

Blade Wheel Flow Meter / Counter/ Batching System

for Liquids



Model: ADI-K...

- Measuring ranges: 6-30 to 55-1100 L/min water
- Measuring accuracy:
±0.5% f.s. + 2.5% of measured value
- p_{max}: 25 bar; t_{max}: 100 °C
- Viscosity range: 1-300 mm²/s
- Connection: G 1/2 female to G 2,
glue-in connection DN 15 to DN 50
- Material: brass, st. steel, PVDF, PP, PVC
- Output: pulses, 4-20 mA, digital display,
counter or batcher
- Compact, modular design
- Individual setting of all measuring
parameters



Model: DFB-Z...



Model: DFB-P

Description

The compact model KOBOLD DFB flow meter is based on the blade wheel principle and is especially suitable for use with liquids containing no solids. The materials used mean that the meter may be used in aggressive media.

The flow meter comprises a measuring sensor and blade wheel supported by a ceramic bearing with embedded magnets. When immersed in the liquid flow, the rotating blade wheel outputs a measurement signal, which is proportional to the flow, to a Hall-effect sensor mounted in the blade wheel module. The microprocessor-based evaluation system provides standardized current, impulse and relay outputs.

The adapted fitting accessories programme allows the DFB flow meter to be quickly and easily installed in piping.

Areas of Application

The devices are primarily used for measuring, monitoring, and batching liquids with a maximum of 1% solids content and maximum viscosities of 300 mm²/s.

Application Examples:

- Sewage technology
- Water treatment and process engineering
- Cooling water monitoring
- Excellent system for filling plants (food and drinks technology)
- Volume batching, eg chemicals

Design of Devices

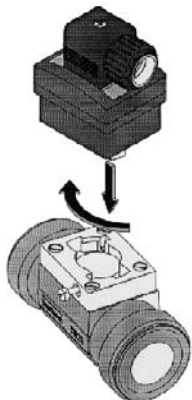
The entire measuring device comprises:

● Fitting with mounted blade wheel module

The fitting module is available in PP, PVC, PVDF, brass or St.St. The plastic fittings are connected with a glue-in connection (nominal size DN 15 to DN 50). The metal fittings with female threads (sizes G 1/2 to G 2) are mounted in the pipeline.

● Electronics module

Fitting module and electronics module are delivered as a mounted unit. The electronics may be replaced at any time, even if the pipeline is full. The electronics module is simply mounted on the fitting section and secured with a quarter turn.



The following models are available:

- Hall-effect sensor with pulse output
- 4-20 mA analogue module

An operator's panel, which can be delivered as an option, is required for programming the analogue output. K factor, time unit and 4-20 mA output can be set from this panel. The flow rate can be displayed in operating mode. The module also functions without the operator's panel – which is used only to define the parameters.

● Batcher/flow meter

Displays flow rate, output current, main count, daily count and reset. Defining language, unit, K factor, 4-20 mA output, pulse output, relay (optional), filter, main counter reset. Testing changes in initial settings, frequency range check test for sensor, flow simulation.

● Batching system and counter

Displays main count, daily count, batch quantity, type of batch and flow rate.

Defining language, unit, K factor, selection of batch technique, overflow correction, alarm, function mode of relay, main counter reset. Testing the display of operating mode, relay test, displaying the wheel blade frequency.

Technical Specifications Fitting Module

Temperature range:

Medium: 0 to +100 °C
(brass, st. steel,
PVDF fitting)
0 to +80 °C (PP fitting)
0 to +60 °C (PVC fitting)

Ambient: 0...60 °C

Storage: -10...+80 °C

Nominal pressure: PN 16 (for brass- or st. steel fitting)
PN 10 (for PP, PVC, PVDF fitting)

Max. medium pressure: 25 bar (for brass- or st. steel fitting)
16 bar (for PP, PVC, PVDF fitting)

Protection type: IP 65

Meas. accuracy: ±0.5% f.s. + 2.5% of measured value

Repeatability: 0.4% of measured value (water, 20 °C)

Materials

Fitting: Brass, st. steel 1.4404, PP, PVC or PVDF

Blade wheel: PVDF

Axle, bearings: ceramics

O-ring: FPM (Standard)

Electronic housing: Plastic (PA and, or PC)



Technical Specifications Electronic Module

Hall effect sensor with frequency output, DFB-PK:

Power supply: 12 to 30 V_{DC}
 Output signal: PNP/NPN, open collector
 max. 100 mA,
 frequency 0 to 200 Hz

Electronics module with analogue output 4-20 mA, DFB-A4:

Power supply: 12 to 24 V_{DC}
 Output signal: 4 - 20 mA
 Load: max. 500 Ω at 12 V,
 max. 1000 Ω at 24 V

Electronics Module Flow Meter/Counter, DFB-ZM /-ZK

Power supply: 12 to 30 V_{DC}, option 115/230 V_{AC}
 Current output: 4 - 20 mA
 Load: max. 900 Ω at 30 V,
 max. 500 Ω at 24 V,
 max. 100 Ω at 15 V,
 max. 800 Ω at 115/230 V_{AC}
 Pulse output: PNP/NPN, open collector,
 0 to 30 V, 100 mA,
 Relay (option): 2 relays, user adjustable, 3 A, 230 V

Electronics module batcher/counter, DFB-DZ

Power supply: 12 to 30 V_{DC}, option 115/230 V_{AC}
 Digital inputs: 4; 5 to 30 V_{DC}
 Digital inputs: 1; PNP/NPN, open collector,
 0 to 30 V, 100 mA
 Relay output: 2 relays, user adjustable, 3 A, 230 V

Order Details (Devices with Metal Fitting)

Model	Electronics module		Fitting module			Measuring range	
	Function	Supply	Material fitting	Material gasket	Connection	[L/min]	[max. L/min]
DFB-PK..	Hall-effect sensor with pulse output	..3..=12..30 V _{DC}	..1..=brass ..4..=st. steel 1.4404	..F..=FPM	..R15 = G 1/2 IG ..N15 = 1/2" NPT	6-30	100
DFB-A4..	Analogue output 4-20 mA	..3..=12..24 V _{DC}			..R20 = G 3/4 IG ..N20 = 3/4" NPT	9-55	200
DFB-ZM..	Flow meter/counter	..0..=230 V _{AC}			..R25 = G 1 IG ..N25 = 1" NPT	15-85	330
DFB-ZK..	Flow meter/counter with 2 relays	..1..=115 V _{AC}			..R32 = G 1 1/4 IG ..N32 = 1 1/4" NPT	20-130	450
DFB-DZ..	Batcher/meter	..3..=12..30 V _{DC}			..R40 = G 1 1/2 IG ..N40 = 1 1/2" NPT	35-200	700
					..R50 = G 2 IG ..N50 = 2" NPT	55-350	1100

Order example: DFB-PK 3 1 F R15 (pulse output, brass fitting with FPM gasket, connection G 1/2)

Order Details (Devices with Plastic Fitting)

Model	Electronics module		Fitting module Union nut			Measuring range	
	Function	Supply	Material fitting	Material gasket	Connection with glue-in connection	[L/min]	[max. L/min]
DFB-PK..	Hall-effect sensor with pulse output	..3..=12..30 V _{DC}	..F..=PVDF (welding tube connection)	..F.. = FPM	with connection part ..K15 = DN 15	6-30	100
DFB-A4..	Analogue output 4-20 mA	..3..=12..24 V _{DC}	..P..=PP (welding tube connection)		..K20 = DN 20	9-55	200
DFB-ZM..	Flow meter/counter	..0..=230 V _{AC}	..V..=PV (glue-in connection)		..K25 = DN 25	15-85	330
DFB-ZK..	Flow meter/counter with 2 relays	..1..=115 V _{AC}			..K32 = DN 32	20-130	450
DFB-DZ..	Batcher/meter	..3..=12..30 V _{DC}			..K40 = DN 40	35-200	700
					..K50 = DN 50	55-350	1100

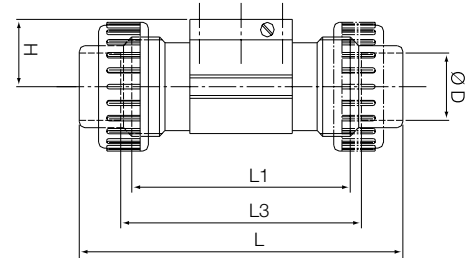
Order example: DFB-PK 3 P F K15 (pulse output, brass fitting with FPM gasket, connection G 1/2)

Option: operator's panel with LCD display and keys for parameterization (Order no.: DFB-BED)

Dimensions

PP, PVC, PVDF fitting with glue-in connection and union nut

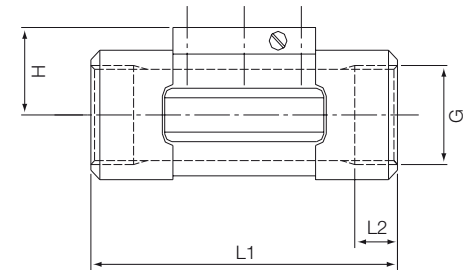
DN	diam.	L	L1	L3	H
15	20	128	90	96	34.5
20	25	144	100	106	32.0
25	32	160	110	116	32.2
32	40	168	110	116	35.8
40	50	188	120	127	39.6
50	63	212	130	136	45.7



Dimensions

Brass, st. steel fitting with female thread

DN	G	L1	L2	H
15 / 1/2"	G 1/2 1/2 NPT	85 84	16.0 16.8	34.5 24.1
20 / 3/4"	G 3/4 3/4 NPT	95 94	17.0 18.1	32.0 31.6
25 / 1"	G 1 1 NPT	105 104	23.5 17.8	32.2 31.8
32 / 1 1/4"	G 1 1/4 1 1/4 NPT	120 119	23.5 20.8	35.8 35.4
40 / 1 1/2"	G 1 1/2 1 1/2 NPT	130 129	23.5 19.8	39.6 39.2
50 / 2"	G 2 2 NPT	150 148	27.5 23.8	45.7 45.2



Dimensions of Electronics Modules

Pulse output

Analogue output

Flow meter/counter
Batcher/meter

