

## DRZ SERIES PISTON TYPE POSITIVE DISPLACEMENT FLOWMETER



Flow  
Pressure  
Level  
Temperature  
measurement  
monitoring  
control



- Flow Range 1.6 to 110 GPH
- Accurate Measurements for Lubricating Media
- Economical Brass Construction
- Accuracy  $\pm 1\%$  Reading

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Model:  
DRZ

## Features

- Flow Range 1.6 to 110 GPH
- Accurate Measurements of Lubricating Media
- Economical Brass Construction
- Accuracy  $\pm 1\%$  Reading

The KOBOLD DRZ series rotary piston positive displacement flowmeter combines economy with high performance. The DRZ series is designed to measure any clean liquid with lubricating properties and viscosity ranging from 5 to 100 centistoke. The unique design uses a single piston rotating on a camshaft to meter very precise volume of liquid with each rotation of the piston. Piston rotation is detected by a Hall effect sensor. The signal is processed by electronics into a blind pulse output (PNP or NPN based on model ordered) or a full featured controller with flowrate indication, analog output and switches.

An economical brass body is rugged and provides a pressure rating to 580 PSIG. The DRZ has a low pressure drop of 20 PSI maximum.

Use the DRZ with lubricating media such as:

- Lubricating oil
- Diesel fuel
- Glycol mixtures
- Waxes/pastes
- Paint
- Latex polymers
- Sugar solutions
- Detergents

## Specifications

**Area of Application:** Low and medium viscosity liquids which have some lubricating properties

**Measuring Range:** 1.6-110 GPH

**Max. Throughput:** 160 GPH

**Accuracy:**  $\pm 1.0\%$  of reading

**Repeatability:**  $\pm 0.2\%$  of reading

**Viscosity Range:** 5-100 cSt

**Process Temp. Range:**  $-4^{\circ}\text{F}$  to  $+176^{\circ}\text{F}$



**Ambient Temp. Range:**  $-4^{\circ}\text{F}$  to  $+140^{\circ}\text{F}$

**Max. Pressure:** 580 PSIG

**Max. Differential Pressure:** 20 PSI

**Wetted Materials:** Brass, aluminum, Acetal, Viton

**Req. Filtration:** 150 mesh or better

## Electrical Specifications

**Output Type 0000 = OEM NPN Pulse**

**Power Requirement:** 5-24 VDC @10 mA Max.

**Output:** NPN Open Collector

**Max. Output Load:** 15 mA

**K-factor:** 1633 pulses/gal.

**Elec. Protection:** NEMA 4X/IP65

**Elec. Connection:** DIN 43650 Plug

Note: May be combined with AUF-4000 to provide LED display with 2-wire 4-20 mA output

**AUF-4000 pulse to 4-20 mA converter with display**

**Power Requirement:** 14-30 VDC

**Input:** Pulse

**Output:** 4-20 mA, 2-wire

**Max. Output Load:** 250 ohms

**Elec. Protection:** NEMA 4X/IP65

**Elec. Connection:** DIN 43650 Plug

**Output Type F300 = PNP Pulse**

**Power Requirement:** 24 VDC  $\pm 20\%$  @ 10 mA Max.

**Output:** PNP Open Collector

**Max. Output Load:** 25 mA

**K-factor:** 1633 pulses/gal.

**Elec. Protection:** NEMA 4X/IP65

**Elec. Connection:** Micro-DC, 4 pin male

**Output Type F3X0 = PNP pulse with frequency divider**

**Power Requirement:** 24 VDC  $\pm 20\%$  @ 10 mA Max.

**Output:** PNP Open Collector

**Max. Output Load:** 25 mA

**Elec. Protection:** NEMA 4X/IP65

**Elec. Connection:** Micro-DC, 4 pin male

**Output Type L303, L343 = (0)4-20 mA**

**Power Requirement:** 24 VDC  $\pm 20\%$  @ 10 mA Max.

**Output:** 3-wire 0-20 mA or 4-20 mA depending on model code

**Max. Output Load:** 500 ohms

**Elec. Protection:** NEMA 4X/IP65

**Elec. Connection:** Micro-DC, 4 pin male

**Output Type C30M, C30R, C34N, C34P compact electronics**

**Housing Material:** 303 stainless steel

**Power Supply:** 24 VDC  $\pm 20\%$

**Display:** 3 digit LED

**Output Types:** Analog output +1 switch or 2 switches based on model code

**Analog Output:** 4-20 mA, 3-wire Rloop < 500 ohms

**Switch:** PNP or NPN open collector, 300 mA max.

**Elec. Protection:** NEMA 4X/IP65

**Elec. Connection:** Micro-DC, 5 pin male

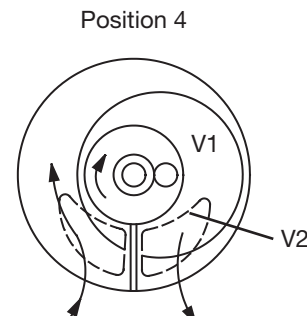
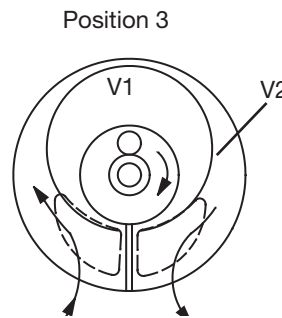
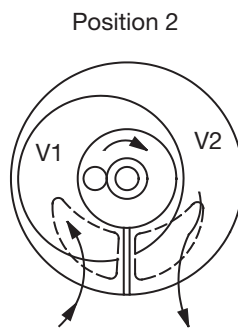
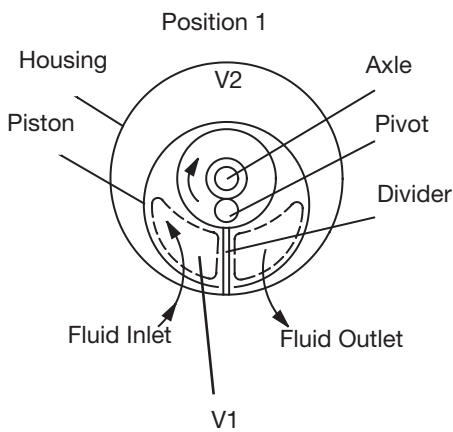
**DRZ Principle of Operation**

1. Liquid enters the meter through the inlet port. Liquid momentum causes the internal piston to rotate about its cammed axle.
2. As the piston rotates, a known volume fills the meter cavity V2.
3. The liquid volume is sealed inside the meter cavity by the piston and a partition which separates the inlet port from the outlet port.

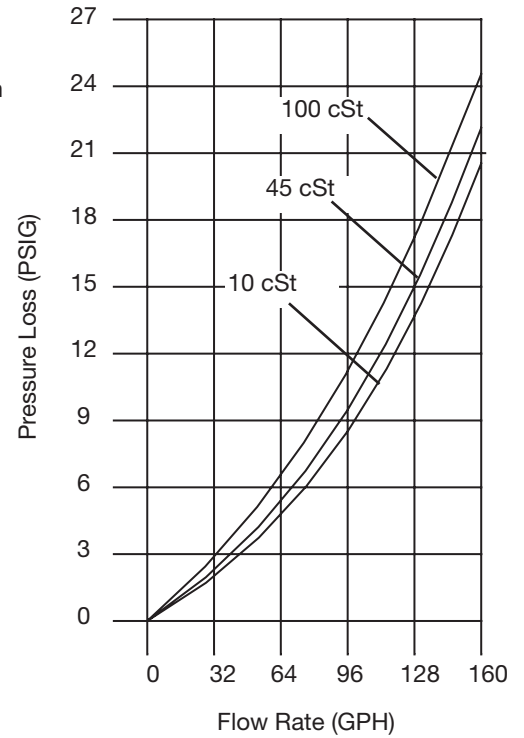
4. When the piston rotates past the outlet port, the known liquid volume V2 exits the meter. The piston rotation is detected by a Hall effect sensor and an output pulse is generated.

Each pulse correlates to a precisely measured volume for liquid flow. Unlike other piston type meters, the DRZ piston rotates in an orbital fashion which minimizes flow pulsations.

Operating Principle



DRZ dp vs. Flowrate



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**Order Numbers for Standard Types**

Measuring Range	Fittings	Output Type
6-420 LPH = DRZ-1110...	...N1... = 1/8" NPT	...0000 = OEM NPN pulse
1.6-110 GPH = DRZ-1120...	...N2... = 1/4" NPT	...F300 = PNP pulse
	...G1... = 1/8" BSP	...F320 = PNP pulse, 1:2 Freq. divider
	...G2... = 1/4" BSP	...F340 = PNP pulse, 1:4 Freq. divider
		...F390 = PNP pulse, custom Freq. divider
		...L303 = 0-20 mA, 3-wire micro-DC plug
		...L343 = 4-20 mA, 3-wire, micro-DC plug
		...C30M = LED display w/ 2 NPN switches, micro-DC plug
		...C30P = LED display w/ 2 PNP switches, micro-DC plug
		...C34N = LED display w/ 4-20 mA + 1 NPN switch micro-DC plug
		...C34P = LED display w/ 4-20 mA + 1 PNP switch micro-DC plug

**Accessories**

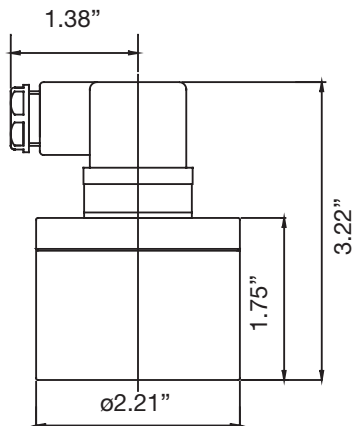
**Part Number 807.037** = Mating 4-pin micro-DC plug with 6 feet of cable for output type F300, 320, 340, 390, L303 and L343

**Part Number 807.007** = Mating 5-pin micro-DC plug with 6 feet of cable for output type C30M, 30P, 34N and C34P

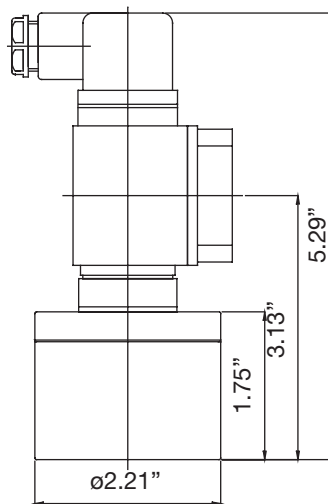
**Part Number AUF-4000** = Snap-on display, pulse input to 2-wire 4-20 mA for output type 0000

**Example DRZ model number: DRZ-1120N2C34P**

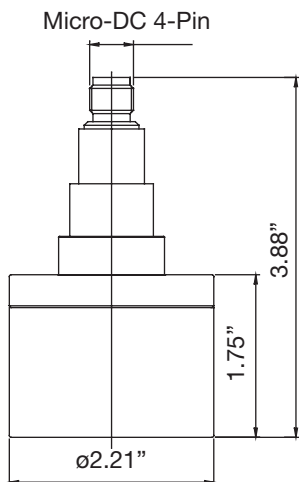
DRZ with Output Type 0000 (OEM Pulse)



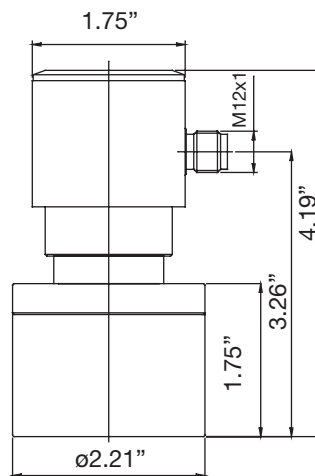
DRZ with Output Type 0000 and AUF-4000



DRZ with Output Type F3xx or L3xx



DRZ with Output Type C3xx



DRZ Bottom View

