SULFUR RECOVERY UNIT PYROMETERS

In a petrochemical refinery or natural gas processing plant, sulfur is extracted from the crude oil or natural gas product stream as amine gas, sour water stripper, sulfuric acid and hydrochloric acid. The sulfur is then recovered in the sulfur plant using a thermal reactor called a Sulfur Recovery Unit (SRU), also known as a Claus reactor. Sulfur is recovered more efficiently at high temperatures that approach the operational limit of the refractory material, and variations in process and oxygen injection flow rates introduce variable process control demands. As a result, temperature control is critically important for operational effectiveness, reactor longevity and for human safety.

The Williamson SRU class pyrometers are designed specifically for this demanding application and eliminate many of the common problems associated with other types of temperature measurement devices.

- Infrared technology avoids contact with corrosive gases
- Compact fiber-optic configuration eliminates bulk and active cooling
- Warm flange mounting reduces or eliminates sulfur deposition within the optical path
- Built-in human interface can be mounted at a convenient location
- Solid state electronics eliminates moving parts and assures long-term calibration accuracy
- Thoughtful wavelength selection assures measure of only wall, only gas, or a blend of both
- Engineered stainless steel accessories permit simple installation and easy start up
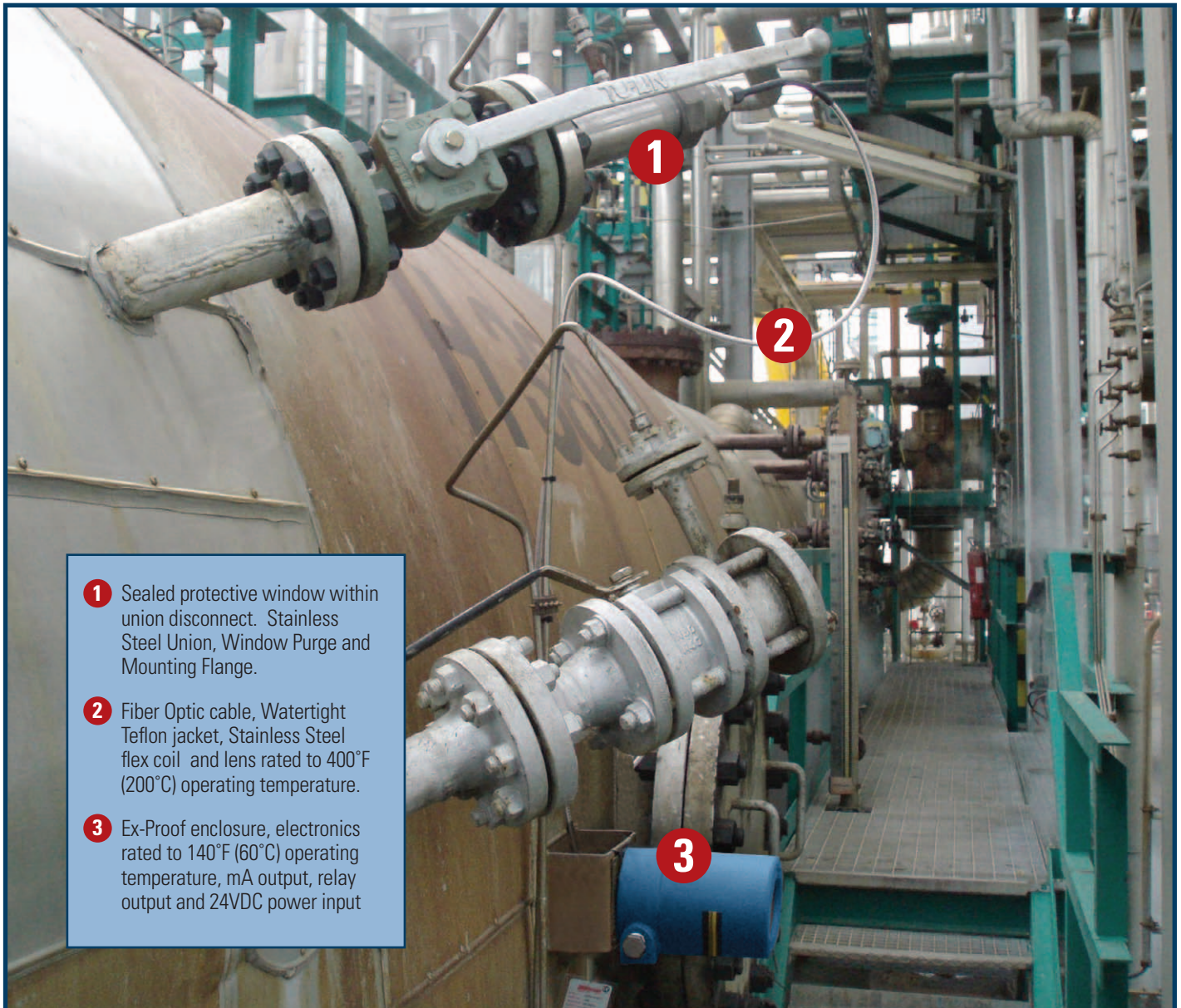
1. Sealed protective window within union disconnect. Stainless Steel Union, Window Purge and Mounting Flange.

2. Fiber Optic cable, Watertight Teflon jacket, Stainless Steel flex coil and lens rated to 400˚F (200˚C) operating temperature.

3. Ex-Proof enclosure, electronics rated to 140˚F (60˚C) operating temperature, mA output, relay output and 24VDC power input

SRU Specifications

Accuracy	**Above 600°F / 315°C:** 0.25% of Reading or 3.6°F / 2°C whichever is greater **Below 600°F / 315°C:** 5.4°F / 3°C
Repeatability	Better than 1°C above 600°F / 315°C
Emissivity	0.010 to 1.500
Response Time	Adjustable 5ms to 240 seconds
Analog Output	4-20mA or 0-20mA output (max impedance 1000 ohms)
Alarm Output	Sensor: SPST relay rated 2A@24V
Digital Interface	Sensor: Bi-Directional RS485 (RS232 with converter)
Human Interface	Built-in Human Interface
Measured Parameters	Filtered and Unfiltered Temperature & Ambient Temperature
Input Power	Sensor: 24Vdc (300mA)
Ambient Temperature Limits	Sensor: 0 to 140°F / -17 to 60°C Fiber Optic Cable & Lens Assembly: 400°F / 200°C
Enclosure Rating	Corrosion Resistant, Epoxy Powder Coated Cast Aluminum Enclosure with NEMA7/9 (IP66), Class I, Division I, Groups B, C, D; Class II Division I, Groups E, F, G, NEMA4X; ATEX, IECEx, FM, UL/cUL Certified
Weight	6.8 lbs (3 kg)
Dimensions	7.6in x 5.5in x 5.5in (194mm x 140mm x 140mm)
CE Certification	EMI / RFI for heavy industry; LVD (Low Voltage Directive)
Explosion Proof Certifications	For SRU and PSEXP ATEX: ⟨Ex⟩ II 2 G Ex d IIC T6 Gb IP66 IECEx: Ex d IIC T6 Gb
Warranty	2 years

Part Code A – Sensor Model

Sensor Model	Temperature Range	Optical Resolution
WALL TEMPERATURE		
SRU2W-F-60-A-EXP	400-3000°F	60:1
SRU2W-C-60-A-EXP	200-1650°C	
SRU2WHT-F-60-A-EXP	600-3625°F	60:1
SRU2WHT-C-60-A-EXP	300-2000°C	
GAS TEMPERATURE		
SRU3G-F-60-A-EXP	700-3200°F	60:1
SRU3G-C-60-A-EXP	375-1750°C	
BLENDED TEMPERATURE		
SRU4B-F-60-A-EXP	700-3200°F	60:1
SRU4B-C-60-A-EXP	375-1750°C	

Easy to Install, Operate, and Maintain

The Williamson SRU pyrometers include a built-in human interface, a fiber-optic cable assembly, and a mounting flange assembly and optional start-up thermocouple assembly and power supply module. The fiber-optic configuration permits the sensor electronics to be mounted away from the process heat and in a convenient position for viewing. Powered by 24 Vdc (300 mA), a 4-20 or 0-20 mA output signal and an alarm output are available, allowing the pyrometer to operate in analog mode using a four-wire or six-wire configuration. Digital communication mode requires six wires.

Interface Configuration

Stand-Alone Sensor	One Analog 4-20 mA or 0-20 mA Output One Relay Alarm Input Power = 24 Vdc, 300 mA or 90-260 Vac with optional power supply

Part Code B – Optional Accessories

Part No.	Description
PSN4	Power Supply within NEMA4X (IP65) water-tight, dust-tight and corrosion resistant enclosure (90-260Vac)
PSD	Power Supply for DIN Rail Mount (90-260Vac)
PSEXP	Power Supply in Explosion Proof Housing (90-260Vac)
FOFMSRU2	2", 150# ANSI Mounting Flange Assembly with infrared window, purge port and union
FOFMSRU3	3", 150# ANSI Mounting Flange Assembly with infrared window, purge port and union
SUTC	Start Up Thermocouple Assembly (requires Mounting Flange Assembly above)