

SafEye™ Quasar 900

Open Path Combustible Gas Detectors



The is part of the innovative Quasar infrared open path gas detectors for combustible hydrocarbon gases at up to 660 ft. (200 m).

Features and benefits

- One person installation and low maintenance
- Factory calibrated
- Built-in self test continuously monitoring device health
- Accurate and reliable high-speed response in under two seconds
- RTC event recorder; record of the last 375 events
- Automatic gain control ensures accurate detection in challenging conditions with up to 95% signal obscuration
- Three-year warranty
- High false alarm immunity
- Heated optics for operation in challenging conditions
- Easy to use, field configurable via HART® or RS-485 Modbus®
- High reliability-MTBF-minimum 100,000 hours

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Applications

- Petrochemical, pharmaceutical, and other chemical storage and production areas
- Flammable chemical storage sites, and hazardous waste disposal areas
- Refineries, oil platforms, pipelines, refueling stations, and fuel storage facilities
- Hazardous loading docks, transportation depots, and shipping warehouses
- Engine rooms
- Compressor and pumping stations
- Test cells
- LNG-LPG Systems
- Offshore Floating Production Storage and Offloading (FPSO), and fixed oil rigs

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Specifications

General specifications

Table 1: Detection Range

Detector model: QR	Source model: QT			
	Quasar 901	Quasar 902	Quasar 903	Quasar 904
Feet	23-66	50-132	115-330	265-660
Meters	7-20	15-40	35-100	80-200

Detected gas	C1-C8 selective gases
Response time	< 2 seconds
Immunity to false alarm	Not influenced by solar radiation, hydrocarbon flames, and other external infrared radiation sources
Sensitivity range	0-5 LEL.m methane and propane 0-8 LEL.m ethylene
Displacement/misalignment tolerance	±0.5 degrees
Drift	±7.5 percent of the reading or ±4 percent of the full scale (whichever is greater)
Minimum detectable level	0.15 LEL.m
Temperature range	-67 to +149 °F (-55 to +65 °C)
Humidity	Up to 95 percent non-condensing (withstands up to 100 percent relative humidity for short periods)
Heated optics	To eliminate condensation and icing on the window
Warranty	3 years for detector and source

Electrical specifications

Power supply	24 VDC nominal (18-32 VDC)
Typical power consumption	Detector: 220 mA Source: 240 mA
Warm-up time	30 seconds for transmitter and receiver
Electrical connection (specify)	Two ¾-in. - 14 national pipe thread (NPT) conduits or 2 x M25 x 1.5 mm ISO
Electrical input protection	Per MIL-STD-1275B
Electromagnetic compatibility	Electromagnetic interference/radio frequency interference (EMI/RFI) protected per EN50270

Outputs-interfaces

0-20 mA current output	Sink (source option) configuration: maximum load of 500 ohm at 18-32 VDC Gas reading: 4-20 mA Normal, zero reading: 4 mA Maintenance call: 3 mA Obscuration/beam block: 2 mA Zero calibration mode: 1 mA
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RS-485 interface-Modbus® compatible	Fault: 0 mA The RS-485 input/output provides complete data information to a personal computer (PC) and receives control commands from the PC or hand-held unit.
HART® protocol	HART communication on 0-20 mA analog (FSK) - used for maintenance and asset management
Visual status indicator	Front and back visual status indicator ⁽¹⁾ Three color light-emitting diodes (LED) ■ Green: power on ■ Amber: fault ■ Red: alarm

Mechanical specifications

Enclosure	The source and detector housings are stainless steel 316 with electro polish finish. The circuit boards are conformal coated and protected from mechanical vibrations. The tilt mount is also stainless steel 316.
Dimensions	Detector/source: 10.5 x 5.1 x 5.1 in. (267 x 130 x 130 mm) Tilt mount: 4.7 x 4.7 x 5.5 in. (120 x 120 x 158 mm)
Weight	Detector/source: 11 lb. (5 kg) Tilt mount: 4.2 lb. (1.9 kg)
Water and dust tight	IP66 and IP68 NEMA® 250 6P
Environmental	Meets MIL-STD-810C for humidity, salt and fog, vibration, mechanical shock, and high and low temperature

Approvals

Performance	FM 6325, EN60079-29-4 and DNV CG-0339, EN 50270, IEC 60079-29-4
Reliability	SIL2 per IEC61508 (TÜV)

(1) Receiver unit only.

Approvals

ATEX, IECEx

The Quasar 900 is ATEX approved per SIRA 12ATEX1212X and IECEx per IECEx SIR 12.0086X per:

Ex II 2(2)G D

Ex db eb ib [ib Gb] IIB+H2 T4 Gb

Ex tb [ib Db] IIIC T135 °C Db

T_{Ambient} -55 °C to +65 °C

This product is suitable for use in hazardous zones 1 and 2 with IIB+H2 group vapors present, and zones 21 and 22 with IIIC combustible dust types.

UKCA

The Quasar 900 is UK CA approved per CSAE 21UKEX1173X:

Ex II 2(2)G D

Ex db eb ib [ib Gb] IIB+H2 T4 Gb

Ex tb [ib Db] IIIC T135 °C Db

T_{Ambient} -55 °C to +65 °C

FM/FMC

The Quasar 900 is approved to FM/FMC Explosion Proof per:

Class I, Div. 1 Group B, C and D, T6 -58 °F/-50°C ≤ Ta ≤ 149 °F/65 °C

Dust Ignition Proof – Class II/III Div. 1, Group E, F, and G

Ingress Protection – IP66 and IP68, NEMA 250 Type 6P

IP68 is rated for 2-meter depth for 45 minutes.

TR CU (EAC) - pending

1Ex d e ib [ib Gb] IIB + H₂ T4 Gb X

Ex tb [ib Db] IIIC T135 °C Db X

Inmetro (UL)

The product complies with Inmetro approval per the following standards:

ABNT NBR IEC 60079-0

ABNT NBR IEC 60079-1

ABNT NBR IEC 60079-7

ABNT NBR IEC 60079-11

ABNT NBR IEC 60079-28

ABNT NBR IEC 60079-31

Marking:

Ex db eb ib [ib Gb] IIB+H2 T4 Gb

Ex tb [ib Db] IIIC T135 °C Db

(-55 °C ≤ T_a ≤ +65 °C)

Certificate number UL-BR 16.1063X (Rosemount) and UL-BR 22.4058X (Spectronix).

SIL-2

The Quasar 900 is TUV approved for SIL-2 requirements per IEC 61508.

According to SIL-2 requirements, the alert condition can be implemented by an alert signal via the 0–20 mA current loop.

For more details and guidelines on configuring, installing, operating, and servicing, see [SIL-2 Features](#), and TUV report no. 968/EZ 619.XX/XX .

Performance approvals

Functional performance certified per FM 6325, EN60079-29-4 and DNV.

The Quasar 900 was functional tested by FM per EN60079-29-4 and Ansi/FM 60079-29-4.

Accessories

Model	Product Description
888270	Tilt Mount
799255	Wall Mount
799225	Pole Mount (U-Bolt 4-5")
888140	Pole Mount (U-Bolt 2-3")
888355-2	Duct Mount
888931	Air Shield
888263	Protective Cover
888280-1	Check Filter H2S
888820	Auxiliary Harness IS/RS 485 and HART
888810	HART Handheld Diagnostic Kit
794079	USB / RS485 Harness Converter Kit

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