Universal Controller - eControl

- **Can control electric and pneumatic actuators**
- **Continuous, 2-point, 3-point and On/Off control**
- **Ratio control function**
- **Sensor inputs (4-20mA, 0-10V, frequency and RTD- PT100)**
- **Control of proportional, process and motorised valves**

Description

This compact universal multi function controller has been designed for smaller control system for flow, pressure and temperature in closed loop cooling systems. It is compatible and tested with all our proportional valves and sensors and can be connected with most control valves by standard signal (4-20 mA, 0-10 V or PWM-output). This process controller has many additional functions.

The process value feedback can be supplied as one of three analog inputs which include a standard signal of (4-20 mA/0-10V), a frequency or an RTD (PT100) signal, directly wired into the universal controller. The process switching points can be set via a 4-20 mA or 0-10 V signal or with the keypad for temperature control. It is possible to set a cascade structure with both temperature and flow as inputs. Thanks to the proportional control capabilities, a wide range of control functions can be performed in a variety of liquids and gas medias.

Fields of application:
Flow control, Ratio control
Pressure control
Temperature control
Conductivity control pH control
Level control

Description
This eController can be supplied either for wall mounting, for din rail mounting and for panel mounting, all supplied with a mounting adaptor kit. It is extremely compact and provides lower installation and commissioning costs. The unit multi function controller is used for flow, pressure, temperature pH and conductivity, with other possibilities remaining open.

Beschreibung
Dieser eController kann entweder für die Wandmontage, für die DIN-Schienenmontage und für den Schalttafeleinbau geliefert werden, die alle mit einem Montageadapter-Kit geliefert werden. Es ist äußerst kompakt und bietet geringere Installations- und Inbetriebnahmekosten. Die Einheit Multi-Funktions-Controller wird für Durchfluss, Druck, Temperatur pH und Leitfähigkeit verwendet, wobei andere Möglichkeiten offen bleiben.

Descripción
Este eController puede suministrarse tanto para montaje en pared, como para montaje en riel din y para montaje en panel, y se suministra con un kit de adaptador de montaje. Es extremadamente compacto y proporciona menores costos de instalación y puesta en marcha. El controlador multifuncional de la unidad se utiliza para flujo, presión, temperatura, pH y conductividad, con otras posibilidades que permanecen abiertas.

La description
Cet eController peut être fourni soit pour un montage mural, soit pour un montage sur rail DIN, soit pour un montage sur panneau, le tout fourni avec un kit d'adaptateur de montage. Il est extrêmement compact et permet de réduire les coûts d'installation et de mise en service. Le contrôleur multifonction de l'unité est utilisé pour le débit, la pression, la température, le pH et la conductivité, avec d'autres possibilités restant ouvertes.

bürkert
FLUID CONTROL SYSTEMS

Universal process controller eCONTROL

- Continuous, 2-point, 3-point and On/Off control
- Ratio control function
- Sensor inputs (4 … 20 mA, 0 … 10 V, frequency, Pt100)
- Control of proportional, process and motor valves
- Bürkert proportional valves and flow meters are memorized
- 1/16 DIN size panel version

Type 8611 can be combined with…

Type 6223	**Type 2301 + 8696**	**Type 8012**	**Type 8316**	**Type TST001**	**Type 8222**
Proportional Valve	Globe control valve system	INLINE flowmeter	Pressure transmitter 4 … 20 mA	Resistance thermometer	neutrino conductivity meter

Thanks to its compact design, the universal 8611 controller is especially designed for compact control system applications.

It is compatible and tested with all Bürkert proportional valves and sensors and can be connected with every none-Bürkert Control valve by standard signal (4 … 20 mA, 0 … 10 V or PWM-output).

The proportional & Integral (PI) process controller is equipped with many additional functions.

The process value feedback can be supplied as one of three analog inputs; a standard signal (4 … 20 mA/0 … 10 V), frequency or Pt100 signal; directly to the universal controller.

The process switching points can be set via a 4 … 20 mA or 0 … 10 V signal or with the keypad.

For temperature specific control, it is possible to set a cascade structure with both temperature and flow as inputs.

Thanks to the proportional control capabilities, a wide range of control functions can be performed in a variety of liquids and gas medias.

Fields of application:

▷ Flow control, Ratio control
▷ Pressure control
▷ Temperature control
▷ Conductivity control
▷ pH control
▷ Level control

| **General data**	
Materials	
Housing, cover	PC, + 20 % glass fibre
Front panel folio / Screws	Polyester / Stainless steel
Multipin	CuZn, nickel-plated
Wall-mounting holder	PVC
Display	Dual-line 8-digit LCD with backlight
Electrical connections	Multipin: M12 - 8pin, M8 - 4pin, M8 - 3pin Terminals Insert for connecting to components according to DIN EN 175301 - 803
Voltage supply cable	0.5 mm² max. cross section, max. 100 m, shielded
Environment	
Ambient temperature	0 … + 70 °C (operating and storage)
Relative humidity	≤ 80 %, without condensation
Height above sea level	max. 2000 m
Standards and approvals	
Protection class	IP65
Standard	
EMC, CE	EN 61326

Electrical data	
Operating voltage	24 V DC ± 10%, filtered and regulated
Power consumption	approx. 2 W (without valve - without sensor input)
Input	
Setpoint	
Standard 4 … 20 mA	Sourcing mode Max. input impedance: 70 Ω Resolution: 5.5 µA
Standard 0 … 10 V	Max. input impedance: 11.5 kΩ Resolution: 2.5 mV
Sensors	
Standard 4 … 20 mA	Sourcing mode Max. input impedance: 70 Ω Resolution: 5.5 µA
Standard 0 … 10 V	Max. input impedance: 11.5 kΩ Resolution: 2.5 mV
Frequency	
Input 1	External sensor min. 0.25 Hz / max. 1 kHz input impedance: > 1 kΩ Signal type: Sinus, square, triangle pulse (> 3000 mVpp, max. 30 Vpp)
Input 2	Internal Hall sensor min. 0.25 Hz / max. 1 kHz (only with Bürkert Type S030 flow fitting)
Pt100 (2 wires)	Measuring range: 0 … + 200 °C Measuring current: 1 mA Measuring error: < 0.5 °C
Binary input	Input impedance: 10 kΩ Operating threshold: 3 … 30 V Max. frequency: 1 kHz
Outputs	

Continuous signal	Standard signal 4 … 20 mA
	  max. loop resistance: 680 Ω
	  accuracy: 0.5%
	Standard signal 0 … 10 V
	  max. current: 20 mA
	  accuracy: 0.5%

Discontinuous signal	2 transistor outputs for PWM[*)] or PTM[*)] signal
	  Control frequency 20 Hz...9999 Hz
	  resolution max.: 16 Bit (depend from frequency)
	  max. current load: 1.5 A
	  switching voltage: 24 V DC

Binary output	Transistor output (PNP) (configurable)
	  max. current load: 1.5 A
	  switching voltage: 24 V DC

Power supply sensor / actuator	24 V DC, max. 1 A
Total load of all outputs	max. 1.5 A
Controller modes	PI-Control, 2 point and 3 point, cascaded Up to 2 Binary out with windows and hysteresis mode

[*)] PWM = pulse width modulation
  PTM = pulse time modulation

Assembly versions

Mounting on flow-fitting
eCONTROL Fitting-mounting
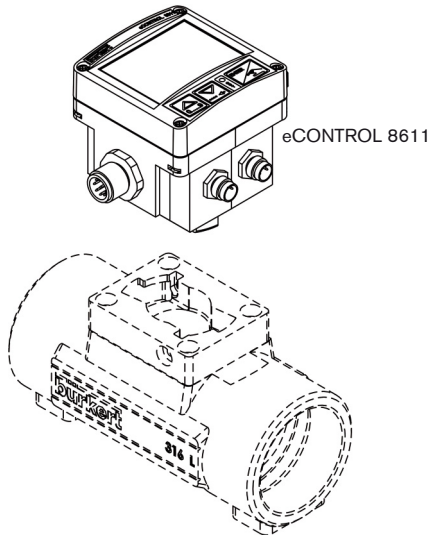
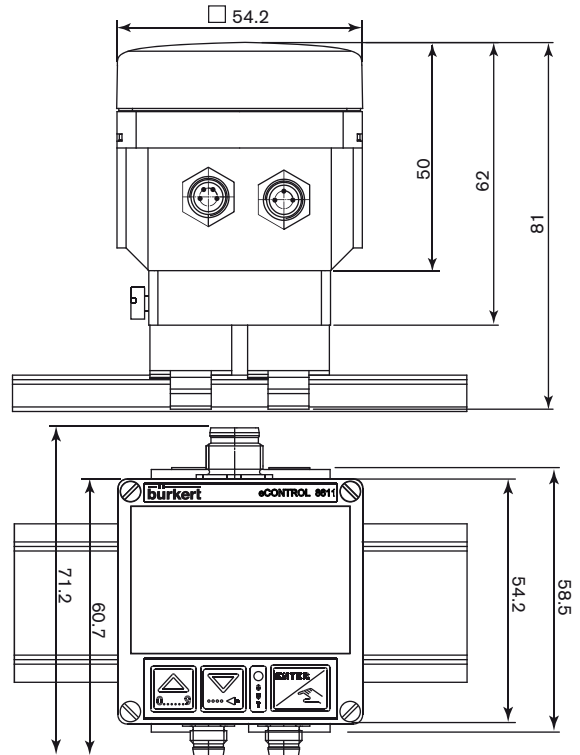eCONTROL 8611

Mounting on a proportional valve
eCONTROL Valve-mounting
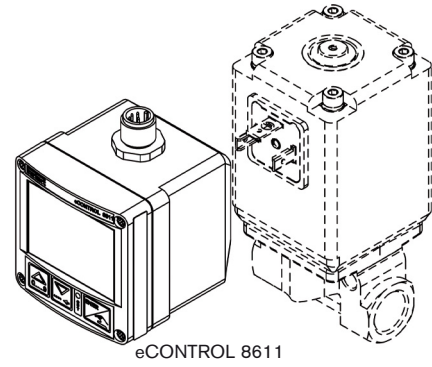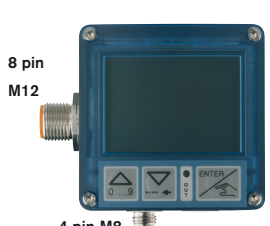
eCONTROL 8611

Mounting in panel
eCONTROL Panel-mounting
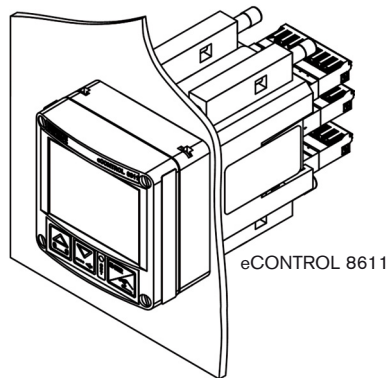
eCONTROL 8611

Mounting on a wall
eCONTROL Wall-mounting

eCONTROL 8611

Adaptor for
Wall-mounting
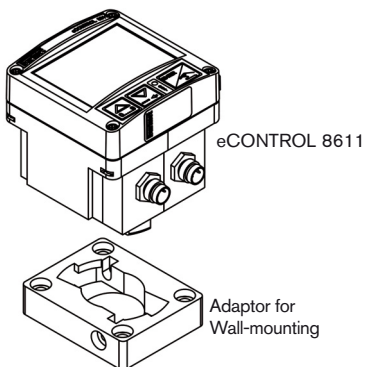
Mounting on a rail
eCONTROL Rail-mounting

eCONTROL 8611

Adaptor for
Rail-mounting
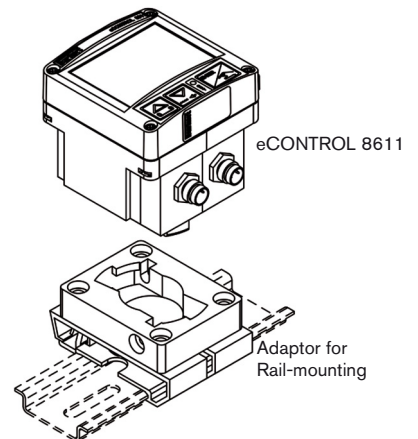
Dimensions [mm]

8611 - eCONTROL Fitting-mounting

☐ 54.2

☐ 54.2
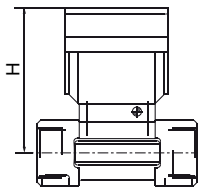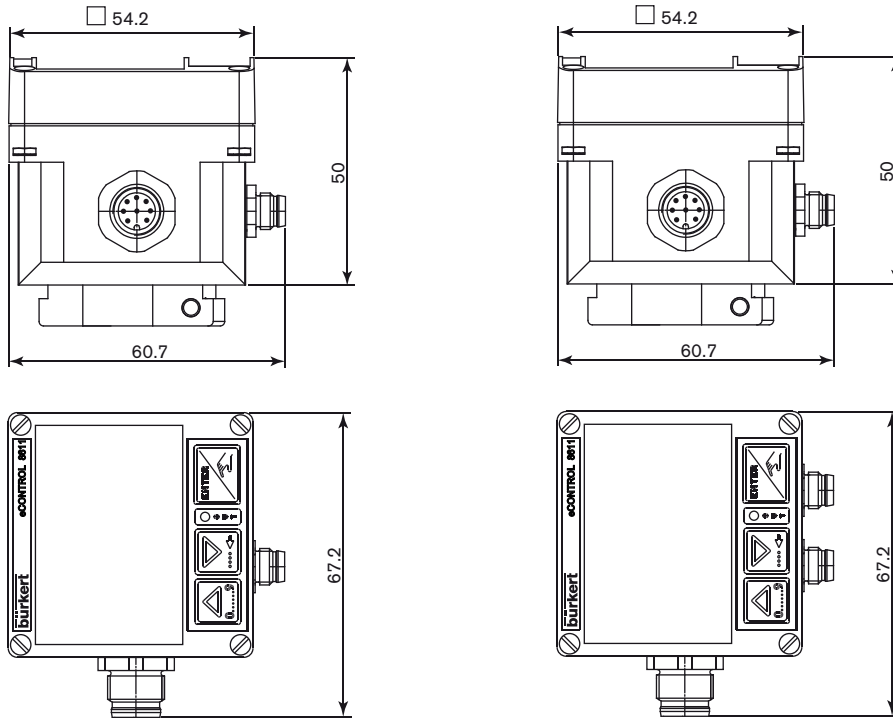
DN [mm]	H [mm]
06	79.5
08	79.5
15	84.5
20	82.0
25	82.2
32	85.8
40	89.6
50	95.7
65	98.7

8611 eCONTROL Valve-mounting

☐54,2

61
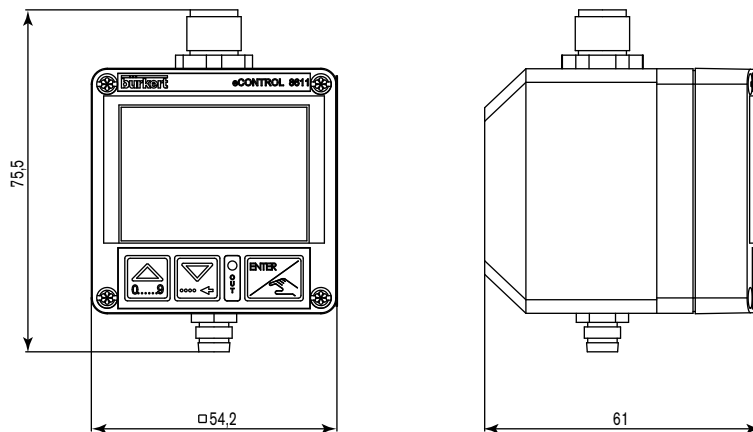
Dimensions [mm] (continued)

8611 eCONTROL Panel-mounting

□54,2

66

76   29

□44,5

R3+0.2

□45 +0.6 0
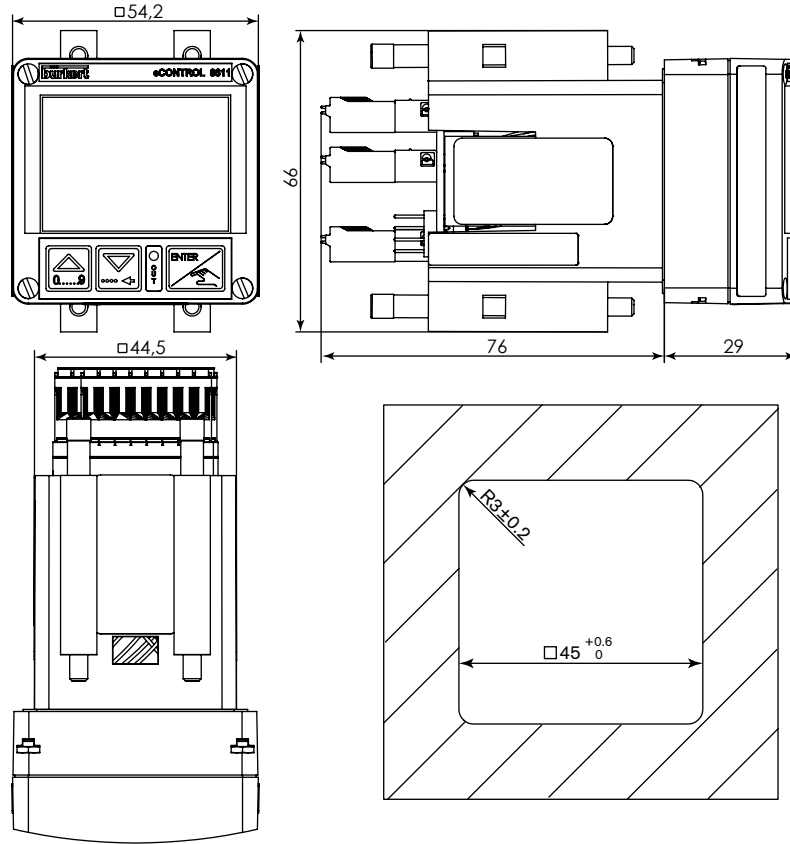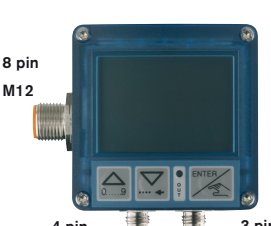
8611 eCONTROL Wall-mounting

□ 54.2

50

12

60.7

71.2

8611 eCONTROL Rail-mounting

□ 54.2

50

62

81

71.2

60.7

54.2

58.5
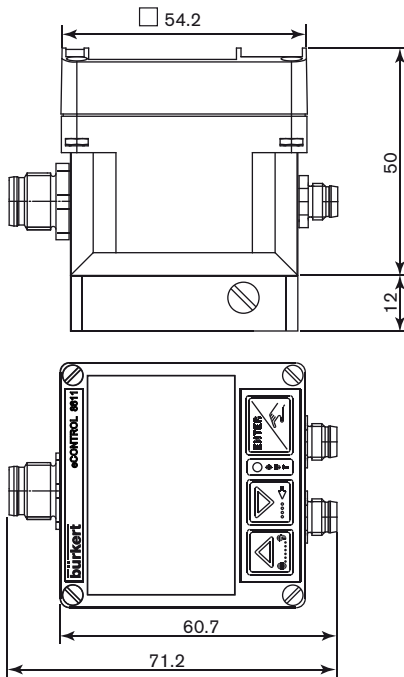
Connection feasibility and controller versions

Assembly	Flow sensor fitting mounting		Wall- and rail-mounting	Valve-mounting
Sensor	integrated HALL-sensor, without external sensor input	integrated HALL-sensor with external sensor input	without HALL-sensor, with external sensor input	without HALL-sensor, with external sensor input
Control	▪ Flow control	▪ Temperature control with flow display ▪ Temperature control with flow input for cascade control ▪ Ratio control	▪ Temperature control ▪ Pressure control ▪ Flow control	▪ Temperature control ▪ Pressure control ▪ Flow control
	8 pin M12 4 pin M8	8 pin M12 4 pin M8 · 3 pin M8	8 pin M12 4 pin M8 · 3 pin M8	8 pin M12 3 pin M8
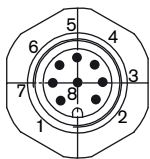
8 pin M12 plug

- Power supply 24 V DC
- Set point value (0 … 10 V / 4 … 20 mA)
- Binary input
- process value output (0 … 10 V / 4 … 20 mA)
- PI-control output (0 … 10 V / 4 … 20 mA)
- Binary output

3 pin M8 plug

Sensor input
4 … 20 mA / 0 … 10 V, frequency or Pt100
Sensor power supply 24 V DC

4 pin M8 plug

PI-control output :
- 1 x PWM output
- 2 x PTM output
- 0 … 10 V/ 4 … 20 mA output and power supply
actuator 24 V DC (only Article no. 182 383)
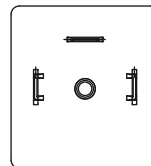
DIN 175301 - 803

PWM output for Solenoid control valve

1 2 3 4 5 6 7 8   **Terminal block 1**

9 10 11 12 13 14 15 16 17 18   **Terminal block 2**
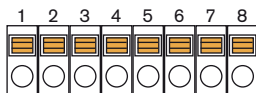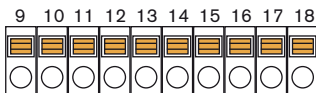
19 20 21 22 23 24 25 26 27   **Terminal block 3**

Jumper 1 (NPN/PNP)
Jumper 2 (NPN/PNP)
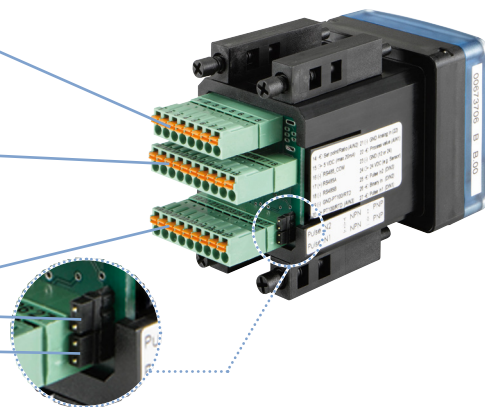
Ordering chart for universal Controller Type 8611

A controller Type 8611 consists of:

| for Fitting-mounting	for Wall-mounting	for Rail-mounting	for Valve-mounting	for Panel-mounting
- an electronic module 8611 - an INLINE fitting S030 (DN06 - DN65) (Refer to corresponding data sheet - has to be ordered separately)	- an electronic module 8611 - a wall-mounting adaptor (included)	- an electronic module 8611 - a rail-mounted adaptor (included)	- an electronic module 8611 - a proportional valve (Refer to corresponding data sheet of the proportional valve - has to be ordered separately	- an electronic module 8611 - 4 mounting brackets and 1 sealing (included)

| Mounting disposition	Sensor input externe	e	controller outputs (*)		Operating voltage	Setpoint setting	Process value output	Binary In/Out	Article no.
Fitting	-	Flow rate (Fitting S030)	1 x PWM 2 x PTM	4…20 mA 0…10 V	24 V DC	4…20 mA 0…10 V	4…20 mA (*) 0…10 V	1 x Bin In 1 x Bin Out	177455
	Temperature (Pt100)	Flow rate (Fitting S030)	1 x PWM 2 x PTM	4…20 mA 0…10 V	24 V DC	4…20 mA 0…10 V	4…20 mA (*) 0…10 V	1 x Bin In 1 x Bin Out	177458
	Ratio or Temp. (4…20 mA / 0…10 V)	Flow rate (Fitting S030)	1 x PWM 2 x PTM	4…20 mA 0…10 V	24 V DC	4…20 mA 0…10 V	4…20 mA (*) 0…10 V	1 x Bin In 1 x Bin Out	177463
	Ratio (Frequency-NPN)	Flow rate (Fitting S030)	1 x PWM 2 x PTM	4…20 mA 0…10 V	24 V DC	4…20 mA 0…10 V	4…20 mA (*) 0…10 V	1 x Bin In 1 x Bin Out	208048
			4…20 mA 0…10 V	-	24 V DC	4…20 mA 0…10 V	-	1 x Bin In 1 x Bin Out	567181
Wall	Flow rate (frequency- NPN)	-	1 x PWM 2 x PTM	4…20 mA 0…10 V	24 V DC	4…20 mA 0…10 V	4…20 mA (*) 0…10 V	1 x Bin In 1 x Bin Out	177454
	Temperature (Pt100)	-	1 x PWM 2 x PTM	4…20 mA 0…10 V	24 V DC	4…20 mA 0…10 V	4…20 mA (*) 0…10 V	1 x Bin In 1 x Bin Out	177457
	All sensors with standard signal (4…20 mA / 0…10 V)	-	1 x PWM 2 x PTM	4…20 mA 0…10 V	24 V DC	4…20 mA 0…10 V	4…20 mA (*) 0…10 V	1 x Bin In 1 x Bin Out	177462
	All sensors with standard signal (4…20 mA / 0…10 V)	-	4…20 mA 0…10 V	-	24 V DC	4…20 mA 0…10 V	-	1 x Bin In 1 x Bin Out	182383
Rail	Flow rate (frequency- NPN)	-	1 x PWM 2 x PTM	4…20 mA 0…10 V	24 V DC	4…20 mA 0…10 V	4…20 mA (*) 0…10 V	1 x Bin In 1 x Bin Out	177091
	Temperature (Pt100)	-	1 x PWM 2 x PTM	4…20 mA 0…10 V	24 V DC	4…20 mA 0…10 V	4…20 mA (*) 0…10 V	1 x Bin In 1 x Bin Out	177456
	All sensors with standard signal (4…20 mA / 0…10 V)	-	1 x PWM 2 x PTM	4…20 mA 0…10 V	24 V DC	4…20 mA 0…10 V	4…20 mA (*) 0…10 V	1 x Bin In 1 x Bin Out	177460

Mounting disposition	Sensor input externe	controller outputs	Setpoint setting	Process value output	Binary In/Out	Article no.
Proportional valve	Temperature (Pt100)	1 x PWM	4…20 mA 0…10 V	4…20 mA 0…10 V	1 x Bin In 1 x Bin Out	204642
	Flow rate (frequency- NPN)	1 x PWM	4…20 mA 0…10 V	4…20 mA 0…10 V	1 x Bin In 1 x Bin Out	204639
	All sensors with standard signal (4…20 mA / 0…10 V)	1 x PWM	4…20 mA 0…10 V	4…20 mA 0…10 V	1 x Bin In 1 x Bin Out	186289

Mounting disposition	Sensor input	controller outputs	Setpoint setting	Process value output	Binary In/Out	Article no.
Panel	2 x Frequency (NPN/PNP) 1 × 4…20 mA / 0…10 V 1 x Pt100 Ratio control	1 x PWM 2x PTM 1 × 4…20 mA/0…10 V	4…20 mA 0…10 V	4…20 mA (*) 0…10 V	1 x Bin In 2 x Bin Out	210206

* Either PWM/PTM or 4…20 mA/0…10 V selectable as PI-control output. If 4…20 mA/0…10 V selected as PI-output, the process value isn't available.

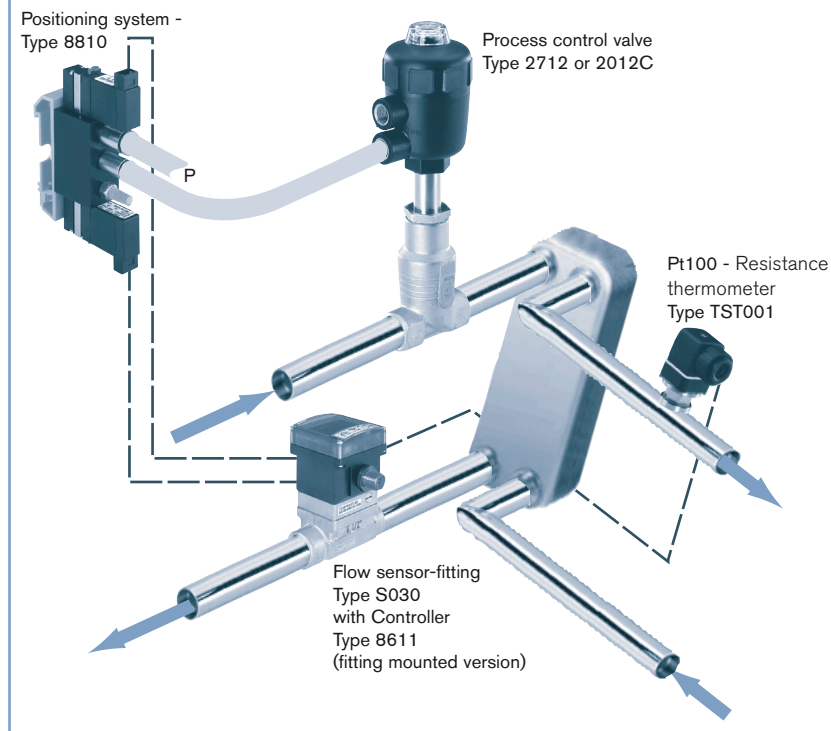## Ordering chart for accessories (has to be ordered separately)

	Description	Article no.
	Positioning system 8810 for pneumatic actuators with rail-mount adaptor	204458
	4 pin M8 female right angle connector with self-locking threaded joint and 2 m molded cable (valve output)	918718
	4 pin M8 female right angle connector with self-locking threaded joint and 5 m molded cable (valve output)	919412
	3 pin M8 female right angle connector with self-locking threaded joint and 2 m molded cable (sensor input)	918717
	3 pin M8 female right angle connector with self-locking threaded joint and 5 m molded cable (sensor input)	919410
	4 pin M8 female connector, straight with snap-on connection and 2 m molded cable (valve output)	919060
	3 pin M8 female connector, straight with snap-on connection and 2 m molded cable (sensor input)	918039
	8 pin M12 female connector, straight with screw connection and 2 m molded cable (PUR) (Power supply)	919061
	8 pin M12 female connector, straight with screw connection, to assemble (Power supply)	918998
	2 pin female connector, straight with 3 m cable (for connection to Positioning system 8810)	133486
	2 pin female connector,straight with 5 m cable (for connection to Positioning system 8810)	167494
	2 pin female connector, straight with 0.3 m wire (for connection to Positioning system 8810)	644068
	2 pin female connector, straight with 0.6 m wire (for connection to Positioning system 8810)	162144

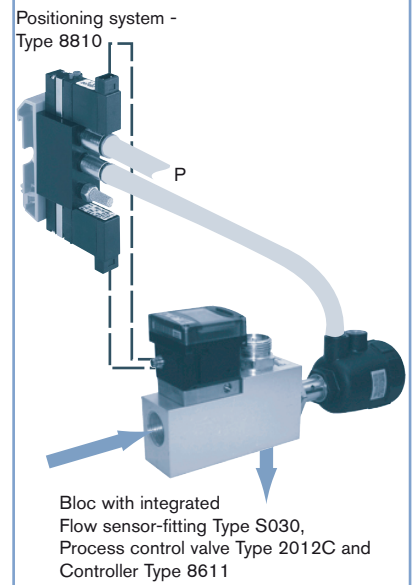## Ordering chart for spare parts (has to be ordered separately)

	Description	Article no.
	Wall-mounting adaptor	427098
	Rail-mounting adaptor	655980
	Mounting brackets (Set of 4 pieces)	560225

Examples of applications

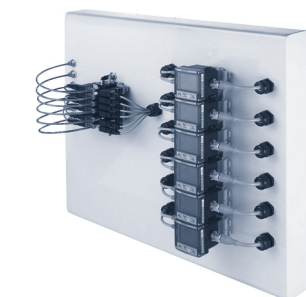### Cascaded temperature control with process control valve

Positioning system -
Type 8810

Process control valve
Type 2712 or 2012C

P

Pt100 - Resistance
thermometer
Type TST001

Flow sensor-fitting
Type S030
with Controller
Type 8611
(fitting mounted version)

Flow control with process control valve

Positioning system -
Type 8810

P

Bloc with integrated
Flow sensor-fitting Type S030,
Process control valve Type 2012C and
Controller Type 8611

Temperature control with solenoid control valve

Temperature controller
Type 8611
(wall-mounted version)

Solenoid control
valve
Type 2835

Pt100 -
Resistance
thermometer
Type TST001
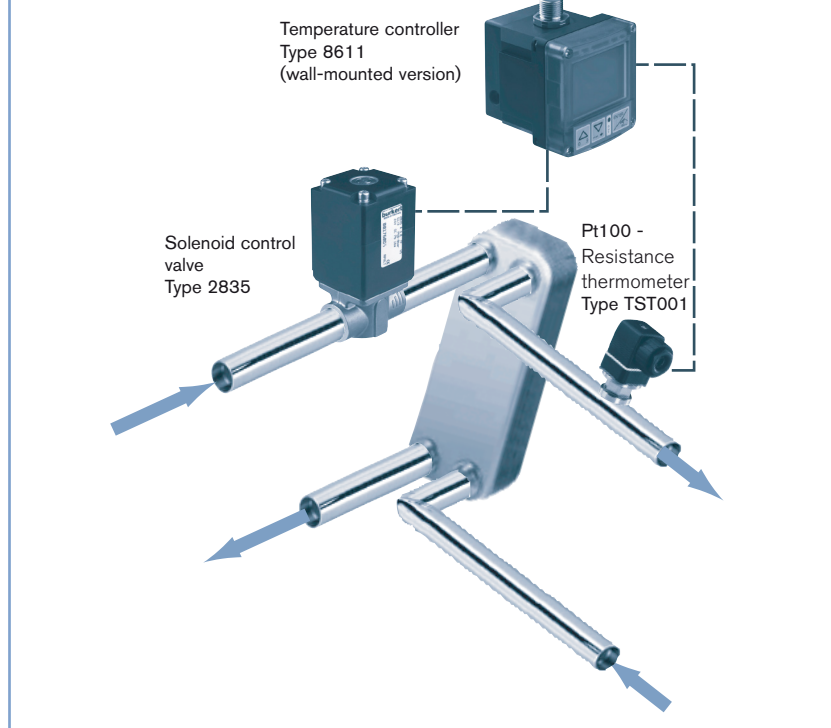
Multi channel solution

with process control valve

with solenoid control valve