

ORIGINAL INSTRUCTIONS

1. Designation

Control valve for cutting off the air supply and relieving the air circuit connected to port 4.

2. Description

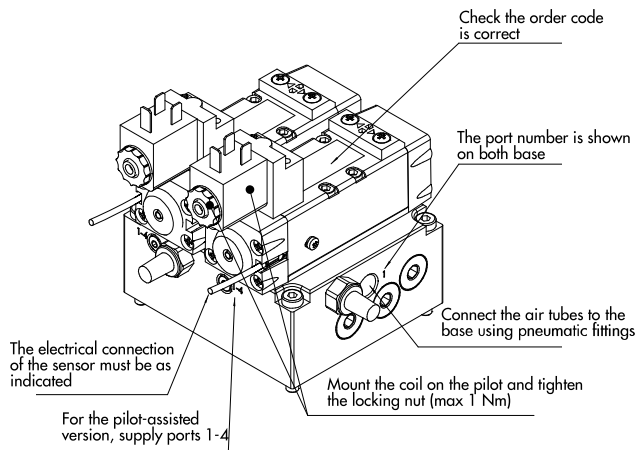
5/2 electropneumatic monostable double valve with spool monitoring and monobloc connections.

3. Technical data

	ISO 1	ISO 2	ISO3
Fluid	Filtered un lubricated air (50µm); lubrication, if used, must be continuous		
Operation	double 5/2 monostable		
Operating pressure: bar			
- non-assisted	from 2.5 to 10		
- pilot-assisted	from vacuum to 10		
Minimum pilot pressure bar	2.5		
Operating temperature range °C	from -10 to +60 (from -10 to +45 for ATEX versions)		
Conductance C NI/min · bar	228	498	720
Critical ratio b bar/bar	0.40	0.24	0.44
Flow rate at 6.3 bar Δp 0.5 bar NI/min	770	1250	2500
Flow rate at 6.3 bar Δp 1 bar NI/min	1050	1750	3400
Conductance C on relief NI/min · bar	222	554	724
Critical ratio b on relief bar/bar	0.30	0.02	0.41
Flow rate on free exhaust 6.3 bar NI/min	1600	4000	5300
TRA/TRR at 6.3 bar ms/ms	24 / 50	39 / 60	50 / 120
Installation	any position		
Solenoid pilot	to CNOMO		
Manual actuator	monostable on solenoid pilot and valve body		
Recommended lubricant	ISO and UNI FD 22		
Compatibility with oils	See webpage www.metalwork.it/eng/materiali_compatibilita.html		
Coils	30 mm side, ø 8 hole		
	4 W - 24 VDC		
	4 VA - 24 VAC, 110 VAC, 220 VA 50/60 Hz		
	22 mm side, ø 8 hole		
	2 W - 12 VDC, 24 VDC		
	3.5 VA - 24 VAC, 110 VAC, 220 VA 50/60 Hz		
	Certified EN 60204.1 and VDE 0580 (*)		
Max coil ring nut torque Nm	1		
Class of protection	IP65 with coil and connector mounted		
Noise level	Max. 78 dBA with silenced relief		
B10d	40x10 ⁶ cycles		
Category - ISO EN 13849	4		
DC	High (> 99 %)		
CCF	80		
PL - ISO EN 13849	Suitable for use in safety circuits up to PL=		

* To avoid malfunctions, we recommend using Metal Work accessories.

4. Installation instructions



Proceed as follows to install the valve:

- Mount the Metal Work actuating coils on the two solenoid pilots and secure them using the ring nuts (max torque 1 Nm);
- connect the air pipes to the base, using compressed air fittings, following the numbering of ports 1, 2, 4 and 1-4 (for the pilot-assisted version) punched on the base;
- supply power to the coils at the rated voltage. N.B. For correct operation, the two valves must be activated simultaneously;
- supply power to the Hall-effect sensors and connect them to the diagnostic system. N.B. For correct operation, the reading of the two sensors must be independent;
- supply compressed air to the product;
- check operation of the valves and sensors:
 - if one of the coils is de-energized, port 1 is connected to port 2, port 4 relieves (port 5) and the corresponding sensor is ON;
 - if both coils are de-energized, port 1 is connected to port 4, port 2 relieves (port 3) and both sensors are OFF;
- any ferromagnetic masses must be at least 30mm from the sensor;
- prevent magnetic fields from creating disturbance in the sensor area.

Perform consistency checks based on the following tables, which relate the valve input and output statuses:

status 0: power / signal absent;
status 1: power / signal present.

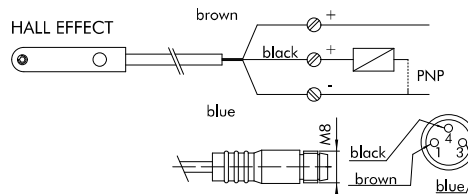
When the double valve is in the safe status (one of the spools in the home position), at least one of the sensors is ON (1).

For redundant operation, the two valves must be activated simultaneously and the reading of the two sensors must be independent. For the pilot-assisted version, both valves must be pressurized.

VALVE IN NON-INTERLOCKED VERSION					
INPUTS	solenoid pilot	0	0	1	1
	p port 1	0	1	0	1
OUTPUTS	p port 2	0	1	0	0
	p port 4	0	0	0	1
	sensor 1	1	1	1	0
	sensor 2	1	1	1	0

VALVE IN INTERLOCKED VERSION										
INPUTS	solenoid pilot	0	0	0	1	1	1	1	1	1
	p interlock	0	0	1	1	0	0	1	1	1
OUTPUTS	p port 1	0	1	0	1	0	1	0	1	0
	p port 2	0	1	0	1	0	1	0	1	0
	p port 4	0	0	0	0	0	0	0	0	1
	sensor 1	1	1	1	1	1	1	0	0	0
	sensor 2	1	1	1	1	1	1	0	0	0

WIRING DIAGRAM SENSOR



TECHNICAL DATA SENSOR

	EFFECT HALL	ATEX
Type of contact	N.O.	EFFECT HALL
Switch	PNP	PNP
Supply voltage (Ub) V	from 10 to 30 DC	from 18 to 30 DC
Power W	3	≤ 1.7
Voltage variation	≤ 10% of Ub	≤ 10% of Ub
Voltage drop V	≤ 2	≤ 2.2
Input current mA	≤ 10	≤ 10
Output current mA	≤ 100	≤ 70
Switching frequency Hz	≤ 5000	1000
Short-circuit protection	Yes	Yes
Over-voltage suppression	Yes	Yes
Polarity inversion protection	Yes	Yes
EMC	EN 60 947-5-2	EN 60 947-5-2
LED display	Yellow	Yellow
Magnetic sensitivity	2.8 mT ± 25%	2.6
Repeatability	≤ 0.1 mT	≤ 0.1 (Ub and to fixed)
Degree of protection (EN 60529)	IP 67	IP 68, IP 69K
Vibration and shock resistance	30 g, 11 ms, from 10 to 55 Hz, 1 mm	30 g, 11 ms, from 10 to 55 Hz, 1 mm
Temperature range °C	from -25 to +75	from -20 to +45
Sensor capsule material	PA66 + PA6I/6T	PA
2.5 m/2 m connecting cable	PVC; 3 x 0.14 mm ²	PVC; 3 x 0.12 mm ²
Connecting cable with M8x1	Polyurethane; 3 x 0.14 mm ²	-
Wire N.O.	3	3
Category ATEX	-	II 3G Ex nA op is IIC T4 Gc X II 3D EX tc IIIC T1 35°C Dc IP67 X
Certifications	CE	CE, U, Ex

5. Maintenance instructions

Before carrying out any maintenance operations requiring removal of the valve from the base, remember to switch off the electricity and compressed air supplies.

Check the silencers regularly for blockage.

For maintenance operations, it is advisable to return the valve to Metal Work for the necessary repairs.

6. Instructions to prevent residual risks

- The valve must be installed by a qualified technician
- Make sure the power cables do not get damaged during operation
- Make sure the power terminals are properly connected
- Check that the pipes are inserted properly before activating the air supply
- Check that the coils and sensors are correctly wired
- Cut off the power and the air supply prior to maintenance interventions
- If the safety function (safe relief) is used less than once a month, it is advisable to conduct a monthly function test

7. Disposal instructions

The product must be dismantled and disposed of in accordance with the regulations in force in the country in which the product is used.