



EVCB14S Series

Modbus Communication Module User Guide



EVCB14NIT0S	(0 TRIACS / pressure independent)
EVCB14NIT2S	(2 TRIACS / pressure independent)
EVCB14NIT4S	(4 TRIACS / pressure independent)
EVCB14NDT4S	(4 TRIACS / pressure dependent)
EVCB14NIT0SF	(0 TRIACS / pressure independent / with feedback)
EVCB14NIT4SF	(4 TRIACS / pressure independent / with feedback)





Introduction

The EVCB14S Series 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 EVCB14S Series devices.

The EVCB14S Series 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 <i>Scale 100</i>	0, 9600, 19200, 38400, or 57600 0 = Auto Baud Rate Detection <i>Value/100 (e.g. 38400 baud = 384)</i>	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 65,535 char 6: 0x49 = I char 5: 0x34 = 4	W
5	40006	Product Name (characters 4 & 3).	ASCII	1 to 65,535 char 4: 0x42 = B char 3: 0x4E = N	W
6	40007	Product Name (characters 2 & 1).	ASCII	1 to 65,535 char 2: 0x45 = E char 1: 0x56 = V	W



Protocol Address	Convention Notation	Description	Data Type	Range	Writable
7	40008	Product actual firmware version.	Unsigned	1 to 65535 (e.g. 512)	RO
8	40009	Product actual EEPROM version.	Unsigned	1 to 65535 (e.g. 203)	RO
9	40010	System Status 1.	Bit String	[B0 – B11]: Reserved B12: CO2 alarm <i>0 = Normal; 1 = Alarm</i> B13: Pressure mode (actual status) <i>0 = Independent; 1 = Dependent</i> B14: Air Flow <i>0 = Normal; 1 = Error</i>	RO
10	40011	System Status 2.	Bit String	[B0, B1, B3-B11, B13-B14]: Reserved B2: Airflow Detected <i>0 = No airflow detected, 1 = Airflow detected</i> B12: Alarm override <i>0 = Normal; 1 = Alarm</i>	RO
11	40012	Internal Temperature.	Unsigned Scale 100	0 to 5000 <i>Value x 100 (e.g. 23°C = 2300)</i>	RO
12	40013	External Temperature.	Signed Scale 100	-4000 to 10000 <i>Value x 100 (e.g. 18°C = 1800)</i>	RO
13	40014	Change Over Temperature.	Signed Scale 100	-4000 to 10000 <i>Value x 100 (e.g. 18°C = 1800)</i>	RO
14	40015	Internal Humidity 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 <i>Value x 10 (e.g. 45%RH = 450)</i>	RO
15	40016	Input 3 reading, pressure sensor value *Not available on all models.	Unsigned Scale 10	0 to 2500 <i>Value x 10 (e.g. 10 Pa = 100)</i>	RO



Protocol Address	Convention Notation	Description	Data Type	Range	Writable
16	40017	Analog input 1 value.	Unsigned Scale 100	0 to 1000 Value x 100 (e.g. 2 mV = 200)	RO
17	40018	Analog Input 2 value.	Unsigned Scale 100	0 to 1000 Value x 100 (e.g. 3 mV = 300)	RO
18	40019	CO2 value in ppm If using TRLG or TRLG/TDU (models with CO2 sensor) and CO2 is in TRL mode, it is the sensor 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 40099 Value x 100 (e.g. 5 ppm = 500)	RO
19	40020	Air supply temperature.	Signed Scale 100	-4000 to 10000 Value x 100 (e.g. 5°C = 500)	RO
20	40021	Control temperature.	Signed Scale 100	-4000 to 10000 Value x 100 (e.g. 25°C = 2500)	W
21	40022	Heating demand for heating ramp 1.	Unsigned Scale 10	0 to 1000 Value x 10 (e.g. 25% = 250)	RO
22	40023	Cooling demand for cooling ramp 1.	Unsigned Scale 10	0 to 1000 Value x 10 (e.g. 25% = 250)	RO
23	40024	Temperature offset applied on internal temperature.	Signed Scale 100	-500 to 500 Value x 100 (e.g. 0.5°C = 50)	W
24	40025	Temperature offset applied on external temperature.	Signed Scale 100	-500 to 500 Value x 100 (e.g. 0.5°C = 50)	W
25	40026	Temperature setpoint used during the occupancy period of the day.	Unsigned Scale 10	Range: 40027 to 40028 Value x 10 (e.g. 20°C = 200)	W
26	40027	Minimum temperature setpoint used during the day.	Unsigned Scale 10	Range: 100 to 40028 Value x 10 (e.g. 10°C = 100)	W
27	40028	Maximum temperature setpoint used during the day.	Unsigned Scale 10	Range: 40027 to 400 Value x 10 (e.g. 40°C = 400)	W
28	40029	Cooling setpoint during No Occupancy / Night Set Back.	Unsigned Scale 10	Range: 40030 to 400 Value x 10 (e.g. 22°C = 220)	W



Protocol Address	Convention Notation	Description	Data Type	Range	Writable
29	40030	Heating setpoint during No Occupancy / Night Set Back.	Unsigned Scale 10	Range: 100 to 40029 Value x 10 (e.g. 16°C = 160)	W
30	40031	Cooling demand for proportional band 1.	Unsigned Scale 10	5 to 50 Value x 10 (e.g. 0.3°C = 3)	W
31	40032	Heating demand for proportional band 1.	Unsigned Scale 10	5 to 50 Value x 10 (e.g. 0.3°C = 3)	W
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



Protocol Address	Convention Notation	Description	Data Type	Range	Writable
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
47	40048	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	40049	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	40050	AO1 min Vdc: minimum voltage of analog output 1.	Unsigned Scale 10	Range: 0 to reg. 40052 Value x 10 (e.g. 2 Volts = 20)	W
50	40051	AO2 min Vdc: minimum voltage of analog output 2.	Unsigned Scale 10	Range: 0 to reg. 40053 Value x 10 (e.g. 2 Volts = 20)	W
51	40052	AO1 max Vdc: maximum voltage of analog output 1.	Unsigned Scale 10	Range: reg. 40050 to 100 Value x 10 (e.g. 10 Volts = 100)	W
52	40053	AO2 max Vdc: maximum voltage of analog output 2.	Unsigned Scale 10	Range: reg. 40051 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	40054	Time of numerical filter of delta pressure in seconds. Not effective on all models.	Unsigned	1 to 10 seconds	W
54	40055	Factor of $V=K\sqrt{dP}$, where $dP = 1$. Not effective on all models.	Unsigned	Range: 100 to 9995 CFM	W
55	40056	Minimum air flow for cooling. Not available on all models.	Unsigned	Range: 0 or (12.7%) Kfac to reg 40057 CFM	W
56	40057	Maximum air flow for cooling. Not available on all models.	Unsigned	Range: reg 40056 to reg 40055 CFM	W



Protocol Address	Convention Notation	Description	Data Type	Range	Writable
57	40058	Minimum air flow for heating. Not available on all models.	Unsigned	Range: 0 or (12.7%) Kfac to reg 40059 CFM	W
58	40059	Maximum air flow for heating. Not available on all models.	Unsigned	Range: reg 40058 to reg 40055 CFM	W
59	40060	Integral time factor of air flow in minutes. Not available on all models.	Unsigned	0 to 60 minutes	W
60	40061	Actual air flow converted from delta pressure sensor. Not available on all models.	Unsigned	Range: 0 to reg 40055 CFM	RO
61	40062	Air flow calculated from system demand. Not available on all models.	Unsigned	Range: 0 to 9999 CFM	RO
62	40063	Configuration value for Air Flow Max used during airflow balancing sequence. Refer to Refer to EVCB-Airflow Balance Instructions . Not available on all models.	Unsigned	Range: 0 to 9999 CFM	W
63	40064	Analog output 1 value.	Unsigned Scale 10	Unit: Volt, Range: reg 40050 to reg 40052 Value x 10 (e.g. 5 Volts = 50)	W
64	40065	Analog output 2 value.	Unsigned Scale 10	Unit: Volt, Range: reg 40051 to reg 40053 Value x 10 (e.g. 5 Volts = 50)	W
65	40066	Percentage of demand to close TRIAC output 1. Not available on all models.	Unsigned	15 to 80%	W
66	40067	Percentage of demand to close TRIAC output 2. Not available on all models.	Unsigned	15 to 80%	W
67	40068	Percentage of demand to close TRIAC output 3. Not available on all models.	Unsigned	15 to 80%	W
68	40069	Percentage of demand to close TRIAC output 4. Not available on all models.	Unsigned	15 to 80%	W
69	40070	Percentage of demand to open TRIAC output 1. Not available on all models.	Unsigned	0 to reg 40066-4%	W
70	40071	Percentage of demand to open TRIAC output 2. Not available on all models.	Unsigned	0 to reg 40067-4%	W



Protocol Address	Convention Notation	Description	Data Type	Range	Writable
72	40072	Percentage of demand to open TRIAC output 3. Not available on all models.	Unsigned	0 to reg 40068-4%	W
73	40074	Percentage of demand to open TRIAC output 4. Not available on all models.	Unsigned	0 to reg 40069-4%	W
74	40075	Integral time factor for cooling in seconds.	Unsigned	0 to 250 seconds	W
75	40076	Motor position. Not effective on all models.	Unsigned	0 to 100%	RO
76 to 80	40077 to 40081	<i>Reserved address space</i>			
81	40082	Air flow offset calibration. Refer to EVCB-Airflow Balance Instructions. Not available on all models.	Signed	-500 to 500 CFM	W
82	40083	Configuration value for Air Flow Min used during airflow balancing sequence. Refer to EVCB-Airflow Balance Instructions. Not available on all models.	Unsigned	Range: 0 to 9999 CFM	W
83	40084	<i>Reserved address space</i>			
84	40085	<i>Reserved address space</i>			
85 to 95	40086 to 40096	<i>Reserved address space</i>			
96	40097	Network fallback timeout Present Value in minutes.	Unsigned	0 to 60 minutes	W
97	40098	<i>Reserved address space</i>			
98	40099	Maximum range of the CO2 sensor connected to AI1 or AI2.	Unsigned	100 to 5000 PPM	W
99	40100	Maximum concentration of CO2 before the EVC activates an alarm.	Unsigned	Range: 100 to the greater ppm value between 2000 and reg 40099	W



Protocol Address	Convention Notation	Description	Data Type	Range	Writable
100	40101	System Option 1. Ⓢ Not available on all models.	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



Protocol Address	Convention Notation	Description	Data Type	Range	Writable
101	40102	System Option 2. Notes B14: Applies only if DI2 is in OverHeat or Override. B15: Configuration value of the fan operation when an output ramp is configured with the option "Fan On". When set to (0) On, the fan is continuously in operation even when EVC is off. When set to (1) Off, the fan turns off during the following conditions: User System Mode is set to OFF, when in night setback mode, scheduler forces the EVC OFF or when Digital Input 2 is set to Override and is active. Ⓢ Not available on all models.	Bit String	B0-B1, B13: 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 0 = No; 1 = Yes B11: Pressure mode select 0 = independent; 1 = dependent B12: Auto pressure mode change 0 = Enabled; 1 = Disabled B14: DI 2 Contact 0: NO; 1: NC B15: Fan always "on" mode 0 = Always on 1 = Follow NSB/NoOcc	W
102	40103	Status value of the actual changeover control mode.	Unsigned	0 = Cooling 1 = Heating	RO
103	40104	System command status. Ⓢ Not available on all models.	Unsigned	0 = No Command 1 = AirFlow 1 Balancing 4 = AirFlow 2 Balancing	W
104	40105	TO OnOff. * Not available on all models.	Unsigned	1 = TO1 OnOff 2 = TO2 OnOff 4 = TO3 OnOff 8 = TO4 OnOff	RO
105	40106	Occupancy or night setback mode commands.	Unsigned	1 = Locally 2 = Off 3 = Occupancy 4 = NoOccupancy 5 = Day 6 = Night	W
106	40107	Status of digital input 1.	Unsigned	0 = Open 1 = Close	RO



Protocol Address	Convention Notation	Description	Data Type	Range	Writable
107	40108	Analog input 1 signal. * Not available with EVCB14NDT4S.	Unsigned	1 = OFF 2 = EtS (External Sensor) 3 = SENS (changeover sensor) 4 = NoCL (Changeover Contact Normally Open Cool) 5 = NoHT (Changeover Contact Normally Open Heat) 6 = StFL* (Airflow Setpoint) 7 = CO2 Sensor (carbon dioxide) 8 = Ast (air supply temp) 9 = mor (motor position) 10 = Sensor External 50K (E50) (external 50KΩ sensor) 11 = TSTAT Temperature Sensor (tESE) (thermostat temperature sensor) 12 = TSTAT Setpoint (StP1) (thermostat setpoint 0-10Vdc) 13 = TSTAT Setpoint 2-10V (StP2) (thermostat setpoint 2-10Vdc)	W
108	40109	User System Control Mode.	Unsigned	1 = AUTO 2 = HEAT 3 = COOL 4 = OFF	W
109	40110	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	40111	Indicates the status of the Night Setback mode.	Unsigned	1 = Day 2 = Night 3 = Derogation	RO
111	40112	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 6= Unoccupancy damper	W
112	40113	Analog input 2 signal. * Not available with EVCB14NDT4S.	Unsigned	1 = OFF 2 = EtS (External Sensor) 3 = SENS (changeover sensor) 4 = NoCL (Changeover Contact Normally Open Cool) 5 = NoHT (Changeover Contact Normally Open Heat) 6 = StFL* (Airflow Setpoint) 7 = CO2 Sensor (carbon dioxide) 8 = Ast (air supply temp) 9 = mor (motor position) 10 = Sensor External 50K (E50) (external 50KΩ sensor) 11 = TSTAT Temperature Sensor (tESE) (thermostat temperature sensor) 12 = TSTAT Setpoint (StP1) (thermostat setpoint 0-10Vdc) 13 = TSTAT Setpoint 2-10V (StP2) (thermostat setpoint 2-10Vdc)	W



Protocol Address	Convention Notation	Description	Data Type	Range	Writable
113	40114	Occupancy status of the zone.	Unsigned	1 = No Occupancy 2 = Occupancy 3 = Derogation	RO
114	40115	AO1: Analog output 1 control ramp Notes: Options 12 and 13 are for fan powered applications and only available with models: EVCB14NIT4S, EVCB14NDT4S, and EVCB14NIT4SF. * Not available with EVCB14NDT4S	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 Alarm (carbon dioxide) 8 = STFL* (setpnt airflow 0-10Vdc) 9 – 11 = reserved 12 = Fan Auto (follow demand) 13 = Fan On (always on)	W
115	40116	AO2: Analog output 2 control ramp Notes: Options 12 and 13 are for fan powered applications and only available with models: EVCB14NIT4S, EVCB14NDT4S, and EVCB14NIT4SF. * Not available with EVCB14NDT4S.	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 Alarm (carbon dioxide) 8 = STFL* (setpnt airflow 0-10Vdc) 9 – 11 = reserved 12 = Fan Auto (follow demand) 13 = Fan On (always on)	W
116	40117	TO1: Configuration of the ramp used to modulate (pulse or floating) or activate/deactivate (On/Off) TO1 based on demand. Notes: Options 12 and 13 are for fan powered applications and only available with models: EVCB14NIT4S, EVCB14NDT4S, and EVCB14NIT4SF. * Not available on all 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 = reserved 7 = CO2 Alarm (carbon dioxide) 8 -11 = reserved 12 = Fan Auto (follow demand) 13 = Fan On (always on)	W
117	40118	TO2: Configuration of the ramp used to modulate (pulse or floating) or activate/deactivate (On/Off) TO2 based on demand. Notes: Options 12 and 13 are for fan powered applications and only available with models: EVCB14NIT4S, EVCB14NDT4S, and EVCB14NIT4SF. * Not available on all 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 = reserved 7 = CO2 Alarm (carbon dioxide) 8-11= reserved 12 = Fan Auto (follow demand) 13 = Fan On (always on)	W
118	40119	TO3: Configuration of the ramp used to modulate (pulse or floating) or activate/deactivate (On/Off) TO3 based on demand. Notes: Options 12 and 13 are for fan powered applications and only available with models: EVCB14NIT4S, EVCB14NDT4S, and EVCB14NIT4SF * Not available on all 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 = reserved 7 = CO2 Alarm (carbon dioxide) 8-11 = reserved 12 = Fan Auto (follow demand) 13 = Fan On (always on)	W



Protocol Address	Convention Notation	Description	Data Type	Range	Writable
119	40120	TO4: Configuration of the ramp used to modulate (pulse or floating) or activate/deactivate (On/Off) TO4 based on demand. Notes: Options 12 and 13 are for fan powered applications and only available with models: EVCB14NIT4S, EVCB14NDT4S, and EVCB14NIT4SF * Not available on all 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 = reserved 7 = CO2 Alarm (carbon dioxide) 8-11= reserved 12 = Fan Auto (follow demand) 13 = Fan On (always on)	W
120	40121	TO1: Signal output type for TRIAC output 1. * Not available on all models.	Unsigned	3 = Pulsing 4 = On_Off 5 = Floating	W
121	40122	TO2: Signal output type for TRIAC output 2. * Not available on all models.	Unsigned	3 = Pulsing 4 = On_Off	W
122	40123	TO3: Signal output type for TRIAC output 3. * Not available on all models.	Unsigned	3 = Pulsing 4 = On_Off 5 = Floating	W
123	40124	TO4: Signal output type for TRIAC output 4. * Not available on all models.	Unsigned	3 = Pulsing 4 = On_Off	W
124	40125	Pressure independent output selection for VAV damper actuator. * Not available on all models.	Unsigned	3 = Floating1 4 = Floating2 5 = Motor	W
125	40126	Motor ramp: Configuration of the ramp used to modulate the actuator based on demand. * Not available on all models.	Unsigned	1 = Reserved 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	40127	Changeover control mode status that indicates the source of changeover values.	Unsigned	1 = Local 2 = Cooling 3 = Heating	W
127	40128	<i>Reserved address space</i>			
128	40129	<i>Reserved address space</i>			



Protocol Address	Convention Notation	Description	Data Type	Range	Writable
129	40130	Configuration of DI2 mode.	Unsigned	1=Off 2=Override 3=OverHeat1 4=OverHeat2 5=OverHeatAll 6=ChangeOverNoCooling 7=ChangeOverNoHeating 8=Unoccupancy damper	W
130	40131	Selected temperature control source (in Programming mode).	Unsigned	1 = Internal Temperature 2 = External Temperature 3 = Remote Temperature 4 = Average Temperature 5 = Maximum Temperature	W
131	40132	Airflow balance mode enter the balancing mode to adjust air flow factor. ^Φ Not effective on all models.	Unsigned	1 = Close 2 = Minimum Flow 3 = Maximum Flow 4 = Full Open	W
132	40133	<i>Reserved address space</i>			
133	40134	Configuration to set the motor position in night setback mode. ^Φ Not effective on all models.	Unsigned	1 = Auto 2 = Open	W
134	40135	Digital input 2 delay in seconds.	Unsigned	0 to 3600 seconds	W
135	40136	Floating time 2: Time in seconds required by the actuator to complete a 90° run. * Not available on all models.	Unsigned	15 to 250 seconds	W
136	40137	Minimum motor position in percentage of stroke for cooling. * Not available on all models.	Unsigned	0 to 100%	W
137	40138	Minimum motor position in percentage of stroke for heating. * Not available on all models.	Unsigned	0 to 100%	W
138	40139	Airflow Hysteresis Stop in percentage. * Not available on all models.	Unsigned	1 to 100%	W
139	40140	Airflow Hysteresis Start in percentage. * Not available on all models.	Unsigned	reg 40139 to 100%	W

Protocol Address	Convention Notation	Description	Data Type	Range	Writable
140	40141	Airflow scale. *Not available on all models.	Unsigned	1 = Scale1 2 = Scale10 3 = Scale100	W
141	40142	Airflow fault deadband in percentage. * Not available on all models.	Unsigned	1 to 30%	W
142	40143	Airflow fault error in percentage. * Not available on all models.	Unsigned	0 to 100%	W
143	40144	Airflow fault hysteresis in percentage. * Not available on all models.	Unsigned	1 to 30%	W
144	40145	Airflow fault time. *Not available on all models.	Unsigned	2 to 59 minutes	W
145	40146	CL_HT SwitchTimer, waiting time before switching between the heating and cooling modes.	Unsigned	0 to 120 minutes	W
146	40147	CL_HT SwitchTimerCount, countdown to indicate the swap between heating and cooling modes.	Unsigned	0 to 4,294,967,295 seconds	RO
147	40148	FloatingTO1/TO2, TRIAC output 1 or 2 when set to floating, indicates the floating signal demand. * Not available on all models.	Unsigned Scale 10	0 to 1000% Value x 10 (e.g. 15% =150)	RO
148	40149	FloatingTO3/TO4, TRIAC output 3 or 4 when set to floating, indicates the floating signal demand. * Not available on all models.	Unsigned Scale 10	0 to 1000% Value x 10 (e.g. 15% =150)	RO
149	40150	TO1 Pulsing, TRIAC output 1 when set to Pulsed, indicates the pulse signal demand. * Not available on all models.	Unsigned Scale 10	0 to 1000% Value x 10 (e.g. 15% =150)	RO
150	40151	TO2 Pulsing, TRIAC output 2 when set to Pulsed, indicates the pulse signal demand. * Not available on all models.	Unsigned Scale 10	0 to 1000% Value x 10 (e.g. 15% =150)	RO
151	40152	TO3 Pulsing, TRIAC output 3 when set to Pulsed, indicates the pulse signal demand. * Not available on all models.	Unsigned Scale 10	0 to 1000% Value x 10 (e.g. 15% =150)	RO
152	40153	TO4 Pulsing, TRIAC output 4 when set to Pulsed, indicates the pulse signal demand. * Not available on all models.	Unsigned Scale 10	0 to 1000% Value x 10 (e.g. 15% =150)	RO



Protocol Address	Convention Notation	Description	Data Type	Range	Writable
153	40154	Over heat status.	Unsigned	1 = OverHeatNormal 2 = OverHeat1 3 = OverHeat2 4 = OverHeatAll	RO
154	40155	Configuration to override the motor position. * Not available on all models.	Unsigned	1 = Auto 2 = Open 3 = Close 4 = AirFlowCoolMin 5 = AirFlowCoolMax	W
155	40156	Information displayed on the TRL/TDU.	Unsigned	1 = Temp Demand 2 = Setpoint Demand 3 = Temp 4 = Setpoint 5 = Off	W
156	40157	Status of digital input 2.	Unsigned	0 = Open 1 = Close	RO
157	40158	<i>Reserved address space</i>			



Protocol Address	Convention Notation	Description	Data Type	Range		Writable
158	40159	System Options 3.	Bit String	[B0-B1, B4-B6, B8, B13-B15]: Reserved B2: CO₂ Display <i>0 = No; 1 = Yes</i> B3: CO₂ Control Source <i>0 = Analog; 1 = TRLG</i> B7: Occupancy Control Source <i>0 = B11; 1 = Intern Sensor</i> B9: Motor Position Control Temperature Fault <i>0 = Close; 1 = Open</i>	B10: CO₂ Control Mode <i>0 = Open; 1 = Control ramp</i> B11: Cfg_Heat_Airflow_Depend <i>0 = Heating ramp 1 is independent of airflow 1 = Heating ramp 1 on AO/TO requires airflow detection</i> B12: Cfg_Motor_Off_Position_Cool min <i>0 = Off mode goes to closed 1 = Off mode goes to cool minimum</i>	W
159	40160	System Options 4.	Bit String	[B0 – B15]: Reserved		RO
160	40161	Internal CO ₂ , reading of the integrated CO ₂ 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
161	40162	Internal light sensor reading in Luxes.	Unsigned	0 to 16000 Luxes		RO
162	40163	Internal VOC sensor reading in ppb.	Unsigned	1 to 60000 ppb		RO
163	40164	Internal PIR sensor reading.	Unsigned	0 = NoOccupancy 1 = Occupancy		RO
164	40165	Occupancy minimum time in minutes.	Unsigned	0 to 240 minutes		W
165	40166	Configuration value of the minimum position in cooling/heating mode in %.	Unsigned	0 to 100%		W



Protocol Address	Convention Notation	Description	Data Type	Range	Writable
166	40167	Control SetPoint.	Unsigned Scale 1	10 to 40 Value x 1 (e.g. 30°C = 30)	RO
167	40168	CO2 ramp proportional band.	Unsigned Scale 1	50 to 250 ppm Value x 1 (e.g. 50ppm = 50)	W
168	40169	CO2 ramp dead band.	Unsigned Scale 1	10 to 50 ppm Value x 1 (e.g. 50ppm = 50)	W
169	40170	Temperature sensor combination.	Unsigned	1 = TSTAT+AI1 2 = TSTAT+AI2 3 = TSTAT+AI1+AI2 4 = AI1+AI2	W
170	40171	Average temperature.	Signed Scale 100	-4000 to 10000 Value x 100 (e.g. 5°C = 500)	RO
171	40172	Maximum temperature.	Signed Scale 100	-4000 to 10000 Value x 100 (e.g. 5°C = 500)	RO
172	40173	External sensor value of analog input 2.	Signed Scale 100	-4000 to 10000 Value x 100 (e.g. 5°C = 500)	RO
173	40174	Supply max temperature value.	Signed Scale 10	0 to 1000 Value x 10 (e.g. 5°C = 50)	W
174	40175	Motor Float position reset interval.	Unsigned Scale 1	0 to 48 hours	W
175	40176	Calculated supply temperature max demand.	Unsigned Scale 10	0 to 1000 % Value x 10 (e.g. 30% = 300)	RO

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.



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