

TX9165 Sentro 8 Sensor Station

Fixed safety monitoring of toxic
and flammable gases in hazardous
environments



Available through

Fixed gas sensing station with up to 8 gas
monitoring capability, incorporating convenient
plug-and-play eModule technology.

STRATA
WORLDWIDE

P5550.1610 rev B

Overview

The Trolex TX9165 Sentro 8 Sensor Station is specifically designed as a robust, fixed monitoring platform for the detection of adverse gas concentrations in harsh and hazardous operating environments.

Each Sentro 8 Sensor Station can simultaneously monitor the concentration of up to eight different gas types making it a multi-gas detector, together with monitoring of ambient temperature, ventilation, air velocity and any choice of remote connected sensors that are required.

Switching to different gas types, in up to 8 positions, is simplified with plug-and-play **eModule** technology, which can be replaced in the hazardous area with power applied. Remote temperature, atmospheric pressure and humidity, airflow and vibration sensors can all be connected to the Sentro 8 Sensor Station using the compatible Trolex **rModule**.

With an integrated LCD and on-device keypad, the Sentro 8 Sensor Station can be programmed to control output relays, alarm set points and configured to activate the integral audio-visual alarms.



Features

- Fixed, high accuracy gas sensing station certified intrinsically safe for use in general purpose and hazardous environments
- Compatible with up to eight different gases, or a combination of eight remote sensors, for simultaneous monitoring
- Hot-swappable eModule for calibration, maintenance or gas type selection
- On-device, programmable functions via ingress-proof keypad, with configurable set points used to activate the integral audio-visual warning alarms
- Programmable relays for logic control and mode option functionality
- RS485 Modbus data communications allow multiple sensor stations to be connected via a single data cable
- Sensing module data logs can be extracted for analysis using the RS485 interface and PC application software or SCADA systems
- Dual-wall IP65 housing for increased impact strength & dust and moisture protection in arduous environments
- M6 mounting holes. Unistrut rail compatible
- Gas port blanking compatibility where ports are not utilized

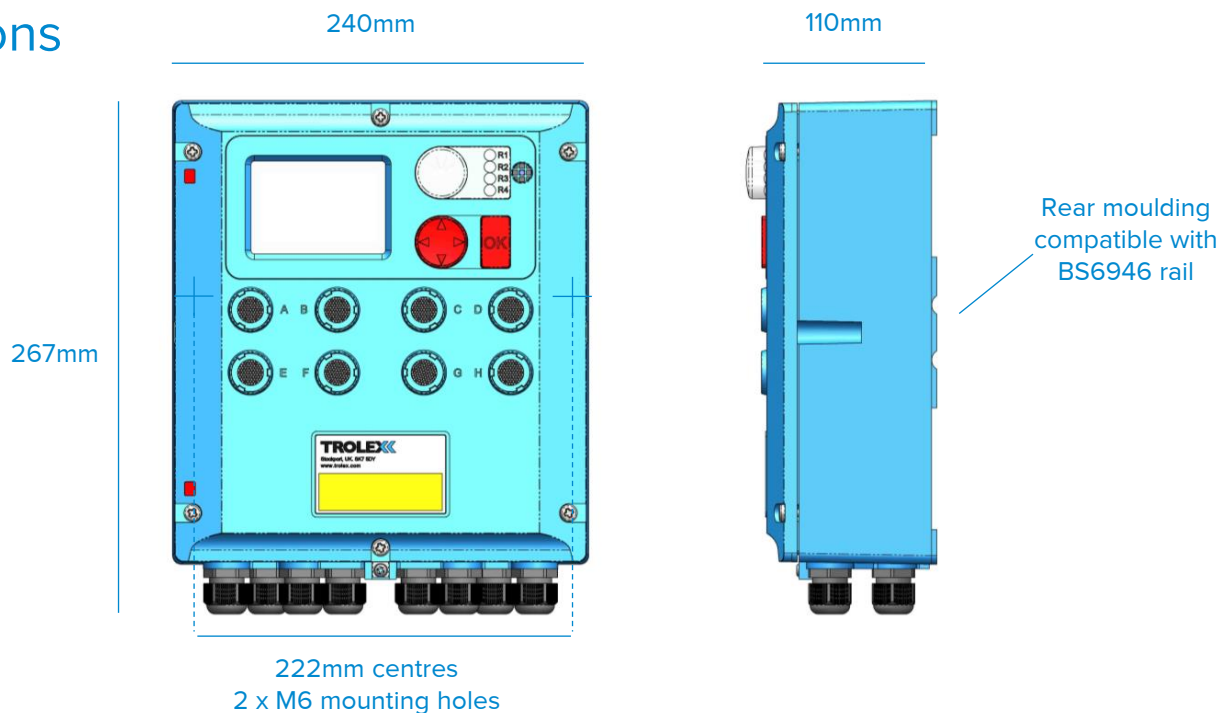


eModule / rModule compatibility



Up to 8 Gases or remote inputs

Dimensions



Technical Details

| | | |
|--|---|---|
| Operating temperature: | -10°C to +40°C | |
| Storage temperature: | -20°C to +60°C | |
| Humidity: | 90% RH, non-condensing | |
| T90 response time: | <20s average | |
| Supply voltage: | TX9165.03 General Purpose TX9165.01.i Group I | 24 V dc / 85 to 265 V ac 12 V dc (from approved PSU) |
| Supply current - min: - max: | 85 mA at nominal voltage (1 x Electrochemical eModule or 1 x rModule) 100 mA per identified module slot pairs (A+E, B+F, C+G, D+H) | |
| Power consumption: (All module slots loaded) | TX9165.03 General Purpose TX9165.01.i Group I | 5.28 W 6 W |
| Output relays: | Four independent alarm relays, programmable logic control and mode options | |
| Relay contacts: | One changeover contact on each relay - 2 Amps 230 V ac. suitable for, and clearance compatible for intrinsically safe circuits | |
| Alarms: | LED visual alarm and high intensity audible sounder (95db at 300m) | |
| Housing material: | Reinforced polymer, proof against surface electrostatic charge | |
| Ingress protection: | IP54 gas port Housing, Dust and Waterproof to IP65 | |
| Weight: | 2.8 kg | |
| Cable gland entries: | 8 x M20 | |
| Connections: | Vibration resistant screw terminals | |
| Communications: | RS485 MODBUS | |
| Product fixing/mounting: | Two M6 diameter fixing holes (Unistrut 6946 compatible) | |
| Gas Sensing Modules: | Troxle eModule compatible | |
| Certification: | ATEX, IECEx, EAC, MASC, Ukraine (See User Manual for full details) | |

Sentro Plug-In Sensing Modules

The Trolex TX9165 Sentro 8 Sensor Station can be configured for safety and environmental monitoring and is suitable for fixed installation or machine mounting where required. Codable Sentro eModules and rModules allow for the Sentro 8 Sensor Station inputs to be configured for a combination of gas detection or remote sensing devices such as flow, vibration and temperature sensors.

Environmental Monitoring System

For example, a Sentro 8 Sensor Station can be configured for environmental monitoring, fitted with four Sentro eModules for:

- Oxygen
- Methane
- Carbon Monoxide
- Hydrogen Sulphide

Four additional Sentro rModules allow for the connection of remote mounted sensors:

- Air Flow
- Pressure
- Vibration
- Temperature



Sentro eModule sensing technology TX6350

Pre-calibrated standardized eModule sensing devices with a wide range of gas sensing ranges available, prescribed TWA and STEL settings on selected toxic gas sensors, and default alarm level options for each gas type.

Some toxic gas sensing eModules are also equipped with Occupational Exposure alarms, TWA and STEL, programmed in accordance with statutory regulations.



Electrochemical sensors

High accuracy chemical cells for a range of toxic gases and Oxygen giving fast response in the ppm range. The cells feature low power consumption, enabling the Sentro 8 Sensor Station to operate in the standard 4 to 20 mA two wire format.



Catalytic sensors

Rugged sensing devices with a fast response to the presence of all flammable gases and vapours. Standard calibrations for a choice of Methane concentrations - either %LEL or v/v. Also available with calibrations for alternative flammable gases such as Propane, Butane etc.



IR sensors

High stability sensing elements with a specific and exclusive response to Methane or Carbon Dioxide in a choice of sensing ranges up to 100% v/v.



Sentro rModule sensing technology TX9160

TX9160 Sentro rModules facilitate the connection of remote sensing devices such as flow, vibration and temperature sensors. Remotely connected auxiliary sensors can be connected into the Sentro 8 in any combination as part of an integrated monitoring system.

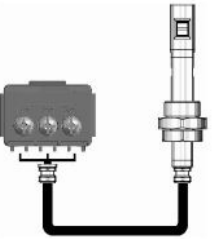
rModules function in the same way as eModules and incorporate screw terminals to accept direct input connections of cables from remote analogue or digital sensors. A sensor power supply source is also provided at the rModule terminals where appropriate.

Simply select the preferred rModule and dock it into the Sentro 8 module bay. Pre-programmed data intelligence means that the module function will be immediately identified and configured - ready to go.

All eight positions (A to H) in the Sentro 8 Sensorstation can be fitted with rModules in positions where no eModules are being used.

This makes maintenance and calibration swift and uncomplicated. It also means that the monitoring duty of the sensor can be changed at any time just by substituting a different module type.

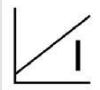
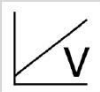

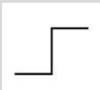

Each module has two adjustable set point output signals for LOW alarm and HIGH alarm with default values preset during manufacture:



Low Alarm Signal: 15% of full scale user adjustable

High Alarm Signal: 30% of full scale user adjustable

- Modules can be changed out in seconds for easy calibration and maintenance
- Modules are pre-programmed with functional calibration data, dual alarm set points (some with STEL/TWA presets), previous min/max measured values, sensor identity and serial number.
- Auto module recognition when plugged into any Sentro base unit
- User configurable module security coding inserts

| | | | |
|-------------------|----------------|--|---|
| TX9160.301 | 4 to 20 mA | Industrial standard analogue sensor input; 2 and 3 wire options |  |
| TX9160.303 | 0.4 to 2 V | Voltage input signals, analogue sensor input; 2 and 3 wire connections |  |
| TX9160.306 | PT100 | Standard PT100 temperature monitoring with line compensation |  |
| TX9160.501 | ON/OFF | NAMUR proximity switch with line-fault monitoring or conventional contacts; pressure switches, limit switches, etc |  |
| TX9160.502 | Switch Monitor | ON/OFF inputs from contacts with series diode for open circuit and short circuit line fault monitoring |  |

Order Reference

TX9165 – General Purpose, Sentro 8 Sensor Station

| | | | | | |
|----------------|------|---|-----|----------|-----|
| TX9165.03 | | | | | |
| Power Supply | | Gas Ports | | Language | |
| 85 to 265 V ac | .114 | 0 to 8 | .00 | English | .01 |
| 24 V dc | .102 | e.g. 08 = 8 Gas Ports Unspecified ports will be blanked as required. | | Polish | .02 |



General Purpose Sentro 8 Sensor Station

TX9165 – Group I, Sentro 8 Sensor Station

| | | | | | |
|---------------------|-----|--|-----|----------|-----|
| TX9165.01.i | | | | | |
| Certification Class | | Gas Ports | | Language | |
| MASC Grp I | .05 | 0 to 8 | .00 | English | .01 |
| IECEx (AUS) Grp I | .06 | e.g. 08 = 8 Gas Ports | | Polish | .02 |
| EAC Grp I | .14 | Unspecified ports will be blanked as required. | | | |
| ATEX/IECEx Grp I | .19 | | | | |
| Ukraine Grp I | .24 | | | | |



Group I Sentro 8 Sensor Station

Sentro Modules

Please order the Sentro Modules separately. Standard stock sensors include:

TX6350 eModules



- Carbon Monoxide
 - Hydrogen Sulphide
 - Sulphur Dioxide
 - Nitrogen Dioxide
 - Nitric Oxide
- Hydrogen
 - Oxygen
 - Flammable gasses % v/v
 - Flammable gasses LEL
 - Carbon Dioxide

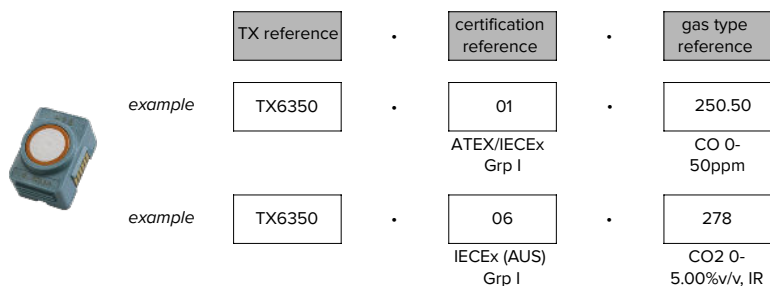
TX9160 rModules



- 4 to 20 mA
- 0.4 to 2.0V
- PT100
- NAMUR
- Switch Monitor

Order Reference

Sentro eModules



| Certification | | | | |
|---------------|------------------------|---------------------|-------------------------|-----------------------|
| | ATEX/IECEx Grp I 01 | EAC Grp I 14 | IECEx (AUS) Grp I 06 | General Purpose 00 |
| | MASC Grp I 05 | Ukraine Grp I 24 | | |

Electrochemical Gas Sensors

| | | | | |
|----------------------|----------|----------|----------|------------|
| CO 0-1000ppm | 250.1000 | 250.1000 | 250.1000 | 250.1000 |
| CO 0-2000ppm | | | | 250.2000 |
| CO 0-250ppm | 250.250 | 250.250 | 250.250 | 250.250 |
| CO 0-250ppm Low X H2 | | | | |
| CO 0-300ppm | 250.300 | 250.300 | | 250.300 |
| CO 0-50.0ppm | | | | 250.50.DP |
| CO 0-500ppm | 250.500 | 250.500 | 250.500 | 250.500 |
| CO 0-500ppm Low X H2 | | | | 250.500.H2 |
| CO 0-50ppm | 250.50 | 250.50 | 250.50 | 250.50 |
| CO 0-50ppm Low X H2 | | | | 250.50.H2 |
| H2S 0-100ppm | 251.100 | 251.100 | | 251.100 |
| H2S 0-300ppm | | | | 251.300 |
| H2S 0-50.0ppm | | | | 251.DP |
| H2S 0-50ppm | 251 | 251 | 251 | 251 |
| NO2 0-10.0ppm | 254.10 | 254.10 | 254.10 | 254.10 |
| NO2 0-100ppm | | | | 254.100 |
| NO2 0-20.0ppm | 254 | 254 | 254 | 254 |
| O2 0-25%v/v | 257 | 257 | 257 | 257 |
| SO2 0-20.0ppm | 252 | 252 | 252 | 252 |
| SO2 0-50.0ppm | 252.50 | 252.50 | | 252.50 |
| CL2 0-10.0ppm | 255 | 255 | 255 | 255 |
| NO 0-50.0ppm | | | | 259.DP |
| NO 0-50ppm | 259 | 259 | 259 | 259 |
| NH3 0-10.0ppm | 260 | 260 | 260 | 260 |
| NH3 0-200ppm | | | | 260.200 |
| NH3 0-500ppm | | | | 260.500 |
| H2 0-1.00% v/v | | | 261.1 | |
| H2 0-1000ppm | 261 | 261 | 261 | 261 |

| Certification | | | | |
|---------------|------------------------|---------------------|-------------------------|-----------------------|
| | ATEX/IECEx Grp I 01 | EAC Grp I 14 | IECEx (AUS) Grp I 06 | General Purpose 00 |
| | MASC Grp I 05 | Ukraine Grp I 24 | | |

Catalytic Gas Sensors

| C2H2 0-100% LEL | | | | 303 |
|---------------------------|--------|--------|-----|-----|
| C3H8 0-100% LEL | | | | 282 |
| CH4 0-100% LEL (5.0%) | 241 | 241 | | |
| CH4 0-100% LEL (4.4%) | 240 | 240 | | 240 |
| CH4 0-4.00% v/v | 246 | 246 | 246 | 246 |
| CH4 0-5.00% v/v | 244 | 244 | 244 | |
| Infrared Gas Sensors | | | | |
| CH4 0-10% v/v IR | 294 | 294 | | |
| CH4 0-100.0% v/v, IR | 242.HR | 242.HR | | |
| CH4 0-100% LEL, IR (4.4%) | | 245 | | 245 |
| CH4 0-100% v/v, IR | 242 | 242 | | 242 |
| CH4 0-20% v/v IR | 304 | 304 | | |
| CH4 0-4.00% v/v IR | 300 | 300 | | |
| CH4 0-5.00% v/v, IR | 243 | 243 | 243 | 243 |
| CO2 0-1.00% v/v, IR | 278.1 | 278.1 | | |
| CO2 0-1.50%v/v, LED IR | | | | 301 |
| CO2 0-100% v/v, IR | 279 | 279 | | 279 |
| CO2 0-2.00% v/v, IR | 278.2 | 278.2 | | |
| CO2 0-5.00% v/v, IR | 278 | 278 | 278 | 278 |

Order Reference

Sentro rModules TX9160

Group I

TX9160.01i . .

| Function | |
|----------------|-----|
| 4 to 20mA | 301 |
| 0.4 to 2V | 303 |
| PT100 | 306 |
| NAMUR | 501 |
| Switch Monitor | 502 |

| Certification | |
|----------------------|----|
| MASC Group I | 05 |
| IECEEx (AUS) Group I | 06 |
| EAC Group I | 14 |
| ATEX/IECEEx Group I | 19 |
| Ukraine Group I | 24 |



General Purpose

TX9160.03 . .

| Function | |
|----------------|-----|
| 4 to 20mA | 301 |
| 0.4 to 2V | 303 |
| PT100 | 306 |
| NAMUR | 501 |
| Switch Monitor | 502 |



At Trolex, we save lives.

We believe that no person should risk their life to earn a living.

Our aim is to become the world's leading name in health and safety technology, through pioneering products that provide real-world benefits to our customers, whenever workers operate in hazardous environments.

For more information about Trolex, please contact us at:

Inquiries

info@strataworldwide.com

Telephone

+1 724.745.5030

Strata Worldwide

130 Technology Drive Ste 100
Canonsburg, PA 15317

Website

www.strataworldwide.com



/company/strata-worldwide



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