Pelton Wheel Flow Sensor

DPM

- Flow Range: 0.24...4.8 GPH to 0.8...80 GPH
- Brass or Stainless Steel Bodies
- Frequency Pulse or 4-20 mA Outputs
- Long-Life Sapphire Axle/Bearing Assembly
- Compact Design

03/10-2014

Description
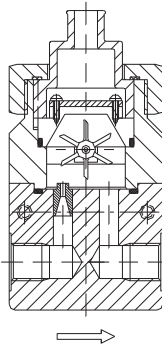
The DPM Series flow sensor uses the pelton wheel principle to measure the flow of water and water-based, low-viscosity liquids that are optically transparent. Liquid passes through a nozzle at the inlet of the flow body and is precisely directed onto a flat-blade pelton turbine. The flow sensor's pelton turbine wheel rotates at a speed proportional to flow rate. The movement of the pelton wheel is detected optically, and the signal from the optical sensor is processed as an amplified pulse or 4-20 mA signal, both of which are proportional to flow rate. In addition to the DPM Series pelton wheel flow sensor's compact design, the inlet flow is redirected via a nozzle; therefore, no inlet or outlet straight piping is required and allows the unit to be mounted in any orientation with the axle remaining in the horizontal plane. These features make the DPM Series flow sensor ideal for mounting in locations where space is tight.

Specifications

Accuracy

DPM..K000 & DPM..F300:	±2.5% of f. s.
DPM..L, DPM..C & DPM..Z:	±1.5% of f. s.
Maximum Pressure:	230 PSIG
Operating Temperature:	-10...176 °F
Electrical Protection:	IP 65

Materials of Construction

Housing:	316L SS or Ni-Plated Brass depending on model number
Nozzle:	316L SS
Axle/Bearing:	Sapphire
Pelton Wheel:	Polypropylene
Receiver:	Polysulfone
O-ring:	NBR for Brass housings, FKM for 316L SS housings

Electrical Specifications

Frequency Output

Output Type

DPM..K000:	NPN, open collector, 10 mA max.
DPM..F300:	PNP, open collector, 25 mA max.

Input Power

DPM..F300:	24 V_{DC} ±20%
DPM..K000:	4.5-12 V_{DC}
Frequency Range:	Based on model number

Electrical Connection

DPM..K000:	5 ft. PVC cable
DPM..F300:	Micro-DC plug, 4-pin male

4-20 mA Output

Output Type:	4-20 mA, 3-wire
Max. Loop Load:	500 ohms
Power Requirement:	±24 V_{DC} 20%
Electrical Protection:	IP 65
Electrical Connection:	Micro-DC plug, 4-pin male or DIN 43650 (Hirschmann) plug

Compact Electronics

Output Types:	Analog output with 1 open collector switch or 2 open collector switches
Analog Output:	4-20 mA, 3-wire RL<500 ohms
Switch Type:	PNP open collector based on ordering code
Switch Rating:	300 mA Max. short circuit protected
Power Requirement:	24 V_{DC} ±20%
Display Type:	3 digit LED
User Programmable Functions:	Transmitter span, switch setpoint, lockout code
Housing:	304 SS
Electrical Connection:	M-12 Micro-DC plug, 5-pin male

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No responsibility taken for errors; subject to change without prior notice.

Order Details (Example: **DPM-1170 N1 K000**)

Range Water [GPH]	Approx Frequency [Hz] at Max Flow	DP at Max. Flow [PSI]	Housing Material		Fitting Size	Output/Electronics
			Brass	316L SS		
0.24...4.8	165	13.5	**DPM-1153..**	DPM-1553..	..**N1..** = 1/8" NPT ..**N2..** = 1/4" NPT ..**G1..** = G 1/8 ..**G2..** = G 1/4	..**K000** = OEM Frequency Output with 5 ft. PVC Cable ..**F300** = Frequency Output Micro-DC Plug ..**L343** = 4-20 mA, 3-Wire Output with Micro-DC Plug ..**L443** = 4-20 mA, 3-Wire Output with DIN 43650 Plug ..**C34P** = Compact Electronics, 4-20 mA , 1 PNP Switch ..**C30R** = Compact Electronics, 2 PNP Switches ..**Z340** = Analog Indicator + 4-20 mA, 3-Wire
0.8...11.1	228	16.8	**DPM-1157..**	DPM-1557..		
0.8...15	217	17.7	**DPM-1160..**	DPM-1560..		
0.8...30	344	13.2	**DPM-1170..**	DPM-1570..		
0.8...48	372	8.8	**DPM-1180..**	DPM-1580..		
0.8...60	415	8.3	**DPM-1190..**	DPM-1590..		
0.8...80	439	8.3	**DPM-1195..**	DPM-1595..		

Accessories: Part Number **807.037** = Mating 4 pin Micro-DC connector with 6 ft. cable for output ..F300 & ..L343
Part Number **807.007** = Mating 5 pin Micro-DC connector with 6 ft. cable for output ..C34P, ..C30R & ..Z340
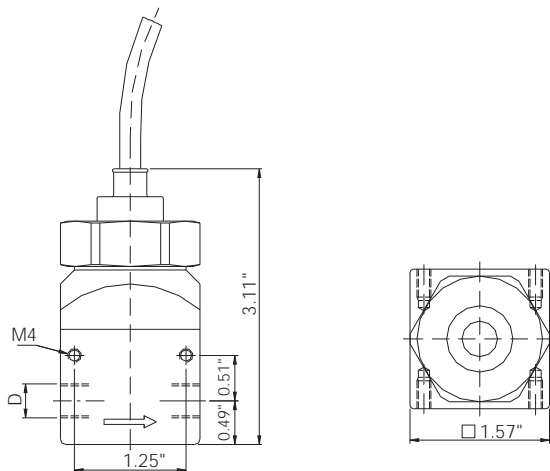
Plug-On Display: for Model DPM-..L443 (4-20 mA Output, DIN Plug Connector)

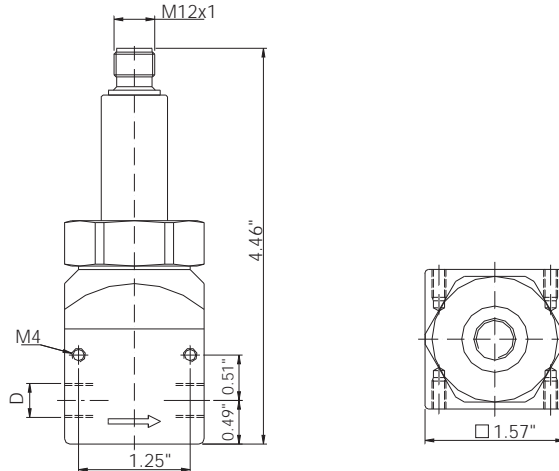| Description	Model Number
4-Digit LED, Plug Connector DIN 43 650, 3-wire, Power Supply Via Analog Output	**AUF-3000**

Dimensions

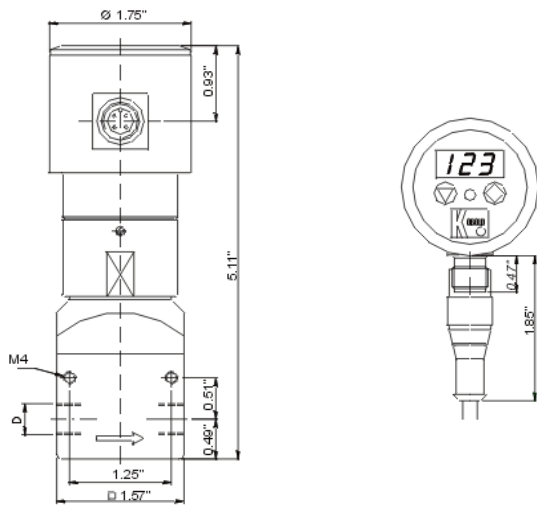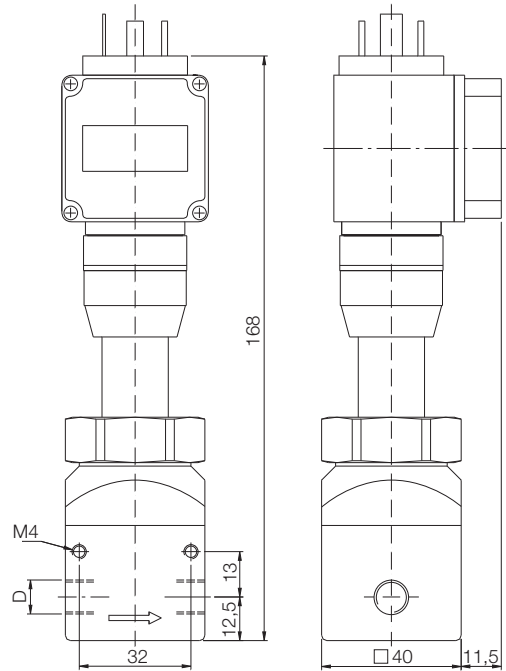**DPM with Frequency Output (..K000)**   **DPM with Micro-DC Plug (..F300, ..L343)**

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Dimensions

DPM with Compact Electronic (..C30R, ..C34P)

DPM with ..L443 Output (Shown with AUF-3000 Display)

DPM with Analog Output and Pointer Indicator (..Z340)

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