

# Outside Air Combo CO2/Humidity/Temp

- LCD display with field calibration menu
- 2000/5000 ppm CO2; 2% RH
- Integrated set-point relay
- Field replaceable NDIR CO2 element



## DESCRIPTION

The CHTOL Series is designed to be mounted on the building exterior to provide outside CO2, relative humidity and temperature measurement all from one outdoor rated enclosure. The standard LCD, gasketed lid and field replaceable CO2 element make initial installation and future service a breeze. The CHTOL can also be customized with optional RTDs or thermistors for further added flexibility when ordering.

## APPLICATIONS

- Outdoor CO2, humidity and temperature measurement for building control
- Economizer control
- Facilitates compliance with ASHRAE 62.1 standard for air quality

## FEATURES

### CO2, humidity, and temperature all in one device...fewer units to buy and install

- LCD display for easy set up of all parameters
- Options for complete control including set-point
- 0-5/10V outputs standard. Thermistors optional

### High performance NDIR CO2 with set-point relay

- Non-dispersive infrared sensing element (NDIR)
- Selectable auto-calibration mode returns sensor to baseline values
- Field replaceable CO2 sensor
- 2000 or 5000 ppm scale

### 2% RH sensor

- On-board temperature compensation for RH eliminates temp coefficient errors achieving excellent measurement accuracy, high repeatability and offset stability.

### Quality

- Outdoor rated enclosure includes gasketed lid and solar shield with sintered filter for RH element.
- Industry leading 7-year limited warranty: 2-year RH element, 3-year CO2 element limited warranties

#### Display and menu

- Easy set point and calibration adjustments. Set offsets for CO2

#### Field replaceable element

- Display and menu
- Easy set point and calibration



7 year limited warranty

**ORDERING**
**CHTOL -**


CO2/Temp/RH (2%)

**Thermistor Addition\***

- Blank = None
- C = 100Pt (385)
- D = 1000Pt (385)
- E = 10k type 2
- F = 10k type 3
- G = 10k w/11k shunt
- H = 3k
- I = 2k2
- J = 1k8
- K = 20k'
- L = 100K

*\*Addition of Thermistor requires the removal of the setpoint relay on the circuit board of the CHTOL.*

*To order replacement sensor elements, please consult factory*

**SPECIFICATIONS**

Power Supply		12-30VDC/24VAC <sup>(1)</sup> , 100mA max.
Outputs	Voltage Only	3-wire 0-5/0-10V <sup>(2)</sup> (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
	Output update rate	3 seconds
Relative Humidity	Type	Capacitive CMOS
	Accuracy	+/-2% over 10 to 90%RH range
	Resolution	0.05%RH
	Hysteresis	+/-1%RH
	Non-Linearity	factory linearized <1%RH
	Temperature coefficient	fully compensated on-board
	Response time <sup>(3)</sup>	30s
	Output update rate	2s
	Operating range	0 to 100%RH (non-condensing)
	Long term drift	<0.5%RH per year
Operating conditions <sup>(4)</sup>		-20° C to 60° C @ RH>90%
		-20° C 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 <sup>(3)</sup>	30s
	Output update rate	2s
LCD Menu Setup Parameters	Operating range	-40° C to 120° C (sensor only)
	SPH, Setpoint, Hi (On) point	500 to 1999ppm (800ppm default)
	SPL, Setpoint, Lo (Off) point	400 to 1999ppm (700ppm default)
	SEL, Scaling	0-2000ppm or 0-5000ppm (2000ppm default)
	Adj, Adjustment	Offset adjustment +/-250ppm (0 default)
	CR, Calibration mode	Automatic mode ON/RESET/OFF (default=ON)
	FoC, Temperature units	F = °F (default), C = °C
Operating Environment	Run mode	Displays CO2, RH, Temp readings
	Temperature	32 to 122°F (0 to 50°C)
Enclosure	Humidity	0-95% non-condensing
	Material	ABS/Polycarbonate
	Dimensions	4.0" h x 4.4" w x 2.1" d (+2.8" solar shield)

(1) One side of transformer, secondary is connected to signal common. Dedicated transformer is recommended.

(2) 15-30 VDC/24VAC power supply voltage required for 10V 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 at high humidity may temporarily offset the RH reading (+3%RH after 60 hours.)