Impeller Products	SDI Series Battery Powered Flow Sensor	Technical Brief

The Data Industrial SDI Series impeller flow sensor offers accurate liquid flow measurement in closed pipe systems in an easy to install economical package. Impeller sensors offer a quick response to changes in flow rate and are well suited to flow control and batch type applications in addition to flow monitoring. The new four-bladed impeller design is rugged, non-fouling and does not require custom calibration.

The battery powered versions are a complete flow measuring system providing a programmable display of rate, total or both powered by a “C” sized lithium battery. Options include a scalable pulse output and a data logger.

Insert Sensors
SDI insert style flow sensors are intended for general flow measurement applications. They are available in either brass or stainless steel construction. The insert style sensors are intended for direct installation into pipelines through a 1” tap. The pipeline must be out of service and not under pressure at the time of installation. For any pipeline that is in service at the time of installation or cannot be de-pressurized and drained for service, Data Industrial recommends the use of our SDI hot tap models that are equipped with isolation valves.

Standard sensor stem lengths accommodate pipe sizes from 1½” through 10” in diameter or 12” through 36” depending on pipe material and tapping methods. Larger sizes usually require the use of hot tap models.

When the flow sensor is installed at the correct insertion depth and properly aligned, in pipe sections with at least 10 diameters of straight pipe upstream of the sensor and 5 diameters of straight pipe downstream, accuracies of +/-1 % of rate may be achieved.

Hot Tap Sensors
Hot tap sensors feature an isolation valve and mounting hardware to install or remove the sensor from a pipeline that would be difficult to shut down or drain. In a true “hot tap” installation the sensor is mounted in the pipe under pressure by attaching a service saddle or weld-on fitting to the pipe and mounting the isolating valve to the threaded connection. A hole is then cut in the wall of the pipe through the valve using a commercial tapping machine with a 1” size cutter. Once the hole is cut, the tapping machine is removed and the valve is shut. Then the sensor assembly is mounted to the isolation valve and extended into the pipeline to measure flow. Even in new construction a hot tap sensor may be appropriate for service considerations.

The Data Industrial hot tap sensor is constructed of 316 Stainless Steel and is rated for service to 1000 psi at 70° F (refer to Pressure vs. Temperature chart on page 2.) The sensor installs in a 1” NPT tap for both wet and dry installations. The small stem diameter allows the sensor to be inserted into the pressurized pipeline by hand without the need for an installation tool. The mounting hardware holds the sensor firmly in place at the correct depth and alignment.

Output Configuration
The scaled pulse is produced by an on-board micro-controller for precise, accurate outputs. This option may be programmed to produce a transistor closure scaled to any number of engineering units of measure. Sensors may be pre-programmed at the factory or field programmed using a Data Industrial A-303 connection cable and a Windows based software program. All information is stored in non-volatile memory in the flow sensor.

Display Options
The 8 character 3/8” LCD is mounted on the sensor visible through a lens at the top of the electronics housing.

An optional remote display is available where the LCD is located in a wall mount NEMA 4 enclosure. The remote may be connected to the flow sensor up to a maximum of 50 feet away using extension cables.

SPECIFICATIONS:

Wetted Materials
Sensor stem, mounting adapter, isolation valve, and nipple:
- 316 Stainless steel
- Brass, B16, UNS C36000

Sensor Tip:
- Polyphenylene sulfide (PPS)
- Polyetheretherketone (PEEK)

Maximum Temperature Ratings:
- +300°F (135°C) See Chart

O-rings, bearings,shaft:
- See ordering matrix

Operating temperature: Electronics:
- +14°F (20°C) - +150°F (65°C)

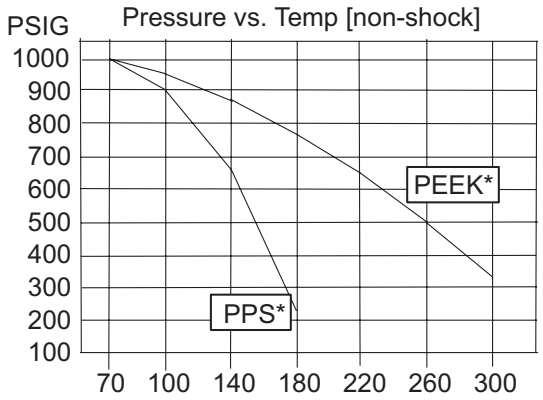
Operating temperature: LCD:
- 20°C - +65°C

Optimum Design Flow Range:
- 1 to 20 ft/sec
- Extended flow range < 0.3 to 20 fps

Pressure Drop:
- 0.5 psi or less @ 10 ft/sec for all pipe sizes 1.5" dia and up.

Accuracy:
- Standard: to +/- 1% of rate over optimum flow range
- Custom wet calibration: On request

Maximum Pressure Rating for SST Stem
(Note: PPS or PEEK Tip)



* Max. Pressure Temp. Ratings for Brass:
- 600 PSI up to 140°F
- 225 PSI up to 180°F

Straight Pipe Requirement:
- Install sensor in straight pipe section with a minimum distance of 10 diameters upstream and 5 diameters downstream to any bend, transition, or obstruction.

Repeatability:
+/- 0.5%

Enclosure - Sensor:
- Polypropylene with Viton® sealed acrylic cover. Meets NEMA 6P specifications

Enclosure - Remote:
- Polycarbonate w/ Neoprene® sealed cover. Meets NEMA 4X specifications.

Programming:
- All programmable models utilize Data Industrial A-303 connector cable and SDI Series software

Display:
- 8 character, 3/8" LCD
- STN (Super twisted Nematic) display
- Annunciators for: rate, total, totalizer multipliers, low battery

Accessories:
- ASDIB-20 Programming Kit
- A1027 Hot Tap Adapter Nipple
- 07101 5' Extension Cable
- 07108 10' Extension Cable
- 07102 20' Extension Cable
- 07109 50' Extension Cable

Options:
- Pulse Output
- Data Logger (not available in remote versions)

SDI Series Battery Operated Ordering Matrix

	SDI	0	D1	B	N	1	-	0	2	0	0
Material											
Stainless Steel/PPS Tip		0									
Brass/PPS Tip **(not available with hot tap)**		1									
Stainless Steel/PEEK Tip		2									
Type											
Direct Insert for Pipe 1-1/2" thru 10" *			D1								
Direct Insert for Pipe 12" thru 36" *			D2								
Direct Insert 36" and UP*			D3								
Hot Tap for Pipe 1-1/2" thru 10" *			H1								
Hot Tap for Pipe 12" thru 36" *			H2								
Hot Tap for Pipe 36" and UP *			H3								
Electronic Housing											
Battery Powered/NEMA 6				B							
Output											
No Output					N						
Scaled Pulse					2						
Scaled Pulse Data Logger					7						
Display											
LCD Option						1					
Remote Display/NEMA 4X						2					
O-Ring											
Viton®								0			
Shaft											
Tungsten Carbide [Standard]									2		
Hastelloy® C-276 [optional - consult factory]									1		
Zirconia Ceramic [optional - consult factory]									0		
Impeller											
Stainless Steel										0	
Bearing											
Torlon®											0

*Pipe size for reference only. Depending on pipe material, tapping saddle, or existing hardware, longer sensor length may be required.

For material details, consult the factory.

Data Industrial®
A BadgerMeter, Inc. Company

Please see our website at **www.dataindustrial.com**
for specific contacts.

Due to continuous research, product improvements and enhancements, Data Industrial reserves the right to change product or system specifications without notice, except to the extent an outstanding bid obligation exists.

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