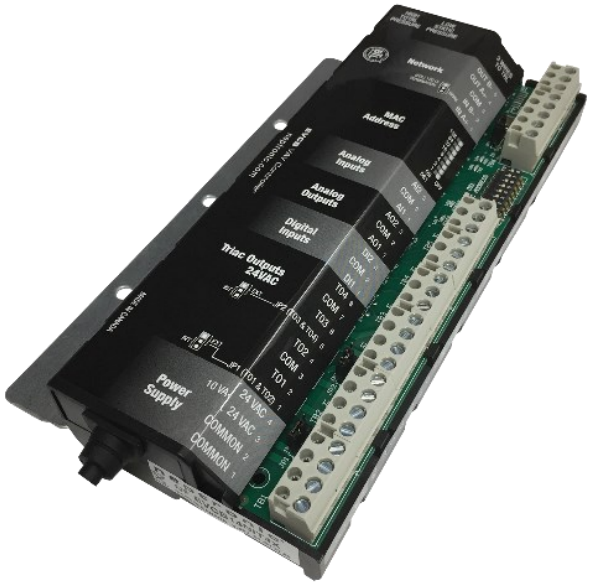
EVCB14NxT4X

Modbus Communication Module User Guide



EVCB14NIT0X	(0 TRIACS / pressure independent / external motor)
EVCB14NIT4X	(4 TRIACS / pressure independent / external motor)
EVCB14NDT4X	(4 TRIACS / pressure dependent / external motor)

Introduction

The EVCB14NxT4X Modbus Communication Module User Guide provides information for using Neptronic® communication feature. The controller uses Modbus communication protocol over serial line in the RTU mode and provides a Modbus network interface between client devices and Neptronic EVCB14NxT4X devices.

The EVCB14NxT4X Modbus Guide assumes that you are familiar with Modbus terminology.

The following are the requirements for Modbus:

- *Data Model*. The EVCB Modbus server data model uses only the Holding Registers table.
- *Function Codes*. The EVCB Modbus server supports a limited function codes subset comprising:
    - Read Holding Registers (0x03)
    - Write Single Register (0x06)
    - Write Multiple Registers (0x10)
- *Exception Responses*. The EVCB Modbus server supports the following exception codes:
    - Illegal data address
    - Illegal data value
    - Slave device busy
- *Serial Line*. The EVCB Modbus over serial line uses RTU transmission mode over a two-wire configuration RS485 (EIA/TIA-485 standard) physical layer.
    - The physical layer can use fixed baud rate selection or automatic baud rate detection (default) as per the **Modbus Auto Baud Rate** device menu item or holding register index 1.
    - The supported baud rates are 9600, 19200, 38400, and 57600.
    - The physical layer also supports variable parity control and stop bit configuration as per the **Modbus Comport Config** device menu item or holding register index 2.
    - In auto baud rate configuration, if the device detects only consecutive bad frames (2 or more) for one second with any given baud rate, it will reinitialize itself to the next baud rate.
- *Addressing*. The EVCB device only answers at the following address:
    - The device's unique address (1 to 246) that can be set through the device menu or through holding register index 0.

Holding Registers Table

Table Glossary

Name	Description	Name	Description
W	Writable Register	ASCII	For registers containing ASCII (8-bit) characters
RO	Read Only Register	MSB	Most Significant Byte
Unsigned	For range of values from 0 to 65,535, unless otherwise specified	LSB	Least Significant Byte
Signed	For range of values from -32,768 to 32,767, unless otherwise specified	MSW	Most Significant Word
Bit String	For registers with multiple values using bit mask (example, flags)	LSW	Least Significant Word

Holding Register Table

Protocol Address	Convention Notation	Description	Data Type	Range	Writable
0	40001	Modbus Address and Product Type.	Unsigned	MSB = Product type (e.g. 111 for EVCB) LSB = Modbus Address (e.g. 1-246)	W
1	40002	MSTP Baud Rate.	Unsigned *Scale 100*	0, 9600, 19200, 38400, or 57600 0 = Auto Baud Rate Detection *Value/100 (e.g. 38400 baud = 384)*	W
2	40003	Modbus Slave Communication Port Configuration.	Unsigned	1= No parity, 2 Stop bits 2= Even parity, 1 stop bit 3= Odd parity, 1 stop bit	W
3	40004	Product Name (characters 8 & 7).	ASCII	1 to 65,535 char 8: 0x53 = S char 7: 0x00 =	W
4	40005	Product Name (characters 6 & 5).	ASCII	1 to 65535 char 6: 0x49 = I char 5: 0x34 = 4	W
5	40006	Product Name (characters 4 & 3).	ASCII	1 to 65535 char 4: 0x42 = B char 3: 0x4E = N	W
6	40007	Product Name (characters 2 & 1).	ASCII	1 to 65535 char 2: 0x45 = E char 1: 0x56 = V	W

Protocol Address	Convention Notation	Description	Data Type	Range	Writable
7	4000**8**	Product actual firmware version.	Unsigned	1 to 65535 (e.g. 508)	RO
8	4000**9**	Product actual EEPROM version.	Unsigned	1 to 65535 (e.g. 203)	RO
9	400**10**	System Status 1.	Bit String	[B0 – B11]: Reserved **B12: CO2 alarm** *0 = Normal; 1 = Alarm* **B13: Pressure mode (actual status)** *0 = Independent; 1 = Dependent* **B14: Air Flow** *0 = Normal; 1 = Error*	RO
10	400**11**	System Status 2.	Bit String	[B0-B11, B13-B14]: Reserved **B12: Alarm override** *0 = Normal; 1 = Alarm*	RO
11	400**12**	Internal Temperature.	Unsigned *Scale 100*	0 to 5000 *Value x 100 (e.g. 23°C = 2300)*	RO
12	400**13**	External Temperature.	Signed *Scale 100*	-4000 to 10000 *Value x 100 (e.g. 18°C = 1800)*	RO
13	400**14**	Change Over Temperature.	Signed *Scale 100*	-4000 to 10000 *Value x 100 (e.g. 18°C = 1800)*	RO
14	400**15**	Internal humidity, reading of the integrated humidity sensor of TRLH or TRLGH/TDU (models with humidity sensor). If not available, the value will be fixed to 0x7FFF (32767).	Unsigned *Scale 10*	0 to 1000 *Value x 10 (e.g. 45%RH = 450)*	RO
15	400**16**	Input 3 reading, pressure sensor value. (Not available on EVCB14NDT4X models)	Unsigned	0 to 2500 *Value x 10 (e.g. 10 Pa = 100)*	RO
16	400**17**	Analog input 1 value.	Unsigned *Scale 100*	0 to 1000 *Value x 100 (e.g. 2 mV = 200)*	RO
17	400**18**	Analog Input 2 value.	Unsigned *Scale 100*	0 to 1000 *Value x 100 (e.g. 3 mV = 300)*	RO

Protocol Address	Convention Notation	Description	Data Type	Range	Writable
18	400**19**	CO2 value in ppm: If using AI1 or AI2 and CO2 is set in Analog mode, the reading is from the external sensor.	Unsigned *Scale 100*	100 to reg 400**98** *Value x 100 (e.g. 5 ppm = 500)*	RO
19	400**20**	Air supply temperature.	Signed *Scale 100*	-4000 to 10000 *Value x 100 (e.g. 5°C = 500)*	RO
20	400**21**	Control temperature.	Signed *Scale 100*	-4000 to 10000 *Value x 100 (e.g. 25°C = 2500)*	W
21	400**22**	Heating demand for heating ramp 1.	Unsigned *Scale 10*	0 to 1000 *Value x 10 (e.g. 25% = 250)*	RO
22	400**23**	Cooling demand for cooling ramp 1.	Unsigned *Scale 10*	0 to 1000 *Value x 10 (e.g. 25% = 250)*	RO
23	400**24**	Temperature offset applied on internal temperature.	Signed *Scale 100*	-500 to 500 *Value x 100 (e.g. 0.5°C = 50)*	W
24	400**25**	Temperature offset applied on external temperature.	Signed *Scale 100*	-500 to 500 *Value x 100 (e.g. 0.5°C = 50)*	W
25	400**26**	Temperature setpoint used during the occupancy period of the day.	Unsigned *Scale 10*	Range: 400**27** to 400**28** *Value x 10 (e.g. 20°C = 200)*	W
26	400**27**	Minimum temperature setpoint used during the day.	Unsigned *Scale 10*	Range: 100 to 400**28** *Value x 10 (e.g. 10°C = 100)*	W
27	400**28**	Maximum temperature setpoint used during the day.	Unsigned *Scale 10*	Range: 400**27** to 400 *Value x 10 (e.g. 40°C = 400)*	W
28	400**29**	Cooling setpoint during No Occupancy/Night Set Back.	Unsigned *Scale 10*	Range: 400**30** to 400 *Value x 10 (e.g. 22°C = 220)*	W
29	400**30**	Heating setpoint during No Occupancy/Night Set Back.	Unsigned *Scale 10*	Range: 100 to 400**29** *Value x 10 (e.g. 16°C = 160)*	W
30	400**31**	Cooling demand for proportional band 1.	Unsigned *Scale 10*	5 to 50 *Value x 10 (e.g. 0.3°C = 3)*	W
31	400**32**	Heating demand for proportional band 1.	Unsigned *Scale 10*	5 to 50 *Value x 10 (e.g. 0.3°C = 3)*	W

Protocol Address	Convention Notation	Description	Data Type	Range	Writable
32	40033	Cooling dead band for proportional band 1.	Unsigned *Scale 10*	0 to 50 *Value x 10 (e.g. 0.3°C = 3)*	W
33	40034	Heating dead band for proportional band 1.	Unsigned *Scale 10*	0 to 50 *Value x 10 (e.g. 0.3°C = 3)*	W
34	40035	Changeover temperature setpoint.	Unsigned *Scale 10*	100 to 400 *Value x 10 (e.g. 12°C = 120)*	W
35	40036	Night setback override delay in minutes.	Unsigned	0 to 180 minutes	W
36	40037	Integral time factor for heating in seconds.	Unsigned	0 to 250 seconds	W
37	40038	Cooling anti-cycle delay: delay in minutes before activating or reactivating the cooling contact.	Unsigned	0 to 15 minutes	W
38	40039	Floating time 1: Indicates the time in seconds required by the actuator to complete a 90° run.	Unsigned	15 to 250 seconds	W
39	40040	Occupancy Delay Mode in minutes.	Unsigned	0 to 180 minutes	W
40	40041	Cooling demand for cooling ramp 2.	Unsigned *Scale 10*	0 to 1000 % *Value x 10 (e.g. 30% = 300)*	RO
41	40042	Proportional band for cooling ramp 2.	Unsigned *Scale 10*	5 to 50 *Value x 10 (e.g. 0.2°C = 2)*	W
42	40043	Dead band for cooling ramp 2.	Unsigned *Scale 10*	0 to 50 *Value x 10 (e.g. 0.2°C = 2)*	W
43	40044	Heating demand for heating ramp 2.	Unsigned *Scale 10*	0 to 1000 % *Value x 10 (e.g. 30% = 300)*	W
44	40045	Proportional band for heating ramp 2.	Unsigned *Scale 10*	5 to 50 *Value x 10 (e.g. 0.2°C = 2)*	W
45	40046	Dead band for heating ramp 2.	Unsigned *Scale 10*	0 to 50 *Value x 10 (e.g. 0.2°C = 2)*	W
46	40047	Changeover demand for the VAV box.	Unsigned *Scale 10*	0 to 1000 % *Value x 10 (e.g. 30% = 300)*	RO

Protocol Address	Convention Notation	Description	Data Type	Range	Writable
47	400**48**	Changeover proportional band: the range in which the controller modulates the cooling and heating output from 0 to 100%.	Unsigned *Scale 10*	5 to 50 *Value x 10 (e.g. 0.2°C = 2)*	W
48	400**49**	Changeover deadband: the range at which the controller takes no action when the temperature is above or below the setpoint.	Unsigned *Scale 10*	0 to 50 *Value x 10 (e.g. 0.2°C = 2)*	W
49	400**50**	AO1 min Vdc: minimum voltage of analog output 1.	Unsigned *Scale 10*	Range: 0 to reg. 400**52** *Value x 10 (e.g. 2 Volts = 20)*	W
50	400**51**	AO2 min Vdc: minimum voltage of analog output 2.	Unsigned *Scale 10*	Range: 0 to reg. 400**53** *Value x 10 (e.g. 2 Volts = 20)*	W
51	400**52**	AO1 max Vdc: maximum voltage of analog output 1.	Unsigned *Scale 10*	Range: reg. 400**50** to 100 *Value x 10 (e.g. 10 Volts = 100)*	W
52	400**53**	AO2 max Vdc: maximum voltage of analog output 2.	Unsigned *Scale 10*	Range: reg. 400**51** to 100 *Value x 10 (e.g. 10 Volts = 100)*	W
	∗ = The minimum and maximum voltages correspond to 0 to 100% demand. The minimum voltage is always applied to the output. The maximum voltage is applied when the demand reaches 100%. For reheat applications, we recommend leaving the minimum voltage at 0Vdc to avoid heating when the demand is 0%.				
53	400**54**	Time of numerical filter of delta pressure in seconds. (Not available on EVCB14NDT4X models)	Unsigned	1 to 10 seconds	W
54	400**55**	Factor of V=K*sqrt(dP), where dP = 1. (Not available on EVCB14NDT4X models)	Unsigned	Range: 100 to 9995 CFM	W
55	400**56**	Minimum air flow for cooling. (Not available on EVCB14NDT4X models)	Unsigned	Range: 0 or (12.7%) Kfac to reg 400**57** CFM	W
56	400**57**	Maximum air flow for cooling. (Not available on EVCB14NDT4X models)	Unsigned	Range: reg 400**56** to reg 400**55** CFM	W
57	400**58**	Minimum air flow for heating. (Not available on EVCB14NDT4X models)	Unsigned	Range: 0 or (12.7%) Kfac to reg 400**59** CFM	W
58	400**59**	Maximum air flow for heating. (Not available on EVCB14NDT4X models)	Unsigned	Range: reg 400**58** to reg 400**55** CFM	W
59	400**60**	*Reserved*			

Protocol Address	Convention Notation	Description	Data Type	Range	Writable
60	400**61**	Actual air flow converted from delta pressure sensor. (Not available on EVCB14NDT4X models)	Unsigned	Range: 0 to reg 400**55** CFM	RO
61	400**62**	Air flow calculated from system demand. (Not available on EVCB14NDT4X models)	Unsigned	Range: 0 to 9999 CFM	RO
62	400**63**	Configuration value for Air Flow Max used during airflow balancing sequence. Refer to EVCB-Airflow Balance Instructions. (Not available on EVCB14NDT4X models)	Unsigned	Range: 0 to 9999 CFM	W
63	400**64**	Analog output 1 value.	Unsigned *Scale 10*	Unit: Volt, Range: reg 400**50** to reg 400**52** *Value x 10 (e.g. 5 Volts = 50)*	W
64	400**65**	Analog output 2 value.	Unsigned *Scale 10*	Unit: Volt, Range: reg 400**51** to reg 400**53** *Value x 10 (e.g. 5 Volts = 50)*	W
65	400**66**	Percentage of demand to close TRIAC output 1.	Unsigned	15 to 80%	W
66	400**67**	Percentage of demand to close TRIAC output 2.	Unsigned	15 to 80%	W
67	400**68**	Percentage of demand to close TRIAC output 3.	Unsigned	15 to 80%	W
68	400**69**	Percentage of demand to close TRIAC output 4.	Unsigned	15 to 80%	W
69	400**70**	Percentage of demand to open TRIAC output 1.	Unsigned	0 to reg 400**66**-4%	W
70	400**71**	Percentage of demand to open TRIAC output 2.	Unsigned	0 to reg 400**67**-4%	W
71	400**72**	Percentage of demand to open TRIAC output 3.	Unsigned	0 to reg 400**68**-4%	W
72	400**73**	Percentage of demand to open TRIAC output 4.	Unsigned	0 to reg 400**69**-4%	W
73	400**74**	Integral time factor for cooling in seconds.	Unsigned	0 to 250 seconds	W
74	400**75**	Motor position.	Unsigned	0 to 100‰ (per mille)	RO
75	400**76**	*Reserved*			
76	40077	*Reserved*			
77	40078	*Reserved*			
78	40079	*Reserved*			

Protocol Address	Convention Notation	Description	Data Type	Range	Writable
79	400**80**	*Reserved*			
80	400**81**	*Reserved*			
81	400**82**	Air flow offset calibration. Refer to EVCB-Airflow Balance Instructions. (Not available on EVCB14NDT4X models)	Signed	-500 to 500 CFM	W
82	400**83**	*Reserved*			
83	400**84**	*Reserved*			
84	400**85**	Configuration value for Air Flow Min used during airflow balancing sequence. Refer to EVCB-Airflow Balance Instructions. (Not available on EVCB14NDT4X models)	Unsigned	Range: 0 to 9999 CFM	W
85 to 95	400**86** to 400**96**	*Reserved*			
96	400**97**	Network fallback timeout Present Value in minutes.	Unsigned	0 to 60 minutes	W
97	400**98**	*Reserved*			
98	400**99**	Maximum range of the CO2 sensor connected to AI1 or AI2.	Unsigned	100 to 5000 PPM	W
99	40**100**	Maximum concentration of CO2 before the EVC activates an alarm.	Unsigned	Range: 100 to the greater ppm value between 2000 and reg 400**99**	W

Protocol Address	Convention Notation	Description	Data Type	Range	Writable
100	40**101**	System Option 1.	Bit String	B3, B13-B14: Reserved **B0: Tstat temperature units** *0 = Celsius; 1 = Fahrenheit* **B1: Modbus temperature units** *0 = Celsius; 1 = Fahrenheit* **B2: Temperature setpoint lock** *0 = Unlocked; 1 = Locked* **B4: TO1/TO2 floating direction** *0 = Direct; 1 = Reverse* **B5: TO3/TO4 floating direction** *0 = Direct; 1 = Reverse* **B6: Onboard motor direction** *0 = Direct; 1 = Reverse* **B7: Freeze protection** *0 = Disabled; 1 = Enabled* **B8: User system off mode** *0 = User can set Tstat to OFF* *1 = User cannot set Tstat OFF* **B9: Keypad bottom left lock** *0 = Unlocked; 1 = Locked* **B10: Keypad upper left lock** *0 = Unlocked; 1 = Locked* **B11: Keypad arrows lock** *0 = Unlocked; 1 = Locked* **B12: Program lock** *0 = Unlocked; 1 = Locked* **B15: Schedule** *0 = Disabled; 1 = Enabled*	W
101	40**102**	System Option 2.	Bit String	B0-B1, B10, B12, B13, B15: Reserved **B2: Auto baud rate detection** *0 = Enabled; 1 = Disabled* **B3: Night setback mode** *0 = Tstat ON; 1 = Tstat OFF* **B4: AO1 direction** *0 = Direct; 1 = Reverse* **B5: AO2 direction** *0 = Direct; 1 = Reverse* **B6: TO1 direction** *0 = Direct; 1 = Reverse* **B7: TO2 direction** *0 = Direct; 1 = Reverse* **B8: TO3 direction** *0 = Direct; 1 = Reverse* **B9: TO4 direction** *0 = Direct; 1 = Reverse* **B10: Display RH**[Φ] *0 = No; 1 = Yes* **B11: Pressure mode select** *0 = independent;1 = dependent* **B14: DI 2 Contact** *0: NO; 1: NC*	W

Protocol Address	Convention Notation	Description	Data Type	Range	Writable
102	40**103**	Status value of the actual changeover control mode.	Unsigned	0 = Cooling, 1= Heating	RO
103	40**104**	System command status.	Unsigned	0 = No Command 1 = AirFlow 1 Balancing 4 = AirFlow 2 Balancing	W
104	40**105**	TO OnOff.	Unsigned	1 = TO1 OnOff 2 = TO2 OnOff 4 = TO3 OnOff 8 = TO4 OnOff	RO
105	40**106**	Occupancy or night setback mode commands.	Unsigned	1 = Locally 2 = Off 3 = Occupancy 4 = NoOccupancy 5 = Day 6 = Night	W
106	40**107**	Status of digital input 1.	Unsigned	0 = Open 1 = Close	RO
107	40**108**	Analog input 1 signal. (*Not available on EVCB14NDT4X models)	Unsigned	1 = OFF 2 = ETS (external temp) 3 = SENS (changeover sensor) 4 = NoCL (normally cool) 5 = NoHT (normally heat) 6 = STFL* (setpnt airflow 0-10Vdc) 7 = CO2 (carbon dioxide) 8 = AST (air supply temp sensor) 9 = mor (motor position)	W
108	40**109**	User System Control Mode.	Unsigned	1 = AUTO 2 = HEAT 3 = COOL 4 = OFF	W
109	40**110**	Sets the permissions or restrictions to change the system control mode by the user.	Unsigned	1 = AUTO 2 = HEAT 3 = COOL 4 = COOL-HEAT 5 = AUTO-LOCK	W
110	40**111**	Indicates the status of the Night Setback mode.	Unsigned	1 = Day 2 = Night 3 = Derogation	RO
111	40**112**	Configuration of DI1 mode. Night setback or no occupancy status.	Unsigned	1=Off 2= Occupancy NO 3= Occupancy NC 4= Night Set Back NO 5= Night Set Back NC	W

Protocol Address	Convention Notation	Description	Data Type	Range	Writable
112	40**113**	Analog input 2 signal. (*Not available on EVCB14NDT4X models)	Unsigned	1 = OFF 2 = ETS (external temp) 3 = SENS (changeover sensor) 4 = NoCL (normally cool) 5 = NoHT (normally heat) 6 = STFL* (setpnt airflow 0-10Vdc) 7 = CO2 (carbon dioxide) 8 = AST (air supply temp sensor) 9 = mor (motor position)	W
113	40**114**	Occupancy status of the zone.	Unsigned	1 = No Occupancy 2 = Occupancy 3 = Derogation	RO
114	40**115**	AO1: Analog output 1 control ramp. (*Not available on EVCB14NDT4X models)	Unsigned	1 = OFF 2 = CR1 (cooling ramp 1) 3 = CR2 (cooling ramp 2) 4 = HR1 (heating ramp 1) 5 = HR2 (heating ramp 2) 6 = ArFL (airflow reading) 7 = CO2 (carbon dioxide) 8 = STFL* (setpnt airflow 0-10Vdc) 9 – 13 = reserved	W
115	40**116**	AO2: Analog output 2 control ramp. (*Not available on EVCB14NDT4X models)	Unsigned	1 = OFF 2 = CR1 (cooling ramp 1) 3 = CR2 (cooling ramp 2) 4 = HR1 (heating ramp 1) 5 = HR2 (heating ramp 2) 6 = ArFL (airflow reading) 7 = CO2 (carbon dioxide) 8 = STFL* (setpnt airflow 0-10Vdc) 9 – 13 = reserved	W
116	40**117**	TO1: Configuration of the ramp used to modulate (pulse or floating) or activate/deactivate (On/Off) TO1 based on demand.	Unsigned	1 = OFF 2 = CR1 (cooling ramp 1) 3 = CR2 (cooling ramp 2) 4 = HR1 (heating ramp 1) 5 = HR2 (heating ramp 2) 6 = reserved 7 = CO2 (carbon dioxide) 8 = STFL (setpnt airflow 0-10Vdc) 9 = COR (changeover ramp) 10 = CH1 (cool/heat 1) 11 = ANLG (analog 0-10Vdc) 12 – 13 = reserved	W
117	40**118**	TO2: Configuration of the ramp used to modulate (pulse or floating) or activate/deactivate (On/Off) TO2 based on demand.	Unsigned	1 = OFF 2 = CR1 (cooling ramp 1) 3 = CR2 (cooling ramp 2) 4 = HR1 (heating ramp 1) 5 = HR2 (heating ramp 2) 6 = reserved 7 = CO2 (carbon dioxide) 8 = STFL (setpnt airflow 0-10Vdc) 9 = COR (changeover ramp) 10 = CH1 (cool/heat 1) 11 = ANLG (analog 0-10Vdc) 12 – 13 = reserved	W

Protocol Address	Convention Notation	Description	Data Type	Range	Writable
118	40**119**	TO3: Configuration of the ramp used to modulate (pulse or floating) or activate/deactivate (On/Off) TO3 based on demand.	Unsigned	1 = OFF 2 = CR1 (cooling ramp 1) 3 = CR2 (cooling ramp 2) 4 = HR1 (heating ramp 1) 5 = HR2 (heating ramp 2) 6 = reserved 7 = CO2 (carbon dioxide) 8 = STFL (setpnt airflow 0-10Vdc) 9 = COR (changeover ramp) 10 = CH1 (cool/heat 1) 11 = ANLG (analog 0-10Vdc) 12 – 13 = reserved	W
119	40**120**	TO4: Configuration of the ramp used to modulate (pulse or floating) or activate/deactivate (On/Off) TO4 based on demand.	Unsigned	1 = OFF 2 = CR1 (cooling ramp 1) 3 = CR2 (cooling ramp 2) 4 = HR1 (heating ramp 1) 5 = HR2 (heating ramp 2) 6 = reserved 7 = CO2 (carbon dioxide) 8 = STFL (setpnt airflow 0-10Vdc) 9 = COR (changeover ramp) 10 = CH1 (cool/heat 1) 11 = ANLG (analog 0-10Vdc) 12 – 13 = reserved	W
120	40**121**	TO1: Signal output type for TRIAC output 1.	Unsigned	3 = Pulsing 4 = On_Off 5 = Floating	W
121	40**122**	TO2: Signal output type for TRIAC output 2.	Unsigned	3 = Pulsing 4 = On_Off	W
122	40**123**	TO3: Signal output type for TRIAC output 3.	Unsigned	3 = Pulsing 4 = On_Off 5 = Floating	W
123	40**124**	TO4: Signal output type for TRIAC output 4.	Unsigned	3 = Pulsing 4 = On_Off	W
124	40**125**	Pressure independent output selection for VAV damper actuator. (Not available on EVCB14NDT4X models)	Unsigned	3 = Floating1 4 = Floating2 5 = Motor	W
125	40**126**	Motor ramp: Configuration of the ramp used to modulate the actuator based on demand. (*Not available on EVCB14NDT4X models)	Unsigned	1 = OFF 2 = CR1 (cooling ramp 1) 3 = CR2 (cooling ramp 2) 4 = HR1 (heating ramp 1) 5 = HR2 (heating ramp 2) 6 – 7 = reserved 8 = STFL* (setpnt airflow 0-10Vdc) 9 = COR (changeover ramp) 10 = CH1 (cool/heat 1) 11 = ANLG (analog 0-10Vdc) 12 – 13 = reserved	W
126	40**127**	Changeover control mode status that indicates the source of changeover values.	Unsigned	1 = Local 2 = Cooling 3 = Heating	W
127	40**128**	*Reserved*			

Protocol Address	Convention Notation	Description	Data Type	Range	Writable
128	40**129**	*Reserved*			
129	40**130**	Configuration of DI2 mode.	Unsigned	1=Off 4=OverHeat2 6=ChangeOverNoCooling 2=Override 5=OverHeatAll 7=ChangeOverNoHeating 3=OverHeat1	W
130	40**131**	Selected temperature control source (in Programming mode).	Unsigned	1 = Internal Temperature 4 = Average Temperature 2 = External Temperature 5 = Maximum Temperature 3 = Remote Temperature	W
131	40**132**	Airflow balance mode, enter the balancing mode to adjust air flow factor. (Not available on EVCB14NDT4X models)	Unsigned	1 = Close 2 = Minimum Flow 3 = Maximum Flow 4 = Full Open	W
132	40**133**	*Reserved*			
133	40**134**	Configuration to set the motor position in night setback mode.	Unsigned	1 = Auto 2 = Open	W
134	40**135**	Digital input 2 delay in seconds.	Unsigned	0 to 3600 seconds	W
135	40**136**	Time in seconds required by the actuator to complete a 90° run.	Unsigned	15 to 420 seconds	W
136	40**137**	Minimum motor position in percentage of stroke for cooling.	Unsigned	0 to 100%	W
137	40**138**	Minimum motor position in percentage of stroke for heating.	Unsigned	0 to 100%	W
138	40**139**	Airflow Setpoint Hysteresis in percentage. (Not available on EVCB14NDT4X models)	Unsigned	0 to 100%	W
139	40**140**	Airflow Hysteresis in percentage. (Not available on EVCB14NDT4X models)	Unsigned	0 to 100%	W
140	40**141**	Airflow scale. (Not available on EVCB14NDT4X models)	Unsigned	1 = Scale1 2 = Scale10 3 = Scale100	W
141	40**142**	Airflow fault deadband in percentage. (Not available on EVCB14NDT4X models)	Unsigned	1 to 30%	W
142	40**143**	Airflow fault error in percentage. (Not available on EVCB14NDT4X models)	Unsigned	0 to 100%	W

Protocol Address	Convention Notation	Description	Data Type	Range	Writable
143	40**144**	Airflow fault hysteresis in percentage. (Not available on EVCB14NDT4X models)	Unsigned	1 to 30%	W
144	40**145**	Airflow fault time. (Not available on EVCB14NDT4X models)	Unsigned	2 to 59 minutes	W
145	40**146**	CL_HT SwitchTimer, waiting time before switching between the heating and cooling modes.	Unsigned	0 to 120 minutes	W
146	40**147**	CL_HT SwitchTimerCount, countdown to indicate the swap between heating and cooling modes.	Unsigned	0 to 4,294,967,295 seconds	RO
147	40**148**	FloatingTO1/TO2, TRIAC output 1 or 2 when set to floating, indicates the floating signal demand.	Unsigned *Scale 10*	0 to 1000% *Value x 10 (e.g. 15% =150)*	RO
148	40**149**	FloatingTO3/TO4, TRIAC output 3 or 4 when set to floating, indicates the floating signal demand.	Unsigned *Scale 10*	0 to 1000% *Value x 10 (e.g. 15% =150)*	RO
149	40**150**	TO1 Pulsing, TRIAC output 1 when set to Pulsed, indicates the pulse signal demand.	Unsigned *Scale 10*	0 to 1000% *Value x 10 (e.g. 15% =150)*	RO
150	40**151**	TO2 Pulsing, TRIAC output 2 when set to Pulsed, indicates the pulse signal demand.	Unsigned *Scale 10*	0 to 1000% *Value x 10 (e.g. 15% =150)*	RO
151	40**152**	TO3 Pulsing, TRIAC output 3 when set to Pulsed, indicates the pulse signal demand.	Unsigned *Scale 10*	0 to 1000% *Value x 10 (e.g. 15% =150)*	RO
152	40**153**	TO4 Pulsing, TRIAC output 4 when set to Pulsed, indicates the pulse signal demand.	Unsigned *Scale 10*	0 to 1000% *Value x 10 (e.g. 15% =150)*	RO
153	40**154**	Overheat status.	Unsigned	1 = OverHeatNormal 2 = OverHeat1 3 = OverHeat2 4 = OverHeatAll	RO
154	40**155**	Configuration to override the motor position.	Unsigned	1 = Auto 2 = Open 3 = Close 4 = AirFlowCoolMin 5 = AirFlowCoolMax	W

Protocol Address	Convention Notation	Description	Data Type	Range	Writable
155	40**156**	Information displayed on the TRL/TDU.	Unsigned	1 = Temp Demand 2 = Setpoint Demand 3 = Temp 4 = Setpoint 5 = Off	W
156	40**157**	Status of digital input 2.	Unsigned	0 = Open 1 = Close	RO
157	40**158**	*Reserved*			
158	40**159**	Minimum voltage of the external actuator's control signal.	Unsigned *Scale 100*	Range: 0 to reg. 400**160** *Value x 100 (e.g. 2 Volts = 200)*	W
159	40**160**	Maximum voltage of the external actuator's control signal.	Unsigned *Scale 100*	Range: reg. 400**159** to 1000 *Value x 100 (e.g. 10 Volts = 1000)*	W
160	40**161**	Minimum voltage of the external actuator's feedback signal.	Unsigned *Scale 100*	Range: 0 to reg. 400**162** *Value x 100 (e.g. 2 Volts = 200)*	W
161	40**162**	Maximum voltage of the external actuator's feedback signal.	Unsigned *Scale 100*	Range: reg. 400**161** to 1000 *Value x 100 (e.g. 10 Volts = 1000)*	W
162	40**163**	System Options 3.	Bit String	B0-B1, B4-B6, B8, B11-B15: Reserved **B2: CO_2 Display** *0 = No; 1 = Yes* **B3: CO_2 Control Source** *0 = Analog; 1 = TRLG* **B7: Occupancy Control Source** *0 = BinaryInput1;* *1 = InternSensor* **B9: Motor Position Control Temperature Fault** *0 = Close;* *1 = Full Open* **B10: CO_2 Control Mode** *0 = Open; 1 = Control ramp*	W
163	40**164**	*Reserved*			

Protocol Address	Convention Notation	Description	Data Type	Range	Writable
164	40**165**	Internal CO2, reading of the integrated CO2 sensor of TRLG or TRLGH/TDU (models with humidity sensor). If not available, the value will be fixed to 0x7FFF (32767).	Unsigned	0 to 2000 ppm	RO
165	40**166**	Internal light sensor reading in Luxes.	Unsigned	0 to 16000 Luxes	RO
166	40**167**	Internal VOC sensor reading in ppb.	Unsigned	0 to 60000 ppb	RO
167	40**168**	Internal PIR sensor reading.	Unsigned	0 = NoOccupancy 1 = Occupancy	RO
168	40**169**	Occupancy minimum time in minutes.	Unsigned *Scale 1*	Range: 0 to 240 *Value x 1 (e.g. 10 minutes = 10)*	W
169	40**170**	Configuration value of the minimum position in cooling/heating mode in %.	Unsigned	0 to 100 %	W
170	40**171**	Control Setpoint.	Unsigned *Scale 1*	10 to 40 *Value x 1 (e.g. 30°C = 30)*	RO
171	40**172**	CO2 ramp proportional band.	Unsigned *Scale 1*	50 to 250 ppm *Value x 1 (e.g. 50ppm = 50)*	W
172	40**173**	CO2 ramp dead band.	Unsigned *Scale 1*	10 to 50 ppm *Value x 1 (e.g. 50ppm = 50)*	W
173	40**174**	Temperature sensor combination.	Unsigned	1 = TSTAT+AI1 2 = TSTAT+AI2 3 = TSTAT+AI1+AI2 4 = AI1+AI2	W
174	40**175**	Average temperature.	Signed *Scale 100*	-4000 to 10000 *Value x 100 (e.g. 5°C = 500)*	RO
175	40**176**	Maximum temperature.	Signed *Scale 100*	-4000 to 10000 *Value x 100 (e.g. 5°C = 500)*	RO
176	40**177**	External sensor value of analog input 2.	Signed *Scale 100*	-4000 to 10000 *Value x 100 (e.g. 5°C = 500)*	RO

Notes



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