OccupancySensor = 20* ProofOfAirflow = 21* PipeSensor = 22* SpaceTempSensor = 23* ChangeoverSwitch = 24* ProofOfWaterFlow = 25* OutdoorAirSensor = 26* ShutdownSensor = 27* Dehumidifier = 35* Humidifier = 36 Customized1 = 37* Customized2 = 38* Customized3 = 39* FreezeSwitch= 40* , EntryDoorSwitch= 41* , Balcony/Window= 42* , CO2Output= 52 , LightingControlOutput= 53** , OccupancyOutput= 54 ;	1	None = 1 CoolingFloatingClose = 8* ChangeoverValve = 11 FanCommand = 12* HighSpeedFan = 13* MediumSpeedFan = 14 LowSpeedFan = 15* AuxiliaryHeat = 16 DischargeAirSensor = 18* DrainPanSensor = 19* OccupancySensor = 20* ProofOfAirflow = 21* PipeSensor = 22* SpaceTempSensor = 23* ChangeoverSwitch = 24* ProofOfWaterFlow = 25* OutdoorAirSensor = 26* ShutdownSensor = 27* Dehumidifier = 35* Humidifier = 36 Customized1 = 37* Customized2 = 38* Customized3 = 39* FreezeSwitch= 40* , EntryDoorSwitch= 41* , Balcony/Window= 42* , CO2Output= 52 , LightingControlOutput= 53** , OccupancyOutput= 54 ;

Table 25 IO assignment (Continued)

Note: *Supported in TC3XXB models, not in TC3XXC models.				
Register Type = Holding Register Count = 1 Access = Read/Write Memory Type = Non Volatile Scaling = 1				
Reg Address	Name	Range	Default	Description
2032	DO5 (TC3xxB-G is DIO2, and TC3xxC-G is DO5)	None = 1 ChangeoverValve = 11 FanCommand = 12 HighSpeedFan = 13 MediumSpeedFan = 14* LowSpeedFan = 15* AuxiliaryHeat = 16 DischargeAirSensor = 18* DrainPanSensor = 19* OccupancySensor = 20* ProofOfAirflow = 21* PipeSensor = 22* SpaceTempSensor = 23* ChangeoverSwitch = 24* ProofOfWaterFlow = 25* OutdoorAirSensor = 26* ShutdownSensor = 27* Dehumidifier = 35* Humidifier = 36 Customized1 = 37* Customized2 = 38* Customized3 = 39* FreezeSwitch= 40* , EntryDoorSwitch= 41* , Balcony/Window= 42* , CO2Output= 52 , LightingControlOutput= 53** , OccupancyOutput= 54 }	12	None = 1 ChangeoverValve = 11 FanCommand = 12 HighSpeedFan = 13 MediumSpeedFan = 14* LowSpeedFan = 15* AuxiliaryHeat = 16 DischargeAirSensor = 18* DrainPanSensor = 19* OccupancySensor = 20* ProofOfAirflow = 21* PipeSensor = 22* SpaceTempSensor = 23* ChangeoverSwitch = 24* ProofOfWaterFlow = 25* OutdoorAirSensor = 26* ShutdownSensor = 27* Dehumidifier = 35* Humidifier = 36 Customized1 = 37* Customized2 = 38* Customized3 = 39* FreezeSwitch= 40* , EntryDoorSwitch= 41* , Balcony/Window= 42* , CO2Output= 52 , LightingControlOutput= 53** , OccupancyOutput= 54 }

Note: ** The lighting output provides 24VAC or Line Voltage signal to activate separate dry contact relay. This relay will interface with digital input on appropriate DDC lighting controller. Consult user guide or data sheet for maximum relay coil current rating.

IO status

Table 26 IO status

Register Count = 1 Access = Read/Write Memory Type = Volatile					
Reg Address	Name	Register Type	Range	Scaling	Description
7	UIO3 Output	Input	-40 to 260	0.01	Universal output shared to network.
10	UIO1 Output	Input	-40 to 260	0.01	Universal output shared to network.
11	UIO2 Output	Input	-40 to 260	0.01	Universal output shared to network.
6074	DO1 Output	Discrete	Off = 0 On = 1	1	Digital output shared to network.
6075	DO2 Output	Discrete	Off = 0 On = 1	1	Digital output shared to network.
6076	DO3 Output	Discrete	Off = 0 On = 1	1	Digital output shared to network.
6077	DO4 Output	Discrete	Off = 0 On = 1	1	Digital Output shared to network.TC300B-G/TC320B-G is DIO1, and TC300C-G/TC320C-G/TC320C-N is DO4.
6078	DO5 Output	Discrete	Off = 0 On = 1	1	Digital Output shared to network.TC300B-G/TC320B-G is DIO2, and TC300C-G/TC320C-G/TC320C-N is DO5.
3500	UIO1 Output Modbus Input	Holding	-40 to 260	0.01	The user can set the voltage output value of UIO1 through Modbus,set it to 327.67 if want it to be invalid.
3501	UIO2 Output Modbus Input	Holding	-40 to 260	0.01	The user can set the voltage output value of UIO2 through Modbus,set it to 327.67 if want it to be invalid.
3502	UIO3 Output Modbus Input	Holding	-40 to 260	0.01	The user can set the voltage output value of UIO3 through Modbus,set it to 327.67 if want it to be invalid.
3503	DO1 Output Modbus Input	Holding	enum {OFF = 0, ON = 1,Invalid=32767}	1	The user can set the output state of DO1 through Modbus
3504	DO2 Output Modbus Input	Holding	enum {OFF = 0, ON = 1,Invalid=32767}	1	The user can set the output state of DO2 through Modbus

Table 26 IO status (Continued)

Register Count = 1 Access = Read/Write Memory Type = Volatile					
Reg Address	Name	Register Type	Range	Scaling	Description
3505	DO3 Output Modbus Input	Holding	enum {OFF = 0, ON = 1, Invalid=32767}	1	The user can set the output state of DO3 through Modbus
3506	DO4 Output Modbus Input	Holding	enum {OFF = 0, ON = 1, Invalid=32767}	1	The user can set the output state of DO4 through Modbus
3507	DO5 Output Modbus Input	Holding	enum {OFF = 0, ON = 1, Invalid=32767}	1	The user can set the output state of DO5 through Modbus

Internet weather info

Table 27 Internet weather info

Register Count=1 Access=Read/Write Memory Type=Non Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
106	CountryCode	Input	None = 0 NorthAmerica = 1 LatinAmerica = 2 Europe = 3 META = 4 AsiaPacific = 5	0	1	Universal output shared to network.

Multi-sensor settings

Table 28 Multi-sensor settings

Register Count=1 Access=Read/Write Memory Type=Non Volatile Register Type=Holding					
Reg Address	Name	Range	Default	Scaling	Description
2130	Multi Temperature Sensor Control	Average = 1 Min = 2 Max = 3 Smart = 4	1	1	Main control sensor configuration

Table 28 Multi-sensor settings (Continued)

Register Count=1 Access=Read/Write Memory Type=Non Volatile Register Type=Holding					
Reg Address	Name	Range	Default	Scaling	Description
3033	Local Sensor Temp Weight	0 to 10	10	0.01	A weighted average allows individual sensors to have more influence on the average calculation. Sensor 1 is the local on-board temperature sensor.
3034	Address 2 Temp Weight	0 to 10	10	0.01	A weighted average allows individual sensors to have more influence on the average calculation. Sensor 2 is the remote TR40 Sylk temperature sensor with Addr 2.
3035	Address 3 Temp Weight	0 to 10	10	0.01	A weighted average allows individual sensors to have more influence on the average calculation. Sensor 3 is the remote TR40 Sylk temperature sensor with Addr 3.
3036	Address 4 Temp Weight	0 to 10	10	0.01	A weighted average allows individual sensors to have more influence on the average calculation. Sensor 4 is the remote TR40 Sylk temperature sensor with Addr 4.
3037	Address 5 Temp Weight	0 to 10	10	0.01	A weighted average allows individual sensors to have more influence on the average calculation. Sensor 5 is the remote TR40 Sylk temperature sensor with Addr 5.
2077	Multiple Humidity Sensor Control	Average = 1 Min = 2 Max = 3 Smart = 4	1	1	Humidity sensor configuration
3181	Local Sensor Humidity Weight	0 to 10	10	0.01	A weighted average allows individual sensors to have more influence on the average calculation. Sensor 1 is the local on-board Humidity sensor.
3180	Address 2 Humidity Weight	0 to 10	10	0.01	A weighted average allows individual sensors to have more influence on the average calculation. Sensor 2 is the remote TR40 Sylk humidity sensor with Addr 2.
2009	Control Sensors	LocalSensor = 1 RemoteSensor = 2 MultiSensors = 3	1	1	Temperature/ Humidity sensor selection

Table 28 Multi-sensor settings (Continued)

Register Count=1 Access=Read/Write Memory Type=Non Volatile Register Type=Holding					
Reg Address	Name	Range	Default	Scaling	Description
3869	Control CO2 Sensor	enum {LocalSensor= 1 , RemoteSensor= 2 , MultiSensors= 3 }	1	1	CO2 sensor selection.
3870	Control Humidity Sensor	enum {LocalSensor= 1 , RemoteSensor= 2 , MultiSensors= 3 }	1	1	Humidity sensor selection.
3871	Remote Humidity Sensor Action	enum {SuspendHumidity Output= 1 , RevertToOnboard= 2 }	1		When the humidity sensor is used and the sensor value is invalid, the user can choose revert to local sensor or Suspends All Equipment Functions
3872	Remote CO2 Sensor Action	enum {SuspendCO2Output= 1 , RevertToOnboard= 2 }	1	1	When the remote CO2 sensor is used and the sensor value is invalid, the user can choose revert to local sensor or Suspends All Equipment Functions
2819	Analog Space Temp Weight	0~10	10	0.01	A weighted average allows individual sensors to have more influence on the average calculation. Analog space temperature .
2792	Mutil Address 2 CO2 Weight	0~10	10	0.01	A weighted average allows individual sensors to have more influence on the average calculation. Sylk2 CO2 sensor.
2793	Mutil Local Sensor CO2 Weight	0~10	10	0.01	A weighted average allows individual sensors to have more influence on the average calculation. Local CO2 sensor.
3873	Multi CO2 Sensor Control	enum {Average= 1 , Min= 2 , Max= 3 }	1	1	CO2 sensor configuration.

Table 28 Multi-sensor settings (Continued)

Register Count=1 Access=Read/Write Memory Type=Non Volatile Register Type=Holding					
Reg Address	Name	Range	Default	Scaling	Description
2794	Multi Temperature Sensor	{ BIT0 =LocalTemp Sensor, BIT1 =SylkSensorAdd2 BIT2 =SylkSensorAdd3, BIT3 =SylkSensorAdd4, BIT4 =SylkSensorAdd5, BIT5 =SylkSensorAdd6, BIT6 =AnalogSpaceTempSensor}	0xFFFF	1	The user is able to choose which temperature sensors to participate in the calculation
2795	Multi Humidity Sensor	{ BIT0 =LocalHumiditySensor, BIT1 =SylkSensorAdd2, BIT2 =SylkSensorAdd6}	0xFFFF	1	The user is able to choose which humidity sensors to participate in the calculation
2796	Multi CO2 Sensor Selection	{ BIT0 =LocalCO2Sensor, BIT1 =SylkSensorAdd2	0xFFFF	1	The user is able to choose which CO2 sensors to participate in the calculation
3218	Multi Address 6 Humidity Weight	0~10	10	0.01	A weighted average allows individual sensors to have more influence on the average calculation. Sylk 6 is TR100 as TR75 humidity.
3219	Multi Address 6Temp Weight	0~10	10	0.01	A weighted average allows individual sensors to have more influence on the average calculation.Sylk 6 is TR100 as TR75 temperature.

Occupancy setpoints

Table 29 Occupancy setpoints

Register Type = Holding Register Count = 1 Access = Read/Write Memory Type = Non Volatile Scaling = 0.01				
Reg Address	Name	Range	Default	Description
3007	Occupied Heat Setpoint	40 to 105 °F (5 to 40 °C)	68°F (20°C)	Occupied heating setpoint
3004	Occupied Cool Setpoint	50 to 115 °F (10 to 46 °C)	76 °F (24.4 °C)	Occupied cooling setpoint
3008	Standby Heat Setpoint	40 to 105 °F (5 to 40 °C)	65 °F (18.3 °C)	Standby heating setpoint
3005	Standby Cool Setpoint	50 to 115 °F (10 to 46 °C)	80 °F (26.7 °C)	Standby cooling setpoint
3009	Unoccupied Heat Setpoint	40 to 105 °F (5 to 40 °C)	55 °F (12.8 °C)	Unoccupied heating setpoint
3006	Unoccupied Cool Setpoint	50 to 115 °F (10 to 46 °C)	85 °F (29.4 °C)	Unoccupied cooling setpoint

Special functions

Table 30 Special functions

Register Count = 1 Access = Read/Write Memory Type = Non Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
3725	PipePurge Time	Holding	0 to 5 minutes	5	0.01 minute	Pipe purge duration
3779	Purge Interval	Holding	0.5 to 2 hours	0.5	0.01 hour	Pipe purge interval
2925	Valve Cycle	Holding	1Min/24Hours = 1 2Min/24Hours = 2 Disable = 3	1	1	Valve cycle type
3780	Heat Time Out	Holding	1 to 4 hours	4	0.01 hour	When heating keep working for timeout time check whether pipe temperature meet pipe sensor threshold.
5053	Hybrid Control Enable Heat	Coil	Off = 0 On = 1	1	1	2-pipe single coil heat hybrid control enable flag
5054	Hybrid Control Enable Cool	Coil	Off = 0 On = 1	1	1	2-pipe single coil cool hybrid control enable flag

Table 30 Special functions (Continued)

Register Count = 1 Access = Read/Write Memory Type = Non Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
2945	CoolTime Out	Holding	1 to 4 hours	4	0.01 hour	When heating/ cooling keep working for timeout time check whether pipe temperature meet pipe sensor threshold.

Service mode

Table 31 Service mode

*Note: Supported only in TC3XXB models						
Register Count = 1 Access = Read/Write Memory Type = Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
4006	SeviceModeEn	Coil	NoOverride = 0 Service = 1	0	1	Service mode network input to felicitate installer during commissioning/ maintenance to shutdown all equipment.
2926	SeviceFan	Holding	Off = 1 On = 2 Low = 3 Medium = 4 High = 5	1	1	Fan speed configuration network input for single/ two/three speed fan when service mode is enabled.
3085	ServiceFanSpeed	Holding	0 to 100%	0	0.01%	Fan speed configuration network input for variable speed fan when service mode is enabled.
5042	ServiceHeatOnOff	Coil	Off = 0 On = 1	0	1	On/Off heat valve status network input when service mode is enabled.
5043	ServiceCoolOnOff	Coil	Off = 0 On = 1	0	1	On/Off cool valve status network input when service mode is enabled.
2922	ServiceHeatFloating	Holding	Off = 1 Open = 2 Close = 3	1	1	Floating heat valve status network input when service mode is enabled.
2923	ServiceCoolFloating	Holding	Off = 1 Open = 2 Close = 3	1	1	Floating cool valve status network input when service mode is enabled.
3776	ServiceModulatingHeat	Holding	0 to 100 %	0	0.01 %	Modulating heat valve status network input when service mode is enabled.
3777	ServiceModulatingCool	Holding	0 to 100 %	0	0.01 %	Modulating cool valve status network input when service mode is enabled.
3778	ServiceSixWayValve	Holding	0 to 10 V	0	0.01 V	6-way valve status network input when service mode is enabled.
5044	ServiceAuxHeat	Coil	Off = 0 On = 1	0	1	Auxiliary heat status network input when service mode is enabled.

Table 31 Service mode (Continued)

*Note: Supported only in TC3XXB models						
Register Count = 1 Access = Read/Write Memory Type = Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
5045	ServiceChangeOver	Coil	Off = 0 On = 1	0	1	Changeover valve status when service mode is enabled.
4019	ServiceHeatStage1	Coil	Off = 0 On = 1	0	1	Heat stage 1/Heat pump heat/cool stage 1 status network input when service mode is enabled.
5046	ServiceCoolStage1	Coil	Off = 0 On = 1	0	1	Cool stage 1 status network input when service mode is enabled.
5047	ServiceValveStage1	Coil	Off = 0 On = 1	0	1	Modulating valve stage 1 status network input when service mode is enabled.
5048	ServiceValveOnOff	Coil	Off = 0 On = 1	0	1	Modulating valve status network input when service mode is enabled.
2924*	ServiceValveFloating	Holding	Off = 1 Open = 2 Close = 3	1	1	Floating valve status network input when service mode is enabled.
3786	ServiceValveModulating	Holding	0 to 100	0	0.01	Modulating valve status network input when service mode is enabled.
4022*	ServiceReversingValve	Coil	Off = 0 On = 1	0	1	Reversing valve status when service mode is enable.
5058*	ServiceWaterFlowValve	Coil	Off = 0 On = 1	0	1	WaterFlow valve status when service mode is enable.
4023*	ServiceDehumidifier	Coil	Off = 0 On = 1	0	1	Dehumidifier status when service mode is enable.
4024*	ServiceHumidifier	Coil	Off = 0 On = 1	0	1	Humidifier status when service mode is enable.
4020*	ServiceHeatStage2	Coil	Off = 0 On = 1	0	1	Conventional heat stage 2 status network input when service mode is enabled.
5070*	ServiceCoolStage2	Coil	Off = 0 On = 1	0	1	Conventional Cool stage2 status network input when service mode is enabled.

Table 31 Service mode (Continued)

*Note: Supported only in TC3XXB models						
Register Count = 1 Access = Read/Write Memory Type = Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
5082	ServiceCO2BinaryOutput	Coil	Off = 0 On = 1	0	1	CO2 binary output status when service mode is enable.
2798	ServiceCO2AnalogOutput	Holding	0~100	0	0.01	CO2 analog output status when service mode is enable.
5083	ServiceLightingControl	Coil	Off = 0 On = 1	0	1	Lighting control output status when service mode is enable.
5084	ServiceOccupancyOutput	Coil	Off = 0 On = 1	0	1	Occupancy output status when service mode is enable.

Discharge air control

Table 32 Discharge air control

Register Count = 1 Access = Read/Write Memory Type = Non Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
3623	Discharge Air Heat Setpoint	Holding	75 to 180 °F (24 to 82 °C)	85 °F (29.4 °C)	0.01°F	Discharge air control maximum heating setpoint.
3624	Discharge Air Cool Setpoint	Holding	40 to 80 °F (5 to 26 °C)	55°F (12.8 °C)	0.01°F	Discharge air control minimum cooling setpoint.
4454	Discharge Air control switch	Coil	Off = 0 On = 1	0	1	Discharge air control enable flag.
3709	Discharge Air Heat Offset	Holding	0 to 90 Δ°F (0 to 50 Δ°C)	0 Δ°F (0 Δ°C)	0.01Δ°F	Discharge air control heating initial offset.
3710	Discharge Air Cool Offset	Holding	0 to 40 Δ°F (0 to 22 Δ°C)	0 Δ°F (0 Δ°C)	0.01Δ°F	Discharge air control cooling initial offset.
3711	Discharge Air Cool Throttling Range	Holding	0 to 30 Δ°F (0 to 16 Δ°C)	6 Δ°F (3.3 Δ°C)	0.01Δ°F	Discharge air control cooling throttling range.
3712	Discharge Air Cool Integral Time	Holding	0 to 5000 seconds	300	1 second	Discharge air control cooling integral time.
3714	Discharge Air Heat Throttling Range	Holding	0 to 30 Δ°F (0 to 16 Δ°C)	6Δ°F (3.3 Δ°C)	0.01	Discharge air control heating throttling range.
3715	Discharge Air Heat Integral Time	Holding	0 to 5000 seconds	300	1 second	Discharge air control heating integral time.

Sylk calibration offsets

Table 33 Sylk calibration offsets

Register Type = Holding Register Count = 1 Access = Read/Write Memory Type = Non Volatile					
Reg Address	Name	Range	Default	Scaling	Description
3023	Local sensor Temp Offset	-10 to 10 Δ°F (-5 to 5 Δ°C)	0 Δ°F (0 Δ°C)	0.01 °F	Local onboard temperature sensor calibration offset
3103	Local sensor Hum Offset	-10 to 10 RH%	0 RH%	0.01 %	Local onboard humidity sensor calibration offset
3024	Sylk Addr.2 Temp Offset	-10 to 10 Δ°F (-5 to 5 Δ°C)	0 Δ°F (0 Δ°C)	0.01 °F	TR40_2/ TR-21 Temperature calibration offset
3025	Sylk Addr.2 Hum Offset	-10 to 10 RH%	0 RH%	0.01 %	TR40_2 Humidity calibration offset

Table 33 Sylk calibration offsets (Continued)

Register Type = Holding Register Count = 1 Access = Read/Write Memory Type = Non Volatile					
Reg Address	Name	Range	Default	Scaling	Description
3100	Sylk Addr.2 CO2 Offset	-100 to 100ppm	0	0.01 ppm	TR40_2 CO2 calibration offset
3026	Sylk Addr.3 Temp Offset	-10 to 10 Δ°F (-5 to 5 Δ°C)	0 Δ°F (0 Δ°C)	0.01 °F	TR40_3 Temperature calibration offset
3027	Sylk Addr.4 Temp Offset	-10 to 10 Δ°F (-5 to 5 Δ°C)	0 Δ°F (0 Δ°C)	0.01 °F	TR40_4 Temperature calibration offset
3028	Sylk Addr.5 Temp Offset	-10 to 10 Δ°F (-5 to 5 Δ°C)	0 Δ°F (0 Δ°C)	0.01 °F	TR40_5 Temperature calibration offset
2612	Local sensor CO2 Offset	-100~ 100	0	0.01 ppm	Local onboard CO2 sensor calibration offset.
2602	Sylk Addr.6 Temp Offset	-10 to 10 Δ°F (-5 to 5 Δ°C)	0	0.01 °F	TR100 Em TR75 temperature calibration offset.
2603	Sylk Addr.6 Hum Offset	-10~ 10	0	0.01 %	TR100 Em TR75 humidity calibration offset.
3029	Sylk Addr.8 Temp Offset	-10 to 10 Δ°F (-5 to 5 Δ°C)	0 Δ°F (0 Δ°C)	0.01 °F	C7400S outdoor air temperature calibration offset.
3030	Sylk Addr.8 Hum Offset	-10 to 10 RH%	0 RH%	0.01 %	C7400S outdoor air humidity calibration offset.
3031	Sylk Addr.10 Temp Offset	-10 to 10 Δ°F (-5 to 5 Δ°C)	0 Δ°F (0 Δ°C)	0.01 °F	C7400S Discharge Air Temperature calibration offset
3032	Sylk Addr.10 Hum Offset	-10 to 10 RH%	0 RH%	0.01 %	C7400S Discharge Air Humidity calibration offset

Sensor fault settings

Table 34 Sensor fault settings

*Note: Supported only in TC3XXB models					
Register Count = 1 Access = Read/Write Memory Type = Non Volatile Scaling = 1					
Reg Address	Name	Register Type	Range	Default	Description
4159	Occupancy Sensor Fail Detect Enable	Coil	Disable = 0 Enable = 1	1	Occupancy sensor fail Detect enable
3262	Occupancy Sensor Fail Detect Fallback	Holding	InvalidValue (Null) = 0 LastKnownGoodValue = 1 FixedValue = 2	2	Occupancy sensor fail detect fallback
2921	Occupancy Sensor Fail Detect Fallback Value	Holding	Occupied = 1 Unoccupied = 2 Bypass = 3 Standby = 4 NoOverride = 5	5	Occupancy sensor fail detect fallback value
3263	Occupancy Sensor Fail Detect Delay	Holding	0 to 3600 seconds	300	Occupancy sensor fail detect delay
4164	Shut Down Fail Detect Enable	Coil	Disable = 0 Enable = 1	1	Shut down fail detect enable
3273	Shut Down Fail Detect Fallback	Holding	InvalidValue (Null) = 0 LastKnownGoodValue = 1 FixedValue = 2	2	Shut down fail detect fallback
2165	Shut Down Fail Detect Fallback Value	Holding	Normal = 0 Shutdown = 1	0	Shut down fail detect fallback value
3274	Shut Down Fail Detect Delay	Holding	0 to 3600 seconds	300	Shut down fail detect delay
4169*	WS Hp Enable State Fail Detect Enable	Coil	Disable = 0 Enable = 1	1	Network Fail Detection will be enabled only if network point is considered for sharing.
3284*	WS Hp Enable State Fail Detect Fallback	Holding	InvalidValue (Null) = 0 LastKnownGoodValue = 1 FixedValue = 2	2	Network Fail Detection Fall back value.
2170*	WS Hp Enable State Fail Detect Fallback Value	Holding	WSHPSystemEnable = 0 WSHPSystemDisable = 1	0	Applicable only if Network Fail Fall back value is configured to Fixed value.
3285*	WS Hp Enable State Fail Detect Delay	Holding	0 to 3600 seconds	900 seconds	Network Fail Detection delay in seconds.

Sylk sensor configuration

Table 35 Sylk sensor configuration

Register Count = 1 Access = Read/Write Memory Type = Non Volatile Scaling = 1					
Reg Address	Name	Register Type	Range	Default	Description
3732	Sylk Addr.2 Sensor Type	Holding	TR40 = 1 TR50 = 2	1	Sylk bus addr-2 device type
2085	Sylk Addr.2 Config	Holding	NotConfigured = 1 TempOnly = 2 TempHum = 3 TempHumCO2 = 4 TempCO2 = 5	1	Sylk bus addr-2 device enable/disable
4147	Sylk Addr.3 Config	Coil	Disable = 0 Enable = 1	0	Sylk bus addr-3 device enable/disable
4148	Sylk Addr.4 Config	Coil	Disable = 0 Enable = 1	0	Sylk bus addr-4 device enable/disable
4149	Sylk Addr.5 Config	Coil	Disable = 0 Enable = 1	0	Sylk bus addr-5 device enable/disable
2086	Sylk Addr.6 Config	Hoilding	enum {NotConfigured=1, TempOnly=2, TempHum=3, TempHumCO2=4, TempCO2=5}	1	Sylk bus addr-6 device enable/disable.
4151	Sylk Addr.8 Config	Coil	Disable = 0 Enable = 1	0	Sylk bus addr-8 device enable/disable
4153	Sylk Addr.10 Config	Coil	Disable = 0 Enable = 1	0	Sylk bus addr-10 device enable/disable

User permission

Table 36 User permission

Register Type = Holding Register Count = 1 Access = Read/Write Memory Type = Non Volatile					
Reg Address	Name	Range	Default	Scaling	Description
3401	User Persona	BIT0 = Installer BIT1 = Advanced BIT2 = Basic BIT3 = Visitor	0x03	1	User Persona
3402	Basic User Permission	BIT1 = System Mode BIT2 = Override BIT3 = Alert View BIT5 = Temp. Unit BIT12 = Brightness BIT15 = FanSpeedConfig BIT16 = WifiConnectConfig BIT17 = LaugeSettingConfig	0xffff	1	Basic User Permission. 0xFFFF indicates 0b1111111111111111. Enabling a bit in the range enables corresponding permission.

Table 36 User permission (Continued)

Register Type = Holding Register Count = 1 Access = Read/Write Memory Type = Non Volatile					
Reg Address	Name	Range	Default	Scaling	Description
3403	Advanced User Permission	BIT0 = Setpoint BIT6 = Schedule	0xffff	1	Advanced User Permission. 0xFFFF indicates 0b1111111111111111. Enabling a bit in the range enables corresponding permission.
3406	Visitor Permission	None	0xffff	1	Visitor Permission. 0xFFFF indicates 0b1111111111111111. Enabling a bit in the range enables corresponding permission.

Operating settings

Table 37 Operating settings

*Note: Supported only in TC3XXB models						
Register Count = 1 Access = Read/Write Memory Type = Non Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
2008	System Mode	Holding	Auto = 1 Cool = 2 Heat = 3 Ventilation = 4 Off = 5 Emergency heat = 6*	1	1	The system switch may be used by the contractor or occupant to change the operation of the unit. not support emergency heat.
3010	Bypass Time	Holding	0 to 1080 minutes	180 minutes	1 minute	Unoccupied override time
3102	Temporary Setpoint Offset Limit	Holding	0 to 45 Δ°F (0 to 25 Δ°C)	30 Δ°F (16.7 Δ°C)	0.01 °F	This point is used to limit the range of user adjustable setpoint.
3012	Cooling Min Setpoint	Holding	50 to 115°F (10 to 46 °C)	50 °F (10 °C)	0.01 °F	Minimum cool setpoint of thermostat
3013	Heating Max Setpoint	Holding	40 to 105 °F (5 to 40 °C)	105 °F (40 °C)	0.01 °F	Maximum heat setpoint of thermostat
3723	System Switch	Holding	BIT0 = Auto BIT1 = Heat&Cool BIT2 = Ventilation BIT3 = Off BIT4 = EmergencyHeat*	15	1	To limit available user configurable options. BIT 3 Off must be set as 1.
4135	Override State	Coil	OverrideOff = 0 OverrideOn = 1	0	1	Thermostat bypass override

Table 37 Operating settings (Continued)

*Note: Supported only in TC3XXB models						
Register Count = 1 Access = Read/Write Memory Type = Non Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
3735	Override Type	Holding	Permanent = 1 Temporary = 2	2	1	Thermostat override Type
6407	Freeze Switch	Dics	Close= 0 , Open= 1	0	1	Freeze switch status.
6408	Entry Door Switch	Dics	Close= 0 , Open= 1	0	1	Entry door switch status.
6409	Balconcy/Window Switch	Dics	Close= 0 , Open= 1	0	1	Balconcy/window switch status.

CHAPTER

4

NETWORK INPUTS & OUTPUTS

Topics covered

Network

Network inputs

Network

Table 38 Network

Register Count = 1 Access = Read/Write Memory Type = Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
455	WIFI RSSI (Applicable only to TC320B-G/ TC320C-G thermostats)	Input		0	1	WiFi RSSI (Received Signal Strength Indicator) value.

Network inputs

Table 39 Network inputs

*Note: Supported only in TC3XXB models						
Register Count = 1 Access = Read/Write Memory Type = Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
2801	Current Schedule State	Holding	Commercial Occupied = 1 Unoccupied = 2 Bypass = 3 Standby = 4 NoOverride = 5 Residential Wake = 1 Away = 2 Return = 3 Sleep = 4 NoOverride = 5 Custom = 6 Vacation = 7 Hospitality Occupied= 1 , Unoccupied= 2 , Unrented = 8	5	1	Current schedule state from network. In the commercial scenario, set it to 1 means Occupied, 2 means Unoccupied. 4 means Standby. In the hospitality scenario, setting it to 8 represents Unrented, 5 represents Rented.
2802	Next Schedule State	Holding	Commercial Occupied = 1 Unoccupied = 2 Bypass = 3 Standby = 4 NoOverride = 5 Residential Wake = 1 Away = 2 Return = 3 Sleep = 4 NoOverride = 5 Custom = 6 Vacation = 7 Hospitality Occupied= 1 , Unoccupied= 2 , Unrented = 8	5	1	Next schedule state from network.
3001	EffTUNCOS	Holding	0 to 11520 minutes		1 minute	TUNCOS is the difference between the future change in event & current event in minutes.

Table 39 Network inputs (Continued)

*Note: Supported only in TC3XXB models						
Register Count = 1 Access = Read/Write Memory Type = Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
2803	Application Mode	Holding	Auto = 1 Cool = 2 Heat = 3 FanOnly = 4 Off = 5 EmergencyHeat = 6*	1	1	Effective application mode from network. This value will not be persisted over power cycle.
4001	BypassState	Coil	Disable = 0 Enable = 1	0	1	Net bypass input to enable bypass timer
2806	Occupancy Sensor State	Holding	Occupied = 1 Unoccupied = 2 Bypass = 3 Standby = 4 NoOverride = 5	5	1	Network occupancy sensor state
3089	Outside Temperature	Holding	-40 to 200 °F (-40 to 93 °C)		0.01	Outdoor air temperature from network input.
3194	Outside Humidity	Holding	0 to 100 %RH		0.01	Outdoor air humidity from network input.
4004	Shutdown State	Coil	Normal = 0 Shutdown = 1	0	1	System shutdown input from network.
2080	SpaceRH	Holding	0 to 100 RH%		0.01%	Space humidity network input
2104	SpaceTemp	Holding	-40 to 150 °F (-40 to 65 °C)		0.01°F	Space temperature network input
4025*	WSHP Enable State	Coil	WSHPSystemEnable = 0 WSHPSystemDisable = 1		1	This point is considered for network point sharing of water source heat pump enable network input.
2038	Run Time Reset	Holding	Normal = 1 FanReset = 2 CoolReset = 3 HeatingReset = 4	1	1	Runtime accumulate reset network input.
3724	DAT sensor	Holding	-40 to 200 °F (-40 to 93 °C)		0.01°F	Discharge air temperature network input
2912	Pipe Temp Mode	Holding	NoUse = 1 Cool = 2 Heat = 3	1	1	Pipe temperature mode network input
5073	Cfg_NetPipe TempModFailDetEn	Coil	Disable = 0 Enable = 1	1	1	Pipe temp mode fail detect enable.

Table 39 Network inputs (Continued)

*Note: Supported only in TC3XXB models						
Register Count = 1 Access = Read/Write Memory Type = Volatile						
Reg Address	Name	Register Type	Range	Default	Scaling	Description
2776	Cfg_NetPipeTempModFailFalbck	Holding	InvalidValue (Null) = 0 LastKnownGoodValue = 1 FixedValue = 2	1	1	Pipe temp mode fail detect fallback.
2964	Cfg_NetPipeTempModFailFxdVal	Holding	Enum None = 1 Cool = 2 Heat = 3	1	1	Pipe temp mode fail detect fallback value.
2777	Cfg_NetPipeTempModFailDetDly	Holding	0~3600	300	1	Pipe temp mode fail detect delay.
4002	EnableADR	Coil	Disable= 0 , Enable= 1	0	1	Users can set ADR functions remotely.
2811	SpaceCO2	Holding	0~9999		1	Space CO2 network input.
5087	All Fail Detect Enable	Coil	Disable= 0 , Enable= 1	1	1	Network sensor fail detect enable.
2807	All Fail Detect Fallback	Holding	InvalidValue (Null)= 0 , LastKnownGoodValue= 1	0	1	Network sensor fail detect fallback.
2808	All Fail Detect Delay	Holding	0~3600	300 seconds	1	Network sensor fail detect delay.

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