

## IMPELLER FLOWMETER DN12 ... DN300



- IMPELLER · 0.4 ... 1800 M<sup>3</sup>/H
- STAINLESS STEEL · THREAD, FLANGE OR CLAMP
- IP67 · SWITCH · 4 ... 20 MA · PULSE



IP67

Stainless  
Steel

## KEY DATA

| Property           | Value                                   | Property           | Value              |
|--------------------|-----------------------------------------|--------------------|--------------------|
| Flow range         | 0.4 ... 1800 m <sup>3</sup> /h, by size | Nominal size       | DN12 ... DN300     |
| Accuracy           | ≤ ± 2 % of range                        | Switching accuracy | ≤ ± 0.5 % of range |
| Analogue accuracy  | ≤ ± 0.5 % of range                      | Response time      | < 10 ms            |
| Medium temperature | -20 ... +85 °C                          | Protection grade   | IP67               |
| Output             | Switch · 4 ... 20 mA · pulse            | Supply voltage     | 12 ... 30 Vdc      |

The medium turns a vaned wheel and the electronics count its revolutions; the reading is totalized on a six-digit display.



## MEASUREMENT

|                     |                                                                                  |
|---------------------|----------------------------------------------------------------------------------|
| Measuring principle | Impeller · the medium turns a vaned wheel, the electronics count its revolutions |
| Flow range          | 0.4 ... 1800 m³/h, depending on the nominal size — see the range table           |
| Accuracy            | ≤ ± 2 % of the range                                                             |
| Switching accuracy  | ≤ ± 0.5 % of the range                                                           |
| Analogue accuracy   | ≤ ± 0.5 % of the range                                                           |
| Response time       | < 10 ms                                                                          |
| Nominal size        | DN12 ... DN300                                                                   |
| Reading             | LCD · 000000 ... 999999                                                          |

## MATERIALS AND PROCESS

|                     |                                                                                        |
|---------------------|----------------------------------------------------------------------------------------|
| Media               | Slurry, water, diesel and petrol — high and low viscosity                              |
| Case                | Stainless steel                                                                        |
| Housing             | Stainless steel 304                                                                    |
| Impeller            | Duplex stainless steel                                                                 |
| Medium temperature  | -20 ... +85 °C                                                                         |
| Ambient temperature | -20 ... +80 °C · storage -30 ... +80 °C                                                |
| Nominal pressure    | DN12 ... DN32 6.3 · 16 · 25 · 40 MPa · DN40 ... DN100 2.5 MPa · from DN125 1.6 MPa     |
| Process connection  | External or internal thread up to DN50 · flange from DN15 · sanitary clamp up to DN100 |
| Protection grade    | IP67                                                                                   |

## ELECTRICAL PROPERTIES

|                |                                                            |
|----------------|------------------------------------------------------------|
| Supply voltage | 12 ... 30 Vdc                                              |
| Output         | Switch, analogue or pulse — fourth field of the order code |
| Output current | < 500 mA                                                   |
| Protection     | Reverse polarity, overload and short circuit               |
| Wiring         | M12x1 connector, 5-pin                                     |

## DISPLAY AND SETTING

|              |                                     |
|--------------|-------------------------------------|
| Display      | LCD                                 |
| Reading      | 000000 ... 999999                   |
| Switch lamps | S1 and S2 on the front              |
| Setting      | Two keys and a set key on the front |



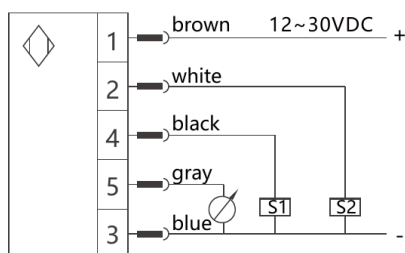
## WIRING

Four wiring versions, set by the fourth field of the order code. All four are wired through the same five cores of the M12x1 connector.

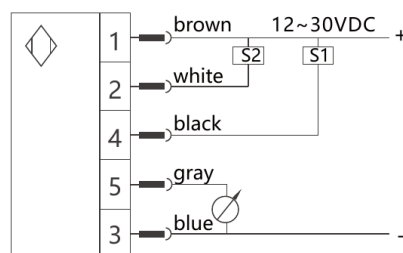
## PIN ASSIGNMENT

| Wire | Pin | Function                                                               |
|------|-----|------------------------------------------------------------------------|
| BN   | 1   | Supply +                                                               |
| BU   | 3   | Supply -                                                               |
| GY   | 5   | Analogue · 4 ... 20 mA                                                 |
| BK   | 4   | Switch S1                                                              |
| WH   | 2   | Switch S2 or the pulse — depends on the fourth field of the order code |

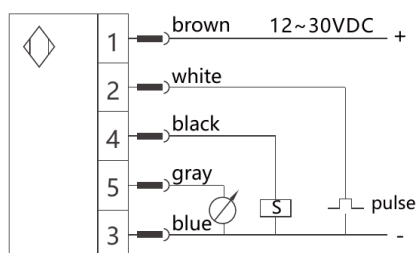
2 X PNP  
+  
analog output



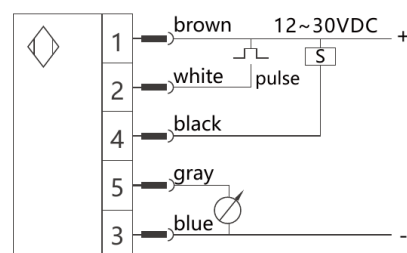
2 X NPN  
+  
analog output



PNP+ pulse + analog



NPN+pulse + analog



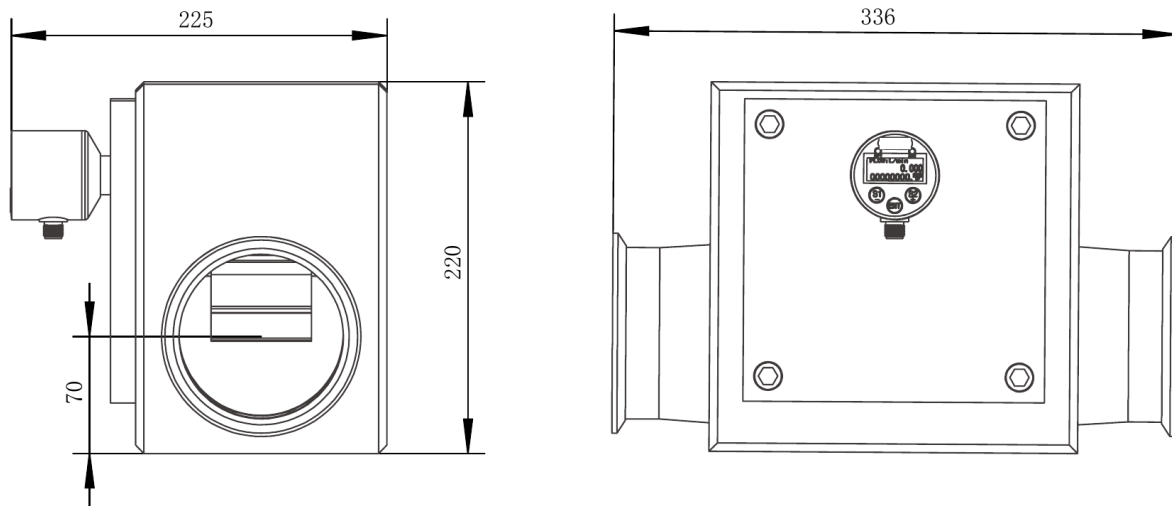
Above the two versions with two switches and an analogue output, PNP left and NPN right; below the two versions with one switch, the pulse and the analogue output.

Wire colours to IEC 60757: BN brown, BU blue, GY grey, BK black, WH white. PNP and NPN are the same device with the switching transistor the other way round; the analogue output is on the grey core in every version.



## DIMENSIONS (mm)

DN100



The size DN100. Left the side view with the display head, right the view along the pipe with the connector.

Dimensions of the size DN100, drawn above: 225 mm from the front face to the back, 336 mm across the flanges, 220 mm high and 70 mm from the pipe axis to the underside.

## RANGES AND PRESSURES

| Nominal size | Order code | Flow from (m³/h) | Flow to (m³/h) | Nominal pressure PN (MPa) |
|--------------|------------|------------------|----------------|---------------------------|
| DN12         | 012        | 0.4              | 4              | 6.3 · 16 · 25 · 40        |
| DN15         | 015        | 0.6              | 6              | 6.3 · 16 · 25 · 40        |
| DN20         | 020        | 0.8              | 8              | 6.3 · 16 · 25 · 40        |
| DN25         | 025        | 1                | 10             | 6.3 · 16 · 25 · 40        |
| DN32         | 032        | 1.5              | 15             | 6.3 · 16 · 25 · 40        |
| DN40         | 040        | 2                | 20             | 2.5                       |
| DN50         | 050        | 4                | 40             | 2.5                       |
| DN65         | 065        | 8                | 80             | 2.5                       |
| DN80         | 080        | 10               | 100            | 2.5                       |
| DN100        | 100        | 20               | 222            | 2.5                       |
| DN125        | 125        | 25               | 250            | 1.6                       |
| DN150        | 150        | 40               | 400            | 1.6                       |
| DN200        | 200        | 80               | 800            | 1.6                       |
| DN250        | 250        | 120              | 1200           | 1.6                       |



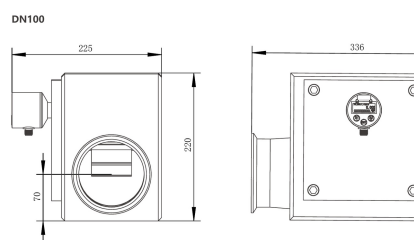
## COMPLIANCE AND CERTIFICATION

|                     |                                                                                             |
|---------------------|---------------------------------------------------------------------------------------------|
| Protection grade    | IP67                                                                                        |
| Measuring principle | Impeller                                                                                    |
| Accuracy            | $\leq \pm 2\%$ of the range · switching and analogue accuracy $\leq \pm 0.5\%$ of the range |
| Wetted materials    | Stainless steel 304 and duplex stainless steel                                              |
| Pressure rating     | 6.3 to 40 MPa up to DN32, 2.5 MPa to DN100, 1.6 MPa above                                   |

## ORDER CODE AND ACCESSORIES

## Cable sockets

- The device is 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. Flange, thread and clamp are fields of the order code, not separate parts.



Connector  
M12x1 · 5-pin

Cable  
2 · 5 · 10 m

Example: QFKD-015-DC-S2-M-Q. The fifth field is limited by the nominal size: a thread only up to DN50, a flange only from DN15, a clamp only up to DN100 — DN125 and above are therefore available with a flange only.

## ORDER CODE

| Field        | Code        | Meaning                              |
|--------------|-------------|--------------------------------------|
| 1 Series     | QFKD        | QFKD impeller flowmeter              |
| 2 Size       | 012 ... 250 | DN12 ... DN250 — see the range table |
| 3 Supply     | DC          | DC supply                            |
| 4 Output     | PAF · NAF   | PNP or NPN + analogue + pulse        |
|              | S2          | Two switches                         |
|              | SF          | Two switches + pulse                 |
|              | A3          | Two switches + analogue 4 ... 20 mA  |
| 5 Connection | M           | External thread — for DN50 and below |
|              | K           | Internal thread — for DN50 and below |
|              | F           | Flange — for DN15 and above          |
|              | H           | Sanitary clamp — for DN100 and below |
| 6 Electrical | Q           | M12x1 connector                      |



## ACCESSORIES

| Item                                                  | Order code                                                      | Data                                         |
|-------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------|
| Cable socket M12x1, 5-pin,<br>straight, moulded cable | ZL05-PU02G · PU05G · PU010G ·<br>ZL05-PC02G · PC05G · PC010G    | 2, 5 or 10 m · PU is polyurethane, PC is PVC |
| Cable socket M12x1, 5-pin,<br>angled, moulded cable   | ZL05-PU02W · PU05W · PU010W<br>· ZL05-PC02W · PC05W ·<br>PC010W | 2, 5 or 10 m                                 |
| Field-wireable connector M12x1,<br>straight           | GL04 (4-pin) · GL05 (5-pin)                                     | Pg7 or Pg9 cable gland · wired on site       |
| Field-wireable connector M12x1,<br>angled             | WL04 (4-pin) · WL05 (5-pin)                                     | Pg7 or Pg9 cable gland · wired on site       |

