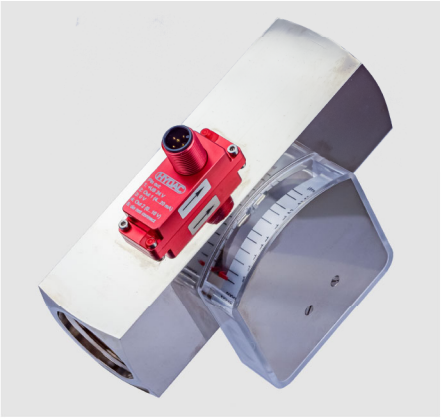
HYDAC INTERNATIONAL



Flow rate transmitter
HFT 2100

For oils / viscous fluids

Float	Any installation	30–600 cSt

Features

- Analogue signal selectable: 4 .. 20 mA or 0 .. 10 V
- Wide measuring range
- Viscosity compensated
- Available for special purpose fluids

Description

The HYDAC HFT 2100 flow transmitter series is based on a position-independent float measuring principle.

Irrespective of the installation position, the testing fluid deflects a spring-loaded float in the direction of flow, depending on the flow rate.

A Hall sensor is fitted to the outside of the device and is therefore also separated from the flow circuit. In proportion to the deflection of the float, the sensor produces an analogue signal (either 4 .. 20 mA or 0 .. 10 V) which corresponds to the particular measuring range.

The instrument is calibrated for vertical installation and for a flow direction from bottom to top (maximum accurracy).

The transmitters are designed to be capable of monitoring threshold values reliably, even in case of viscosity fluctuations. The kinematic viscosity may vary between 30 and 600 cSt.

Application fields

Fields of application include:

- Central lubrication systems
- Circulation oil lubrication systems
- Transformers
- Cooling systems and circuits
- Lubrication circuits
- Hydraulic systems
- Pumps
- Welding machines and laser systems
- Chemical industry
- Research and development

EN 18.395.3/01.21

Technical details

Input data		
Measuring ranges [l/min]	Size 1	Size 2
	0.5 .. 1.6	0.5 .. 1.5
	0.8 .. 3.0	1 .. 4
	2.0 .. 7.0	2 .. 8
		3 .. 10
		5 .. 15
		8 .. 24
		10 .. 30
		15 .. 45
		20 .. 60
		30 .. 90
		35 .. 110
Operating pressure Brass version [bar] Stainless steel version [bar]	 300 350	 250 300
Pressure drop [bar]	0.02 .. 0.2	0.02 .. 0.4
Mechanical Connection	See device dimensions / installation dimensions	
Parts in contact with fluid Brass version Stainless steel version	 Stainl. steel 1.4571; brass (nickel-pl.); brass; hard ferrite Stainless steel 1.4571; hard ferrite	
Housing material Measuring body Transmitter	 Brass nickel-plated or stainless steel 1.4571 Aluminum	
Output data		
Output signal	Max. load resist. Max. current	4 .. 20 mA, 3 conductor, R_{Lmax} ~ 600 Ω 0 .. 10 V, 3 conductor, I_{max} ~ 10 mA
Accuracy [1]	≤ ± 10 % FS	
Repeatability	2 % FS max.	
Environmental Conditions		
Operating temperature range	-20 .. +70 °C	
Fluid temperature range	-20 .. +70 °C	
Viscosity range	30 .. 600 cSt	
CE mark	2014/30/EU 2011/65/EU 2015/863/EU	
protection type to DIN EN 60529 [2]	IP 65 / IP 67	
Other data		
Supply voltage	24 V DC (19 – 30 V DC)	
Power consumption	< 1 W	
Weight	See device dimensions / installation dimensions	

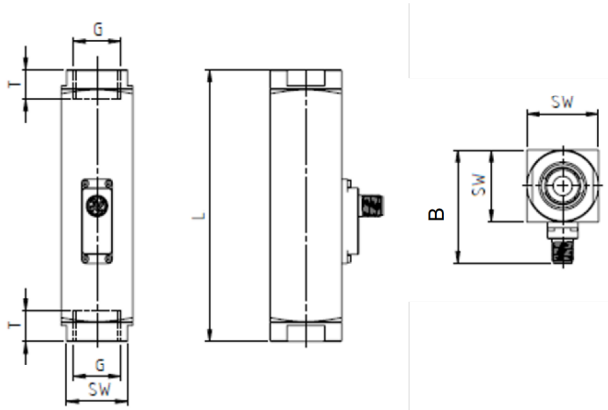
Note: **FS** (**F**ull **S**cale) = relative to complete measuring range

[1] ± 5% available with calibration to a certain viscosity - on request

[2] With mating connector of corresponding protection type fitted

Dimensions

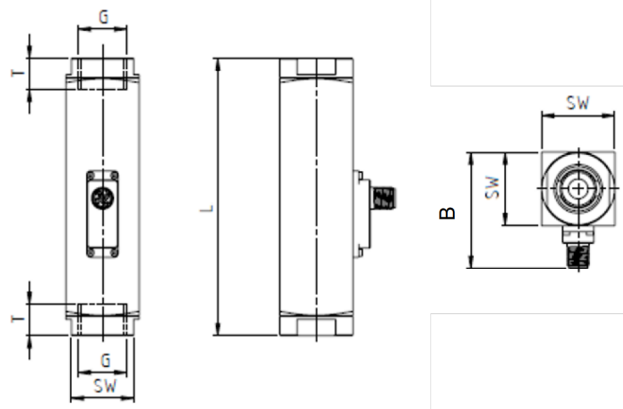
Size 1



Type [l/min]	Installation dimensions [mm]						Weight, approx. [g]
	DN	SW	G	L	T	B	
Size 1							
0.5 .. 1.6	8	24	1/4"	98	10	53	610
	10	24	3/8“	119	11	53	660
	15	30	1/2" *	90	14	53	560
0.8 .. 3.0	15	30	1/2"	90	14	53	560
2.0 .. 7.0							

* Standard

Size 2



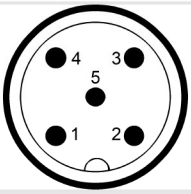
Type [l/min]	Installation dimensions [mm]						Weight, approx. [g]
	DN	SW	G	L	T	B	
Size 2							
0.5 .. 1.5	8	34	1/4"	152	10	63	1510
1 .. 4	15	34	1/2"	152	14	63	1435
	20	34	3/4“	152	15	63	1350
	25	40	1" *	130	18.5	63	1170
2 .. 8	15	34	1/2"	152	14	63	1435
3 .. 10	20	34	3/4“	152	15	63	1350
5 .. 15	25	40	1" *	130	18.5	63	1170
8 .. 24							
10 .. 30	20	34	3/4“	152	15	63	1350
15 .. 45	25	40	1" *	130	18.5	63	1170
20 .. 60							
30 .. 90	25	40	1“	130	18.5	63	1170
35 .. 110							

* Standard

Notes on installation:

- The fluid must not contain solid particles! We recommend using contamination strainers.
- External magnetic fields may affect the hall sensor. Ensure sufficient distance from magnetic fields (e.g. from electric motors)!

Pin connections

M12x1, 5 pin	Pin	Output signal: BC
	1	$+U_B$
	2	4 .. 20 mA
	3	GND
	4	0 .. 10 V
	5	reserved

Model code

HFT 2 1 X 8 - BC - XXXX-XXXX - 7 - X - X - 000

Measurement procedure
2 = Variable area float

Measuring fluid
1 = Oils / viscous fluids

Mechanical connection [1) 2)]
1 = 1/4"
2 = 3/8"
3 = 1/2"
4 = 3/4"
5 = 1"

Electrical connection
8 = Plug M12X1, 5 pin (mating connector not included)

Output signal
BC = Both signals B = 0 .. 10 V and C = 4 .. 20 mA

Measuring ranges l/min [2)]

Size 1
00.5-01.6; 00.8-03.0; 02.0-07.0

Size 2
00.5-01.5; 0001-0004; 0002-0008; 0003-0010; 0005-0015; 0008-0024;
0010-0030; 0015-0045; 0020-0060; 0030-0090; 0035-0110

Accuracy
7 = ≤ 10.0 % FS

Housing material
B = Brass, nickel-plated
S = Stainless steel

Mechanical indicator
0 = wWthout display
1 = With display

Modification number
000 = Standard

[1)] Mechanical connection options depend on housing type (see dimensions)
[2)] Other models available on request

Accessories:
Appropriate accessories, such as mating connectors, can be found in the Accessories brochure.

Note

The information in this brochure relates to the operating conditions and applications described.
For applications or operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.