

DATA SHEET. SPECIFICATION.



TOCSIN 101D 4-20mA HAZARDOUS GAS TRANSMITTER MODULE

Designed to provide a cost effective solution for gas monitoring applications in ventilation ducts the Tocsin 101D is one of the latest developments from IGD to join the established Tocsin monitor range.

The Tocsin 101D uses the latest electrochemical technology for maximum reliability outputting a 4-20mA linear signal. The accompanying table shows the range of available measurands.

The Tocsin 101D is designed to interface to the full range of IGD control panels giving maximum flexibility. Alternatley the Tocsin 101D signal can be interfaced directly into control and BMS systems.

SPECIFICATION

Power Supply	Loop Powered 12-30V DC (20mA)
Temperature	-40 – 85°C
Humidity	5 – 95% RH Non Condensing
Accuracy	Sensor Dependant
Resolution	Sensor Dependant
Outputs	4-20mA (Max. 1000W)
Inputs	EC Cell
Zero Drift	Sensor Dependant Generally better than 2%FSD per month
Span Drift	Better than 3% FSD per month application dependant
Size	W=80 x L=175 x H=70mm
Weight	1.45Kg

List of Available Measurands

Gas	Minimum Range	Maximum Range
Carbon Monoxide	0-100ppm	0-1000ppm
Ammonia	0-100ppm	0-500ppm
Hydrogen	0-2%	0-10%
Nitric Oxide	0-50ppm	0-250ppm
Oxygen	0-5%	0-35%
Chlorine	0-5ppm	0-50ppm
Hydrogen Sulphide	0-25ppm	0-250ppm
Sulphur Dioxide	0-10ppm	0-50ppm
Nitrogen Dioxide	0-10ppm	0-50ppm
Ozone	0-1ppm	0-5ppm
Hydrogen Cyanide	0-50ppm	0-200ppm
Hydrogen Chloride	0-50ppm	0-200ppm

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DATA SHEET. INSTALLATION.



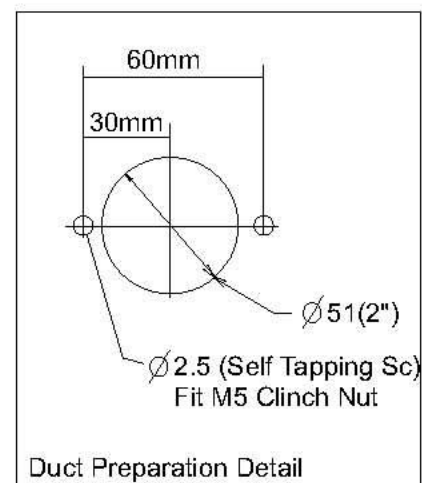
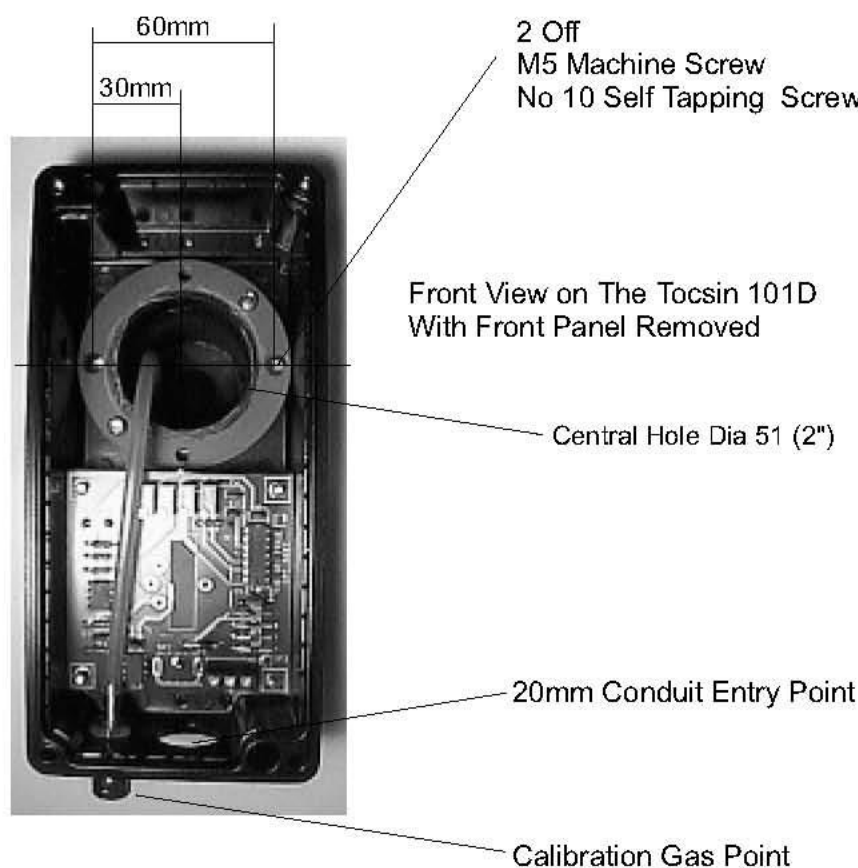
TOCSIN 101 4-20mA HAZARDOUS GAS TRANSMITTER MODULE

The Tocsin 101D range of hazardous gas detectors are designed for mounting into ventilation ducts. The diagram below details the relevant dimensions for mounting the enclosure to the duct..

The gas sensor electronics are loop powered to provide a 4-20mA output signal that is linearly proportional to the sensor gas range. Electrical connection is made to the terminals located near to the 20mm cable entry. Terminal 1 (left) is +24Vdc input (or the P/3 terminal on a Tocsin 400 or 800 control unit). Terminal 2 (centre) is the 4-20mA return (or the W/1 terminal on a Tocsin 400 or 800 control unit). Terminal 3 is not used.

The recommended interconnecting cable is twin core screened with a conductor size of at least 1mm².

Please consult the wiring data sheet for further information.



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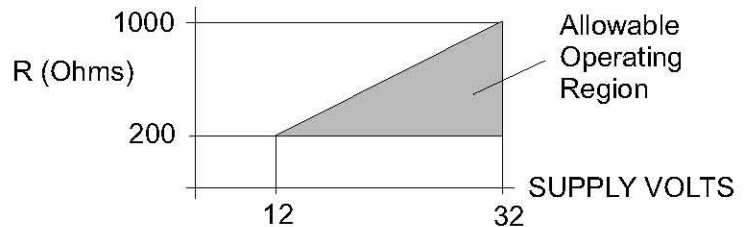
DATA SHEET. WIRING DETAIL.



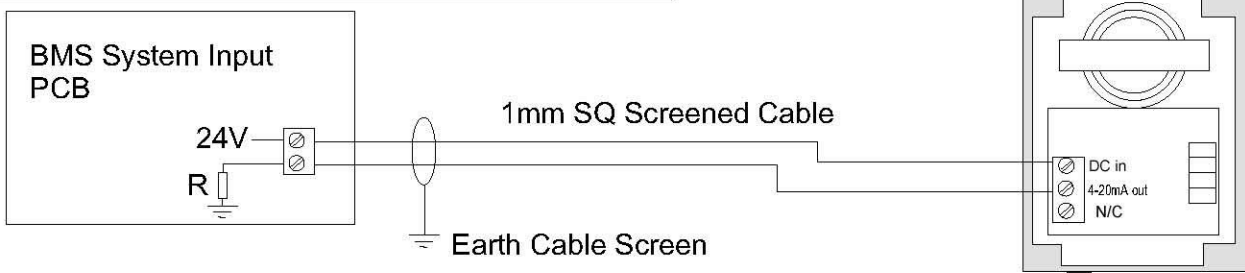
TOCSIN 101D 4-20mA HAZARDOUS GAS TRANSMITTER MODULE

The Tocsin 101D is a two wire 4-20mA Transmitter. The enclosed diagram indicates three possible wiring configurations.

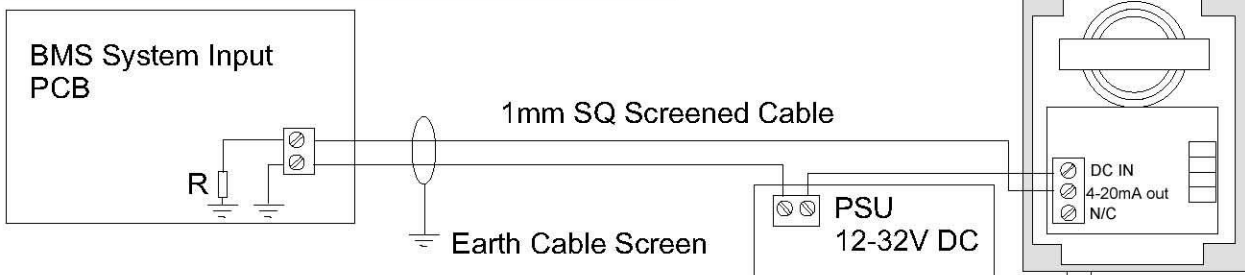
1. Wiring the Tocsin 101D into a 4-20mA input (BMS type system) where the input provides the drive current.
2. Wiring the Tocsin 101D to a 4-20mA input using an external PSU.
3. Wiring the Tocsin 101D to a Tocsin 400 series control panel.



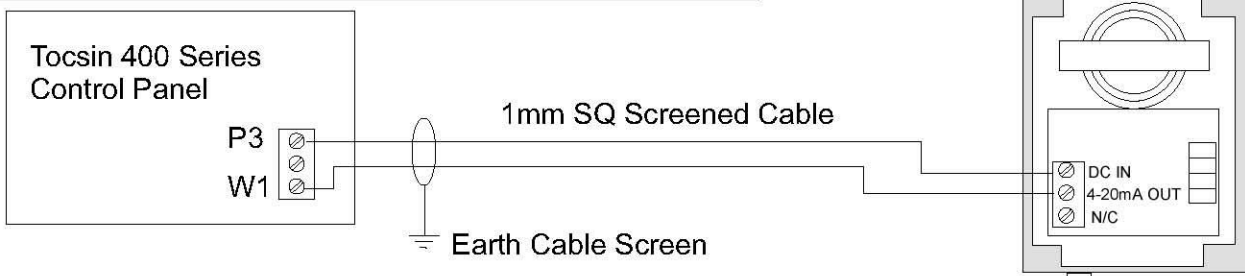
Option 1 BMS System Sources Power For Tocsin 101



Option 2 BMS Needs External Power For Tocsin 101



Option 3 Tocsin 101 Connected To 400 Series Control Panel



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DATA SHEET. COMMISSIONING AND CALIBRATION.



TOCSIN 101D 4-20mA HAZARDOUS GAS TRANSMITTER MODULE

The Tocsin 101D is a two wire 4-20mA transmitter using an electrochemical sensor selected to monitor the gas of interest. For commissioning and calibration the following equipment is required:-

1. Multimeter having a current range of 0-20mA.
2. Small screwdriver for potentiometer adjustment.
3. Zero gas either clean air or nitrogen.
4. Span gas having ideally a concentration of the interest gas equivalent to at least 70% of scale range.

CAUTION: THE SPAN GAS IS TOXIC AND ADEQUATE SAFETY PRECAUTIONS SHOULD BE TAKEN FOR SAFE USE. Ensure that the wiring and supply are correct before applying power to the instrument. Please consult the relevant data sheet.

Tocsin 101D Pre-amplifier

CALIBRATION GAS POINT

24 VDC IN

4-20mA OUT.



SPAN POTENTIOMETER

ZERO POTENTIOMETER

1. Connect the multimeter between the terminal block on the pre amplifier circuit board and the 4-20mA return cable. Set the meter to measure 0-20mA.
2. Apply power to the instrument and allow time for the system to stabilise. When power is first applied the output may be high so any alarm circuits should be disabled until the instrument has been calibrated. The warm up time is at least 5 minutes.
3. Connect the zero gas to the calibration gas point and set the flow to about 1 litre per minute. Allow the multimeter reading to stabilise. Use the zero adjustment potentiometer to adjust the reading to 4mA. (Turning anticlockwise increases the reading). Turn off the gas and remove from the calibration gas point.
4. Connect the span gas to the calibration gas point and set the flow to about 1 litre per minute. Adjust the span potentiometer until the correct reading for the concentration of span gas used is obtained on the multimeter. The correct current reading is calculated from the following formula:-
Current in mA = 4 + C / R
Where C is the concentration of the calibration gas.
R is the full scale range of the transmitter.
5. Turn off the calibration gas and remove from the calibration gas point.
6. Steps 3 to 6 should be repeated until no further adjustments are necessary.
7. Remove the multimeter and reconnect the return cable to the terminal block on the pre amplifier circuit board.
8. Replace the cover of the transmitter. The transmitter is now ready for use.
9. For optimum performance of the transmitter it is recommended that the above calibration procedure is carried out at 6 monthly intervals.

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