neptronic EVCB14N Series Modbus Communication Module User Guide

Contents

neptronic EVCB14N Series Modbus Communication Module

Introduction

The EVCB14N Series Modbus Communication Module User Guide provides information for using the 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 EVCB14N Series devices. The EVCB14N 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

Register Index	Description	Data Type	Range			Writable
40000	Modbus Address and Product Type.	Unsigned	MSB = Product type (e.g. 111 for EVCB) LSB = Modbus Address (e.g. 1-246)			W
40001	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
40002	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
40003	Product Name (characters 8 & 7).	ASCII	1 to 65,535	char 8: 0x53 = S	char 7: 0x00 =	W
40004	Product Name (characters 6 & 5).	ASCII	1 to 65535	char 6: 0x49 = I	char 5: 0x34 = 4	W
40005	Product Name (characters 4 & 3).	ASCII	1 to 65535	char 4: 0x42 = B	char 3: 0x4E = N	W
40006	Product Name (characters 2 & 1).	ASCII	1 to 65535	char 2: 0x45 = E	char 1: 0x56 = V	W

Register Index	Description	Data Type	Range	Writable
40007	Product actual firmware version.	Unsigned	1 to 65535 (e.g. 410)	RO
40008	Product actual EEPROM version.	Unsigned	1 to 65535 (e.g. 203)	RO

4000 **9**	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
400**1** **0**	System Status 2.	Bit String	[B0-B11, B13-B14]: Reserved **B12: Alarm override** *0 = Normal; 1 = Alarm*	RO
400**1** **1**	Internal Temperature.	Unsigned *Scale 10 0*	0 to 5000 *Value x 100 (e.g. 23°C = 2300)*	RO
400**1** **2**	External Temperature.	Signed *Scale 10 0*	-4000 to 10000 *Value x 100 (e.g. 18°C = 1800)*	RO
400**1** **3**	Change Over Temperature.	Signed *Scale 10 0*	-4000 to 10000 *Value x 100 (e.g. 18°C = 1800)*	RO
400**1** **4**	Internal Humidity Internal humidity, reading of the integr ated humidity sensor of TRLH or TRL GH/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
400**1** **5**	Input 3 reading, pressure sensor value (*Not available on all models)	Unsigned *Scale 10*	0 to 2500 *Value x 10 (e.g. 10 Pa = 100)*	RO
400**1** **6**	Analog input 1 value.	Unsigned *Scale 10 0*	0 to 1000 *Value x 100 (e.g. 2 mV = 200)*	RO

Register Index	Description	Data Type	Range	Writable
4001**7**	Analog Input 2 value.	Unsigned *Scale 100*	0 to 1000 *Value x 100 (e.g. 3 mV = 300)*	RO
4001**8**	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 more, the reading is from the external sensor.	Unsigned *Scale 100*	100 to reg 400**98** *Value x 100 (e.g. 5 ppm = 500)*	RO
4001**9**	Air supply temperature.	Signed *Scale 100*	-4000 to 10000 *Value x 100 (e.g. 5°C = 500)*	RO
4002**0**	Control temperature.	Signed *Scale 100*	-4000 to 10000 *Value x 100 (e.g. 25°C = 2500)*	W
4002**1**	Heating demand for heating ramp 1.	Unsigned *Scale 10*	0 to 1000 *Value x 10 (e.g. 25% = 250)*	RO
4002**2**	Cooling demand for cooling ramp 1.	Unsigned *Scale 10*	0 to 1000 *Value x 10 (e.g. 25% = 250)*	RO
4002**3**	Temperature offset applied on internal temperature.	Signed *Scale 100*	-500 to 500 *Value x 100 (e.g. 0.5°C = 50)*	W
4002**4**	Temperature offset applied on external temperature.	Signed *Scale 100*	-500 to 500 *Value x 100 (e.g. 0.5°C = 50)*	W
4002**5**	Temperature setpoint used during the occupancy period of the day.	Unsigned *Scale 10*	Range: 400**26** to 400**27** *Value x 10 (e.g. 20°C = 200)*	W

4002**6**	Minimum temperature setpoint used during the day.	Unsigned *Scale 10*	Range: 100 to 4002**7** *Value x 10 (e.g. 10°C = 100)*	W
4002**7**	Maximum temperature setpoint used during the day.	Unsigned *Scale 10*	Range: 4002**6** to 400 *Value x 10 (e.g. 40°C = 400)*	W
4002**8**	Cooling setpoint during No Occupancy / Night Set Back	Unsigned *Scale 10*	Range: 4002**9** to 400 *Value x 10 (e.g. 22°C = 220)*	W
4002**9**	Heating setpoint during No Occupancy / Night Set Back	Unsigned *Scale 10*	Range: 100 to 4002**8** *Value x 10 (e.g. 16°C = 160)*	W

Register Index	**Description**	**Data Type**	**Range**	**Writable**
4003**0**	Cooling demand for proportional band 1.	Unsigned *Scale 10*	5 to 50 *Value x 10 (e.g. 0.3°C = 3)*	W
4003**1**	Heating demand for proportional band 1.	Unsigned *Scale 10*	5 to 50 *Value x 10 (e.g. 0.3°C = 3)*	W
4003**2**	Cooling dead band for proportional band 1.	Unsigned *Scale 10*	0 to 50 *Value x 10 (e.g. 0.3°C = 3)*	W
4003**3**	Heating dead band for proportional band 1.	Unsigned *Scale 10*	0 to 50 *Value x 10 (e.g. 0.3°C = 3)*	W
4003**4**	Changeover temperature setpoint.	Unsigned *Scale 10*	100 to 400 *Value x 10 (e.g. 12°C = 120)*	W
4003**5**	Night setback override delay in minutes.	Unsigned	0 to 180 minutes	W

4003**6**	Integral time factor for heating in seconds.	Unsigned	0 to 250 seconds	W
4003**7**	Cooling anti-cycle delay: delay in minutes before activating or reactivating the cooling contact.	Unsigned	0 to 15 minutes	W
4003**8**	Floating time 1: Indicates the time in seconds required by the actuator to complete a 90° run.	Unsigned	15 to 250 seconds	W
4003**9**	Occupancy Delay Mode in minutes	Unsigned	0 to 180 minutes	W
4004**0**	Cooling demand for cooling ramp 2.	Unsigned *Scale 10*	0 to 1000 % *Value x 10 (e.g. 30% = 300)*	RO
4004**1**	Proportional band for cooling ramp 2	Unsigned *Scale 10*	5 to 50 *Value x 10 (e.g. 0.2°C = 2)*	W
4004**2**	Dead band for cooling ramp 2.	Unsigned *Scale 10*	0 to 50 *Value x 10 (e.g. 0.2°C = 2)*	W
4004**3**	Heating demand for heating ramp 2.	Unsigned *Scale 10*	0 to 1000 % *Value x 10 (e.g. 30% = 300)*	W
4004**4**	Proportional band for heating ramp 2.	Unsigned *Scale 10*	5 to 50 *Value x 10 (e.g. 0.2°C = 2)*	W

Register Index	**Description**	**Data Type**	**Range**	**Writable**
4004**5**	Dead band for heating ramp 2.	Unsigned *Scale 10*	0 to 50 *Value x 10 (e.g. 0.2°C = 2)*	W
4004**6**	Changeover demand for the VAV box.	Unsigned *Scale 10*	0 to 1000 % *Value x 10 (e.g. 30% = 300)*	RO

4004**7**	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
4004**8**	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
4004**9**	AO1 min Vdc: minimum voltage of analog output 1.	Unsigned *Scale 10*	Range: 0 to reg. 400**51** *Value x 10 (e.g. 2 Volts = 20)*	W
4005**0**	AO2 min Vdc: minimum voltage of analog output 2.	Unsigned *Scale 10*	Range: 0 to reg. 400**52** *Value x 10 (e.g. 2 Volts = 20)*	W
4005**1**	AO1 max Vdc: maximum voltage of analog output 1.	Unsigned *Scale 10*	Range: reg. 400**49** to 100 *Value x 10 (e.g. 10 Volts = 100)*	W
4005**2**	AO2 max Vdc: maximum voltage of analog output 2.	Unsigned *Scale 10*	Range: reg. 400**50** 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 to leave the minimum voltage at 0Vdc to avoid heating when the demand is 0%.				
4005**3**	Time of numerical filter of delta pressure in seconds. Not effective on all models.	Unsigned	1 to 10 seconds	W
4005**4**	Factor of V=K*sqrt(dP), where dP = 1. Not effective on all models.	Unsigned	Range: 100 to 9995 CFM	W
4005**5**	Minimum air flow for cooling. Not effective on all models.	Unsigned	Range: 0 or (12.7%) Kfac to reg 400**56** CFM	W
4005**6**	Maximum air flow for cooling. Not effective on all models.	Unsigned	Range: reg 400**55** to reg 400**54** CFM	W
4005**7**	Minimum air flow for heating. Not effective on all models.	Unsigned	Range: 0 or (12.7%) Kfac to reg 400**58** CFM	W

Register Index	Description	Data Type	Range	Writable
400**58**	Maximum air flow for heating. Not effective on all models.	Unsigned	Range: reg 400**57** to reg 400**54** CFM	W
400**59**	Integral time factor of air flow in minutes. Not effective on all models.	Unsigned	0 to 60 minutes	W
400**60**	Actual air flow converted from delta pressure sensor. Not effective on all models.	Unsigned	Range: 0 to reg 400**54** CFM	RO
400**61**	Air flow calculated from system demand. Not effective on all models.	Unsigned	Range: 0 to 9999 CFM	RO
400**62**	Configuration value for Air Flow Max used during airflow balancing sequence. Refer to EVCB-Airflow Balance Instructions. Not effective on all models.	Unsigned	Range: 0 to 9999 CFM	W
400**63**	Analog output 1 value.	Unsigned *Scale 10*	Unit: Volt, Range: reg 400**49** to reg 400**51** *Value x 10 (e.g. 5 Volts = 50)*	W
400**64**	Analog output 2 value.	Unsigned *Scale 10*	Unit: Volt, Range: reg 400**50** to reg 400**52** *Value x 10 (e.g. 5 Volts = 50)*	W
400**65**	Percentage of demand to close TRIAC output 1. Not available on all models.	Unsigned	15 to 80%	W
400**66**	Percentage of demand to close TRIAC output 2. Not available on all models.	Unsigned	15 to 80%	W
400**67**	Percentage of demand to close TRIAC output 3. Not available on all models.	Unsigned	15 to 80%	W
400**68**	Percentage of demand to close TRIAC output 4. Not available on all models.	Unsigned	15 to 80%	W
400**69**	Percentage of demand to open TRIAC output 1. Not available on all models.	Unsigned	0 to reg 400**65**-4%	W
400**70**	Percentage of demand to open TRIAC output 2. Not available on all models.	Unsigned	0 to reg 400**65**-4%	W

4007**1**	Percentage of demand to open TRIAC output 3. Not available on all models.	Unsigned	0 to reg 400**65**-4%	W

Register Index	**Description**	**Data Type**	**Range**	**Writable**
4007**2**	Percentage of demand to open TRIAC output 4. Not available on all models.	Unsigned	0 to reg 400**65**-4%	W
4007**3**	Integral time factor for cooling in seconds.	Unsigned	0 to 250 seconds	W
4007**4**	Motor position. Not effective on all models.	Unsigned	0 to 100%	RO
400**75** to 400**80** – Reserved				RO
400**81**	Air flow offset calibration. Refer to EVCB-Airflow Balance Instructions.Not effective on all models.	Signed	-500 to 500 CFM	W
400**84**	Configuration value for Air Flow Min used during airflow balancing sequence. Refer to EVCB-Airflow Balance Instructions. Not effective on all models.	Unsigned	Range: 0 to 9999 CFM	W
400**82**, 400**83**, and 400**85** to 400**95** – Reserved				RO
400**96**	Network fallback timeout Present Value in minutes.	Unsigned	0 to 60 minutes	W
400**97**	Reserved			RO
400**98**	Maximum range of the CO2 sensor connected to AI1 or AI2.	Unsigned	100 to 5000 PPM	W
400**99**	Maximum concentration of CO2 before the EVC activates an alarm.	Unsigned	Range: 100 to the greater ppm value between 2000 and reg 400**98**	W

Register Index	**Description**	**Data Type**	**Range**		**Writable**
			B3, B13-B14: Reserved	**B7: Freeze protection** *0 = Disabled; 1 = Enabled*	

			B0: Tstat temperature units *0 = Celsius; 1 = Fahrenheit* **B1: Modbus temperature units** *0 = Celsius; 1 = Fahrenheit*	**B8: User system off mode** *0 = User can set Tstat to OFF 1 = User cannot set Tstat OFF*	
40**100**	System Option 1. F Not effective on all models.	Bit String	**B2: Temperature setpoint lock** *0 = Unlocked; 1 = Locked* **B4: TO1/TO2 floating direction**F *0 = Direct; 1 = Reverse*	**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*	W
			B5: TO3/TO4 floating directionF *0 = Direct; 1 = Reverse*	**B12: Program lock** *0 = Unlocked; 1 = Locked*	
			B6: Onboard motor directionF *0 = Direct; 1 = Reverse*	**B15: Schedule** *0 = Disabled; 1 = Enabled*	

Register Index	**Description**	**Data Type**	**Range**	**Writable**

			B0-B1, B13: Reserved	**B8: TO3 direction**F *0 = Direct; 1 = Reverse*	
			B2: Auto baud rate detection *0 = Enabled; 1 = Disabled*	**B9: TO4 direction**F *0 = Direct; 1 = Reverse*	
40**101**	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. F Not effective on all models.	Bit String	**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**F *0 = Direct; 1 = Reverse* **B7: TO2 direction**F *0 = Direct; 1 = Reverse*	**B10: Display RH**F *0 = No; 1 = Yes* **B11: Pressure mode select**F *0 = independent;1 = dependent* **B12: Auto pressure mode**F **change** *0 = Enabled; 1 = Disabled* **B14: DI 2 Contact** *0: NO; 1: NC*	W
				B15: Fan always “on” mode 0 = Always on; 1 = Follow NSB/No Occ	
40**102**	Status value of the actual changeover control mode.	Unsigned	0 = Cooling, 1= Heating		RO

4010**3**	System command status. F Not effective on all models.	Unsigned	0 = No Command, 1 = AirFlow 1 Balancing, 4 = AirFlow 2 Balancing		W
4010**4**	TO OnOff. * Not available on all models.	Unsigned	1 = TO1 OnOff 2 = TO2 OnOff	4 = TO3 OnOff 8 = TO4 OnOff	RO
4010**5**	Occupancy or night setback mode commands.	Unsigned	1 = Locally 2 = Off 3 = Occupancy	4 = NoOccupancy 5 = Day 6 = Night	W
4010**6**	Status of digital input 1.	Unsigned	0 = Open, 1 = Close		RO

Register Index	**Description**	**Data Type**	**Range**		**Writable**
4010**7**	Analog input 1 signal. * Not available on all models. F Not effective on all models. ** Only available with EVCB14NIT0S.	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 = morF (motor position)	10 = EXT50K** (external 50KΩ sensor) 11 = TSTAT temp sensor** (thermostat temperature sensor) 12 = TSTAT Setpoint** (thermostat setpoint 0-10Vdc) 13 = TSTAT Setpoint 2-10V** (thermostat setpoint 2-10Vdc)	W
4010**8**	User System Control Mode.	Unsigned	1 = AUTO 2 = HEAT	3 = COOL 4 = OFF	W

40**109**	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
40**110**	Indicates the status of the Night Setback mode.	Unsigned	1 = Day, 2 = Night, 3 = Derogation		RO
40**111**	Configuration of DI1 mode. Night setback or no occupancy status. * Only available with EVCB14NIT0S.	Unsigned	1=Off 2= Occupancy NO 3= Occupancy NC	4= Night Set Back NO 5= Night Set Back NC 6= Unoccupancy damper*	W
40**112**	Analog input 2 signal. * Not available on all models. ** Only available with EVCB14NIT0S.	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)	10 = EXT50K** (external 50KΩ sensor) 11 = TSTAT temp sensor** (thermostat temperature sensor) 12 = TSTAT Setpoint** (thermostat setpoint 0-10Vdc) 13 = TSTAT Setpoint 2-10V** (thermostat setpoint 2-10Vdc)	W
40**113**	Occupancy status of the zone.	Unsigned	1 = No Occupancy, 2 = Occupancy, 3 = Derogation		RO

4011**4**	AO1: Analog output 1 control ramp Notes: Options 11 and 12 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 = ArFL (airflow reading)	7 = CO2 (carbon dioxide) 8 = STFL* (setpnt airflow 0-10Vdc) 9 – 10 = reserved 11 = Fan Auto (follow demand) 12 = Fan On (always on)	W

Register Index	**Description**	**Data Type**	**Range**		**Writable**
4011**5**	AO2: Analog output 2 control ramp Notes: Options 11 and 12 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 = ArFL (airflow reading)	7 = CO2 (carbon dioxide) 8 = STFL* (setpnt airflow 0-10Vdc) 9 – 10 = reserved 11 = Fan Auto (follow demand) 12 = Fan On (always on)	W
4011**6**	TO1: Configuration of the ramp used to modulate (pulse or floating) or activate/deactivate (On/Off) TO1 based on demand. * 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 = CO2 (carbon dioxide)	7 = STFL* (setpnt airflow 0-10Vdc) 8 = COR* (changeover ramp) 9 = CH1* (cool/heat 1) 10 = ANLG* (analog 0-10Vdc) 11 = Fan Auto (follow demand) 12 = Fan On (always on)	W

40117	TO2: Configuration of the ramp used to modulate (pulse or floating) or activate/deactivate (On/Off) TO2 based on demand. * 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 = CO2 (carbon dioxide)	7 = STFL* (setpnt airflow 0-10Vdc) 8 = COR* (changeover ramp) 9 = CH1* (cool/heat 1) 10 = ANLG* (analog 0-10Vdc) 11 = Fan Auto (follow demand) 12 = Fan On (always on)	W
40118	TO3: Configuration of the ramp used to modulate (pulse or floating) or activate/deactivate (On/Off) TO3 based on demand. * 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 = CO2 (carbon dioxide)	7 = STFL* (setpnt airflow 0-10Vdc) 8 = COR* (changeover ramp) 9 = CH1* (cool/heat 1) 10 = ANLG* (analog 0-10Vdc) 11 = Fan Auto (follow demand) 12 = Fan On (always on)	W
40119	TO4: Configuration of the ramp used to modulate (pulse or floating) or activate/deactivate (On/Off) TO4 based on demand. * 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 = CO2 (carbon dioxide)	7 = STFL* (setpnt airflow 0-10Vdc) 8 = COR* (changeover ramp) 9 = CH1* (cool/heat 1) 10 = ANLG* (analog 0-10Vdc) 11 = Fan Auto (follow demand) 12 = Fan On (always on)	W
40120	TO1: Signal output type for TRIAC output 1. * Not available on all models.	Unsigned	3 = Pulsing, 4 = On_Off, 5 = Floating		W

40121	TO2: Signal output type for TRIAC output 2. * Not available on all models.	Unsigned	3 = Pulsing, 4 = On_Off	W
40122	TO3: Signal output type for TRIAC output 3. * Not available on all models.	Unsigned	3 = Pulsing, 4 = On_Off, 5 = Floating	W

Register Index	Description	Data Type	Range		Writable
40123	TO4: Signal output type for TRIAC output 4. * Not available on all models.	Unsigned	3 = Pulsing 4 = On_Off		W
40124	Pressure independent output selection for VAV damper actuator. * Not available on all models.	Unsigned	3 = Floating1, 4 = Floating2, 5 = Motor		W
40125	Motor ramp: Configuration of the ramp used to modulate the actuator based on demand. * Not available on all models.	Unsigned	2 = CR1 (cooling ramp 1) 3 = CR2 (cooling ramp 2) 4 = HR1 (heating ramp 1) 5 = HR2 (heating ramp 2) 6 = Not Available	7 = STFL* (setpnt airflow 0-10Vdc) 8 = COR (changeover ramp) 9 = CH1 (cool/heat 1) 10 = ANLG (analog 0-10Vdc)	W
40126	Changeover control mode status that indicates the source of changeover values.	Unsigned	1 = Local, 2 = Cooling, 3 = Heating		W
40127	Reserved				RO
40128	Reserved				RO

40**129**	Configuration of DI2 mode. * Only available with EVCB14NIT0S.	Unsigned	1=Off 2=Override 3=OverHeat 1	4=OverHeat25=OverHeatAll6=ChangeOverNoCooling	7=ChangeOverNoHeating 8=Unoccupancy damper*	W
40**130**	Selected temperature control source (in Programming mode).	Unsigned	1 = Internal Temperature 2 = External Temperature 3 = Remote Temperature		4 = Average Temperature 5 = Maximum Temperature	W
40**131**	Airflow balance mode enter the balancing mode to adjust air flow factor. FNot effective on all models.	Unsigned	1 = Close 2 = Minimum Flow		3 = Maximum Flow 4 = Full Open	W

40132	Reserved			RO
40133	Configuration to set the motor position in night setback mode. F Not effective on all models.	Unsigned	1 = Auto 2 = Open	W
40134	Digital input 2 delay in seconds.	Unsigned	0 to 3600 seconds	W
40135	Time in seconds required by the actuator to complete a 90° run. * Not available on all models.	Unsigned	15 to 250 seconds	W
40136	Minimum motor position in percentage of stroke for cooling. * Not available on all models.	Unsigned	0 to 100%	W

Register Index	Description	Data Type	Range	Writable
40137	Minimum motor position in percentage of stroke for heating. * Not available on all models.	Unsigned	0 to 100%	W
40138	Airflow Hysteresis Stop in percentage. * Not available on all models.	Unsigned	1 to 100%	W
40139	Airflow Hysteresis Start in percentage. * Not available on all models.	Unsigned	reg 40138 to 100%	W
40140	Airflow scale.*Not available on all models.	Unsigned	1 = Scale1, 2 = Scale10, 3 = Scale100	W
40141	Airflow fault deadband in percentage.* Not available on all models.	Unsigned	1 to 30%	W
40142	Airflow fault error in percentage.* Not available on all models.	Unsigned	0 to 100%	W
40143	Airflow fault hysteresis in percentage.* Not available on all models.	Unsigned	1 to 30%	W
40144	Airflow fault time.*Not available on all models.	Unsigned	2 to 59 minutes	W
40145	CL_HT SwitchTimer, waiting time before switching between the heating and cooling modes.	Unsigned	0 to 120 minutes	W

40146	CL_HT SwitchTimerCount, countdown to indicate the swap between heating and cooling modes.	Unsigned	0 to 4,294,967,295 seconds	RO
40147	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
40148	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
40149	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
40150	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
40151	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
40152	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

Register Index	**Description**	**Data Type**	**Range**		**Writable**
40153	Over heat status.	Unsigned	1 = OverHeatNormal 2 = OverHeat1	3 = OverHeat2 4 = OverHeatAll	RO
40154	Configuration to override the motor position. * Not available on all models.	Unsigned	1 = Auto 2 = Open 3 = Close	4 = AirFlowCoolMin 5 = AirFlowCoolMax	W

40155	Information displayed on the TRL/TDU.	Unsigned	1 = Temp Demand 2 = Setpoint Demand 3 = Temp	4 = Setpoint 5 = Off	W
40156	Status of digital input 2.	Unsigned	0 = Open, 1 = Close		RO
40157	Reserved				RO
				B7: Occupancy Control Source	
			[B0-B1, B4-B6, B8, B11-B15]: Reserved	*0 = BI1; 1 = Intern Sensor*	
40158	System Options 3	Bit String	**B2: CO2 Display** *0 = No; 1 = Yes*	**B9: Motor Position Control Temperature Fault** *0 = Close; 1 = Open*	W
			B3: CO2 Control Source	**B10: CO2 Control Mode**	
			0 = Analog; 1 = TRLG	*0 = Open; 1 = Control ramp*	
40159	System Options 4	Bit String	[B0 – B15]: Reserved		RO
40160	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
40161	Internal light sensor reading in Luxes.	Unsigned	0 to 16000 Luxes		RO
40162	Internal VOC sensor reading in ppb.	Unsigned	1 to 60000 ppb		RO

Register Index	Description	Data Type	Range	Writable
40163	Internal PIR sensor reading.	Unsigned	0 = NoOccupancy, 1 = Occupancy	RO
40164	Occupancy minimum time in minutes.	Unsigned	0 to 240 minutes	W
40165	Configuration value of the minimum position in cooling/heating mode in %.	Unsigned	0 to 100 %	W
40166	Control SetPoint.	Unsigned *Scale 1*	10 to 40 *Value x 1 (e.g. 30°C = 30)*	RO
40167	CO2 ramp proportional band	Unsigned *Scale 1*	50 to 250 ppm Value x 1 (e.g. 50ppm = 50)	W
40168	CO2 ramp dead band	Unsigned *Scale 1*	10 to 50 ppm Value x 1 (e.g. 50ppm = 50)	W
40169	Temperature sensor combination	Unsigned	1 = TSTAT+AI1 2 = TSTAT+AI2 3 = TSTAT+AI1+AI2 4 = AI1+AI2	W
40170	Average temperature	Signed *Scale 100*	-4000 to 10000 *Value x 100 (e.g. 5°C = 500)*	RO
40171	Maximum temperature	Signed *Scale 100*	-4000 to 10000 *Value x 100 (e.g. 5°C = 500)*	RO
40172	External sensor value of analog input 2	Signed *Scale 100*	-4000 to 10000 *Value x 100 (e.g. 5°C = 500)*	RO

400 Lebeau blvd, Montreal, Qc, H4N 1R6, Canada
neptronic.com
Toll-free in North America: 1-800-361-2308
Tel.: (514) 333-1433

Fax: (514) 333-3163
Customer service fax: (514) 333-1091
Monday to Friday: 8:00am to 5:00pm (Eastern time)

Documents / Resources

	neptronic EVCB14N Series Modbus Communication Module [pdf] User Guide EVCB14N Series Modbus Communication Module, EVCB14N Series, Modbus Communication Module, Communication Module, Module

References

- Neptronic | Home - Humidifier Distributor & HVAC Products
- Neptronic | Home - Humidifier Distributor & HVAC Products
- Neptronic | Home - Humidifier Distributor & HVAC Products