DATA SHEET

T 3965 EN

Type 3965 Solenoid Valve Island

To control pneumatic actuators

CE Ex certified

Application

The Type 3965 Solenoid Valve Island is a compact solution for the central control of pneumatic actuators in chemical and pharmaceutical plants.

The modular design with various switching functions and connection options allows the solenoid valves to be configured to meet the individual requirements of a control task. The solenoid valve island provides a high level of operating safety in hazardous areas. Due to the low power input, low-power binary signals over fieldbus or remote I/Os can be used for controlling.

General features

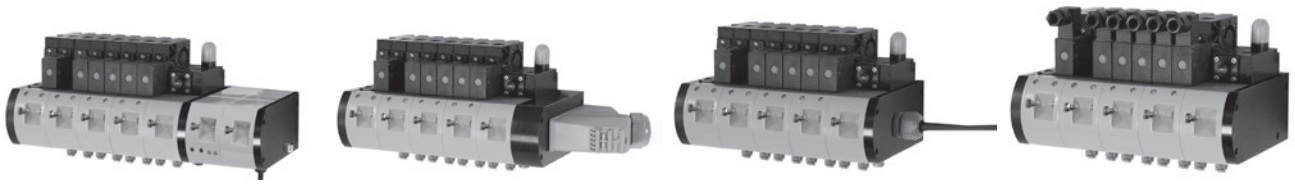
- Compact modular design with up to 16 switching functions
- Combination of various switching functions possible
- On-site conversion of switching functions possible
- Less wiring required thanks to common cable, multi-pole connector or bus connection for PROFIBUS-DP (Ex ia)
- Less tubing required thanks to a common compressed air supply and exhaust
- Service life of over 20 million switching cycles
- Ambient temperature from –25 to +80 °C
- Corrosion-resistant enclosure with degree of protection IP 54
- Wall mounting

Electric data

- Electropneumatic binary converter with flapper/nozzle assembly
- Type of protection Ex ia, Ex nA, Ex nL
- Nominal signal 6, 12, 24 V DC
- Low power consumption of 6 to 27 mW or 0.04 VA
- Manual override
- Electric status indicator
- Connection using a common cable, multi-pole connector, single connectors or bus connection for PROFIBUS-DP (Ex ia)

Pneumatic data

- Diaphragm switching elements with return spring
- 2/2-way, 3/2-way or 5/2-way function
- K_{VS} 0.13
- Pilot supply 2.2 to 6.0 bar
- Max. operating pressure 6.0 bar
- Threaded connections G ⅛ and ¼



Bus connection for PROFIBUS-DP (Ex ia) | Electrical connection with multi-pole connector | Electrical connection with common cable | Electrical connection with single connectors

Fig. 1: *Type 3965 Solenoid Valve Island*

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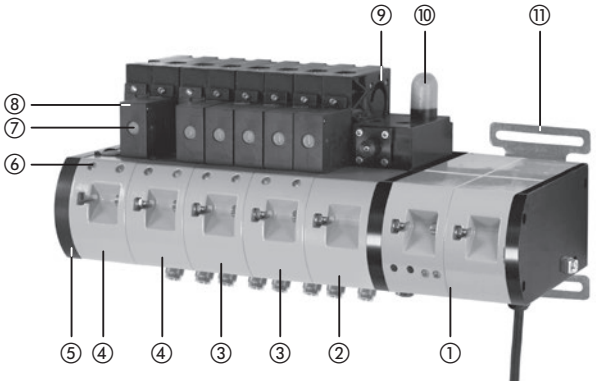
Sample configurations

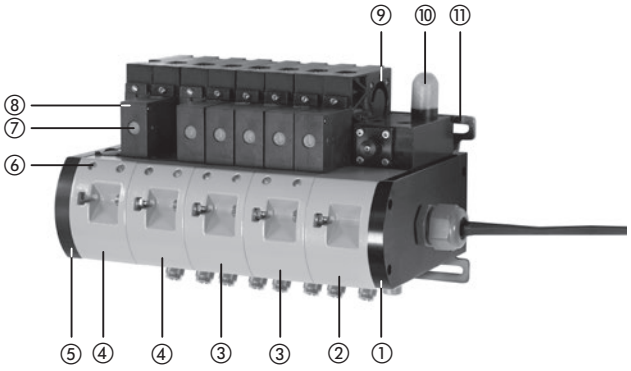
Bus connection for PROFIBUS-DP (Ex ia)

1 Electrical connection module for PROFIBUS-DP (Ex ia)
2 Pneumatic connection module with pressure reducer
3 Base module with 2x 3/2-way or 2x 2/2-way solenoid valve
4 Base module with 1x 5/2-way solenoid valve
5 Left end plate
6 Electric status indicator
7 Manual override
8 Solenoid pilot valve
9 Poppet valve
10 Filter G ¼
11 Mounting bracket



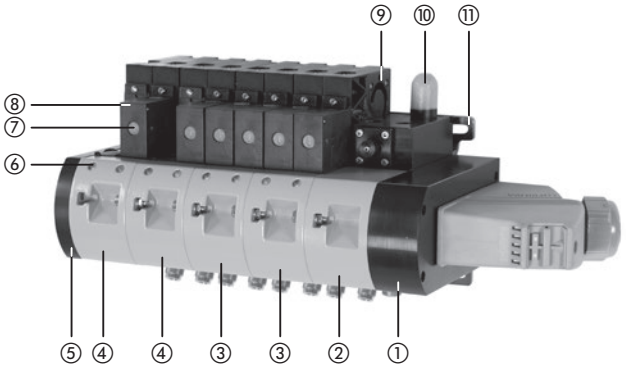
Electrical connection with common cable

1 Right end plate with M20x1.5 cable gland
2 Pneumatic connection module with pressure reducer
3 Base module with 2x 3/2-way or 2x 2/2-way solenoid valve
4 Base module with 1x 5/2-way solenoid valve
5 Left end plate
6 Electric status indicator
7 Manual override
8 Solenoid pilot valve
9 Poppet valve
10 Filter G ¼
11 Mounting bracket



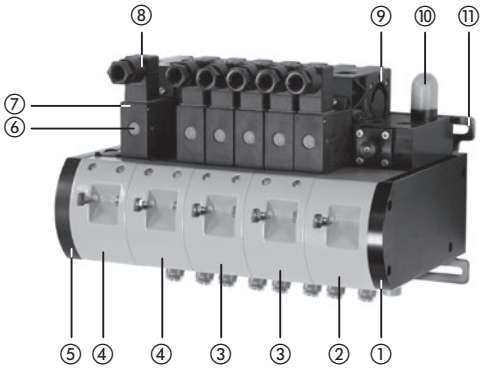
Electrical connection with multi-pole connector

1 Right end plate with multi-pole connector
2 Pneumatic connection module with pressure reducer
3 Base module with 2x 3/2-way or 2x 2/2-way solenoid valve
4 Base module with 1x 5/2-way solenoid valve
5 Left end plate
6 Electric status indicator
7 Manual override
8 Solenoid pilot valve
9 Poppet valve
10 Filter G ¼
11 Mounting bracket



Electrical connection with single connectors

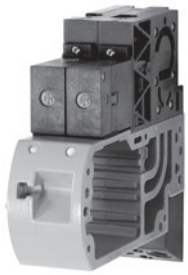
1 Right end plate
2 Pneumatic connection module with pressure reducer
3 Base module with 2x 3/2-way or 2x 2/2-way solenoid valve
4 Base module with 1x 5/2-way solenoid valve
5 Left end plate
6 Manual override
7 Solenoid pilot valve
8 Connector according to DIN EN 175301-803
9 Poppet valve
10 Filter G ¼
11 Mounting bracket



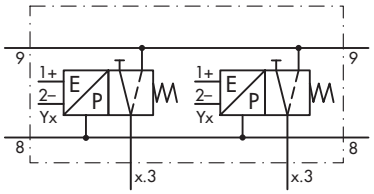
Modules

Base module

2x 2/2-way solenoid valve



Logic symbol

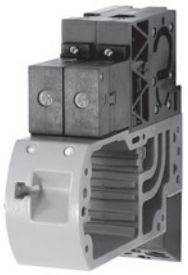


x = Number of the switching function (1 to 16)

- Explosion-protected version (optional)
- Nominal signal 6, 12, 24 V DC
- Electric status indicator
- Manual override (optional)
- 2x 2/2-way function
- Spring-return mechanism
- K_{VS} 0.13
- Output connections G ⅛

Base module

2x 3/2-way solenoid valve



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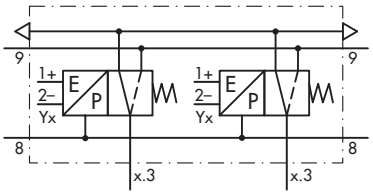
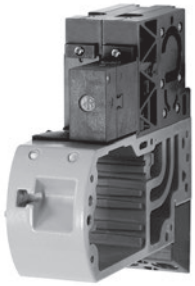


x = Number of the switching function (1 to 16)

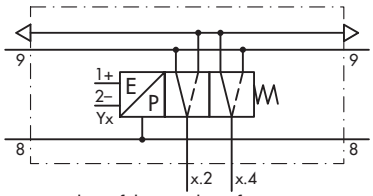
- Explosion-protected version (optional)
- Nominal signal 6, 12, 24 V DC
- Electric status indicator
- Manual override (optional)
- 2x 3/2-way function
- Spring-return mechanism
- K_{VS} 0.13
- Output connections G ⅛

Base module

1x 5/2-way solenoid valve



Logic symbol

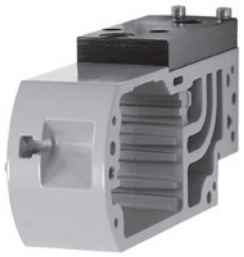


x = Number of the switching function (1 to 16)

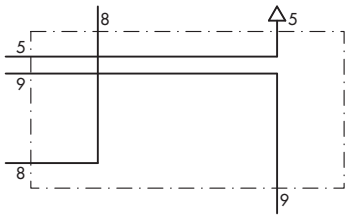
- Explosion-protected version (optional)
- Nominal signal 6, 12, 24 V DC
- Electric status indicator
- Manual override (optional)
- 1x 5/2-way function
- Spring-return mechanism
- K_{VS} 0.13
- Output connections G ⅛

Pneumatic connection module

Without pressure reducer



Logic symbol

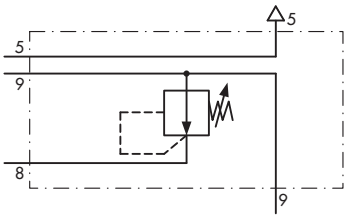


- External pilot supply over port 8
- Operating medium over port 9
- Operating pressure max. 6.0 bar
- Supply air/exhaust air connections G ¼

Pneumatic connection module

With pressure reducer

Logic symbol

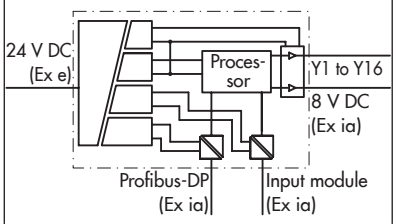


- Pressure reducer
- Internal pilot supply over port 9
- Operating medium over port 9
- Operating pressure 2.2 to 6.0 bar
- Supply air/exhaust air connections G ¼

Electrical connection module

Bus connection for PROFIBUS-DP (Ex ia)

Block diagram



- Intrinsically safe version (Ex ia)
- Actuation of 16 solenoid valves (6 V DC)
- Connection of two input modules for 32 NAMUR sensors
- Wire breakage or short-circuit monitoring

Function

The Type 3965 Solenoid Valve Island consists of base modules and connection modules in a row which are connected to each other over separate common ducts for the operating medium and exhaust.

A row starts with a pneumatic connection module for common compressed air supply and exhaust. Solenoid valves, each consisting of a solenoid pilot valve and a poppet valve, are mounted onto the base modules. The solenoid pilot valves can be actuated by an electric signal over a common cable, multipole connector, single connectors or a bus connection for PROFIBUS-DP.

Pneumatic connection modules

A pneumatic connection module is used for common compressed air supply and exhaust.

With internal pilot supply over port (9), the pneumatic connection module with a pressure reducer is used. For an external pilot supply over port (8), the pneumatic connection module without pressure reducer is used.

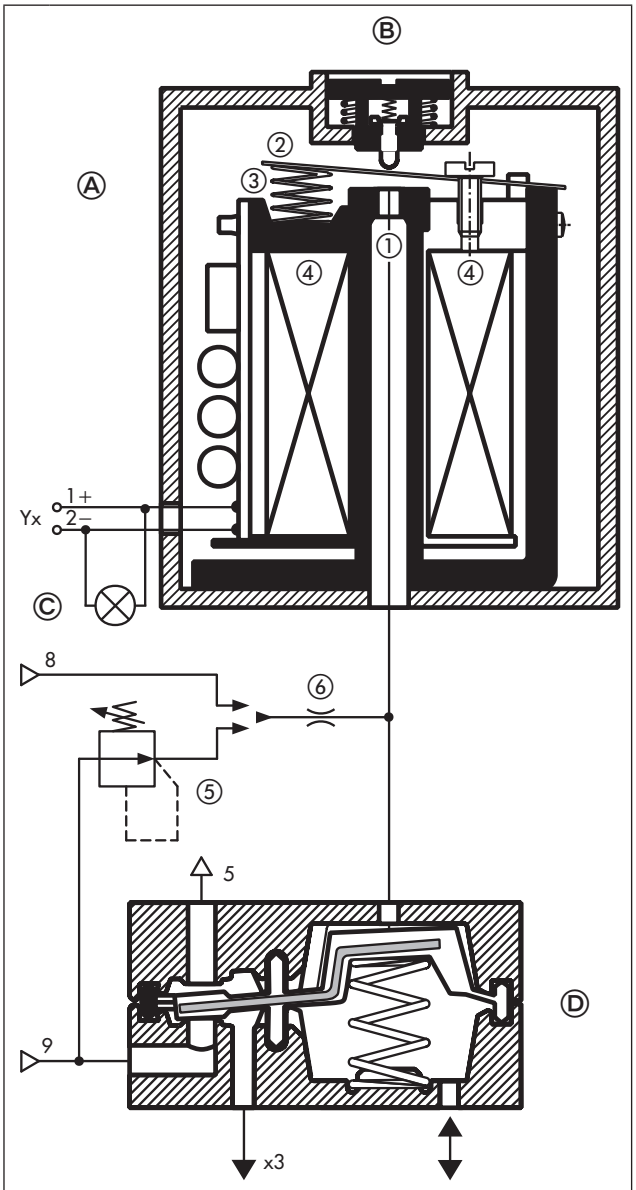
Solenoid pilot valves

The solenoid pilot valves consist of an electropneumatic binary converter (A) with a manual override (B) and LED (C). The air supply for the electropneumatic binary converter (A) is routed through the pressure reducer (5) and the restrictor (6). See Fig. 2.

In the idle position, the flapper (2) is lifted off the outlet nozzle (1) by the spring (3). As a result, a pressure lower than the deactivation pressure of the poppet valve (D) builds up in the pressure divider, which consists of the restrictor (6) and outlet nozzle (1). When the solenoid coil (4) is energized by an electric binary signal, the outlet nozzle (1) is closed by the flapper (2) against the force of the spring (3). This causes the pressure in the pressure divider to rise above the activation pressure of the poppet valve (D), switching it to the operating position. After the solenoid coil is de-energized, the poppet valve (D) is switched to the idle position again by a return spring.

Poppet valves

The 2/2-way and 3/2-way poppet valves consist of a diaphragm switching element with return spring. The 5/2-way poppet valve consists of two parallel controlled diaphragm switching elements with return spring. A combination of a maximum of 16 switching functions is possible.



A Electropneumatic binary converter
- 1 Outlet nozzle
- 2 Flapper
- 3 Spring
- 4 Solenoid
- 5 Pressure reducer
- 6 Restrictor

B Manual override (optional)

C LED (optional)

D Poppet valve

Fig. 2: *Functional diagram of 3/2-way solenoid valve*

Technical data

Pneumatic connection module			
Version		Without pressure reducer	With pressure reducer
Material	Module housing	GD AlSi 12, powder coated, gray beige RAL 1019	
	Connecting plate	GD AlSi12, anodized black	
	Screws	Stainless steel 1.4571	
	Pressure reducer	–	GD AlSi12, anodized black
	Diaphragm	–	Silicone rubber
	Spring	–	1.4310
	Seat, plug	–	CuZn40Pb2
Pilot supply	Medium	Instrument air (free from corrosive substances) or nitrogen	
	Pressure	2.2 bar ±10 % [1]	2.2 to 6.0 bar [2]
Operating medium		Instrument air free from corrosive substances or nitrogen [2] Instrument air free from corrosive substances, air containing oil or non-corrosive gases [1]	
Operating pressure		Max. 6.0 bar [1]	2.2 to 6.0 bar [2]
Connection	Pilot supply (8)	G ⅛	–
	Operating medium (9)	G ¼	
	Exhaust (5)	G ¼	
Degree of protection		IP 54	
Ambient temperature		–25 to +80 °C	
Approx. weight		150 g	200 g

Base module with solenoid valve				
Type 3965		-XXXXXX2	-XXXXXX0	-XXXXXX1
Switching function		2/2-way function [3]	3/2-way function [3]	5/2-way function
K_{VS} [4]		0.13		
Design		Solenoid with flapper/nozzle assembly and diaphragm switching element with return spring		
Material	Module housing	GD AlSi 12, powder coated, gray beige RAL 1019		
	Connecting plate	GD AlSi12, anodized black		
	Valve body	Polyamide PA6-3-T, black		
	Screws	Stainless steel 1.4571		
	Springs	Stainless steel 1.4310		
	Seals	Silicone rubber, nitrile butadiene rubber		
	Diaphragm	Chloroprene rubber		
Electric status indicator		Yellow LED: nominal signal exists		
Air consumption		≤10 l/h (in operating position)		
Per switching function		≤80 l/h (in idle position)		
Switching cycles		≥2x10^7		
Switching time		≤65 ms		
Ambient temperature [5]		–25 to +80 °C		
Degree of protection		IP 54		
Connection	Electric	See End plates on page 7		
	Pneumatic	G ⅛		
Approx. weight		150 g		

1) External pilot supply over port (8)
2) Internal pilot supply over port (9)
3) One or two switching functions are possible per base module.
4) The air flow rate when p_1 = 2.4 bar and p_2 = 1.0 bar is calculated using the following formula: Q = K_{VS} x 36.22 in m³/h.
5) The maximum permissible ambient temperature of the solenoid valve island depends on the permissible ambient temperature of the components, type of protection and temperature class.

Technical data

Electric data of solenoid valve					
Type 3965			-XXXX1	-XXXX2	-XXXX3
Nominal signal		U_N	6 V DC Max. 27 V [1]	12 V DC Max. 25 V [1]	24 V DC Max. 32 V [1]
		f_N	–	–	–
Switching point	ON	$U_{+80°C}$	≥4.8 V	≥9.6 V	≥18.0 V
		$I_{+20°C}$	≥1.41 mA	≥1.52 mA	≥1.57 mA
		$P_{+20°C}$	≥5.47 mW	≥13.05 mW	≥26.71 mW
	OFF	$U_{-25°C}$	≤1.0 V	≤2.4 V	≤4.7 V
Impedance		$R_{+20°C}$	2.6 kΩ	5.5 kΩ	10.7 kΩ
Temperature influence			0.4 %/°C	0.2 %/°C	0.1 %/°C
Type 3965			-11XX1	-11XX2	-11XX3
Type of protection			Ex ia IIC [2] for use in hazardous areas (Zone 1 or 21)		
Maximum values when connected to a certified intrinsically safe circuit	Output voltage [3]	U_i	Pairs of values U_i/I_i apply to 6, 12, 24 V DC nominal signals: 25 V/150 mA, 27 V/125 mA, 28 V/115 mA, 30 V/100 mA, 32 V/85 mA		
	Output current [3]	I_i			
	Power dissipation [3]	P_i	250 mW	No restrictions	
	Outer capacitance [3]	C_i	≈ 0		
	Outer inductance [3]	L_i	≈ 0		
Ambient temperature	Temperature class	T6	–45 to +60 °C		
		T5	–45 to +70 °C		
		T4	–45 to +80 °C		
Type 3965			-81XX1	-81XX2	-81XX3
Type of protection			Ex nA II/Ex nL IIC [4] for use in hazardous areas (Zone 2 or 22)		
Maximum values when connected to a certified energy-limited circuit	Output voltage [5]		32 V		
	Output current [5]		132 mA		
	Power dissipation [5]		250 mW	No restrictions	
	Outer capacitance [5]		≈ 0		
	Outer inductance [5]		≈ 0		
Ambient temperature	Temperature class	T6	–45 to +60 °C		
		T5	–45 to +70 °C		
		T4	–45 to +80 °C		

1) Maximum permissible value at 100 % duty cycle. The maximum permissible value U_i applies to explosion-protected versions.
2) II 2 G Ex ia IIC T6 (Zone 1) and II 2 D IP 65 T 80°C (Zone 21) according to EC type examination certificate PTB 05 ATEX 2044 X
3) Permissible maximum values when connected to a certified intrinsically safe circuit
4) II 3 G Ex nA II T6 or II 3 G Ex nL IIC T6 (Zone 2) and II 3 D IP 54 T 80°C or II 3 D IP 65 T 80°C (Zone 22) according to statement of conformity PTB 06 ATEX 2003 X
5) Permissible maximum values when connected to a certified energy-limited circuit

Technical data

End plates					
Version		Left end plate	Right end plate		
Electrical connection		–	Common cable [1] with M20x1.5 cable gland	Multi-pole connector [2]	Single connector according to DIN EN 175301-803 [3] on solenoid pilot valve
Material	End plate	GD AlSi12, anodized black			
	Seals	Silicone rubber			
	Screws	Stainless steel 1.4571			
	Vent plug	Polyamide	–	–	–
	Connector	–	–	Polyamide	Polyamide
Degree of protection		IP 54			
Ambient temperature		–25 to +80 °C			
Approx. weight		200 g	200 g	500 g	200 g

1) 0.25 mm² wire cross-section, 1.5 m long
2) A maximum of 14 switching functions is possible when connected to a galvanically isolated circuit.
3) The cable socket with seal is not included in the scope of delivery (see Accessories and spare parts on page 14).

Electrical connection module for PROFIBUS-DP (Ex ia)		
Version		• Electrical connection module for PROFIBUS-DP (Ex ia) for use in hazardous areas • Actuation of 16 solenoid valves (6 V DC) with wire breakage monitoring • Connection of 2 input modules for 32 NAMUR sensors (Ex ia) with wire breakage or short-circuit monitoring
Material	Module housing	GD AlSi 12, powder coated, gray beige RAL 1019
	End plates	GD AlSi12, anodized black
	Seals	Silicone rubber
	Screws	Stainless steel 1.4571
	Connector	Polyamide
Setting of bus address		Two rotary switches on the front panel
Status indicators	DP	1x green/red LED
	I/O	1x green/red LED
Cycle time	NAMUR sensors	<100 ms
	Solenoid valve	<500 ms
Power supply		24 V DC (–15 %/+10 %), 2.3 W (without input module) or 3 W (with 2 input modules)
Connection	Power supply	Connecting cable, two-wire, 2 m long
	PROFIBUS-DP	Connector, nine-pole
	Input modules	Round connector M12x1, five-pole (2 input modules can be connected)
Degree of protection		IP 40
Ambient temperature		–20 to +60 °C
Approx. weight		750 g

Input module for NAMUR sensors (Ex ia)		
Version		Input module for 16 NAMUR sensors (Ex ia) for use in hazardous areas
Material	Housing	Aluminum, polyamide
	Front panel	Printed circuit board FR 4, light gray, black printed
Status indicators	Power supply connected	1x green LED
	NAMUR sensor, unattenuated	16x green LED (LED blinks in the event of malfunction)
Mounting		Snap-on mounting for 35 mm DIN rail according to EN 60715
Connection	NAMUR sensors	Terminals, removable
	BUS INPUT/OUTPUT	Round connector M12x1, five-pole
Degree of protection		IP 20
Ambient temperature		–20 to +60 °C
Approx. weight		380 g

Dimensions

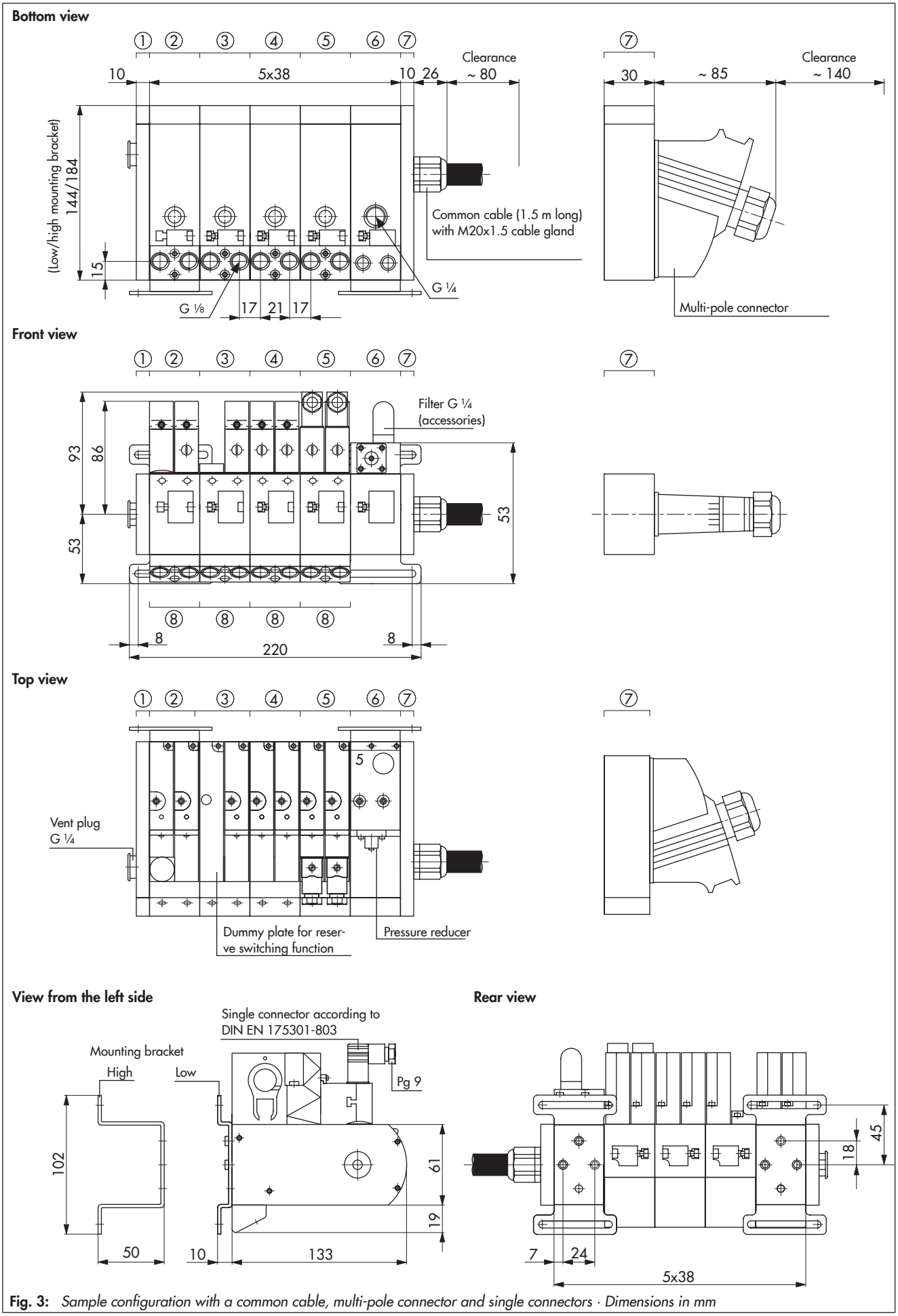
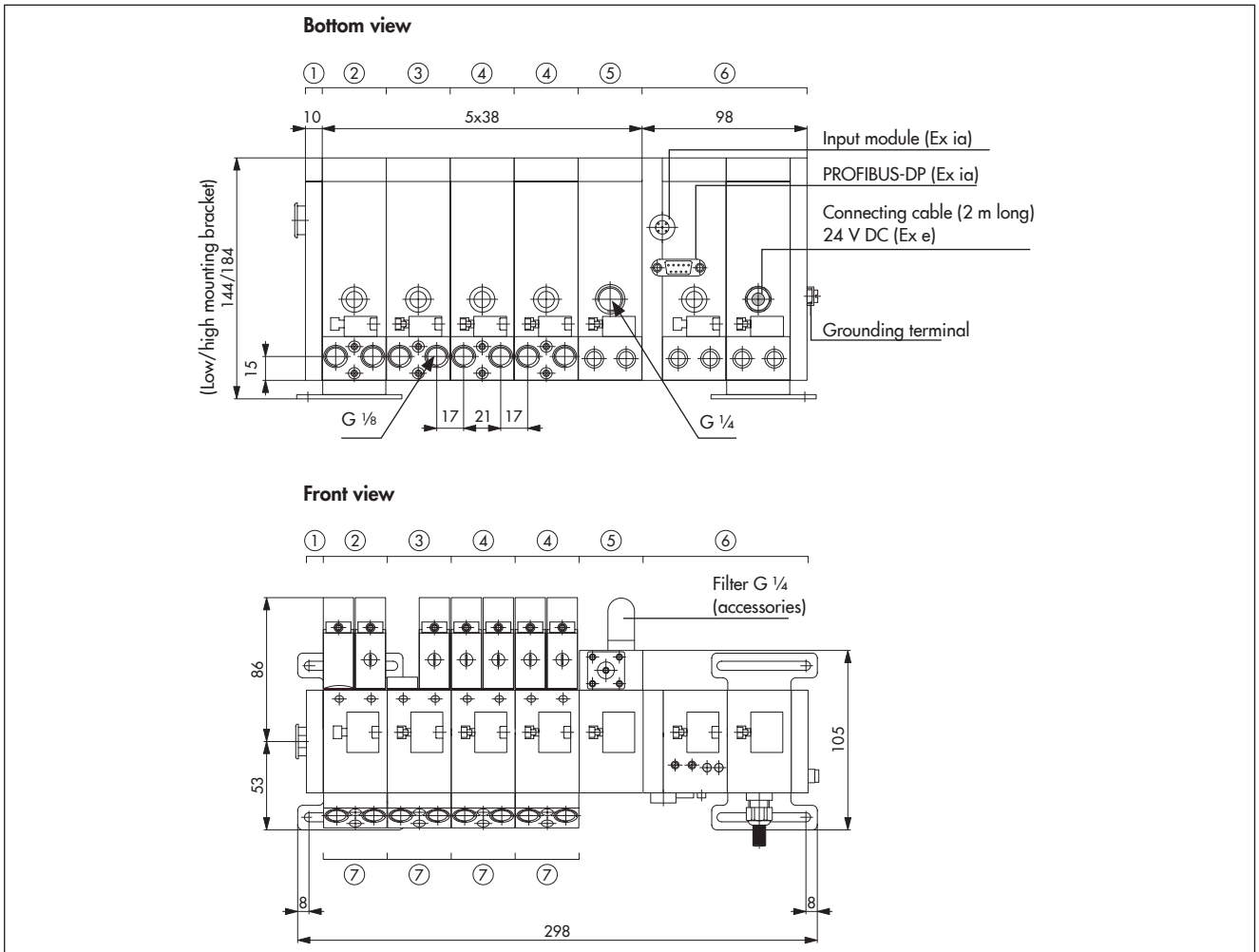


Fig. 3: *Sample configuration with a common cable, multi-pole connector and single connectors · Dimensions in mm*

Legend for Fig. 3 on page 8

1 Left end plate
2 Base module with 5/2-way solenoid valve
3 Base module with 3/2-way solenoid valve and dummy plate for reserve switching function
4 Base module with 2x 2/2-way or 3/2-way solenoid valve
5 Base module with 2x 2/2-way or 3/2-way solenoid valve with single connectors
6 Pneumatic connection module with pressure reducer
7 Right end plate
8 Connecting plate G ⅛

Dimensions



1 Left end plate
2 Base module with 5/2-way solenoid valve
3 Base module with 3/2-way solenoid valve and dummy plate for reserve switching function
4 Base module with 2x 2/2-way or 3/2-way solenoid valve
5 Pneumatic connection module with pressure reducer
6 Electrical connection module for PROFIBUS-DP
7 Connecting plate G ⅛

Fig. 4: *Sample configuration with electrical connection module for PROFIBUS-DP (Ex ia) · Dimensions in mm*

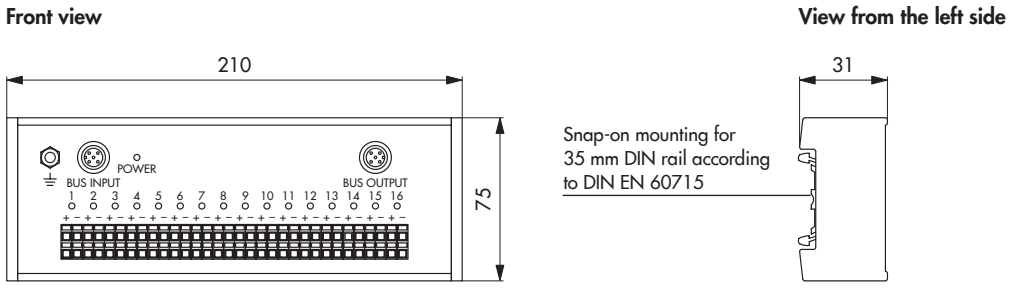


Fig. 5: *Input module for NAMUR sensors (Ex ia) · Dimensions in mm*

Versions and ordering data for Type 3965 Solenoid Valve Island

Type 3965 Solenoid Valve Island	Order no. 3965-	x	x	x	x	x	x	x	x	x	x	x	x	x	0	0
Type of protection																
No explosion protection		0	0													
II 2 G Ex ia IIC T6 and II 2 D IP 65 T 80 °C [1]		1	1													
Ex ia IIC T6 and Ex tD A21 IP 65 T 80 °C [2]		1	2													
II 3 G Ex nA II T6 or II 3 G Ex nL IIC T6 and II 3 D IP 54 T 80 °C or II 3 D IP 65 T 80 °C [3]		8	1													
Ex nA II T6 or Ex nL IIC T6 and Ex tD A21 IP 54 T 80 °C or Ex tD A21 IP 65 T 80 °C [4]		8	2													
Electrical connection																
Single connector, type C, without cable socket acc. to DIN EN 175301-803 (IP 20)				0	0											
Single connector, type C, with cable socket acc. to DIN EN 175301-803 (IP 54)				0	1											
Common cable (0.25 mm² wire cross-section, 1.5 m long) with M20x1.5 cable gland, polyamide, IP 54				0	2											
Multipole connector with cable socket, 32-pole, made of gray polyamide, IP 54				1	0											
Bus connection for PROFIBUS-DP (Ex ia) with connecting cable, IP 40, for 6 V DC nominal signal				3	1	1										
Nominal signal																
6 V DC, 5.47 mW power consumption						1										
12 V DC, 13.05 mW power consumption						2										
24 V DC, 26.71 mW power consumption						3										
Electric status indicator																
Without [8]							0									
Switching function																
3/2-way function (including dummy plate for a reserve switching function when an uneven number of switching function is used)								0								
5/2-way function								1								
2/2-way function (including dummy plate for a reserve switching function when an uneven number of switching function is used)								2								
Special switching function or combined switching functions [6]								9								
Number of switching functions																
1									0	1						
2									0	2						
3									0	3						
4									0	4						
5									0	5						
6									0	6						
7									0	7						
8									0	8						
9									0	9						
10									1	0						
11									1	1						
12									1	2						
13									1	3						
14									1	4						
15									1	5						

Type 3965 Solenoid Valve Island	Order no. 3965- x x x x x x x x x x x x x 0 0
16	1 6
Base module for reserve switching functions	
Without	0
1 base module with 2x 2/2-way or 3/2-way function or 1x 5/2-way function	1
2 base modules with 4x 2/2-way or 3/2-way function or 2x 5/2-way function	2
3 base modules with 6x 2/2-way or 3/2-way function or 3x 5/2-way function	3
4 base modules with 8x 2/2-way or 3/2-way function or 4x 5/2-way function	4
5 base modules with 10x 2/2-way or 3/2-way function or 5x 5/2-way function	5
6 base modules with 12x 2/2-way or 3/2-way function or 6x 5/2-way function	6
7 base modules with 14x 2/2-way or 3/2-way function or 7x 5/2-way function	7
Pneumatic connection module	
With pressure reducer, G threaded connection	0
Without pressure reducer, G threaded connection	2
Manual override	
Without	0
Pushbutton	1
Switch	2
Ambient temperature [7]	
–25 to +80 °C	0
Input module for NAMUR sensors (Ex ia)	
Without	0
Safety function	
Without	0

[1] According to EC type examination certificate PTB 05 ATEX 2044 X
[2] According to IECEx certificate of conformity IECEx PTB 07.0026 X
[3] According to statement of conformity PTB 06 ATEX 2003 X
[4] According to IECEx certificate of conformity IECEx PTB 07.0051 X
[5] The cable socket with seal is not included in the scope of delivery (see Accessories and spare parts on page 14).
[6] A combination of a maximum of 16 switching functions (including reserve switching functions) is possible.
[7] The maximum permissible ambient temperature of the solenoid valve island depends on the permissible ambient temperature of the components, type of protection and temperature class.
[8] One yellow LED per switching function is integrated into the device as electrical status indication to indicate a nominal signal exists when the electrical connection is established using a common cable, multi-pole connector or PROFIBUS

See pages 12 and 13 for versions and ordering data of Type 3964 Solenoid Pilot Valve.

Refer to Data Sheet T 3965-2 for versions and ordering data of Type 3965-DP*plus* Valve Control Module.

Versions and ordering data for Type 3964 Solenoid Pilot Valve (for single connector)

Type 3964 Solenoid Pilot Valve	Order no. 3964-	x	x	x	0	0	0	3	0	0	0	1	0
Type of protection													
No explosion protection		0											
II 2 G Ex ia IIC T6 (ATEX) [1], Zone 1		1											
Ex ia IIC (CSA) and AEx ia IIC (FM)		3											
II 3 G Ex nA II T6 (ATEX) [2], Zone 2		8											
Nominal signal													
6 V DC, 5.47 mW power consumption			1										
12 V DC, 13.05 mW power consumption			2										
24 V DC, 26.71 mW power consumption			3										
Manual override													
Without manual override (**SIL**)				0									
Pushbutton				1									
Pushbutton/switch				2									
Mounting													
Interface for direct mounting of Type 3965 Solenoid Valve Island					0								
CNOMO adapter plate, 30 mm					1								
K_{VS} [3]													
0.01						0							
Pressure reducer													
Without pressure reducer							0						
Electrical connection													
9.4 mm special connector for PCB in Type 3965 Solenoid Valve Island, without cable socket [4]								1					
Connector type C according to DIN EN 175301-803, with cable socket [5], distance between contacts 8 mm								3					
Degree of protection													
IP 54									0				
Pilot supply													
1.4 to 3.6 bar										0			
Indicator													
Without indicator											0		
Ambient temperature [6]													
–25 to +80 °C												1	
–45 to +80 °C												2	
Safety function													
Without safety function													0
SIL [7]													1

1) EC type examination certificate PTB 98 ATEX 2047
2) Statement of conformity PTB 01 ATEX 2193 X
3) The air flow rate when p_1 = 2.4 bar and p_2 = 1.0 bar is calculated using the following formula: $Q = K_{VS} \times 36.22$ in m³/h.
4) The cable socket with seal is not included in the scope of delivery (see Accessories and spare parts on page 14).
5) The cable socket with seal is included in the scope of delivery.
6) The maximum permissible ambient temperature of the solenoid pilot valve depends on type of protection and temperature class.
7) SIL according to IEC 61508

Versions and ordering data for Type 3964 Solenoid Pilot Valve

Type 3964 Solenoid Pilot Valve	Order no. 3964-	x	1	x	0	0	0	1	0	0	0	1	0
Type of protection													
No explosion protection		0											
II 2 G Ex ia IIC T6 (ATEX) [1], Zone 1		1											
Ex ia IIC (CSA) und AEx ia IIC (FM)		3											
II 3 G Ex nA II T6 (ATEX) [2], Zone 2		8											
Nominal signal													
6 V DC, 5.47 mW power consumption			1										
12 V DC, 13.05 mW power consumption			2										
24 V DC, 26.71 mW power consumption			3										
Manual override													
Without manual override (**SIL**)				0									
Pushbutton				1									
Pushbutton/switch				2									
Mounting													
Interface for direct mounting of Type 3965 Solenoid Valve Island					0								
CNOMO adapter plate, 30 mm					1								
K_{VS} [3]													
0.01						0							
Pressure reducer													
Without pressure reducer							0						
Electrical connection													
9.4 mm special connector for PCB in Type 3965 Solenoid Valve Island, without cable socket [4]								1					
Connector type C according to DIN EN 175301-803, with cable socket [5], distance between contacts 8 mm								3					
Degree of protection													
IP 54									0				
Pilot supply													
1.4 to 3.6 bar										0			
Indicator													
Without indicator											0		
Ambient temperature [6]													
–25 to +80 °C												1	
–45 to +80 °C												2	
Safety function													
Without safety function													0
SIL [7]													1

1) EC type examination certificate PTB 98 ATEX 2047
2) Statement of conformity PTB 01 ATEX 2193 X
3) The air flow rate when p_1 = 2.4 bar and p_2 = 1.0 bar is calculated using the following formula: $Q = K_{VS} \times 36.22$ in m³/h.
4) The cable socket with seal is not included in the scope of delivery (see Accessories and spare parts on page 14).
5) The cable socket with seal is included in the scope of delivery.
6) The maximum permissible ambient temperature of the solenoid pilot valve depends on type of protection and temperature class.
7) SIL according to IEC 61508

Accessories and spare parts

Order no.	Accessories
0790-6658	Cable socket according to DIN EN 175301-803, type C, made of black polyamide, with cable gland Pg 9 (for 4 to 8 mm cable diameter) and seal of nitrile butadiene rubber
8831-…	Connecting cable with M12x1 round connector, five-pole, at both ends (for electrical connection module for PROFIBUS-DP and input module for NAMUR sensors)
	8831-0873 – 0.3 m long
	8831-0874 – 1.0 m long
1400-9321	Low mounting bracket set consisting of 2 mounting brackets and 6 cap screws ISO 4762 – M5x6
1400-9322	High mounting bracket set consisting of 2 mounting brackets and 6 cap screws ISO 4762 – M5x6
0790-6123	M5 male connector, brass, for 4x1 mm hose (for test connector)
8582-1450	G ⅛ male connector, brass, for 4x1 mm hose (for output connections)
8582-1684	G ¼ male connector, brass, for 9x3 mm hose (for air supply connection)
8395-0040	Hose clamp Ø10 to 16 mm (for 9x3 mm hose)
8414-0136	Seal 10x13x1.5 mm, polyvinyl chloride (for G ⅛ male connector)
8414-0140	Seal 13.5x17x1.5 mm, polyvinyl chloride (for G ¼ male connector)
8504-0066	Filter G ¼ (for exhaust port)

Order no.	Accessories
3964-…	Type 3964 Solenoid Pilot Valve acc. to Data Sheet ▶ T 3964 (see Versions and ordering data on pages 12 and 13)
	3964-XXX000300010 for single connector
	3964-X1X000100010 for common cable, multi-pole connector or bus connection for PROFIBUS-DP (Ex ia)
	Poppet valve and accessories
1400-9392	3/2-way poppet valve, including mounting accessories
1400-9393	5/2-way poppet valve, including mounting accessories
1400-9395	Connecting plate G ⅛, including mounting accessories
0550-0189	Filter (for pilot duct in poppet valve)
	Interface base between module and poppet valve
0430-1725	Turnable gasket for 3/2-way and 5/2-way function
0430-1956	Turnable gasket for 2/2-way
0430-1761	Formed seal for supply air for solenoid pilot valve
8421-0016	O-ring 2.7x1.5 for fastening screw at the poppet valve
8421-0314	O-ring 12x1 for connecting plate at the poppet valve (2 pcs. required)
1400-9394	Dummy plate for reserve switching function, including mounting accessories
	Interface between poppet valve and solenoid pilot valve
1690-4844	Seal with restriction
8421-0012	O-ring 2x1 (2 pcs. required)
8421-0279	O-ring 8x1.5
0360-3350	Dummy plate (for second poppet valve when 5/2-way function is used)
0320-2501	Holder for solenoid pilot valve
8336-1101	Self-tapping screw 2.5x10 (for holder)
	Pneumatic connection module and end plates
1400-9397	Pressure reducer with G thread, including mounting accessories
1400-9399	Connecting plate with G thread, including mounting accessories
0430-1658	Formed seal (for interface between base module, pneumatic connection module and end plate)
0430-1858	Formed seal (for interface between pneumatic connection module and pressure reducer or connecting plate)
0550-0213	Filter G ¼ (for pilot supply port)
1690-3110	Vent plug G ¼, black polyamide (for left end plate)
8808-1011	Cable gland M20x1.5 made of black polyamide (for common cable)
8808-1012	Cable gland M20x1.5 made of blue polyamide (for common cable)
1400-9389	Multipole cable socket, 32-pole, made of gray polyamide
	Input module for NAMUR sensors
8862-0100	Input module for 16 NAMUR sensors (Ex ia), IP 20