

AIR QUALITY SMART SENSOR

H₂S O₂ COMBUSTIBLES CL₂ CO SO₂ O₂



Model 295 One Relay
Model 395 Three Relays
Ultra 1000 RS485

FEATURES:

- Microprocessor Smart Sensor
- Replaces Most 3 Wire Sensors
- One Person Calibration
- Field Adjustable Alarm
- Fail Safe Operation

DESCRIPTION

The Model 295/395/1000 is a microprocessor based, **Combustible, H₂S, CO, SO₂, CL₂ and O₂ Smart Sensor**. The 3 digit display prompts the user through the calibration procedure, displays fault codes and the concentration of gas detected in % or ppm. The 295/395/1000 provides a linear 4-20ma analog output proportional to the concentration of gas it detects. The sensor is available with a non-intrusive calibration feature that is activated with a magnet or infrared pen that allows the unit to virtually calibrate itself. Other features allow the user to enter the enclosure and manually adjust the zero and span settings.

OPERATION

The 295/395/1000 utilized a field proven pellister type catalytic bead sensor for monitoring concentrations of combustible gas, a solid state semi conductor for H₂S and an electrochemical cell for CO, SO₂, CL₂, O₂ and certain H₂S applications. The signal generated from the sensor is digitized and interpreted by the microprocessors programming. The information is then processed and a 4-20ma output signal proportional to the concentration is produced. Activation of the calibration mode changes the signal output to a 1.5ma standard. This allows the user to calibrate the sensor without alarming the host controller. All relay functions are bypassed during calibration. All fault or error codes are shown on the L.E.D. display for troubleshooting purposes. The signal output drops below 1.0ma for a fault condition.

CALIBRATION

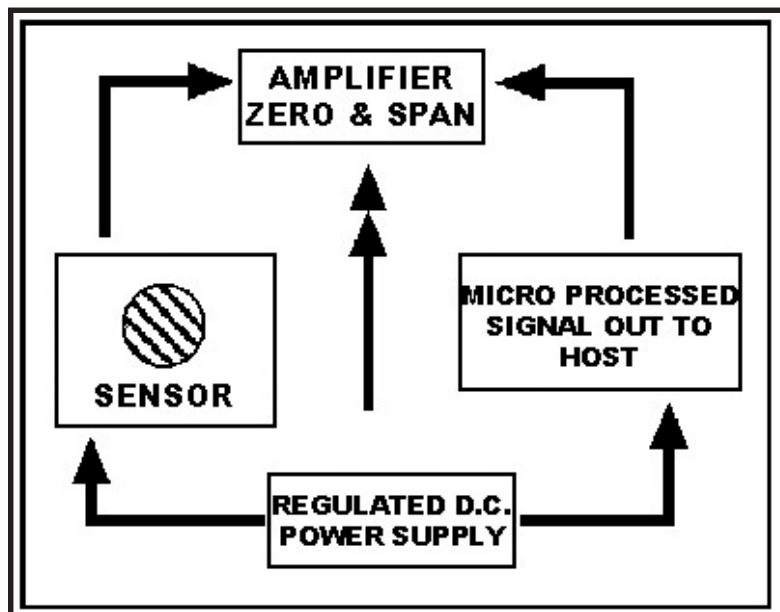
Activating the calibrate mode disables the relay, shunts the output signal to 1.5ma, and causes the display to flash. Apply the recommended gas standard and observe the display. When the reading stabilizes, activate the calibrate switch to end the cycle and record the calibration information in non-volatile memory. Remove the gas sample and as the level falls below 5 (% , ppm), the unit will return to normal operation. If the calibration is not completed within a specified time period, the 295/395 will automatically default to the last recorded calibration and return to normal operation as part of a fail safe program.



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PRINCIPLE OF OPERATION



The regulated d.c. power supply provides a constant standing voltage. The gas diffuses through a porous filter and contacts the surface of the sensor element. A change in resistance occurs that is proportional to the concentration at gas applied. This signal is then amplified and sent to the microprocessor. The microprocessor digitizes the data and processes the information to the L.E.D. display and provides any one of a number of outputs to a host controller or monitor.

ORDERING INFORMATION: 295/395/1000

LEL	0-100% LEL of Hydrocarbons complete with transmitter, sensor and rain guard.
CO	0-100 PPM of Carbon Monoxide complete with transmitter, sensor and rain guard.
SO ₂	0-20 PPM of Sulfur Dioxide complete with transmitter, sensor and rain guard.
CL ₂	0-25 PPM of Chlorine complete with transmitter, sensor and rain guard.
O ₂	0-30% of Oxygen complete with transmitter, sensor and rain guard.
H ₂ S	0-100 PPM of Hydrogen Sulfide complete with transmitter, sensor and rain guard.

OPTIONS:

PS110 110 VAC to 12vdc power converter

SPECIFICATIONS

Sensor Type: Catalytic Bead	Hydrocarbons
Solid State	H ₂ S
Electrochemical Cell	H ₂ S, CO, SO ₂ , CL ₂ & O ₂

Zero & Span Drift: Less than 2% per month

Repeatability: +/- 2% of full scale Accuracy: +/- 3%

Life:	Catalytic Bead	3 years
	Solid State	3 years
	Electrochemical Cell	2 years

Temperature Range: -40°F to +180°F

Response Time @ 50% of Full Scale Applied:

Catalytic Bead	95% in 30 seconds
Electrochemical Cell	90% in 30 seconds
Solide State	75% in 60 seconds

Class: CSA Class I, Division I

Cable: Three Conductor

Dimensions: 8"H x 5.25"W x 4.75"D

Weight: 4.5 pounds

Conduit: 3/4" NPT

Analog Output: Linear 4 - 20mA - zero to full scale
1.5mA - Calibrate Mode
1.0mA - Sensor Fail

Power: 12 - 24 VDC

Range:	Hydrocarbons	0 - 100% LEL
	H ₂ S, CO & SO ₂	0 - 100 PPM
	CL ₂	0 - 25 PPM
	Oxygen	0 - 30%
	SO ₂	0 - 20 PPM

Display: L.E.D. Alphanumeric for Diagnostic Data, Calibration and Concentration

Relay: SPDT 2 amp. @ 30VDC or 1.5 amp. @ 125 VAC
Model 295 Optional 1 relay Model 395 3 relays
Standard

Warranty: 1 year electronics & workmanship
1 year sensor element

(Other Warranties Available)