



SENTRO 1 UNIVERSAL GAS DETECTOR

USER MANUAL

PRODUCT OVERVIEW



SENTRO 1
Universal Gas Detector



SENTRO 1 with
TX6831 Audio Visual Alarm fitted

TX6351

3/4 wire device with separate output signal and power lines

Can be used with any SENTRO eModule

P9000.260

TX6351 3/4 wire device with integrated TX6831 Audio Visual Alarm

Can be used with any SENTRO eModule

TX6352

2 wire line powered 4 to 20 mA output signal

Can ONLY be used with electrochemical SENTRO eModules

Note: Please refer to TX6831-DSUM-EN · P5459.1602 for full Audio Visual Alarm technical and certification details.

PRODUCT FEATURES

- Fixed sensor for detection of toxic and flammable gases
- Exclusive pre-calibrated plug-in gas sensing modules for many types of gas
- LCD readout and visual LED alarm indicators
- Choice of output signal format
- Heavy duty housing to IP65
- EMC compliant
- STEL and TWA monitoring for selected gases

PRODUCT APPLICATIONS

Fixed point gas detection safety monitoring in hazardous areas and general-purpose applications.

Underground Mining and Tunnelling Ex ia I Ma TX6351.01i TX6352.01i	Supply voltage 12 V dc from an approved power source Type of protection Intrinsically Safe. Ex ia Category I M1
General Purpose TX6351.03.00 TX6352.03.00	Supply voltage 24 V dc

PRODUCT OPTIONS

Mining Ex ia

SENTRO 1

TX6351.01i	4 wire connection		Certification (older models with yellow labels)		Certification (newer models with red labels)	
	.11	0.4 to 2 V dc	.06	IECEEx (Aus) Grp I	.35.05	MASC/IECEEx Grp I
	.12	4 to 20 mA	.14	EAC Grp I	.35.15	ATEX/IECEEx/UKEX Grp I
	.14	Dual Relay NC	.19	ATEX/IECEEx Grp I	.35.25	KLPL India Grp I
	.17	Dual Relay NO				
	.15	RS485				
TX6352.01i	2 wire connection					
	.12	4 to 20 mA loop				

SENTRO 1 with Audio Visual Alarm

P9000.260	Certification (older models with yellow labels)		Certification (newer models with red labels)	
	.05	MASC Grp I	.35.05	MASC/IECEEx Grp I
	.06	IECEEx (Aus) Grp I	.35.15	ATEX/IECEEx/UKEX Grp I
	.14	EAC Grp I		
	.19	ATEX/IECEEx Grp I		

General Purpose**SENTRO 1**

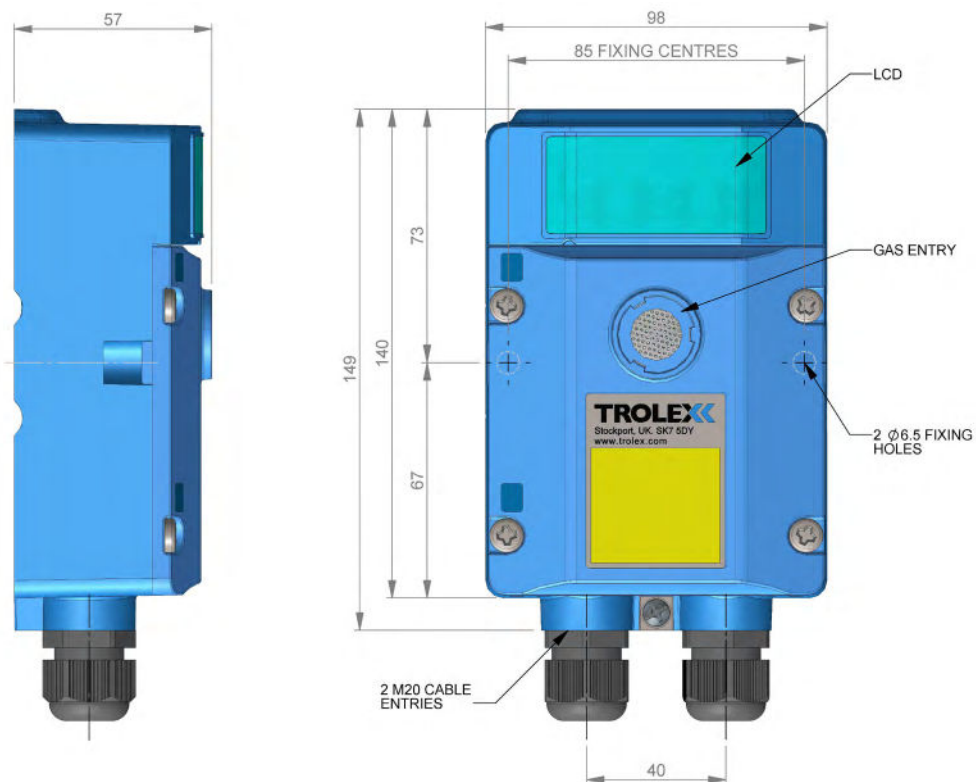
TX6351.03.00	4 wire connection	Button configuration
	.12 4 to 20 mA	.01 Internal Buttons
	.14 Dual Relay NC	.02 External Buttons
	.17 Dual Relay NO	
	.15 RS485	
	.16 2 to 10 V dc	
TX6352.03.00	2 wire connection	
	.12 4 to 20 mA	

SENTRO 1 with Audio Visual Alarm

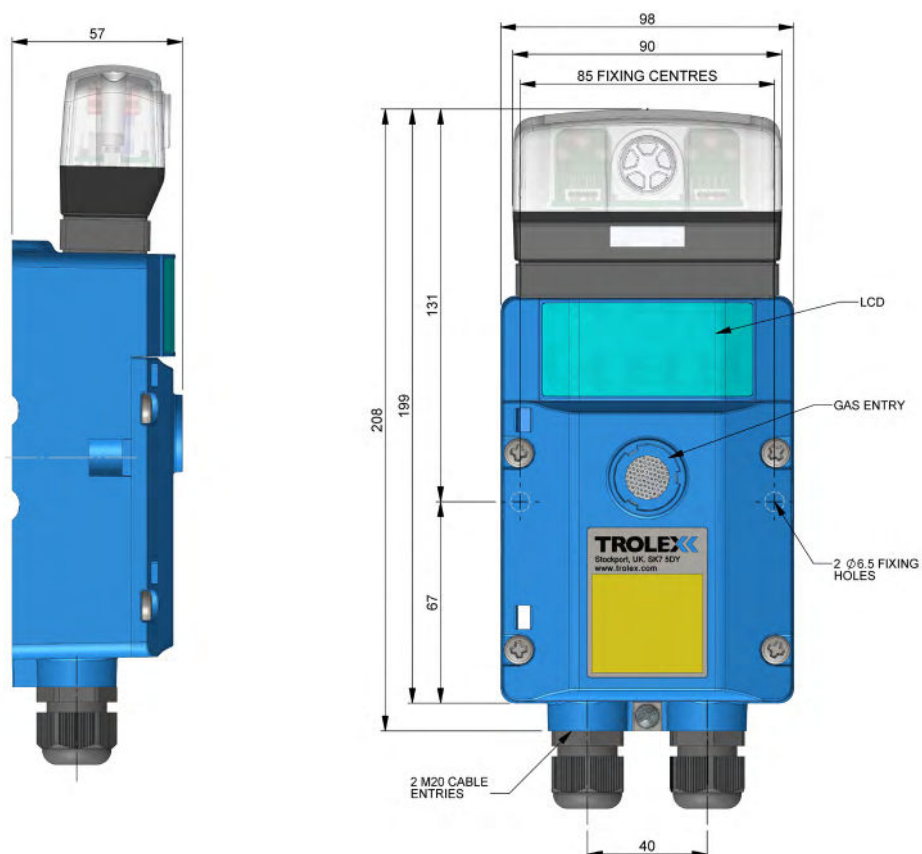
P9000.260	Option
	00 General Purpose

Note: P9000.260 is available in a configuration of 4 to 20 mA output with a single TX6831 Audio Visual Alarm.

PRODUCT DIMENSIONS



SENTRO 1 with A/V Alarm



TECHNICAL INFORMATION

Ambient temperature limits	-20 °C to +40 °C
Storage temperature	-20 °C to +60 °C
Ambient pressure	800 to 1100 mbar
Humidity	15% to 90% non-condensing
Protection classification	• Dust and waterproof to IP65 • Gas port: IP54
Housing material	Reinforced polymer with static charge dissipation
Nett weight	530 g
Cable entries	2 x M20
Electrical connections	4 mm barrier/clamp terminals
Conductors	Max. 2 per terminal
Conductor size	Max 2.5 mm ²
Terminal torque	Max. 2.4 Nm
Information display	128 x 64 dot graphic backlit LCD
Vibration limits	Vibration limits (IEC 60079-29-1): • 10 Hz to 30 Hz – 1.00 mm total excursion • 31 Hz to 150 Hz – 19.6 m/s² acceleration peak
Impact limits	20 joules (housing)
Calibration and setup	Digitally controlled ZERO and SPAN pushbutton setting
Signal fix	The analogue output signal of the sensor is fixed during calibration to prevent false alarms from being initiated
Fault indication	Under-range signal transmitted and fault display for: • Loss of communications from the sensing module • Sensing module absent for more than 10 seconds • Sensor over-range protect
Key coding	Coding stops prevent insertion of a non-valid sensing module

TECHNICAL INFORMATION (CONTINUED)

Alarms	Programmable GENERAL alarms and HIGH alarms with an LED indicator The 2 adjustable alarm setpoints are preset during manufacture to default values appropriate to the type of sensor, determined by the sensing module being used
STEL and TWA	Automatic setting of STEL and TWA limits to EH40 standards • STEL: Exposure over 15-minute successive periods • TWA: Exposure over a continuous rolling 8-hour period
Output signals	• 0.4 to 2 V / 2 to 10 V • 4 to 20 mA • Dual relay contacts. NO or NC to specification • RS485 Modbus datacomms
Certification	Please refer to product user manual (TX6351-2-UM-EN · P5531.1600) for full certification information

ELECTRICAL CONNECTIONS

Mining and Tunnelling

TX6351		3/4 wire Remote powered		
		4 to 20 mA Analogue output		
Supply voltage	10 to 14 V			
Max. line load	220 Ω max. @ 12 V dc			
Type of sensor	Toxic	Flammable	Infrared	
Supply current @ 12 V	48 mA	70 mA	91 mA	

Mining and Tunnelling (continued)

TX6351		3/4 wire Remote powered			
		Dual output contacts NC/NO			
Supply voltage	10 to 14 V				
Type of sensor	Toxic	Flammable	Infrared		
Supply current @ 12 V	60 mA	85 mA	105 mA		

TX6351		3/4 wire Remote powered RS485 Datacomms output		
Supply voltage	10 to 14 V			
Line	Modbus protocol			
Type of sensor	Toxic	Flammable	Infrared	
Supply current @ 12 V	25 mA	60 mA	80 mA	

TX6351		3/4 wire Remote powered 0.4 to 2 V Analogue output			
Supply voltage	10 to 14 V				
Min. line load	10 KΩ				
Type of sensor	Toxic	Flammable	Infrared		
Supply current	20 mA	60 mA	80 mA		

TX6352		2 wire Line powered 4 to 20 mA Analogue output	
Supply voltage	10 to 14 V		
Max. line load	90 Ω		
Type of sensor	Toxic only		

ELECTRICAL CONNECTIONS (CONTINUED)

General Purpose

TX6351	3/4 wire Remote powered 4 to 20 mA Analogue output			
Supply voltage	18 to 28 V			
Max. line load	500 Ω max. @ 24 V dc			
Type of sensor	Toxic	Flammable	Infrared	
Supply current	40 mA	40 mA	60 mA	

TX6351	3/4 wire Remote powered Dual output contacts NC/NO			
Supply voltage	20 to 28 V			
Type of sensor	Toxic	Flammable	Infrared	
Supply current	35 mA	45 mA	60 mA	

TX6351	3/4 wire Remote powered RS485 datacomms output			
Supply voltage	14 to 28 V			
Line	Modbus protocol			
Type of sensor	Toxic	Flammable	Infrared	
Supply current	35 mA	45 mA	60 mA	

TX6352	2 wire Line powered 4 to 20 mA analogue output			
Supply voltage	18 to 28 V			
Max. line load	300 Ω			
Type of sensor	Toxic only			

General Purpose (continued)

TX6351	3/4 wire Remote powered RS485 datacomms output		
Supply voltage	14 to 28 V		
Min. line load	10 K Ω		
Type of sensor	Toxic	Flammable	Infrared
Supply current	20 mA	60 mA	80 mA

**SENTRO eMODULES**

Plug-in pre-calibrated modules with standardised output data.

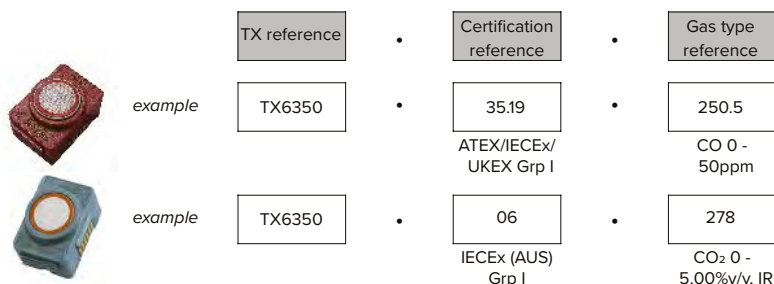


SENTRO eModule

- Each module stores all the necessary data about its identification type, sensing range and specific calibration. This data is automatically recognised by SENTRO when the module is loaded into the module bay
- The modules are pre-calibrated so can be substituted at any time by a replacement module – usually of the same type, but an alternative may be inserted if required
- Insert coding stops to prevent non-valid module combinations
- The sensing module will identify itself when plugged into the sensor housing and auto configuration will take place
- All SENTRO Modules have two output alarm signals for GENERAL alarm and HIGH alarm. Default values are entered during manufacture, and these can be changed to preferred values.
- The alarm can be set to illuminate built-in flashing LED indicators
- The signals can operate the two GENERAL alarm and HIGH alarm Relays on the CONTACT OUTPUT version of SENTRO 1
- Service replacement modules can be specified using the appropriate gas type code from the eModule order reference table on the data sheet
- The order reference is also marked on the back of the eModules

Note: Please refer to TX6351-2-UM-EN · P5531.1600 for full eModule information.

eMODULE ORDER REFERENCE



Certification				
	ATEX/IECEX/ UKEX Grpl	EAC Grpl	IECEX (Aus) Grpl	General Purpose
	35.19	14	06	00
	MASC/ IECEX Grpl	Ukraine Grpl		
	35.05	24		
	KLPL India Grpl			
	35.25			

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/ UKEX Grpl	EAC Grpl	IECEX (Aus) Grpl	General Purpose
	35.19	14	06	00
	MASC/ IECEX Grpl	Ukraine Grpl		
	35.05	24		
		KLPL India Grpl		
		35.25		

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		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

* Group I certification option.

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