

# UV/IRS-H2 & UVS-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)
- Extremely Low Power Consumption Increases Uptime and Lowers Overall Costs
- 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/IRS-H2 Flame Detector

## Specifications

	ANALOG	RELAY	HART®
<b>Operating Voltage Range</b>	10 to 32 Vdc		
<b>Power Consumption at 24 Vdc *with Heater</b>	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
<b>Power Consumption at 32 Vdc *with Heater</b>	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
<b>Temperature Range</b>	Certified -40°C to +75°C (-40°F to +167°F) / Operational -50°C to +75°C (-58°F to +167°F)		
<b>Field of View</b>	120 degrees horizontal / 95 degrees vertical		
<b>Spectral Range</b>	UV Radiation 185 to 260 nanometres (1850 to 2600 angstroms)   IR Radiation in the 3.09 micron range		
<b>Time Delay</b>	Dip switch selectable to 0, 3, 5, 7 seconds		
<b>Sensitivity Settings</b>	DIP switch selectable to 8, 16, 24 or 32 counts per second		
<b>Response Time</b>	<6 seconds [ depending on fuel source, fire size and distance ]		
<b>Enclosure Material</b>	Red powdercoat with clear anodizing, copper-free aluminum (optional stainless steel), factory sealed housing		
<b>Humidity Range</b>	0 to 95% RH, non-condensing		
<b>Weight (with swivel)</b>	2.1 Kg/4.5 lb (Stainless Steel option 3.4 Kg/7.5 lb) - does not include junction boxes		
<b>Outputs</b>	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
<b>Certifications/Approvals</b>	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 INMETRO - Ex d II B+H2 T5 Gb NEMA Type 4X • IP66 - Enclosure ratings		
<b>Warranty</b>	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 Fire and Fault alarm relays (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/IRS-H2 Flame Detector

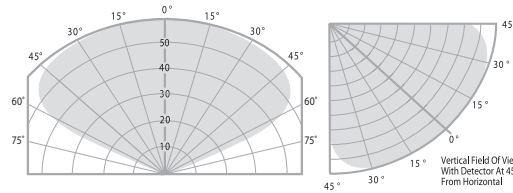
## Specifications con't - Termination Boxes - Accessories

### Summary of Distances

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

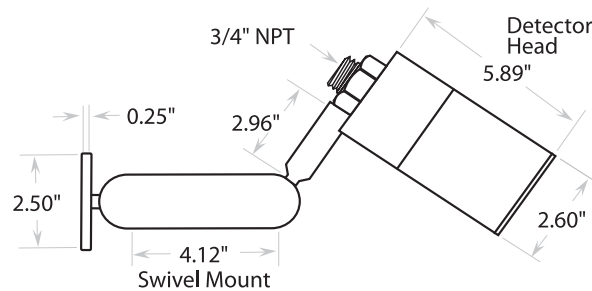
### Example Field of View - Hydrogen

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
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### 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	Universal test lamp kit [ATEX] - certified rechargeable hand-held unit - produces accurate fire simulation (UV and IR sources)

# UVS-H2 Flame Detector

## Specifications

	ANALOG	RELAY	HART®
<b>Operating Voltage Range</b>	10 to 32 Vdc		
<b>Power Consumption at 24 Vdc</b>	Nom 45 mA / 1.1 W Max 115 mA / 2.76 W	Nom 45 mA / 1.1 W Max 95 mA / 2.28 W	Nom 71 mA / 1.7 W Max 173 mA / 3.36 W
<b>Power Consumption at 32 Vdc</b>	Nom 35 mA / 1.12 W Max 105 mA / 3.36 W	Nom 35 mA / 1.12 W Max 80 mA / 2.56 W	Nom 57 mA / 1.72W Max 158 mA / 5.06 W
<b>Temperature Range</b>	Certified -40°C to +75°C (-40°F to +167°F) / Operational -50°C to +75°C (-58°F to +167°F)		
<b>Field of View</b>	120 degrees horizontal / 95 degrees vertical		
<b>Spectral Range</b>	UV Radiation 185 to 260 nanometres (1850 to 2600 angstroms)		
<b>Time Delay</b>	DIP switch selectable to 0, 3, 5, 7 seconds		
<b>Sensitivity Settings</b>	DIP switch selectable to 8, 16, 24 or 32 counts per second		
<b>Response Time</b>	<6 seconds [ depending on fuel source, fire size and distance ]		
<b>Enclosure Material</b>	Red powdercoat with clear anodizing, copper-free aluminum (optional stainless steel), factory sealed housing		
<b>Humidity Range</b>	0 to 95% RH, non-condensing		
<b>Weight (with swivel)</b>	2.1 Kg/4.5 lb (Stainless Steel option 3.4 Kg/7.5 lb) - does not include junction boxes		
<b>Outputs</b>	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
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<b>UVS-H2-A</b>	4-20mA Analog Output
<b>UVS-H2-AR</b>	4-20mA Analog output with a Fire and Fault alarm relay (JB-MPR-A/S included)
<b>UVS-H2-AH</b>	4-20mA Analog Output and HART® Communication Protocol (JB-MPHF-A/S included)
<b>UVS-H2-AHR</b>	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 ]**

### Ordering Matrix Example:

UVS-H2-AHR-X-SS

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

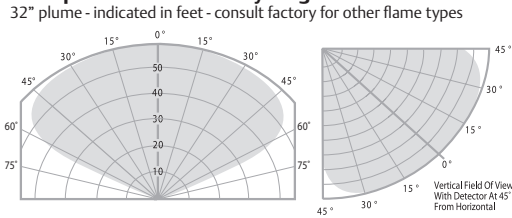
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## Specifications con't - Termination Boxes - Accessories

### Summary of Distances

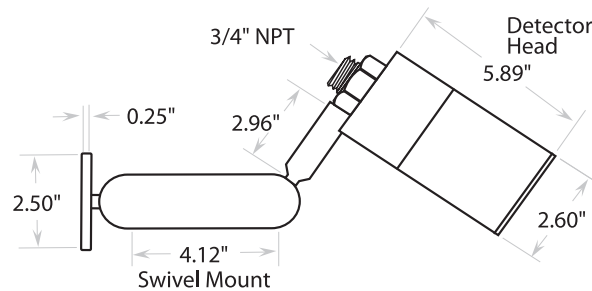
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### Example Field of View - Hydrogen



### Immunity False Alarm Stimuli

Stimuli	Immunity Range
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°Please refer to manuals for complete specifications.