Phoenix Triple IR Flame Detector
MultiSpectrum Infrared Sensors

Very serious risks to human life, productivity and equipment are always present at industrial facilities that store, transport and process flammable or explosive chemicals. Automatic flame detection and protective action must be initiated within seconds whenever a fire ignites. Net Safety's Phoenix Triple IR flame detector provides the reliable and instantaneous flame detection response that is required while utilizing advanced technologies to reduce maintenance costs and provide rock-solid performance in any environment.

- **No External Reflector — Greatly Reduces Faults And Maintenance Where Salt, Heavy Rain, Sand Or Snow Are Constantly Present**

- **Lowest Power Consumption of Any Flame Detector On the Market**

- **Wide Voltage Range Allows For Greater Stability and System Compatibility**

- **Automatic Visual Integrity Confirms Optical Functions — Universal Test Lamp Available**

- **Automatic Digital Zoom Eliminates False Alarms and Maximizes Sensitivity**

- **Designed for Extreme Conditions, Operational From -50°C — +85°C**

- **Market Leading 7 Year Warranty**

- **Global Certifications and Approvals**

- **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, RS 485 Digital Modbus®, and HART® Outputs Available**

Three discrete infrared sensors are precisely tuned to infrared wavelengths where our research team identified dynamic differences in absolute amplitude, relative amplitude, flicker frequency, phase relationship and bandwidth of energy emitted by typical fires, whether small, gradually expanding fires or massive, instantaneous explosions. Unexpected bursts of thermal energy, reflections of hot equipment or heavy rain and snow can cause other flame detectors to ignore actual fire, cause false alarms, or go into a fault condition.

Automatic Digital Zoom (ADZ) technology was developed by our engineers to precisely and reliably identify a broad spectrum of flame types and sizes while minimizing false alarms. Phoenix ADZ, provides accurate detection of small and massive flames in the most difficult working situations where other detectors fail.

The Phoenix Triple IR is the ONLY flame detector on the market that **does not have an external reflector or light source**. Experience has shown that external reflectors and light sources often become obscured by industrial dirt and corrosion which causes unwanted fault alarms that requires difficult and costly maintenance to correct. The Phoenix Triple IR flame detector completely eliminates these issues in applications where salt, dust, petroleum vapor, heavy rain and snow or blowing sand are present.

Net Safety has engineered a superior multi-spectrum IR flame detector that is field configurable, easy to maintain, and delivers the security and performance required for any high-risk installation.

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Phoenix Triple IR Flame Detector
Specifications

	ANALOG	RELAY	DIGITAL	HART®
Operating Voltage Range	10 to 32 Vdc			
Power Consumption at 24 Vdc*	Nom 31 mA / 0.74 W Max 65 mA / 1.56 W	De-Energized: Nom 39 mA / 0.94 W Max 73 mA / 1.75 W Energized: Nom 53 mA / 1.22 W Max 86 mA / 2.06 W	Nom 31 mA / 0.74 W Max 65 mA / 1.56 W	Nom 57 mA /1.34 W Max 123 mA / 2.96 W
Power Consumption at 12 Vdc (HART at 18Vdc)*	Nom 46 mA / 0.55 W Max 114 mA / 1.37 W	De-Energized: Nom 66 mA / 0.79 W Max 138 mA / 1.66 W Energized: Nom 93 mA / 1.12 W Max 165 mA / 1.98 W	Nom 46 mA / 0.55 W Max 114 mA / 1.37 W	Nom 79 mA / 1.15 W Max 181 mA / 2.57 W
Temperature Range	Certified -40°C to +75°C (-40°F to +167°F) — Operational -50°C to +85°C (-58°F to +185°F)			
Field of View	90 degrees vertical / 90 degrees horizontal			
Spectral Range	Wavelengths between 2.5 – 5.5 microns			
Time Delay	Dip switch selectable to 0, 3, 5, 7 seconds			
Sensitivity Settings	Two adjustable settings via DIP switch (High / Low)			
Response Time	<5 seconds [depending on fuel source, fire size and distance]			
Enclosure Material	Red powdercoat with clear anodizing, copper-free aluminum (optional 316 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)			
Outputs	Digitally stepped analog output 0 to 20 mA - into a maximum loop impedance of 800 Ohms at 32 Vdc or 150 Ohms at 10.5 Vdc. Isolated/Non-isolated loop supply.	Normally open/normally closed Form C contacts rated 5 Amps at 30 Vdc 125 Vac. Selectable energized / de-energized Fire relay. Fault relay fixed as energized. Both Fire and Fault relays fixed as non-latching.	RS-485 RTU Modbus® protocol	HART® Communication Protocol
Certifications/Approvals	**CSA** - Class I, Division 1, Groups A **(Canada only)**, B, C and D - Temperature code T5 - CANADA: Class 1, Zone 1, Ex d IIB + H2 T5 **ANSI-UL/ISA** - 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 Rated** **ABS Marine** **NEMA Type 4X • IP66** - Enclosure ratings			
Warranty	7 Years ∞			

ORDERING INFORMATION

IR3S-A   4-20mA Analog Output

IR3S-R   Fire and Fault Alarm Relays

IR3S-AH   4-20mA Analog Output and HART® Communication Protocol (included JB-MPHF-A/S)

IR3S-AR   4-20mA Analog Output and Fire and Fault Alarm Relays (included JB-IR3SAR-A/S)

IR3S-AD   4-20mA Analog Output and RS-485 MODBUS® RTU Protocol

IR3S-AHR   4-20mA Analog Output, Fire and Fault Alarm Relays and HART® Communication Protocol (included JB-MPHFR-A/S)

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

Ordering Matrix Example:

IR3S-A-X-SS (Detector - Output - Additional Approval - Enclosure Material)

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Phoenix Triple IR Flame Detector
Specifications con't - Termination Boxes - Accessories

Summary of Distances

Fuel	Fire Size	Distance	Typical Response
n-heptane	1' x 1'	210 feet max	< 2sec @ 100 ft.
gasoline	1' x 1'	150 feet max	< 5sec @ 150 ft.
methane	32" plume	140 feet max	< 5sec @ 140 ft.

Immunity False Alarm Stimuli

Stimuli	Immunity Range
arc welding/sparking/arcing	10 ft +
direct and/or indirect sunlight	total
lightning	total
halogen, fluorescent, incandescent light	10 ft +
250W Sodium Vapor, 250W Metal Halide Light	10 ft +
electric heater (1500W)	10 ft +
propane heater - mod./unmod. (27000w)	12 ft +

Example Field of View - Methane
32" plume - indicated in feet - consult factory for other gases

Vertical Field Of View With Detector At 45° From Horizontal

3/4" NPT
Detector Head
5.89"
0.25"
2.96"
2.50"
2.60"
4.12"
Swivel Mount
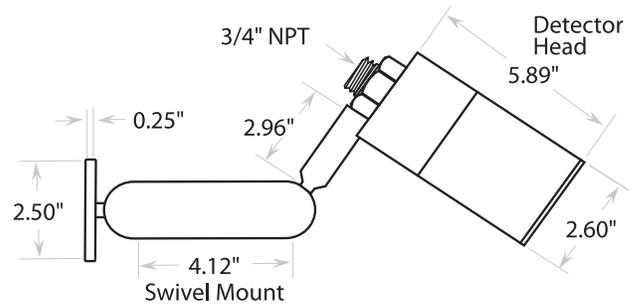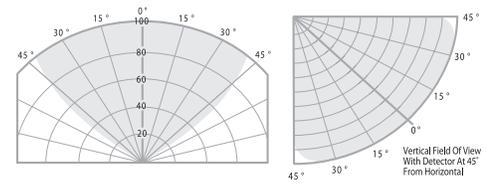
TERMINATION BOXES

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-MPNS-A/S	Termination box - Analog & Digital Output - Test Jacks - Aluminum or Stainless Steel
JB-MPR3-A/S	Termination box - Relay Output (IR3S-R Only) - 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	Air Shield assembly (aluminum), supplied clean instrument air keeps lens clear in areas with heavy airbourne particulate
HPT-001	HART Communicator port - Instrincially 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)

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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

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