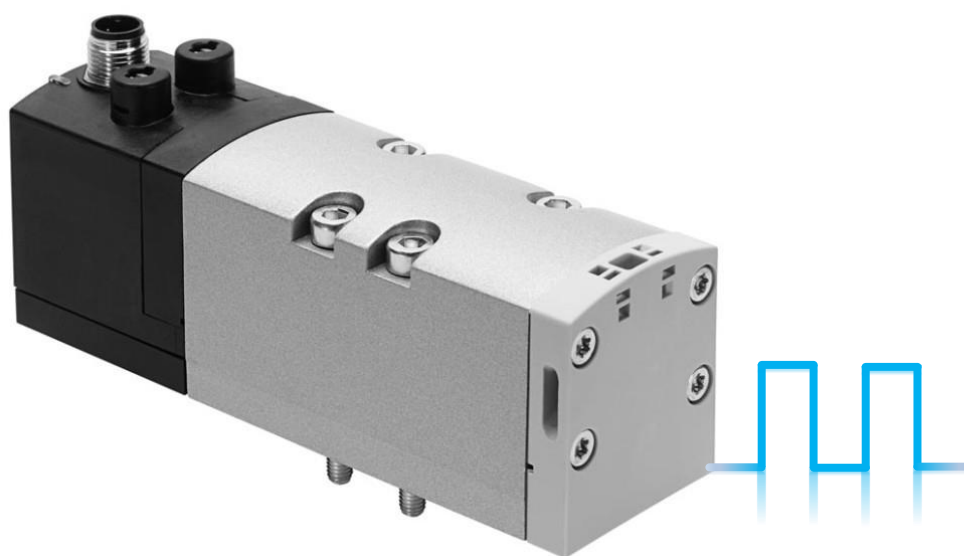


VSVA-Pulsing Valve VSVA-B-T32C-AD-D1-1R5L-CS

VSVA-B-T32C-AD-
D1-1R5L-CS
T.-Nr.-8149181



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1 Introduction



Installation, commissioning, maintenance and removal only by qualified personnel.
The specialist personnel must be familiar with the installation of electrical and pneumatic control systems.



Installation requires a qualified electrician.
Operation only permitted with 24V DC PELV power supply.



For technical questions, please contact your regional Festo contact
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Solenoid valves suitable for standard connection diagram according to ISO 5599-1 with central connector and cycle function. The VSVA-B-... solenoid valve with pulse function is a monostable 2x3/2 VSVA-ISO1 valve which is designed after connecting to 24V on the input of the respective magnet, automatically cycles with preset frequency and pulse-pause ratio.

With the use of the pulsing function, stronger blowing pulses can be achieved when used as a blowing air valve, and compressed air can be saved during the off-time. Possible areas of application are cleaning in case of chips and dust contamination, drying and transporting parts.

The technical data can be taken from the data sheet of the "Standard valves ISO 5599-1, central plug M12 3-pin". Reference valve: 561359 VSVA-B-T32C-AD-D1-1R5L

The B10 value for the VSVA-B-T32C-AD-D1-1R5L-CS TN:8149181 is 50 million operations



Both 3/2 valves can also be actuated in parallel to doubling the flowrate

2 Connectors

2.1 Control Signals

The control signals require a voltage of 24V +/-10%.

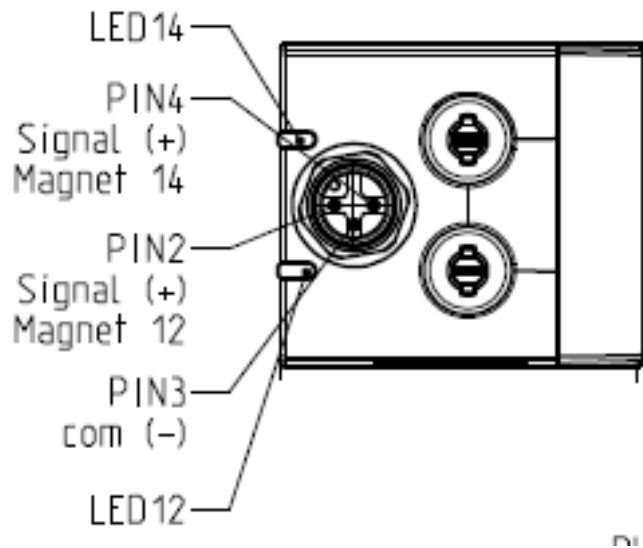


Fig.1: electric connection

2.2 Pneumatic symbols

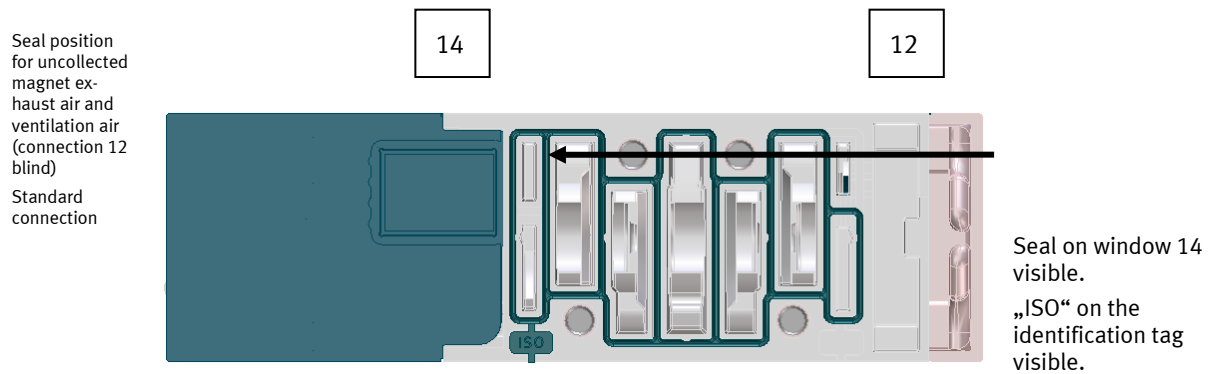
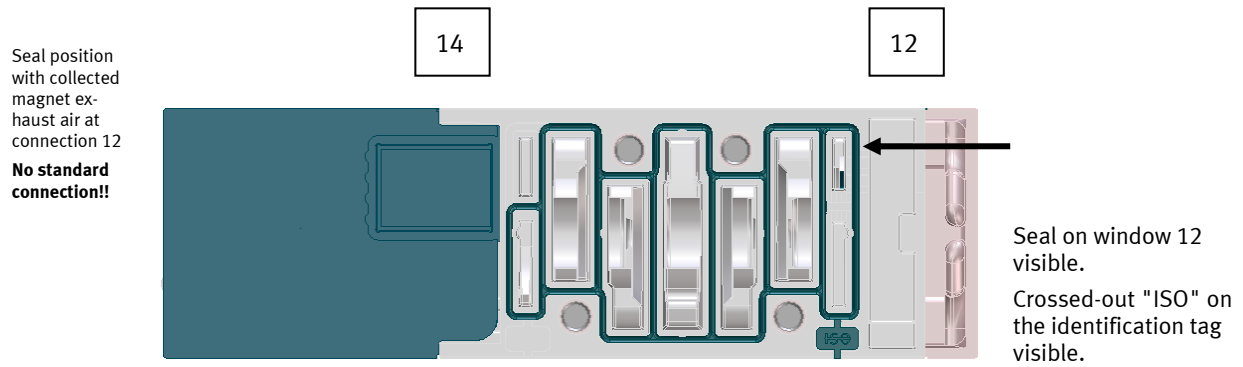
Design: 2x 3/2-way valve, 2x normally closed 2x, type of reset: pneumatic spring



Fig 2: pneumatic symbols

2.3 Collected / uncollected control exhaust air

By turning the seal, the control exhaust air can be collected (upper figure).
The lower figure corresponds to the standard. In the standard position of the seal,
the control exhaust air is not collected.



3 Setup the VSVA pulse valve

The function of the valve can be adjusted via two rotary switches located on the rear side.

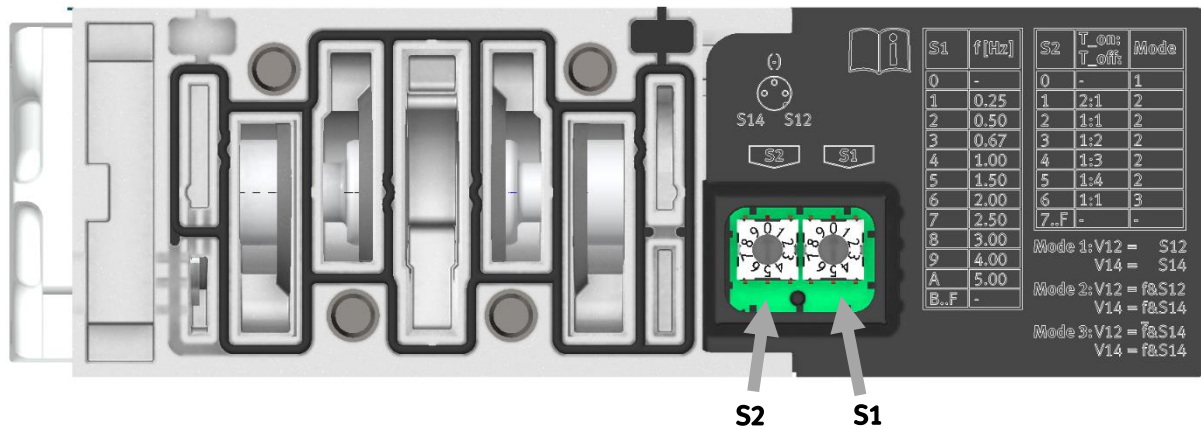


Fig. 1: Setting switches

The possible functions can also be seen on the attached label on the back.

S1	f [Hz]	S2	T_on: T_off	Mode
0	-	0	-	1
1	0.25	1	2:1	2
2	0.50	2	1:1	2
3	0.67	3	1:2	2
4	1.00	4	1:3	2
5	1.50	5	1:4	2
6	2.00	6	1:1	3
7	2.50	7..F	-	-
8	3.00			
9	4.00			
A	5.00			
B..F	-			

Mode 1: V12 = S12
V14 = S14
Mode 2: V12 = f&S12
V14 = f&S14
Mode 3: V12 = f&S14
V14 = f&S14

Example

Rotary Switch S1: Position 1 (0.25 Hz)

Rotary Switch S2: Position 2 (1:1 T_on:T_off)

Puls pattern:

frequency $f = 0.25 \text{ Hz}$

→ Period duration: 4.0 s

Ratio T_on:T_off = 1:1

→ T_on: 2.0 s

→ T_off: 2.0 s

Fig.4: Label with configuration settings



New settings on S1 and S2 are only accepted internally after a restart of the valve

3.1 Valve functions

3.1.1 Mode 1: Standard mode of the valves

Switch positions: S1 = 0; S2 = 0

The user can control both valves separately via the two inputs PIN2 and PIN4.

The status LED of the respective valve lights up continuously as long as a signal is present at the respective input.

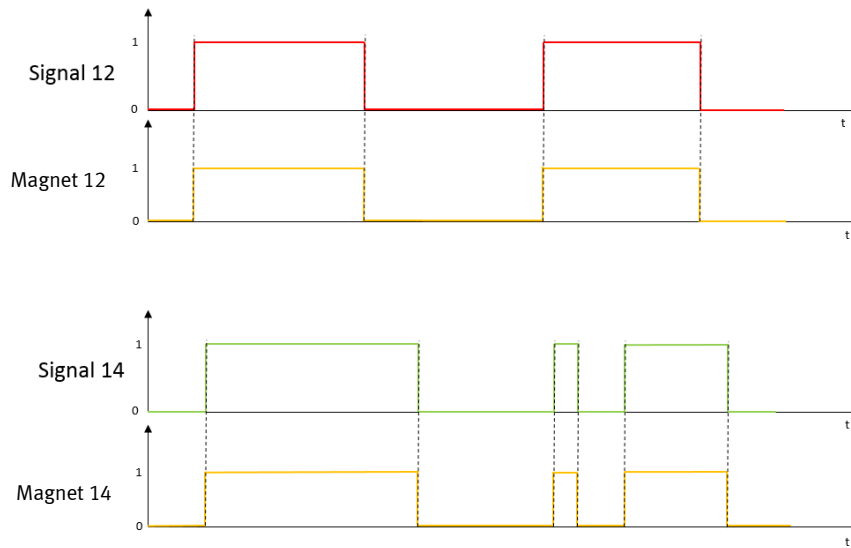


Fig. 5: Switching characteristics Mode 1

3.1.2 Mode 2: Pulse operation of the valves

Switch positions: S1 = 1 ... A; S2 = 1 ... 5

Both valves can be clocked via adjustable, fixed frequencies.

The pulse/pause ratio ($t_{ON}:t_{OFF}$) is adjustable.

Example: S1 = 5 and S2 = 3

With a ratio of 1:2, one section is switched on and two sections are switched off.

$$t = \frac{1}{f * (t_{on} + t_{off})} = \frac{1}{1,5Hz * (1 + 2)} = 0,22s$$

$$t_{on} = 1 * t = 1 * 0,22s = 0,22s$$

$$t_{off} = 2 * t = 2 * 0,22s = 0,44s$$

This results in a switch-on pulse of 0.22s and a pause of 0.44s

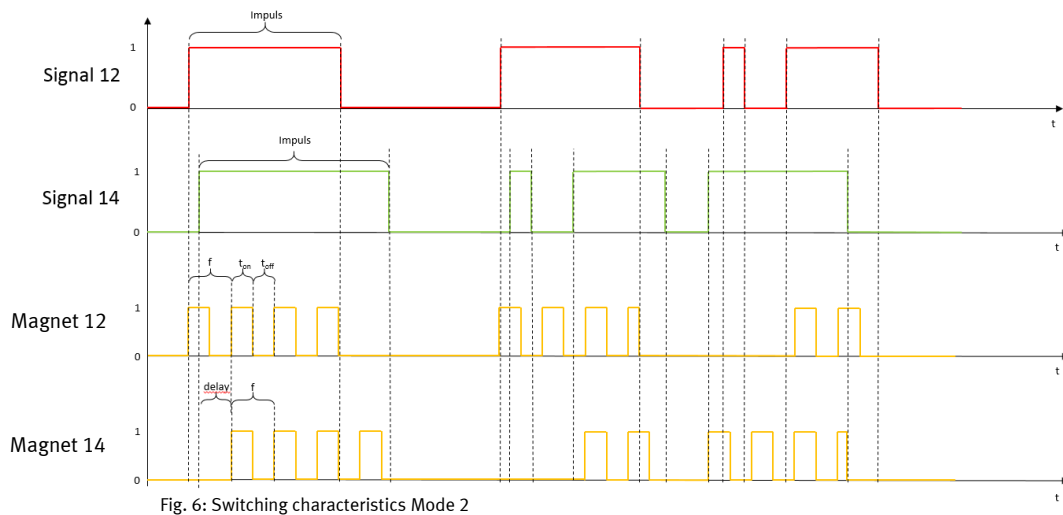
The status LED of the respective valve lights up continuously as long as a signal is present at the selected input.

The valves clock synchronously. If a signal is applied to the switching input, the valve will always switch on the next positive clock pulse flank (see figure 6).

Overview setting options frequency / pulse duration

			S2					
			0	1	2	3	4	5
			x	2:1	1:1	1:2	1:3	1:4
S1	0	x	x	x	x	x	x	x
	1	0,25 Hz	x	2,64 s	2,00 s	1,32 s	1,00 s	0,80 s
	2	0,5 Hz	x	1,32 s	1,00 s	0,66 s	0,50 s	0,40 s
	3	0,66 Hz	x	1,00 s	0,75 s	0,50 s	0,375 s	0,30 s
	4	1,0 Hz	x	0,66 s	0,50 s	0,33 s	0,25 s	0,20 s
	5	1,5 Hz	x	0,44 s	0,333 s	0,22 s	0,167 s	0,133 s
	6	2,0 Hz	x	0,33 s	0,25 s	0,165 s	0,125 s	0,10 s
	7	2,5 Hz	x	0,264 s	0,20 s	0,132 s	0,10 s	0,08 s
	8	3,0 Hz	x	0,22 s	0,167 s	0,11 s	0,083 s	0,067 s
	9	4,0 Hz	x	0,165 s	0,125 s	0,083 s	0,063 s	0,05 s
	A	5,0 Hz	x	0,132 s	0,10 s	0,066 s	0,05 s	0,04 s

Table 1: Values Mode 2



Both 3/2 valves can also be actuated in parallel to doubling the flowrate

3.1.3 Mode 3: Puls mode inverted

Switch positions: S1 = 1 ... A; S2 = 6

The valves clock alternately, the valves are controlled via Pin4. Pin2 has no function in this mode. Both LEDs (LED 12 and LED 14) are permanently lit as long as a signal is present at Pin4.

possible application: Cyclic switching of double-acting pneumatic drives.

Overview setting options frequency / pulse duration

		S2	
		6	
		1:1 inv.	
S1	0	x	x
	1	0,25 Hz	2,00 s
	2	0,5 Hz	1,00 s
	3	0,66 Hz	0,75 s
	4	1,0 Hz	0,50 s
	5	1,5 Hz	0,333 s
	6	2,0 Hz	0,25 s
	7	2,5 Hz	0,20 s
	8	3,0 Hz	0,167 s
	9	4,0 Hz	0,125 s
	A	5,0 Hz	0,10 s

Table 2: Values mode 3

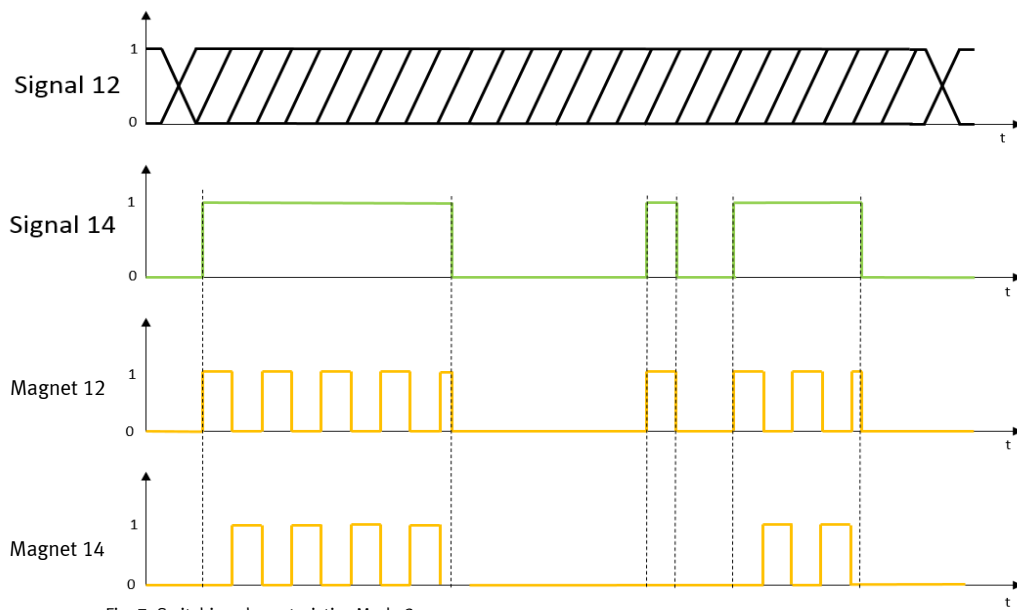


Fig. 7: Switching characteristics Mode 3



All other switch positions (S1: A ... F; S2: 7 ... F) are reserved for future functions. If an invalid switch position is selected, the valves are switched off and the LEDs flash alternately at 3 Hz. The input signals then have no function.