

FLOW AND TEMPERATURE SENSOR



- THERMAL PRINCIPLE · NO MOVING PARTS
- FLOW AND TEMPERATURE IN ONE DEVICE
- UP TO DN400 · 100 bar · IP67 · IO-LINK



KEY DATA

Property	Value	Property	Value
Flow range	Liquid 3 m/s · gas 100 m/s	Pressure range	100 bar
Temperature range	-20 ... +80 °C	Protection grade	IP67
Pipe diameter	Up to 400 mm	Response time	1 ... 13 s, typically 2 s
Media	Water · glycol · air · oil	Display	Four-digit LED, red or green

The device measures flow velocity, not volume flow — one sensor covers a range of pipe diameters.



MEASUREMENT

Measuring principle	Thermal · two measuring elements and a heating source on the probe
Flow range	Liquid 3 m/s · gas 100 m/s
Temperature range	-20 ... +80 °C
Response time	1 ... 13 s, typically 2 s
Initialization time	About 8 s
Temperature gradient	≤ 4 °C/s
Pressure range	100 bar
Pipe diameter	Up to 400 mm

MEDIA, MATERIALS AND TEMPERATURE

Applicable media	Water · ethylene glycol solution · air · oil
Body	Stainless steel 304
Wetted material	Stainless steel 304
Display head	ABS engineering plastic
Protection grade	IP67
Medium temperature	-20 ... +80 °C
Ambient temperature	-20 ... +80 °C
Storage temperature	-20 ... +100 °C
Process connection	G1/4 or G1/2 external thread · M18x1.5 internal thread
Weight	About 0.4 kg

ELECTRICAL PROPERTIES

Supply voltage	24 Vdc ± 20 %
Switching output	PNP or NPN · S1 for flow, S2 for temperature
Analogue output	0/4 ... 20 mA · 0/1 ... 5 V · 0/1 ... 10 V · flow or temperature
Pulse output	0 ... 1000 Hz · flow or temperature
Digital interface	IO-Link
Switching current	Max. 400 mA (PNP or NPN)
Current consumption	< 100 mA
Electrical protection	Reverse polarity · short circuit · overload
Wiring	M12x1 connector, 5-pin, or direct cable

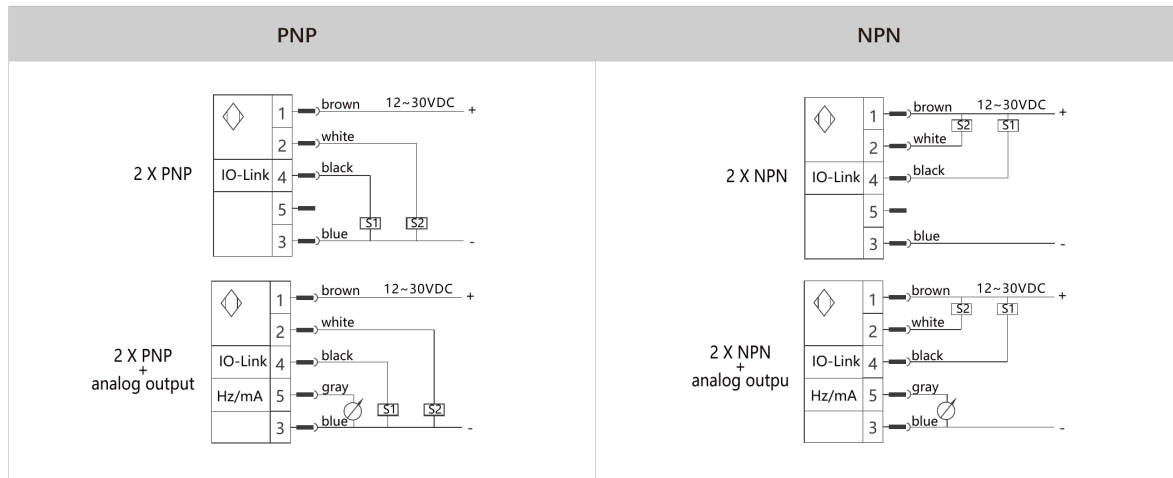
DISPLAY AND SETTING

Flow	Four-digit LED display
Temperature	Four-digit LED display
Process values	The display changes between red and green
Setting	By the two keys S1 and S2

Low-viscosity oil ≤ 40 mm²/s at 40 °C, high-viscosity oil > 40 mm²/s at 40 °C.



WIRING



Four versions: two switching outputs as PNP or as NPN, each of them also with the analogue or pulse output on pin 5. IO-Link runs on pin 4.

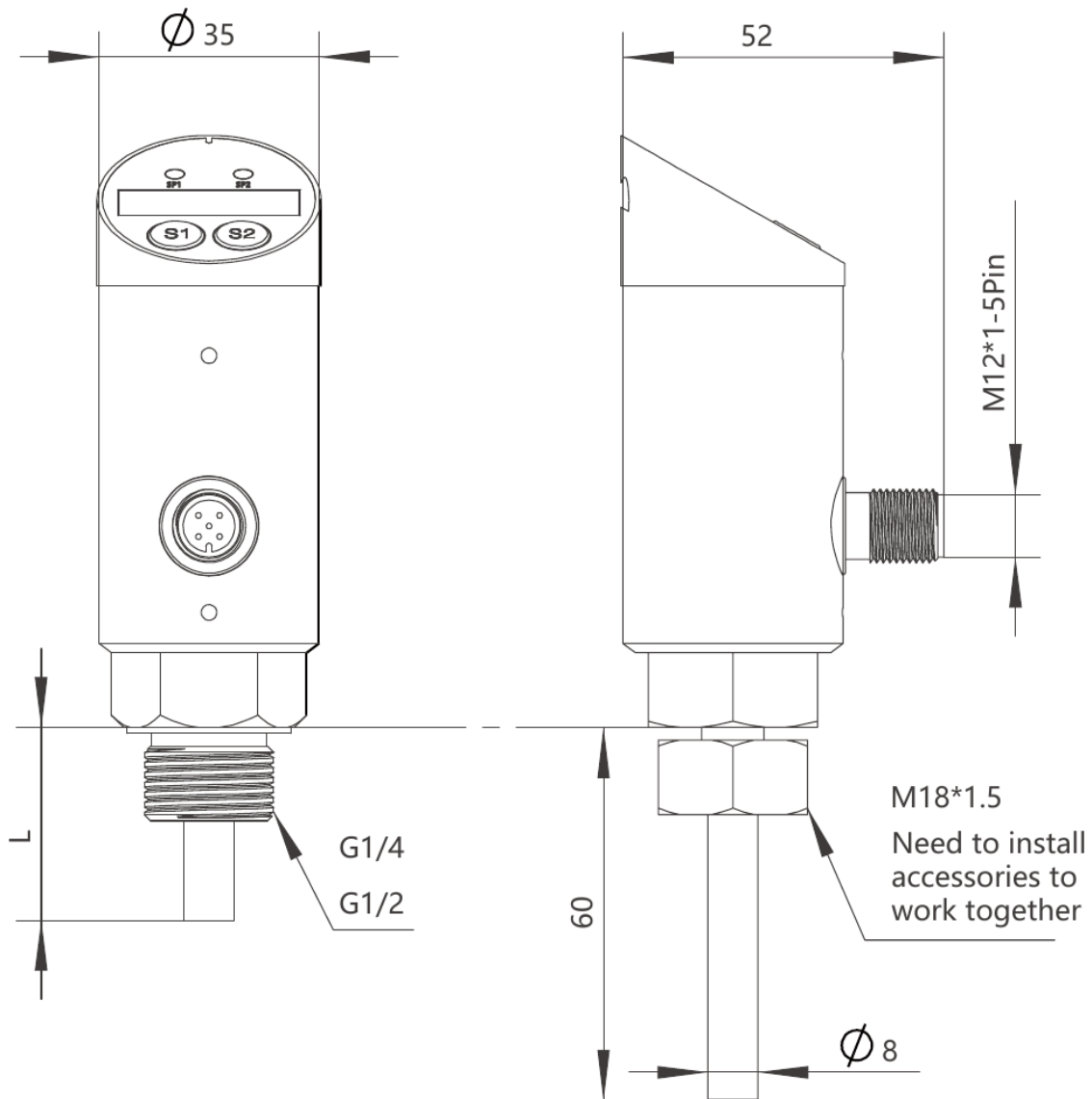
PIN ASSIGNMENT

Wire	Pin	Function
BN	1	Supply +
BU	3	Supply -
BK	4	Switching output S1 · flow
WH	2	Switching output S2 · temperature
GY	5	Analogue or pulse output · only with the output codes A3, V05, V10 and H3

Wire colours of the M12x1 5-pin connector: 1 BN brown, 2 WH white, 3 BU blue, 4 BK black, 5 GY grey.



DIMENSIONS (mm)



Head $\varnothing 35$ mm, 52 mm deep, with the M12x1 5-pin connector on the side. Probe $\varnothing 8$ mm; from the sealing face to the top of the head 60 mm. Left: the external thread versions G1/4 and G1/2. Right: the M18x1.5 internal thread version, which needs a mounting accessory. L is the probe length — standard, or 50 mm by order code.



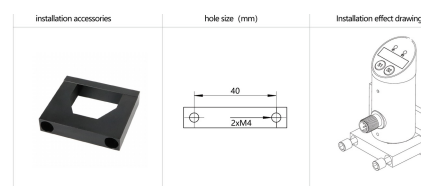
COMPLIANCE AND CERTIFICATION

Protection grade	IP67
IO-Link	Supported
Electrical protection	Reverse polarity, short circuit and overload protection
Wetted materials	Stainless steel 304 · display head ABS
Pressure rating	100 bar

ORDER CODE AND ACCESSORIES

Cable sockets and mounting bracket

- The sensor is wired through an M12x1 5-pin connector; the factory standard is a moulded socket with 2 m of cable. Sockets are offered with 2, 5 or 10 m of polyurethane or PVC cable, straight or angled, and as four- or five-pin connectors wired on site through a Pg7 or Pg9 gland. The mounting bracket FA027 holds the device on a panel or a wall through two M4 holes 40 mm apart; the drawing on the right shows it fitted.



Connector
M12x1 · 5-pin

Cable
2 · 5 · 10 m

ORDER CODE

Field	Code	Meaning
1 Series	QEKG	QEKG integrated flow and temperature sensor
2 Process	G12M	G1/2 external thread
	G14M	G1/4 external thread
	M18K	M18x1.5 internal thread · a mounting accessory is required; it also lets the device be turned into the right direction on site
3 Switching	P	PNP output
	N	NPN output
4 Output	S2	Two switching outputs
	A3	Two switching outputs + analogue 0/4 ... 20 mA
	V05	Two switching outputs + analogue 0/1 ... 5 V
	V10	Two switching outputs + analogue 0/1 ... 10 V
	H3	Two switching outputs + pulse 0 ... 1000 Hz
5 Probe length	—	Standard probe length
	50	Probe length L = 50 mm

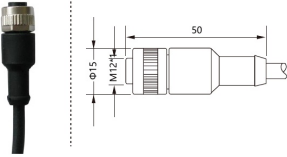
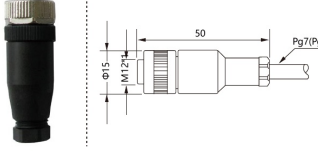
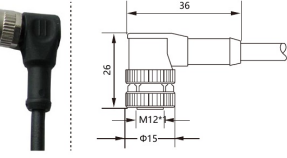
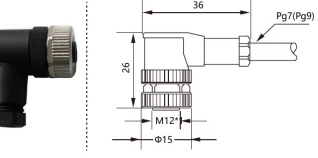
Example: QEKG-G12M-P-S2— . The factory standard is the M12 connector with 2 m of cable.



ACCESSORIES

Item	Order code	Data
Cable socket M12x1, 5-pin, straight, moulded cable	ZL05-PU02G · PU05G · PU010G · ZL05-PC02G · PC05G · PC010G	2, 5 or 10 m · PU is polyurethane, PC is PVC · the factory standard is 2 m
Cable socket M12x1, 5-pin, angled, moulded cable	ZL05-PU02W · PU05W · PU010W · ZL05-PC02W · PC05W · PC010W	2, 5 or 10 m
Field-wireable connector M12x1, straight	GL04 (4-pin) · GL05 (5-pin)	Pg7 or Pg9 cable gland · wired on site
Field-wireable connector M12x1, angled	WL04 (4-pin) · WL05 (5-pin)	Pg7 or Pg9 cable gland · wired on site
Mounting bracket	FA027	Two M4 holes, 40 mm apart · holds the device on a panel or a wall

These are the order numbers of the manufacturer.

name	Outline drawing/dimension drawing (mm)	material	model	M12* 1-4pin /5Pin self-connector/size drawing (mm)	model
12*1-5Pin (2m cable)		PUR	ZL05-PU02G		GL04 (4Pin joint)
12*1-5Pin (5m cable)			ZL05-PU05G		GL05 (5Pin joint)
12*1-5Pin (10m cable)			ZL05-PU010G		
		PVC	ZL05-PC02G		
			ZL05-PC05G		
			ZL05-PC010G		
12*1-5Pin (2m cable)		PUR	ZL05-PU02W		WL04 (4Pin joint)
12*1-5Pin (5m cable)			ZL05-PU05W		
12*1-5Pin (10m cable)			ZL05-PU010W		WL05 (5Pin joint)
		PVC	ZL05-PC02W		
			ZL05-PC05W		
			ZL05-PC010W		

