LENNOX DOAS

LNX74-544.1
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INSTALLATION INSTRUCTIONS

Carel Space Temp/Humidity Sensors
Packaged Ventilation/Dedicated Outside Air System (DOAS)
model DLV

Carel Space Temperature/Humidity Sensor

⚠ WARNING

1. Disconnect power supply before making wiring connections to prevent electrical shock and equipment damage.
2. All units must be wired strictly in accordance with wiring diagram furnished with the unit. Any wiring different from the wiring diagram could result in a hazard to persons and property.
3. All wiring must be done with a wiring material having a temperature rating of at least 105°C.

IMPORTANT

1. The use of this manual is specifically intended for a qualified installation and service agency. All installation and service of these kits must be performed by a qualified installation and service agency.
2. These instructions must also be used in conjunction with the Installation and Service Manual and Controls Manual originally shipped with the unit, in addition to any other accompanying component supplier literature.

Application

The Packaged Ventilation unit has space reset capability that is typically based on conditions measured by a single Carel pAD (Ambient Display) wall stat that is available as temperature only or temperature and humidity. Space reset can be used for heating, cooling, and/or dehumidification modes. Refer to the latest revision of literature LNX74-542 for additional details on the Carel pAD.

There are applications where it may be desirable to sense space temperature and/or humidity in more than one location and use the average reading of those readings to initiate the space reset control. The pAD can be used in conjunction with up to four additional space sensors. These additional sensors do not feature any display or external controls and communicate directly with the Carel microprocessor controller on the unit.

Specifications

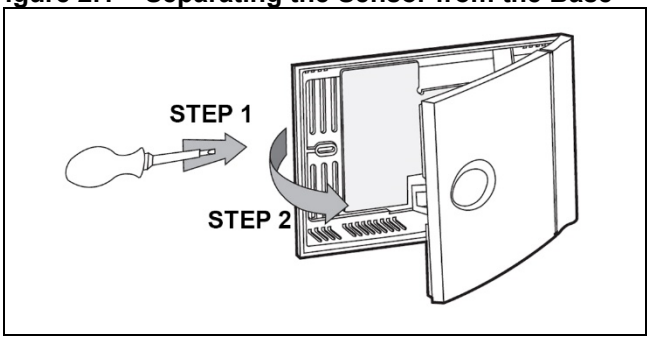
Manufacturer	Carel
Model Numbers	DPWT014000 (temperature only)
	DPWC114000 (temperature and humidity)
Power Supply Input:	24 Vac (powered from unit)
Control Signal:	Modbus RS485
Index of Protection:	IP30 (Indoor NEMA Type 1)

INSTALLATION – Carel Space Temperature/Humidity Sensors

Installation

1. Verify that the unit has been equipped with a Carel pAD Digital Wall stat and that it has been properly installed, wired, and enabled in the unit microprocessor controller, as outlined in installation instructions included with the Carel pAD.
2. To separate the sensor cover from its base, refer to Figure 2.1. Push the white tab at the side of the sensor (STEP 1) and pull the cover from the base by hinging it to the right (STEP 2).

Figure 2.1 – Separating the Sensor from the Base



3. Locate and mount the sensor in the conditioned space, considering the following:
   - Mount in a location representative of the space temperature. Do not locate on an outside wall or near supply grills, windows, or other devices that could cause incorrect temperature readings.
   - Mounting height will depend on personal preferences and applicable codes.
   - If required, the sensor can be mounted in a well-ventilated thermostat cover.
   - The sensor base will mount on a standard 2” x 4” electrical box mounted sideways.
4. Refer to Figure 2.2 and Table 2.1 for wiring connections.
   a) On the sensor terminals, run the wiring through the hole in the center of the base. The recommended control cable (for RS485 connections) is shielded 18-22 AWG Twisted Pair. For multiple sensors, the sensors are wired in series with the sensor closest to the unit wired to the terminal strip on the unit.
   b) Connect the other end of the wiring to the terminals on the unit.
5. Refer to Figure 2.2 and Table 2.2 for DIP switch settings. The sensors communicate with the unit via a Modbus serial network. Each sensor must have a unique Modbus address assigned from 128 to 131 using DIP switches 1 through 5. Note that DIP switches 6 and 8 must be in the OFF position and switch 7 must be in the ON position.

Figure 2.2 – DIP Switches and Wiring Terminals

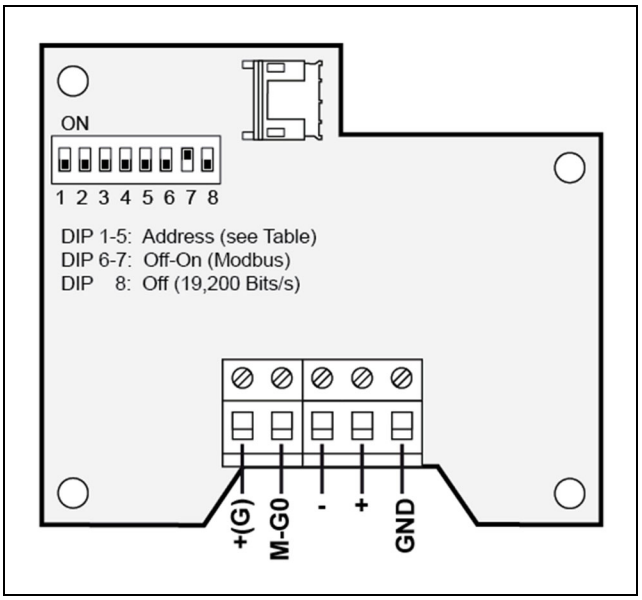


Table 2.1 – Terminal to Terminal Wiring Connection

Terminal on Sensor	Terminal Strip on Unit*
+/G (24 Vac)	503
M/G0 (ground)	500
- (RS485 negative)	914
+ (RS485 positive)	913
GND (RS485 reference)	GND

Table 2.2 – Sensor DIP Switch Settings

Sensor #	Modbus Address	DIP Switch (1-5) Settings				
		SW1	SW2	SW3	SW4	SW5
1	128	OFF	OFF	OFF	OFF	OFF
2	129	ON	OFF	OFF	OFF	OFF
3	130	OFF	ON	OFF	OFF	OFF
4	131	ON	ON	OFF	OFF	OFF

6. Holding the sensor cover on the outer edge, reinstall the cover on the base by hooking the side of the cover into the base and hinge closed. Do not force the cover into place or touch the components on the sensor base.
7. For the sensor(s) to function correctly, they must be enabled in the main unit microprocessor controller. This is typically done at the factory in the “Service Settings/Fieldbus Settings”. Typical settings:
   - Fieldbus 2 must be set to Modbus
   - Each sensor (Serial probe) used must be turned on and set as temperature or temperature/humidity.
   - The temperature (and humidity if included) processes must be set as AVERAGE.

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