

UV/IR-H2 & UV-H2 Flame Detectors

Ultraviolet and Infrared Sensors for Hydrogen & Silane Flame

Net Safety's Hydrogen flame detectors are specially tuned for non-hydrocarbon based flame applications where accurate and instant detection of difficult to see hydrogen and silane flame is required. Our advanced optical sensors ensure the greatest degree of UV and IR spectral bandwave matching to the radiant energy emitted by invisible hydrogen and silane flame — and the lowest degree of matching to non-fire stimuli. This provides ultra-fast alarm, an unparalleled level of false alarm immunity, as well as a field-of-view unmatched in the industry — a full 120° horizontal degrees!



- Two Radiation Wavelengths Necessary For Alarm— Minimize False Alarm Events (UV/IR-H2 only)
- Lowest Power Consumption of Any Flame Detector On the Market
- Manual and Automatic Testing of Optical Surfaces — Constatly Monitors Internal Electronics
- Designed for Extreme Conditions, Operational From -50°C — +75°C
- Global Certifications and Approvals
- Wide Voltage Range Allows For Greater Stability and System Compatibility
- Field-selectable Sensitivity and Delay Settings Allows Operators To Fine Tune At Installation Site
- Wide Area Coverage, Extended Range with Fast Response Times
- Analog, Relay, and HART® Outputs Available
- 3 Year Warranty Electronics / 2 Years on Sensors

Enclosed in a rugged, explosion-proof housing, the UVS-H2 and UV/IRS-H2 are engineered for extreme applications and utilize the latest in SMART microprocessor sensor technology. They're capable of stand-alone operation or can be connected to a variety of control devices to create a dependable fire monitoring system. The field user can define sensitivity and time delay settings to further enhance false-alarm immunity and the built-in testing routines ensure continuous operation.

The UVS-H2 and UV/IRS-H2 are ideally suited for specialized applications where response time and a wide field-of-view are most critical — industrial and commercial locations that utilize

hydrogen fuel cells, hydrogen gas generators, hydrogen refilling stations, and storage tanks as well as semiconductor facilities where silane combustion risks are commonly present. Net Safety's UVS-H2 and UV/IRS-H2 flame detectors are globally certified for hazardous locations to CSA, ANSI-UL/ISA, and ATEX technical and safety standards.

Net Safety has engineered superior UV/IR-H2 and UV-H2 flame detectors specially tuned to detect invisible H2 and Silane flame that are also simple to operate and maintain while delivering all the security and performance required for high-risk, industrial installations!

UV/IR-H2 Flame Detector

Specifications

	ANALOG	RELAY	HART®
Operating Voltage Range	10 to 32 Vdc		
Power Consumption at 24 Vdc *with Heater	Nom 45 mA / 1.1 W Max 115 mA / 2.76 W *Nom 90 mA / 2.16 W Max 165 mA / 3.96 W	Nom 45 mA / 1.1 W Max 115 mA / 2.76 W *Nom 90 mA / 2.16 W Max 165 mA / 3.96 W	Nom 71 mA / 1.7 W Max 173 mA / 3.36 W *Nom 106 mA / 2.22 W Max 223 mA / 5.36 W
Power Consumption at 32 Vdc *with Heater	Nom 35 mA / 1.12 W Max 105 mA / 3.36 W *Nom 70 mA / 2.24 W Max 145 mA / 4.64 W	Nom 35 mA / 1.12 W Max 105 mA / 3.36 W *Nom 70 mA / 2.24 W Max 145 mA / 4.64 W	Nom 57 mA / 1.72W Max 158 mA / 5.06 W *Nom 92 mA / 2.84 W Max 198 mA / 6.34 W
Temperature Range	Certified -40°C to +75°C (-40°F to +167°F) / Operational -50°C to +75°C (-58°F to +167°F)		
Field of View	120 degrees horizontal / 95 degrees vertical		
Spectral Range	UV Radiation 185 to 260 nanometres (1850 to 2600 angstroms) IR Radiation in the 3.09 micron range		
Time Delay	Dip switch selectable to 0, 3, 5, 7 seconds		
Sensitivity Settings	DIP switch selectable to 8, 16, 24 or 32 counts per second		
Response Time	<6 seconds [depending on fuel source, fire size and distance]		
Enclosure Material	Red powdercoat with clear anodizing, copper-free aluminum (optional stainless steel), factory sealed housing		
Humidity Range	0 to 95% RH, non-condensing		
Weight (with swivel)	2.1 Kg/4.5 lb (Stainless Steel option 3.4 Kg/7.5 lb) - does not include junction boxes		
Outputs	0 to 20 mA - Into a maximum loop impedance of 800 Ohms at 32 V dc or 150 Ohms at 11.0 V dc. Non-isolated loop supply	Form C contacts rated 1 Amp at 30 Vdc, 0.5 Amp at 125 Vac. Selectable energized/de-energized, latching/non-latching Fire relay Fault relay factory set as energized/non-latching, cannot be modified	HART® Communication Protocol
Certifications/Approvals	CSA - Class I, Division 1, Groups B, C and D - Temperature code T5 - CANADA: Class 1, Zone 1, Ex d IIB + H2 T5 ANSI/UL - Class I, Division 1, Groups B, C and D - Temperature code T5 - UNITED STATES: Class 1, Zone 1, AEx d IIB + H2 T5 ATEX/IECEX - Ⓜ II 2 G Ex d II B+H2 T5 Gb GOST-R - 1Ex d II BT5/H2 INMETRO - BR-Ex d II B+H2 T5 Factory Mutual (FM) 3260 SIL2 by exida® ABS Marine NEMA Type 4X • IP66 - Enclosure ratings		
Warranty	3 Years Electronics / 2 Years Sensors		

ORDERING INFORMATION

UV/IRS-H2-A	4-20mA Analog Output
UV/IRS-H2-AR	4-20mA Analog output with a Fire and Fault alarm relay (JB-MPR-A/S included)
UV/IRS-H2-AH	4-20mA Analog Output and HART® Communication Protocol (JB-MPHF-A/S included)
UV/IRS-H2-AHR	4-20mA Analog Output, Fire and Fault Alarm Relays and HART® Communication Protocol (JB-MPHFR-A/S included)

ADDITIONAL APPROVALS : -X (ATEX/IECEX)
ENCLOSURE MATERIAL: Stainless Steel (-SS) [Aluminum is Standard]
ADDITIONAL FEATURES : -H (Heated Optics)

Ordering Matrix Example:

UV/IRS-H2-AHR-X-SS-H

(Detector - Output - Additional Approval - Enclosure Material - Optional Features)

NOTE: Specify flammable source when ordering

UV/IR-H2 Flame Detector

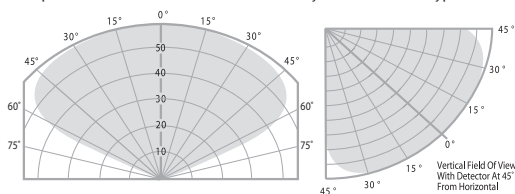
Specifications con't - Termination Boxes - Accessories

Summary of Distances

Fuel	Fire Size	Typical Response
Hydrogen	24" plume	1.8 sec @ 55 ft.
Silane	24" plume	2.0 sec @ 60 ft.

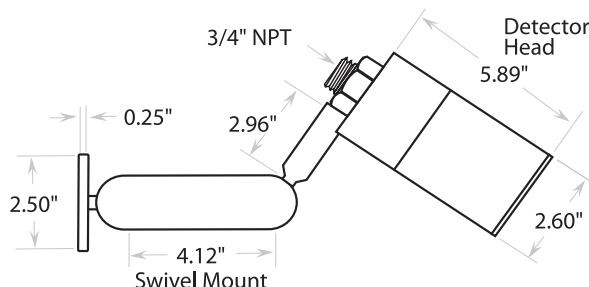
Example Field of View - Hydrogen

24" plume - indicated in feet - consult factory for other flame types



Immunity False Alarm Stimuli

Stimuli	Immunity Range
Direct/Indirect Sunlight	total
1500W Heater	10 ft
Halogen, Incandescent Light	3 ft
Florescent Light	10 ft
Arc Welding	30 ft



TERMINATION BOXES

Class 1, Division 1, Groups BCD - Class 1, Zone 1 – Enclosure rated NEMA 4X, IP67 (See man-0081 for full specifications)

JB-MPS-A/S	Termination box - Analog Output - Switch (for remote MVI testing) & Test Jacks - Aluminum or Stainless Steel
JB-HRTCOM-A/S	Separated HART® Communication Input Kit (JB-MPH-A with installed HPT-001) - Aluminum or Stainless Steel

ACCESSORIES

LAT-120	Laser alignment tool assembly - used to define area of coverage for all NSM flame detectors
AIR-SHIELD-002	Air Shield assembly (aluminum), supplied clean instrument air keeps lens clear in areas with heavy airbourne particulate
HPT-001	HART® Communicator port - Intrinsically Safe connection mounts to connected JB-MPHF & JB-MPHFR
FH-SHROUD	Field of View Restrictor Anodized (Red) for "S" series fire detectors (aluminum)
UN-MK-41	1" Pipe Mounting kit - Stainless steel
UN-MK-42	2" Pipe Mounting kit - Stainless steel
UN-MK-43	3" Pipe Mounting kit - Stainless steel
SSK-4	Sun shade kit/rain guard for "S" series flame, stainless steel - mounts directly to flame detector
SSK-1	Sun shade kit for "S" series flame, stainless steel - mounts directly to flame detector
TL-MP-KIT	Universal test lamp kit - certified rechargeable hand-held unit - produces accurate fire simulation (UV and IR sources)
TL-MP-KIT-X (pending)	Universal test lamp kit [ATEX] - certified rechargeable hand-held unit - produces accurate fire simulation (UV and IR sources)

UV-H2 Flame Detector

Specifications

	ANALOG	RELAY	HART®
Operating Voltage Range	10 to 32 Vdc		
Power Consumption at 24 Vdc *with Heater	Nom 45 mA / 1.1 W Max 115 mA / 2.76 W * Nom 90 mA / 2.16 W Max 165 mA / 3.96 W	Nom 45 mA / 1.1 W Max 95 mA / 2.28 W * Nom 90 mA / 2.16 W Max 145 mA / 3.48 W	Nom 71 mA / 1.7 W Max 173 mA / 3.36 W * Nom 106 mA / 2.22 W Max 223 mA / 5.36 W
Power Consumption at 32 Vdc *with Heater	Nom 35 mA / 1.12 W Max 105 mA / 3.36 W * Nom 70 mA / 2.24 W Max 140 mA / 4.48 W	Nom 35 mA / 1.12 W Max 80 mA / 2.56 W * Nom 70 mA / 2.24 W Max 115 mA / 3.68 W	Nom 57 mA / 1.72W Max 158 mA / 5.06 W * Nom 92 mA / 2.84 W Max 193 mA / 6.18 W
Temperature Range	Certified -40°C to +75°C (-40°F to +167°F) / Operational -50°C to +75°C (-58°F to +167°F)		
Field of View	120 degrees horizontal / 95 degrees vertical		
Spectral Range	UV Radiation 185 to 260 nanometres (1850 to 2600 angstroms)		
Time Delay	DIP switch selectable to 0, 3, 5, 7 seconds		
Sensitivity Settings	DIP switch selectable to 8, 16, 24 or 32 counts per second		
Response Time	<6 seconds [depending on fuel source, fire size and distance]		
Enclosure Material	Red powdercoat with clear anodizing, copper-free aluminum (optional stainless steel), factory sealed housing		
Humidity Range	0 to 95% RH, non-condensing		
Weight (with swivel)	2.1 Kg/4.5 lb (Stainless Steel option 3.4 Kg/7.5 lb) - does not include junction boxes		
Outputs	0 to 20 mA - Into a maximum loop impedance of 800 Ohms at 32 V dc or 150 Ohms at 11.0 V dc. Non-isolated loop supply	Form C contacts rated 1 Amp at 30 Vdc, 0.5 Amp at 125 Vac. Selectable energized/de-energized, latching/non-latching Fire relay Fault relay factory set as energized/non-latching, cannot be modified	HART® Communication Protocol
Certifications/Approvals	CSA - Class I, Division 1, Groups B, C and D - Temperature code T5 - CANADA: Class 1, Zone 1, Ex d IIB + H2 T5 ANSI/UL - Class I, Division 1, Groups B, C and D - Temperature code T5 - UNITED STATES: Class 1, Zone 1, AEx d IIB + H2 T5 ATEX/IECEX - Ⓜ II 2 G Ex d II B+H2 T5 Gb GOST-R - 1Ex d II BT5/H2 INMETRO - BR-Ex d II B+H2 T5 Factory Mutual (FM) 3260 Performance Certification ABS Marine NEMA Type 4X • IP66 - Enclosure ratings		
Warranty	3 Years Electronics / 2 Years Sensors		

ORDERING INFORMATION

UVS-H2-A	4-20mA Analog Output
UVS-H2-AR	4-20mA Analog output with a Fire and Fault alarm relay (JB-MPR-A/S included)
UVS-H2-AH	4-20mA Analog Output and HART® Communication Protocol (JB-MPHF-A/S included)
UVS-H2-AHR	4-20mA Analog Output and Fire and Fault Alarm Relays and HART® Communication Protocol (JB-MPHFR-A/S included)

ADDITIONAL APPROVALS : -X (ATEX/IECEX)
ENCLOSURE MATERIAL: Stainless Steel (-SS) [Aluminum is Standard]

Ordering Matrix Example:

UVS-H2-AHR-X-SS

(Detector - Output - Additional Approval - Enclosure Material - Optional Features)
NOTE: Specify flammable source when ordering

UV-H2 Flame Detector

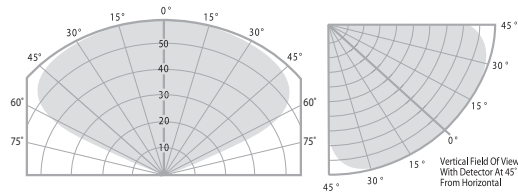
Specifications con't - Termination Boxes - Accessories

Summary of Distances

Fuel	Fire Size	Typical Response
Hydrogen	24" plume	1.8 sec @ 55 ft.
Silane	24" plume	2.0 sec @ 60 ft.

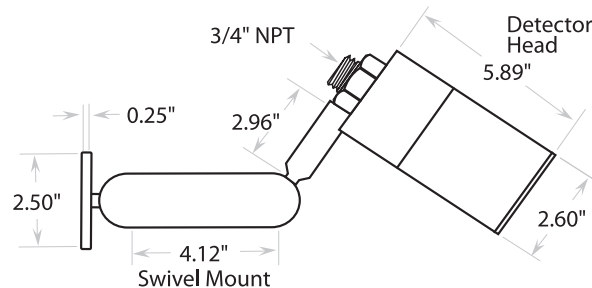
Example Field of View - Hydrogen

32" plume - indicated in feet - consult factory for other flame types



Immunity False Alarm Stimuli

Stimuli	Immunity Range
Direct/Indirect Sunlight	total
1500W Heater	10 ft
Halogen, Incandescent Light	3 ft
Florescent Light	10 ft



TERMINATION BOXES

Class 1, Division 1, Groups BCD - Class 1, Zone 1 – Enclosure rated NEMA 4X, IP67 (See man-0081 for full specifications)

JB-MPS-A/S	Termination box - Analog Output - Switch (for remote MVI testing) & Test Jacks - Aluminum or Stainless Steel
JB-HRTCOM-A/S	Separated HART® Communication Input Kit (JB-MPH-A with installed HPT-001) - Aluminum or Stainless Steel

ACCESSORIES

LAT-120	Laser alignment tool assembly - used to define area of coverage for all NSM flame detectors
AIR-SHIELD-002	Air Shield assembly (aluminum), supplied clean instrument air keeps lens clear in areas with heavy airborne particulate
HPT-001	HART® Communicator port - Intrinsically Safe connection mounts to connected JB-MPHF & JB-MPHFR
FH-SHROUD	Field of View Restrictor Anodized (Red) for "S" series fire detectors (aluminum)
UN-MK-41	1" Pipe Mounting kit - Stainless steel
UN-MK-42	2" Pipe Mounting kit - Stainless steel
UN-MK-43	3" Pipe Mounting kit - Stainless steel
SSK-4	Sun shade kit/rain guard for "S" series flame, stainless steel - mounts directly to flame detector
SSK-1	Sun shade kit for "S" series flame, stainless steel - mounts directly to flame detector
TL-MP-KIT	Universal test lamp kit - certified rechargeable hand-held unit - produces accurate fire simulation (UV and IR sources)
TL-MP-KIT-X (pending)	Universal test lamp kit [ATEX] - certified rechargeable hand-held unit - produces accurate fire simulation (UV and IR sources)

HEADQUARTERS:
FLAME AND GAS DETECTION
Emerson Process Management
Net Safety Monitoring Inc.
2721 Hopewell Place NE
Calgary, Alberta, Canada T1Y 7J7
T +1 (403) 219 0688
T 1 866 FIREGAS
F +1 (403) 219 0694
www.net-safety.com

HEADQUARTERS:
GAS CHROMATOGRAPHS
Emerson Process Management
Rosemount Analytical
5650 Brittmoore Road
Houston, TX 77041 USA
T +1 (713) 827 6380
T 1 866 422 3683
F +1 (713) 827 3865
www.raihome.com

HEADQUARTERS:
PROCESS ANALYTICAL
Emerson Process Management
Rosemount Analytical
6565 P Davis Industrial Parkway
Solon, OH 44139 USA
T +1 (440) 914 1261
T 1 800 433 6076
F +1 (440) 914 1262
www.raihome.com

HEADQUARTERS:
LIQUID ANALYTICAL
Emerson Process Management
Rosemount Analytical
2400 Barranca Parkway
Irvine, CA 92606 USA
T +1 (949) 757 8500
T 1 800 854 8257
F +1 (949) 474 7250
www.raihome.com

©2012 Emerson Process Management. All rights reserved.

Emerson Process Management, Rosemount Analytical, Net Safety Monitoring, and PlantWeb are marks of Emerson Process Management group of companies. All other marks are the property of their respective owners.

The contents of this publication are presented for information purposes only, and while effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available on request. We reserve the right to modify or improve the designs or specifications of our products at any time without notice.

™Please refer to manuals for complete specifications.