

OEM Turbine Flow Sensor for Liquids



measuring
•
monitoring
•
analyzing

DRS



- Flow Range 0.6...10.5 GPM
- Accuracy $\pm 1.5\%$ of Full Scale
- PPO Plastic, Brass, or Stainless Steel Construction
- Pulse, 4-20 mA, or Switching Outputs
- Low Cost



KOBOLD companies worldwide:

AUSTRALIA, AUSTRIA, BELGIUM, BULGARIA, CANADA, CHINA, CZECHIA, FRANCE, GERMANY, GREAT BRITAIN, HUNGARY, INDIA, INDONESIA, ITALY, MALAYSIA, MEXICO, NETHERLANDS, PERU, POLAND, REPUBLIC OF KOREA, RUSSIA, SPAIN, SWITZERLAND, THAILAND, TUNISIA, TURKEY, USA, VIETNAM

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Description

The KOBOLD DRS series offers a compact, quality solution with a low price tag. It features a vane-axial turbine design with embedded permanent magnets and a Hall effect sensor. This allows both clear and opaque liquids to be metered. The vane is sapphire-supported: this ensures a high degree of linearity and long service life. The turbine bodies are available in PPO, brass, or stainless steel. Signal outputs available are frequency or 4-20mA. Compact electronics and an integrated temperature sensor are available as options. Common applications include: the beverage industry, washing machines, vehicles, farm equipment, photography developing machines, and the printed-circuit board industries.



Model Summary

- **DRS-0..K000**
OEM Version (without CE Mark)
Direct Output from Hall-sensor Signal
No Optional Temperature Sensor Available
- **DRS-..F300, F500**
Pulse Output
- **DRS-..L..**
Analog Output 4-20 mA / 2-wire or 3-wire
- **DRS-..C30R**
With Compact Electronics, 3-digit LED Display,
Limit Contacts, No Optional Temperature Sensor Available
- **DRS-..C34P**
With Compact Electronics
3-digit LED Display, Limit Contact, Analog Output
No Optional Temperature Sensor Available

Technical Details

Measuring Range: 0.6...10.5 GPM (Water)
Sensor Pulse Output: 384 Hz at 10.5 GPM,
Metal Sensor (DRS-180..; DRS-280..)
352 Hz at 10.5 GPM
Plastic Sensor (DRS-380..)

Max. Operating Pressure:	2900 PSIG (DRS-180; DRS-280) 230 PSIG (DRS-380)
Temperature:	-4... 176 °F (-4...300 °F with DRS-...S)
Wetted Materials	
Plastic Version:	PPO, PEI, NBR, Sapphire, 316 SS
Brass Version:	Brass, PEI, NBR, Sapphire, 316 SS
SS Version:	304 SS, PEI, FKM, Sapphire, 316 SS
Measuring Accuracy:	± 1.5% of Full Scale ± 5% of Full Scale (DRS-..K0000)
Linearity:	± 0.5% of Full Scale
Repeatability:	± 0.1% of Full Scale
Electrical Connection:	Plug Connector M12x1 1.5 m Cable (DRS-0 only) 2 m Cable (DRS-..F5 only)
Protection:	IP 65 (Plug Conn.), IP 66 (Cable)
Weight	
Sensor:	Approx. 0.18 lb (DRS-..380) Approx. 1.22 lb (DRS-..180; DRS-..280)
Electronics:	Approx. 0.13 lb (DRS-..K..; DRS-..F.; DRS-..L3...) Approx. 0.22 lb (DRS-..L442) Approx. 1.44 lb (DRS-..C..)



Electrical Data

DRS-0..K0000; DRS-0..S0000

Supply: 6-16 V_{DC}
Output Pulse: Rectangular Pulse Signal,
 Open Collector NPN, Max. 10 mA

DRS-..F300; DRS-..F500

Supply: 12-28 V_{DC}
Power Consump.: 10 mA
Pulse Output: PNP, Open Collector, Max. 20 mA
Option: Pt 100, 3-wire

DRS-..L..

Supply: 24 V_{DC} ± 20 %
Output: 4-20 mA, 2-wire or 3-wire
Max. Load: 500 Ω
Option: Pt 100 (2-wire only)
Response Time: t₉₀ = 25 s (DRS-91../-92..)
 t₉₀ = 100 s (DRS-93..)

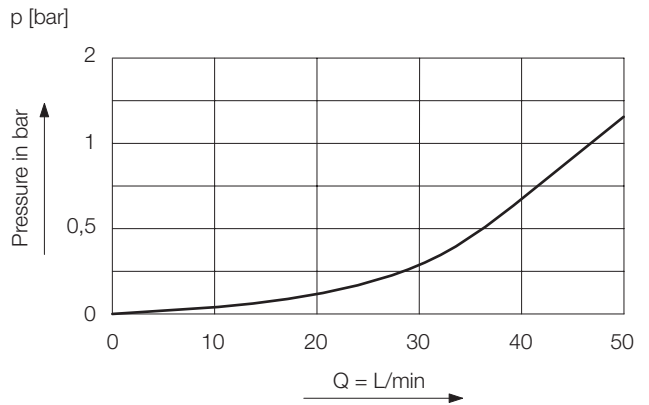
DRS-..C30R: Compact Electronics

Display: 3-digit LED
Switching Outputs: 2 Semiconductor PNP or NPN,
 (Factory Set)
Contact Operation: N/C / N/O Contact Frequency,
 Programmable
Setting: with 2 Buttons
Supply: 24 V_{DC} ±20%, 3-wire
Electrical Connect.: Plug Connector M12x1

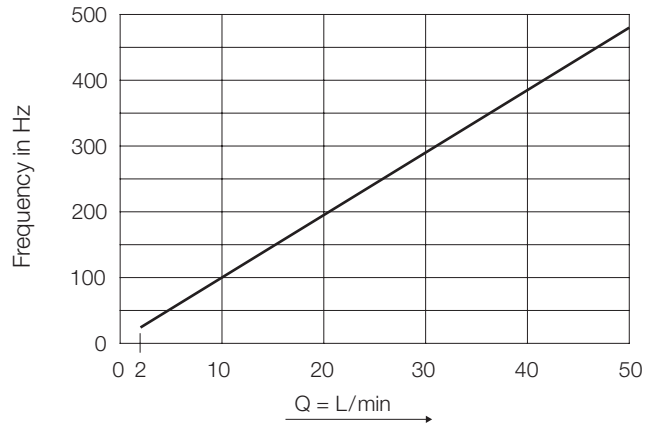
DRS-..C34P: Compact Electronics

Display: 3-digit LED
Output: 4...20 mA Adjustable
Switching Outputs: 1 Semiconductor PNP or NPN,
 (Factory Set)
Contact Operation: N/C / N/O Contact / Frequency,
 Programmable
Setting: with 2 Buttons
Supply: 24 V_{DC} ±20%, 3-wire
Power Consump.: Approx. 100 mA
Electrical Connect.: Plug Connector M12x1

Pressure Loss



Frequency Diagram (DRS-..180, DRS-..280)





OEM Turbine Flow Sensor Model DRS

Order Details for Standard Versions (Example: DRS-9180 N5 F300)

Body Materials	Model Number	Mechanical Connection	Output / Electronics	Options
Brass	DRS-9180..	..N4.. = 1/2" NPT Female ..N5.. = 3/4" NPT Male ..I4.. = G 1/2 Female ..G4.. = G 1/2 Male/Female ..G5.. = G 3/4 Male	..F300 = PNP Frequency Output, Micro-DC Plug ..F500 = PNP Frequency Output, 6 Ft. PVC Cable ..L342 = 4-20 mA, 2-wire, Micro-DC Plug ..L343 = 4-20 mA, 3-wire, Micro-DC Plug ..L442 = 4-20 mA, 2-wire DIN 43650 Plug	..P = Pt-100, 3-wire RTD (only for output options F300, F500 or L343)
Stainless Steel	DRS-9280..	..N5.. = 3/4" NPT Male ..G4.. = G 1/2 Male/Female ..G5.. = G 3/4 Male	..C30R ¹⁾ = Compact Electronics 2 PNP Switch ..C34P ¹⁾ = Compact Electronics, 4-20 mA + 1 PNP Switch	
PPO Plastic	DRS-9380..	..N5.. = 3/4" NPT Male ..G4.. = G 1/2 Male/Female ..G5.. = G 3/4 Male		

Accessories:

807.037 = Mating 4 PIN Micro-DC Connector with 6 ft. Cable for Output Types F300, F500, L342, & L343

807.007 = Mating 5 PIN Micro-DC Connector with 6 ft. Cable for Output Types C34P & C30R

¹⁾Please specify flow direction in writing

Order Details for OEM Versions (Example: DRS-0380 N5 K0000)

Body Materials	Model Number	Mechanical Connection	Output Type
Brass	DRS-0180..	..N5.. = 3/4" NPT Male	..K0000 = NPN Frequency Output, 5 ft. PUR Cable, Black, without CE ..S0000 = 1.5 m Silicone Cable, NPN, OEM without CE, Max 300 °F (not for DRS-0380)
Stainless Steel	DRS-0280..	..G4.. = G 1/2 Male/Female	..S000P = 1.5 m Silicone Cable, NPN, OEM without CE, Pt 100, Max 300 °F (not for DRS-0380)
PPO Plastic	DRS-0380..	..G5.. = G 3/4 Male	

Order Details: Plug-on Display (Model DRS-...L442)

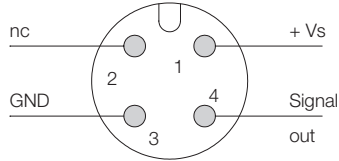
Description	Model Number
4 Digit LED DIN 43 650 Connector 2-Wire Supply Through Analog Output	AUF-1000
Same Specs as Above with Additional Open Collector Output	AUF-1001



Electrical Connections

DRS-..F., DRS-..L3.. (3-wire without Pt 100)

Plug

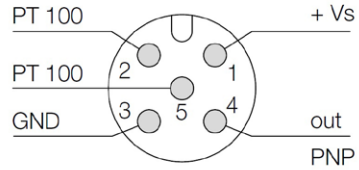


Cable

Brown: +Vs
Blue: GND
Black: Signal

DRS-..F., DRS-..L3.. (3-wire with Pt 100)

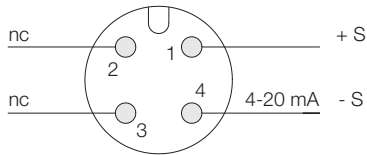
Plug



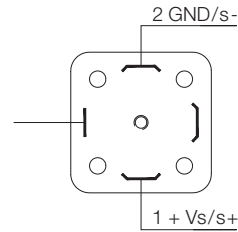
Cable

Brown: +Vs
Blue: GND
Black: Signal
White: Pt 100 2-wire
Grey: Pt 100 2-wire

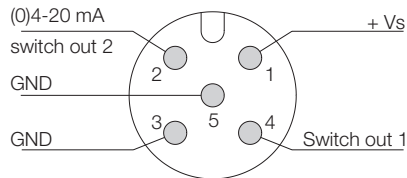
DRS-..L342 (2-wire)



DRS-..L442..



DRS-..C3..

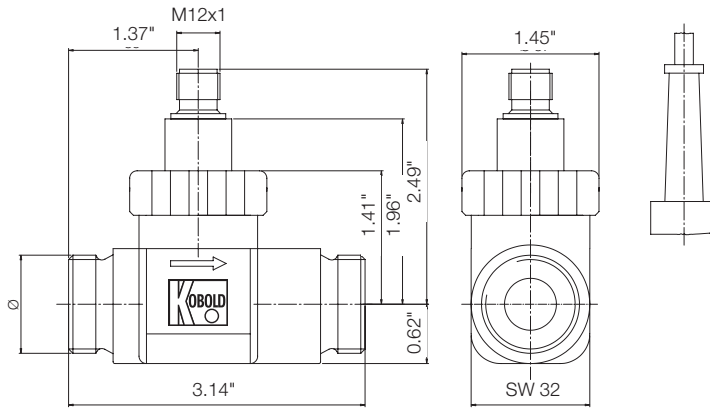




OEM Turbine Flow Sensor Model DRS

Dimensions

DRS with Micro-DC Plug



DRS with Compact Electronics

