

# FlameWatch II

## Integrated Flame Detection and Video

Bringing two technologies together...for enhanced protection. The FlameWatch II system is designed specifically for applications where a high performance flame detection solution and visual analysis/record of an alarm event is required. These capabilities are ideally suited for remote locations in order to quickly evaluate the hazard from a controlled location and effectively mobilize response teams.



- Choose From Any Of Our Advanced Flame Detectors: UV, UV/IR, Phoenix Triple IR
- Lowest Power Consumption of Any Flame Detector On the Market
- Wide Voltage Range Allows For Greater Stability and System Compatibility
- Wide Area Coverage, Extended Range with Fast Response Times
- Manual and Automatic Testing of Optical Surfaces – Constantly Monitors Internal Electronics
- Fast Response Times At All Sensitivity Settings With Wide Field of View
- Field Adjustable Time Delay And Sensitivity Settings Significantly Reduces False Alarms, Simplifies Installation
- Global Certifications and Approvals
- Compatible With Industry Standard CCTV Components
- Video Jacks Included
- Wide Camera Viewing angle of 100°
- Full color, high resolution video (NTSC & PAL formats available)

The FlameWatch II system is available with our entire line of advanced flame detection solutions - UV, UV/IR, Phoenix Triple IR flame sensors. The entire package includes Class 1, Division 1, Groups BCD classification; CSA/ATEX certification, FM approvals (flame detector only), NEMA 4X explosion proof rated housings; and is available in aluminum or stainless steel.

With all the innovative design features from our entire flame line included, this package ensures a simplified installation, rock-solid performance, and lower maintenance costs.

The FlameWatch II full colour, composite video signal easily integrates into a wide array of industry standard CCTV hardware and software security systems with both NTSC and PAL formats. The wide field of view provides large area coverage by a single camera and the high resolution video sensor captures accurate detail of the area being monitored.

**The FlameWatch II provides the unique integration of an industrial flame detector with an explosion proof video camera – delivering the complete safety and security package for your application.**

# FlameWatch II [Optional Phoenix Triple IR Flame Detector] Specifications

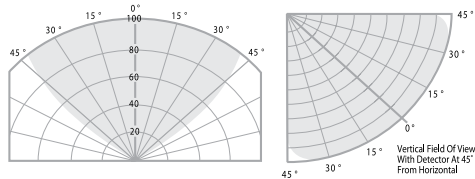
	ANALOG	RELAY	DIGITAL	HART
<b>Operating Voltage Range</b>	10 to 32 Vdc			
<b>Power Consumption at 24 Vdc*</b>	Nom 31 mA / 0.74 W Max 65 mA / 1.56 W	De-Energized: Nom 39 mA / 0.94 W Max 73 mA / 1.75 W Energized: Nom 53 mA / 1.22 W Max 86 mA / 2.06 W	Nom 31 mA / 0.74 W Max 65 mA / 1.56 W	Nom 57 mA / 1.34 W Max 123 mA / 2.96 W
<b>Temperature Range</b>	Certified -40°C to +75°C (-40°F to +167°F) — Operational -50°C to +85°C (-58°F to +185°F)			
<b>Field of View</b>	90 degrees vertical / 90 degrees horizontal			
<b>Spectral Range</b>	Wavelengths between 2.5 – 5.5 microns			
<b>Time Delay</b>	Dip switch selectable to 0, 3, 5, 7 seconds			
<b>Sensitivity Settings</b>	Two adjustable settings via DIP switch (High / Low)			
<b>Response Time</b>	<5 seconds [ depending on fuel source, fire size and distance ]			
<b>Enclosure Material</b>	Red powdercoat with clear anodizing, copper-free aluminum (optional 316 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)			
<b>Outputs</b>	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
<b>Certifications/Approvals</b>	<b>CSA</b> - Class I, Division 1, Groups A (Canada only), B, C and D - Temperature code T5 - <b>CANADA</b> : Class 1, Zone 1, Ex d IIB + H2 T5 <b>ANSI-UL/ISA</b> - Class I, Division 1, Groups B, C and D - Temperature code T5 - <b>UNITED STATES</b> : Class 1, Zone 1, AEx d IIB + H2 T5 <b>ATEX/IECEX</b> - Ⓜ II 2 G Ex d II B+H2 T5 Gb <b>GOST-R</b> - 1Ex d II BT5/H2 <b>INMETRO</b> - BR-Ex d II B+H2 T5 <b>Factory Mutual (FM) 3260 SIL2 ABS Marine NEMA Type 4X • IP66</b> - Enclosure ratings			
<b>Warranty</b>	7 Years			

### 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.

### Example Field of View - Methane

32" plume - indicated in feet - consult factory for other gases



### 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 +

# FlameWatch II [Optional UV/IR Flame Detector]

## Specifications

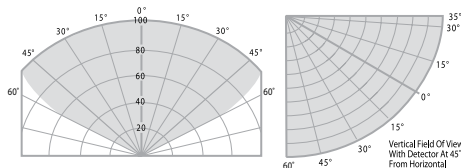
	ANALOG	RELAY	HART
<b>Operating Voltage Range</b>	10 to 32 Vdc		
<b>Power Consumption at 24 Vdc *with Heater</b>	Nom 45 mA / 1.1 W Max 115 mA / 2.76 W *Nom 90 mA / 2.16 W Max 165 mA / 3.96 W	Nom 45 mA / 1.1 W Max 115 mA / 2.76 W *Nom 90 mA / 2.16 W Max 165 mA / 3.96 W	Nom 71 mA / 1.7 W Max 173 mA / 3.36 W *Nom 106 mA / 2.22 W Max 223 mA / 5.36 W
<b>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 4.4 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 GOST-R - 1Ex d II BT5/H2 INMETRO - BR-Ex d II B+H2 T5 Factory Mutual (FM) 3260 SIL2 ABS Marine NEMA Type 4X • IP66 - Enclosure ratings		
<b>Warranty</b>	3 Years Electronics / 2 Years Sensors		

### Summary of Distances

Fuel	Fire Size	Typical Response
n-heptane	1' x 1'	< 11sec @ 140 ft.
gasoline	1' x 1'	< 6sec @ 120 ft. (< 3sec @ 50 ft.)
methane	30" plume	< 6sec @ 100 ft.

### Example Field of View - Methane

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
Arc Welding	30 ft

# FlameWatch II [Optional UV Flame Detector]

## Specifications

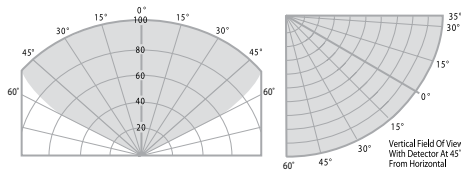
	ANALOG	RELAY	HART
<b>Operating Voltage Range</b>	10 to 32 Vdc		
<b>Power Consumption at 24 Vdc *with Heater</b>	Nom 45 mA / 1.1 W Max 115 mA / 2.76 W * Nom 90 mA / 2.16 W Max 165 mA / 3.96 W	Nom 45 mA / 1.1 W Max 95 mA / 2.28 W * Nom 90 mA / 2.16 W Max 145 mA / 3.48 W	Nom 71 mA / 1.7 W Max 173 mA / 3.36 W * Nom 106 mA / 2.22 W Max 223 mA / 5.36 W
<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
<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 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		
<b>Warranty</b>	3 Years Electronics / 2 Years Sensors		

### Summary of Distances

Fuel	Fire Size	Typical Response
n-heptane	1' x 1'	< 8.5sec @ 150 ft.
gasoline	1' x 1'	< 3sec @ 120 ft.
methane	30" plume	< 3sec @ 120 ft.

### Example Field of View - Methane

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

# FlameWatch II [Exproof Video Camera – VID-JB]

## Specifications

Operating Voltage Range	10 to 32 Vdc
Power Consumption	Nominal: 135 mA/3.24W - Max: 170mA/4.08W
Operating Temperature	-20°C to +50°C (-13°F to +122°F)
Field of View	100 degrees (Vertical/Horizontal)
Video Output	1Vp-p composite video (delivered by shielded twisted pair with male RCA connector)
Pixel Number	NTSC=270K / PAL=320K (Normal Resolution), NTSC = 380K / PAL=440K (High resolution)
Image Pick-up Device	1/3" Super HAD II CCD High Resolution
Effective Picture Elements	NTSC:768*494, PAL: 752*582(H*V)
Horizontal Resolution	540 TV lines
Minimum Illumination	0.1 Lux@F1.2
S/N Ratio	More than 48 dB
Auto Electronic Shutter	NTSC:1/60s~1/100,000s, PAL:1/50s~1/110,000s
Lens Furnished	Board lens 2.9 mm/F2.2
White Balance	Automatically(2500K ~ 9500K)
Gamma Characteristic	0.45
Gain Control	Automatically
Synchronous System	Negative sync. Internal
Certifications	<ul style="list-style-type: none"> <li>• Factory Mutual (FM) Approvals (Pending)</li> <li>• US: XP/I/1/BCD/T5; I/1/AEx d/IIB+H<sub>2</sub> /T5 ; Type 4X, IP67 (Pending)</li> <li>• CAN: XP/I/1/BCD/T5; I/1/Ex d/IIB+H<sub>2</sub> /T5 ; Type 4X, IP67 (Pending)</li> <li>• ATEX: Ⓜ II 2 G Ex d IIB+H<sub>2</sub>; IP67 (Pending)</li> </ul>
Enclosure Material	Aluminum standard (316 SS option)
NEMA/IP	NEMA Type 4X, IP67
Weight	Aluminum: 0.8kg/2.0lbs (316SS - 1.6kg/3.5lbs)

# FlameWatch II [Integrated Flame Detection and Video]

## Ordering Information - Accessories

### ORDERING INFORMATION

<b>FW2-IR3S-A</b>	4-20mA Analog Output
<b>FW2-IR3S-AR</b>	4-20mA Analog Output and Fire and Fault Alarm Relays
<b>FW2-IR3S-AD</b>	4-20mA Analog Output and RS-485 MODBUS RTU Protocol
<b>FW2-UV/IRS-A</b>	4-20mA Analog Output
<b>FW2-UV/IRS-AR</b>	4-20mA Analog Output and Fire and Fault Alarm Relays
<b>FW2-UVS-A</b>	4-20mA Analog Output
<b>FW2-UVS-AR</b>	4-20mA Analog Output and Fire and Fault Alarm Relays

CAMERA ENCODING: PAL Encoded (-P) [NTSC is Standard]  
 ADDITIONAL APPROVALS : -X (ATEX/IECEX)  
 ENCLOSURE MATERIAL: Stainless Steel (-SS) [ Aluminum is Standard ]

### Ordering Matrix Example:

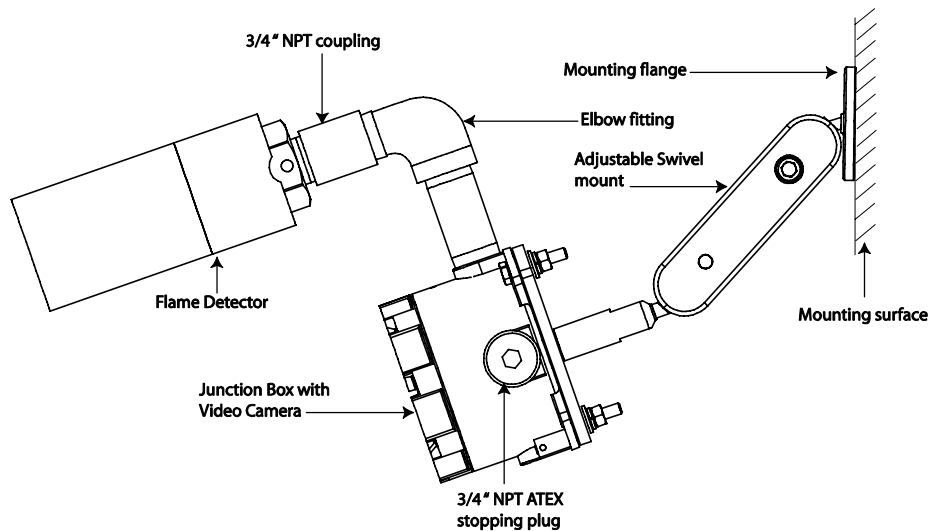
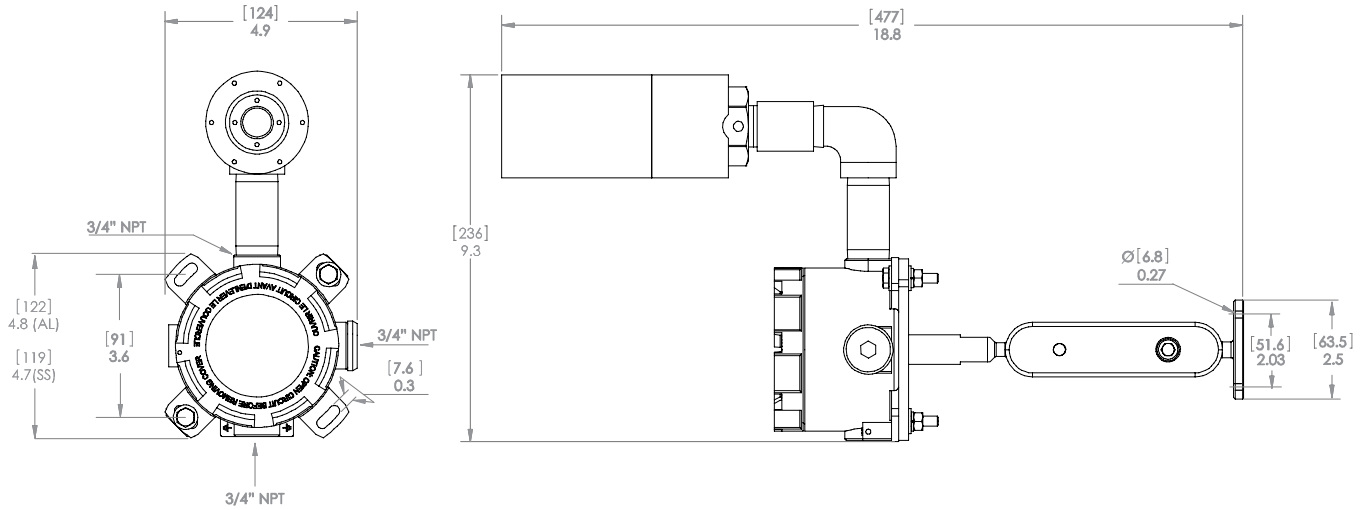
FW2-IR3S-A-P-X-SS

(Product - Flame Detector - Output - Optional Camera Encoding - Additional Approvals - Optional Enclosure Material)

### 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
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-6	Sun shade kit for "FW2" Series flame detector/video camera (stainless steel)
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)

# FlameWatch II [Integrated Flame Detection and Video] Dimensions (with swivel) - Mounting



Note: It is recommended that a sunshade kit be fitted on the video camera enclosure (junction box) if FlameWatch II is going to be continually exposed to direct sunlight, which may result in temperatures beyond 75°C.

**HEADQUARTERS:**  
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°Please refer to manuals for complete specifications.