

# DF PADDLE WHEEL FLOW SENSOR



Flow  
Pressure  
Level  
Temperature  
measurement  
monitoring  
control



S4

- $\pm 2.5\%$  of Full Scale Accuracy
- Analog Output
- Easy to Install and Maintain
- Robust and Reliable
- No. Min. Requirements for Straight Inlet and Outlet Pipe
- Low Pressure Drop
- 7 Different Material Combinations Available

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Model:  
DF



### Flow Sensor DF

The main feature of the KOBOLD DF flow sensor is the incorporation of a multipole magnet ring into the paddlewheel. As the paddlewheel rotates, these magnets, hermetically separated from the fluid medium, induce an DC signal in a Hall sensor mounted on the device housing. Since the DC signal frequency is proportional to paddlewheel rotation, an accurate flowrate reading is possible.

The DF sensor, when coupled with the appropriate KOBOLD electronics unit, can offer the user a number of features useful in the measurement and control of fluid flow. These features include an analog output, adjustable switches, batch controller, or totalizer.

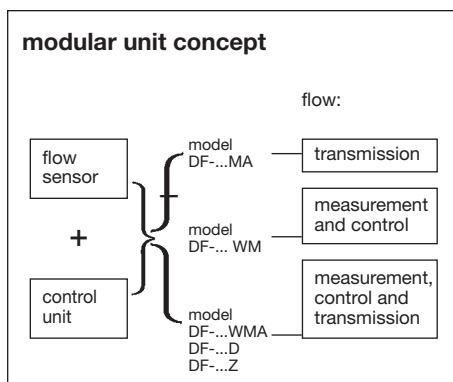
### Specifications

- Accuracy:** ± 2.5% of full scale
- Media:** water and low viscosity liquids
- Orientation:** universal
- Fittings:** 1/8" NPT ... 1 1/2" NPT, flange ANSI 1/2", 1", 1 1/2"
- 7 different material combination:** trogamid, polysulfone, brass, SS, teflon



DF-... with flange

### DF-... with female thread



Materials combination	Standard				High Pressure Design	
	I	II/IIB*	III	IV*	VI*	VII*
Connecting type	Female thread	Female thread	Female thread	Female thread flange	Female thread	Female thread flange
Housing	Trogamid	Polysulfone/PP	Brass Nickel-plated	SS	Brass Nickel-plated	SS
Housing lid	Trogamid	Polysulfone/PP	Polysulfone	Polysulfone	Brass Nickel-plated	SS
Connection	Brass Nickel-plated	SS/PP	Brass Nickel-plated	SS	Brass Nickel-plated	SS
Locking pins	Brass	Brass	Brass	-	-	-
O-rings	Buna-N	Viton	Buna-N	Viton	Buna-N	Viton
Paddle wheel	Delrin	Teflon	Delrin	Teflon	Delrin	Teflon
Axle	SS	SS/Ceramic	SS	SS	SS	SS
Axle Bearing	Teflon	Teflon	Teflon	Teflon	Teflon	Teflon
Orifice	Teflon <sup>2</sup>	Teflon <sup>2</sup>	Teflon <sup>2</sup>	Teflon <sup>2</sup>	Teflon <sup>2</sup>	Teflon <sup>2</sup>
Max. operating pressure PSI	145	145/85	230	230	1450	1450 (with flange 580)
Max. operating temperature (°F)	145	180	180	180	180	180

\* Fittings not rotatable <sup>1</sup>for Model DF..01 Titanium <sup>2</sup> for Model DF..01 SS



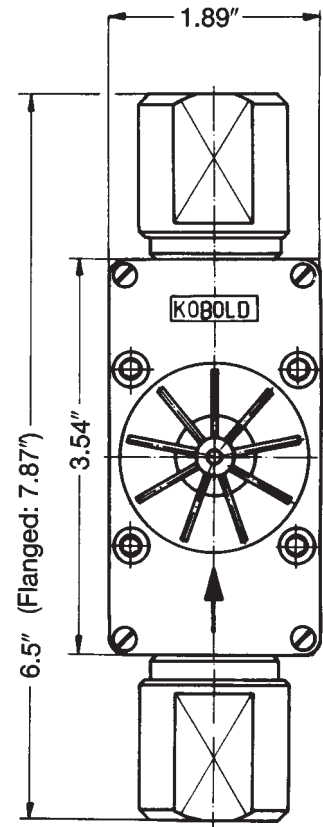
**DF-...WM Special Features**

- Adjustable limit contact for flow control
- Push-button alarm override switch and potentiometer with scale for indirect flow measurements

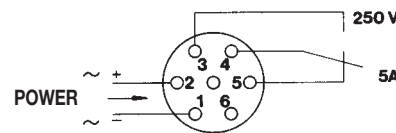
**Specifications**

**Power consumption:** 1.5 W max.  
**Power supply:** 24 VDC  
 24, 110 VAC, 230 VAC + 15%/-10%  
**Switching rating:** 250 V max./5A  
**Resistance =** < 100 Ω  
**Temperature range:** -10 to 180°F  
 (145°F for DF 81..)  
**Cable connections:** (5 ft. PVC-cable standard, Plug connection optional)  
 No. 1 Power Supply (-)  
 No. 2 Power Supply (+)  
 No. 3 Relay Contacts  
 No. 4 Relay Contacts  
 No. 5 Relay Contacts

**Dimensions**



**Wiring Diagram**



**Electronic DF-...WM**

**Order Numbers**

Range water GPM	Stand. conn. NPT	Dia. of Orifice inches	Press. drop max. PSI	DF Flow Sensor Material Combination							Range Size
				I DF-81..	II DF-82..	II B DF-80..	III DF-83..	IV DF-84..	VI DF-86..	VII DF-87..	
0.02- 0.14	1/8"	0.04	10.2								..01
0.05- 0.30	1/4"	0.08	4.2								..02
0.05- 0.60	1/4"	0.08	10.4								..03
0.1 - 0.7	1/4"	0.11	9.6								..04
0.2 - 2.5	3/8"	0.19	12.1								..05
0.4 - 5	1/2"	0.32	2.9								..06
0.5 - 6	3/4"	0.32	4.4								..07
0.5 -12	3/4"	0.49	4.4								..08
1 -25	1 1/4"	0.59	15.9								..09
1.5 -36	1 1/4"	0.73	13.5								..10

**Options  
(add suffix to order number)**

Special conn. NPT Suffix "-B"	Special range GPH water Suffix "-L"
1/4"	1 - 7
3/8"	2 -25
3/8"	3 -40
3/8"	2.5-60
1/2"	For flange connection (only material comb. IV & VII)
3/4"	
1"	
1"	<b>Suffix "FL"</b> <b>on request</b>
1 1/2"	
1 1/2"	

Note: To place an order

1. Select the sensor order no.
2. Select the desired option suffixes
3. Specify the required power supply suffix

For example: DF-8109 BP01

Suffix "P"	Plug connection with Plug
- P 01	Power Supply 24 VDC
- P 02	Power Supply 24 VAC
- P 03	Power Supply 110 VAC
- P 04	Power Supply 230 VAC