



## Model Number

NBN3-F31-E8-K-K

## Features

- Direct mounting on standard actuators
- Fixed setting

## Accessories

### BT65A

Activator for F31 series

### BT65X

Activator for F31 series

### BT115A

Activator for F31 series

### BT115X

Activator for F31 series

### BT65B

Activator for F31 series

### BT115B

Activator for F31 series

## Technical Data

### General specifications

|                             |       |                        |
|-----------------------------|-------|------------------------|
| Switching function          |       | 2 x normally open (NO) |
| Output type                 |       | PNP                    |
| Rated operating distance    | $s_n$ | 3 mm                   |
| Installation                |       | flush mountable        |
| Output polarity             |       | DC                     |
| Assured operating distance  | $s_a$ | 0 ... 2.43 mm          |
| Actual operating distance   | $s_r$ | 2.7 ... 3.3 mm typ.    |
| Reduction factor $r_{Al}$   |       | 0.5                    |
| Reduction factor $r_{Cu}$   |       | 0.4                    |
| Reduction factor $r_{304}$  |       | 1                      |
| Reduction factor $r_{St37}$ |       | 1.2                    |
| Output type                 |       | 3-wire                 |

### Nominal ratings

|                             |       |                                        |
|-----------------------------|-------|----------------------------------------|
| Operating voltage           | $U_B$ | 10 ... 30 V DC                         |
| Switching frequency         | $f$   | 0 ... 500 Hz                           |
| Hysteresis                  | $H$   | typ. 5 %                               |
| Reverse polarity protection |       | all connections                        |
| Short-circuit protection    |       | pulsing                                |
| Voltage drop                | $U_d$ | $\leq 3$ V                             |
| Operating current           | $I_L$ | 0 ... 100 mA                           |
| Off-state current           | $I_r$ | 0 ... 0.5 mA typ. 0.1 $\mu$ A at 25 °C |
| No-load supply current      | $I_0$ | $\leq 25$ mA                           |
| Operating voltage indicator |       | LED, green                             |
| Switching state indicator   |       | LED, yellow                            |
| Valve status indicator      |       | LED, yellow                            |

### Functional safety related parameters

|                          |       |
|--------------------------|-------|
| MTTF <sub>d</sub>        | 780 a |
| Mission Time ( $T_M$ )   | 20 a  |
| Diagnostic Coverage (DC) | 0 %   |

### Valve circuit

|                             |                                                                                           |
|-----------------------------|-------------------------------------------------------------------------------------------|
| Voltage                     | max. 32 V DC                                                                              |
| Current                     | max. 240 mA                                                                               |
| Short-circuit protection    | no                                                                                        |
| Reverse polarity protection | yes, with reversed output LED is out of function, therefore more power for solenoid valve |

### Ambient conditions

|                     |                                |
|---------------------|--------------------------------|
| Ambient temperature | -25 ... 70 °C (-13 ... 158 °F) |
|---------------------|--------------------------------|

### Mechanical specifications

|                                  |                      |
|----------------------------------|----------------------|
| Connection (system side)         | PVC cable 5 m        |
| Core cross-section (system side) | 0.75 mm <sup>2</sup> |
| Connection (valve side)          | PVC cable 0.5 m      |
| Core cross-section (valve side)  | 0.75 mm <sup>2</sup> |
| Housing material                 | PBT                  |
| Sensing face                     | PBT                  |
| Degree of protection             | IP67                 |

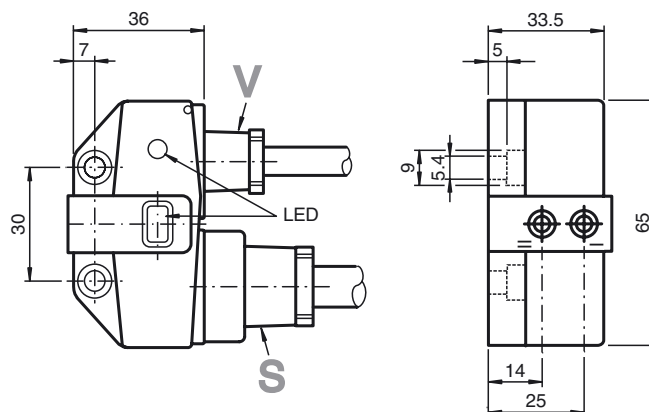
### Compliance with standards and directives

|                     |                                                                                             |
|---------------------|---------------------------------------------------------------------------------------------|
| Standard conformity |                                                                                             |
| Standards           | EN 60947-5-2:2007<br>EN 60947-5-2/A1:2012<br>IEC 60947-5-2:2007<br>IEC 60947-5-2 AMD 1:2012 |

### Approvals and certificates

|              |                                                                    |
|--------------|--------------------------------------------------------------------|
| UL approval  | cULus Listed, General Purpose                                      |
| CSA approval | cCSAus Listed, General Purpose                                     |
| CCC approval | CCC approval / marking not required for products rated $\leq 36$ V |

## Dimensions





Electrical Connection

