



STATIONARY FIELD GAS ANALYZER

TRM-EX

Explosion-proof multi-sensor analyzer — electrochemical, thermocatalytic, infrared & semiconductor, 4–20 mA + Modbus RTU

PURPOSE & APPLICATION

The **TRM-EX** is a stationary explosion-proof gas analyzer for measuring and transmitting the content of **combustible gases and vapours** (including petroleum-product vapours), **toxic gases** and **oxygen** in the working-zone air, process gas media, industrial premises and open industrial areas, in pipelines and ventilation ducts.

Application areas

- Semiconductor industry & research facilities
- Oil & gas fields
- Oil- and gas-refining plants
- Gas & oil storage facilities
- Chemical production
- Plant working zones
- Pumping & compressor stations

Rugged, reliable build

The TRM-EX B-series sensor body is stainless steel **SS316** with **IP65** protection and operates well in harsh environments.

Continuous self-diagnostics

The analyzer continuously self-checks the sensor and transmitter for flawless operation and signals a fault on any malfunction.

Thermocatalytic-sensor protection

Power to the thermocatalytic sensor is cut when gas concentration reaches full scale, extending sensor service life.

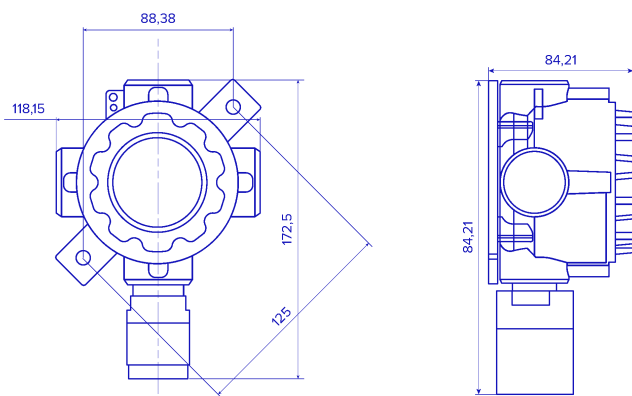
Universal outputs

Standard **4–20 mA** and **RS-485 RTU** outputs; an optional relay module can be fitted.

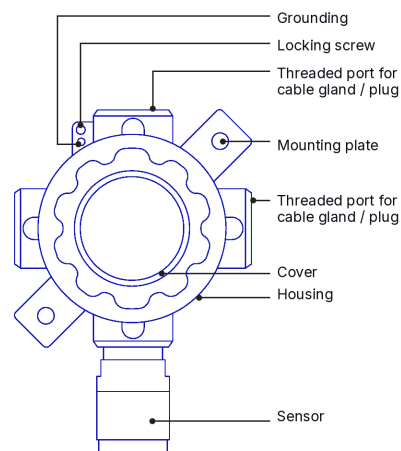
TECHNICAL CHARACTERISTICS

Type	Stationary gas analyzer
Measuring principle	Infrared · electrochemical · thermocatalytic · semiconductor
Output signals	4–20 mA, Modbus RS-485 RTU (base). Relay module (opt.): 2 signal relays + 1 fault relay — 3× (1 A 30 VDC · 0.5 A 125 VAC · 0.3 A 80 VDC)
Ambient conditions	–40 °C ... +60 °C · 0–98 % RH non-condensing · 84–106.7 kPa
Power supply	12 ... 24 V DC, 3-wire cable
Power consumption	max 2.5 W at 24 V DC
Housing	Aluminium alloy · sensor body stainless steel SS316
Ingress protection	IP65
Explosion protection	1Ex db IIC T6 Gb X · Ex tb IIIC T85°C Db X
Dimensions	186 × 118.15 × 84.21 mm
Cable entry	2 × 1/2" NPT
Weight	1.4 kg
Expected sensor life	IR > 5 yr · thermocatalytic 4–5 yr+ · electrochemical > 2 yr

ENCLOSURE & DIMENSIONS



Overall dimensions – front & side views (mm)



Sectional view – components & cable/mounting interfaces

ORDERING INFORMATION

TRM-EX – X1 – X2 – X3 – X4

where **TRM-EX** – model • **X1** measured component • **X2** range & units • **X3** cable-entry thread • **X4** relay block

X1 | MEASURED COMPONENT

CODE	DESCRIPTION
<formula>	Chemical formula of the measured component, or refrigerant designation (e.g. H ₂ S, CO, CH ₄ , R-410a)

X3 | CABLE-ENTRY THREAD

CODE	DESCRIPTION
1	Cable-entry thread: 1/2" NPT

X2 | RANGE & UNITS

CODE	DESCRIPTION
<range>	Upper limit of the measuring range and units (e.g. 100 ppm, 100 %LEL)

X4 | RELAY BLOCK

CODE	DESCRIPTION
0	No relay block
1	Relay block fitted

MEASURED GASES / VAPOURS

The TRM-EX is factory-configured to one measured component and range per the ordering cipher. The catalogue below is carried from the source specification; contact TREMON for components not shown.

TRM-EX-E — electrochemical sensor • toxic & specialty gases (1 of 2)

N°	CODE	MEASURED COMPONENT	RANGE	UNITS
1	NH ₃	Ammonia (NH ₃)	0–50	ppm
2	NH ₃	Ammonia (NH ₃)	0–100	ppm
3	NH ₃	Ammonia (NH ₃)	0–250	ppm
4	NH ₃	Ammonia (NH ₃)	0–1000	ppm
5	H ₂	Hydrogen (H ₂)	0–500	ppm
6	H ₂	Hydrogen (H ₂)	0–1000	ppm
7	H ₂	Hydrogen (H ₂)	0–2000	ppm
8	O ₂	Oxygen (O ₂)	0–25	%vol
9	NO ₂	Nitrogen dioxide (NO ₂)	0–30	ppm
10	SO ₂	Sulfur dioxide (SO ₂)	0–10	ppm
11	SiH ₄	Monosilane (SiH ₄)	0–1	ppm
12	O ₃	Ozone (O ₃)	0–1	ppm
13	O ₃	Ozone (O ₃)	0–5	ppm

N°	CODE	MEASURED COMPONENT	RANGE	UNITS
14	NO	Nitric oxide (NO)	0–50	ppm
15	NO	Nitric oxide (NO)	0–250	ppm
16	CO	Carbon monoxide (CO)	0–300	ppm
17	CO	Carbon monoxide (CO)	0–500	ppm
18	CO	Carbon monoxide (CO)	0–1000	ppm
19	H ₂ S	Hydrogen sulfide (H ₂ S)	0–20	ppm
20	H ₂ S	Hydrogen sulfide (H ₂ S)	0–50	ppm
21	H ₂ S	Hydrogen sulfide (H ₂ S)	0–100	ppm
22	H ₂ S	Hydrogen sulfide (H ₂ S)	0–120	ppm
23	H ₂ S	Hydrogen sulfide (H ₂ S)	0–250	ppm
24	H ₂ S	Hydrogen sulfide (H ₂ S)	0–500	ppm
25	HCN	Hydrogen cyanide (HCN)	0–30	ppm
26	CH ₂ O	Formaldehyde (CH ₂ O)	0–10	ppm

TRM-EX-E — electrochemical sensor · toxic & specialty gases (2 of 2)

Nº	CODE	MEASURED COMPONENT	RANGE	UNITS
27	PH ₃	Phosphine (PH ₃)	0–10	ppm
28	F ₂	Fluorine (F ₂)	0–5	ppm
29	HF	Hydrogen fluoride (HF)	0–10	ppm
30	Cl ₂	Chlorine (Cl ₂)	0–10	ppm
31	HCl	Hydrogen chloride (HCl)	0–25	ppm
32	C ₂ H ₄ O	Ethylene oxide (C ₂ H ₄ O)	0–20	ppm
33	C ₂ H ₄ O	Ethylene oxide (C ₂ H ₄ O)	0–100	ppm
34	AsH ₃	Arsine (AsH ₃)	0–1	ppm
35	BF ₃	Boron trifluoride (BF ₃)	0–10	ppm
36	BCl ₃	Boron trichloride (BCl ₃)	0–25	ppm
37	SiH ₂ Cl ₂	Dichlorosilane (SiH ₂ Cl ₂)	0–25	ppm

Nº	CODE	MEASURED COMPONENT	RANGE	UNITS
38	Si ₂ H ₆	Disilane (Si ₂ H ₆)	0–15	ppm
39	GeH ₄	Germane (GeH ₄)	0–5	ppm
40	SiCl ₄	Silicon tetrachloride (SiCl ₄)	0–25	ppm
41	SiF ₄	Silicon tetrafluoride (SiF ₄)	0–10	ppm
42	SF ₆	Sulfur hexafluoride (SF ₆)	0–10	ppm
43	HSiCl ₃	Trichlorosilane (HSiCl ₃)	0–15	ppm
44	WF ₆	Tungsten hexafluoride (WF ₆)	0–10	ppm
45	B ₂ H ₆	Diborane (B ₂ H ₆)	0–1	ppm
46	HNO ₃	Nitric acid (HNO ₃)	0–30	ppm
47	PF ₅	Phosphorus pentafluoride (PF ₅)	0–10	ppm
48	H ₂ Se	Hydrogen selenide (H ₂ Se)	0–5	ppm

TRM-EX-CT — thermocatalytic sensor (all ranges 0-100 %LEL)

N°	CODE	MEASURED COMPONENT	RANGE
1	NH ₃	Ammonia (NH ₃)	0-100 %LEL
2	C ₂ H ₂	Acetylene (C ₂ H ₂)	0-100 %LEL
3	C ₃ H ₆ O	Acetone (C ₃ H ₆ O)	0-100 %LEL
4	C ₆ H ₆	Benzene (C ₆ H ₆)	0-100 %LEL
5	C ₄ H ₆	1,3-butadiene (C ₄ H ₆)	0-100 %LEL
6	C ₄ H ₁₀	Butane (n-butane) (C ₄ H ₁₀)	0-100 %LEL
7	C ₄ H ₉ OH	Butanol (n-butanol) (C ₄ H ₉ OH)	0-100 %LEL
8	i-C ₄ H ₈	Isobutylene (i-C ₄ H ₈)	0-100 %LEL
9	H ₂	Hydrogen (H ₂)	0-100 %LEL
10	C ₆ H ₁₄	Hexane (n-hexane) (C ₆ H ₁₄)	0-100 %LEL
11	C ₇ H ₁₆	Heptane (n-heptane) (C ₇ H ₁₆)	0-100 %LEL
12	o-C ₈ H ₁₀	o-xylene (o-C ₈ H ₁₀)	0-100 %LEL
13	m-C ₈ H ₁₀	m-xylene (m-C ₈ H ₁₀)	0-100 %LEL
14	p-C ₈ H ₁₀	p-xylene (p-C ₈ H ₁₀)	0-100 %LEL
15	C ₄ H ₈	Butylene (C ₄ H ₈)	0-100 %LEL
16	C ₃ H ₈ O	Isopropyl alcohol (C ₃ H ₈ O)	0-100 %LEL
17	C ₂ H ₆ O	Dimethyl ether (C ₂ H ₆ O)	0-100 %LEL
18	CH ₄	Methane (CH ₄)	0-100 %LEL
19	CH ₃ OH	Methanol (CH ₃ OH)	0-100 %LEL

N°	CODE	MEASURED COMPONENT	RANGE
20	C ₈ H ₁₈	Octane (n-octane) (C ₈ H ₁₈)	0-100 %LEL
21	C ₅ H ₁₂	Pentane (C ₅ H ₁₂)	0-100 %LEL
22	C ₃ H ₈	Propane (C ₃ H ₈)	0-100 %LEL
23	C ₃ H ₆	Propylene (C ₃ H ₆)	0-100 %LEL
24	C ₈ H ₈	Styrene (C ₈ H ₈)	0-100 %LEL
25	C _x H _y (CH ₄)	ΣC _x H _y hydrocarbons (by methane)	0-100 %LEL
26	C _x H _y (C ₃ H ₈)	ΣC _x H _y hydrocarbons (by propane)	0-100 %LEL
27	C _x H _y (C ₆ H ₁₄)	ΣC _x H _y hydrocarbons (by hexane)	0-100 %LEL
28	C ₆ H ₅ CH ₃	Toluene (methylbenzene) (C ₆ H ₅ CH ₃)	0-100 %LEL
29	C ₆ H ₁₂	Cyclohexane (C ₆ H ₁₂)	0-100 %LEL
30	C ₅ H ₁₀	Cyclopentane (C ₅ H ₁₀)	0-100 %LEL
31	C ₂ H ₆	Ethane (C ₂ H ₆)	0-100 %LEL
32	C ₂ H ₅ OH	Ethanol (ethyl alcohol) (C ₂ H ₅ OH)	0-100 %LEL
33	C ₄ H ₈ O ₂	Ethyl acetate (C ₄ H ₈ O ₂)	0-100 %LEL
34	C ₂ H ₄	Ethylene (C ₂ H ₄)	0-100 %LEL
35	C ₂ H ₄ O	Acetaldehyde (CH ₃ CHO)	0-100 %LEL
36	C ₆ H ₁₂ O ₂	Butyl acetate (C ₆ H ₁₂ O ₂)	0-100 %LEL
37	C ₉ H ₂₀	Nonane (C ₉ H ₂₀)	0-100 %LEL
38	C ₄ H ₈ O	2-butanone (C ₄ H ₈ O)	0-100 %LEL

TRM-EX-IR — infrared sensor • CO₂ & hydrocarbons

Nº	CODE	MEASURED COMPONENT	RANGE	UNITS
1	CO ₂	Carbon dioxide (CO ₂)	0–5	%vol
2	CO ₂	Carbon dioxide (CO ₂)	0–5000	ppm
3	C ₄ H ₆	1,3-butadiene (C ₄ H ₆)	0–100	%LEL
4	C ₄ H ₁₀	Butane (n-butane) (C ₄ H ₁₀)	0–100	%LEL
5	C ₆ H ₁₄	Hexane (n-hexane) (C ₆ H ₁₄)	0–100	%LEL
6	CH ₄	Methane (CH ₄)	0–100	%LEL
7	C ₅ H ₁₂	Pentane (C ₅ H ₁₂)	0–100	%LEL
8	C ₃ H ₈	Propane (C ₃ H ₈)	0–100	%LEL
9	CxHy (CH ₄)	ΣCxHy hydrocarbons (by methane)	0–100	%LEL
10	CxHy (C ₃ H ₈)	ΣCxHy hydrocarbons (by propane)	0–100	%LEL
11	CxHy (C ₆ H ₁₄)	ΣCxHy hydrocarbons (by hexane)	0–100	%LEL

TRM-EX-SMC — semiconductor sensor • refrigerants

Nº	CODE	MEASURED COMPONENT	RANGE	UNITS
1	R-125	Pentafluoroethane (C ₂ HF ₅)	0–2000	ppm
2	R-134a	1,1,1,2-tetrafluoroethane (C ₂ H ₂ F ₄)	0–2000	ppm
3	R-134a	1,1,1,2-tetrafluoroethane (C ₂ H ₂ F ₄)	0–5000	ppm
4	R-143a	1,1,1-trifluoroethane (C ₂ H ₃ F ₃)	0–2000	ppm
5	R-22	Chlorodifluoromethane (CHClF ₂)	0–2000	ppm
6	R-32	Difluoromethane (CH ₂ F ₂)	0–2000	ppm
7	R-32	Difluoromethane (CH ₂ F ₂)	0–10000	ppm
8	R-404a	Refrigerant R404a (C ₂ HF ₅ +C ₂ H ₃ F ₃ +C ₂ H ₂ F ₄)	0–2000	ppm
9	R-404a	Refrigerant R404a (C ₂ HF ₅ +C ₂ H ₃ F ₃ +C ₂ H ₂ F ₄)	0–5000	ppm
10	R-407a	Refrigerant R407a (CH ₂ F ₂ +C ₂ HF ₅ +C ₂ H ₂ F ₄)	0–2000	ppm
11	R-407c	Refrigerant R407c (CH ₂ F ₂ +C ₂ HF ₅ +C ₂ H ₂ F ₄)	0–5000	ppm
12	R-407f	Refrigerant R407f (CH ₂ F ₂ +C ₂ HF ₅ +C ₂ H ₂ F ₄)	0–2000	ppm
13	R-410a	Refrigerant R410a (CH ₂ F ₂ +C ₂ HF ₅)	0–2000	ppm
14	R-427a	Refrigerant R427a (CH ₂ F ₂ +C ₂ HF ₅ +C ₂ H ₃ F ₃ +C ₂ H ₂ F ₄)	0–1000	ppm
15	R-507	Refrigerant R507 (C ₂ HF ₅ +C ₂ H ₃ F ₃)	0–2000	ppm
16	SF ₆	Sulfur hexafluoride (SF ₆)	0–2000	ppm

Ranges and units carried 1:1 from the source specification. %vol = volume percent; %LEL = percent of lower explosive limit; ppm = parts per million (v/v). The analyzer is factory-configured to the ordered component and range.

AT A GLANCE

4–20 mA Modbus RS-485 RTU relay option
 SS316 sensor body IP65 1Ex db IIC T6

A budget-friendly solution for continuous working-zone air monitoring — electrochemical, thermocatalytic, infrared and semiconductor sensing in one explosion-proof platform.



CONTACT

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