

VACC-S18-...-K4-...-...ME
Solenoid coil

Operating instruction
8174670
2022-03a
[8174672]
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Translation of the original instructions
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1 Identification EX
Table with 3 columns: Marking, Certificate, and details. Includes IECEx, CE, and UKCA markings.

2 Applicable documents
NOTICE
Technical data for the product can have different values in other documents. For operation in an explosive atmosphere, the technical data in this document always have priority.
All available documents for the product -> www.festo.com/sp.

3 Certified products
Table with 4 columns: Voltage, Type, Voltage, Type. Lists various VACC-S18 and VACC-S18-120 models.

4 Safety
4.1 Safety instructions
- The solenoid coils can be used in combination with the specified solenoid valves in zones 1 and 2 for explosive gas atmospheres and in zones 21 and 22 for explosive dust atmospheres.
- Fit a suitable valve with a suitable armature guide tube -> www.festo.com/catalogue.
- Installation and commissioning only by qualified electricians in accordance with the operating manual.
- The range of application is dependent on the ambient temperature.
- Use the device in its original status without any unauthorised modifications. The certification is no longer valid if the device is modified in any way by anyone other than the manufacturer.

4.2 Intended use
The solenoid coil is intended to be used to actuate valves from Festo.
4.3 Identification X: special conditions
VACC-S18-...-K4-1UF-...ME
- For use in explosive dust atmospheres the cable must be installed to eliminate the generation of electrostatic charges caused by processes, e.g. flowing media.

VACC-S18-...-K4-...U-...ME, VACC-S18-120-K4-7-...ME and VACC-S18-120-K4-27-...ME
- Only operate the solenoid coils with upstream fuses -> 12 Technical data and product labelling.
- For use in explosive dust atmospheres the cable must be installed to eliminate the generation of electrostatic charges caused by processes, e.g. flowing media.

5 Function
When switching on the voltage, the solenoid is energised, and the valve is actuated.
- In variants for DC/AC an integrated bridge rectifier limits the switch-off overvoltage.
- An integrated TVS diode limits the switch-off overvoltage in variants for DC.
6 Transport and storage
- Observe the following storage conditions: short storage times in cool, dry, shaded and corrosion-resistant locations.

7 Assembly
Fig.1
Diagram showing assembly steps for the solenoid coil and valve. Components labeled: 1 Protective earth connection, 2 Retaining nut, 3 Retaining washer, 4 Cover, terminal housing, 5 Solenoid coil, 6 Armature guide tube, 7 Solenoid valve.

7.1 Mechanical
1. Push the solenoid coil and retaining washer over the armature guide tube.
2. Tighten retaining nut. Twisting the solenoid coil is no longer possible (tightening torque 15 ... 20 Nm).
3. Release terminal housing cover.
4. Connect electrical cables to the terminals.
5. Connect the solenoid coil to the equipotential bonding by the inner or outer protective earth connection (tightening torque 2 ... 3 Nm).
6. Close terminal housing cover (tightening torque 1.5 Nm).
NOTICE
The surface coating of the solenoid valves is electrically non-conductive.
• Include the device in the system equipotential bonding.

VACC-S18-...-K4-1UF-...ME

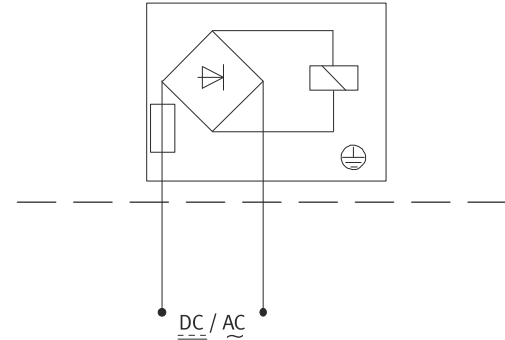


Fig. 2: Universal voltage connection diagram

VACC-S18-...-K4-...U-...ME

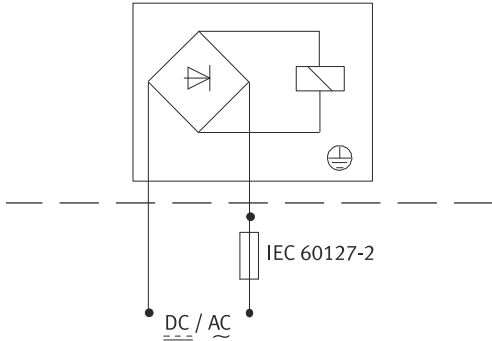


Fig. 3: Universal voltage connection diagram

VACC-S18-120-K4-7-...ME and VACC-S18-120-K4-27-...ME

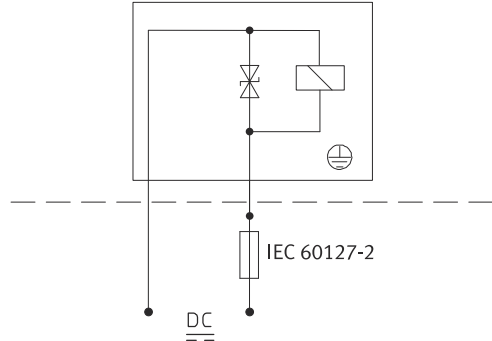


Fig. 4: DC voltage connection diagram

8 Commissioning

WARNING

Electrostatic discharge may generate combustible sparks.

- The product may become electrostatically charged. The surface coating of the solenoid valve is not electrically conductive.
- Prevent electrostatic charging of the product with appropriate installation and cleaning measures.
 - Include the solenoid valve and solenoid coil in the system equipotential bonding.
 - Prevent processes that are strongly charge-generating. Do not operate the solenoid valve in the area of pneumatically transported dusts (e.g. powder jet).
 - Prevent all charge-generating processes that are stronger than manual friction.

NOTICE

Escaping exhaust air or a leakage can swirl up dust and create a potentially explosive dust atmosphere.

- Observe the specifications on the product labelling.
- Do not commission the solenoid coil until after mounting.

With VACC-S18-...-K4-...U-...ME, VACC-S18-120-K4-7-...ME and VACC-S18-120-K4-27-...ME:

Operate solenoid coil only with upstream fuses.

9 Operation

WARNING

Risk of injury from touching hot surfaces.

- Contact with housing of the solenoid coil can cause burn injuries.
- Do not touch the housing.

- Observe the operating conditions.
- Comply with permissible critical limits.

10 Maintenance and care

WARNING

Electrostatic discharge may generate combustible sparks.

The product may become electrostatically charged.

If used in group IIC:

- Only clean the device with a damp cloth.

When used in Group IIIC:

- Avoid process-related electrostatic charge of the cable (e.g. from media flowing by) through appropriate installation.

- Changes or repairs to the solenoid coil are not permitted.
- The device is maintenance-free.

11 Disassembly

WARNING

If the terminal housing cover is opened, explosive atmosphere may penetrate the terminal housing and be ignited due to electrically generate sparks.

Before opening the terminal housing cover inside the potentially explosive area:

- Switch off the power supply.
1. Switch off the power supply.
 2. Release terminal housing cover.
 3. Disconnect electrical cables from terminals.
 4. Close terminal housing cover.
 5. Loosen the retaining nut. Remove solenoid coil.

12 Technical data

VACC-S18-...-K4-1UF-...ME

Operating conditions		
	35	120
Electrical critical limits		
Nominal voltage U _N (–15% / +10%)	24 V DC/AC	
Type of voltage [Hz]	Alternating voltage (50 ... 60 ±2 %) DC or undulating voltage	
Nominal power 50 Hz / 60 Hz [W/VA]	3.5 / 3.5	12 / 12
Duty cycle	100 % (continuous operation)	
Degree of protection	IP66 in accordance with FN 942017-2	
Overvoltage category	III in accordance with EN 60664-1	
Limitation of switch-off over-voltage (internal)	Bridge rectifier	
Resistance R ₂₀ [Ω]	158	42.1
Current consumption I ₂₀ [mA]	143	537
Fuse	Integrated (in accordance with IEC 60127)	
Internal fuse switching capacity	Max. permissible short-circuit current at the supply voltage source 100 A	
Temperature class at ambient temperature T _a		
–25 °C ≤ T _a ≤ +40 °C	–	T4/T120 °C
–25 °C ≤ T _a ≤ +50 °C	T6/T80 °C	–
–25 °C ≤ T _a ≤ +60 °C	T5/T95 °C	–
Storage temperature [°C]	–20 ... +90	
Relative humidity	95 % (non-condensing)	
Connecting cable		
Conductor cross section [mm²]	0.75 ... 2.5	
Cable diameter [mm]	7 ... 13	
Cable entry thread K4	M20 x 1.5	
Assembly	Individual mounting	
Materials		
Housing	Steel, PA	
Cover Terminal housing	Polyamide (glass-fibre reinforced)	
Mounting position	Any	

Tab. 3

VACC-S18-...-K4-...U-...ME

Operating conditions			
	35-1U	35-2U	35-3U
Electrical critical limits			
Nominal voltage U_N (–15% / +10%)	24 V DC/AC	110 V DC/AC	230 V DC/AC
Type of voltage	– Alternating voltage (50 ... 60 Hz ±2%) – DC or undulating voltage		
Nominal power 50 Hz / 60 Hz [W/VA]	3.5 / 3.5		

Operating conditions				
Duty cycle		100 % (continuous operation)		
Degree of protection		IP66 in accordance with FN 942017-2		
Overvoltage category		III in accordance with EN 60664-1		
Fuse connected in series in accordance with IEC 60127	[mA]	400	80	40
Interruption rating		Normally ≥ 1500 A		
Limitation of switch-off over-voltage (internal)		Bridge rectifier		
Resistance R ₂₀	[Ω]	158	3250	13200
Current consumption I ₂₀	[mA]	143	33	17
Temperature class at ambient temperature T _a				
–25 °C ≤ T _a ≤ +50 °C		T6/T80 °C		
–25 °C ≤ T _a ≤ +60 °C		T5/T95 °C		
Storage temperature	[°C]	–20 ... +90		
Relative humidity		95 % (non-condensing)		
Connecting cable				
Conductor cross section	[mm²]	0.75 ... 2.5		
Cable diameter	[mm]	7 ... 13		
Cable entry thread K4		M20 x 1.5		
Assembly		Individual mounting		
Materials				
Housing		Steel, PA		
Cover Terminal housing		Polyamide (glass-fibre reinforced)		
Mounting position		Any		

Tab. 4

Operating conditions						
	120-1U	120-2U	120-3U	120-7	120-27	
Electrical critical limits						
Nominal voltage U _N (–15% / +10%)	24 V DC/AC	110 V DC/AC	230 V DC/AC	48 V DC	60 V DC	
Type of voltage	– Alternating voltage (50 ... 60 Hz ±2%) – DC or undulating voltage			– DC voltage		
Nominal power 50 Hz / 60 Hz [W/VA]	12 / 12					
Duty cycle	100 % (continuous operation)					
Degree of protection	IP66 in accordance with FN 942017-2					
Overvoltage category	III in accordance with EN 60664-1					
Fuse connected in series in accordance with IEC 60127 [mA]	1250	315	125	630	500	
Interruption rating	Normally ≥ 1500 A					
Limitation of switch-off over-voltage (internal)	Bridge rectifier			TVS diode		
Resistance R ₂₀ [Ω]	42.1	902	3690	173	266	
Current consumption I ₂₀ [mA]	524	120	62	277	226	
Temperature class at ambient temperature T _a						
–25 °C ≤ T _a ≤ +40 °C	T4/T120 °C					
Storage temperature [°C]	–20 ... +90					
Relative humidity	95 % (non-condensing)					
Connecting cable						
Conductor cross section [mm²]	0.75 ... 2.5					
Cable diameter [mm]	7 ... 13					
Cable entry thread K4	M20 x 1.5					
Assembly	Individual mounting					
Materials						
Housing	Steel, PA					
Cover Terminal housing	Polyamide (glass-fibre reinforced)					
Mounting position	Any					

Tab. 5