

FLOW AND TEMPERATURE SENSOR



- FLOW AND TEMPERATURE IN ONE DEVICE
- NO MOVING PARTS · NOT AFFECTED BY STATIC PRESSURE
- G3/8 ... G2 · 2 ... 400 L/min · 2 x 4 ... 20 mA · RS485



Stainless
Steel

KEY DATA

Property	Value	Property	Value
Flow range	2 ... 400 L/min	Temperature range	0 ... 100 °C
Flow accuracy	< ± 3.0 % F.S.	Temperature accuracy	≤ 2.0 °C
Repeatability	< 2.0 %	Pressure level	10 bar · max. 16 bar
Process connection	G3/8 ... G2 internal	Display	OLED, 1.5"
Output	2 x 4 ... 20 mA · switches · pulse · RS485		

The device measures flow and temperature at the same time and totalizes the flow.



MEASUREMENT

Flow range	2 ... 400 L/min, depending on the size
Flow accuracy	< ± 3.0 % of full scale
Repeatability	< 2.0 %
Temperature range	0 ... 100 °C
Temperature accuracy	≤ 2.0 °C
Linearization	5-point flow curve
Totalizer	Totalized flow on the display
Static pressure	The reading is not affected by the static pressure in the pipe

MEDIA, MATERIALS AND PROCESS

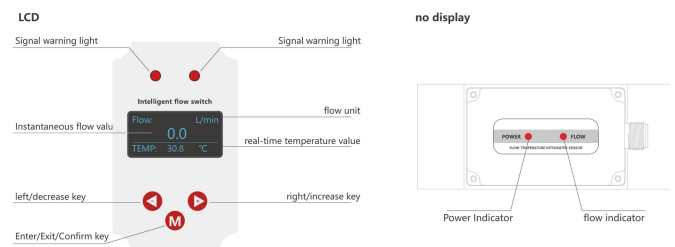
Media	Liquids and gases · cooling water, circulating water, organic and inorganic solutions, oxygen, nitrogen, ammonia, natural gas
Wetted material	POM and stainless steel 304
Medium temperature	-20 ... +100 °C
Ambient temperature	-10 ... +65 °C
Pressure level	10 bar · maximum 16 bar
Process connection	G3/8 ... G2 internal thread · G thread or R thread
Mounting	Bracket · four M4 threads, 10 mm deep, in the underside of the body

ELECTRICAL PROPERTIES

Analogue output	2 x 4 ... 20 mA, three-wire · flow and temperature · load up to 500 Ω
Switching output	Two alarm switches, PNP or NPN · 24 Vdc / 400 mA · freely settable over the whole range
Pulse output	Flow · up to 1 kHz · scaling on request, e.g. one pulse per litre
Digital interface	RS485
Wiring	M12x1 connector · eight cores with display, five without

DISPLAY AND SETTING

Display	OLED, 1.5"
Reading	Instantaneous flow, totalized flow and temperature
Indicators	Two signal lights above the display
Setting	By the three keys ◀, M and ▶
Blind version	No display · two indicators, power and flow



Left the version with the OLED display and three keys, right the blind version with two indicators.

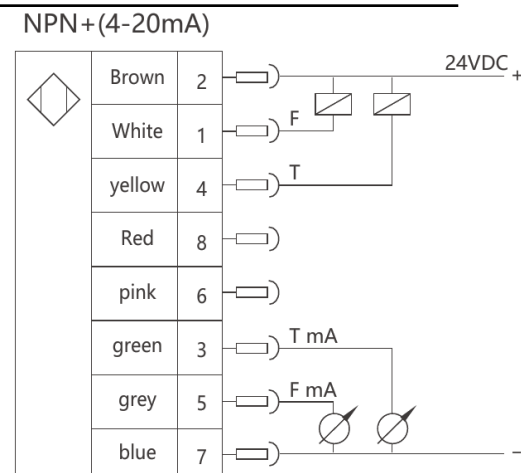
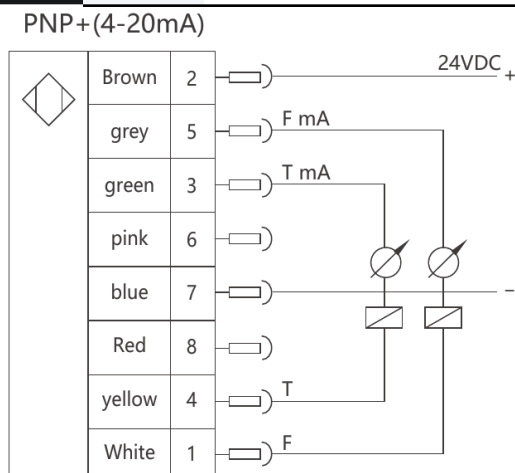


WIRING

Four wiring versions, set by the fourth field of the order code. The versions with display carry two switches on eight cores; the blind versions carry two analogue channels and a pulse, or RS485, on five cores. PNP and NPN are the same device with the switching transistor the other way round.

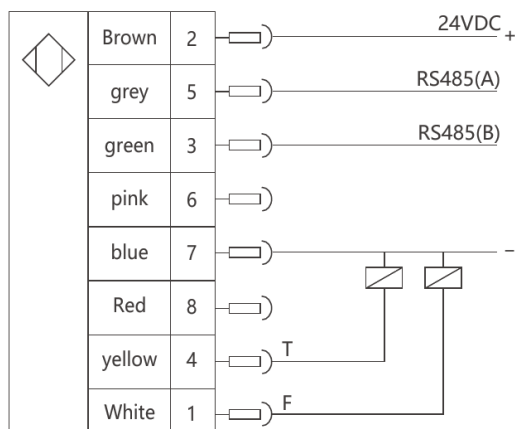
PIN ASSIGNMENT · WITH DISPLAY

Wire · 8 cores	Pin	P1 · N1	PR · NR
BN	2	Supply +	Supply +
BU	7	Supply -	Supply -
WH	1	Flow switch (F)	Flow switch (F)
YE	4	Temperature switch (T)	Temperature switch (T)
GY	5	Flow · 4 ... 20 mA	RS485 (A)
GN	3	Temperature · 4 ... 20 mA	RS485 (B)
PK · RD	6 · 8	Not used	Not used

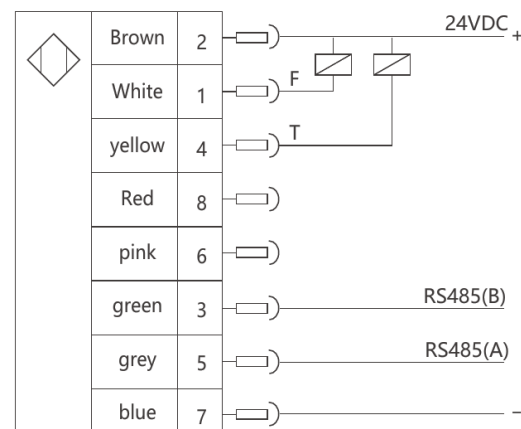


P1 and N1 — two switches and two analogue channels.

PNP+(RS485)



NPN+(RS485)

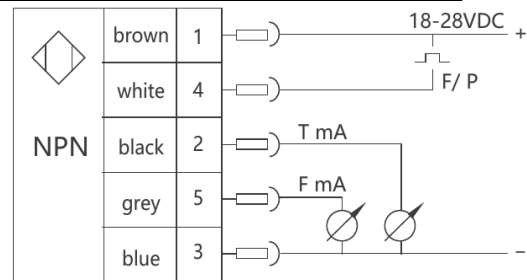
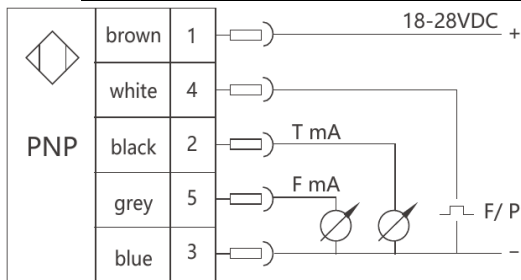


PR and NR — two switches and RS485. The two analogue channels are replaced by the RS485 pair; the two switches stay.

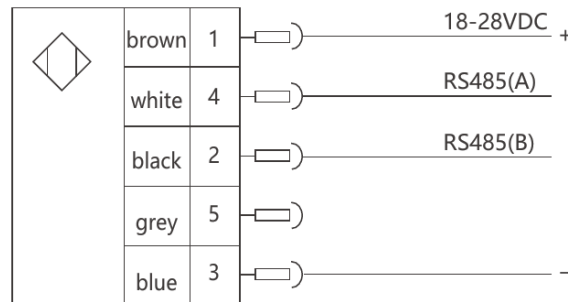


PIN ASSIGNMENT · BLIND VERSIONS

Wire · 5 cores	Pin	P · N	R
BN	1	Supply +	Supply +
BU	3	Supply -	Supply -
GY	5	Flow · 4 ... 20 mA	Not used
BK	2	Temperature · 4 ... 20 mA	RS485 (B)
WH	4	Flow pulse	RS485 (A)



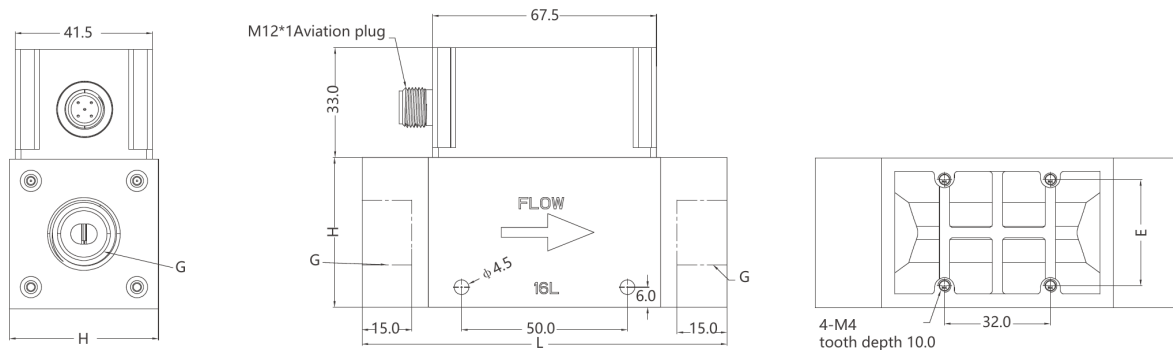
P and N — two analogue channels and the flow pulse.



R — RS485 alone.



DIMENSIONS (mm)



Left the view on the connector face, centre the side view with the flow direction, right the underside with the four M4 threads, 10 mm deep. H is the body height and width, E the spacing of the threads and L the overall length; all three depend on the size code. The electronics housing does not: it is 67.5 x 41.5 mm and stands 33.0 mm above the body on every size.

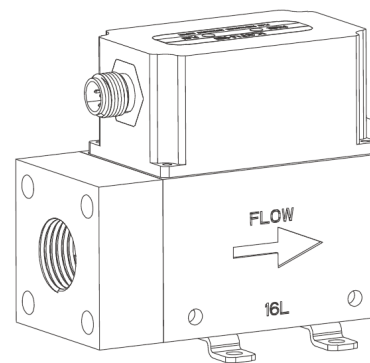
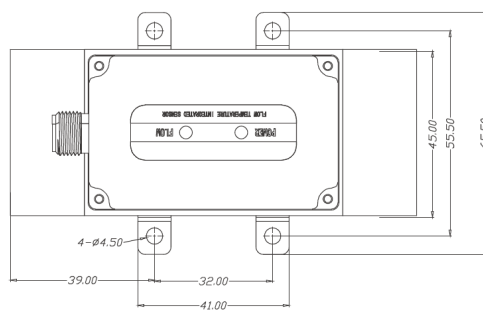
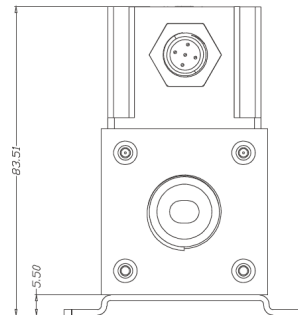
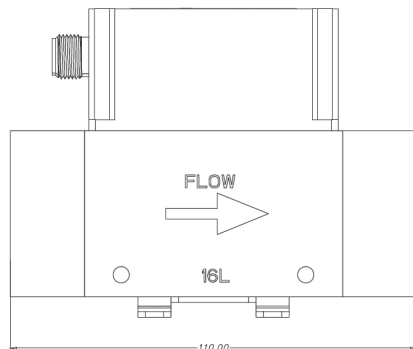
SIZES AND DIMENSIONS

Size code	Process connection G	Body H (mm)	Fixing E (mm)	Length L (mm)	Range (L/min)
016A	3/8"	45 x 45	32 x 32	110	2 ... 16
016B	1/2"	45 x 45	32 x 32	110	2 ... 16
040A	1/2"	45 x 45	32 x 32	110	5 ... 40
040B	3/4"	45 x 45	32 x 32	110	5 ... 40
100A	3/4"	45 x 45	32 x 32	110	10 ... 100
100B	1"	45 x 45	32 x 32	110	10 ... 100
250A	1-1/4"	58 x 58	32 x 31	114	50 ... 250
250B	1-1/2"	58 x 58	32 x 31	114	50 ... 250
400A	1-3/4"	65 x 65	32 x 31	130	150 ... 400
400B	2"	65 x 65	32 x 31	130	150 ... 400

The size code is the second field of the order code; it fixes the thread, the body and the range at the same time. Two sizes share every range — the A version has the smaller thread, the B version the larger one. Body width and height are equal; the electronics housing is the same on every size, 67.5 x 41.5 mm and 33.0 mm above the body.



MOUNTING AND BRACKETS

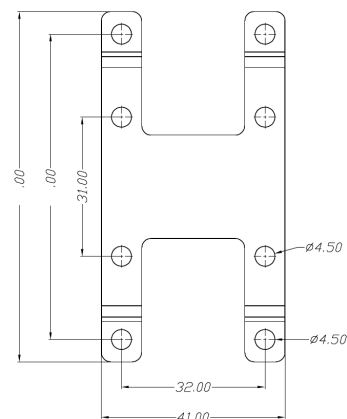
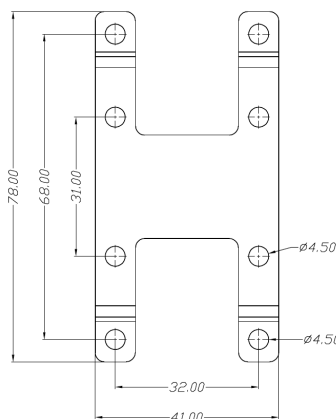
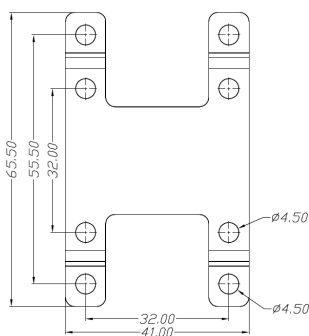


The device on its bracket, drawn for the size code 016A. The bracket is screwed to the underside of the body and carries it clear of the mounting surface.

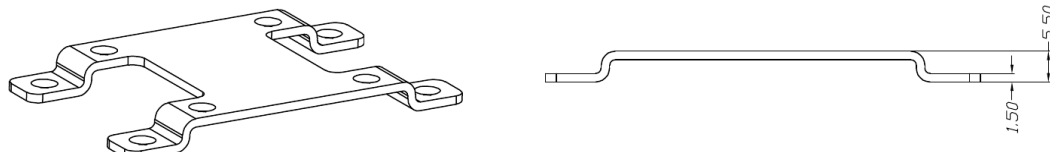
BRACKETS

Bracket for size code	Plate (mm)	Hole spacing (mm)
016A ... 100B	41.0 x 65.5	32.0 across · 55.5 and 32.0 along
250A · 250B	41.0 x 78.0	32.0 across · 68.0 and 31.0 along
400A · 400B	41.0 x —	32.0 across · — and 31.0 along

Every bracket carries eight Ø 4.5 holes in two rows — four hold the device, four hold the bracket. The sheet is 1.5 mm thick and offset by 5.5 mm, and the device is screwed to the four M4 threads in the underside of its body. The spacing across the plate, 32.0 in a plate 41.0 wide, is the same on all three brackets; the spacings along the plate follow the body.



The three brackets: left for the size codes 016A to 100B, centre for 250A and 250B, right for 400A and 400B.



The bracket seen from above and from the side — sheet 1.5 mm thick, offset 5.5 mm.



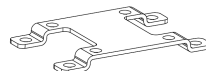
COMPLIANCE AND CERTIFICATION

Flow accuracy	< ± 3.0 % of full scale
Temperature accuracy	≤ 2.0 °C
Repeatability	< 2.0 %
Wetted materials	POM and stainless steel 304
Pressure rating	10 bar, maximum 16 bar

ORDER CODE AND ACCESSORIES

Cable sockets and brackets

- The blind versions are wired through an M12x1 5-pin connector; sockets are offered with 2, 5 or 10 m of polyurethane or PVC cable, straight or angled, and as connectors wired on site through a Pg7 or Pg9 gland. The versions with display use eight cores and need an 8-pin socket. The mounting bracket is delivered in three sizes to suit the body; its dimensions are in the mounting section.



Connector
M12x1

Cable
2 · 5 · 10 m

ORDER CODE

Field	Code	Meaning
1 Series	QEKI	QEKI integrated flow and temperature sensor
2 Size	016A ... 400B	Size code from the dimension table — thread, body and range in one field
3 Thread	GK	G thread, internal
	RK	R thread, internal
4 Output	P1	Two switches + two analogue channels (PNP) · with display
	N1	Two switches + two analogue channels (NPN) · with display
	PR	Two switches + RS485 (PNP) · with display
	NR	Two switches + RS485 (NPN) · with display
	P	Two analogue channels + flow pulse (PNP) · no display
	N	Two analogue channels + flow pulse (NPN) · no display
	R	RS485 · no display

Example: QEKI-016A-GK-P1. The fourth field decides the display as well as the output: P1, N1, PR and NR are the versions with the OLED display and eight cores, P, N and R the blind versions with five cores.



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
Mounting bracket, three sizes	—	Dimensions in the mounting section

These are the order numbers of the manufacturer. The sockets listed fit the five-core blind versions.

