

DPT TARGET TYPE FLOWMETERS



Flow
Pressure
Level
Temperature
measurement
monitoring
control



- Patented Target/Leaf-Spring Design
- Minimal Wear Components
- 1.5-8 to 225-500 GPM Water
- 6-30 to 260-1650 SCFM Air
- Line Sizes 3/8" to 3"
- Wide Variety of Wetted Materials
- Accuracy +/- 3% of Full Scale

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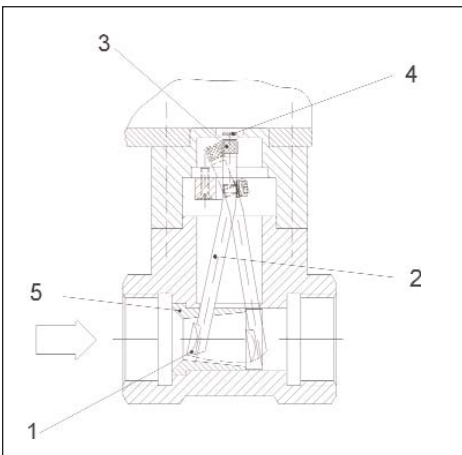
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Model:
DPT

Features

- Patented Target/Leaf-Spring
- Minimal Wear Components
- 1.5-8 to 225-500 GPM Water
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- Line Sizes 3/8" to 3"
- Wide Variety of Wetted Materials
- Accuracy $\pm 3\%$ of Full Scale

The DPT series uses a unique, patented target system to measure the flows of liquids and gases. This design uses a single leaf-spring to both suspend the target and to provide the target resetting force. The use of a single leaf-spring is a simple, reliable design which allows for operation with virtually no wear.



DPT Series Measuring Principle

The mechanism consists of a target plate (1) and lever arm (2). Fluid flow causes the target plate and lever arm to deflect against the leaf-spring. A permanent magnet (3) attached to the lever arm and Hall effect sensor (4) mounted inside the display unit translate the angular motion of the target to an electrical signal. The signal from the Hall effect sensor is used by the electronic indicators to provide a flowrate display, adjustable setpoint switches or an analog flow signal.

The DPT series is available in bronze or stainless steel bodies from 3/8 inch through 3 inches. The target plate measuring system offers a very low head loss and is immune to problems caused by fluids with high solids content.



DPT Series Target Type Flowmeter

Specifications

- Flow Range:**
Liquids: 1.5-8 GPM through 225-500 GPM water
Gases: 6-30 SCFM through 260-1650 SCFM air

- Accuracy:** $\pm 3\%$ of full scale
Repeatability: $\pm 1\%$ of full scale

Straight Piping Requirements

- Inlet:** 10 X Diameter
Outlet: 5 X Diameter

- Operating Temperature:** -10 to 176°F

- Maximum Pressure:** 580 PSIG @ 70°F

- Custom Calibrations:** Can be calibrated for compressed gases or liquid density and viscosity

Wetted Materials

- Bronze Versions:** Bronze, 316-Ti stainless steel, buna-N, ceramic

- Stainless Steel Versions:** 316-Ti stainless steel, viton, ceramic

Displays and Controllers:

- DPT-C:** Compact LED display with switch and 4-20 mA flow transmitter

- DPT-B:** LED bargraph display with 2 adjustable SPDT setpoint relays

- DPT-D:** LED digital display with 2 adjustable SPDT setpoint relays and 4-20 mA flow transmitter

- DPT-K:** LED digital and bargraph display with 2 adjustable SPDT setpoint relays and 4-20mA flow transmitter



DPT-C Compact Electronics

Specifications DPT-C

- Programmable Functions:** Lockout code, switch logic, switch setpoint and hysteresis, dampening
- Input Power:** 24 VDC \pm 20%, 80 mA Max.
- Display:** 3 digit LED
- Switch Type:** PNP open collector
- Switch Rating:** 300 mA Max. short circuit protected
- Analog Output:** 4-20 mA, 3-wire $R_L=500$ Ohms Max.
- Housing:** 304 SS, NEMA 4X
- Electrical Connection:** Micro-DC, male, 5-pin plug

Specifications DPT-D

- Input Power:** 115 VAC
- Display:** 3-1/2 digit LED
- Relays:** 2 SPDT 5 amps @ 230 VAC
- Analog Output:** 4-20 mA, 4-wire, $R_L=500$ Ohms Max.
- Housing:** Epoxy coated aluminum, polycarbonate, NEMA 4X/IP 65
- Electrical Connection:** Cable gland, PG-13.5



DPT-D Display/Controller

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DPT-B Display/Controller

Specifications DPT-B

- Input Power:** 115 VAC
- Display:** LED bargraph, 270°
- Relays:** 2 SPDT 5 amps @ 230 VAC
- Analog Output:** None available
- Housing:** Epoxy coated aluminum, polycarbonate, NEMA 4X/IP 65
- Electrical Connection:** Cable gland, PG-13.5

Specifications DPT-K

- Input Power:** 115 VAC
- Display:** 3-1/2 digit LED and bargraph 270°
- Relays:** 2 SPDT 5 amps @ 230 VAC
- Analog Output:** 4-20 mA, 4-wire, $R_L=500$ Ohms Max.
- Housing:** Epoxy coated aluminum, polycarbonate, NEMA 4X/IP 65
- Electrical Connection:** Cable gland, PG-13.5



DPT-K Display/Controller



Ordering Codes For Liquid Flowmeters

Range GPM	Material		Fitting	Housing Styles	
	Bronze	Stainless Steel		Indication	Flow Direction
1.5-8 3-12.5	DPT-1107H DPT-1112H	DPT-1207H DPT-1212H	N3 = 3/8" NPT	C34P = Compact Electronic D442 = Digital Display B402 = Bargraph Display K442 = Digital & Bargraph	LT = Flow from left to right RT = Flow from right of left
1.5-8 3-18	DPT-1114H DPT-1122H	DPT-1214H DPT-1222H	N4 = 1/2" NPT		
1.7-15 5-25	DPT-1124H DPT-1132H	DPT-1224H DPT-1232H	N5 = 3/4" NPT		
5-20 20-35	DPT-1134H DPT-1142H	DPT-1234H DPT-1242H	N6 = 1" NPT		
15-45 25-60	DPT-1144H DPT-1152H	DPT-1244H DPT-1252H	N8 = 1-1/2" NPT		
25-120 40-200	DPT-1154H DPT-1162H	DPT-1254H DPT-1262H	N9 = 2" NPT		
175-400 225-500	DPT-1164H DPT-1172H	DPT-1264H DPT-1272H	NB = 3" NPT		

Example: DPT1164HNBC34PLT

Ordering Codes For Gas Flowmeters

Range SCFM air	Material		Fitting Steel	Housing Styles	
	Bronze	Stainless		Indication	Flow Direction
6-30 15-60	DPT-1107L DPT-1112L	DPT-1207L DPT-1212L	N3=3/8" NPT	C34P = Compact Electronic D442 = Digital Display B402 = Bargraph Display K442 = Digital & Bargraph	LT = Flow from left to right RT = Flow from right of left
8-25 20-70	DPT-1114L DPT-1122L	DPT-1214L DPT-1222L	N4=1/2" NPT		
6-50 11-70	DPT-1124L DPT-1132L	DPT-1224L DPT-1232L	N5=3/4" NPT		
6-70 45-125	DPT-1134L DPT-1142L	DPT-1234L DPT-1242L	N6=1" NPT		
50-115 55-225	DPT-1144L DPT-1152L	DPT-1244L DPT-1252L	N8=1-1/2" NPT		
85-525 150-725	DPT-1154L DPT-1162L	DPT-1254L DPT-1262L	N9=2" NPT		
180-1300 260-1650	DPT-1164L DPT-1172L	DPT-1264L DPT-1272L	NB=3" NPT		

Example: DPT-1172LNBC34PLT

DIMENSIONS

DPT...C Compact Electronics

**Compact Electronics
DPT...C**

Fitting	B	C	D
3/8" NPT	3.07"	27mm	5.43"
1/2" NPT	3.07"	27mm	5.43"
3/4" NPT	3.07"	41mm	5.43"
1" NPT	3.07"	41mm	5.43"
1-1/2" NPT	3.07"	55mm	6.10"
2" NPT	3.20"	70mm	6.18"
3" NPT	4.17"	100mm	6.85"

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DIMENSIONS

Electronic Display/Controller DPT...B, D, K			
Fitting	A	B	C
3/8" NPT	7.32"	3.07"	27mm
1/2" NPT	7.32"	3.07"	27mm
3/4" NPT	7.32"	3.07"	41mm
1" NPT	7.32"	3.07"	41mm
1-1/2" NPT	8.0"	3.07"	55mm
2" NPT	8.0"	3.20"	70mm
3" NPT	8.74"	4.17"	100mm



<p>DPT Series Flowmeters Application Guide Form # DPT-001 Rev. 11/03/03</p> <p style="text-align: right;">FAX to: KOBOLD Instruments Inc. 412-788-4890 (USA) 514-428-8899 (Canada)</p>	<p>Customer Name: _____</p> <p>Company Name: _____</p> <p>Phone: _____</p> <p>Fax: _____</p>
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Quote #: _____ Date: _____ Price: _____ Each

Part Number: _____ * To ensure fast order processing, please retain the completed quote form and send it along with your purchase order.

Calibrated Measuring Range: _____

Design Conditions

Accurate design pressure and temperature are essential to ensure the flowmeter will be built to operate without damage. Please fill out accurately and completely.

List Design Conditions

- 1. **Pressure:** Maximum _____ PSIG
- 2. **Temperature:** Maximum _____ °F

Calibration Conditions: Accurate calibration conditions are required to ensure that the flowmeter will be factory calibrated to give accurate readings at the user's **normal operating conditions**. Please fill out accurately and completely.

Calibration Conditions for Liquid Flow Applications

- 1. **Type of Liquid:** _____
- 2. **Normal Operating Temperature:** _____ °F
- 3. **Viscosity at Normal Operating Temp:** _____
- 4. **Specific Gravity at Normal Operating Temp:** _____
- 5. **Desired Measuring Range and Units:** _____

Note: Items 3 & 4 not required for water flow

Calibration Conditions for Gas Flow Applications

- 1. **Type of Gas:** _____
- 2. **Normal Operating Temperature:** _____ °F
- 3. **Normal Pressure at Outlet Fitting:** _____ PSIG
- 4. **Specific Gravity (required for gas mixes only):** _____
- 5. **Desired Measuring Range and Units:** _____

Note: The calibration pressure required is the pressure that the meter sees at its outlet fitting.

Flowmeter Options

- 1. **Body Material:** Bronze w/ Buna-N Seal 316 SS w/ Viton seal
- 2. **Desired Fitting Size:** 1/2" NPT 3/4" NPT 1" NPT 1-1/2" NPT 2" NPT 3" NPT
- 3. **Flow Direction:** Left to Right Right to Left Flow Up Dial on Right
 Flow Up Dial on Left Flow Down Dial on Right Flow Down Dial on Left

Indicator Options:

- 1. **Compact Electronics (DPT-C)**
 2 PNP switches 2 NPN switches
 4-20 mA + 1 PNP 4-20 mA + 1 NPN
- 2. **Bargraph Display/Controller (DPT-B)**
Input Power (specify): _____
Relays: None 2 SPDT relays

- 3. **Digital Display/Controller (DPT-D)**
Input Power (specify): _____
Output: None 4-20 mA
Relays: None 2 SPDT relays
- 4. **Digital & Bargraph Display/Controller (DPT-K)**
Input Power (specify): _____
Output: None 4-20 mA
Relays: None 2 SPDT relays