CRYOTRONIX

The Model 033 is a non-dispersive infrared gas monitor designed as a fully functioning stand-alone unit for the continuous monitoring of carbon dioxide. It senses and indicates carbon dioxide over the range of 0-1% and provides a linear output of 0-5 VDC and 4-20 mA as a function of carbon dioxide concentration .

The infra-red electro-optics sensor mounted in the unit contains the gas flow optical path. It emits infra-red energy at a particular frequency which is very specific to carbon dioxide and is not effected by humidity. The pumped gas sampling circuit has a self-draining water trap. This eliminates difficulties with water condensation in the sample lines. It has a 0.5 inch digital readout and an adjustable level detect circuit with associated front panel indicator (green and red) and SPDT relay contacts .

This low power, water resistant system makes this an ideal remote sensor to interface with any central control unit. In either configuration, interfaced or stand-alone, this device is an excellent choice for any environment in which the level of carbon dioxide must be monitored or controlled .

Note : This unit is not explosion-proof and should not be placed in any hazardous location .

The model 033 consists of a circuit board with the gas sensor, a regulated 12 VDC & 5VDC internal power supply, interruption switch, sample flow pump, electronic indicator and all fuses and resets. The whole system is contained in a NEMA 4 enclosure .

The unit contains a pulsed infra-red source, a gas sample cell, optical filter and detector. The detector provides an electronic output which is converted into gas concentration values .

Gas detection by the infra-red method is based on the principle that most gases absorb infra-red energy at a characteristic frequency. In this instrument, a broad band infra-red source emits energy which is then filtered to produce a narrow range of frequencies characteristic of the carbon dioxide absorption spectra. The band pass filter is chosen to match a strong absorption band of carbon dioxide while avoiding absorption bands from other gases which may be present .

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Gas detection method	N.D.I.R. (non-dispersive infra-red) sample draw type gas cell
Gas(es) detected	Carbon dioxide (CO_2)
Instrument range	0 to 1 % carbon dioxide in air (0-10,000 ppm) (scalable)
Instrument accuracy	± 100 ppm or 2 % of CO_2 reading
Instrument repeatability	± 1 % of full scale
Zero drift	At constant temperature ; less than 2% of full scale per month (random not cumulative) Due to ambient temperature ; less than 0.5% of full scale per degree Centigrade.
Zero noise	Less than 50 mV peak to peak, during any 20 second period
Electronic response time	Less than 60 seconds for a 90% step
External power source	115 VAC, 60 Hz.
Power consumption	Less than 8 Watts @ 115 VAC
Set point range	Adjustable set point Adjustable from 0 ppm carbon dioxide to full scale
Contact rating	SPDT contacts, non-latching, NC. , NO. 3 Amp.max. @ 250 VAC
Display	0.5" digital LCD readout
Output signals	0 to 5 VDC = 0 to 1% CO_2 , linear 4 to 20 mA = 0 to 1% CO_2 , linear, 0 to 550 Ohm load
Audio alarm	Two stage ; beeps once per second when LOW set point is exceeded, and is continuous when HIGH set point is exceeded.
Visual alarm indication	Red LED (continuous) on when HIGH set point exceeded
Operating temperature	0 to 50 /C (32 to 122 /F)
Operating rel.humidity	5 to 95 % RH non-condensing
Sample gas flow rate	0.6 to 0.8 scfh
Inlet connection	1/8" NPT female
Overall dimensions	197 mm wide x 302 mm high x 115 mm deep (7.75 x 1.75 x 4.5")
Shipping weight	2.2 kg. approx. (5 lbs.)
Initial output set point	0.51 % CO_2 (5100 ppm)
Initial output hysterisis	50 ppm (deviation from setpoint)

Model	Gas	Range	Alarm Set	Alarm	Output & Options
033T-	C = CO_2	0 to 9999 ppm	Specify in ppm	0= Panel light w/ buzzer (Standard) 1= Strobe beacon 2 = Heated enclosure	0= Relay &4-20 mA output (Standard) 1= 0 to 10 VDC output 2= Auxiliary relay 3= Steel enclosure 4= Stainless enclosure 5= 4-20 mA control output
Example : 033T-C9999-5000-1-0 will denote a carbon dioxide analyser 0-10000 ppm (1%) with alarm set at 5000 ppm with panel light alarm, 4-20 mA output and beacon .					

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