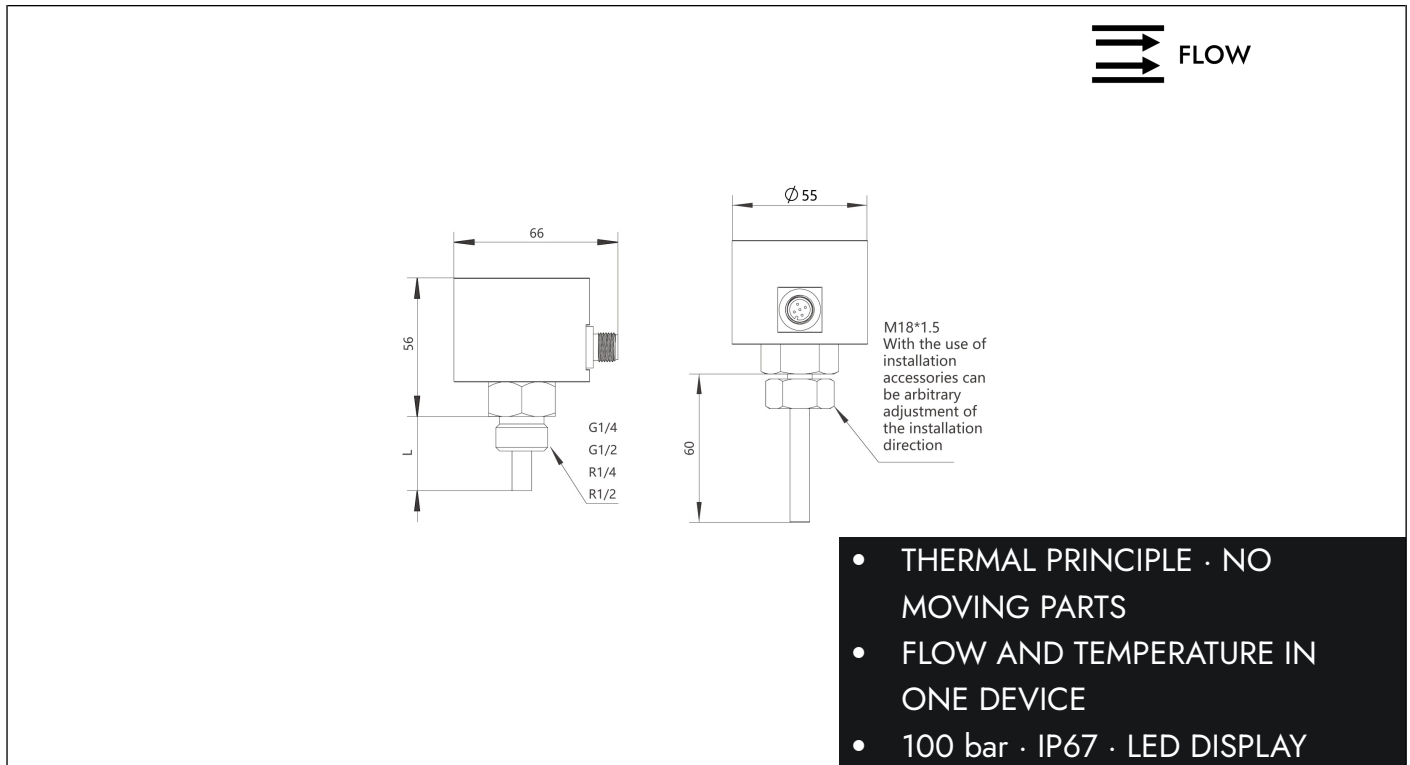


FLOW AND TEMPERATURE SENSOR



IP67



Stainless Steel

RANGES AND KEY DATA

Medium	Flow velocity (cm/s)	Property	Value
Water	1 ... 150	Temperature range	-20 ... +80 °C
Oil	3 ... 300	Withstand pressure	100 bar
Air	20 ... 2000	Protection grade	IP67
		Response time	1 ... 13 s, typically 2 s

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



MEASUREMENT

Measuring principle	Thermal · a sealed probe with a detection resistor and a reference resistor
Flow range	Water 1 ... 150 cm/s · oil 3 ... 300 cm/s · air 20 ... 2000 cm/s
Temperature range	-20 ... +80 °C
Response time	1 ... 13 s, typically 2 s
Initialization time	About 8 s
Temperature gradient	≤ 4 °C/s
Withstand pressure	100 bar

MATERIALS, PROCESS AND TEMPERATURE

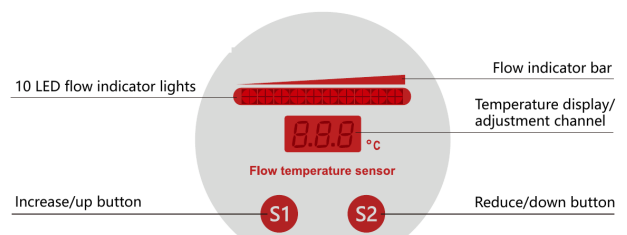
Wetted material	Stainless steel 304
Case	Stainless steel
Protection grade	IP67
Medium temperature	-20 ... +80 °C
Ambient temperature	-20 ... +80 °C
Storage temperature	-20 ... +100 °C
Process connection	G1/4 · G1/2 · R1/4 · R1/2 external thread · M18x1.5 internal thread
Weight	About 0.4 kg

ELECTRICAL PROPERTIES

Supply voltage	24 Vdc ± 20 %
Switching output	PNP or NPN · for flow and for temperature
Analogue output	0/4 ... 20 mA · 0/1 ... 5 V · 0/1 ... 10 V · for flow and for temperature
Switching current	Max. 400 mA (PNP or NPN)
Current consumption	< 100 mA
Electrical protection	Reverse polarity · short circuit · overload
Wiring	M12 connector or direct cable

DISPLAY AND SETTING

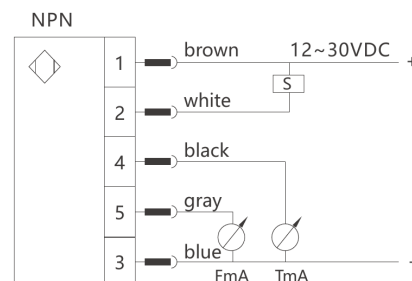
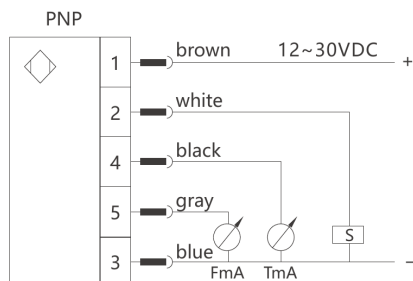
Flow	10-LED bar showing the trend and the switching state
Temperature	Three-digit LED display in °C
Setting	By the two keys S1 and S2



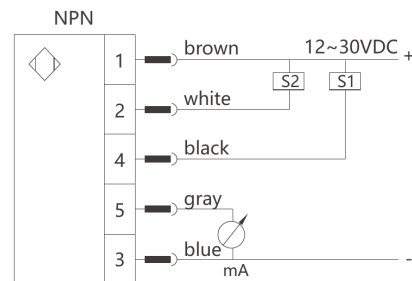
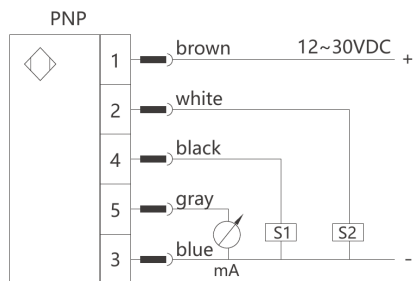
WIRING DIAGRAMS

wiring diagram

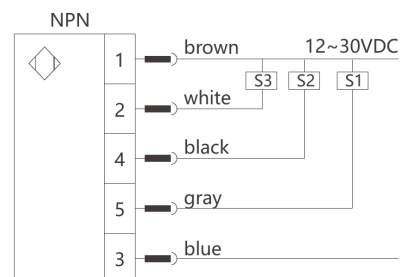
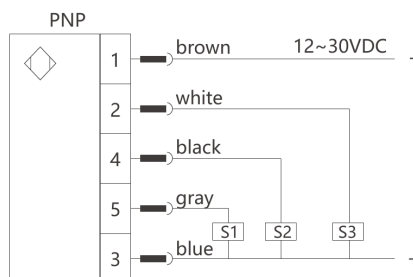
2 - way analog quantity + 1 - way switching quantity



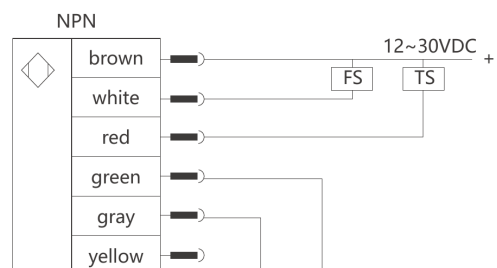
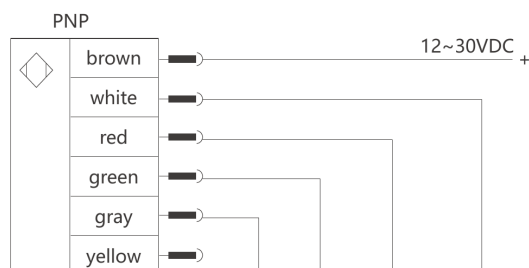
2 - way switch quantity + 1 - way analog quantity



3 - way switching quantity

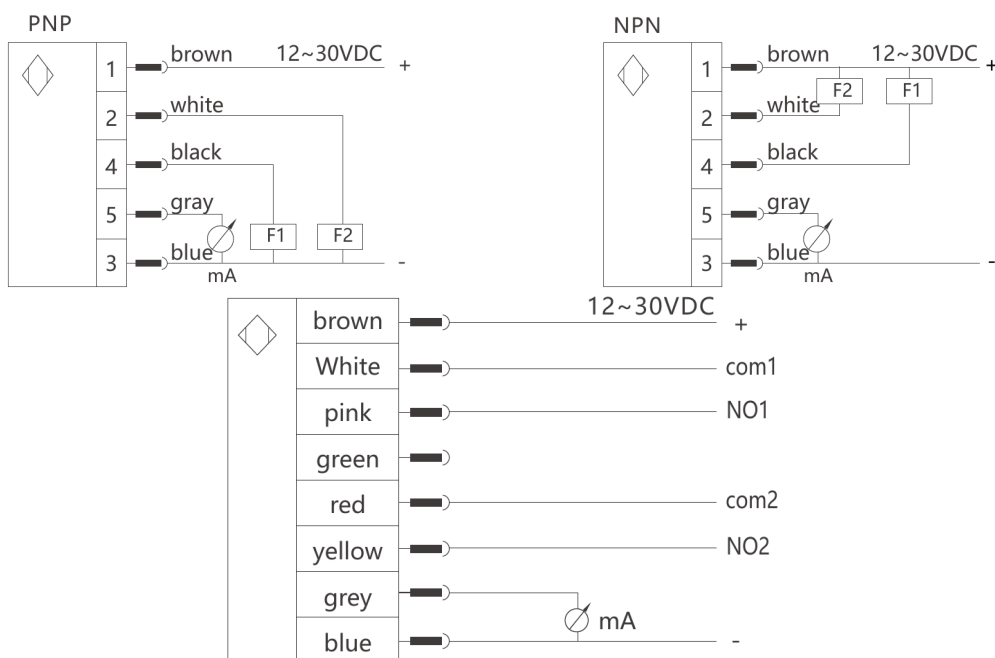


Temperature: analog + 1 switch/flow: analog + 1 switch



WIRING DIAGRAMS • CONTINUED

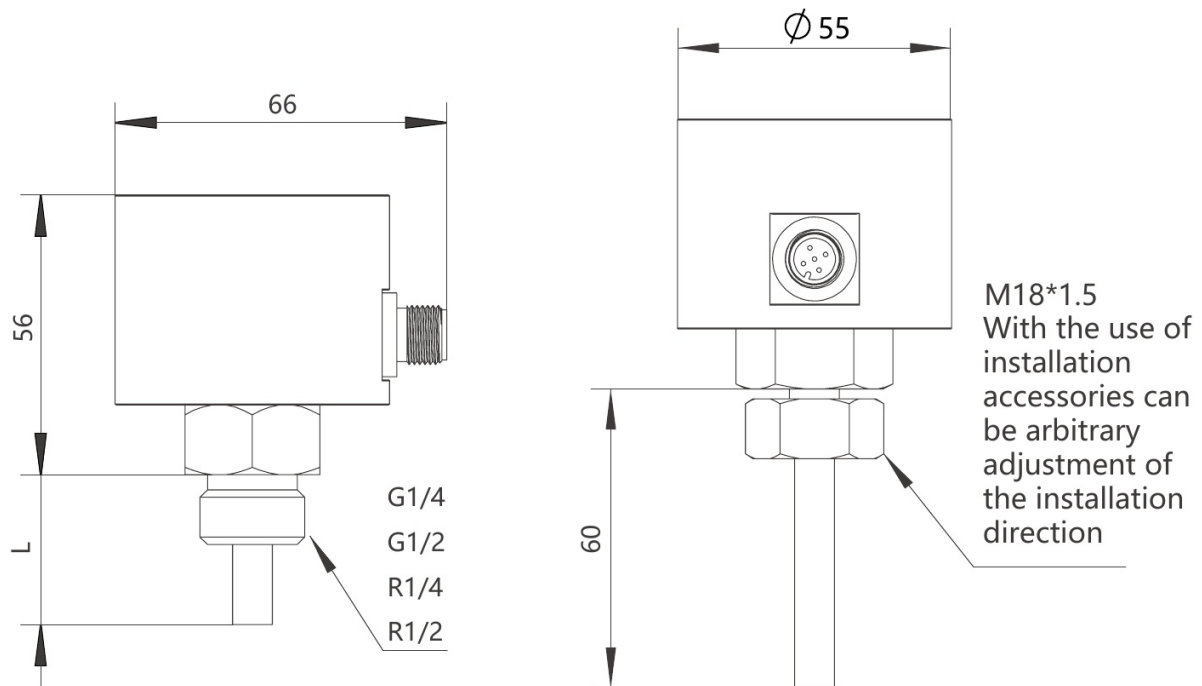




Wire colours of the M12x1 5-pin connector: 1 brown, 2 white, 3 blue, 4 black, 5 grey. The relay version is wired through eight cores and has two changeover contacts.



DIMENSIONS (mm)



Left: the external thread versions G1/4, G1/2, R1/4 and R1/2 — head 66 x 56 mm, housing $\varnothing$ 55 mm. Right: the M18x1.5 internal thread version, 60 mm from the thread to the top of the housing; with the installation accessories the direction of the device can be turned freely. L is the probe length — standard, or 50 mm by order code.



COMPLIANCE AND CERTIFICATION

Protection grade	IP67
Electrical protection	Reverse polarity, short circuit and overload protection
Wetted materials	Stainless steel 304 · case stainless steel
Pressure rating	100 bar

ORDER CODE AND ACCESSORIES

Cable sockets and process fittings

- The sensor is wired through an M12x1 5-pin connector. Two families of cable sockets are offered: moulded sockets with 2, 5 or 10 m of polyurethane or PVC cable, straight or angled, and connectors that are wired on site through a Pg7 or Pg9 gland. For the process side there are welding bases, adapters and tees in stainless steel 304 and in polypropylene; with the M18x1.5 internal thread they also let the device be turned into the right direction after installation.

Electrical accessories - electrical accessories			
name	Outline drawing/dimension drawing (mm)	material	model
M12x1 5-pin (2m cable)		PUR	ZL05-PUR02G
M12x1 5-pin (5m cable)		PUR	ZL05-PUR05G
M12x1 5-pin (10m cable)		PUR	ZL05-PUR10G
M12x1 5-pin (2m cable)		PVC	ZL05-PC02G
M12x1 5-pin (5m cable)		PVC	ZL05-PC05G
M12x1 5-pin (10m cable)		PVC	ZL05-PC10G
M12x1 5-pin (2m cable)		PUR	ZL05-PUR02W
M12x1 5-pin (5m cable)		PUR	ZL05-PUR05W
M12x1 5-pin (10m cable)		PUR	ZL05-PUR10W
M12x1 5-pin (2m cable)		PVC	ZL05-PC02W
M12x1 5-pin (5m cable)		PVC	ZL05-PC05W
M12x1 5-pin (10m cable)		PVC	ZL05-PC10W

Connector
M12x1 · 5-pin

Cable
2 · 5 · 10 m

ORDER CODE

Field	Code	Meaning
1 Series	QEK C	QEK C flow and temperature sensor
2 Process	G12M	Interface thread G1/2 external thread
	G14M	Interface thread G1/4 external thread
	R12M	Interface thread R1/2 external thread
	R14M	Interface thread R1/4 external thread
	M18K	Interface thread M18x1.5 internal thread · with the installation accessories the direction of the device can be turned on site
3 Output	S2	One temperature switch + one flow switch
	S3	Two temperature switches + one flow switch
	SAF	Two analogue channels (0/4 ... 20 mA) + one flow switch
	SAT	Two analogue channels (0/4 ... 20 mA) + one temperature switch
	DA	Temperature: analogue + one switch · flow: analogue + one switch
	V5F	Two analogue channels (0/1 ... 5 V) + one flow switch
	V5T	Two analogue channels (0/1 ... 5 V) + one temperature switch
	V10F	Two analogue channels (0/1 ... 10 V) + one flow switch
	V10T	Two analogue channels (0/1 ... 10 V) + one temperature switch
	A3	One temperature switch + one flow switch + analogue (0/4 ... 20 mA)
	V05	One temperature switch + one flow switch + analogue (0/1 ... 5 V)
	V10	One temperature switch + one flow switch + analogue (0/1 ... 10 V)
	FS2	Two flow switches + one analogue flow channel
4 Probe length	—	Standard probe length
	50	Probe length L = 50 mm

Example: QEK C-G12M-S2— . The factory standard is the M12 connector with 2 m of cable. With the



M18x1.5 internal thread the installation accessories below are needed.

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
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
Welding base	FA002-G14 · FA002-G12 · FA002-R14 · FA002-R12 · FA002-M18	Stainless steel 304 · welded into the pipe, the sensor screws in
Adapter M18x1.5 internal to G1/4 or G1/2 male	FA004-M18G14S · FA004-M18G14T · FA004-M18G12S · FA004-M18G12T	S is stainless steel 304, T is brass · probe insertion depth 15 mm
Tee M18x1.5 internal thread	FA003-M18G14 · FA003-M18G38 · FA003-M18G12 · FA003-M18G34 · FA003-M18G1	Stainless steel 304 · with a G1/4 to G1 branch
Tee, polypropylene	—	Six sizes · for water and non-aggressive media

These are the order numbers of the manufacturer.

