



PetroChemical Industry Industrial Infrared Thermometers

*Flare Stack Pilot Monitor
Thermal Reactors
Sulfur Recovery Units*

Williamson

Innovators in Noncontact Temperature Measurement

Flare Stack Pilot Monitor



Photo courtesy of The John Zink Co.

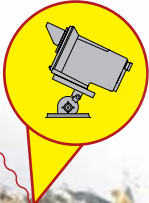
FLARE STACK PILOT MONITOR

Flammable gases are ignited by a pilot flame when released into the atmosphere by chemical and petrochemical plants of all types. The proper incineration of these gasses is a critical safety and environmental concern. Therefore, it is essential to confirm that the pilot is lit at all times.

Flare stack pilot flames are commonly monitored using a simple thermocouple mounted atop the flare. However, for flares that frequently ignite or that emit corrosive gasses, these thermocouples can fail prematurely creating a significant safety and environmental hazard. To replace the thermocouple requires an expensive shutdown of the process while the maintenance is being performed.

The Williamson Pilot Monitor (PM) Replaces High Maintenance Thermocouples

- Ground-mounting provides easy access during operation
- Rugged NEMA4X (IP65) and optional NEMA7 or CENELEC enclosures protect the sensor in hostile environments
- Durable swivel mounting bracket and through-the-lens aiming provides easy installation
- Auto tune feature provides easy set up
- Superior dual-wavelength technology tolerates 30% more optical obstruction which enables the Pilot Monitor to out perform all others in all types of weather (wind, fog, rain, snow, sleet)
 - Optional remote interface module allows for continuous performance verification from the control room
 - Compatible with solar power systems and wireless communication devices



NEMA7 or CENELEC



NEMA4X (IP65)

DATA TRANSMISSION OPTIONS		
<p>Control Room Direct</p> <p>4-20mA and Alarm or RS485</p>	<p>Interface Module Option</p> <p>RS485</p>	<p>Wireless Transmitter</p>

INFRARED THERMOMETERS FOR THERMAL REACTORS

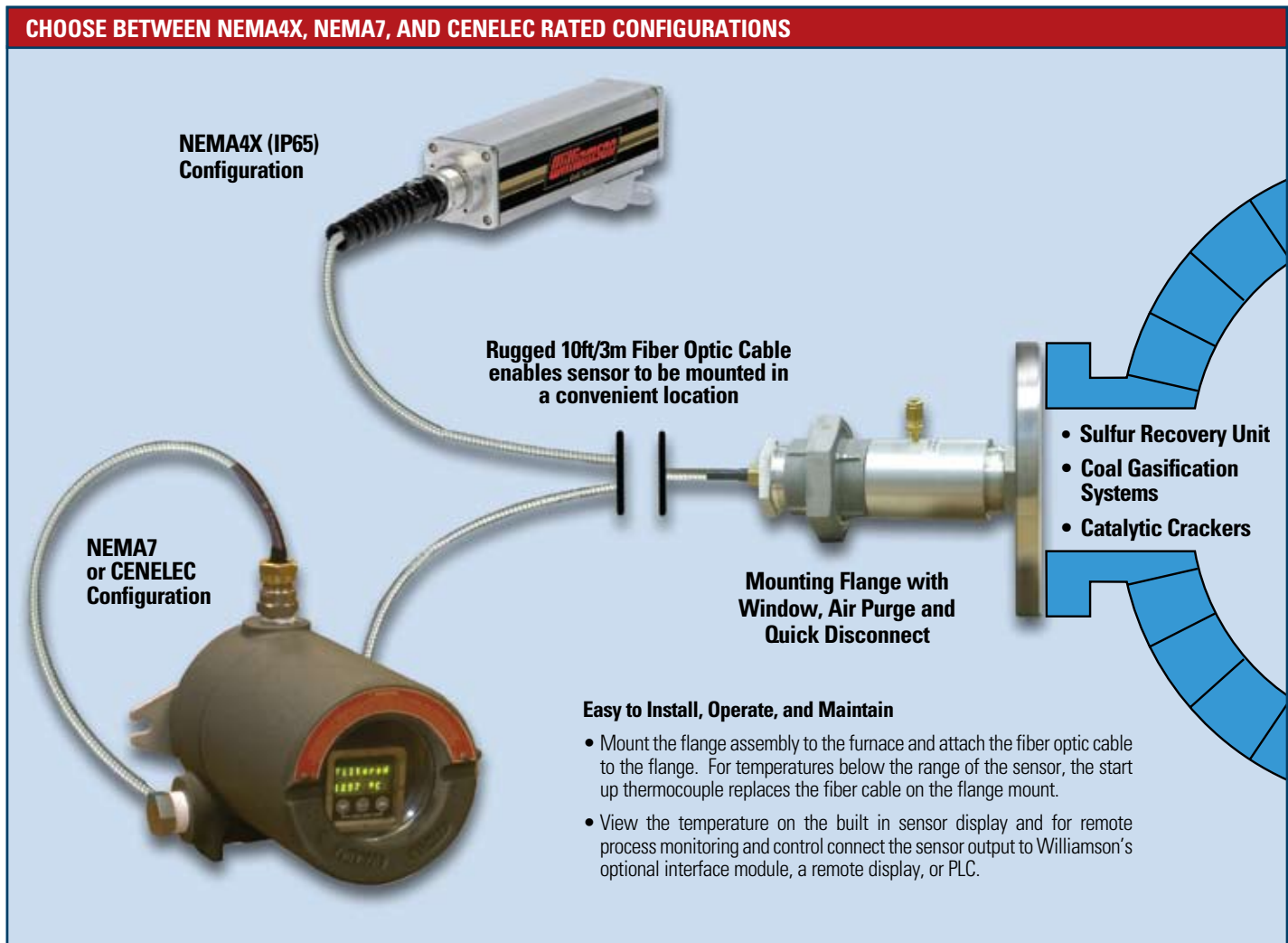
Thermal reactors are high-temperature furnaces for thermally activated chemical processing. Typical reactors include sulfur recovery units (SRU), catalytic and pyrolytic crackers, coal gasification systems, and hazardous material incinerators. In each process, accurate control of the reactor temperature is important to optimize the thermal process and to prevent over heating which could compromise safety and reduce refractory life. Infrared thermometers are used in these reactors to replace problematic and expensive thermocouples that have trouble surviving the corrosive and high temperature environment. The infrared thermometers are easy to install and maintain without requiring the process to be shut down for an extended period of time.

THE WILLIAMSON SULFUR RECOVERY UNIT (SRU) REPLACES HIGH MAINTENANCE THERMOCOUPLES

As part of the refining process, sulfur thermal reactors are used to remove sulfur from crude oil, natural gas, petrochemicals and synfuels. Accurate temperature measurement allows for maximum amine acid gas and sour water stripper gas throughput without overheating the refractory wall. This assures a safe operating condition and extends refractory life. The Williamson SRU sensors are used to replace troublesome thermocouples which can not survive this hostile, acidic environment.

- Optimum wavelength to view clearly through process gasses and minimize sensitivity to optical obstructions
- Rugged, fiber optic configuration eliminates the need for active cooling and eliminates condensation on the view port
- Compact design with built in sensor display is easy to install and maintain
- State-of-the-art, digital electronics out performs others with more accurate measurements and greater long-term stability
- Exceptionally broad temperature span with a standard range of 400-3000°F / 200-1650°C
- Rugged NEMA4X (IP65) and optional NEMA7 or CENELEC enclosures protect the sensor in hostile environments
- Standard accessories include mounting flange and start-up thermocouple
- Compatible with solar power systems and wireless communication devices

CHOOSE BETWEEN NEMA4X, NEMA7, AND CENELEC RATED CONFIGURATIONS



Sensor Selection Guide

Select the part numbers from the table below to configure a sensor for your application. Contact Williamson if any custom options are required.

A - Sensor Model	B - Remote Display/Power	C - Enclosure
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Sample Part Numbers: PM-35-PS-N4; SRU2-C-60-00-N7 (for SRU models, select F or C for Temperature Scale)

Standard Configuration	
Flare Stack Pilot Monitor (PM)	Sulfur Recovery Unit (SRU)
<p>Dual-wavelength sensor with unique design to monitor and alarm pilot flames in all weather conditions. Standard configuration includes:</p> <ul style="list-style-type: none"> • Visual through the lens aiming with distance optics • Built-in digital display and adjustable sensor settings • Heavy duty swivel mounting bracket • Junction Box for electrical cable • Sensor Ambient Limit: -40 to 120°F / -40 to 50°C • CE Certification for EMI/ RFI for heavy industry; LVD (Low Voltage Directive) • 2 year warranty 	<p>Single-wavelength sensor with unique capability to measure through flames and hot gases. Standard configuration includes:</p> <ul style="list-style-type: none"> • 10ft / 3m fiber optic cable w/ protective Teflon seal • Built-in digital display and adjustable sensor settings • 2 inch ANSI Stainless steel flange with 150 PSI rating, quartz window, and quick disconnect. Contact Williamson for other flange options. • Start up thermocouple probe which mounts to flange • 40ft / 12m of electrical cable (additional lengths available) • Calibration Accuracy 0.25% of reading with Repeatability of 1°C • Ambient Limits: Sensor 0 to 140°F / -17 to 60°C - Fiber Cable 400°F / 200°C • CE Certification for EMI/ RFI for heavy industry; LVD (Low Voltage Directive) • 2 year warranty

Part Code A - Sensor Model			
Sensor Model	Temperature Range	Field of View	Description
Flare Stack Pilot Monitor (PM)			
PM-35	0 to 100%	35:1 optics: 28ft diameter @ 1000ft distance (8.5m @ 305m)	Typical Configuration
PM-70	0 to 100%	70:1 optics: 14ft diameter @ 1000ft distance (4.2m @ 305m)	Configuration for closely spaced flares or sensor mounting distances greater than 1500ft /457m
Sulfur Recovery Unit (SRU)			
SRU2-F/C-60	400-3000°F / 200-1650°C	60:1 optics: 0.3in diameter @ 20in distance (0.8cm @ 50cm)	Typical Configuration
SRU1-F/C-50	700-3200°F / 375-1750°C	50:1 optics: 0.4in diameter @ 20in distance (1.0cm @ 50cm)	High Temperature, Lower Cost Configuration

Part Code B – Remote Display/Power	
Part No.	Description
00	<ul style="list-style-type: none"> • Stand Alone Sensor with built in display • 4-20mA or 0-20mA output (1000 ohm impedance max.) • SPST relay rated 2A@110Vac • Input power of 24V dc (300mA)
PS	<ul style="list-style-type: none"> • Power Supply: 90-260Vac 50-60 Hz to 24 Vdc
20	<ul style="list-style-type: none"> • Remote Interface Module with LED & LCD Displays, two analog outputs and two SPDT relays rated 2A@110Vac • Power Supply: 90-260Vac 50-60Hz to 24Vdc • Ambient Limit: 0 to 120°F / -17 to 50°C • 1/4 DIN dimensions: 7.0in x 3.78in x 3.78in / 178mm x 96mm x 96mm

Part Code C – Enclosures	
Part No.	Description
N4	NEMA4X: Water tight, dust tight & corrosion resistant (IP65)
N7	<p>PM: NEMA 3, 4X, 7 & 9: Explosion Proof Class I, Div. 1 & 2 Groups B, C, D; Class II, Div 1 & 2 Groups E, F, G, CSA Certified, UL Classified</p> <p>SRU: NEMA 3, 4X, 7 & 9: Explosion Proof NEC Class I, Groups B, C, D; Class II, Groups E, F, G; Class III, CSA Certified, UL Classified, FM Approved</p>
CEN	<p>PM: CENELEC Explosion Proof Ex II 2G EEx d IIB+H2</p> <p>SRU: CENELEC Explosion Proof Ex II 2G EEx d IIC</p>

