

INSTALLATION INSTRUCTIONS

Carel pAD digital wall sensor model series “D”, “H”, “I”, “O”, and “MPR”

Carel pAD Digital Wall Stat/Humidity Sensor^①



^① Generic image shown. Actual screen contents may be different.



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 Carel pAD (Ambient Display) wall sensor is available as temperature only or temperature and humidity. The sensor is typically mounted in the occupied space and is used in conjunction with a Carel programmable microprocessor controller mounted on the following models:

- Indirect Gas-Fired Make-Up Air units, model series “D”, “H”, “I”, and “O”, with model number Digit 12=9.
- All Packaged Ventilation/Dedicated Outside Air System (DOAS) units, model “MPR”.

Functions of the pAD include:

- Change temperature setpoints
- Change humidity setpoints (if applicable)
- Clock display
- Alarm indication
- Time clock override
- Display of icons (refer to page 2)

Specifications

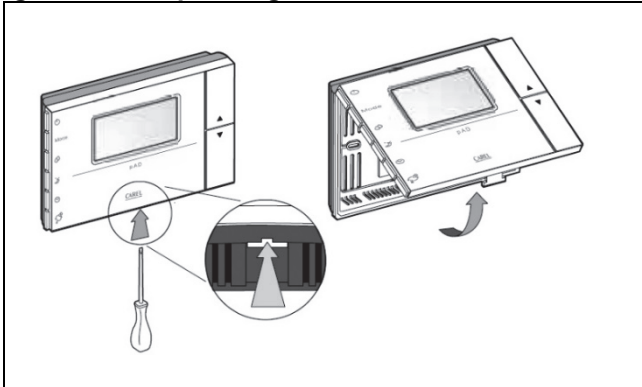
Manufacturer	Carel
Model Numbers	ADP <u>C</u> 003000 (temperature only)
	ADP <u>H</u> 003000 (temperature and humidity)
Power Supply Input:	24 Vac (powered from unit)
Power Consumption:	1 Watt Maximum
Operating Conditions:	• 32°F to 122°F • 10 to 85% Relative Humidity (non-condensing)
Index of Protection:	IP30 (NEMA Type 1)

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Installation

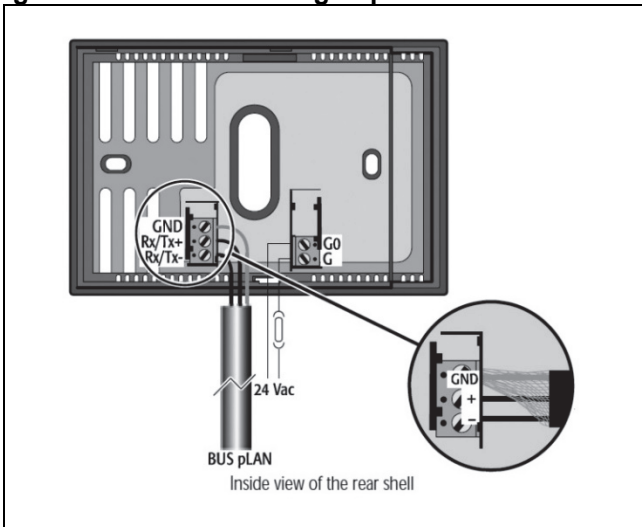
1. Separate the sensor from its base by pushing the white tab at the bottom of the sensor and pull the white body from the gray base by hinging it up from the bottom. Refer to Figure 2.1.

Figure 2.1 – Separating the Sensor from the Base



2. 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.
3. Connect the control wiring to the base terminals, running the wiring through the hole in the center of the base. The recommended control cable is 18-22 AWG 4-Core Twisted Pairs. Refer to Figure 2.2.

Figure 2.2 – Control Wiring to pAD Sensor Base



4. Connect the control wiring to the terminals on the unit as indicated in Table 2.1.

Table 2.1 – Terminal to Terminal Wiring Connection

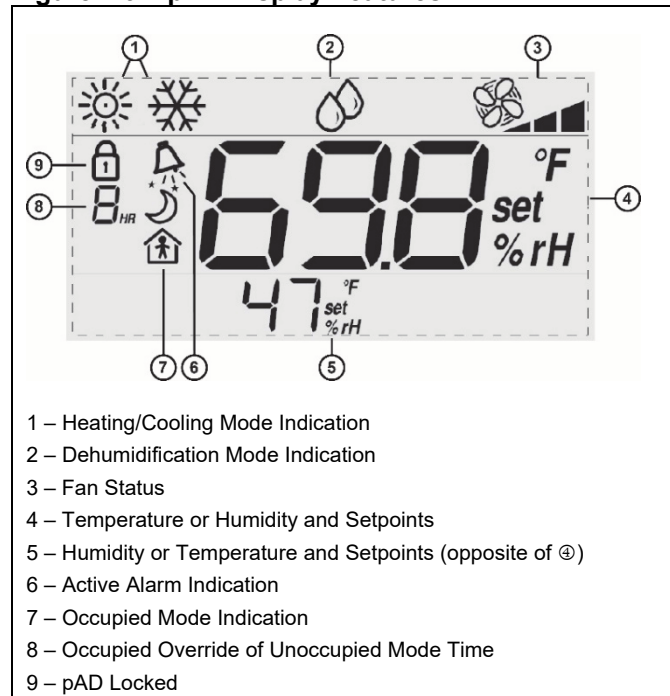
Terminal on pAD	Terminal Strip on Unit
G (24 Vac)	503
G0 (ground)	500
GND (pLAN)	900
Rx/Tx+ (positive pLAN)	901
Rx/Tx- (negative pLAN)	902

5. Holding the sensor on the outer edge of the enclosure, reinstall the sensor on the base by hooking the top of the sensor into the base and hinge down, making sure the pins line up. DO NOT force the sensor into place or touch the components on the back of the sensor.
6. For the pAD Sensor to function correctly, the pAD setting must be enabled in the main unit Carel controller. This is typically done at the factory in the "Service Settings".

Display Features

Figure 2.3 shows the display features of the pAD. Note that the pAD has other display features that are not used with these unit applications.

Figure 2.3 – pAD Display Features



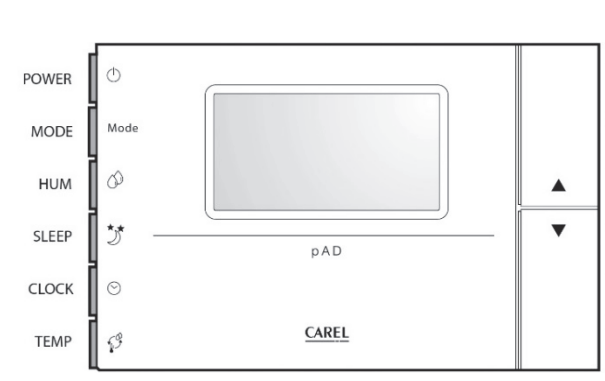
- 1 – Heating/Cooling Mode Indication
- 2 – Dehumidification Mode Indication
- 3 – Fan Status
- 4 – Temperature or Humidity and Setpoints
- 5 – Humidity or Temperature and Setpoints (opposite of ④)
- 6 – Active Alarm Indication
- 7 – Occupied Mode Indication
- 8 – Occupied Override of Unoccupied Mode Time
- 9 – pAD Locked

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Button Features

The pAD has several buttons to control certain functions. Refer to Figure 3.1 for the buttons and button functions (note that not all are used with these unit applications):

Figure 3.1 – pAD Button Features

	
POWER	Used to Turn Unit On and Off (if enabled in the main unit controller)
MODE	Used to Reset an Alarm Condition (no other function)
HUM	Display & Change the Humidity Setpoint
SLEEP	Unoccupied Override
CLOCK	Not Used (time set by main unit controller)
TEMP	Display Alternative Information
UP	Change Cooling, Heating, or Humidity Setpoints
DOWN	

Operation

With the display and button features, basic unit control and/or monitoring can be performed. Under normal operation the display will show:

- Current Time (supplied from main unit controller)
- Current Day (supplied from main unit controller)
- Current Room Temperature, Humidity, Cooling Setpoint or Heating Setpoint.
- Current Room Humidity Level
- Current Mode (Occupied or Unoccupied)
- Compressor / Fan Speed

Using the buttons on the pAD, adjustments can be made to these currently displayed conditions. Note that only occupied setpoints can be changed. The setpoint adjustment range can be limited in the main unit controller using a service keypad (see main unit Controls Manual that shipped with the unit).

Adjusting the Temperature and/or Humidity Setpoints:

To change the temperature setpoint, use the “Up” or “Down” arrows to change the value. This changes the Cooling Setpoint. The Heating Setpoint will be 4°F below the Cooling Setpoint. For example, if the Cooling Setpoint is 74°F, the Heating Setpoint will automatically be set to 70°F.

To change the humidity setpoint, press the “Hum” button and the Humidity setpoint will be displayed. Use the “Up” or “Down” arrows to change the setpoint.

Unoccupied Mode Override to Occupied Mode:

In unoccupied mode you can press the “Sleep” button to activate Occupied Override. Each press of the button increases the override time by an hour. To cancel, wait a few seconds then press the “Sleep” button once and the override will be canceled.

Clearing Alarms:

The pAD will display Remote Alarm from the main unit controller, if an alarm occurs the “Bell” symbol will flash and the main display will alternate between the temperature & “Air”. To clear an alarm, press the “Mode” button. Note that active alarms cannot be cleared and Service Personnel must be called to determine the source of the alarm and correct.

Programming the Sensor:

The sensor ships from the factory fully programmed. If changes are required follow the instructions below.

Note: This should only be done by a qualified service technician.

Press “UP” and “DOWN” together until “PAR” is displayed in the main screen. While still holding the “UP” arrow, release the “Down” arrow, then press the “TEMP” button.

To cycle through the values, use the “UP” and “DOWN” arrows. To make a change, press the “TEMP” button, the display will flash, and then make the change using the “UP” and “DOWN” buttons. When done, press the “TEMP” button.

To finalize the operation, press & hold “TEMP” until the normal display is returned, then press resume. If this is not done the changes will not be made.

Table 3.1 – Default pAD Program Parameters

Code	Default	Description
Ad01	4	pLAN Address (do not change)
Ad02	1	Not Used (Rev 1.3 pAD only)
Br01	0	pLAN Baud Rate (do not change)
Br02	0	Not Used (Rev 1.3 pAD only)
En01	0	Enable Buzzer 1=on 0=off
Pco1	0.0	Temperature Calibration -9.9 to +9.9
Fr01		pAD Firmware Revision Number
Prot	1	Not Used (Rev 1.3 pAD only)

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Modine Manufacturing Company has a continuous product improvement program,
and therefore reserves the right to change design and specifications without notice.

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