

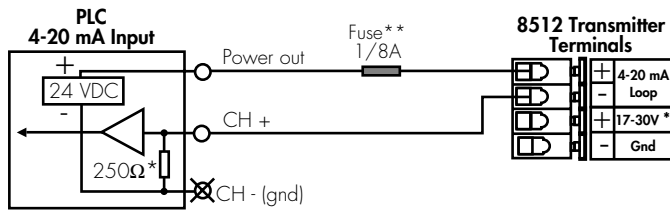
3-8512-090-1
C-6/98

CAUTION!
Remove power to unit before wiring input and output connections.

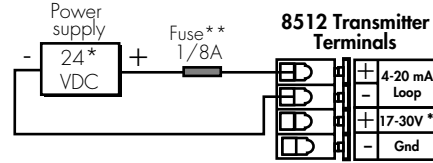
1. Loop/System Power Connections

1.1 2-Wire operation (for +GF+SIGNET 515, 525, 2517, 3-8510-XX, 2536/3-8512-XX flow sensors).

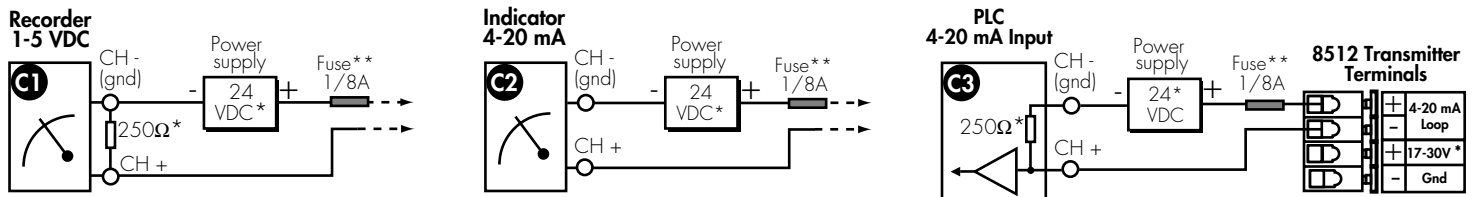
A. Ground referenced PLC **with internal** transmitter power supply



B. Power connection for display use only



C. 1 to 5 VDC recorder (C1), 4 to 20 mA indicator (C2), or ground referenced PLC (C3) connections **without internal** transmitter power supply

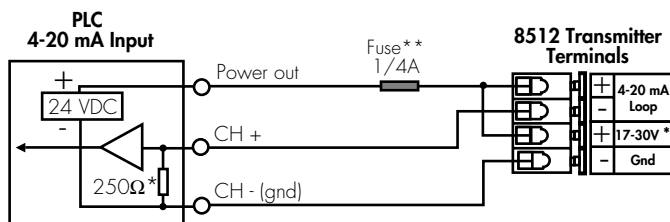


*Refer to maximum loop impedance specification for minimum operating voltage requirements (section 10).

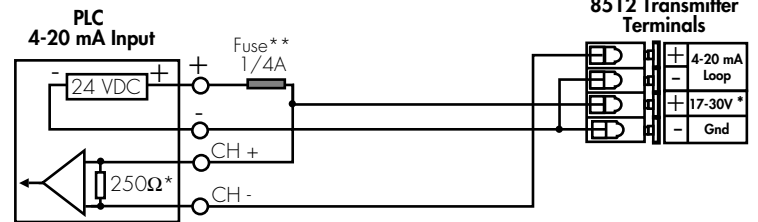
**1/8A fuse recommended (customer supplied)

1.2 3-Wire operation (for +GF+ SIGNET 2000, 2507, 2530, 2535, 2540 flow sensors). This wiring is required for powered flow sensors that consume more than 1.5 mA DC current.

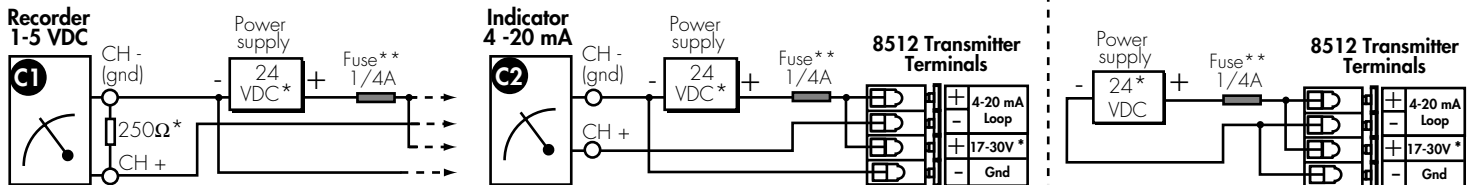
A. Ground referenced PLC **with internal** transmitter power supply



B. Differential input PLC **with internal** transmitter power supply



C. 1 to 5 VDC recorder (C1) and 4 to 20 mA indicator (C2) connections **without internal** transmitter power supply

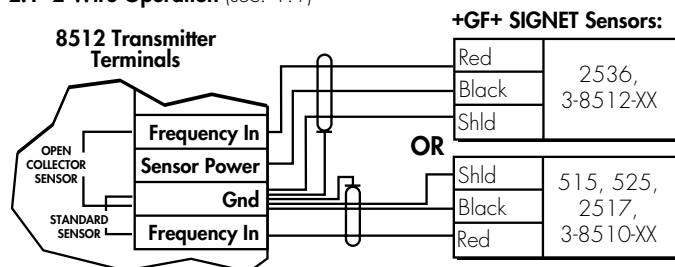


*Refer to maximum loop impedance specification for minimum operating voltage requirements (section 10).

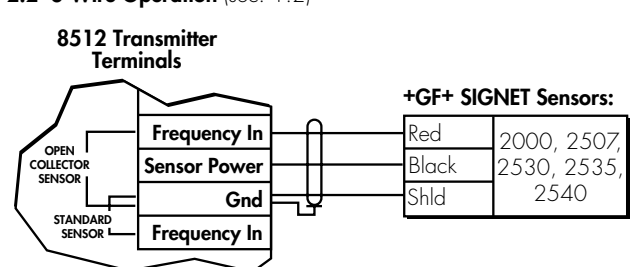
**1/4 A fuse recommended (customer supplied).

2. Compatible Sensor Connections

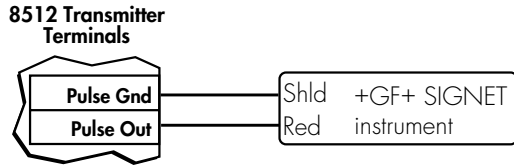
2.1 2-Wire Operation (sec. 1.1)



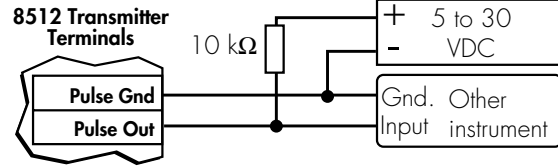
2.2 3-Wire Operation (sec. 1.2)



3. Pulse Output Wiring



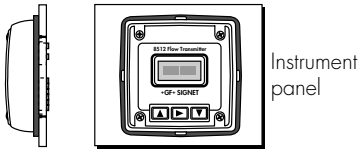
- Use 3-2507.278 input module for +GF+ SIGNET instruments
- +GF+ SIGNET Inteltek-Pro, use 2535/2536 input card setting



4. Installation Options

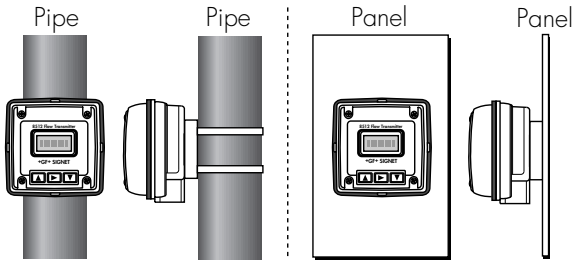
4.1 Standard Panel Mount

- Panel cutout template/instructions (included).



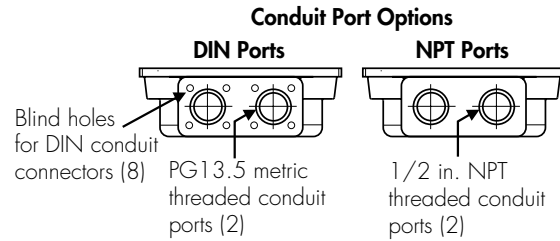
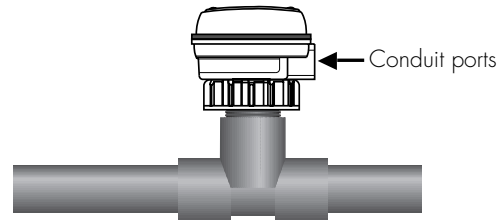
4.2 Optional 3-8010 Universal Mounting Kit

- NPT and DIN conduit port kits available (see section 4.3).
- See section 9 for ordering options.

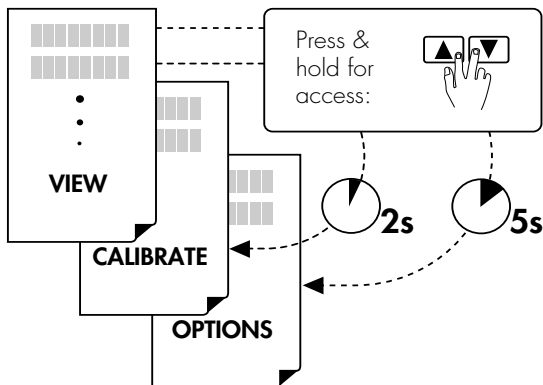


4.3 Optional 3-8011 Integral Mounting Kit

- NPT and DIN conduit port kits available.
- Compatible with 3-8510-XX/3-8512-XX flow sensors (only).
- Flow sensor and fitting purchased separately (see section 9).



5. FUNCTIONS



6. VIEW (example)

	1 Choose:	2 Change:	3 Save:
A.	32.57 gpm Flow rate		
B.	2s-GALx1000 00030599 Resettable total	OPTIONS = Reset? >	OPTIONS = Rst:----
C.	2s-00 Total 50990114 Permanent total	1. Press and hold 2s 2. 00000000	1. Press keys in sequence 2. Reset? > Press and hold 2s
D.	16.40 mA Loop output	To exit without changes: quick press	3. 00000000
E.	01-12-95 Last cal.		

7. CALIBRATE (example)

CAL.----- Press keys in sequence to continue:		
1 Choose:	2 Change:	3 Save:
A. H ↑ Contrst) >▶	Contrst4) Contrst1	 Press & hold 2s
Contrast Contrst) >▶	UNIT:gpm UNIT:m3h	
B. Flow UNITgpm) >▶	Unit/timebase: h,m,s,d	
C. Flow Kfactor) >▶	K=00680. K=2994.3	
D. Totalizer TotUnit) >▶	GALx1000 m3 x10	
E. Totalizer K-total) >▶	Kt2994.3 Kt2994.3	
F. Output 4 mA= >▶	0000.m3h 18.08m3h	
G. Output 20 mA= >▶	0020.m3h 127.5m3h	
H. Last calibration LastCal) >▶	02-09-99 01-12-95	
A ↓ To return to VIEW: quick press	To restore original value: quick press	Return to VIEW before removing power

Menu Functions A - H:

- A. Selects display contrast: 4 levels
- B. Sets flow units label (**gpm**) and timebase (**gpm**). Flow units label: A - Z, a - z, 0 - 9; Timebase options: s=seconds, m=minutes, h=hours, d=days (timebase effects flow display and 4 to 20 mA output)
- C. Sets flow K-factor: 000.01 to 99999. (see technical notes)
- D. Set totalizer units: For label purposes only
- E. Sets totalizer K-factor: 000.01 to 99999. (see technical notes)
- F. Sets 4 mA setpoint (4 mA and 20 mA setpoints are reversible)
- G. Sets 20 mA setpoint
- H. Sets user defined date

Technical notes:

Flow and totalizer K-factors are independent of each other. These K-factors represent the number of pulses generated by the +GF+ SIGNET flow sensor for each engineering unit measured (published in flow sensor manual).

8. OPTIONS (example)

OPT.----- Press keys in sequence to continue:		
1 Choose:	2 Change:	3 Save:
A. E ↑ Total=0) >▶	Lock: on Lock:off	 Press & hold 2s Return to VIEW before removing power
Totalizer Average) >▶	VIEW= VIEW=	
B. Display averaging Average) >▶	Avg: low Avg: hi low= τ=700 ms Avg: off hi= τ=3 s off= 100 ms	
C. Flow display Decimal) >▶	xx.xxm3h xxx.xm3h	
D. Output Adj 4mA) >▶	4.00 mA 3.98 mA	
E. Output Adj 20mA) >▶	20.00 mA 20.02 mA	
A ↓ To return to VIEW: quick press	To restore original value: quick press	

Menu Functions A - E:

- A. Selects totalizer reset options: Lock **on** (enables) or lock **off** (disables) the VIEW menu totalizer reset security code feature (RST: ----).
- B. Selects display averaging: off = 100ms, low= τ=700ms, hi= τ=3s (also affects 4 to 20 mA output).
- C. Selects display decimal: ****. to **.*
- D. Adjusts 4 mA output: 3.9 to 4.1 mA (overrides 4.00 mA factory calibration)
- E. Adjusts 20 mA output: 19.8 to 21.0 mA (overrides 20.00 mA factory calibration)

9. Accessories

Order no.	Description	Code
3-8010	Universal mounting kit, NPT ports	198 864 502
3-8010-D	Universal mounting kit, DIN ports	198 864 503
3-8011	Integral sensor mounting kit, NPT ports	198 864 500
3-8011-D	Integral sensor mounting kit, DIN ports	198 864 501
3-8510-PO	Integral sensor, 0.5 to 4 inch pipe, Polypropylene body & Titanium rotor pin	198 864 504
3-8510-P1	Integral sensor, 5 to 8 inch pipe, Polypropylene body & Titanium rotor pin	198 864 505
3-8510-VO	Integral sensor, 0.5 to 4 inch pipe - PVDF body & Hastelloy C rotor pin	198 864 506
3-8512-PO	Integral sensor, 0.5 to 4 inch pipe, Polypropylene body & Titanium rotor pin	198 864 513
3-8512-P1	Integral sensor, 5 to 8 inch pipe - Polypropylene body & Titanium rotor pin	198 864 514
3-8512-VO	Integral sensor, 0.5 to 4 inch pipe - PVDF body & Hastelloy C rotor pin	198 864 516
3-8512-TO	Integral sensor, 0.5 to 4 inch pipe - PVDF body & PVDF rotor pin	198 864 518

10. Specifications

General Data

Compatible Sensors: All current +GF+ SIGNET flow sensors
 Display Accuracy: Flow, $\pm 0.1\%$ of reading
 Totalizers, $\pm 0.03\%$ of reading

Enclosure:

- Rating: NEMA 4X/IP65
- Material: Glass-filled polypropylene
- Gasket: Silicone rubber (captive)
- Screws: 8-32, self-tapping (captive)

Display:

- Type: 8-digit alphanumeric dot matrix
- Update rate: Flow=1s, Totalizers=100 mS
- Contrast: Variable
- Ranges: Flow, 0.01 to 9999.
 Resettable/permanent totalizers, 0 to 99999999
 Loop current, 3.90 to 21.00 mA

Environmental

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

Quality Standards

- CE
- Manufactured under ISO 9001

Electrical Data

Frequency range: 0.5 Hz to 500 Hz
 Loop/system power: (2-wire mode) 17 to 30 VDC @ 20 mA max.
 (3-wire mode) 17 to 30 VDC @ 68 mA max.
 Sensor power: (2-wire mode) 5 VDC @ 1.5 mA max.
 (3-wire mode) 5 VDC @ 20 mA max.

Electrical Data

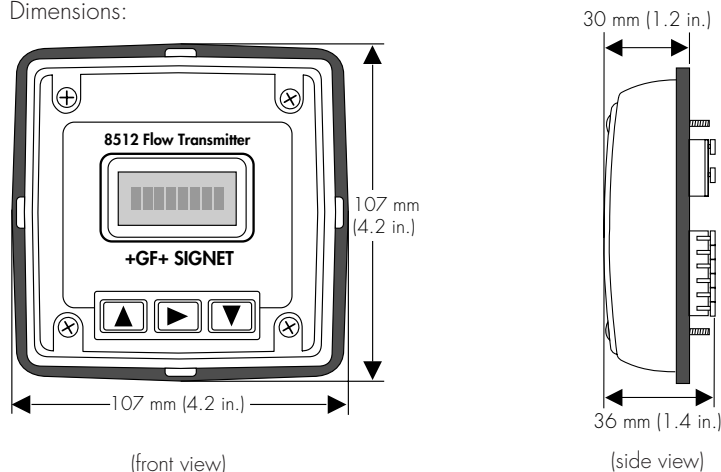
Loop:

- Impedance: 1 Ω max. @ 17 VDC,
 300 Ω max. @ 24 VDC,
 600 Ω max. @ 30 VDC
- Accuracy: ± 0.050 mA
- Resolution: 5 μ A
- Update rate: 100 ms


Outputs:

- Current: 4 to 20 mA (adjustable & reversible)
- Pulse output: Sensor frequency, optically isolated open-collector transistor, max. current sink 10 mA @ 30 VDC

Dimensions:



11. Troubleshooting

Display Message	Cause	Solution
OVER ^gpm	1) Input frequency too high 2) Display overrange 3) Display timebase too large	1) Reduce input frequency. 2) Move display decimal to right in OPTIONS menu. 3) Change display timebase (H,M,S,D) to smaller value (e.g. LPH to LPM).
K=0error	K-Factor cannot be zero	Change K-Factor to a non-zero value.
2s - Check ↳ Setup - 2s	Memory corrupted	Press  to restore normal operation. Settings will revert to factory default. Recalibration is required.

+GF+ SIGNET

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