



## Pneumatic Control Unit for the integrated mounting on process valves

- Compact design
- Pilot valve with high air flow rate
- Internal control air channel
- Optical position indicator
- Air supply filter

Type 8690 can be combined with...



**Type 2100**

Angle-seat valve



**Type 2101**

Globe valve



**Type 2103**

Diaphragm valve



**Type 2000**

Angle-seat valve

The 8690 pneumatic control unit is optimised for integrated mounting on the 21XX process valve series. Mechanical or inductive limit switches register the position of the valve. The integrated pilot valve controls single or double-acting actuators.

The design of the control unit and the actuator enables an internal control air channel without external tubings. Besides the electrical position feedback signal the status of the device is shown directly on the control head itself.

### Technical data

<b>Material</b>	
Body	PPS
Cover	PC
Sealing	EPDM
<b>Operating voltage</b>	
Pilot valve	24 VDC $\pm 10\%$ , residual ripple 10% (no technical direct current); Consumption 1W max. 24 VDC, max. 2A
Micro switch	10 to 24 VDC, max. 100mA ext. load per initiator
Initiator	According to Fieldbus specification
<b>Control medium</b>	
Dust concentration	neutral gases, air DIN ISO 8573-1
Particle density	Class 5 ( $< 40\mu\text{m}$ particle size)
Pressure condensation point	Class 5 ( $< 10\text{mg}/\text{m}^3$ )
Oil concentration	Class 3 ( $< -20^\circ\text{C}$ )
	Class 5 ( $< 25\text{mg}/\text{m}^3$ )
<b>Supply pressure</b>	3 to 7 bar <sup>1)</sup>
<b>Air input filter</b>	
Mesh aperture	exchangeable $\sim 0,1\text{mm}$
<b>Pilot air ports</b>	Push-in connector ( $\varnothing 6/4$ mm) or threaded ports G1/8
<b>Position feedback</b>	1 or 2x micro switch (24 VDC) 1 or 2x initiator 3-wires (24 VDC) 1 or 2x initiator NAMUR (8 VDC) (in preparation)
<b>Stroke range valve spindle</b>	
Micro switch	3 to 28 mm
Initiator	7 to 28 mm
<b>Ambient temperature</b>	0 to $+55^\circ\text{C}$
<b>Installation</b>	as required, preferably with actuator in upright position
<b>Protection class</b>	IP 65/67 according to EN 60529 (NEMA4x in preparation)
<b>Protection class</b>	3 according to VDE 0580
<b>Conformity</b>	according to CE in compliance with EMV2004/108/EG
<b>Type of protection</b>	II 3 G nA II B T4 II 3 D tD A22 T135° II 2 G EEx ia IIC, ATEX (option)
<b>Electrical connection</b>	
Multipole	M12, 8-pole
Cable gland	M16x1,5 (cable- $\varnothing 10\text{mm}$ ), terminal screws ( $1,5\text{mm}^2$ )
<b>Approval</b>	CSA (in preparation)

<sup>1)</sup> The supply pressure has to be 0,5 - 1 bar above the minimum required pilot pressure for the valve actuator.

## Ordering information for process valve system with integrated pneumatic control unit

A complete process valve system consists of a pneumatic control unit Type 8690 and a process valve Type 21xx or 20xx.

The following information is necessary for the selection of a complete system:

• **Item no.** of the desired pneumatic control unit **Type 8690** (see Ordering chart on p. 3)

• **Item no.** of the selected process valve **Type 21xx or Type 20xx**

(see separate datasheet for e.g. Types 2100, 2101, 2103 and 2000, 2012, 2031)

You order two components and receive a complete assembled and certified valve.

### Example for process valve systems

**Pneumatic Control Unit  
Type 8690**

**Desired process valve, example**



2100



2103



2000

### Complete process valve system



**Process valve  
system Type  
8801-YE-K  
(2100+8690)**



**Process valve  
system Type  
8801-DF-K  
(2103+8690)**




**Process valve  
system Type  
8801-YA-K  
(2000+8690)**

## Ordering chart pneumatic control unit Type 8690 (other versions on request)

Position feedback	Pilot air ports	Valve function	Item no.	Item no. for usage with 20xx actuator 50/63mm
<b>Micro switch</b>				
<b>With cable gland</b>				
2 micro switch	Push-in connector Ø 6/4 mm	single-acting DN3,0	176 617	204 783
		double-acting DN3,0	176 618	-
		without	179 322	-
	Threaded ports G1/8	Single-acting DN3,0	185 555	-
		Single-acting DN3,0	-	186 221
		Double-acting DN3,0	-	186 219
1 micro switch	Push-in connector Ø 6/4 mm	single-acting DN3,0	180 022	-
		Double-acting DN3,0	180 023	-
	Threaded ports G1/8	Single-acting DN3,0	185 554	-
<b>With Multipole M12</b>				
2 micro switch	Push-in connector Ø 6/4 mm	Single-acting DN3,0	182 443	203 171
		Double-acting DN3,0	182 445	-
		Without	182 441	206 132
	Threaded ports G1/8	Single-acting DN3,0	185 560	206 131
1 micro switch	Push-in connector Ø 6/4 mm	Single-acting DN3,0	182 442	-
		Double-acting DN3,0	182 444	-
		without	182 440	-
	Threaded ports G1/8	Single-acting DN3,0	185 559	-
<b>Initiator</b>				
<b>With cable gland</b>				
2 initiator	Push-in connector Ø 6/4 mm	Single-acting DN3,0	185 197	-
		Double-acting DN3,0	185 199	-
	Threaded ports G1/8	Single-acting DN3,0	185 557	-
		Double-acting DN3,0	-	186 218
1 initiator	Push-in connector Ø 6/4 mm	Single-acting DN3,0	185 195	-
		Double-acting DN3,0	185 198	-
	Threaded ports G1/8	Single-acting DN3,0	185 556	-
<b>With Multipole M12</b>				
2 initiator	Push-in connector Ø 6/4 mm	Single-acting DN3,0	182 449	-
		Double-acting DN3,0	182 451	-
		without	182 447	-
	Threaded ports G1/8	Single-acting DN3,0	185 562	206 133
Without		185 558	206 134	
1 initiator	Push-in connector Ø 6/4 mm	Single-acting DN3,0	182 448	-
		Double-acting DN3,0	182 450	-
		Without	182 446	-
	Threaded ports G1/8	Single-acting DN3,0	185 561	-
<b>Without</b>				
<b>With cable gland</b>				
Without	Push-in connector Ø 6/4 mm	Single-acting DN3,0	182 439	-

 **Further versions on request**
 **Approvals**  
CSA

 **Additional**  
Type of protection: II 2G EEx ia IIC, ATEX  
1 or 2x initiator NAMUR (8 V DC)

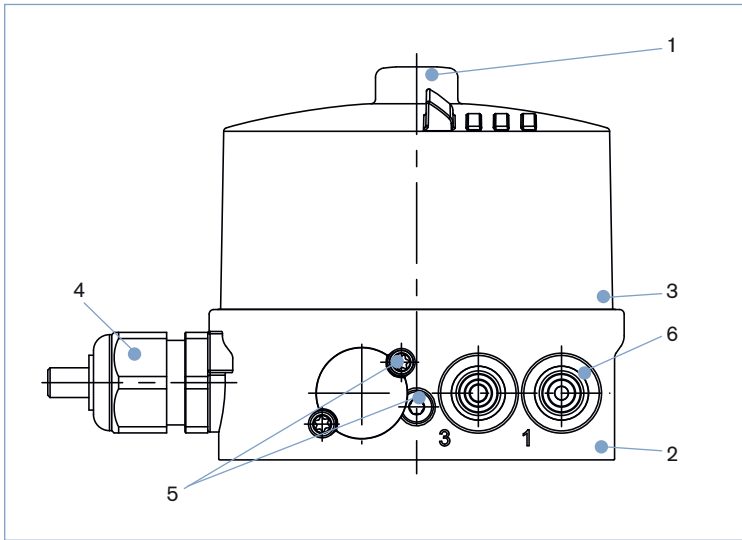
## Ordering chart adapter kit

Description	Actuator size	Control function	Item no.
Adapter set for Type 21xx	Ø 70 / 90 mm	NC / NO / springless (A / B / I)	665 720
Adapter set for Type 20xx	Ø 50 mm	NC (A) / NO (B)	673 257
		Springless (I)	673 261
	Ø 63 mm	NC (A) / NO (B)	673 256
		Springless (I)	673 262
	Ø 80 mm	NC (A) / NO (B)	673 258
		Springless (I)	673 263
	Ø 100 mm	NC (A) / NO (B)	673 259
		Springless (I)	673 264
	Ø 125 mm	NC (A) / NO (B)	673 260
		Springless (I)	674 513

## Ordering chart accessories

Description	Item no.
M12 socket, 8-pins, 2 m assembled cable	919 061
Silencer G1/8	780 779
Silencer, push-in connector	902 662

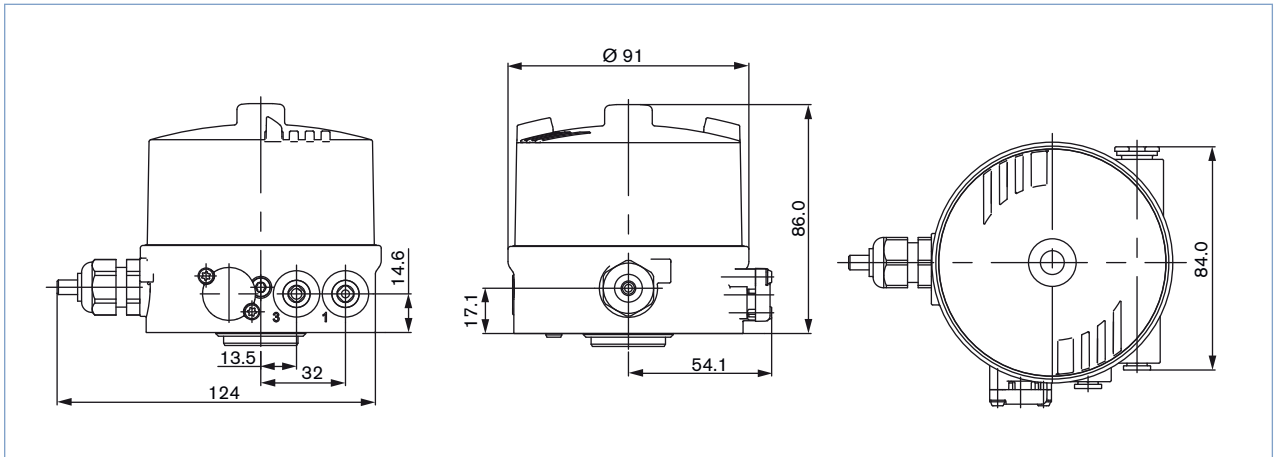
Materials



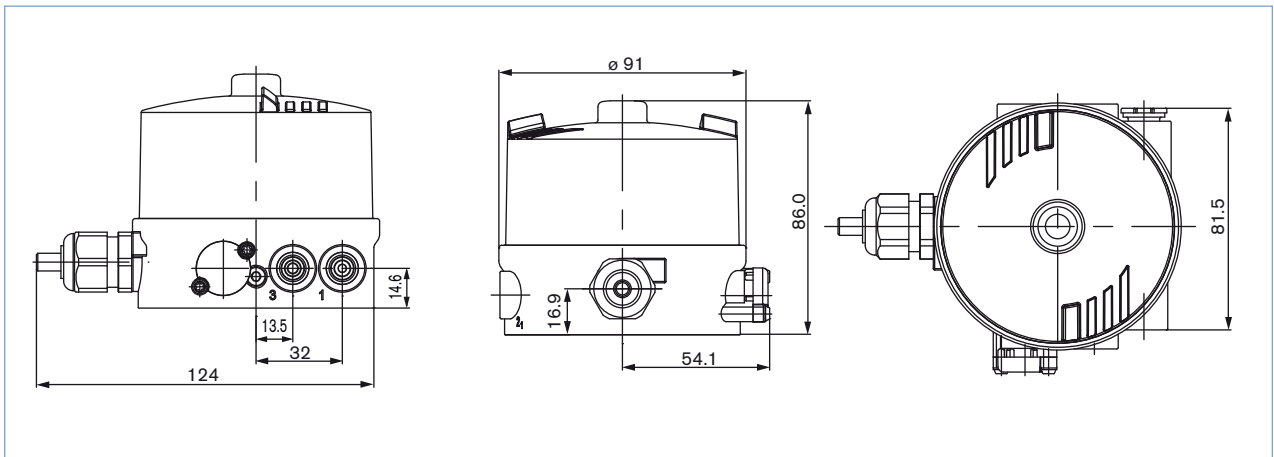
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|----------|---------------------|-------------|
| <b>1</b> | Transparent cap     | PC          |
| <b>2</b> | Basic body          | PPS         |
| <b>3</b> | Sealing             | EPDM        |
| <b>4</b> | Cable gland         | PA          |
|          | Plug                | M12 St. st. |
| <b>5</b> | Screws              | St. st.     |
| <b>6</b> | Push-in connector   | POM/St. st. |
|          | Threaded ports G1/8 | St. st.     |

Dimensions [mm]

Mounting on process valve Type 21xx

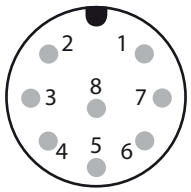


Mounting on process valve Type 20xx



**Connection options**

**Multipole, plug M12 8-pins**



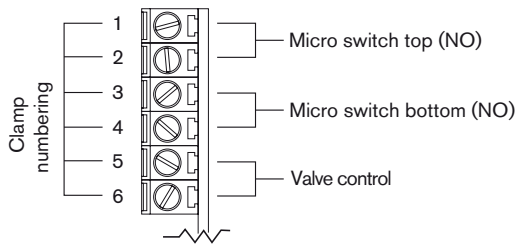
**Plug configuration 24 V with micro switch**

Pin no.	Configuration	External circuit
1	Micro switch top (NO)	Micro switch top (NO)
3		Micro switch top (NO)
2	Micro switch bottom (NO)	Micro switch bottom (NO)
4		Micro switch bottom (NO)
5	Valve control 0/24 V	0/24 V DC ± 10 % residual ripple 10 %
6	Valve control GND	
7	not assigned	
8		

**Plug configuration with initiator**

Pin no.	Configuration
1	INI 1 OUT Output
2	INI 2 OUT Output
3	INI - (GND) Supply
4	INI + (24 V DC) Supply
5	Valve control 0 / 24 V DC
6	Valve control GND

**Cable gland , M16 x 1,5 (cable-ø 10 mm), terminal screws (1,5 mm<sup>2</sup>)**



**Port configuration 24 V with micro switch**

Clamp no.	Configuration	External circuit
1	Micro switch top (NO)	Micro switch top (NO)
2		Micro switch top (NO)
3	Micro switch bottom (NO)	Micro switch bottom (NO)
4		Micro switch bottom (NO)
5	Valve control 0/24 V	0/24 V DC ± 10 % Residual ripple 10 %
6	Valve control GND	

**Port configuration with initiator**

Clamp no.	Configuration
1	INI - (GND) Supply
2	INI 1 OUT Output
3	INI 2 OUT Output
4	INI + (24 V DC) Output
5	Valve control 0 / 24 V DC
6	Valve control GND

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In case of special application conditions, please consult for advice.

Subject to alteration.  
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