

MODBUS TABLE



Your Enclosure Source®

1) Communication Parameters

Baud Rate	19200
Data Bits	8
Start Bit	1
Stop Bit	1
Parity	Even

Modbus Default Unit Address	0x01
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Modbus Read Holding Register	0x03
Modbus Write Single Holding Register	0x06
Modbus Write Multiple Registers	0x10
Stop Bit	1

2) Modbus Table

Register Name	Address	R/W	Sign	Factor
SET_NETWORK_COOLING_SETPOINT	0	RW	S	10
SET_NETWORK_HIGH_TEMP_ALARM_SETPOINT	1	RW	S	10
SET_NETWORK_LOW_TEMP_ALARM_SETPOINT	2	RW	S	10
SET_NETWORK_HEATER_SETPOINT	3	RW	S	10
SET_ENABLE_FLAGS	4	RW	U	1
READ_CONTROL_SETPOINT	5	RO	S	10
READ_HIGH_TEMP_SETPOINT	6	RO	S	10
READ_LOW_TEMP_SETPOINT	7	RO	S	10
READ_HEATER_SETPOINT	8	RO	S	10
READ_CONTROL_SENSOR	12	RO	S	10
READ_ALARM_STATUS	14	RO	U	1
READ_OUTPUT_STATUS	15	RO	U	1
READ_CONTACT_STATUS	16	RO	U	1
SET_UNIT_ADDRESS	40	RW	U	1

R/W	Register Read/Write or Read Only
Sign	S : Signed Integer, U : Unsigned Integer
Factor	Representation Factor, example for setting SET_NETWORK_COOLING_SETPOINT to 31.5C, will need to send 315

Important Note: Modbus Write value changes create a non-volatile memory update in the unit. Values should ONLY be written from the Modbus Client/Master when the setpoint parameter needs to be changed.

All setpoints of all units can be set via Modbus with a precision of 0.1K. This means that cooling or heating can start operating at any set temperature down to 0.1K precision but accuracy/tolerance is within +/-3K. Only Variable Speed units have an accuracy of +/- 0.1K.

3) Unit Availability

Register Name	Address	Unit A
SET_NETWORK_COOLING_SETPOINT	0	✓
SET_NETWORK_HIGH_TEMP_ALARM_SETPOINT	1	✓
SET_NETWORK_LOW_TEMP_ALARM_SETPOINT	2	✓
SET_NETWORK_HEATER_SETPOINT	3	✓
SET_ENABLE_FLAGS	4	✓
READ_CONTROL_SETPOINT	5	✓
READ_HIGH_TEMP_SETPOINT	6	✓
READ_LOW_TEMP_SETPOINT	7	✓
READ_HEATER_SETPOINT	8	✓
READ_CONTROL_SENSOR	12	✓
READ_ALARM_STATUS	14	✓
READ_OUTPUT_STATUS	15	✓
READ_CONTACT_STATUS	16	✓
SET_UNIT_ADDRESS	40	✓

Unit A: NextGen with Carel Controller (1ph and 3ph)

4) Modbus Table Description

Register Name	Description
SET_NETWORK_COOLING_SETPOINT	Cooling Setpoint set from Network
SET_NETWORK_HIGH_TEMP_ALARM_SETPOINT	Alarm High Setpoint set from Network
SET_NETWORK_LOW_TEMP_ALARM_SETPOINT	Alarm Low Setpoint set from Network
SET_NETWORK_HEATER_SETPOINT	Heater Setpoint set from Network
SET_ENABLE_FLAGS	Enable Flags (Check sections below)
READ_CONTROL_SETPOINT	Control Setpoint being used by Controller (Network or Onboard Potentiometer)
READ_HIGH_TEMP_SETPOINT	Alarm High Setpoint being used by Controller (Network or Onboard Potentiometer)
READ_LOW_TEMP_SETPOINT	Alarm Low Setpoint being used by Controller (Network only)
READ_HEATER_SETPOINT	Heater Setpoint being used by Controller (Network or Onboard Potentiometer)
READ_CONTROL_SENSOR	Sensor Reading used as Internal Temperature
READ_ALARM_STATUS	Alarm Status (Check sections below)
READ_OUTPUT_STATUS	Output Status (Check sections below)
READ_CONTACT_STATUS	Contact Status (Check sections below)
SET_UNIT_ADDRESS	Modbus Address (Check sections below)

5) Enable Flags (Register SET_ENABLE_FLAGS)

Bit	Flag Name
8	EN_INPUT1_INVERT
10	EN_LOCK_KEYPAD
11	EN_TEMP_UNIT

EN-NETWORK_SETPOINTS

0: Use onboard Potentiometer for Control, High Temperature Alarm and Heater Setpoints.
1: Use settings from Modbus for Control, High & Low Temperature Alarm, Heater Setpoints.

EN_INPUT1_INVERT

0: Unit OFF when Door Contact is Open.
1: Unit OFF when Door Contact is Closed.

EN_LOCK_KEYPAD

0: Keypad Enabled.
1: Keypad Disabled.

EN_TEMP_UNIT

0: Modbus Table and Display (if available) temperature values in Celsius.
1: Modbus Table and Display (if available) temperature values in Fahrenheit.

Important Note:

Any settings in the register SET_ENABLE_FLAGS, cannot be set using Multiple Register Write (Function Code 0x10). This is done to eliminate any issues if changing the Setpoints and the Temperature type (Celsius or Fahrenheit) at the same time.

Any other bits set apart from those mentioned in this documentation, will return an Error Code 0x03.

6) Alarms (Register READ_ALARM_STATUS)

Bit	Alarm
0	High Internal Temperature
1	Low Internal Temperature
6	Faulty Internal Temperature Sensor
7	Carel/Inverter Communication Failure
8	Phase Failure

0: Alarm Not Active
1: Alarm Active

7) Output Status (Register READ_OUTPUT_STATUS)

Bit	Flag Name
0	Heater
2	Ambient Blower
3	Compressor

0: Output OFF

1: Output ON

8) Contact Status (Register READ_CONTACT_STATUS)

Bit	Contact Name
0	Door Contact 1
1	Door Contact 2
2	Door Contact 3

0: Door Contact Closed

1: Door Contact Open

9) Unit Address Change

Unit Addressed can be changed using register SET_UNIT_ADDRESS (Address 40). Changing the address involves two steps, first sending an Access Code, then sending the actual new address. This prevents accidental change of the unit address. The steps are below.

1. Send word 0x0ADD to register SET_UNIT_ADDRESS.
2. Send the New Unit Address to register SET_UNIT_ADDRESS within 10 seconds of step 1.

Address 0x00 and address 0xFF are not accepted as unit address.

Address 0xFF is considered as broadcast address, meaning the unit will always respond to this address.