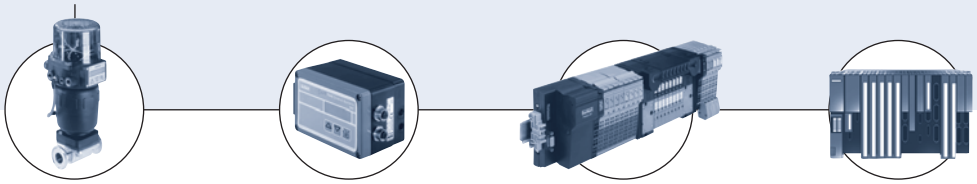
bürkert
FLUID CONTROL SYSTEMS

# Digital inductive conductivity transmitter

- Fully integrated in Bürkert's process control systems
- Insensitive to coating fluids
- Wide range of applications: Fertiliser dosing, cooling water monitoring, concentration measurement

Type 8223 can be combined with...



**Type 2031**
Valve for continuous control

**Type 1067**
Continuous SideControl

**Type 8644**
Valve islands

**PLC**

The conductivity transmitter Type 8223 is available in a splash-proof plastic IP65 housing.

The sensor component consists of a pair of magnetic coils in a PP, PVDF or PEEK housing. In order to measure conductivity, an AC voltage source is connected to the primary magnetic coil. The magnetic field induced generates a current in the secondary magnetic coil.
The intensity of the induced current is a direct function of the conductivity of the solution.

The integrated temperature sensor for automatic compensation is a standard feature in the sensor housing. The transducer Type 8223 functions in a 3-wire circuit and requires a power supply of 12-30 VDC.

4...20 mA standard signal is available as output signal, proportional to the conductivity or the temperature of the fluid.
A wide range of stainless steel, brass and plastic fittings are available (see datasheet Type S020).

| **Technical data** | |
|---|---|
| **General data** | |
| **Compatibility** | with fittings S020 (see corresponding datasheet) |
| **Materials** | |
| Housing / Nut | PEHD / PC glass reinforced fibre |
| Cable plug / Screws | PA / Stainless steel |
| Wetted parts materials | |
| Fitting | Brass, stainless steel 1.4404/316L, PVC, PP or PVDF |
| Sensor holder / Seal | PP, PVDF or PEEK / FKM or EPDM |
| **Electrical connections** | Cable plug EN 175301-803 |
| **Connection cable** | Shielded, cross-section: max. 1.5 $mm^2$ |
| **Complete device data (fitting + electronic module)** | |
| **Pipe diameter** | DN 15 up to DN 200 |
| **Conductivity measurement** | |
| Measuring range | 10 µS/cm up to 1 mS/cm - 100 µS/cm up to 10 mS/cm<br>1 mS/cm up to 100 mS/cm - 10 mS/cm up to 1 S/cm |
| Accuracy | ± 2 % of F.S.* |
| **Temperature measurement** | |
| Measuring range | -10 up to +80°C |
| Accuracy | ± 2 % of F.S.* (within 0 up to +70°C) |
| **Medium temperature max.** | with fitting in PVC: 50°C,<br>PP, PVDF, stainless steel, brass: 80°C |
| **Temperature compensation** | automatic (with integrated temperature sensor - reference temperature 25°C) |
| **Fluid pressure max.** | PN6 (see pressure/temperature chart) |
| **Electrical data** | |
| **Power supply** | 12-30 V DC (regulated and filtered) |
| **Current consumption** with sensor | ≤ 50 mA + 22 mA analog output |
| **Output: analog signal** | 4-20 mA programmable, proportional to conductivity or temperature<br>max. load: 1000 Ω at 30 V DC; 690 Ω at 24 V DC;<br>300 Ω at 15 V DC; 150 Ω at 12 V DC |

* of F.S. = of full scale

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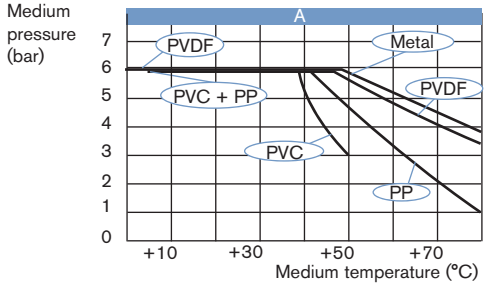
| Environment | |
|---|---|
| **Ambient temperature** | 0 up to 60°C (operation and storage) |
| **Relative humidity** | ≤ 80%, non condensated |
| **Standard** | |
| **Protection class** | IP65 with cable plug mounted and tightened |

## Pressure / Temperature diagram

Please be aware of the fluid pressure-temperature dependance according to the respective fitting+sensor material as shown in the diagram.




A: Application range for complete device (fitting + transmitter)

## Programming

Configuration is done by DIP switches

**SW1:** Selection of

- measuring range (switches 1 and 2)
- filtering level of conductivity (switches 3 and 4)

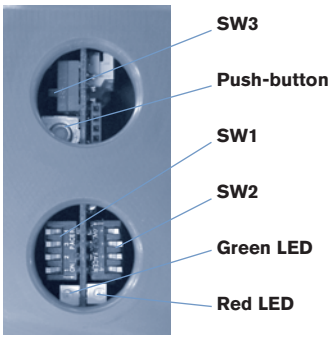
**SW2:** Selection of

- temperature compensation or
- transmission of temperature on 4...20 mA output

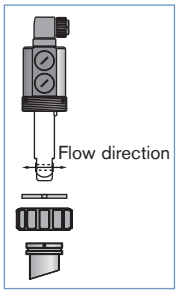
**SW3:** Selection of

- current output mode, sinking or sourcing

Push-button allows calibration of sensor "zero conductivity" point.




## Installation

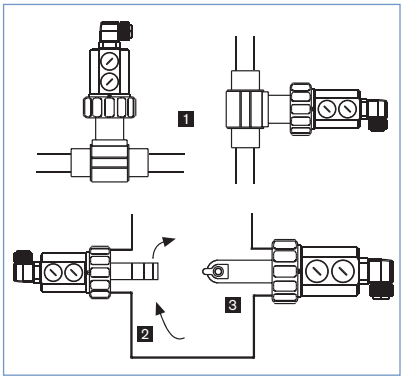



The 8223 conductivity transmitter can easily be installed into any Bürkert insertion fitting system (S020) by just fixing the main nut.

The device must be protected against constant heat radiation and other environmental influences, such as magnetic fields or direct exposure to sunlight.

The device can be mounted in following positions:

1- Horizontal or vertical pipes
2- Mounting in tank without mixer
3- Mounting in tank with mixer.

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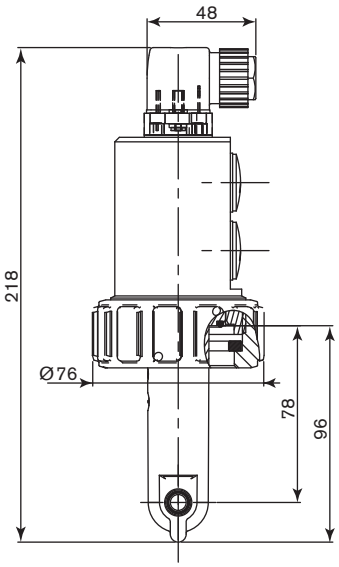
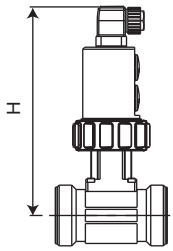
## Dimensions [mm]




| DN [mm] | H [mm] | | |
|---|---|---|---|
| | T-Fitting | Plastic spigot | Metal spigot |
| 15 | 204.5 | | |
| 20 | 202.0 | | |
| 25 | 202.0 | | |
| 32 | 206.0 | | |
| 40 | 209.5 | | 205.5 |
| 50 | 215.5 | | 210.5 |
| 65 | 215.5 | 220.5 | 214.5 |
| 80 | | 225.5 | 221.5 |
| 100 | | 232.5 | 231.5 |
| 125 | | | 242.5 |
| 150 | | 244 | 253.5 |
| 200 | | 273 | 274.5 |

## Ordering chart for transmitter Type 8223

| Voltage supply | Output | Sensor version | Electrical connection | Item no. |
|---|---|---|---|---|
| 12-30 V DC | 4-20 mA | PP | Cable plug DIN EN 175301-803 | 558 767 |
| | | PVDF | Cable plug DIN EN 175301-803 | 440 440 |
| | | PEEK | Cable plug DIN EN 175301-803 | 550 335 |

## Ordering chart - accessories for transmitter Type 8223

| Description | Item no. |
|---|---|
| Ring | 619 205 |
| PC - nut | 619 204 |
| Set with 1 green FKM + 1 black EPDM gasket | 552 111 |
| Cable plug DIN EN 175301-803 with cable gland (Type 2508) | 438 811 |
| Cable plug DIN EN 175301-803 with NPT1/2" reduction without cable gland (Type 2509) | 162 673 |

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## Combining the conductivity transmitter Type 8223 with fittings Type S020

Available Fitting DN

| | |
|---|---|
| T- fitting S020  | DN15 — DN65 |
| Welding tab S020  | DN50 — DN200 |
| Fusion spigot S020  | DN65 — DN100 |
| Conductivity measurement<br>8223 | DN15 — DN32 (Note A) — DN200 |

Note A: Only with plastic fitting with true union connection DIN8063

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