CHTDL Series
Duct CO2/RH/T combo sensor

IMPORTANT WARNINGS

- Only qualified trade installers should install this product
- This product is not intended for life-safety applications
- Do not install in hazardous or classified locations
- The installer is responsible for all applicable codes
- De-energize power supply prior to installation or service

PRODUCT APPLICATION LIMITATION:
Senva products are not designed for life or safety applications. Senva products are not intended for use in critical applications such as nuclear facilities, human implantable device or life support. Senva is not liable, in whole or in part, for any claims or damages arising from such uses.

INSTALLATION

1. Drill a 3/4" hole in the duct. Install sensor using gasket and screws provided. The specially designed pickup tube will ensure adequate air flow regardless of air flow direction.

2. Determine if cable gland or conduit adapter (not provided) will be utilized for installation. For conduit connection, remove cable gland and replace with conduit adapter.

3. Wire sensor according to the product labeling[1]. Terminal block is removable:

POWER V$_{IN}$
GND/COMMON

OUT CO2
OUT T
OUT RH
CO2 RELAY/TH
CO2 RELAY/TH

RTD/THERMISTOR LABEL

[1]If CHTDL was ordered with RTD/Thermistor option, CO2 relay has been replaced with RTD/Thermistor on terminal block.
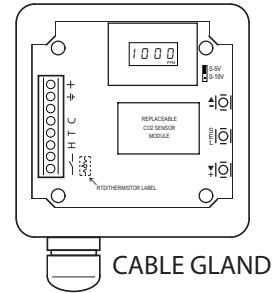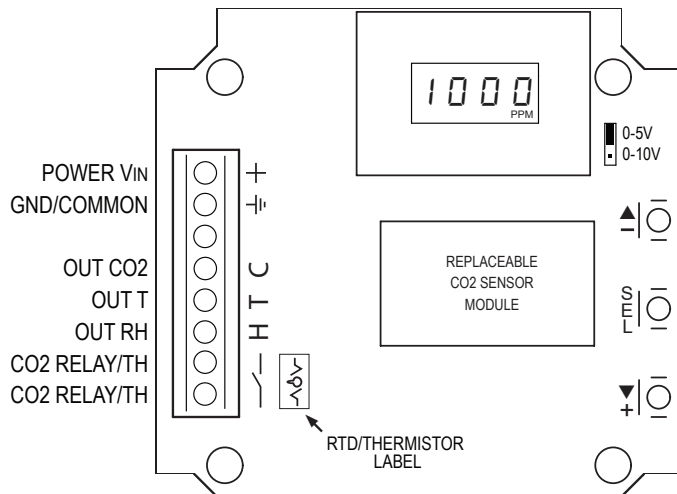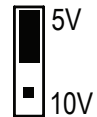
INSTALLATION (CONTINUED)

4. Tighten cable gland firmly around wires. If using conduit adapter, seal wire entry to avoid airflow entering enclosure via conduit.

CABLE GLAND

5. Set output voltage jumper to 5V or 10V.

5V
10V

6. Apply power to sensor.

7. Optional setup functions:

SETUP MENU GUIDE

HOLD ▼AND▲ FOR 10 SECONDS TO ENTER SETUP MENU

PRESS ▼ OR ▲ TO CHOOSE PARAMETER TO ADJUST:

SPH	Setpoint, High (Relay closed above this level)
SPL	Setpoint, Low (Relay open below this level)
SCL	CO2 Scaling "2" = 2000ppm, "5" = 5000ppm
AdJ	Manual calibration adjustment +/-250ppm
CAL	Automatic calibration - ON/OFF/RST (reset)
FoC	Temperature units °F or °C
RUN	Exit setup mode - displays CO2, RH, Temp (toggling)

PRESS **SEL** (SELECT) TO EDIT SELECTED PARAMETER

PRESS ▼ OR ▲ TO CHANGE VALUE

PRESS **SEL** (SELECT) TO RETURN TO PARAMETER MENU

WHEN SETUP IS COMPLETE, SELECT RUN, OR WAIT FOR SETUP MODE TO AUTOMATICALLY TIME-OUT AND REVERT TO RUN MODE.

8. Close/latch housing cover and tighten screw.

OPERATION

In normal operation, display toggles between CO2, RH and temperature readings. If CO2 levels are above the high setpoint, display will toggle On after the CO2 readout until the reading drops below the low setpoint.

Automatic CO2 Calibration feature:
When CAL mode is set to ON, the sensor will automatically track baseline CO2 levels and gradually make adjustments to compensate for sensor drift due to long-term aging of the IR light source. In applications where CO2 levels are continuously elevated, or spaces are occupied day and night, it is recommended to leave the automatic calibration OFF. If the sensor module is replaced in the field, the adjustment can be reset by selecting the RSt (reset) option in the CAL menu.

SPECIFICATIONS

Power supply		12-30VDC/24VAC [1], 100mA max.
Outputs	Voltage Only	3-wire 0-5V/0-10V [2] (jumper selectable)
Digital Setpoint Output	Programmable	Solid-state, 1A@30VAC/DC, N.O.
Output Scaling	CO2	0-2000ppm (default), 0-5000ppm (configurable)
	RH	0-100%
	Temperature	32-122°F (0-50°C)
RTD/Thermistor	Optional	See ordering table (replaces relay output)
CO2	Type	Non-dispersive Infrared (NDIR)
	Accuracy	+/-40ppm +/-3% of reading
	Response time	2 minutes to 90% reading
	Update rate	3 seconds
Relative Humidity	Accuracy	+/-2% over 10 to 90% range
	Resolution	0.05%RH
	Hysteresis	+/-1%RH
	Non-linearity	Factory linearized <1%RH
	Temperature coefficient	Fully compensated by on-board sensor
	Response time [3]	30s
	Output update rate	2s
	Operating range	0 to 100%RH (non-condensing)
	Long term drift	<0.5%RH per year
	Operating conditions [4]	-20 to 60°C @ RH >90%, -20 to 80°C @ RH = 50%
Temperature (Transmitter)	Accuracy, (-20 to 70°C range)	<+/-1°C; 0.5°C typ@25°C
	Resolution	0.01°C
	Repeatability	+/-0.1°C
	Response time [3]	30s
	Output update rate	2s
	Operating range	-40 to 120°C (sensor only)
LCD Menu Setup Parameters	5PH, Setpoint, High (On) Point	500 to 1999ppm (800ppm default)
	5PL, Setpoint, Low (Off) Point	400 to 1999ppm (700ppm default)
	5CL, Scaling CO2 Output Range	2 = 0-2000ppm (default), 5 = 0-5000ppm
	AdJ, Adjustment CO2 Offset	Offset adjustment +/-250ppm (0 = default)
	CAL, Calibration Mode	Automatic mode On/rSt/OFF (On = default)
	FoC, Temperature Units	F = °F (default), C = °C
	rUn, Run Mode	Displays CO2, RH, Temp readings
Operating Environment	Temperature	32 to 122°F (0-50°C)
	Humidity	0-95%RH, non-condensing
Enclosure	Material	ABS/Polycarbonate
	Dimensions	4.0"h x 4.4"w x 2.1"d (+6.8" probe)

(1) One side of transformer secondary is connected to signal common. Dedicated transformer is recommended.
(2) 15-30VDC/24VAC power supply voltage required for 10 volt output.
(3) Time for reaching 63% of reading at 25°C and 1 m/s airflow.
(4) Long term exposures to conditions outside normal range or high humidity may temporarily offset the RH reading (+3%RH after 60 hours.)

TROUBLESHOOTING

Symptom	Solution	Symptom	Solution
No output	Check wiring. Ensure power supply meets requirements.	Reading error	Verify control panel software is configured for correctly.
Reading error	Verify unit is located away from hot/cold sources.		Verify accuracy of test instrument.
			Reset automatic CO2 calibration feature in LCD menu