



3-5500.090-1

Rev. K 3/06

English

**CAUTION!**

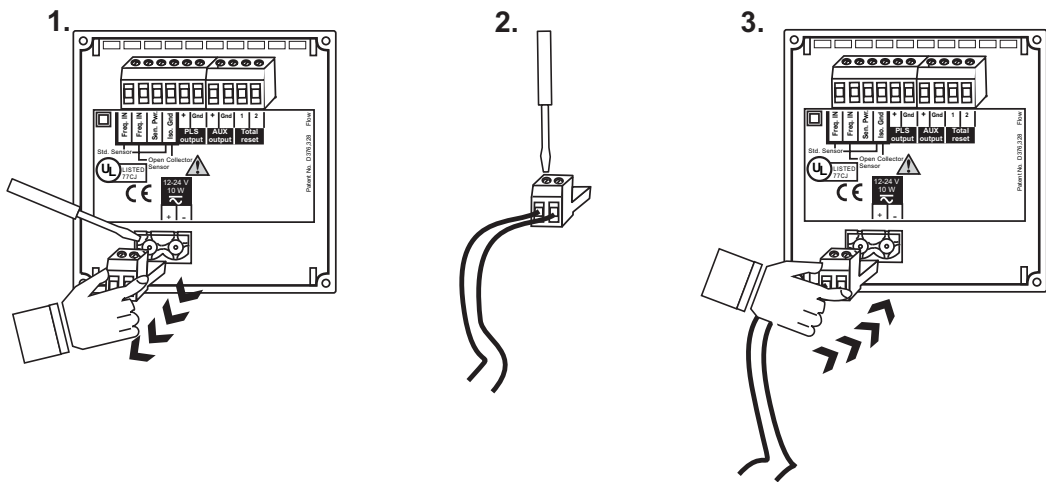


- Remove power to unit before wiring input and output connections.
- Follow instructions carefully to avoid personal injury.

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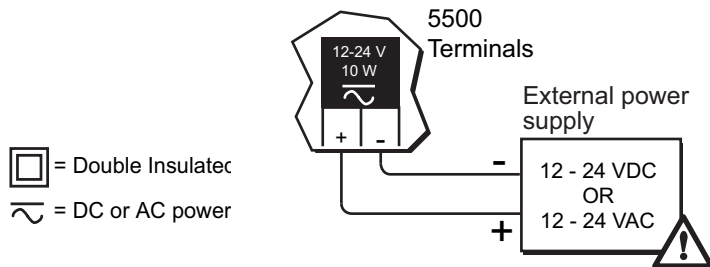
**Remove terminal blocks for easy wiring**



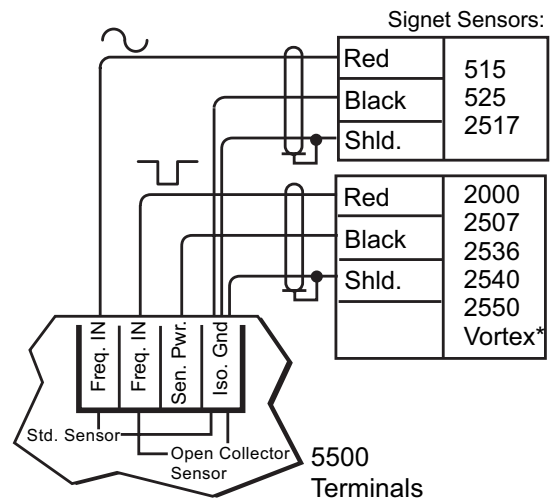
**1. Power Connections**



**CAUTION!**  
Never connect 115 VAC or 230 VAC to rear power terminals. High voltage AC will damage instrument and void warranty.



**2. Compatible Sensor Wiring**



**Technical Notes:**

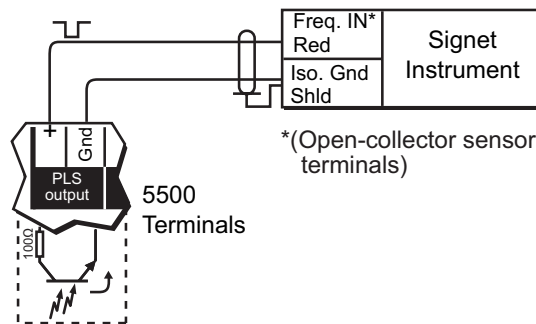
- To reduce the possibility of noise interference, isolate AC power lines from signal lines.
- Maximum 4-20 mA loop impedance (sec. 6) is affected by the supply voltage.

### 3. Sensor Pulse Output Connections (sec. 8.1)

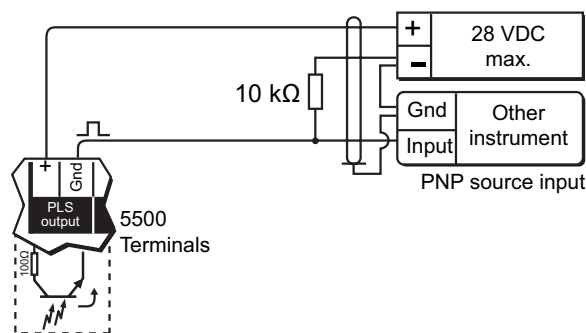
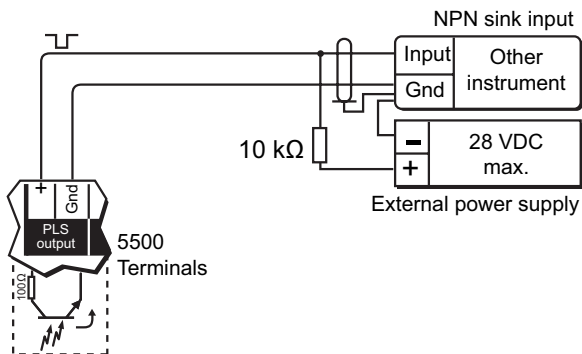
#### 3.1 Signet instrument with internal open-collector excitation voltage and pull-up resistor.

Technical Notes:

- Use 2-conductor shielded twisted-pair cable for output lines up to 30 m (100 ft.) max.
- Pull-up resistor NOT REQUIRED when connected to Signet instruments.



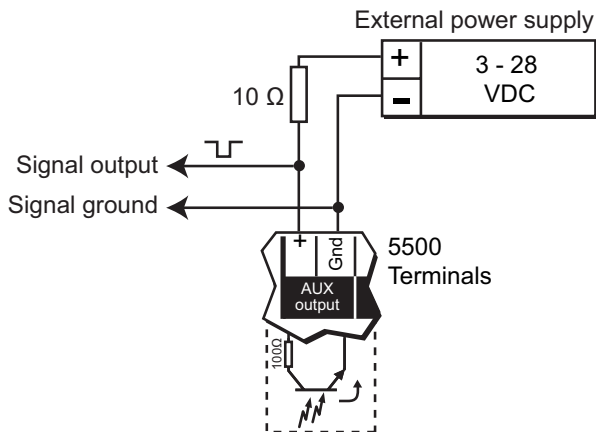
#### 3.2 Pulse output connection options for instruments without internal open-collector excitation voltage and pull-up resistor shown below.



### 4. Auxiliary Pulse Output Connections

#### 4.1 Pulse mode (sec. 8.2) - External device control

- The auxiliary output can be configured for either TTL, CMOS, or open-collector compatible inputs using the proper pull-up resistor and an external power supply.
- TTL inputs: An external 5 VDC power supply and 10 kΩ pull-up resistor is recommended.
- CMOS inputs: An external 3 to 15 VDC power supply and 10 kΩ pull-up resistor is recommended.
- 12 VDC Open-collector inputs: An external 12 VDC power supply and 10 kΩ pull-up resistor is recommended.
- 24 VDC Open-collector inputs: An external 24 VDC power supply and 10 kΩ pull-up resistor is recommended.

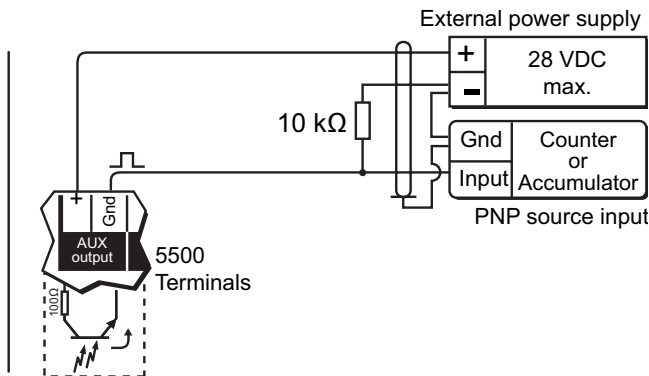
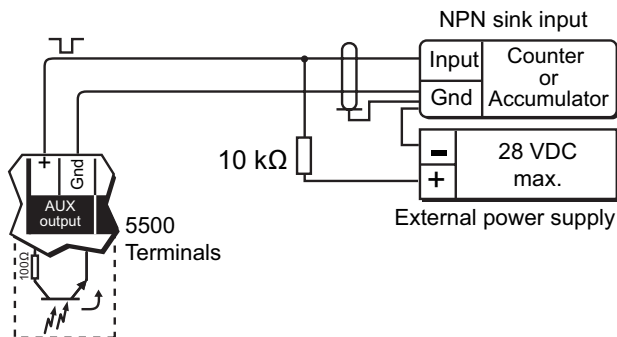


Technical Notes:

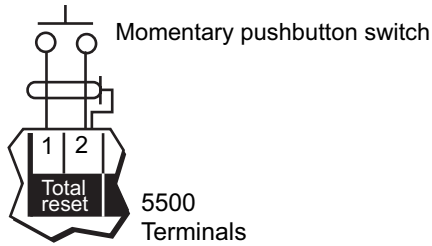
- Open-collector transistor, optically isolated, 5 mA max. sink, 28 VDC max. pull-up voltage.
- Programmable pulse width, 0.10 - 999. seconds (sec. 9.2 M)
- Selectable Active high or active low pulse logic (sec. 9.3 J).
- Use 2-conductor shielded twisted pair cable for AUX output lines to 30 m (100 ft) max.

#### 4.2 Totalizer pulse mode (sec. 8.2)

- External counter or accumulator inputs without internal open-collector excitation voltage and pull-up resistor.



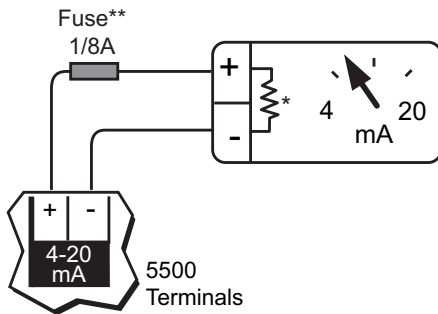
## 5. Totalizer Reset Connections (sec. 8.3)



### Technical Notes:

- Use 2-conductor shielded twisted pair cable for reset lines up to 30 m (100 ft) max. External reset switch overrides software security feature (section 9.3 I).
- To reduce the possibility of AC noise interference, isolate AC power lines from reset lines.

## 6. 4-20 mA Current Output Connections (sec. 8.4)



### Technical Notes:

- \*\*1/8A fuse recommended (customer supplied)
- \* 4-20 mA output is internally powered (non-isolated), maximum loop impedance 350  $\Omega$  with a 12 V instrument supply voltage, 950  $\Omega$  with a 24 V instrument supply voltage.

To isolate output and prevent ground loop problems:

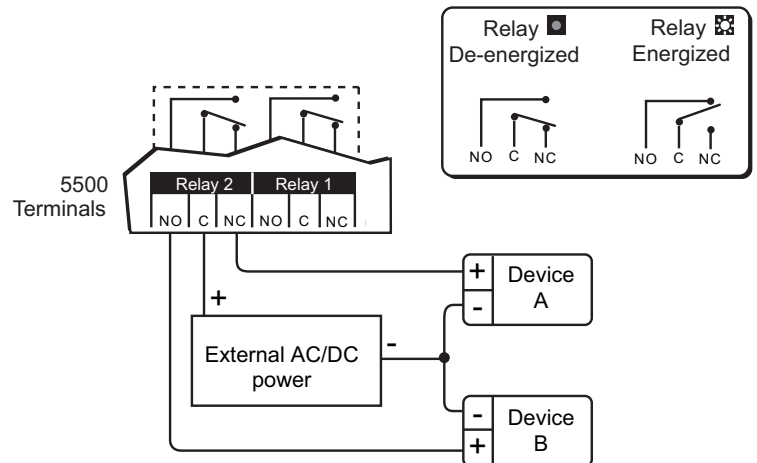
1. Use monitor device with isolated inputs, or
2. Use separate DC supply for 5500 and monitor device, or
3. Power 5500 with 12 - 24 VAC step down transformer

## 7. Relay Connections

Two internal relay contact sets (COM, NO, and NC) may be used for external device control. Front panel LED annunciators indicate the activation status of each relay. Each relay can control up to two devices simultaneously, as shown. Relay operation modes include Low alarm, High alarm, Pulse, and Totalizer (sec. 8.5).

Common device connections include:

- Pulse mode - metering pump control
- Pulse mode - solenoid valve control
- Low or High mode - warning lamps
- Low or High mode - bells or sirens
- Low or High mode - external heavy-duty relay



### Wiring Example Right

Device A IS powered when relay 2 is de-energized (front panel LED "off"). Power is discontinued when the relay 2 setpoint is reached (front panel LED "on"). Device B IS NOT powered when the relay 2 is de-energized. Power is applied after the relay 2 setpoint is reached.

### Technical Notes:

- Maximum relay contact ratings: 5 A @ 30 VDC, 5 A @ 125 VAC, or 3 A @ 250 VAC
- An external heavy-duty relay must be used for devices with surge currents or operating currents that exceed the above specifications.

## 8. Output Functions

This section gives a detailed description of all 5500 output functions.

8.1 Sensor pulse output (sec. 3): This output emits an open-collector frequency equal to the sensor input. The output connects directly to a second Signet instrument for expanded process control with a single sensor input (sec. 3.1). The output is an open-collector type that requires an external pull up resistor and power supply for other instrument inputs (sec. 3.2).

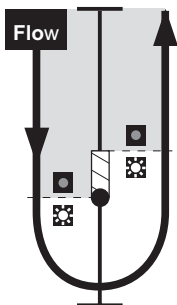
8.2 Auxiliary pulse output (sec. 4): The auxiliary output can be configured as Low alarm, High alarm, Pulse or Totalizer output. Output logic can be selected for either active low (factory default) or active high operation (sec. 9.3 J). The auxiliary output is an open-collector type that requires an external pull-up resistor and power supply to operate. Refer to diagrams A - C below for operation details.

### A. LOW alarm mode

The output is active (relay energized) when the flow drops below the setpoint, and is inactive (relay de-energized) when the flow rises above the setpoint plus hysteresis (sec. 9.2 F-G, 9.2 J-K).

- Auxiliary output: ideal for external device inputs (sec. 4)
- Relay outputs: ideal for external warning lamps, sirens, etc. (sec. 7)

Low setpoint= ●  
 Adjustable hysteresis= ▨  
 Output active (relay energized)= ☒  
 Output inactive (relay de-energized)= ●

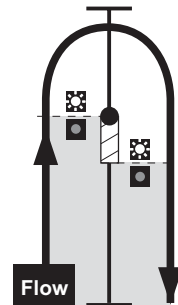


### B. HIGH alarm mode

The output is active (relay energized) when the flow rises above the setpoint and is inactive (relay de-energized) when the flow falls below the setpoint plus hysteresis (sec. 9.2 F-G, 9.2 J-K).

- Auxiliary output: ideal for external device inputs (sec. 4)
- Relay outputs: ideal for external warning lamps, sirens, etc. (sec. 7)

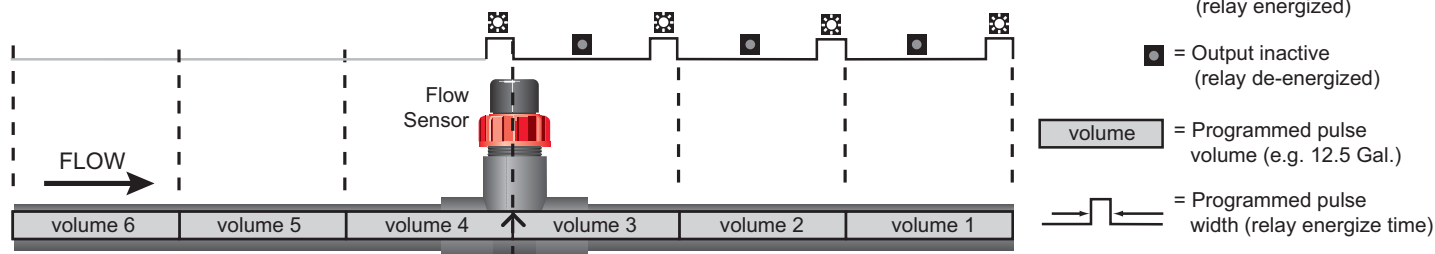
High setpoint= ●  
 Adjustable hysteresis= ▨  
 Output active (relay energized)= ☒  
 Output inactive (relay de-energized)= ●



### C. PULSE mode

The output is active (relay energized) for the programmed pulse width each time the programmed pulse volume is measured by the flow sensor (sec 9.2 H-I, 9.2 L-M).

- Auxiliary output: ideal for external device control (sec. 4)
- Relay outputs: ideal for metering pump or solenoid valve control (sec. 7)



### Totalizer function

The output emits an adjustable signal pulse width for each whole engineering unit measured by the flow sensor (also displayed on totalizer). To enable the totalizer function, the operator must set the relay or auxiliary pulse volume setpoint to 1.0000 (sec. 9.2 H, 9.2 L).

- Totalizer function: ideal for external counter or accumulator use (sec 4.2)



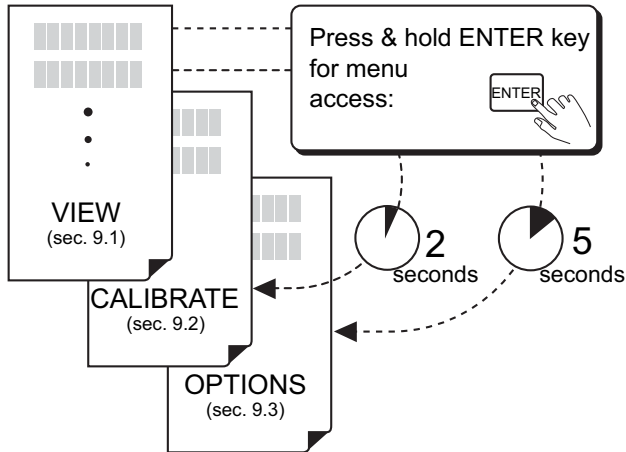
8.3 Totalizer reset (sec. 5): This feature allows the operator to reset the totalizer with a dry switch contact closure at any time. The external reset switch overrides software security feature (sec. 5).

8.4 4-20 mA output (sec. 6): The 4-20 mA output is internally powered by the instrument. 4 mA and 20 mA setpoints are fully adjustable within the programmed flow range (sec. 11 B). The output can also be reverse spanned.

8.5 Relay 1 and 2 outputs (sec 7): Relay outputs 1 and 2 can be independently configured as Low alarm, High alarm, Pulse or Totalizer output. Refer to diagrams A - C above for operation details.

## 9. Menu Functions

To access either CALIBRATE or OPTIONS menus, press and hold the ENTER key as illustrated below:



Menus:

- VIEW menu (sec. 9.1): The VIEW menu is displayed during standard operation. The operator can navigate freely through the menu by pressing either UP or DOWN arrow keys. The VIEW menu also offers a resettable totalizer feature that allows the operator to reset the displayed total at the press of a button.
- CALIBRATE Menu (sec. 9.2): The CALIBRATE menu contains all critical display setup and output parameters. A simple security code feature prevents unauthorized tampering. The operator is required to enter a simple access code for menu access. The same code also unlocks OPTIONS menus.
- OPTIONS Menu (sec. 9.3): The OPTIONS menu contains setup and display features that are seldom accessed for minor display or output adjustments.

### 9.1 VIEW Menu

1 Choose:	2 Change:	3 Save:
HJ ▲ 0.0 GPM A. Total:000000.0 Flow & resettable total	OPTIONS =  (sec. 9.3I) A. Reset Total? 1234567.8 To reset total press:	OPTIONS =  (sec. 9.3I) A. Reset Total? Key Code: ---- Press keys in sequence,  (display shows:xxxx)
▲ Gallons B. Total:000000.0 Permanent total	To reset total press:	B. Reset Total? 1234567.8 To reset total press:
▲ Loop Output: C. 4.00 mA Loop output	B. Reset Total? 000000.0	B. Reset Total? 1234567.8 To reset total press:
▲ Min+Max: GPM D. 0.000 + 100.00 Range	To exit without changes OR quick press	C. Reset Total? 000000.0
▲ Relay 1: High E. 10.000 GPM Relay 1		
▲ Relay 2: Low F. 90.000 GPM Relay 2		
▲ Aux Out: Pulse G. 1.0000 Gallons Aux output		
▲ Last CAL: H. 01-01-98 Last calibration		

Menu Displays A - H:

(Factory default displays shown in menu column 1)

- A. Flowrate and resettable total display: can be reset by the front panel keypad or by remote reset switch (sec. 5). A simple access code feature prevents accidental total reset, when enabled (sec. 9.3 I). External reset switch inputs override security feature, when enabled.
- B. Permanent total display: records volumetric flow total for the life of the product and is non-resettable.
- C. Loop output display: shows the current output level at the rear terminals.
- D. Flow Range display: shows the programmed min and max meter range (sec. 9.2 B)
- E. Relay 1 display: this display shows the programmed operation mode and setpoint for relay 1 (sec. 9.2 F-I)
- F. Relay 2 display: this display shows the programmed operation mode and setpoint for relay 2 (sec. 9.2 F-I).
- G. Aux output display: this display shows the programmed operation mode and setpoint for the auxiliary output (sec. 9.2 J-M).
- H. Last calibration: this display shows a user defined setup date for maintenance records. This feature is not an internal timer or calender.

## 9.2 CALIBRATE Menu

CALIBRATE: ----- Press keys in sequenc to enter menu,  
Enter Key Code \*\*\*\*\*will appear during code entry.

Menu Settings A - N:

(Factory default displays shown in menu column 1)

1 Choose:	2 Change:	3 Save:
N1 ▲ Flow Units: GPM > Flow units ▼	Flow Units: GPM Unit + timebase: h,m,s,d	Flow Units: mL/min
A. ▲ Min→Max: GPM 0.000 → 100.00 > Flow range ▼	Min→Max: GPM 00.000 → 100.00 Meter Min→Max	Min→Max: GPM 00.000 → 500.00
C. ▲ Flow K-Factor: 60.000 > Flow K-Factor ▼	Flow K-Factor: 60.000 K-Factor	Flow K-Factor: 32.480
D. ▲ Total Units: Gallons > Total units ▼	Total Units: Gallons - Display label only -	Total Units: Gal x 10
E. ▲ Total K-Factor: 60.000 > Total K-Factor ▼	Total K-Factor: 60.000 K-Factor	Total K-Factor: 324x80
<b>Relay Low or High Mode Selected</b>		
F. ▲ Relay 1: Low 10.000 GPM > Relay ▼	Relay 1: Low 10.000 GPM - Mode & setpoint -	Relay 1: High 100x00 GPM
G. ▲ Relay 1 Hys: 2.0000 GPM > Relay ▼	Relay 1 Hys: 2.0000 GPM Hysteresis setting	Relay 1 Hys: 1.5000 GPM
<b>Relay Pulse Mode Selected, step F</b>		
H. ▲ Relay 1: Pulse 10.000 Gallons > Relay ▼	Relay 1: Pulse 10.000 Gallons - Mode & setpoint -	Relay 1: Pulse 12.500 Gallons
I. ▲ Relay1 PlsWidth: 10.0 Seconds > Relay ▼	Relay1 PlsWidth: 10.0 Seconds Pulse width	Relay1 PlsWidth: 12.5 Seconds
<b>Aux Output Low or High Mode Selected</b>		
J. ▲ Aux Out: Low 1.0000 GPM > Aux output ▼	Aux Out: Low 1.0000 GPM - Mode & setpoint -	Aux Out: Low 10x500 GPM
K. ▲ Aux Out Hys: 0.0000 GPM > Aux output ▼	Aux Out Hys: 0.0000 GPM Hysteresis	Aux Out Hys: 1.5000 GPM
<b>Aux Output Pulse mode selected, step J</b>		
L. ▲ Aux Out: Pulse 1.0000 Gallons > Aux output ▼	Aux Out: Pulse 1.0000 Gallons - Mode & setpoint -	Aux Out: Pulse 125x00 Gallons
M. ▲ AuxOut PlsWidth: 0.10 Seconds > Aux output ▼	AuxOut PlsWidth: 0.10 Seconds Pulse width	AuxOut PlsWidth: 0.25 Seconds
N. ▲ Last CAL: 01-01-98 > Last calibration ▼	Last CAL: 01-01-98 Setup date	Last CAL: 02-05-98
To return to VIEW menu:   quick press	To restore original value: quick press	

A. Sets flow units label (gpm) and timebase (gpm).  
Flow units label: Aa - Zz, 0 - 9, /  
Timebase options: h=hours, m=minutes,  
s=seconds, d=days (timebase entry affects flow  
rate display and 4 to 20 mA output)

B. Sets Min→Max meter and dial range, 00.000 to  
99999. (does not affect 4 to 20 mA output)

C. Sets flow K-Factor: 0.0001 to 99999.  
(see technical notes below)

D. Sets 8-digit totalizer units label: Aa - Zz, 0 - 9, /  
(does not affect totalizer display or outputs)

E. Sets totalizer K-Factor: 0.0001 to 99999.  
(see technical notes below)

Menu items F - I repeat for relay 2 setup.

F. Sets relay operation mode Low or High, and flow  
rate setpoint, 0.0000 - 99999. (sec. 8.5)

G. Sets relay hysteresis, 0.0000 - 99999. (sec. 8.5)  
(Set to zero to disable hysteresis feature)

H. Sets relay pulse volume setpoint, 0.0001 - 99999.  
(sec. 8.5). Set to 1.0000 to enable totalizer  
function (sec. 8.5).

I. Sets relay pulse width, 0.10 - 999. seconds  
(sec. 8.5)

J. Sets auxiliary output mode Low or High, and flow  
rate setpoint, 0.0000 - 99999. (sec. 8.2).

K. Sets auxiliary output hysteresis, 0.0000 - 99999.  
(Set to zero to disable hysteresis feature)

L. Sets auxiliary output pulse volume setpoint,  
0.0001 - 99999. (sec. 8.2). Set to 1.0000 (factory  
default) to enable totalizer function (sec. 8.2).

M. Sets auxiliary output pulse width, 0.10 - 999.  
seconds

N. Sets user defined setup date for maintenance  
records. This feature is not an internal timer or  
calender

Technical Notes:

The flow and total K-Factors are independent of each  
other. The K-Factor settings represent the number of  
pulses generated by the Signet flow sensor for each  
engineering unit of fluid measured (published in flow  
sensor manual).

ENTER  
"SAVING"  
briefly  
displays

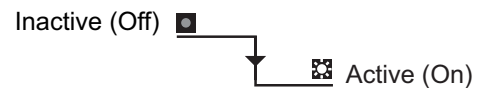
### 9.3 OPTIONS Menu

OPTIONS: ----- Enter Key Code		Press keys in sequenc     to enter menu, XXXX will appear during code entry.	
<b>1</b>	<b>Choose:</b>	<b>2</b>	<b>Change:</b>
J.	Contrast: 3 >	Contrast:	Contrast: 1 2 3 4 5 1 2 3 4 5
A.	Display contrast ▼	Low - - - - - High	
B.	Display Decimal: XXXX.X >	Display Decimal: Display Decimal:	XXXX.XX XXXX.XX
A.	Flow display ▼	Decimal	
C.	Total Decimal: XXXXXXXX.X >	Total Decimal: Total Decimal:	XXXXXXXX.XX XXXXXXXX.XX
A.	Total display ▼	Total decimal	
D.	Display Average: Off >	Display Average: Display Average:	Off Low High Off Low High
A.	Display averaging ▼	0s 4s 8s	
E.	Set 4 mA: 0.0000 GPM >	Set 4 mA:	Set 4 mA: 20.000 GPM
A.	Loop output ▼	4 mA setpoint	
F.	Set 20 mA: 100.00 GPM >	Set 20 mA:	Set 20 mA: 480.00 GPM
A.	Loop output ▼	20 mA setpoint	
G.	4 mA Adjust: 4.00 mA >	4 mA Adjust:	4 mA Adjust: 4.02 mA
A.	Loop output ▼	4 mA adjust	
H.	20 mA Adjust: 20.00 mA >	20 mA Adjust:	20 mA Adjust: 19.98 mA
A.	Loop output ▼	20 mA adjust	
I.	Total Reset Lock: Off >	Total Reset	Total Reset
A.	Totalizer reset ▼	Lock: Off On	Lock: Off On
A.		VIEW menu=	VIEW menu=
J.	Aux Out active: Low >	Aux Out active:	Aux Out active:
A.	Auxiliary out logic ▼	Low High	Low High
A.		Active Low or High	
To return to VIEW menu:   quick press		To restore original value:   quick press	

Menu Settings A - J:  
(Factory default displays shown in menu column 1)

- A. Selects LCD display contrast: 5 levels
- B. Selects flow display decimal:  
..... to ... ..
- C. Selects totalizer display decimal:  
..... to ..... ..
- D. Selects LCD display averaging:  
Off = 0 seconds, Low= 4 seconds, High= 8 seconds  
(also effects 4 - 20 mA output)
- E. Sets 4 mA output setpoint. 4 mA and 20 mA setpoints are reversible.
- F. Sets 20 mA output setpoint. 20 mA and 4 mA setpoints are reversible.
- G. Sets 4 mA current output: 3.0 to 5.0 mA (overrides 4.00 mA factory calibration)
- H. Sets 20 mA current output: 19 to 21 mA (overrides 20.00 mA factory calibration)
- I. Selects totalizer reset options: Lock "Off" disables the VIEW menu access code feature; Lock "On" enables the feature (sec. 9.1 A). When enabled, the operator must enter an access code for totalizer reset privileges. The totalizer will be reset in either case if a contact closure is detected at rear reset terminals (sec. 5).
- J. Selects Auxiliary output logic:
  - Active Low logic (factory default): Output changes from high to low when active, see diagram below.
  - Active high logic: Output changes from low to high when active, see diagram below.

Active Low Logic (factory default)

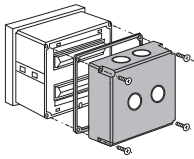


Active High Logic

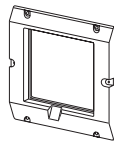




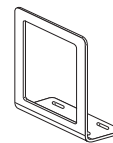
## 10. Parts and Accessories



Splashproof rear cover  
#3-5000.395  
(code 198 840 227)



5 x 5 inch adapter plate  
for Signet retrofit  
#3-5000.399  
(code 198 840 224)



Optional surface mount  
bracket #3-5000.598  
(code 198 840 225)

- Power supply, 115 VAC - 24 VAC, #3-5000.075
- Front snap-on bezel, #3-5000.525 (code 198 840 226)
- Assorted flow unit/multiplier decals, #3-5500.611 (code 198 840 230)
- 5500 instruction sheet #3-5500.090-1 (code 198 869 914)

## 11. Specifications

### General

Sensor compatibility: All Signet flow sensors  
Accuracy:  $\pm 0.5\%$  of reading  
Input: Optically isolated

### Enclosure:

- Rating: NEMA 4X/IP65 front
- Dimensions: 1/4 DIN, 96 x 96 x 88 mm (3.8 x 3.8 x 3.5 in.)
- Case materials: ABS plastic
- Keypad material: Sealed 4-key silicone rubber
- Weight: Approximately 500 g (18 oz.)

### Display:

- Type: Microprocessor controlled air-core meter movement and backlit alphanumeric 2 x 16 LCD
- Update rate: Flow = 1s, totalizer =  $< 200$  ms
- Contrast: User selected, 5 levels
- Relay annunciators: 2 LEDs

### Totalizers:

- 8-digit resettable with security option
- 8-digit non-resettable

### Environmental

Operating temp.: -10 to 55°C (14 to 131°F),  
50°C (122°F) max. with optional rear  
cover

Storage temp.: -15 to 80°C (5 to 176°F)  
Relative humidity: 0 to 95%, non-condensing  
Altitude: 4000 m max.  
Pollution degree: 2

### Agency Approvals

- CE, UL listed
- Manufactured under ISO 9001

### Electrical

Power:  
• 12 to 24 VDC or 12 to 24 VAC, unregulated, 50-60 Hz,  
10 W max.

### Relay contacts (2 sets):

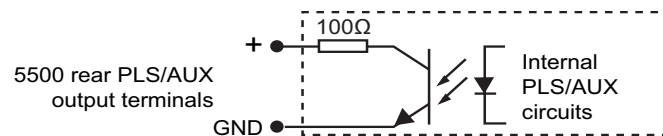
- Mechanical SPDT contacts
- Maximum voltage rating: 5 A @ 30 VDC, 5 A @ 125 VAC, or  
3 A @ 250 VAC, (power factor = 1.0)
- Hysteresis: User adjustable

### Current output:

- 4 to 20 mA, non-isolated, internally powered, fully adjustable and reversible
- Update rate:  $< 200$  ms
- Max loop impedance: 350  $\Omega$  max with a 12 V instrument supply voltage, 950  $\Omega$  max with a 24 V instrument supply voltage
- Accuracy:  $\pm 0.1\%$  of max range

### Sensor (PLS) Auxiliary (AUX) pulse outputs:

- Open-collector transistor, optically isolated, 5 mA max. sink,  
28 VDC max. pull-up voltage, programmable (AUX) pulse width



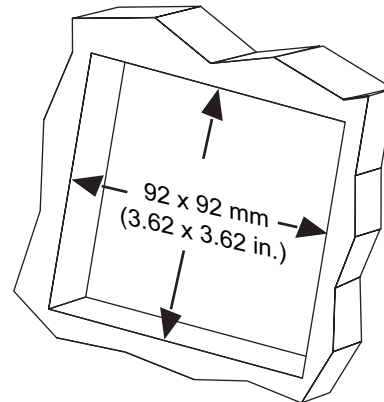
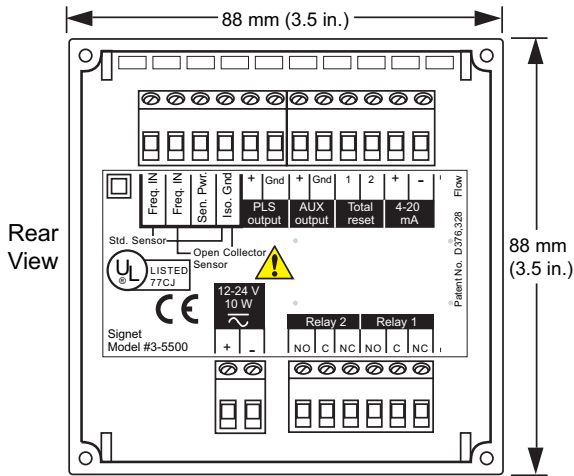
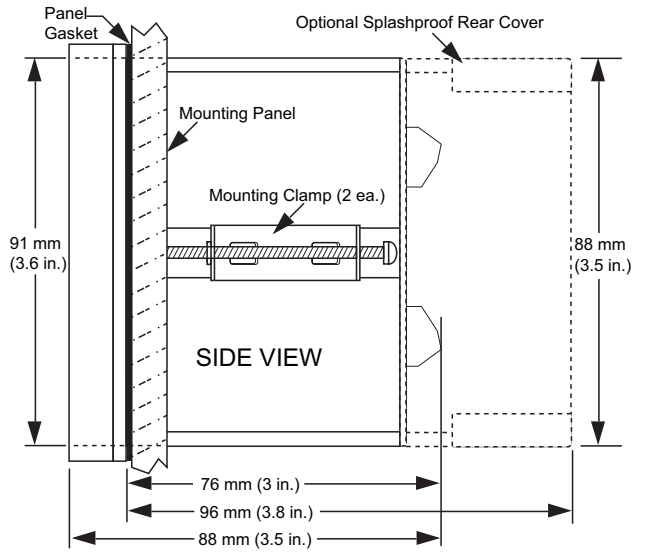
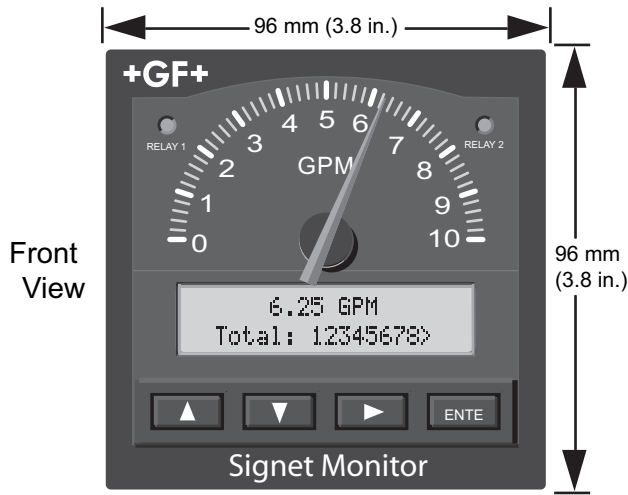
### Totalizer reset:

- Front keypad or external contact closure, 30 m (100 ft) max  
cable length
- External contact closure overrides security feature (sec. 5)

Noise immunity: EN50082-2  
Noise emissions: EN55011  
Safety: EN61010-1



**Dimensions**



**Panel cutout**

**12. Quick Reference Menu Parameters**

VIEW Menu Setup Parameters (sec. 9.1)

Menu Parameters	Display Description	Range	Factory Default
A. 0.0 GPM Total: 0000000.0	<ul style="list-style-type: none"> <li>Flow rate and units</li> <li>Resettable total</li> </ul>	00.000 - 99999. GPM 000000.00 - 99999999.	0000.0 0000000.0
B. Gallons *Total: 0000000.0	Permanent total	000000.00 - 99999999.	0000000.0
C. LOOP Output: 4.00 mA	Current loop output	3 - 21 mA	n/a
D. Min→Max: GPM 0.000 ÷ 100.00	Min → Max meter and dial range	00.000 - 99999.	0.000 - 100.00
E. Relay 1: High 10.000 GPM	<ul style="list-style-type: none"> <li>Relay 1 mode</li> <li>Relay 1 setpoint</li> </ul>	Low or High, 0.0000 - 99999. Pulse, 0.0001 - 99999.	Low 10.000 GPM
F. Relay 2: Low 90.000 GPM	<ul style="list-style-type: none"> <li>Relay 2 mode</li> <li>Relay 2 setpoint</li> </ul>	Low or High, 0.0000 - 99999. Pulse, 0.0001 - 99999.	High 90.000 GPM
G. Aux Out: Pulse 1.0000 Gallons	<ul style="list-style-type: none"> <li>Aux output mode</li> <li>Aux output setpoint</li> </ul>	Low or High, 0.0000 - 99999. Pulse, 0.0001 - 99999.	Pulse 1.0000 Gallons
H. Last CAL: 01-01-98	Last calibration date	00 - 00 - 00 to 39 - 39 - 99	01 - 01 - 98

**CALIBRATE Menu Setup Parameters (sec. 9.2)**

Menu Parameters	Display Description	Range	Factory Default
A. Flow Units: GPM >	flow unit= digits 1-3 flow timebase= digits 4	Aa - Zz, 0 - 9, /, _; Mm, Ss, Hh, Dd	_GPM
B. Min→Max: GPM 0.000 →100.00 >	Min → max range	00.000 - 99999.	00.000 - 100.00 GPM
C. Flow K-Factor: 60.000 >	Flow K-Factor	0.0001 - 99999.	60.000
D. Total Units: Gallons >	Total units	Aa - Zz, 0 - 9, /, _ (8-digits max.)	_Gallons
E. Total K-Factor: 60.000 >	Total K-Factor	0.0001 - 99999.	60.000
F. Relay 1: Low 10.000 GPM >	• Relay 1 mode • Relay 1 setpoint	Low or High 0.0000 - 99999.	Low 10.000 GPM
G. Relay 1 Hys: 2.0000 GPM >	• Relay 1 Hysteresis • Hysteresis volume	0.0000 - 99999.	2.0000 GPM
H. Relay 1: Pulse 10.000 Gallons >	• Relay 1 mode • Relay 1 pulse volume	Pulse 0.0001 - 99999.	10.000 Gallons
I. Relay1 PlsWidth: 10.0 Seconds >	Relay 1 pulse width	0.10 - 999. seconds	10.0 seconds
J. Aux Out: Low 1.0000 GPM >	• Aux output mode • Aux output setpoint	Low or High 0.0000 - 99999.	Low 1.0000
K. Aux Out Hys: 0.0000 GPM >	Aux output hysteresis volume	0.0000 - 99999.	0.0000
L. Aux Out: Pulse 1.0000 Gallons >	• Aux output mode • Aux output setpoint	Pulse 0.0001 - 99999.	1.000 Gallons
M. AuxOut PlsWidth: 0.10 Seconds >	Aux output pulse width	0.10 - 999. seconds	0.10 seconds
N. Last CAL: 01-01-98 >	Last calibration date	00 - 00 - 00 to 39 - 39 - 99	01 - 01 - 98

\_ = blank  
display digit  
option

\_ = blank  
display digit  
option

Relay mode  
and setpoint  
displays repeat  
for relay 2  
setup

**OPTIONS Menu Setup Parameters (sec. 9.3)**

Menu Parameters	Display Description	Range	Factory Default
A. Contrast: 3 >	Display contrast	0 to 5	3
B. Display Decimal: ****.* >	Flow decimal	**.* to ****.*	****.*
C. Total Decimal: *****.* >	Totalizer decimal	*****.* to *****.*	*****.*
D. Display Average: Off >	Display averaging	Off= 0 sec., Low= 4sec., High= 8 sec.	Off
E. Set 4 mA: 0.0000 GPM >	4 mA setpoint	Unlimited	0.0000 GPM

**OPTIONS Menu Setup Parameters Continued...**

Menu Parameters	Display Description	Range	Factory Default
F. Set 20 mA: 100.00 GPM >	20 mA setpoint	Unlimited	100.00 GPM
G. 4 mA Adjust: 4.00 mA >	4 mA adjust	3.0 to 5.0 mA	4.00 mA
H. 20 mA Adjust: 20.00 mA >	20 mA adjust	19 to 21 mA	20.00 mA
I. Total Reset Lock: Off >	VIEW menu total reset access code	On or Off	Off
J. Aux Out active: Low >	Auxiliary (AUX) output pulse logic	Active Low or Active High	Low

**13. 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 Relay 1	Relay 1 pulse width too large for frequency input or pulse volume too small	Reduce Relay 1 pulse width setting (sec. 9.2 I) or increase pulse volume setting (sec. 9.2 H)
Check settings for Relay 2	Relay 2 pulse width too large for frequency input or pulse volume too small	Reduce Relay 2 pulse width setting (sec. 9.2 I) or increase pulse volume setting (sec. 9.2 H)
Check settings for AUX output	Auxiliary output pulse width too large for frequency input or pulse volume too small	Reduce auxiliary output pulse width setting (sec. 9.2 M) or increase pulse volume setting (sec. 9.2 L).
Must be between 0.0001 - 99999	Relay 1, Relay 2, or Auxiliary output (AUX) pulse volume setpoint must be within 0.0001 - 99999.	Enter volumetric setpoint within 0.0001 - 99999. engineering units (sec. 9.2 H or 9.2 L)
Must be between 0.10 - 999	Relay 1, Relay 2, or Auxiliary output (AUX) pulse width must be within 0.10 - 999 seconds	Enter pulse width within 0.10 - 999 seconds (sec. 9.2 I or 9.2 M)
Flow K-Factor can not be zero	Flow display K-Factor cannot be zero	Enter K-Factor greater than zero (sec. 9.2 C)
Total K-Factor can not be zero	Totalizer K-Factor cannot be zero	Enter K-Factor greater than zero (sec. 9.2 E)
SETUP READ ERROR Press any Key	Power fault occurred while saving setup menu entry	Press any key to reload factory defaults then reprogram flow system setup parameters. Note: totalizer displays remain undistrubed and will resume after instrument reset.

**14. Maintenance**

Clean the instrument case and front panel with a soft cloth and mild liquid soap solution.

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