bürkert
FLUID CONTROL SYSTEMS

# Liquid flow controller (LFC)

- High dynamic control through fast flow measurement
- Applicable for liquid dosing up to 600 ml/min (36 l/h)
- No moving parts in medium
- Fieldbus optional
- Compact variant

Product variants described in the data sheet may differ from the product presentation and description.

## Can be combined with

**Type 8611**
eCONTROL – Universal controller

**Type 6606**
2/2 or 3/2 way Rocker-Solenoid Valve with separating diaphragm

**Type 8619**
multiCELL - multi-channel/ multi-function transmitter/ controller

## Type description

Type 8718 is a device for liquid flow control in process technology. The measured value provided by the sensor will be compared in the digital control electronics with the predefined set point according to the signal; if a control difference is present, the control value output to the proportional valve will be modified using a PI-control algorithm. In this way, the flow can be maintained at a fixed value or a predefined profile can be followed, regardless of pressure variations or other changes in the system. As a control element, a proportional valve working at low friction guarantees a high sensitivity and the good control characteristics of the unit.

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Visit product website

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# 1. General technical data

| | |
|---|---|
| **Product properties** | |
| Dimensions | Standard variant: 107 × 115.5 × 28 mm (width × height × depth)<br>Sub-base variant: 107 × 115.5 × 43 mm (width × height × depth)<br>Further information can be found in chapter "4. Dimensions" on page 5. |
| **Material** | |
| Seal | FKM, EPDM or FFKM |
| Housing | PC (polycarbonate) |
| Base block | Stainless steel 1.4404 |
| Total weight | Approx. 1000 g |
| LED display | Status indication:<br>1. Power<br>2. Communication (only in fieldbus variant), limit (only in analogue variant)<br>3. Error |
| **Performance data** | |
| Nominal flow range ($Q_N$) | 1.5...36 l/h (25...600 ml/min) regarding water |
| Operating pressure [1.)] | Max. 10 bar (145 psi) (depending on the nominal diameter of the proportional valve) |
| Measuring accuracy | ± 1.5 % of reading ± 0.5 % FS (under calibration conditions to achieve best measurement results) |
| Repeatability | ± 0.5 % FS |
| Measuring span | 1:10 |
| Response time ($t_{95\,\%}$) | < 500 ms |
| **Electrical data** | |
| Operating voltage | 24 V DC |
| Power consumption | Max. 7.5 W (10 W with fieldbus variant) |
| Residual ripple | < 2 % |
| Voltage tolerance | ± 10 % |
| Electrical connection | Plug Sub-D, 15-pin,<br>Socket M12 (PROFIBUS), 5-pin<br>Plug M12 (CANopen), 5-pin |
| **Medium data** | |
| Operating medium | Clean and low-viscosity liquids |
| Calibration medium | Water (conversion to operating medium with correction function) |
| Medium temperature | - 10 °C...+ 40 °C |
| Viscosity | 0.4...4 cSt |
| **Process/Port connection & communication** | |
| Digital outputs | 1 relay output:<br>1. Limit (desired value can not be reached)<br>Loading capacity: max. 25 V, 1 A, 25 VA |
| Digital inputs | 2 switching inputs:<br>1. Start Autotune<br>2. Open valve (for purging) |
| Digital communication interface | Digitally via fieldbus:<br>• PROFIBUS DPV1<br>• CANopen |
| Analogue interfaces | 4...20 mA, 0...20 mA, 0...10 V or 0...5 V<br>Input impedance > 20 kΩ (voltage) resp. < 300 Ω (current)<br>Maximum current: 10 mA (voltage output)<br>Maximum load: 600 Ω (current output) |
| Port connection | G ⅛, NPT ⅛, G ¼, NPT ¼, sub-base |
| **Approvals and conformities** | |
| Protection class | IP40 |
| **Environment and installation** | |
| Installation position | Horizontal or vertical |
| Ambient temperature | 0 °C...+ 55 °C |
| **Accessories** | |
| Software | Mass Flow Communicator |

1.) Overpressure to atmospheric pressure

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# 2. Approvals and conformities

## 2.1. General notes

- The approvals and conformities listed below must be stated when making enquiries. This is the only way to ensure that the product complies with all required specifications.
- Not all available variants can be supplied with the below mentioned approvals or conformities.

## 2.2. Conformity

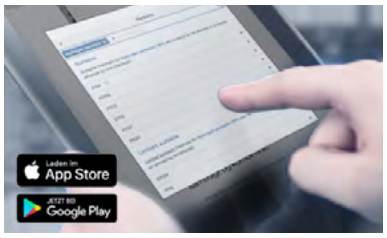
In accordance with the Declaration of Conformity, the product is compliant with the EU Directives.

## 2.3. Standards

The applied standards which are used to demonstrate compliance with the EU Directives are listed in the EU-Type Examination Certificate and/or the EU Declaration of Conformity.

# 3. Materials

## 3.1. Bürkert resistApp




**Bürkert resistApp – Chemical resistance chart**

You want to ensure the reliability and durability of the materials in your individual application case? Verify your combination of media and materials on our website or in our resistApp.

Start chemical resistance check

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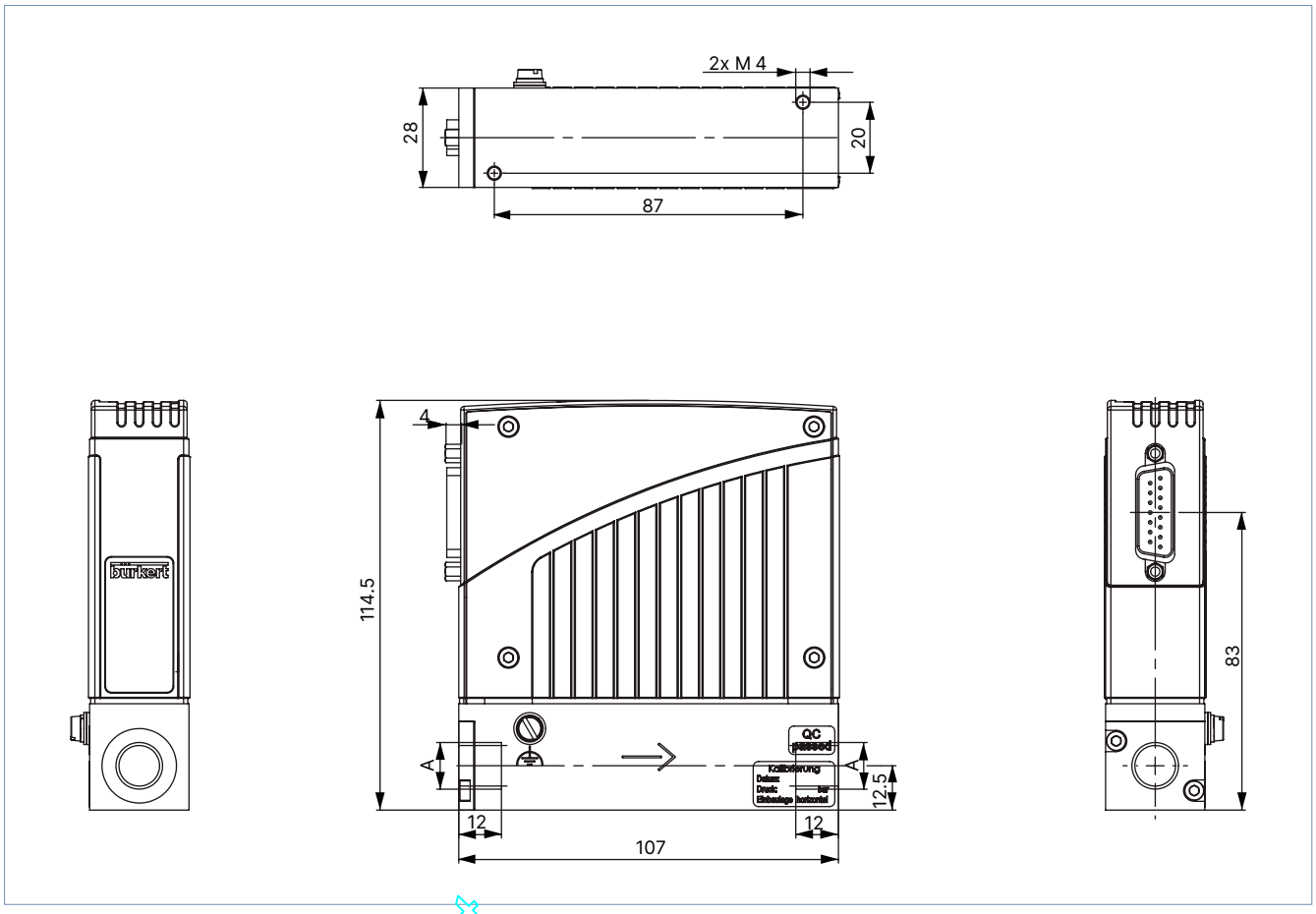
# 4. Dimensions

## 4.1. Threaded variant

**Note:**

- Dimensions in mm
- In devices without fieldbus communication there is no electrical M12 connector in the upper housing part.




| Size A | |
|---|---|
| G ⅛ | G ¼ |
| NPT ⅛ | NPT ¼ |

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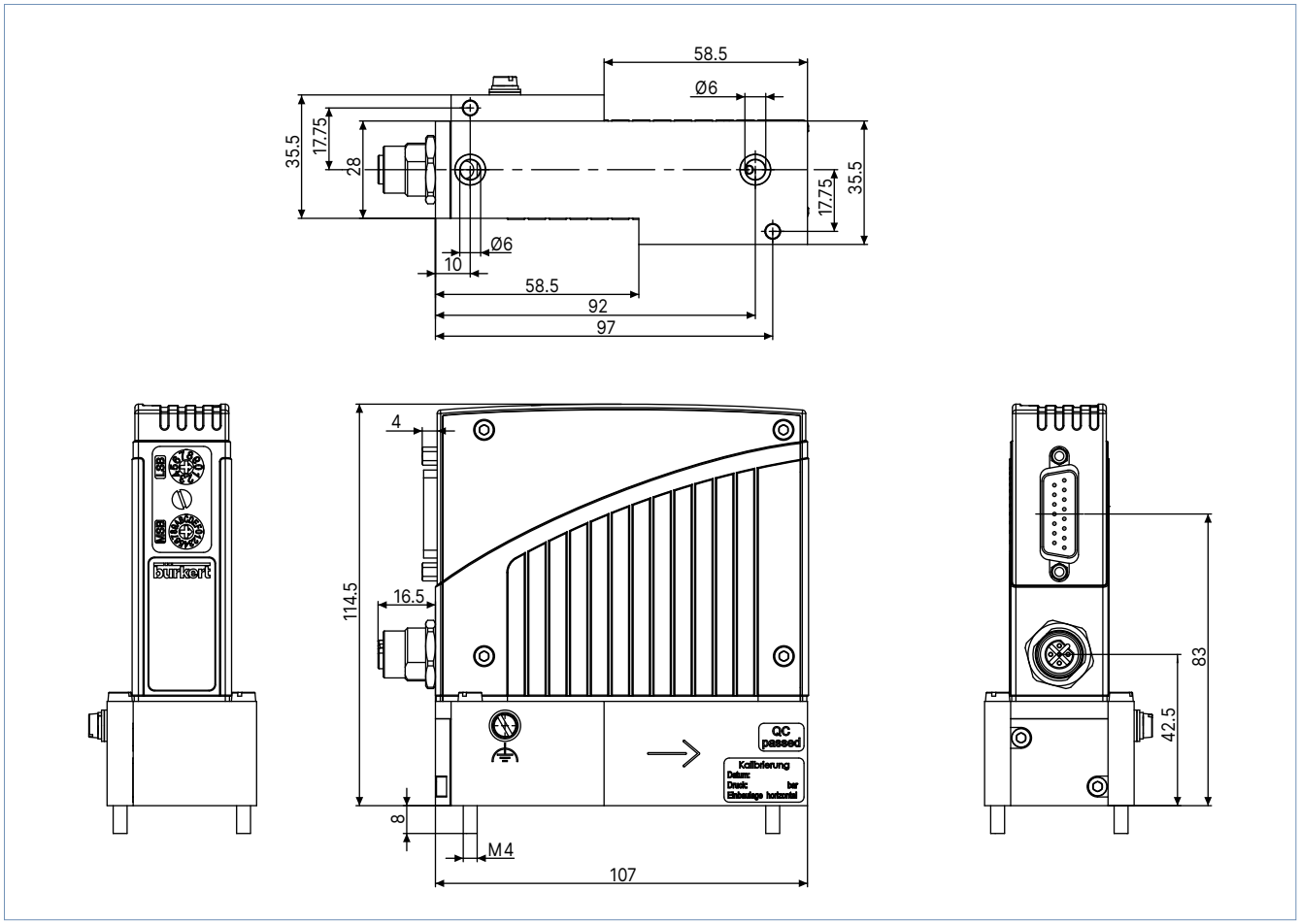
## 4.2. Sub-base variant

**Note:**

- Dimensions in mm
- In devices without fieldbus communication there is no electrical M12 connector in the upper housing part.




| Size A | |
|---|---|
| G ⅛ | G ¼ |
| NPT ⅛ | NPT ¼ |

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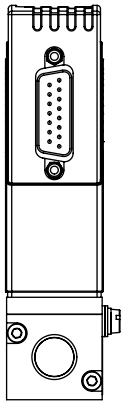
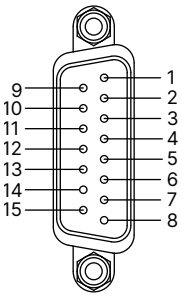
# 5. Device/Process connections

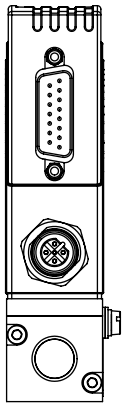
## 5.1. Analogue variant

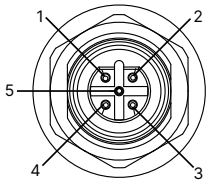


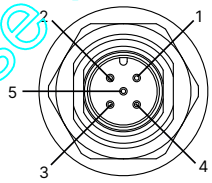
| Plug D-Sub, 15-pin | Pin | Assignment | |
|---|---|---|---|
| | | Analogue control unit | Bus actuation |
|  | 1 | Relay – normally closed contact | |
| | 2 | Relay – normally open contact | |
| | 3 | Relay – middle contact | |
| | 4 | GND for 24 V supply and binary inputs | |
| | 5 | 24 V supply + | |
| | 6 | Only for in-plant use | |
| | 7 | Not connected | Not connected |
| | 8 | Not connected | Not connected |
| | 9 | Actual value output GND | Not connected |
| | 10 | Actual value output + | Not connected |
| | 11 | DGND (for RS232) [1.] | |
| | 12 | Binary input 1 | |
| | 13 | Binary input 2 | |
| | 14 | RS232 RxD (without driver) [1.] | |
| | 15 | RS232 TxD (without driver) [1.] | |

1.) RS232 communication is only possible when using an RS232 adapter, see "7.4. Ordering chart accessories" on page 9.

## 5.2. Fieldbus variant



| PROFIBUS DPV1 – socket B-coded M12 (DPV1 max. 12 MBaud) | Pin | Assignment |
|---|---|---|
|  | 1 | VDD (only for termination resistor) |
| | 2 | RxD/TxD – N (A-Line) |
| | 3 | DGND |
| | 4 | RxD/TxD – P (B-Line) |
| | 5 | Not connected |

| CANopen – Plug M12 | Pin | Assignment |
|---|---|---|
|  | 1 | Shielding |
| | 2 | Not connected |
| | 3 | DGND |
| | 4 | CAN_H |
| | 5 | CAN_L |

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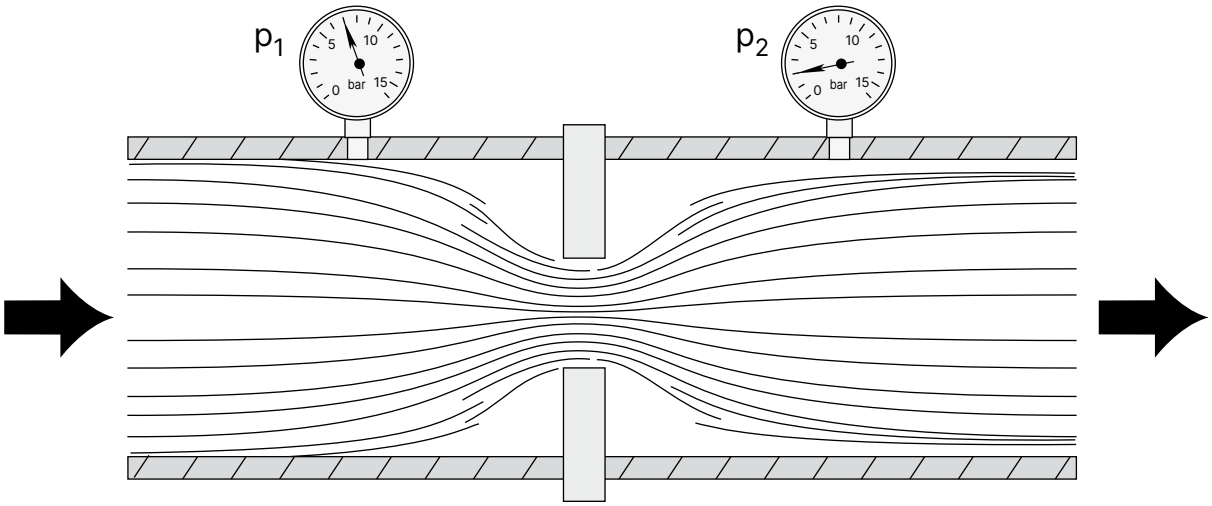
# 6. Product operation

## 6.1. Measuring principle

- The sensor measures the flow by means of differential pressure. An orifice in the main channel causes pressure loss at liquid flow which is measured by the differential pressure sensor. The sensor feedbacks a precise and temperature compensated signal out of which the electronics calculates the corresponding flow.
- To avoid a blockage of the aperture by contaminated mediums an upstream filter is recommended.




# 7. Ordering information

## 7.1. Bürkert eShop

**Bürkert eShop – Easy ordering and quick delivery**

You want to find your desired Bürkert product or spare part quickly and order directly? Our online shop is available for you 24/7. Sign up and enjoy all the benefits.

Order online now

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## 7.2. Recommendation regarding product selection

**Note:**
Contact your Bürkert partner for device design.

The decisive factors for the perfect functioning of an LFM within the application are the fluid compatibility, the pressure range and the correct choice of the flow meter range. The pressure loss over the LFM averages in typical applications approx. 500 mbar, with up to 2 bar inlet pressure (overpressure to atmospheric pressure). The specification of the inlet pressure, $p_1$max, which can be expected is necessary for the selection of the suitable differential pressure sensor.

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## 7.3. Bürkert product filter

**Bürkert product filter – Get quickly to the right product**

You want to select products comfortably based on your technical requirements?
Use the Bürkert product filter and find suitable articles for your application quickly and easily.

Try out our product filter

## 7.4. Ordering chart accessories

**Overview of accessories**

**Note:**
The adapters serve mainly for initial operation or diagnosis. Those are not obligatory for continuous operation.

| Description | Article no. |
|---|---|
| **Connections/cables** | |
| D-Sub socket, 15-pin, soldered connection | 918274 |
| Bonnet for D-Sub socket, with screw lock | 918408 |
| D-Sub socket with cable, 15-pin, cable length: 5 m, assembled on one side | 787737 |
| D-Sub socket with cable, 15-pin, cable length: 10 m, assembled on one side | 787738 |
| **Adapters** [1.] | |
| RS232 adapter | 654748 |
| PC extension cable for RS232 9-pin socket/plug 2 m | 917039 |
| RS422 adapter (RS485 compatible) | 666371 |
| USB adapter | 670639 |
| USB connection cable, cable length: 2 m | 772299 |
| **Accessories for fieldbus** | |
| **PROFIBUS DPV1 (B-coded)** | |
| M12 plug, 5-pin, straight, B-coded [2.] | 918198 |
| M12 socket (coupling), straight [2.] | 918447 |
| Y-distributor [2.] | 902098 |
| PROFIBUS terminating resistor, M12 plug, B-coded | 902553 |
| GSD file (PROFIBUS), EDS file (CANopen) | **LINK** |
| **CANopen (A-coded)** | |
| Plug M12 [2.] | 917115 |
| M12 circular socket with plastic threaded clamping ring, 5-pin, straight, to be wired [2.] | 917116 |
| Y push-in connector, M12, 5-pin, LUM [2.] | 788643 |
| Terminating resistor | On request |
| GSD file (PROFIBUS), EDS file (CANopen) | **LINK** |

1.) The adapters serve mainly for initial operation or diagnosis. Those are not obligatory for continuous operation.
2.) For space reasons, M12 individual cable plugs may not be suitable for simultaneous use on the same side as a Y distributor. Use a commercially available covered cable in this case.

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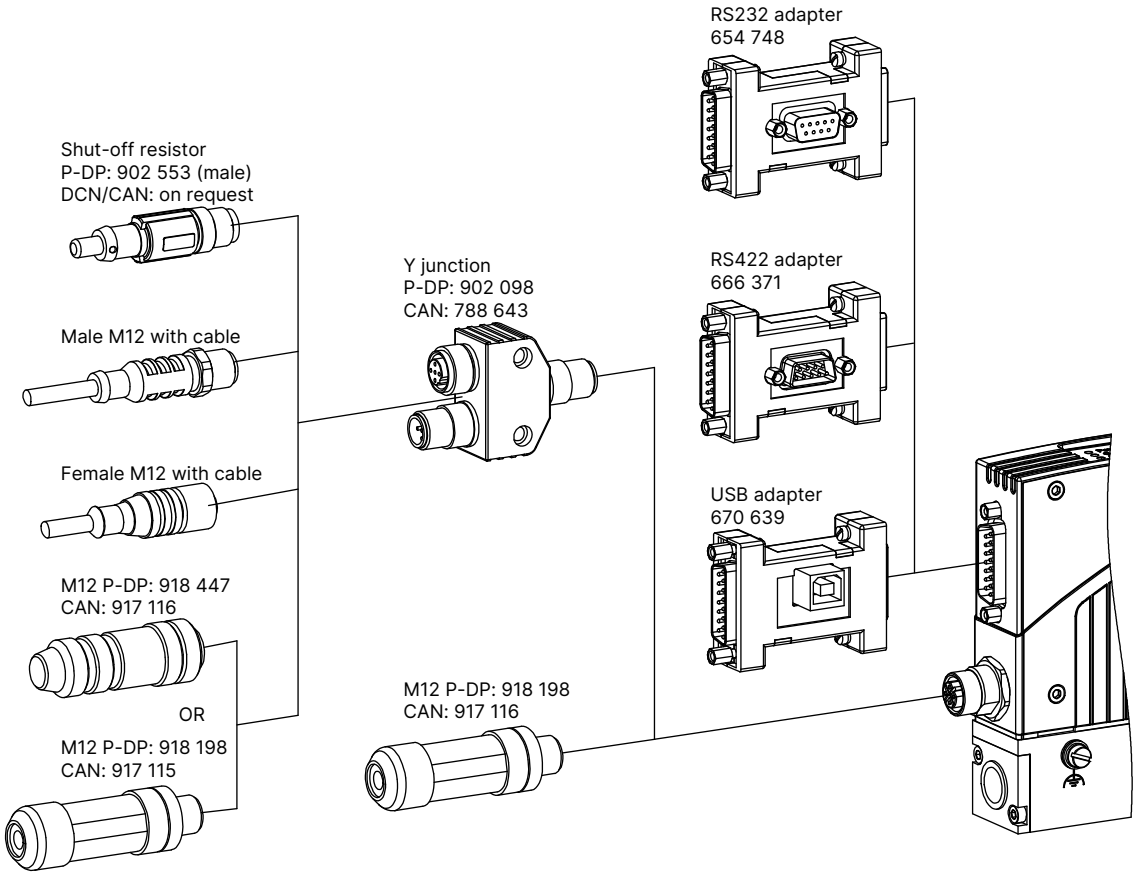
## Adapter sketch

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