



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

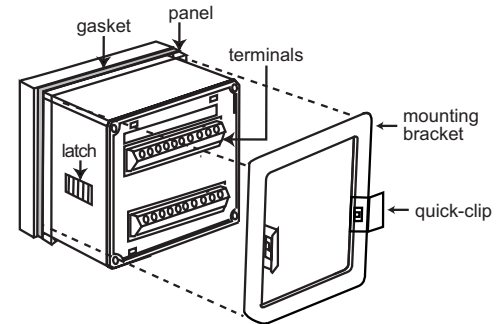
1. Installation

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

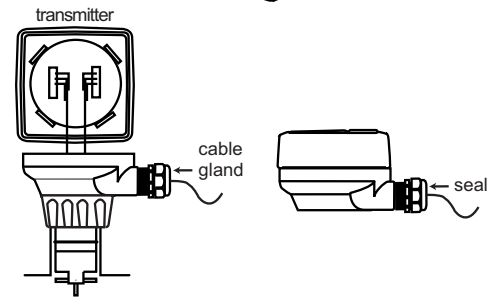
The Panel Mounting kits are supplied with the hardware to install instrumentation into panels and maintain a NEMA 4X seal.

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.
3. Slide mounting bracket over back of instrument until quick-clips snap into latches on side of instrument.
4. Connect wires to terminals.
5. To remove, secure instrument temporarily with tape from front or grip from rear of instrument. DO NOT RELEASE. Press quick-clips outward and remove.



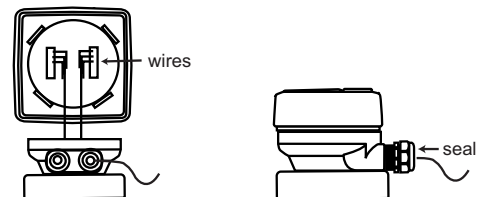
1.2 Integral Assembly (3-8051)

1. Punch out conduit ports if necessary.
2. Connect sensor to integral adapter. Push and twist-lock integral adapter to conduit base and secure with locking ring and screw.
3. 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.



2. Specifications

General

Compatibility: +GF+ SIGNET Flow Sensors (w/freq out)

Accuracy: ± 0.5 Hz

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 LCD
- Update 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:

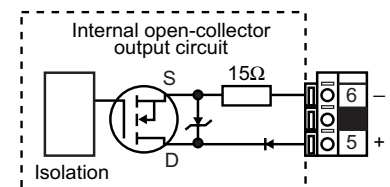
- Range: 0.5 - 1500 Hz
- Sensor power: 2-wire: 1.5 mA @ 5 VDC $\pm 1\%$
3 or 4 wire: 20 mA @ 5 VDC $\pm 1\%$
- Optically isolated from current loop
- Short circuit protected

Current output:

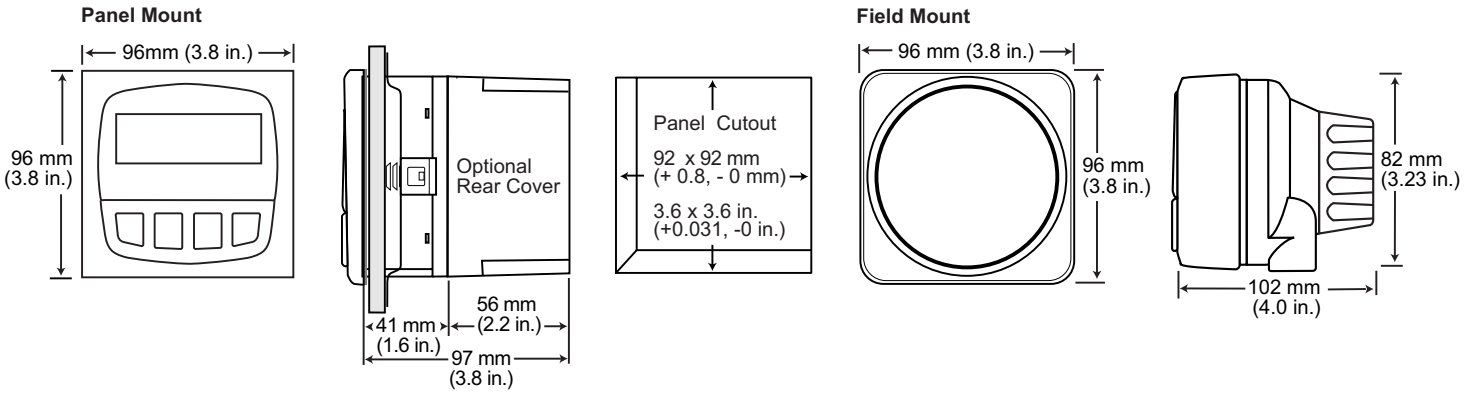
- 4 to 20 mA, isolated, fully adjustable and reversible
- Power: 12 to 24 VDC $\pm 10\%$, regulated
- Max loop impedance: 50 Ω max. @ 12 V, 325 Ω max. @ 18 V, 600 Ω max. @ 24V
- Update rate: 100 ms
- Accuracy: ± 0.03 mA

Open-collector output: Hi, Lo, Frequency, Pulse Programmable

- Optically isolated, 50 mA max. sink, 30 VDC max. pull-up voltage.



Dimensions



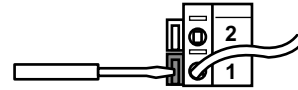
3. Electrical Connections



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

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.
4. Release orange terminal lever to secure wire in place. Gently pull on each wire to ensure a good connection.



Wiring Removal Procedure

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

Terminals

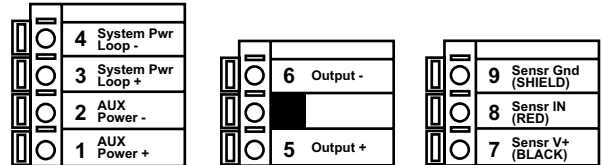
1. AUX Power + 12-24 VDC
 2. AUX Power -
- Note: AUX Power connections not required for +GF+ SIGNET flow sensors: 515, 525, 2536, 2517, 2540 (since Jan. 99), 8510-XX, 8512-XX, all Vortex frequency output sensors.

System Power/Loop

- 3 (+) 12-24 VDC system power and current loop connections.
- 4 (-) Max. loop impedance: 50 Ω max @12 V, 325 Ω max @ 18V, 600 Ω max @24 V.

Open-Collector Output

- 5 (+) Transistor programmable as:
 - High/Low alarm with adjustable hysteresis
 - Disable (Off) selection
 - Volumetric pulse
 - Frequency (divide from 1 to 255)
- 6 (-)



Sensor Input

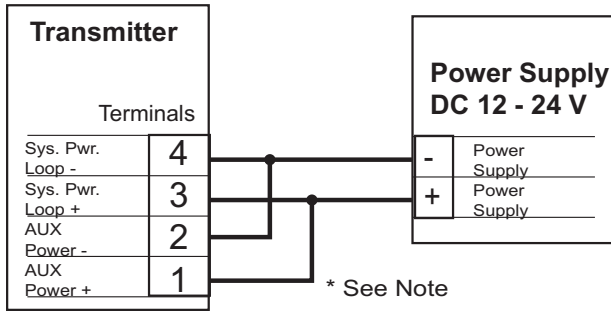
7. (Sensor V+) Blk
8. (Sensor IN) Red
9. (Sensor Gnd) Shld

Wiring Tips:

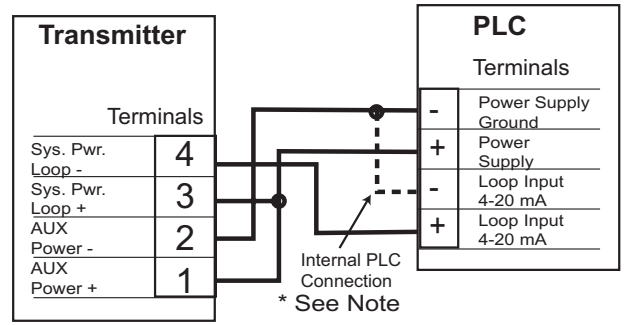
- Do not route sensor cable in conduit containing AC power wiring - electrical noise may interfere with sensor signal.
- Routing sensor cabling in grounded metal conduit may prevent moisture damage, electrical noise, and mechanical damage.
- Seal cable entry points to prevent moisture damage.
- When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

3.1 System Power/Loop Connections

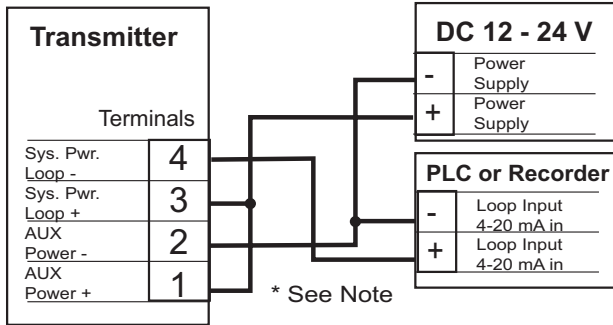
Stand-alone application, no current loop used



Connection to a PLC with built-in power supply

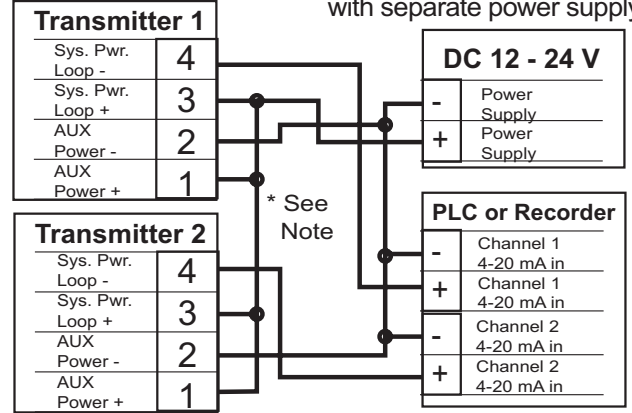


Connection to a PLC/Recorder, separate supply



* Note: Aux Power connections not required for +GF+ SIGNET flow sensors: 515, 525, 2100, 2536, 2517, 2540 (since Jan. 99), 8510-XX, 8512-XX, all Vortex frequency output sensors

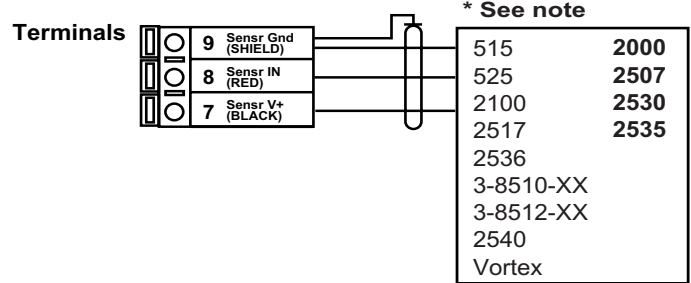
Example: Two transmitters connected to PLC/Recorder with separate power supply



3.2 Sensor Input Connections

Wiring Tip:

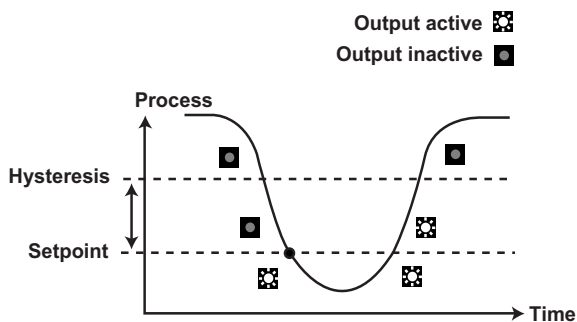
Do not route sensor cable in any conduit containing AC power wiring - electrical noise may interfere with the signal.



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.
- **Pulse:** Outputs a pulse whenever a specified amount of volume has been totalized.
- **Frequency:** Outputs a pulse whenever the divided number of pulses are input.



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:

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

CALIBRATE: ----
Enter Key Code

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

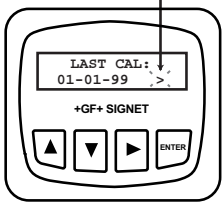
Menu Tips

- 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.

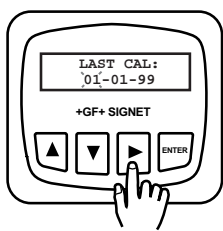
Example

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.

1. Display shows right arrow



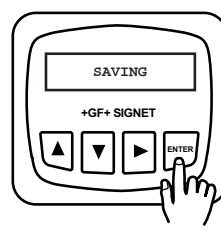
2. Press RIGHT button to display "01" blinking



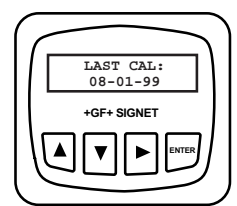
3. Press buttons to scroll through numbers.



4. Press ENTER button to save



5. Display now reads new date



Menu Functions

View Menu	Range
Flow units	00000 - 99999
Total: >	
Total Reset Lock: OFF	
Reset Total?	00000000 >
Total Reset Lock: ON	
Reset Total? Key Code ----	▲▲▲▼
Perm:	00000000 - 99999999
Total Units	
Loop Output: mA	4-20 mA
Last Cal: Date	00-00-00 to 39-39-99

Calibrate Menu	Range	Preset
Flow Units: GPM >	a-z,A-Z,/,3, s,h,m,d s=seconds h=hours m=minutes d=days	GPM
Flow K-Factor: 60.00 >	0.0000 to 99999	60.00
Total Units: Gallons >	a-z,A-Z,/,0-9 eight digit field	Gallons
Total K-Factor: 60.00 >	0.0000 to 99999	60.00
Loop Range: GPM 000.00>100.00 >	0.0000 to 99999	0 to 100
Output Mode: Low >	Off Low High Pulse Freq	Low

Low or High Selected		
Output Setpnt: 10.0 GPM >	0.0000 to 99999	10 gpm
Output Hys: 5.0 GPM >	0.0000 to 99999	5 gpm

Pulse Selected		
Output Volume: 100.00 Gallons >	0.0000 to 99999	100
Output Plswdth: 0.1 Seconds >	0.1 to 999.9 seconds	0.1 seconds

Frequency Selected		
Output Freq: Divide by 1 >	1 to 254	1

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

Options Menu	Range	Preset
Contrast: Level >	1-5	3
Flow Decimal: *** ** >	*.**** to ****.*	****.*
Total Decimal: ***** >	***** ** to *****.	*****.
Averaging: Off >	Off Low (4secs) High(8secs)	Off
Total Reset: Lock Off >	On Off	Off
Loop Adjust: 4.00 mA >	3.8 to 5.0 mA	4.00 mA
Loop Adjust: 20.00 mA >	19.0 to 21.0 mA	20 mA
Output Active Low >	Low High	Low
Test Loop: >	4-20 mA	N/A
Test Output: >	On or Off	N/A

Troubleshooting

Display	Problem	Solution
—	Display timebase too large	Change flow timebase (S=seconds,M=minutes,H=hours,D=days) in CALIBRATE menu to a smaller value (e.g. GPD to GPM)
Check settings for Output	Pulse width value too large for frequency input or pulse volume too small	Reduce output PIswidth setting or increase Output Volume setting.
SETUP READ ERROR Press Any Key	Memory fault occurred.	Press any key to reload presets, then reprogram setpoints.