



CE

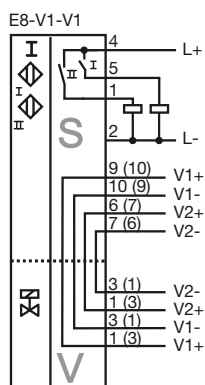
Model Number

NBN3-F31K-E8-V1-V1-3D

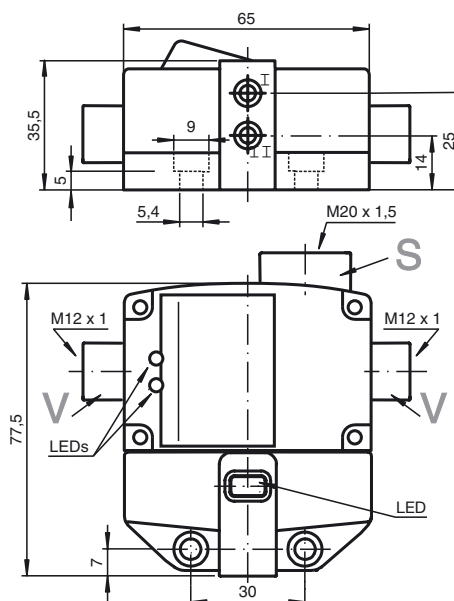
Features

- Direct mounting on standard actuators
- Compact and stable housing
- Fixed setting
- Satisfies machinery directive

Connection



Dimensions



Technical Data

General specifications

Switching element function	PNPDual Make function
Rated operating distance	s_n 3 mm
Installation	flush mountable
Output polarity	DC
Assured operating distance	s_a 0 ... 2.43 mm
Reduction factor r_{AI}	0.5
Reduction factor r_{Cu}	0.4
Reduction factor r_{V2A}	1
Reduction factor r_{St37}	1.2

Nominal ratings

Operating voltage	U_B	10 ... 30 V
Switching frequency	f	0 ... 500 Hz
Hysteresis	H	typ. 5 %
Reverse polarity protection		all connections
Short-circuit protection		pulsing
Voltage drop	U_d	≤ 3 V
Operating current	I_L	0 ... 100 mA
Off-state current	I_r	0 ... 0.5 mA typ. 0.1 μ A
No-load supply current	I_0	≤ 25 mA
Operating voltage display		LED, green
Indication of the switching state		LED, yellow
Valve status indication		LED, yellow

Standard conformity

EMC in accordance with	IEC / EN 60947-5-2:2004
Standards	IEC / EN 60947-5-2:2004

Ambient conditions

Ambient temperature	-25 ... 70 °C (248 ... 343 K)
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Mechanical specifications

Connection (system side)	Cage clamp terminals
Core cross-section (system side)	1.5/2.5 mm ² flexible/rigid
Connection (valve side)	V1 connector
Housing material	PBT
Sensing face	PBT
Protection degree	IP67

General information

Use in the hazardous area	see instruction manuals
Category	3D

ATEX 3D

Instruction

Manual electrical apparatus for hazardous areas**Device category 3D**

Directive conformity

Standard conformity

for use in hazardous areas with non-conducting combustible dust

94/9/EG

EN 50281-1-1

Protection via housing

Use is restricted to the following stated conditions

CE symbol



Ex-identification

II 3D IP67 T 97 °C X

General

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual.

The data stated in the data sheet are restricted by this operating instruction! The special conditions must be adhered to!

Installation, Commissioning

Laws and/or regulations and standards governing the use or intended usage goal must be observed. Each sensor circuit can be operated at the stated maximum values, with simultaneous operation of the valve circuits. The maximum values of the connected valve circuits, must be observed.

Maintenance

No changes can be made to apparatus, which are operated in hazardous areas.

Repairs to these apparatus are not possible.

[Fett]Special conditions

Maximum operating current I_L

The maximum permissible load current must be restricted to the values given in the following list.

High load currents and load short-circuits are not permitted.

Maximum operating voltage U_{Bmax} The maximum permissible operating voltage U_{Bmax} must be restricted to the values given in the following list. Tolerances are not permitted.

Maximum heating (Temperature rise)

dependant of the load current I_L and the max. operating voltage U_{Bmax} .

Information can be taken from the following list. The maximum surface temperature at maximum ambient temperature is given in the Ex identification of the apparatus.

at $U_{Bmax}=30\text{ V}$, $I_L=100\text{ mA}$

27 °C

at $U_{Bmax}=30\text{ V}$, $I_L=50\text{ mA}$

23 °C

at $U_{Bmax}=30\text{ V}$, $I_L=25\text{ mA}$

22 °C

Maximum values of the valve circuit

 $U_i = 32\text{ V}$; $I_i = 240\text{ mA}$

Plug connector

The plug connector must not be disconnected under voltage. The proximity switch is marked as follows: "DO NOT DISCONNECT UNDER VOLTAGE!" When the plug connector is disconnected the ingress of dirt into the inner areas (i.e. the areas, which are not accessible in the plugged-in condition) must be prevented.

The plug connection can only be separated using a tool. This is achieved by using the locking protection V1-Clip (Mounting accessory from Pepperl + Fuchs).

Protection from mechanical danger

The sensor must not be mechanically damaged.

Connections for external wire

Terminal connection: Minimum conductor cross-section: 0.5 mm^2 , maximum conductor cross-section: 2.5 mm^2 . The ends of the conductors must be fitted with connector sleeve.

The connection and valve cables must not be detached under voltage!

Lead insertion

The cable entry must be such, that no tension load or twist is applied to the cable

The protection category must be in accordance with EN 60529 and as stated in the data sheet. The cable entry must be designed so that there are no sharp edges to damage the cable and impair the level of protection of the sensor. The cable entry must be in accordance with the relevant European standard for industrial cable and lead entries.. In addition, in the case of flexible leads, the points of entry of the cable must be rounded off over an angle of at least 75° , with a radius (R), which is at least one quarter of the maximum permissible cable diameter for the entry, but not greater than 3 mm.