Type 8681
Control Head

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Important information for devices with UL approval

1 Intended use

Non-intended use of the control head Type 8681 may be a hazard to people, nearby equipment and the environment.

The device is designed to be mounted on pneumatic actuators of process valves for the control of media.

- Do not use the device outdoors without protection from the weather.
- Use according to the authorized data, operating conditions and conditions of use specified as described in this document.
- The device may be used only in conjunction with third-party devices and components recommended and authorized by Bürkert.
- In view of the large number of options for use, before installation, it is essential to study and if necessary to test whether the control head is suitable for the actual use planned.
- Correct transportation, correct storage and installation and careful use and maintenance are essential for reliable and faultless operation.

Explosion hazard!

Only those devices are permitted to be installed in a potentially explosive atmosphere/ hazardous (classified) location that bear the corresponding labeling for the respective area.

2 Basic safety instructions

⚠ The operator is responsible for observing the location-specific safety regulations, also with reference to the personnel.

Risk of injury from high pressure in the equipment/device

- Before working on equipment or device, switch off the pressure and deaerate/drain lines.

General hazardous situations:

To prevent injuries:

- Ensure that the system cannot be activated unintentionally.
- Installation and maintenance work as well as operator actions may only be carried out by authorised and suitably qualified technicians using the appropriate tools.
- Do not make any unauthorised internal or external changes to the device.
- After an interruption in the electrical or pneumatic supply, ensure that the process is restarted in a defined or controlled manner.
- The device may be installed and operated only when in perfect condition and in consideration of the operating instructions.
- The general rules of technology must be observed for application planning and operation of the device.
- Only use compatible cleaning agents for cleaning the securely closed control head and always rinse thoroughly with clean water.

3 Operating conditions

Altitude	restricted to max. 2000 m above sea level
Standard version	
Ambient temperature	–10...+55 °C (+14...+131 °F)
Degree of protection	IP65[1]/IP67[2] according to EN 60529 or IP69K[2] according to IEC 40050-9

4 Pneumatic data

Control medium	neutral gases, air Quality classes in accordance with DIN ISO 8573-1
Dust content (quality class 7)	Max. particle size 40 µm, max. particle density 10 mg/m³
Water content (quality class 3)	Max. pressure dew point -20 °C or min. 10 °C below the lowest operating temperature
Oil content (quality class X)	Max. 25 mg/m³
Pressure range	2.5...8 bar
Temperature range of compressed air	–10...+50 °C (+14...+122 °F)

5 Electrical data

⚠ The device must be supplied by one of the following:

a) Limited Energy Circuit (LEC) according to UL/ IEC 61010-1
b) Limited Power Source (LPS) according to UL/ IEC 60950
c) SELV/ PELV with UL Recognized Overcurrent Protection dimensioned according to UL/ IEC 61010-1 Table 18
d) NEC Class 2 power source

Design[3]	Voltage range	Power consumption
24 V ⎓	12...28 V	300 mA
AS-Interface	21...31.6 V	200 mA
DeviceNet	11...25 V	200 mA
büS/CANopen	11...25 V	200 mA
IO-Link	18...30 V	200 mA

Tab. 1: Permissible values for voltage and max. current consumption

6 Installation

6.1 Assembly

For the assembly of the control head Type 8681 to a process valve, you will require a process valve-specific hub flange as an adapter. The hub flange must be adapted to the design of the process valve.

- Mount the piston rod with the target on the process valve spindle. Observe reference dimensions!
- Fasten the hub flange on the process valve. During this, observe central alignment and sealing conditions!
- Check the secure fit of the sealing rings (in the upper and the lower groove).
- Mount the control head on the hub flange (infinitely 360° rotatable).
- Secure the control head with the two locking screws (shoulder screws M5, tightening torque: max. 3.2 Nm) in the middle groove of the hub flange against unintentional removal (not fixed into position! – see Operating Instructions, chapter "Assembly").

6.2 Pneumatic installation

- Connect the required working connections 2/A1 to 2/A3 (each according to model) with the corresponding connections on the process valve - see Fig. 1 or in the Operating Instructions Type 8681.
- Connect the supply line to supply pressure connection 1/P (2.5...8 bar).
- A silencer has already been mounted on the exhaust air port (3/R) in the supplied state.

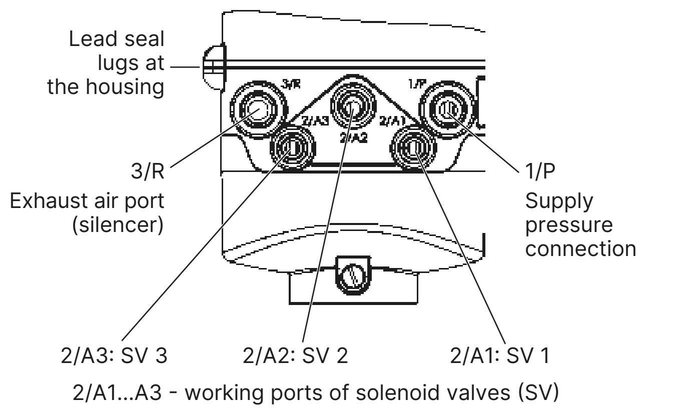

Fig. 1: Pneumatic connections

[1] evaluated by UL
[2] not evaluated by UL
[3] Class III (Supplied by SELV/PELV with overcurrent protection or LPS, LEC or NEC-Class 2 power source)

6.3 Electrical installation (24 V ⎓)

Cable gland

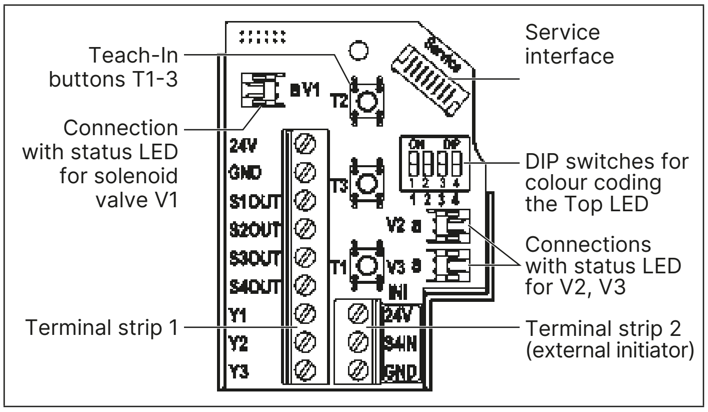

Fig. 2: Electronic module (24 V ⎓)

Cable gland with multipole connection

Input and output signals to the higher-level control (PLC):

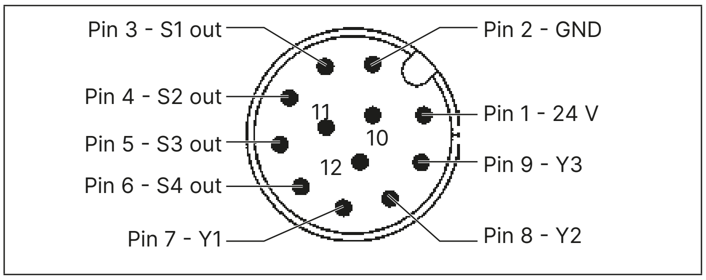

Fig. 3: Multipole connection 24 V ⎓ (12-pole circular plug-in connector M12 x 1.0 - male according to IEC 61076-2-101 — view onto the plug pins)

6.4 Electrical installation (AS-i)

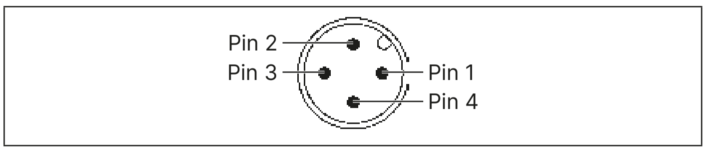

Fig. 4: Multipole connection AS-i

	Power supply of the solenoid valves		
Pin	(via AS-i) Assignment	(external) Assignment	Colour
1	AS-i+	AS-i+	brown
2	not assigned	GND	white
3	AS-i-	AS-i-	blue
4	not assigned	24 V+	black

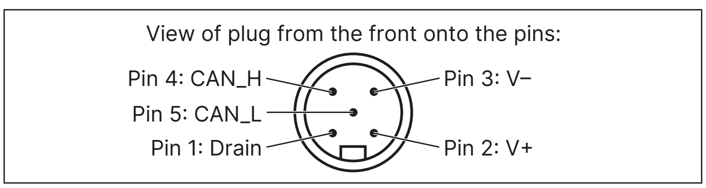

Fig. 5: Multipole connection DeviceNet

Pin	Assignment	Colour
1	Drain	(shielding)
2	V+	red
3	V-	black
4	CAN_H	white
5	CAN_L	blue

7 büS / CANopen design

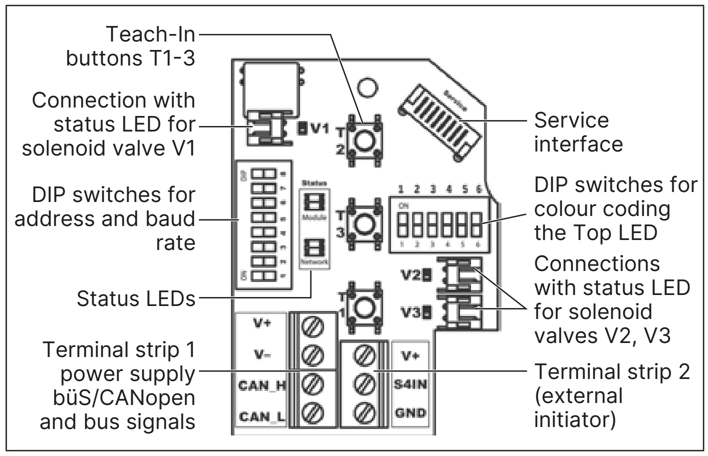

Fig. 6: Electronic module (büS/CANopen)

Terminal strip 1	Assignment
V+	Power supply büS/CANopen
V -	Power supply büS/CANopen
CAN_H	Bus signal CAN high
CAN_L	Bus signal CAN low
Terminal strip 2	**Assignment**
V+	Power supply for external initiator
S4 IN	External initiator input
GND	GND external initiator

Cable gland with multipole connection

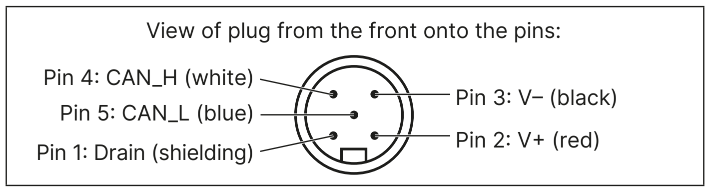

Fig. 7: Multipole connection büS/CANopen

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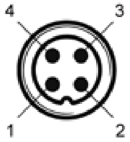
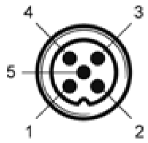
8 IO-Link design

Variants with multipole connection

Port Class A	Pin	Designation	Assignment (IO-Link mode)
	1	L+	24 V ⎓
	2	DIO / 2L+	not connected
	3	L-	0 V (GND)
	4	Q/C	IO-Link

Port Class B	Pin	Designation	Assignment (IO-Link mode)
	1	L+	24 V ⎓ (Power 1)
	2	DIO / 2L+	24 V ⎓ (Power 2)
	3	L-	0 V (GND - Power 1)
	4	Q/C	IO-Link
	5	2M	0 V (GND - Power 2)

Variants with cable gland (without multipole connection)

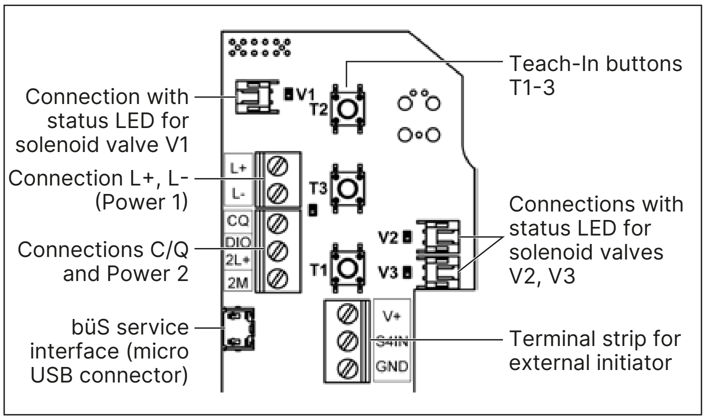


Fig. 8: Electronic module (IO-Link)