

ELECTRONIC TURBINE FLOW SENSOR



- ACCURACY $\leq \pm 1.0\%$ OF RANGE
- SWITCH · ANALOG · PULSE · IO-LINK · RS485
- FOUR VALUES ON THE DISPLAY



FLOW RANGE (m³/h)

DN (mm)	Q min coil type	Q min Hall type (to DN25)	Q max	DN (mm)	Q min coil type	Q min Hall type (to DN25)	Q max
6	—	0.04	0.6	65	8	—	80
10	0.2	0.06	1.2	80	10	—	100
12	0.4	0.12	4	100	20	—	222
15	0.6	0.2	6	125	25	—	250
20	0.8	0.25	8	150	40	—	400
25	1	0.36	10	200	80	—	800
32	1.5	—	15	250	120	—	1200
40	2	—	20	300	180	—	1800
50	4	—	40				



MEASUREMENT

Measuring range	DN 6 ... DN 300
Measurement accuracy	$\leq \pm 1.0$ % of the measuring range
Switching accuracy	$\leq \pm 0.5$ % of the range
Analog output accuracy	$\leq \pm 0.5$ % of the range
Response time	10 ms ... 5 s · factory default 1 s
Applicable viscosity	$> 5 \times 10^{-6}$ m ² /s
Display	Liquid crystal, four values
Measured medium	Oil (factory default) or water, set by order code
Nominal pressure PN	6.3 · 16 · 25 · 40* MPa to DN32 · 2.5 MPa to DN100 · 1.6 MPa to DN300
Max. pressure loss	0.05 MPa to DN10 · 0.035 MPa to DN32 · 0.025 MPa to DN300

MATERIALS AND TEMPERATURE

Display head housing	Stainless steel or engineering plastic
Shell	Stainless steel 304
Turbine rotor	3cr13 or 2205
Protection level	IP67
Medium temperature	-30 ... +100 °C · +130 °C type H · +180 °C type H1
Ambient temperature	-10 ... +70 °C
Storage temperature	-20 ... +80 °C

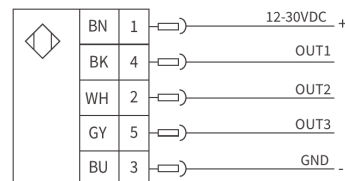
ELECTRICAL PROPERTIES

Power supply voltage	12 ... 30 Vdc
Output type	Switch · analog · pulse · frequency · IO-Link · RS485
Load, switching output	< 200 mA
Load, analog output	< 500 mA
Circuit protection	Reverse polarity, overload and short circuit
Connection method	M12x1 connector, 5 poles

ELECTRICAL CONNECTION

Pin	Wire	Signal
1	BN brown	Power supply + · 12 ... 30 Vdc
4	BK black	OUT1
2	WH white	OUT2
5	GY grey	OUT3
3	BU blue	Power supply - · GND

WIRING DIAGRAM



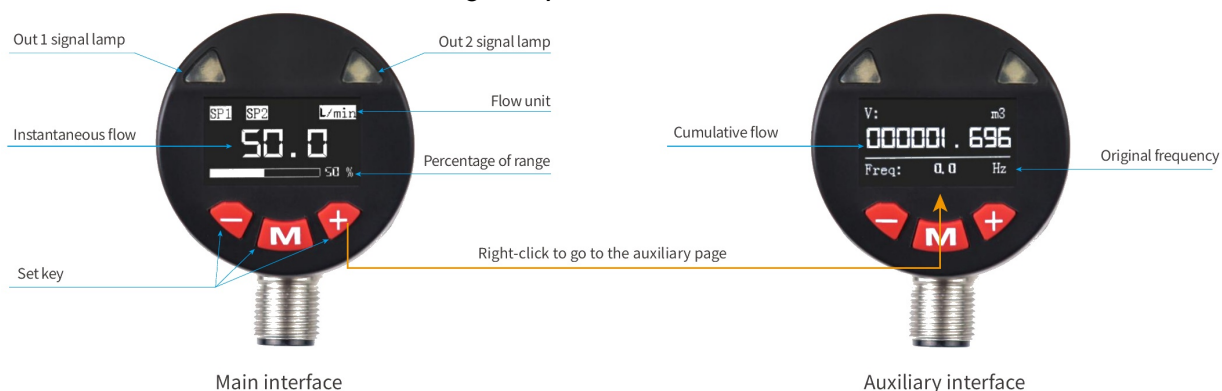
OUTPUT CONFIGURATIONS

Code	OUT1 · pin 4 · BK	OUT2 · pin 2 · WH	OUT3 · pin 5 · GY
A3	Flow switch PNP (factory default) · flow switch NPN · linear pulse (full scale 100 Hz) · original pulse · quantitative pulse (full scale × 0.1)	Flow switch PNP (factory default) · flow switch NPN	Flow 4 ... 20 mA (factory default) · flow 1 ... 5 V · flow 0 ... 10 V
AR	RS485 (B)	RS485 (A)	Flow 4 ... 20 mA (factory default) · flow 1 ... 5 V · flow 0 ... 10 V
SA	Flow switch PNP or NPN · temperature switch PNP or NPN · linear pulse (full scale 100 Hz) · original pulse · quantitative pulse (full scale × 0.1) · IO-Link	Flow 4 ... 20 mA (factory default) · flow 1 ... 5 V · flow 0 ... 10 V	Temperature 4 ... 20 mA (factory default) · temperature 1 ... 5 V · temperature 0 ... 10 V

Pin 1 (BN) and pin 3 (BU) carry the supply in every configuration; temperature is measured with code SA only.

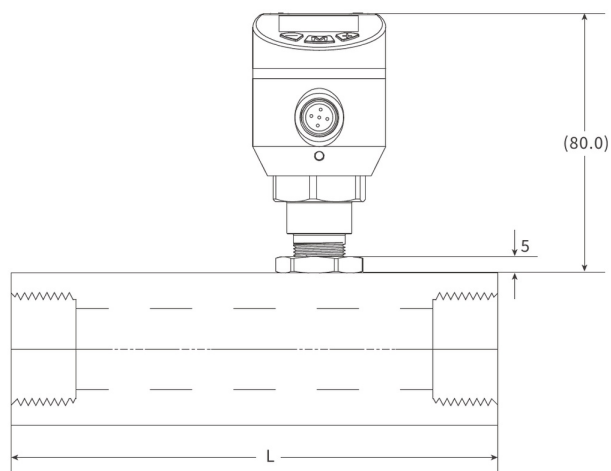
DISPLAY AND KEYS

The display head shows four values. The main page carries the instantaneous flow, the flow unit, the percentage of range and the state of the two switching outputs; the auxiliary page carries the totalised volume and the original frequency of the turbine. All parameters, including the two alarm limits, are set on the device with the three keys. The head can be turned; with the coil pick-up it can also be detached from the measuring body.

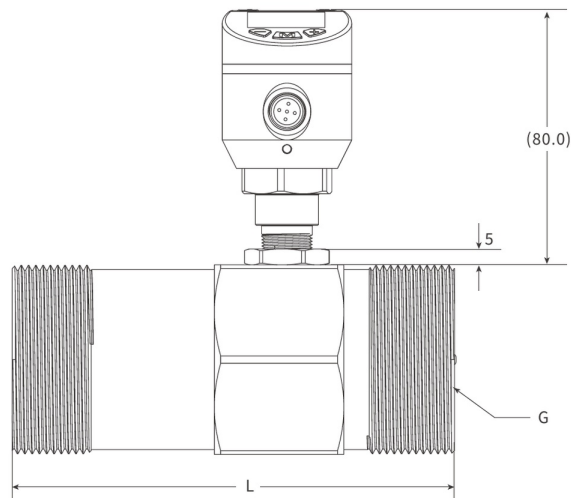


DIMENSIONS (mm)

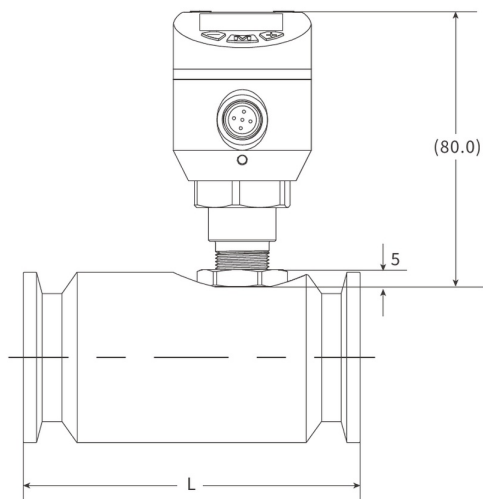
Internal thread connection



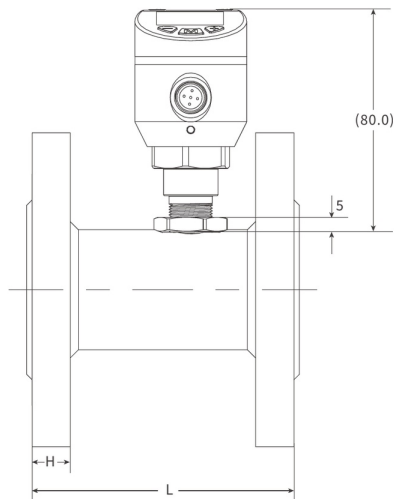
External thread connection



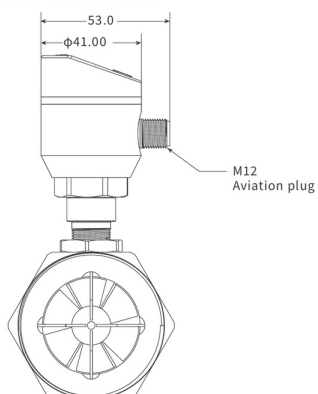
Clamp connection



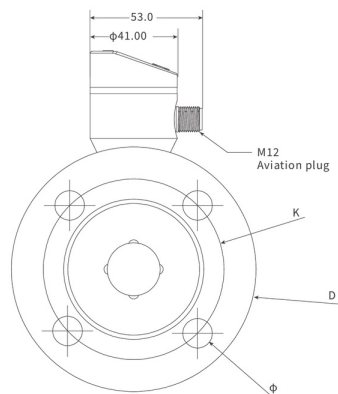
Flange connection



Head and process connection



Flange face



DIMENSIONS · THREAD AND CLAMP (mm)

DN	External thread G	L external thread	Internal thread G	L internal thread	Clamp Ø D	L clamp
6	G1/2	65	1/2	80	50.5	50
10	G1/2	65	1/2	80	50.5	50
12	G3/4	65	1/2	80	50.5	50
15	G1 (33.2)	75	1/2	110	50.5	75
20	G1 (33.2)	85	3/4	115	50.5	85
25	G1-1/4 (41.9)	100	1	140	50.5	100
32	G1-1/2 (47.8)	120	1-1/4	172	50.5	120
40	G2 (59.6)	140	1-1/2	180	64	140
50	G2-1/2 (75.1)	150	2	200	78	150
65	G3	175	2-1/2	235	91	175
80		200	3	260	106	200
100		220			119	220

With the straight pipe section — order codes 006B and 010B — the body length of DN6 and DN10 is 345 mm instead of 65 mm. Sealing: cutting-ring ED joint for the internal thread, flat gasket for the external thread, chuck gasket for the clamp, flange gasket for the flange. The head is the same for all four: height 80.0 mm, Ø 41.00 mm, 53.0 mm across the connector, 5 mm hexagon.

DIMENSIONS · FLANGE (mm)

DN	Flange Ø D	Bolt circle K	Hole Ø	Holes N	Thickness H	Body length L
12	95	65	14	4	14	65
15	95	65	14	4	14	75
20	105	75	14	4	16	85
25	115	85	14	4	16	100
32	140	100	18	4	18	120
40	150	110	18	4	18	140
50	165	125	18	4	20	150
65	185	145	18	8	20	175
80	200	160	18	8	20	200
100	220	180	18	8	22	220
125	250	210	18	8	22	250
150	285	240	22	8	24	300
200	340	295	22	12	26	360
250	400	355	26	12	28	400
300	460	410	26	12	32	500

Flange connection to PN 1.6 MPa. Letters as marked in the drawings above.



COMPLIANCE AND CERTIFICATION

Protection rating	IP67
Applied standard	ISO 2852-1993 for the sanitary clamp connection
Wetted materials	Stainless steel 304 · turbine rotor 3cr13 or 2205
Pressure rating	PN 1.6 to 40 MPa by nominal diameter — see the technical data
High pressure	Withstand pressure 15 MPa for the thread connections; higher on request as a customised version

ORDER CODE AND ACCESSORIES

M12 cable sockets and connectors

- The sensor is connected with an M12x1 cable socket, five poles. Moulded sockets are available straight or angled, in PUR or PVC, with 2 m, 5 m or 10 m of cable; the suffix -P marks the shielded version. Sockets to be wired on site are available with four or five poles and a Pg7 (Pg9) cable gland. ZL05-PC02G is the factory default.



Thread
M12x1

Poles
5

ORDER CODE

Field	Code	Meaning
1 Series	QKA120	QKA120 electronic turbine flow sensor
2 Caliber	006 · 006B · 010 · 010B · 012 · 015 · 020 · 025 · 032 · 040 · 050 · 065 · 080 · 100 · 125 · 150 · 200 · 250 · 300	Measuring caliber DN6 ... DN300. The suffix B is DN6 or DN10 with straight pipe section
3 Supply	DC	DC 24 V ±20 %
4 Output	A3	Two way switch / pulse / frequency + analog
	SA	Analog (flow / temperature) / switch / pulse / frequency / IO-Link
	AR	RS485 communication + analog
5 Process	M	External thread connection, up to DN50 · withstand pressure 15 MPa
	K	Internal thread connection, up to DN50 · withstand pressure 15 MPa
	F	Flanged joint · max. pressure 4 MPa
	H	Sanitary clamp connection, up to DN100 · max. pressure 1.6 MPa · ISO 2852-1993



ORDER CODE · CONTINUED

Field	Code	Meaning
6 Pick-up	—	Coil type · display unit detachable
	G	Hall type · up to DN25 · display unit must not be disassembled
7 Temperature	—	Conventional type · medium temperature ≤ 100 °C
	H	High temperature type · medium temperature ≤ 130 °C
	H1	Ultra-high temperature type · medium temperature ≤ 180 °C · coil type mandatory · mount more than 500 mm away from the power frequency source
8 Medium	—	Oil (factory default)
	S	Water

Example: QKA120-015DCA3K — the unit on the front page — DN15, DC supply, output A3, internal thread, coil pick-up, conventional temperature, oil. Fields 6, 7 and 8 are left out when the default applies.

ACCESSORIES

Item	Order code	Data
Cable socket, straight, PUR	ZL05-PU02G · ZL05-PU05G · ZL05-PU010G	M12x1, 5 poles · 2 m, 5 m, 10 m cable · length 50 mm, Ø 15 mm
Cable socket, straight, PVC	ZL05-PC02G · ZL05-PC05G · ZL05-PC010G	M12x1, 5 poles · 2 m, 5 m, 10 m cable · ZL05-PC02G is the factory default
Cable socket, angled, PUR	ZL05-PU02W · ZL05-PU05W · ZL05-PU010W	M12x1, 5 poles · 2 m, 5 m, 10 m cable · length 36 mm, height 26 mm
Cable socket, angled, PVC	ZL05-PC02W · ZL05-PC05W · ZL05-PC010W	M12x1, 5 poles · 2 m, 5 m, 10 m cable
Self-wiring socket, straight	GL04 · GL05	M12x1 · GL04 four poles, GL05 five poles · cable gland Pg7 (Pg9)
Self-wiring socket, angled	WL04 · WL05	M12x1 · WL04 four poles, WL05 five poles · cable gland Pg7 (Pg9)
Protective cover	KTCS33661	Transparent cover for the display head

Add the suffix -P to a cable socket code for a shielded cable.

