

SM-200A Stack Monitor

Bulletin SS01042 Issue/Rev. 0.5 (2/19)

Smith Meter® PD Meter Accessories

The **Smith Meter® Stack Monitor** is a 200A Series Horizontal Non-Reset Counter equipped with a switch-type pulse transmitter to provide pulses proportional to meter throughput.

Features

- **Rugged and durable design.**
- **Explosion-Proof Switch** – Class I, Group D, Division 1 locations.
- **Zero-Velocity Pickup** – No flow detection and monitoring of potential accessory problems.
- **Optional Wheel Monitoring** – Either first, second, or third wheel can be monitored.

Principle of Operation

The Smith Meter® Stack Monitor combines a proximity switch with a 200A Series Counter and is normally mounted on a Smith Meter® Positive Displacement (PD) Meter. When product flows through the meter, the wheels of the counter rotate. The switch detects the rotation of a steel “target” molded into the first counter wheel and produces a switch closure at the rate of one pulse per revolution of that wheel. The stack monitor switch detects rotation of the first right-hand wheel.

Applications

The Smith Meter® Stack Monitor is primarily used in LACT installations to transmit a pulse output to a customer-supplied timed reset. When the LACT system pump is running, the timer must receive a pulse within a predetermined period of time. When a pulse is not received within the allotted time (indicating a “no flow” situation or accessory malfunction), the pump is automatically shut down. Intervention by alerted authoritative personnel is then required to restore system operation.



The stack monitor can also be used in other applications requiring a low-resolution pulse transmitter to interface with remote instrumentation or with complementary equipment such as additive injection systems or sampler pacers.

The number of pulses per unit of the 200A Series Counter is transmitted by the pickup switch located on the first wheel. For example, the stack monitor provides one pulse per barrel with the rotation of the first right-hand wheel of a Model 207A-B Horizontal Non-Reset Counter.

Specifications

Electrical Characteristics	
Switch Contact Rating (Resistive):	250 VAC, 1.5A or 250 VDC, 0.1A
Switch Contact Duty Cycle:	15% of rotation of designated counter wheel
Maximum Actuation Rate:	25 Hz.
Switch Arrangement:	Single-pole, double-throw (SPDT) Form C (Break-Before-Make).

Mechanical Characteristics

Ambient Temperature Range:	-22°F to 140°F (-30°C to 60°C)
Running Torque:	0.5 oz-in (0.4 N•cm) @ 40 rpm; 1.0 oz-in (0.7 N•cm) @ 200 rpm.
Shock	12 G's all planes.
Vibration:	5 G's @ 30 Hz all planes
Switch:	Electrical Safety Approvals Class I, Division 1, Groups C&D Class I, Zone 1, Ex d IIC UL File E79070

Ordering Information

Please Specify:

- Units of registration required.
- Pulse resolution required.
- Meter gearing ratio (e.g., 5:1 gallon, 1:1 barrel, etc.).

Modeling

Example: **SM — 207A-B — 1**

Basic Unit

SM - Stack Monitor

Counter Model¹/Units of Registration/Meter Gearing

204 A-G/Gallons/5:1 Gallon
 207A-B/Barrels/5:1 Gallon
 209A-B/Barrels/1:1 Gallon
 214A-G/Gallons/1:1 Gallon
 225A-B/Barrels/1:1 Barrel 1/10 Bbl. Registration
 227A-B/Barrels/1:1 Barrel 1/100 Bbl. Registration
 224A-L/Litres/1:1 Dekalitre

Pulse Output

1 - 1 Pulse Per Revolution of First RH Wheel

Meter Gearing

Volume Throughput per Revolution of Meter Output Shaft			
Meter Model	US Gallons ⁴	Barrels	Dekalitres
2" DuraFlow	1	—	—
2" T-11/I-75, T-11-NF	1	—	(1)
2" ST-40 ²	(1)	—	1
2.5" ST-75 ²	(1)	—	1
3" T-20/I-150, T-20-NF	1	—	(1)
3" ST-160 ²	(1)	—	1
4" T-40	5	—	(1)
2" SC-13, C2	5	—	(1)
3" SD-30, SD3-S1	5	—	(1)
3" E3 All	5	1 ³	(1)
3" SE-42 ²	(1)	—	1
4" E4-S1	5	1 ³	(1)
4" F4-V1	5	—	(1)

Volume Throughput per Revolution of Meter Output Shaft			
Meter Model	US Gallons ⁴	Barrels	Dekalitres
4" F4-S1, A1	5	(1)	(1)
4" F4-S3 to S7, A3	(5)	1	(5)
4" SF-60 ²	(1)	—	1
6" G6-S1, A1	5	(1)	(5)
6" G6-V1	5	—	(5)
6" G6-S3 to S7, A3	5 ³	1	(5)
8" H-8 All	(10)	1	(10)
10" JA10, JB10 All	5 ³	1	(10)
12" K12 All	(50)	1	(10)
16" M16 All	—	1	(50)
Non-Ferrous SD and ASD Series	5	—	(1)
Non-Ferrous SF, SG, ASF, ASG Series	5		(5)

¹ Additional counter models available

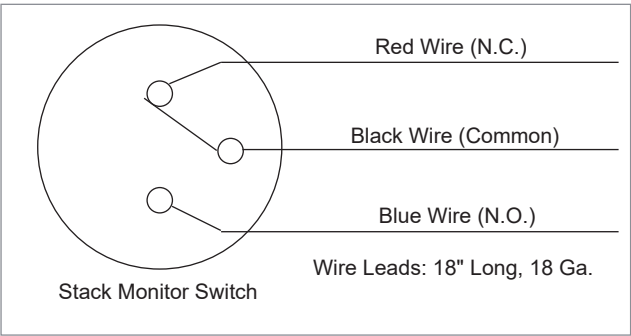
² European models only

³ Special

⁴ Gallons may be specified Imperial Gallons

() Available when specified.

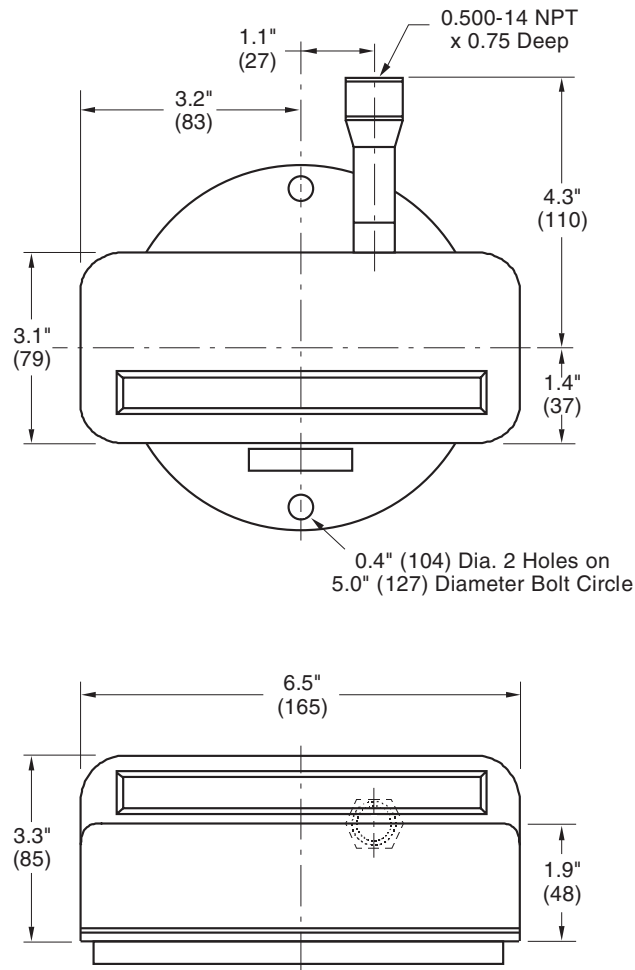
Wiring Diagram



Dimensions

Inches (Millimeters)

Note: Dimensions – inches to the nearest tenth (millimeters to the nearest whole mm), each independently dimensioned from respective engineering drawings.



Revisions included in SS01042 Issue/Rev. 0.5 (2/19):

Mechanical Characteristics Switch information has been updated. Modeling Code has been updated.

The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.