+GF+ SIGNET 8350-3 Temperature Transmitter Instructions





B-1/00 Englis

CAUTION!



- Remove power to unit before wiring input and output connections.
- Follow instructions carefully to avoid personal injury.

Contents

- 1. Installation
- 2. Specifications
- 3. Electrical Connections
- 4. Menu Functions



1. Installation

The transmitter is available in three versions: a panel mount version, an integral (pipe mount) version, and a universal assembly for installation near the sensor.

1.1 Panel Installation

The Panel Mounting kits are supplied with the hardware to install instrumentation into panels and maintain a NEMA 4X watertight seal.

- 1. Punch out panel and de-burr edges. Recommended clearance on all sides between instruments is 1 inch.
- 2. Place gasket on instrument, and install in panel.
- Slide mounting bracket over back of instrument until quick-clips snap into latches on side of instrument.
- 4. Connect wires to terminals.
- To remove, secure instrument temporarily with tape from front or grip from rear of instrument. DO NOT RELEASE. Press quick-clips outward and remove.

1.2 Integral Assembly (3-8052)

- 1. Punch out conduit ports if necessary.
- Connect sensor to integral adapter. Push and twist-lock integral adapter to conduit base and secure with locking ring and screw.
- Mount unit in pipe. Route cable through cable gland and connect to transmitter.
- 4. Close unit and secure. Seal cable entry.

1.3 Universal Assembly (3-8050)

- 1. Install transmitter base
- 2. Connect wires to transmitter.
- 3. Close unit and secure with push and twist lock. Seal cable entry.

gasket panel terminals mounting bracket quick-clip connector (cable gland) seal

2. Specifications

General

Compatibility: +GF+ SIGNET 3-2350-1 or -2 Temperature Sensors

Accuracy: ±0.5° C Enclosure:

Rating: NEMA 4X/IP65 front

Case: PBT

· Window: Polyurethane coated polycarbonate

Keypad: Sealed 4-key silicone rubber

Weight: Approx. 325g (12 oz.)

Display:

Alphanumeric 2 x 16 LCDUpdate rate: 1 second

Contrast: User selected, 5 levels

Environmental

Operating temperature: -10 to 70°C (14 to 158°F) Storage temperature: -15 to 80°C (5 to 176°F) Relative humidity: 0 to 95%, non-condensing

Standards and Approvals

CSA, CE, UL listed

Manufactured under ISO 9001

Electrical

Sensor Input: Range: -10 to 100°C

Current outputs (2):

4 to 20 mA, isolated, fully adjustable and reversible

Power: 12 to 24 VDC ±10%, regulated, 60 mA max current

Max loop impedance: 50 Ω max. @ 12 V, 325 Ω max. @ 18 V 600 Ω max. @ 24V

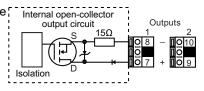
• Update rate: 200 ms

Accuracy: ±0.03 mA

Open-collector outputs (2 each): Hi, Lo, Pulse Programmable

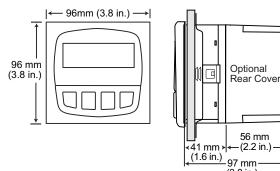
 Open-collector, isolated, 50 mA sink or source, 30 VDC max. pull-up voltage

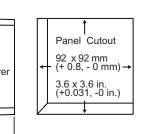
Hysteresis: User adjustable;

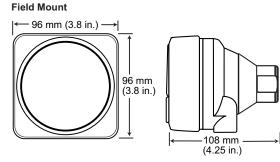


Dimensions

Panel Mount







82 mm

(3.23 in.)

3. Electrical Connections

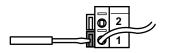


Caution: Failure to fully open terminal jaws before removing wire may permanently damage instrument.

(3.8 in.)

Wiring Procedure

- 1. Remove 0.5 0.625 in. (13-16 mm) of insulation from wire end.
- 2. Press the orange terminal lever downward with a small screwdriver to open terminal jaws.
- 3. Insert exposed (non-insulated) wire end in terminal hole until it bottoms out.
- Release orange terminal lever to secure wire in place. Gently pull on each wire to ensure a good connection.



Wiring Removal Procedure

- Press the orange terminal lever downward with a small screwdriver to open terminal jaws.
- 2. When fully open, remove wire from terminal.

Terminals

1. AUX 1+

2. AUX 2-

Description 12-24 VDC

2. AUX 2-

System Power/Loop

3. System Power/Loop 1 +

4. System Power/Loop 1-

5. Loop 2+

6. Loop 2-

12-24 VDC ±5%, system power and current loop connections.

Max. loop impedence: 50 Ω max @12 V, 325 Ω max @ 18 V

600 Ω max. @ 24 V.

Open Collector Output

- 7. Output 1+
- 8. Output 1 -
- 9. Output 2+
- 10. Output 2-

Preamplifier/Sensor Input

- 11. Black (Sensr 1 V+)
- 12. Red (Sensr 1 IN)
- 13. Silver (Sensr 1 Gnd)
- 14. Black (Sensr 2 V+)
- 15. Red (Sensr 2 IN)
- 16. Silver (Sensr 2 Gnd)

Open-collector transistor output programmable as:

- · High/Low alarm with adjustable hysteresis
- Proportional pulse output (0-400 pulses/min)
- Disable (Off) selection

6 Loop 2-
5 Loop 2+
4 System Pwr Loop -
3 System Pwr Loop +
3 System Pwr Loop + 2 AUX Power -

	0	10	Output 2-
	0		
	10	9	Output 2+
П	М	١	
Ш	\subseteq	8	Output 1-
		ō	Output 1-

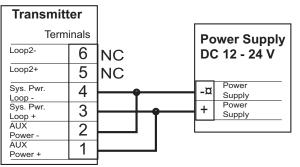
16	Snsr 2 Gnd (SHIELD)
15	Snsr 2 IN (RED)
14	Snsr 2 V+ (BLACK)
13	Snsr 1 Gnd (SHIELD)
13 12	
13 12 11	(SHIELD) Snsr 1 IN

Wiring Tips:

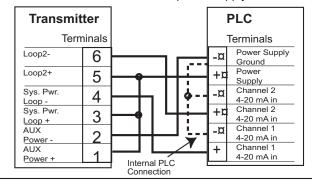
- Do not route sensor cable in conduit containing AC power wiring electrical noise may interfere with sensor signal.
- Routing sensor cabling in grounded metal conduit may prevent moisture damage, electrical noise, and mechanical damage.
- Seal cable entry points to prevent moisture damage.
- When placing two wire ends into a single terminal, solder or crimp ends together.

3.1 System Power/Loop Connections

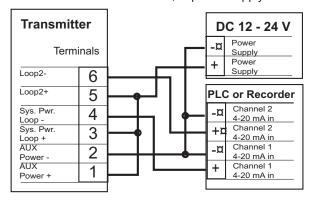
Stand-alone application, no current loop used



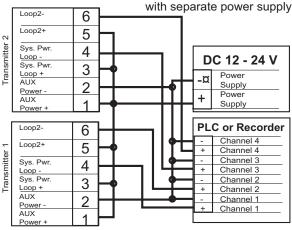
Connection to a PLC with built-in power supply



Connection to a PLC/Recorder, separate supply



Example: Two transmitters connected to PLC/Recorder



3.2 Sensor Input Connections

Wiring Tip:

Do not route sensor cable in any conduit containing AC power wiring - electrical noise may interfere with the signal.

Terminals



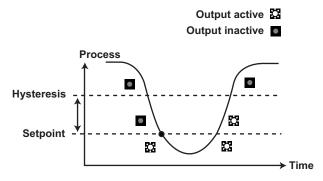


+GF+ SIGNET 2350 Temperature Sensors

3.3 Open Collector Functions

- Low: Output triggers when process variable is less than setpoint.
- High: Output triggers when process variable is higher than setpoint.

Example: In Low Alarm Mode Operation, the output becomes active when the process drops below the setpoint, and becomes inactive when the process rises above the setpoint plus hysteresis. The opposite is true for High Alarm Mode.

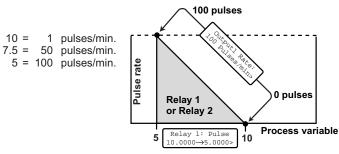


Off: Disables output pulse.

Proportional Pulse Mode Operation

The output emits a 100 mS pulse (simulated contact closure) at rate defined by the Output, Pulse Range, Output Rate, and the process condition (0 to 400 pulses/minute, as programmed)

Example: As the process falls below 10 the output will start pulsing in relation to the process value, the max pulse endpoint and the programmed pulses/min. Pulse rate will increase as the process approaches the programmed endpoint.



Start→max. pulse endpoint

3.4 Differential Mode (2 Sensor Inputs Required)

The selected open-collector or current output is based on the difference of Sensor 1 minus Sensor 2. To enable differential mode, the selected output's "Source" selection must be set to differential mode "DF", "DT", or "DP".

Sensor 1 - Sensor 2 = Difference

- 1. Unit of measure is based on Sensor 1.
- Decimal is based on Sensor 2. Sensor 2 should be the smallest unit measured or negative values will be generated.
- 3. Difference calculated in units only; not percentage.

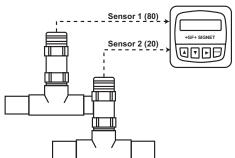


For pressure and temperature transmitters ensure Sensor 1 is equal to ID 1:

Sensor 1 - Sensor 2 Difference = 60

Example: 4-20 mA Loop1 Range: 0-120 Loop1: = 12.00 mA

Example: Output
Output1 Mode: Low
Output1 Setpoint: 70
Output1 = ON



4. Menu Functions

VIEW Menu: is displayed during standard operation.

- Press UP or DOWN buttons to view process parameters.
- Press UP and DOWN buttons at the same time, to exit any other display and return to VIEW menu.
- Display will return to VIEW menu in 10 minutes unless a key is pressed.

CALIBRATE Menu: contains display setup and output parameters. A security code feature prevents unauthorized tampering. To access CALIBRATE menu:

CALIBRATE:

CALIBRATE:

CALIBRATE:

CALIBRATE

CALIBRATE

CALIBRATE:

CALIBRATE

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- Press ENTER button for 2 seconds to display:
- Press UP, UP, UP, DOWN buttons in sequence to display:

CALIBRATE: XXXX Enter Key Code **OPTIONS Menu:** contains setup and display features for minor display or output adjustments. To access OPTIONS menu:

- Press ENTER button for 5 seconds to display:
- Press UP, UP, UP, DOWN buttons in sequence to display:

OPTIONS: --Enter Key Code

OPTIONS: XXXX
Enter Key Code

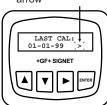
Menu Tips

- Right button scrolls to right, from top to bottom row, and allows editing when ">" symbol is shown.
- In CALIBRATE or OPTIONS menus, the transmitter will continue to measure and control outputs. When > is pressed, the input value is held at the last measured process value.
- When sensor is not connected, unit will display CHECK SENSOR and any output controlled by sensor will be at 3.6 mA or OFF.

Example

To change date, first enter CALIBRATE menu (Press ENTER button for 2 seconds; Press UP, UP, UP, DOWN buttons in sequence) Once in CALIBRATE menu, press UP button 1 time.

Display shows right arrow



2. Press RIGHT button to display "01" blinking



Press buttons to scroll through numbers.



Press ENTER button to save



Display now reads new date



Menu Functions

Calibrate Menu	Range	Preset
Switch ID:	Sensor1 to 2	Random
>	Sensor2 to 1	
Temp Units:	ů	°C
°C >	°F	
Set:	± 20°C	N/A
Temperature >		
Loop1 Source:	Temp1	Temp1
Temp1 >	Temp2	
	DT (1-2)	
Loop1 Range: °C	-10 - 100°C	0 - 100°C
0.0 > 100.0 >	14 - 212°F	
(4mA) (20 mA)	±199 (DT)	
Loop2 Source:	Temp1	Temp2
Temp2 >	Temp2	
·	DT (1-2)	
Loop2 Range: °C	-10 - 100°C	0 - 100°C
0.0 > 100.0 >	14 - 212°F	
(4mA) (20 mA)	±199 (DT)	

Output1 Source:	Temp1	Temp1 (Output1)
Temp1 >	Temp2	Temp2 (Output2)
	DT (1-2)	
Output1 Mode:	Off	Low (Output1)
Low >	Low	Hi (Output2)
	Hi	
	Pulse	

Low or High Selected			
Output1 Setpnt:	-10 - 100 °C	25 °C (Output1)	
25 °C >	(14 - 212 °F)	45 °C (Output2)	
Output1 Hys:	0 - 999.9	1 °C	
1 °C >			
Pulse Selected		=	

ruise selecteu		
Output1 Range:	-10 - 100 °C	25->45 °C
25.0 -> 45.0 >	(14 - 212 °F)	45->80 °C
(Start>Endpoint)		
Output1 PlsRate:	0-400	120
120 pulses/min >	pulses/min	pulses/min
L + O - I.	00 00 00 1-	04.04.00

Last Cal:	00-00-00 to	01-01-99
01-01-99 >	39-39-99	

Options Menu	Range	Preset
Contrast:	1-5	3
Level >	. 0	· ·
Averaging:	Off	Off
Off >	Low (4secs)	
	High(8secs)	
Output1 Active:	Low	Low
Low >	High	
Output2 Active:	Low	Low
Low >	High	
Loop1 Adjust:	3.8 to	4.00
4.00 mA >	5.0 mA	mA
Loop 1 Adjust:	19.0 to	20.00
20.00 mA >	21.0 mA	mA
Loop2 Adjust:	3.8 to	4
4.00 mA >	5.0 mA	mA
Loop 2 Adjust:	19.0 to	20
20.00 mA >	21.0 mA	mA
Test Loop1:	4-20 mA	N/A
>		
Test Loop2:	4-20 mA	N/A
>		
Test Output1:	On or	N/A
>	Off	
Test Output2:	On or	N/A
>	Off	

Troubleshooting

Display	Problem	Solution
+	Over or under range	Verify
Check Sensor ?	No sensor detected You may enter the CALIBRATION and OPTIONS menu to program setpoint values even though Check Sensor? is displayed.	Connect sensor Turn power off then back on to recognize sensor
Value must be 400 or less	Output PULSE mode selected, max pulse rate greater than 400.	Select a pulse rate equal to or less than 400
Process in bounds Relay always activated Relay annunciation	Hysteresis set too large.	Re-enter smaller hysteresis value.
SETUP READ ERROR Press Any Key	Memory fault occurred.	Press any key to reload presets, then reprogram setpoints.

