

# PATHFINDER INSTRUMENTS, LLC

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## 2350 Temperature Sensor

3-2350,099 IC-7 / 031



### Features

- S<sup>3</sup>L or 4 to 20mA Output
- One-piece injection molded SYGEF<sup>®</sup> PVDF body
- PT-1000 Platinum RTD in extended tip for quick response
- Threaded for in-line or submersible installation

### Application

- Plating Bath Temperature Control
- Heat Exchange Monitor
- R.O. System Monitor
- D.I. System Monitor
- Hot/Cold Mixing System Monitor
- Data Acquisition
- Cooling Loops
- Effluent Monitoring
- HVAC
- Chemical Processing

### Description

The 2350 Temperature Sensor has a one-piece injection molded SYGEF<sup>®</sup> PVDF body that is ideal for use in high purity applications. It also outlasts metal sensors in aggressive liquids and eliminates the need for costly custom thermowells. These sensors are available with S<sup>3</sup>L (Signet Sensor Serial Link) digital output, or field-scaleable

4 to 20mA output. Dual threaded ends (3/4 in. NPT) allow submersion in process vessels, or in-line installation with conduit connection. Integral adapters (sold separately) may be used to create a compact assembly with field mount versions of the +GF+ SIGNET 8350 Temperature Transmitter.

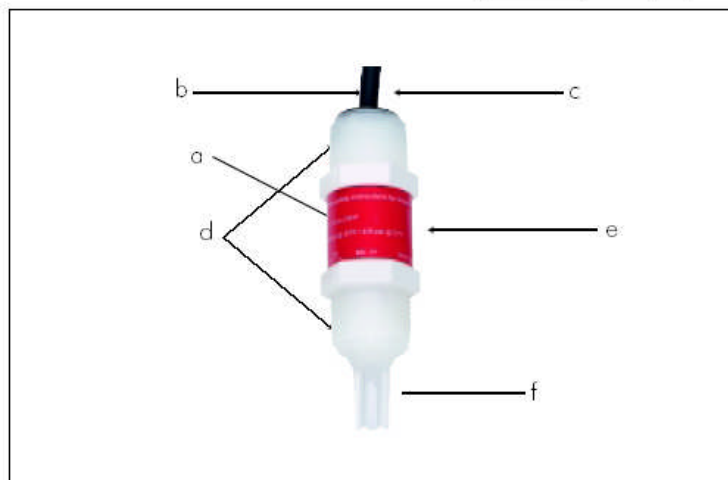
### Options

	8350	8900	5097
2350-1, -2	●	●	●
2350-3	●	●	●

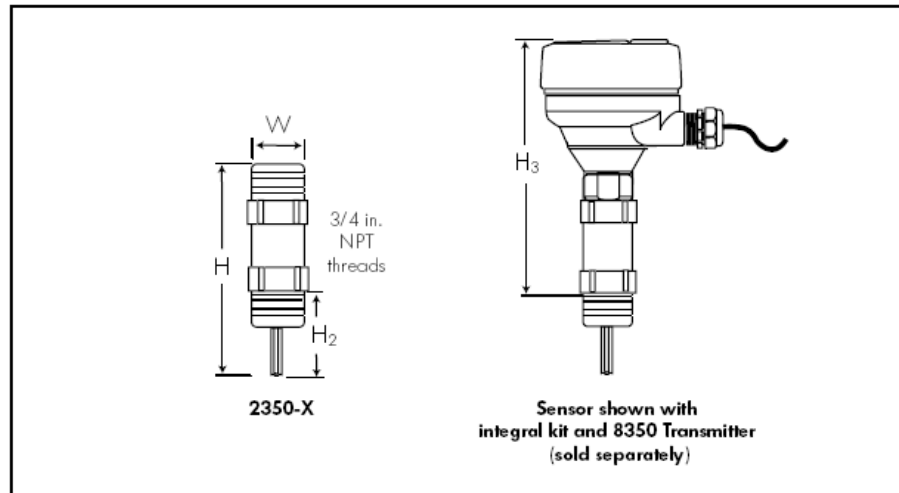
### Technical Features

- a) 4 to 20mA or S<sup>3</sup>L output
- b) 15 ft. (4.5 m) cable for remote installation, Model 3-2350-1, -3 (product label on cable)
- c) 6 in. (152 mm) cable for integral installation, Model 3-2350-2 (product label on sensor body)
- d) 3/4 in. NPT process connection
- e) One-piece injection molded SYGEF<sup>®</sup> PVDF body
- f) Extended tip for quick response

Note: S<sup>3</sup>L output connects directly into +GF+ SIGNET instruments - see Options. 2350-3 provides S<sup>3</sup>L or 4 to 20mA output, depending on applied power.



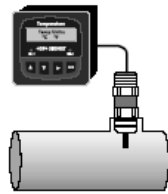
## Dimensions



Units	W	H	H <sub>2</sub>	H <sub>3</sub>
mm	27	105	40.1	197
inch	1.05	4.15	1.59	7.75

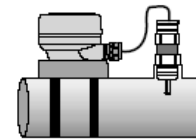
## Installation

The transmitter is available in panel mount or a field version. Select either the universal mount kit (3-8050) to mount the transmitter on a surface near the sensor or select the integral mount kit (3-8052) to mount the transmitter onto the sensor.



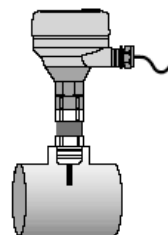
### Panel Mount

All panel mount instruments include everything for panel installation. Panel mount instruments fit into a standard 1/4 DIN panel cutout.



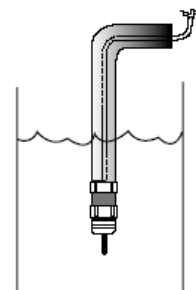
### Universal Mount

The Universal Mount Kit (3-8050) includes a conduit base, locking ring, and universal adapter for mounting the 8350 Transmitter on a pipe, wall, or other stationary surface.



### Integral Mount

The Integral Mount Kit (3-8052) includes a conduit base, locking ring, and integral adapter for mounting the 8350 Transmitter and sensor directly onto a pipe.

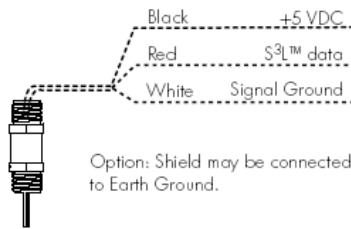


### Submersible

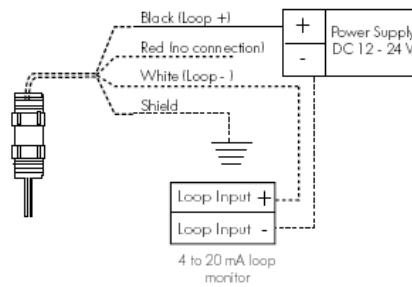
For submersible installations, use a (user-supplied) pipe or watertight conduit. To prevent moisture accumulation at the cable-end of the sensor, fill the lower 3 to 4 inches of conduit or extension pipe with a flexible sealant such as silicone.

## Wiring

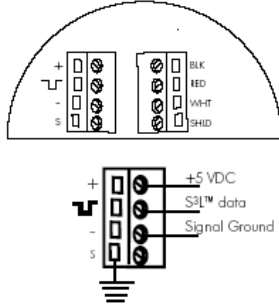
### S<sup>3</sup>L without Junction Box



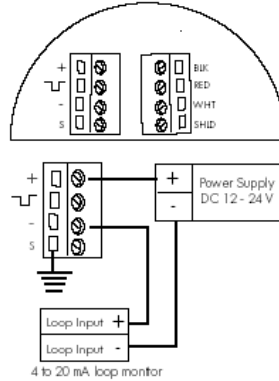
### 4 to 20mA Loop Wiring



### S<sup>3</sup>L with Junction Box



### 4 to 20mA Loop with Junction Box



## Specifications

### General

- Output: S<sup>3</sup>L (2350-1, -2)  
4 to 20mA (2350-3)
- Accuracy:  $\pm 0.5^\circ\text{C}$  ( $\pm 0.9^\circ\text{F}$ )
- Response Time,  $\tau$ : 10 secs.
- Repeatability:  $\pm 0.1^\circ\text{C}$  ( $\pm 0.2^\circ\text{F}$ )
- Resolution:  $0.01^\circ\text{C}$  ( $0.02^\circ\text{F}$ )
- Power Requirements:
- S<sup>3</sup>L™: 4.5 to 6.5VDC < 1.5mA
  - 4 to 20mA: 9 to 26VDC

Wetted Material: SYGEF® PVDF

Process Connection:  
3/4 in. NPT male thread

Output Connection:  
3/4 in. NPT male thread

Cable Type:  
PVC jacketed, 3-conductor with  
shield 22 AWG, Blk/Red/White/Shld

Standard Cable Length:

- 2350-1, 3: 4.6m (15 ft.)
- 2350-2: 15.2cm (6 in.)

Shipping Weight: 0.151kg (0.33 lbs.)

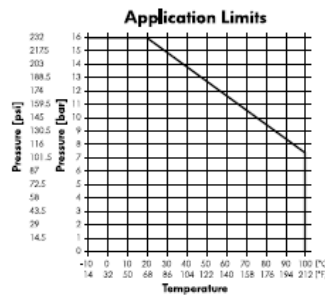
S<sup>3</sup>L output: Serial ASCII, TTL Level 9600  
bps. Reverse polarity and short circuit  
protected.

### 4 to 20mA Output

- Accuracy:  $\pm 32\mu\text{A}$
- Resolution:  $< 5\mu\text{A}$
- Span: 4 to 20mA factory  
calibrated  $0^\circ$  to  $100^\circ\text{C}$
- Max. Loop Impedance:
- $50\Omega$  @ 12V
  - $325\Omega$  @ 18V
  - $600\Omega$  @ 24V
- Update Rate:  $< 100\mu\text{s}$

### Environmental

- Operating Temperature:  
 $-10^\circ$  @ 16 bar to  $100^\circ\text{C}$  @ 7.5 bar  
( $14^\circ$  @ 232 psi to  $212^\circ\text{F}$  @ 108 psi)
- Storage Temperature:  
 $-55^\circ$  to  $100^\circ\text{C}$  ( $-67^\circ$  to  $212^\circ\text{F}$ )
- Relative Humidity:  
0 to 95% Non-Condensing



### Standards & Approvals

- CE, UL, CSA listed
- EN50082-2 Heavy  
Industry Immunity
- EN55011 Class B:  
Light Industry Emissions
- Manufactured under  
ISO 9001 and  
ISO 14001

## Ordering Information

Mfr. Part No.	Code	Description
3-2350-1	159 000 021	Temperature Sensor, S <sup>3</sup> L, 15 ft. cable
3-2350-2	159 000 022	Temperature Sensor, S <sup>3</sup> L, 6 in. cable
3-2350-3	159 000 920	Temperature Sensor, 4 to 20mA, 15 ft. cable

## Accessories

Mfr. Part No.	Code	Description
3-8052	159 000 188	3/4 in. Integral mounting kit
3-8052-1	159 000 755	3/4 in. NPT mount junction box
3-9000.392-1	159 000 839	Liquid tight connector kit, NPT (1 piece)
3-9000.392-2	159 000 841	Liquid tight connector kit, PG13.5 (1 piece)
5523-0322	159 000 761	Sensor Cable (per ft.), 3 conductor + shield, 22 AWG, Blk/Red/White/Shld

**FOR MORE INFORMATION PLEASE CONTACT:**

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