MONICON
ADVANCED GAS MONITORING INSTRUMENTS
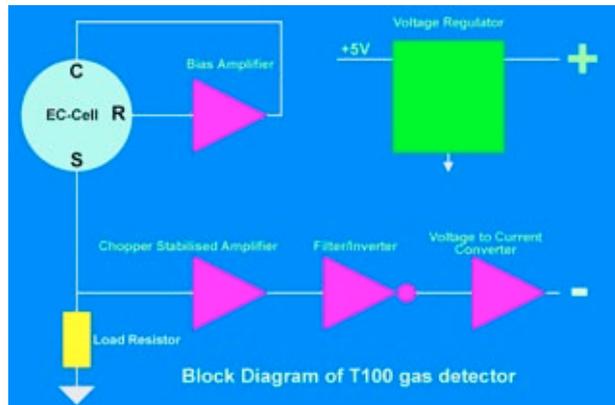
MC

T100-HCN 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**
- **Certified ATEX II 2 G Ex ia IIC T4 Ga**

Block Diagram of T100 gas detector

The T100-HCN is a 4-20mA, 2-wire transmitter to measure ethylene oxide gas in the range 0-50ppm, 0-100ppm and 0-200ppm. It is housed in a rugged, compact metallic enclosure. It incorporates advanced SMT electronics and an amperometric 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 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 by oxidation. Reactions are catalysed by specially developed electrode materials and are designed to be specific to the gas being sensed.

The T100 electronics use advanced surface mount technology and a simple yet rugged design to minimise component count for optimum reliability of the electronic circuitry.

The MTBF (mean time Between Failure) of the electronic circuitry on the T100 was calculated to be 1.2 million hours (calculations based on MIL-HDBK-217F). The calculations do not include the sensor as this is a consummable part.

The sensor is a small plug-in component and is easily replaced in minutes when it becomes depleted.

The sensor and preamplifier circuitry is housed in a stainless steel cylinder. This is attached to a rugged, IP67 rated, metallic enclosure which houses and protects the remaining electronics and terminals.

The T100 has been independantly tested and certified ATEX II 2 G Ex ia IIC T4 Ga. With any suitable third party IS barrier, it may be installed in a Zone, Zone 1 or even Zone 0 Hazardous Area.

Careful product design and rigorous product testing combined with a stringent ISO9002 quality assurance program at Monicon's state-of-the-art manufacturing facility ensure ultimate reliability where safety matters.
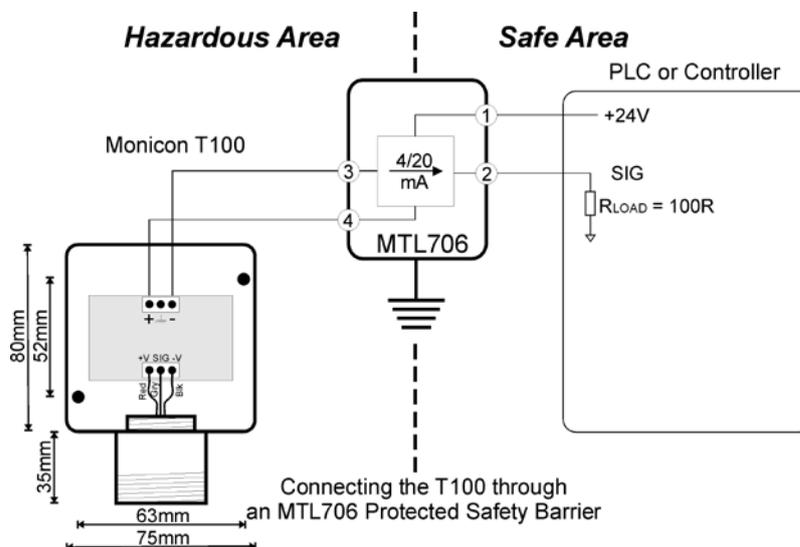
T100-HCN Specifications

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 12 months*
Ec-cell warranty	*10 months*
Response time (T50)	*<65 seconds calculated from 4 minute exposure time*
Response time (T90)	*<150 seconds calculated from 4 minute exposure time*
Preconditioning Requirements	*24 Hours (72 hours recommended for optimum performance)*
Measuring range	*0-50ppm, 0-100ppm, 0-200ppm*
Operating temperature range	*-20°C to +40°C*
Effect of operating temperature on sensitivity	*<2% shift in sensitivity per 1°C temperature change from 20°C*
Operating pressure range	*Ambient ± 10%*
Operating RH range	*15% to 90% non-condensing*
Effect of humidity	*Abrupt change may cause transient.*
Position sensitivity	*None*
Drift, S.T.P. continuous duty in air	*<5% signal loss per month*
ATEX certification	*II 2 G Ex ia IIC T4 Ga (Certificate No. Baseefa11ATEX0115X)*
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)*

Cross sensitivity to other gases

The T100-HCN is cross sensitive to some other gases. The following table gives an indication of cross sensitivities:

Gas	CO	H_2S	SO_2	N_2	C_3H_3N	H_2	Cl_2	NO	NO_2	O_3	CH_3SH	C_2H_4	NH_3
Concentration	300	10	50	100%	100	200	10	10	10	5	100	100	10
Response ppm	<54	35	100	0	15	0	-5	1	19	-10	0	55	0
Temperature	20°C	20°C	20°C	20°C	20°C	20°C	20°C	20°C	20°C	20°C	20°C	20°C	20°C

Connecting the T100 through an MTL706 Protected Safety Barrier

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