OEM Pelton Wheel Flow Sensor

KOBOLD

measuring • monitoring • analyzing

DTK

- Measuring Range: 0.8...9.5 to 16...190 GPH Water
- Measures Clear or Opaque Liquids
- Stainless Steel Body
- Pelton Wheel Design Requires No Inlet or Outlet Straight Run
- ± 2% of Full Scale Accuracy
- High Volume OEM Discounts Available

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01/04-09-2018

Description

The DTK series Pelton wheel flow sensor measures and monitors low viscosity liquids. This compact pelton wheel design requires no inlet or outlet straight piping runs, allowing the device to be installed in locations where space is at a premium. The DTK employs a very simple design. A nozzle built into the inlet fitting directs flow into an impeller with embedded permanent magnets. Impeller rotation is detected by a Hall effect sensor as liquid flow causes the paddle to rotate. The sensor generates a pulse each time a magnet passes. The pulse frequency is directly proportional to flowrate. The Pelton wheel design provides a very repeatable and linear output. The DTK is available with a stainless steel body allowing it to be used with a wide variety of aggressive liquids. Common areas of application include: volume dosing with external electronics, laundry machines, PCB manufacturing machines, and agricultural machinery.

Technical Data

Measuring Accuracy: ± 2% of Full Scale
± 5% of Full Scale (OEM-Version)
Linearity: ±1% of Full Scale
Repeatability: ± 0.25 % of Measured Value
Media Temperature: 5...176 °F
5...284 °F (DTK-..0S00)
Ambient Temperature: 5...140 °F
Max. Pressure: 430 PSIG

Materials

Housing: 304 Stainless Steel
Orifice: 316L Stainless Steel
Axle: 316L Stainless Steel
Rotating Vane: PVDF
Gasket: FKM

Connection: ¼" NPT Female Thread or
G¼ Female Thread
Installation Position: Horizontal
Protection: IP65

Electrical Data

OEM Frequency Output (DTK-..0x00) without CE-Mark

Power Supply: 4-24 V_{DC}
Current Input: typ. 5 mA
Pulse Output: NPN, Max. 20 mA,
Open Collector
Electr. Connection: 5 foot PVC Cable
5 foot Silicone Cable
Plug Connector DIN 43650

DTK-..F300

Power Supply: 12-28 V_{DC}
Current Input: 10 mA
Pulse Output: PNP, Open Collector, Max. 20 mA
Electr. Connection: Plug Connector M12x1

DTK-..F390

Power Supply: 24 V_{DC} ± 20%
Current Input: 15 mA
Pulse Output: PNP, Open Collector, Max. 20 mA
Frequency Divider: 1...$^{1}/_{128}$, Factory Setting
Electrical Connection: Plug Connector M12x1

DTK-..L343

Power Supply: 24 V_{DC} ± 20%
Output: 4-20 mA, 3-wire
Max. Load: 500 Ω
Electrical Connection: Plug Connector M12x1

Compact Electronics

Display: 3-Segment LED
Analog Output: 4...20 mA Adjustable,
Max. 500 Ω
Switching Outputs: 1 (2) Semiconductor PNP or NPN,
Factory set
Contact Operation: N/C / N/O Contact Frequency
Programmable
Setting: Via 2 Buttons
Power Supply: 24 V_{DC} ± 20%, 3-wire Technology
Approx. 100 mA
Electr. Connection: Plug Connector M12x1

AUF-4000 (Option for DIN Plug Connector)
(Can only be Calibrated with Factory-Mounted Sensor)

Display: 4-segment, Red LED
Temperature Range: -4...176 °F
Power Supply: 24 V_{DC} ± 20%
Input: Pulses from DTK
(NPN-Hall Effect Sensor)
Output: 4-20 mA, 3-wire
Load: 250 Ω

Order Details: Measuring Range in LPM (Example: **DTK-1210 G2 C34P**)

Measuring Range (L/min)	Orifice Ø (mm)	Frequency at Max. Flow	Pressure Loss at Max. Flow	Model	Connection	Evaluating Electronics
0.05...0.6	1.0	21 Hz	1.0 bar	**DTK-1210..**	**..N2..**= 1/4" NPT **..G2..**=G 1/4	**OEM Frequency Output without CE** **..0P00** = NPN, 5 foot PVC Cable **..0S00** = NPN, 5 foot Silicone Cable **..0400** = NPN, Plug Connector DIN 43650 **Frequency Output** **..F300** = Plug Connector M12x1, PNP **..F320** = Plug Connector M12x1, PNP, Divider 1:2 **..F340** = Plug Connector M12x1, PNP, Divider 1:4 **..F390** = Plug conn. M12x1, PNP, Divider 1...$^{1}/_{128}$ **Analog Output** **..L343** = Plug Connector M12x1, 4-20 mA, 3-wire **Compact Electronics** **..C30R** = Compact Electronics, 2xPNP, Plug M12x1 **..C30M** = Compact Electronics, 2xNPN, Plug M12x1 **..C34P** = Compact Electronics, 4-20mA, 1xPNP **..C34N** = Compact Electronics, 4-20mA 1xNPN
0.1...1.3	1.5	30 Hz	1.0 bar	**DTK-1215..**		
0.2...2.0	1.8	36 Hz	1.1 bar	**DTK-1218..**		
0.3...3.5	2.5	41 Hz	0.9 bar	**DTK-1225..**		
0.3...5.0	3.0	47 Hz	0.9 bar	**DTK-1230..**		
0.5...7.0	3.5	51 Hz	1.0 bar	**DTK-1235..**		
0.5...10	5.0	50 Hz	1.0 bar	**DTK-1250..**		
1.0...12	6.0	44 Hz	0.9 bar	**DTK-1260..**		
Accessories	**807.037** = Mating 4-Pin Micro-DC plug with 6 Ft. cable for output F300, F320, F340, F390, & L343 **807.007** = Mating 5-pin Micro-DC plug with 6 Ft. cable for output C30M, C30R, C34N, & C34P					

Order Details: Measuring Range in GPH (Example: **DTK-12U1 N2 C34P**)

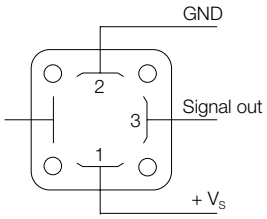
Measuring Range (GPH)	Orifice Ø (mm)	Frequency at Max. Flow	Pressure Loss at Max. Flow	Model	Connection	Evaluating Electronics
0.8...9.5	1.0	21 Hz	14.5 PSI	**DTK-12U1..**	**..N2..**= 1/4" NPT **..G2..**=G 1/4	**OEM Frequency Output without CE** **..0P00** = NPN, 5 foot PVC Cable **..0S00** = NPN, 5 foot Silicone Cable **..0400** = NPN, Plug Connector DIN 43650 **Frequency Output** **..F300** = Plug Connector M12x1, PNP **..F320** = Plug Connector M12x1, PNP, Divider 1:2 **..F340** = Plug Connector M12x1, PNP, Divider 1:4 **..F390** = Plug conn. M12x1, PNP, Divider 1...$^{1}/_{128}$ **Analog Output** **..L343** = Plug Connector M12x1, 4-20 mA, 3-wire **Compact Electronics** **..C30R** = Compact Electronics, 2xPNP, Plug M12x1 **..C30M** = Compact Electronics, 2xNPN, Plug M12x1 **..C34P** = Compact Electronics, 4-20mA, 1xPNP **..C34N** = Compact Electronics, 4-20mA 1xNPN
1.6...21	1.5	30 Hz	14.5 PSI	**DTK-12U2..**		
3.2...32	1.8	36 Hz	15.6 PSI	**DTK-12U3..**		
5.0...55	2.5	41 Hz	13.1 PSI	**DTK-12U4..**		
5.0...80	3.0	47 Hz	13.1 PSI	**DTK-12U5..**		
8.0...110	3.5	51 Hz	14.5 PSI	**DTK-12U6..**		
8.0...160	5.0	50 Hz	14.5 PSI	**DTK-12U7..**		
16...190	6.0	44 Hz	13.1 PSI	**DTK-12U8..**		
Accessories	**807.037** = Mating 4-Pin Micro-DC plug with 6 Ft. cable for output F300, F320, F340, F390,& L343 **807.007** = Mating 5-pin Micro-DC plug with 6 Ft. cable for output C30M, C30R, C34N, & C34P					

Plug-On Display: for Model **DTK-..0400** (with DIN Plug Connector)

Description	Order Number
Display: 4-segment, Red LED **Input:** Pulses of DTK (NPN-Hall Effect Sensor), **Power Supply:** 24 V_{DC} **Output:** 4-20 mA, 3-wire, (Max. 250 Ω) **Plug Connector:** DIN 43650 **Calibration:** Only with Factory-Mounted Sensor	**AUF-4000**

Electrical Connection

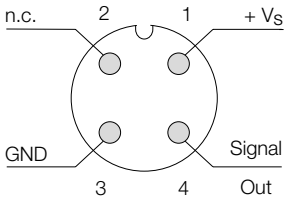
Plug Connection
DTK-..0400



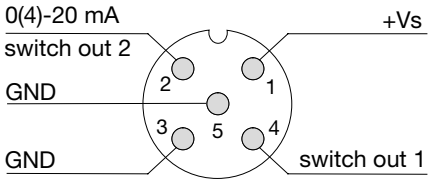
Cable Connection
DTK-..0P00; DTK-..0S00

White: + V_S
Brown: GND
Green: Signal

Plug Connection
DTK-..F3; DTK-..L3

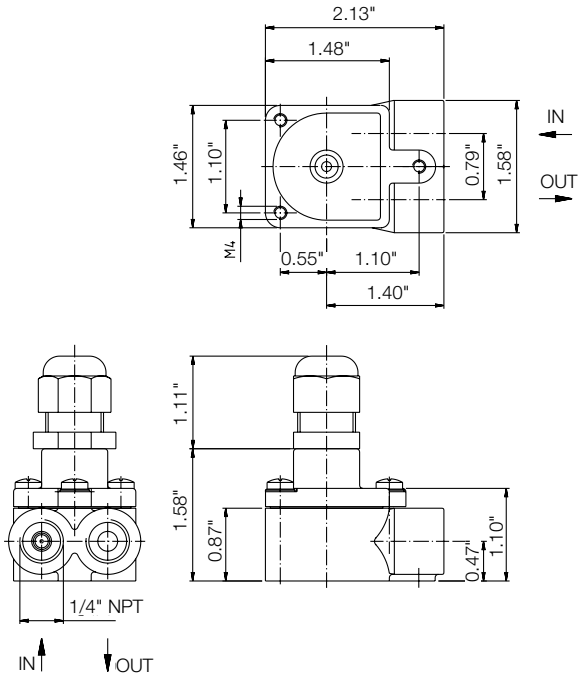


DTK-..C..

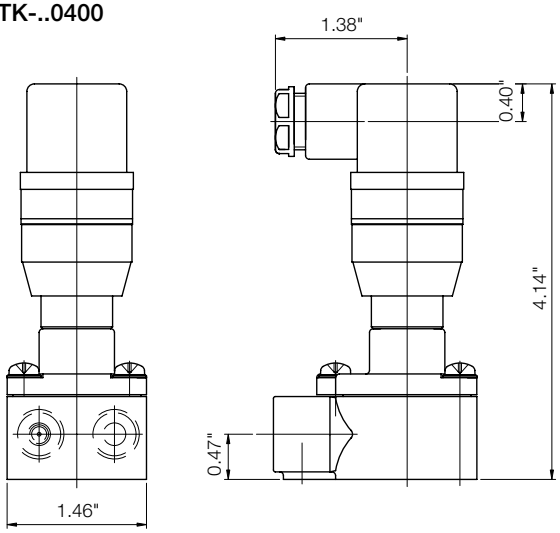


Dimensions

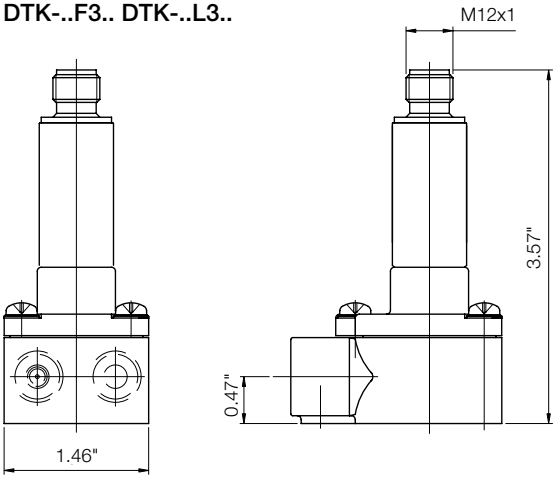
DTK-..0P00; DTK-..0S00



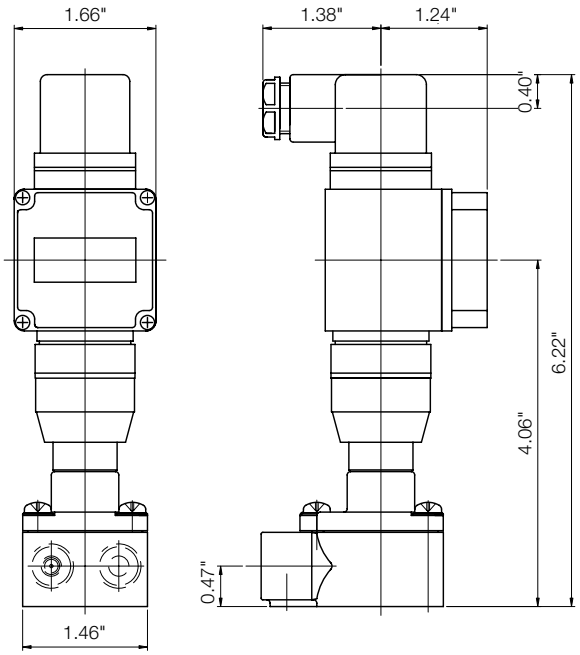
DTK-..0400



DTK-..F3.. DTK-..L3..



DTK-..0400 with AUF-4000



DTK-..with Compact Electronic