

T100 Toxic Gas Detector

- 2-wire, 4-20mA Transmitter
- Plug-in electrochemical sensor
- Built-in ZERO & SPAN controls
- One person calibration
- SMD electronic circuitry
- Enhanced RFI and EMI resistance
- Cost effective with high performance
- Works with most 4-20mA controllers
- Calibration gas ampoules available
- Certified ATEX II 2 G EEx ia IIC T4

The T100 is a 4-20mA, 2-wire transmitter to measure a wide range of gases and is housed in a rugged, compact metallic enclosure. It incorporates advanced SMT electronics and an electrochemical sensor based on micro fuel cell technology, designed to be maintenance free and inherently stable.

The sensor uses the highly successful capillary diffusion barrier technology, resulting in a low temperature coefficient and a direct response to concentration, relatively unaffected by pressure. The use of electrodes based on fuel cell technology gives a high reserve of activity which results in long term stability.

Gas diffusing to the sensor electrode reacts at the surface of the electrode either by oxidation (e.g. CO, H₂S, SO₂, NO, H₂, HCN, HCl, O₂, C₂H₄O, SiH₂, NH₃, etc) or by reduction (NO₂, O₃, ClO₂, and Cl₂). Reactions are catalysed by specially developed electrode materials and are designed to be specific to the gas being sensed.



CGS500 Combustible Gas Detector

- Temperature compensated
- Low drift
- Improved poison resistance
- Long life
- Fast response time
- Rugged stainless steel sensor
- Detects combustible gases and solvents
- Many accessories available
- Certified ATEX II 2 G EEx d IIC T6

The CGS500 combustible gas sensor has been designed to measure concentrations of combustible gases in the range 0-100% LEL. The CGS500 is available as a sensor only or fitted in an EEx e certified junction box.

Each sensor contains two thermocatalytic elements. Combustible gases will oxidise on the surface of the active element while the reference element compensates for changes in temperature, pressure etc. Each element consists of a coil of fine platinum wire surrounded by an alumina based substrate containing a catalyst.

An electric current is passed through the elements which raises the temperature to a level where oxidation will occur. The catalyst reduces the temperature at which oxidation occurs, thus prolonging the life of the elements and resulting in much lower power consumption.

The CGS500 sensor is available with alternative elements. The CGS500-NP30 is general purpose robust sensor. The CGS500-300P has enhanced poison resistance and the CGS500-VQ41 is optimised for monitoring concentrations of ammonia and kerosene.

T100 Specifications

Supply voltage	Nominal 24Vdc (operates from 12Vdc to 30Vdc)
Supply current	Normal: 4mA, full-scale 20mA
Ec-cell operating life in air at S.T.P.	Typically 2 years
Preconditioning Requirements	1 Hour (24 hours for HCl, C ₂ H ₄ O, & NO)
Storage life at 0 to 20°C	6 months
Operating temperature range	-20°C to +40°C
Operating pressure range	Ambient ± 10%
Effect of operating pressure on accuracy	Approximately 0.05% signal per mm Hg
Operating RH range	15% to 90% non-condensing
Position sensitivity	None
Drift, S.T.P. continuous duty in air	<2% Full Scale per month
ATEX certification	II 2 G EEx ia IIC T4 (Certificate No. SIRA03ATEX2405)
Size	W: 75mm, D: 58mm, H: 80mm (excluding sensor)
Weight	400g
Electromagnetic Conformance (EMC)	Complies with EN50081 and EN50082
Enclosure material	Durable aluminium ALSi12, magnesium content <0.4%, finished in stove enamel gray RAL7001. Stainless Steel sensor compartment. (Marine grade version available to special order)

Available gases and ranges

To cover a wide range of applications, a variety of ranges are available. This table shows some of the available gases with the minimum and maximum full-scale range for that gas. The T90 response time is also shown (in seconds).

Gas	CO	H ₂ S	SO ₂	NO	NO ₂	H ₂	Cl ₂	HCN	HCl	NH ₃	O ₃	C ₂ H ₄ O	O ₂
Min FSD (ppm)	50	5	5	10	5	500	5	50	30	100	3	20	5%
Max FSD (ppm)	2000	1000	2000	1500	200	4%	250	200	50	1000	5	100	30%
T90 response	25	30	15	10	35	30	100	100	120	100	150	140	12

CGS500 Specifications

Operating voltage	2.05Vdc ± 0.05Vdc
Operating current	300mA (for standard and poison resistant versions)
Detection range	0-100% LEL
T90 response time	Typically < 15 seconds
Stabilisation time	1 minute
Preconditioning time	1 hour
Operating temperature range	-20°C to +40°C
Mounting thread	M25 X 1.5mm
Accessory thread	M42 X 1.5mm
Weight	Sensor: 400g Standard junction box: 300g
Size of junction box (excluding sensor)	W: 75mm, D: 58mm, H: 80mm
Electromagnetic Conformance (EMC)	Complies with EN50081 and EN50082
ATEX certification	II 2 G EExd IIC T6 (Certificate No. BAS00ATEX2246X)

Wiring details

Red wire	Active element
Grey wire	Junction
Black wire	Reference element

Available accessories with M42 thread

Splashguard	C13038
Flow adapter	C13055
Gas applicator	C13063
Filter adapter	C13113
Duct mounting flange	C13064

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