

Model S4100T

H₂S Addressable Transmitter



General Monitors



Applications

- Refineries
- Drilling platforms and rigs
- Gas and oil production platforms
- Mud logging operations
- Desulphurisation facilities
- Heavy water nuclear facilities
- Wastewater treatment plants
- Chemical plants
- Well head sites
- Oil recovery/reinjection sites

Features & Benefits

- RS-485 dual Modbus serial interface in addition to 4 – 20 mA provide measurement, setup and status of up to 247 nodes.
- 18.5 – 35VDC operation allows for longer cable runs and lower cost installation.
- User-changeable H₂S range provides convenient, flexible operation.
- Three-digit display offers over-scale readings and alarm status.
- Single-point calibration enables easy, fast and simple one-person calibration.
- Fully adjustable and configurable open collector outputs result in lower wiring cost and flexible operation.

Description

The General Monitors Model S4100T Hydrogen Sulphide Addressable Transmitter is a highly reliable, self-contained, microprocessor- controlled single-point monitor with integral three-digit readout. It is designed to measure and display concentrations of H₂S in three ranges: 0 – 20 ppm, 0 – 50 ppm or 0 – 100 ppm, but will continue to display concentrations up to 120 % FSD. The sensing element may be incorporated in the transmitter housing or remotely mounted at distances in excess of 600 m.

The S4100T records the number of successful calibrations, computes sensor resistance in Kohms during calibration and stores sensor condition data in a non-volatile memory, together with calibration and setup parameters.

The S4100T's user interface is menu-driven. In addition, the instrument may be addressed via the dual Modbus RTU interface that is based upon the RS-485 standard. Modbus output provides status, alarm, fault, and other information for operation, trouble-shooting or unit configuration.

A1 and A2 Alarm Trip levels are user-selectable in 1 ppm increments from 1 – 19 ppm for 0 – 20 ppm, 5 – 45 ppm for 0 – 50 ppm or 10 – 95 ppm for 0 – 100 ppm measuring range. Calibration level is 50 % of selected measuring range.

Specification	
APPLICATION SENSOR TYPE	Hydrogen sulphide gas monitor continuous diffusion, thin-film MOS, adsorption type
MEASURING RANGE	0 – 20 ppm, 0 – 50 ppm and 0 – 100 ppm
MEASURING RESOLUTION	1 ppm
OVER-RANGE INDICATION	Display flashes for readings greater than 99 % FSD, but continues to display gas concentration up to 120 %
CALIBRATION LEVEL	50 % of selected measuring range
A1 TRIP LEVEL*	1 ppm increments 1 – 19 ppm for 0 – 20 ppm measuring range, default 5 ppm 5 – 45 ppm for 0 – 50 ppm measuring range, default 10 ppm 10 – 60 ppm for 0 – 100 ppm measuring range, default 25 ppm
A1 OPEN COLLECTOR OUTPUTS*	Energised/de-energised and Latching/non-latching
A2 TRIP LEVEL*	1 ppm increments 1 – 19 ppm for 0 – 20 ppm measuring range, default 10 ppm 10 – 45 ppm for 0 – 50 ppm measuring range, default 25 ppm 10 – 95 ppm for 0 – 100 ppm measuring range, default 50 ppm
A2 OPEN COLLECTOR OUTPUT*	Energised/de-energised and Latching/non-latching
FAULT OPEN COLLECTOR OUTPUT	Normally energised
ANALOG OUTPUT DURING CALIBRATION*	0.0 mA, 1.5 mA or 2.0 mA
SERIAL COMMUNICATIONS INTERFACE	Dual RS485 Modbus, min. 2400, max. 19200 Baud EIA 485 Standard & Modicon
STABILITY, LONG TERM	± 4 ppm or 10 % of applied gas whichever is greater (over 21 days)
ACCURACY (LINEARITY)	± 2 ppm or 10 % of applied gas whichever is greater (10° C to + 50° C)
RESPONSE TIME	T ₅₀ < 10 seconds
APPROVALS	Hazardous area standard - ATEX 112G- EEx em II T5 (–40° C to + 55° C) & T4 (–40° C to + 70° C) IP66/67. Approved for Russia and Kazakhstan Tested to EN 60079-0:2009, EN 60079-7:2007, EN 60079-18:2009

* User selectable

Electronics and detector are suitable for SIL 3 stand-alone, non-voting application and have safe fail figure of >99 % (SFFF).

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Mechanical Specifications	
HEIGHT EXCL. SENSOR	150 mm (6")
HEIGHT INCL. SENSOR	200 mm (8")
WIDTH	150 mm (6")
DEPTH	95 mm (3.75")
WEIGHT INCL. SENSOR	2.5 kg (5.5 lbs)
MOUNTING HOLES	4 × 7 mm (0.28") dia holes
TERMINATION	EExe II terminal block
Environmental Specification	
OPERATING TEMPERATURE RANGE (CONTINUOUS) MIN/MAX	–40° C to + 70° C
STORAGE TEMPERATURE RANGE MIN/MAX	–50° C to + 85° C
RELATIVE HUMIDITY MIN/MAX	10 % to 95 %, non-condensing
EMI/RFI SUSCEPTIBILITY	Meets relevant standards EN50270, EN55011:ENV50204
EMI/RFI EMISSION	Meets relevant standards EN50270, EN55011:ENV50204
Electrical Specification	
SUPPLY VOLTAGE MIN/MAX	18.5 VDC / 35 VDC
ELECTRICAL CONNECTION	Screened and armoured 3 core cable
SUPPLY CURRENT CONSUMPTION, INCLUDING SENSOR TYP/MAX	140 mA/200 mA @ 24 VDC
SUPPLY FUSE RATING	18VDC – 35VDC operation, 500 mA Char 'T' PC ≥ 1500 A
ANALOG OUTPUT CURRENT RANGE	0 – 22 mA
ANALOG OUTPUT TERMINATION RESISTANCE MIN/MAX	(Including total cable resistance) 0 – 750 ohms
ANALOG OUTPUT OPEN-CIRCUIT DETECTION CURRENT MIN/MAX	1 mA – 22 mA
ANALOG OUTPUT FUSE RATING	63 mA Char 'F' PC ≥ 1500 A
STANDARD CONFIGURATION	S4100T-15-0-1 51457-9 0-20 ppm sensor, no additional sensor housing