

Spyglass™ IR3-H₂ (V)

Spyglass™ flame detectors offer the fastest detection of fires and explosions, providing the opportunity to reduce or prevent damage to property & equipment.

The SG50-F-IR3-H₂ & SG50-F-IR3-H₂-V flame detectors provide unrivaled response, high performance and reliable detection for challenging fires such as hydrogen. The near-infrared video technology embedded in option in the detector allows visualization of these fires which are often nearly invisible to the human eye. Video capture of a fire event includes one minute before the alarm and up to three minutes after the event.

Rugged stainless steel construction and accessories such as weather shields, air shields, and pole mounts allow use in the most rugged and challenging conditions.

Features

- High immunity to false alarm, including arc welding
- Detects hydrogen, ammonia, methane & syngas flames using three infrared wavelengths, with clear separation
- 5 selectable sensitivity levels
 - Ultra-fast detection within 40 milliseconds for fireballs or explosions
 - High speed (<0.5 s) option available for rapid detection of fires in challenging applications
- HD video output (IR3-H2-V) with automatic event recording
 - Alarms & faults (& videos for IR3-H2-V) are logged to non-volatile memory
- Built-in-Test (BIT) – Automatic and manual internal self-test of window cleanliness and overall operation of the detector
- ¹HART® 7 - Easy configuration and diagnostic capability to assist preventative maintenance
- Dirty optics warning for preventative maintenance needs
- Heated window to avoid condensation and icing
- Stainless steel tilt-mount with horizontal and vertical adjustment
- ¹SIL 2 capable - suitable for use in a SIL 2 compliant safety system

¹ not on base unit options

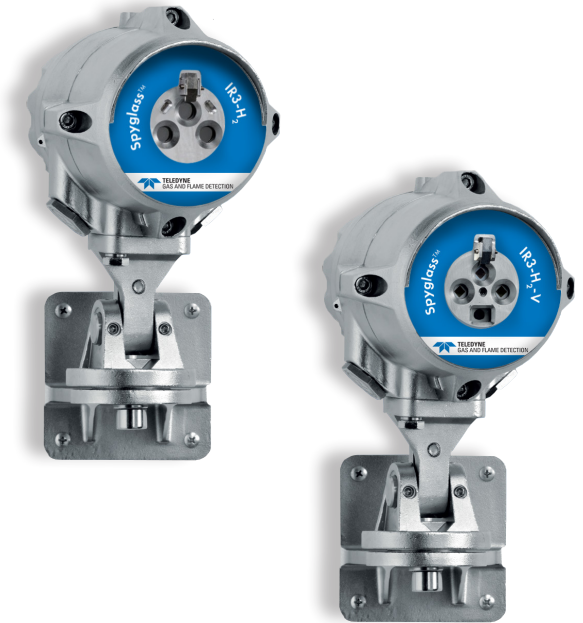


Spyglass™ IR3 H₂ (V)

Flame Detector

Seeing Is Believing

SG50-F-IR3-H₂ (V) flame detectors provide industry leading reliability and detection speed for hydrogen fires. The IR3-H₂ provides protection while also logging alarm events. The IR3-H₂-V model incorporates an HD video which records from one minute before a fire even to up to three minutes after. It also allows remote operators a chance to quickly confirm a fire condition. In addition, the IR3-H₂-V offers a near-infrared video feed as standard (color RGB is optional). Why near-infrared? Hydrogen fires can be extremely difficult to see. Near-infrared gives anyone viewing the video a chance to quickly determine the fire source that activated the alarm condition.



Hydrogen and Other Clean Burning Fuels can be Practically Invisible

Unlike hydrocarbon fires from fuels such as gasoline or diesel which are easily visible to the human eye, clean burning fuels like hydrogen and alcohol can be very difficult to see. In fact, in daylight hydrogen is almost invisible to the human eye. This is also true of hydrogen fires shown through regular color (RGB) video - while the Spyglass flame detector will detect the fire, it can't be seen on standard video. For this reason the default video option for the SG50-F-IR3-H₂-V is near-infrared video. In near-infrared the clean burning fuel fires are clearly visible to the human eye.



The image to the left shows a hydrogen explosion in near-infrared. The hydrogen fire is easily seen on the video.

IR3-H2-V Features

- Fast and reliable detection with video confirmation and recording
- Near-infrared and color (RGB) video options
- Allows remote monitoring of dangerous events
- Video capture allows after incident evaluation to determine:
 - How the fire started
 - How the fire progressed
 - How fire suppression systems performed

Model : SG50 - F - IR3 H₂ (V)

Detection time and distance	40ms for fast burst or explosion 1.5s for 32" (0.8m) hydrogen fire at 0–66 ft. (0–20m) 4s for 32" (0.8m) hydrogen fire at 66–100 ft. (20–30m)
Sensitivity Range	5 sensitivity ranges: Extreme, High, Medium, Low, Very Low
Field of view (IR detection)	90° Horizontal, 75° Vertical
Time Delay	0–30 seconds
Built in Test	Automatic and Manual
Video Functionality - Only available on SG50-F-IR3-H ₂ -V	

HD Video	Near-IR filtered HD, as standard. Color HD option (X2 available on request)
Video recording of alarm event	1 minute pre-event and up to 3 minutes post-event
System integration protocol	ONVIF (Open Network Video Interface Forum) Profile S

Electrical Specifications

Operating Voltage	24 VDC nominal (18-32 VDC)	
Current Consumption	Non-Video Units	Video Units
Standby	120mA	180mA
All systems in operation (including window heater)	80mA	300mA
Conduit Entries	2x cable and conduit entries 3/4" NPT(F) or M25x1.5	
Wiring	12-20AWG (0.35 -2.5mm ²)	

Outputs

Relays	SPST volt-free contacts rated 2A at 30 VDC 3 relays: Alarm & Auxiliary – normally open; Fault – normally closed	
0-20mA (stepped) current output	3 wire and 4 wire (isolated) configurations (sink and source) HART® rev 7.0 (not available on base unit option)	
Indication	Tri-color LED (Green, Yellow, Red)	
Modbus	RTU compatible on RS-485	
Digital (for video)	IP network IEEE 802.3 100Base-T - Only on IR3-H ₂ -V	
Composite video	NTSC or PAL - Only on IR3-H ₂ -V	

Mechanical Specifications

	SG50-F-IR3-H ₂	SG50-F-IR3-H ₂ -V
Size	5.51 x 3.54 x 3.54" (140x90x90mm)	7.87 x 5.12 x 5.12" (200x130x130mm)
Weight	Detector (Stainless Steel 316): 6.6 lbs. (3.0 kg) Tilt mount (Stainless Steel 316): 3.3 lbs. (1.5 kg)	Detector (Stainless Steel 316): 9.8 lbs. (4.4 kg) Tilt mount (Stainless Steel 316): 5.4 lbs. (2.4 kg)

Environmental Specifications

Temperature Range	Operating: -67°F to +185°F (-55°C to +85°C) Storage: -67°F to +185°F (-55°C to +85°C)
Humidity	Up to 99% (RH), non-condensing
Ingress Protection	IP66 & 68 (2m, 24hr); NEMA 4X & 6P

Approvals

ATEX, IECEX, UKCA	ATEX: II 2 G D Ex db IIC T5 Gb or Ex db eb IIC T5 Gb and Ex tb IIIC T95°C Db -55°C<Ta<75°C Ex db IIC T4 Gb or Ex db eb IIC T4 Gb and Ex tb IIIC T105°C Db -55°C<Ta<85°C
FMus & FMc	Class I, Div. 1, Groups B, C & D; T4 -50°C≤Ta≤85°C or T5 -50°C≤Ta≤75°C Class II/III, Div. 1, Groups E, F, G; T4 -50°C≤Ta≤85°C or T5 -50°C≤Ta≤75°C Class I, Zone 1, AEx/Ex db IIC T4 Gb or Class I, Zone 1, AEx/Ex db eb IIC T4 Gb -50°C≤Ta≤85°C Class I, Zone 1, AEx/Ex db IIC T5 Gb or Class I, Zone 1, AEx/Ex db eb IIC T5 Gb -50°C≤Ta≤75°C Zone 21, AEx/Ex tb IIIC T95°C Db -50°C≤Ta≤75°C or Zone 21, AEx/Ex tb IIIC T105°C Db -50°C≤Ta≤85°C
Performance	ANSI FM 3260
Functional safety	Certified to SIL2, per IEC 61508 (not available on all options)

Please contact us for other certifications including INMETRO and PESO.

Warranty

5 Years

Spyglass™ IR3 H₂ (V)

Flame Detectors

Accessories

Stainless steel weather cover

2" & 3" pole mount adapte

Airshield for areas with high airborne contamination

Paint shield / cover

Flame Simulator SP-F-SIM-IR3-H₂



Operation Distances

IR3-H₂ & IR3-H₂-V

Detector Sensitivity	ft.	m.
Extreme	23.0	7.0
High	16.0	5.0
Medium	10.0	3.0
Low	3.3	1.0

Electrical Specifications

Operating Voltage nominal, V	3.7
Number of activations between charging	~50
Battery Capacity, mAh	>3000
Charging time, hours	up to 3

All Spyglass™ flame detectors have Built-In Test (BIT) capability. Flame simulators are used when an external test (versus BIT) of a flame detector is required but a live fire test is not possible. Flame simulators mimic the radiation and flicker of a real fire source in a handheld device which is certified intrinsically safe to ATEX standards.

Mechanical Specifications

Size	3.9 x 3.9 x 7.8" (100 x 100 x 200mm)
Weight	3.96 lbs. (1.8 kg)
Simulator Enclosure Material	Painted Aluminum LM25

Environmental Specifications

Ingress Protection	IP65 (NEMA 4X)
Humidity	up to 99% (RH), non-condensing
Operating temperature	Min: -4°F (-20°C) Max: +122°F (+50°C)

Approvals

ATEX	Ex II 2 G Ex db ib op is IIC T6 Gb Ex II 2 D Ex tb ib op is IIIC T85°C Db -20°C<Ta<+50°C
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Warranty

3 years

We are committed to ensuring the quality and continuous improvement of our products. The information contained in this brochure is therefore subject to change without notice, only the technical data contained in the manual is binding. For more information, please contact us or our distributor.



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