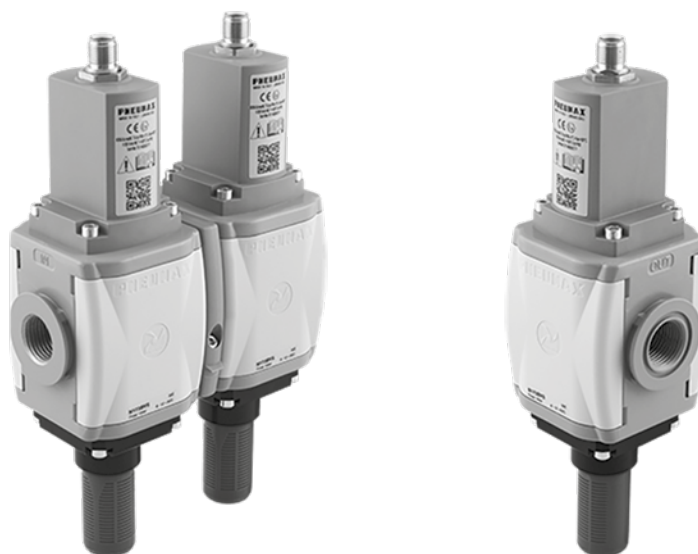


► **Supply and discharge valves SAFELINE**



General

Upon implementation of the AIRPLUS TG3 series, air-treatment units, PNEUMAX develops a supply and discharge valve, with an electropneumatic control and spring-return, fitted with a diagnostic system regarding the state of the valve, with the possibility of creating a double channel to determine the system's redundancy. The valve, as a safety feature, provides the interruption of the air supply and the exhaust of the air circuit it is connected to. The version with one single channel emphasises the features of an EV 3/2 NC, monostable with electropneumatic control and spring-return, whose operation involves:

- condition of the VALVE AT REST, with a DE-ENERGISED coil; Port 1 (air supply) is not been connected to Port 2 (downstream air circuit). Port 2 is discharged out of Port 3;
- condition of the VALVE ACTIVATED, with an ENERGISED coil; Port 1 (air supply) is connected to Port 2 (downstream air circuit), with Port 3 (Discharge) closed.

By de-energising the coil, the system resets the condition of VALVE AT REST by means of the return spring, which repositions the spool. Once again Port 2 (downstream air circuit), discharges via Port 3. The state of the valve is constantly monitored by a diagnostic system, using a Hall effect sensor, which reads the position of the spool and consequently takes note of the valve's position. The sensor is in the ON position when the valve is at rest (DE-ENERGISED coil), while it is in the OFF position when the valve is activated (ENERGISED coil).

The sensor is in the OFF position under conditions of an activated valve (DE-ENERGISED coil), indicating a possible problem.

The SAFELINE supply and discharge valve in the single version is a classified component in CATEGORY 2 according to ISO EN 13849 and is appropriate for use in safety circuits until PL=C.

The version with a double redundant channel is made using two single solenoid valves 3/2 NC provided with diagnostics, mounted in series so that the Port 2 of the first solenoid valve is linked to the Port 1 of the second solenoid valve. It is sufficient that only one of the EV is de-energised to guarantee the discharge of the air circuit. If one of the two EV must remain blocked due to a malfunction, the other one ensures the discharge function of the pneumatic installation. Even in this case, the diagnostic system of both solenoid valves constantly monitors the state of the 2 single EV.

The SAFELINE supply and discharge valve in the double version is a classified component in CATEGORY 4 according to ISO EN 13849 and is appropriate for use in safety circuits until PL=E.

Both single and double solenoid valves are provided with the following certifications released by BUREAU VERITAS:

- TYPE APPROVAL certificate according to the EN ISO 13849 regulations
- certification of examination of compliance in accordance to the machinery directive 2006/42/CE

The AIRPLUS SAFELINE are solenoid valves marked as ATEX

II 3G Ex nA IIC T6 Gc (X)
II 3D Ex tc IIIC T=80°C Dc (X) IP65

Construction characteristics

Body	Aluminium
Operatore Solenoide	Technopolymer
Rear end cap	Aluminium
Spool	Aluminium
Spool seals	Polyurethane
Piston	Aluminium
Spring	EN 10270-1 DH steel
Electrical Interface	Male MP12 4 PIN TYPE A connector

Operational characteristics

Fluid	Filtered air. No lubrication needed, if applied it shall be continuous.
Working temperature	-10 °C ... +50 °C
Minimum working pressure	2,5 bar
Maximum working pressure	10 bar

ASSEMBLY AND INSTALLATION:

Undertake the installation respecting the safety requirements with regards to the system and components for hydraulic and pneumatic transmissions. Install the device as close as possible to the point of use. Its assembly is possible in any position. Pay attention to the flow direction, indicated on the main body with the labels IN and OUT. During the components discharge, high levels of noise occur. The use of a silencer on the discharge port is recommended. Ensure there is sufficient space for assembly during the installation process. Please ensure that the discharge area is always clear, and in case a silencer is used, periodically verify that it is not obstructed. It is possible to integrate and install the device in an existing AIRPLUS group or in a new installation, or else to use the device individually attaching it by aligning the assembled unit with the relevant fastening flange for the supply and discharge valve, or to use the device individually attaching it by aligning the assembled unit with the type "Y" fastening flange for the double supply and discharge valve.



WARNING!

Pay particular attention to external factors such as the nearness of live wires, magnetic fields, metallic objects providing magnetic conduction very close to the device, which may influence and disturb the diagnostic system.



WARNING!

The electrical connection must be made exclusively by specialized personnel, using components that have no voltage present. Only use power supplies which can guarantee a safe electrical isolation of the working voltage in accordance to IEC/EN 60204-1. Additionally, observe the requirements anticipated by the PELV circuits in accordance to IEC/EN 60204-1.

CARE AND MAINTENANCE



WARNING!

Do not connect or disconnect the device when energised! Do not open and/or disassemble the parts that are included in the energised valve. Once the power supply is disconnected, wait for a few minutes before opening or disassembling parts of the valve that result in its disassembly.

Before carrying out any operation, it is essential to remove the pneumatic and power supply to the device and wait for the residual pressure to be completely discharged.

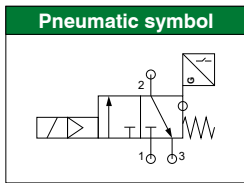
Please ensure that the discharge is always clear, and in case a silencer is used, periodically verify that it is not obstructed.

Periodically remove any dust deposits from the valve using a damp cloth. Use soapy water to clean the device.

Do not use corrosive or alcohol-based products.

For maintenance operations on internal components, please consult with PNEUMAX SPA.

Supply and discharge valve single (VS)

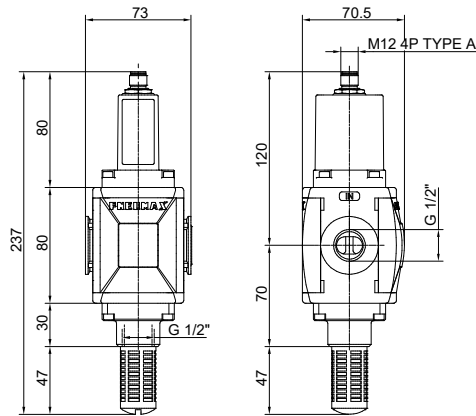
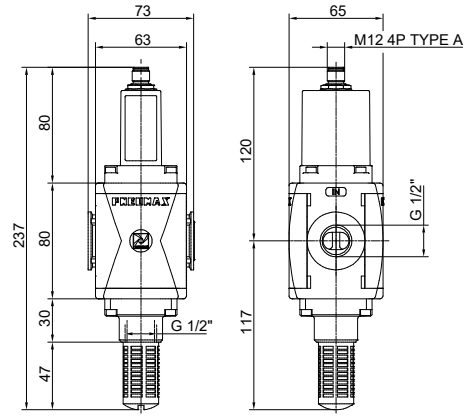
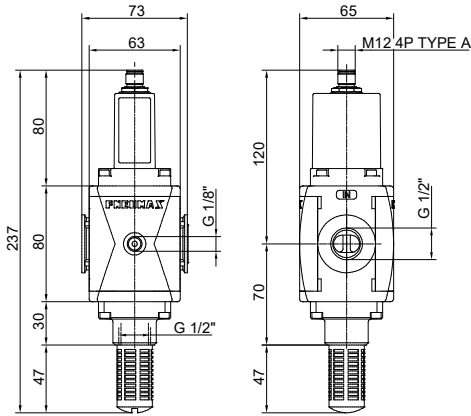


ATEX CE
II 3G Ex nA IIC T6 Gc (X)
II 3D Ex tc IIIC T=80°C Dc (X) IP65

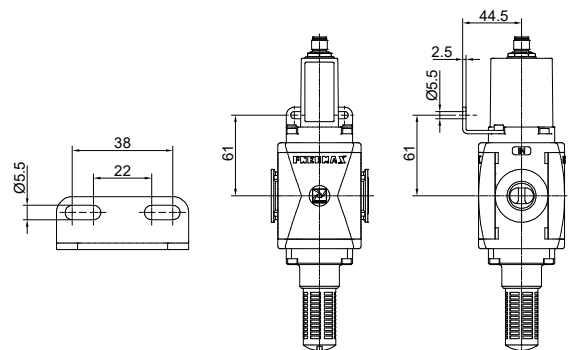
Electrical connection



PIN	Description
1	+24 VDC (Sensor)
2	+24 VDC (EV)
3	GND (Sensor+EV)
4	SENSOR OUTPUT



Dimensions with fixing bracket mounted



Electrical characteristics	
Electrical connection	Male M12 4 PIN TYPE A connector
Coil Features	24 VDC, 1 Watt
Suppressor diode for coil reverse voltage spike	Present
Supply voltage allowance	-5% ... +10%

Electrical characteristics of sensor	
Sensor characteristics	10 ... 30 VDC
Operating principle	Hall effect
Contact type	N.A.
Output type	PNP
Permanent maximum current	100 mA
Permanent maximum power	3 Watt
Voltage drop max.	2 V

Safety characteristics	
Regulatory compliance	EN ISO 13849-1
Safety function fulfilled	Interruption of supply and unloading of the downstream pneumatic circuit
Performance Level (PL)	c
UNI EN 13849 category	2
Safety Integrity Level (SIL)	1
PFH ₀	1,7*10 ⁻⁶
CE marking	In accordance with the EU Machinery Directive, annex V

Technical characteristics	
Connections	G1/2" UNI-ISO 228/1
Fluid	Filtered air. No lubrication needed, if applied it shall be continuous.
Function	3/2 N.C. monostable
Minimum working pressure	2,5 bar
Maximum working pressure	10 bar
Working temperature	-10°C ... +50°C
Flow rate at 6bar Δp (from 1 to 2)	3500 NL/min
Flow rate at 6bar Δp (from 2 to 3)	2000 NL/min
Flow rate at 6bar (from 2 to 3) with free discharge	3800 NL/min
Type of installation	Stand alone
Assembly positions	Indifferent
Noise level	90 dB
Response time ON ISO 12238	36 ms
Response time OFF ISO 12238	76 ms
IP Rating	IP65 (with connector installed)

Ordering code	
N173BVS06	
VERSIONS	
= Standard* (without connections)	
M	= Integrated pressure gauge
W	= Integrated pressure gauge (Right-Left)
G	= G1/8" pressure gauge connection
FIXING	
= Without fixing*	
01	= Fixing bracket mounted (Left-Right)
02	= Fixing bracket mounted (Right-Left)

* nessuna lettera aggiuntiva richiesta