

# Isolators

## Electronic relay For Zone 1

### Isolators

9174/10-14-00 Art. No. 212340



- Requires little space – width of 12 mm
- Durable module thanks to maintenance-free electronic switching: Ideal for frequent switching operations
- Enables use in Zone 1

MY R. STAHL 9174A



The Series 9174 compact electronic relay module allows Ex e loads to be switched by an intrinsically safe control system. This complements intrinsically safe binary outputs, e.g. in a remote I/O system. The electronic switch prevents mechanical wear, extending the life of the relay, particularly where frequent switching operations are concerned.

## Technical Data

### Explosion Protection

|                                 |  |
|---------------------------------|--|
| Application range (zones)       | 1<br>2   |
| Ex interface zone               | 1<br>2<br>21<br>22                                     |
| IECEX gas certificate           | IECEX BVS 17.0050X                                     |
| IECEX gas explosion protection  | Ex eb mb [ib Gb] IIC T4 Gb                             |
| IECEX dust certificate          | IECEX BVS 17.0050X                                     |
| IECEX dust explosion protection | [Ex ib Db] IIIC  |
| ATEX gas certificate            | BVS 17 ATEX E 057 X                                    |
| ATEX gas explosion protection   | II 2 G Ex eb mb [ib Gb] IIC T4 Gb                      |
| ATEX dust certificate           | BVS 17 ATEX E 057 X                                    |
| ATEX dust explosion protection  | II (2) D [Ex ib Db] IIIC                               |
| Certificates                    | ATEX (BVS), IECEX (BVS)                                |
| Declaration of Conformity       | ATEX (EUK)   |
| Further information             | For other Ex markings, see the operating instructions. |

### Safety Data

|  |                   |
|--|-------------------|
| Max. voltage $U_i$ (input)             | 28 V              |
| Max. current $I_i$ (input)             | 150 mA            |
| Max. power $P_i$ (input)               | 780 mW            |
| Internal capacitance $C_i$ (input)     | 1.2 nF            |
| Internal inductance $L_i$ (input)      | 0 mH              |
| Max. safety voltage $U_m$ (output)     | 253 V AC          |
| Back-up fuse rated operational current | 3.15 A            |
| Breaking cap. of back-up fuse          | > 1500 A at 250 V |
| Max. capacitance                       | 4700 $\mu$ F      |

#### Electrical Data

|                    |   |
|--------------------|---|
| Number of channels | 1 |
|--------------------|---|

#### Auxiliary Power

|                              |         |
|------------------------------|---------|
| Auxiliary power              | without |
| Max. power dissipation       | 1.42 W  |
| Polarity reversal protection | Yes     |

#### Galvanic Isolation

|                              |                 |
|------------------------------|-----------------|
| Test voltage as per standard | IEC EN 60079-11 |
| Ex i input to output         | 1.5 kV AC       |

#### Input

|                       |  |
|-----------------------|--|
| Input voltage for ON  | 14 – 28 V  |
| Input voltage note    | $U_{DO} - R_{DO} \times 15 \text{ mA} \geq 14 \text{ V}$ |
| Input current for ON  | > 15 mA  |
| Input voltage for OFF | 0 – 5 V  |
| Input current for OFF | < 2 mA   |

#### Output

|                                    |                    |
|------------------------------------|--------------------|
| Output                             | non-Ex i (Ex e) DC |
| Max. output voltage                | 31,2 V DC          |
| Max. output current                | 2 A                |
| Voltage drop                       | < 0,5 V            |
| Max. leakage current               | 250 µA             |
| Resistive load switching frequency | < 30 Hz            |
| Duty factor                        | 30 ... 70%         |
| Switching state indication         | Yellow "OUT" LED   |

Note Switching frequency: Please note the limitations based on the load characteristics. See operating instructions.

| Maximum switching frequency based on the inductive load | Inductive load [H] | Max. switching current   |                          |                          |
|---|--------------------|--------------------------|--------------------------|--------------------------|
|   |                    | 0.5 A                    | 1 A                      | 2 A                      |
|   |                    | Switching frequency [Hz] | Switching frequency [Hz] | Switching frequency [Hz] |
| 15  | 0.067              | –                        | –                        |                          |
| 10  | 0.100              | –                        | –                        |                          |
| 5   | 0.200              | –                        | –                        |                          |
| 3   | 0.333              | 0.083                    | –                        |                          |
| 2   | 0.500              | 0.125                    | –                        |                          |
| 1   | 1.000              | 0.250                    | –                        |                          |
| 0.5   | 2.000              | 0.500                    | –                        |                          |
| 0.4   | 2.500              | 0.625                    | 0.125                    |                          |
| 0.2   | 5.000              | 1.250                    | 0.250                    |                          |
| 0.1   | 5.000              | 2.500                    | 0.500                    |                          |
| 0.05  | 5.000              | 5.000                    | 1.000                    |                          |
| 0.02  | 5.000              | 5.000                    | 2.500                    |                          |
| 0.01  | 5.000              | 5.000                    | 5.000                    |                          |

| Maximum switching frequency based on the capacitive load | Capacitive load     | 30 µF | 100 µF | 470 µF  | 1000 µF | 2000 µF | 4700 µF  |
|--|---------------------|-------|--------|---------|---------|---------|----------|
|  | Switching frequency |       | 30 Hz  | < 10 Hz | < 2 Hz  | < 1 Hz  | < 0.5 Hz |

#### Ambient Conditions

|                               |  |
|-------------------------------|--|
| Ambient temperature           | -20 °C ... +65 °C  |
| Ambient temperature           | -4 °F ... +149 °F  |
| Storage temperature           | -40 °C ... +80 °C  |
| Storage temperature           | -40 °F ... +176 °F   |
| Maximum relative humidity     | 95%  |
| Use at the height of          | < 2000 m   |
| Electromagnetic compatibility | Tested to the following standards and regulations: EN 61326-1 For use in industrial areas: NAMUR NE 21 |

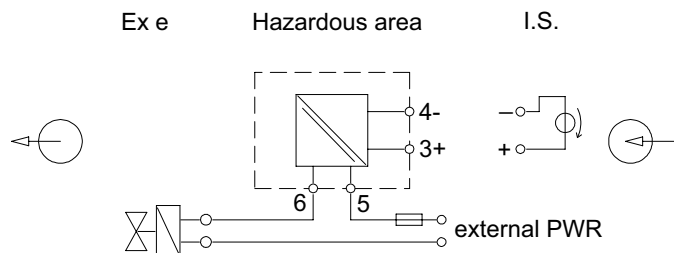
#### Mechanical Data

|                           |                   |
|---------------------------|-------------------|
| Degree of protection (IP) | IP40              |
| Fire resistance (UL 94)   | V2                |
| Pollutant class           | Corresponds to G3 |
| Enclosure material        | Polyamide 6GF     |
| Grid dimension            | 12 mm             |
| Width                     | 12.5 mm           |
| Width, inches             | 0.49 in           |
| Height                    | 79 mm             |
| Height, inches            | 3.11 in           |
| Length                    | 101.5 mm          |
| Length, inches            | 4 in              |
| Weight                    | 110 g             |
| Weight                    | 0.24 lb           |

#### Mounting / Installation

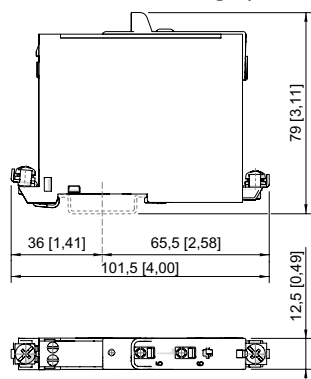
|                                    |                                  |
|------------------------------------|----------------------------------|
| Mounting type                      | DIN rail NS35/15, NS35/7.5       |
| Mounting orientation               | any                              |
| Connection type                    | Screw terminal, push-in terminal |
| Min. rigid conductor cross section | 0.2 mm <sup>2</sup>              |
| Max. rigid conductor cross section | 4 mm <sup>2</sup>                |
| Min. flex conductor cross section  | 0.2 mm <sup>2</sup>              |
| Max. flex conductor cross section  | 4 mm <sup>2</sup>                |
| Connection cross-section AWG       | 24 – 12                          |
| Connection type X1                 | Screw terminal                   |
| Connection type X2                 | Push-in spring connection        |

#### Technical Drawings – Subject to Alterations



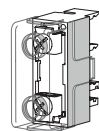
Connection diagram 9174/10

#### Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations



## Spare Parts

### Small fuse element Series 8560



Back-up fuse for the Ex e connection of the electronic relay type 9174/10-14-00.  
 Rated operational current: 3.15 A  
 Packaging unit: 5 pieces

### Art. No.

149171

We reserve the right to make alterations to the technical data, dimensions, weights, designs and products available without notice. The illustrations cannot be considered binding.