



- For the intrinsically safe operation of a wide range of devices, such as HART transmitters, solenoid valves, sensors, potential-free contacts and many more
- Compact and space-saving devices that are easy to install on a DIN rail
- Quick to install as barriers can be simultaneously snapped onto the rail and connected to PE

A2

MY R. STAHL 9001A



The series 9001 INTRINSPAK single-channel safety barriers enable the intrinsically safe operation of virtually all field devices. The comprehensive portfolio and the combination of safety barriers cover a wide variety of signals. The devices are incredibly robust and require little space. The back-up fuse is a convenient feature as it is standardised for all variants.

|                 | IECEX / ATEX |   |   |    |    |    |
|-----------------|--------------|---|---|----|----|----|
| Zone            | 0            | 1 | 2 | 20 | 21 | 22 |
| Ex interface    | •            | • | • | •  | •  | •  |
| Installation in |              |   | • |    |    |    |

|                 | NEC® 500<br>CE Code Appendix J |   |          |   |           |   |
|-----------------|--------------------------------|---|----------|---|-----------|---|
|                 | Class I                        |   | Class II |   | Class III |   |
| Division        | 1                              | 2 | 1        | 2 | 1         | 2 |
| Ex interface    | •                              | • | •        | • | •         | • |
| Installation in |                                | • |          | • |           | • |

|                 | CE Code Section 18<br>NEC® 505   NEC® 506 |   |   |          |    |    |
|-----------------|---|---|---|----------|----|----|
|                 | Class I                                   |   |   | Class II |    |    |
| Zone            | 0   | 1 | 2 | 20       | 21 | 22 |
| Ex interface    | •   | • | • |          |    |    |
| Installation in |   |   | • |          |    |    |

| Selection Table |  |                              |                    |                    |                  |           |                     |          |        |
|-----------------|--|------------------------------|--------------------|--------------------|------------------|-----------|---------------------|----------|--------|
| Product variant | Series 9001/00, single-channel safety barrier for negative potential |                              |                    |                    |                  |           |                     |          |        |
| Nominal voltage | Minimum resistance $R_{min}$   | Maximum resistance $R_{max}$ | Max. voltage $U_0$ | Max. current $I_0$ | Max. power $P_0$ | Schematic | Product Type        | Art. No. | Weight |
| 6 V DC          | 24 $\Omega$  | 29 $\Omega$                  | 8.3 V              | 442 mA             | 917.2 mW         | –         | 9001/00-083-442-101 | 158333   | 110 g  |
|                 | 28 $\Omega$  | 33 $\Omega$                  | 8.6 V              | 390 mA             | 839 mW           | Image A   | 9001/00-086-390-101 | 158434   | 110 g  |
| 24 V DC         | 287 $\Omega$   | 320 $\Omega$                 | 28 V               | 100 mA             | 700 mW           | Image A   | 9001/00-280-100-101 | 158356   | 110 g  |
|                 | 340 $\Omega$   | 375 $\Omega$                 | 28 V               | 85 mA              | 595 mW           | Image A   | 9001/00-280-085-101 | 158344   | 110 g  |
|                 | 599 $\Omega$   | 666 $\Omega$                 | 28 V               | 50 mA              | 350 mW           | –         | 9001/00-280-050-101 | 158660   | 110 g  |
|                 | 1435 $\Omega$  | 1590 $\Omega$                | 28 V               | 20 mA              | 140 mW           | –         | 9001/00-280-020-101 | 158650   | 110 g  |

**Selection Table**

| Series 9001/01, single-channel safety barrier for positive potential |                 |                              |                              |                    |                    |                  |                     |              |          |        |
|--|-----------------|------------------------------|------------------------------|--------------------|--------------------|------------------|---------------------|--------------|----------|--------|
| Product variant  | Nominal voltage | Minimum resistance $R_{min}$ | Maximum resistance $R_{max}$ | Max. voltage $U_o$ | Max. current $I_o$ | Max. power $P_o$ | Schematic           | Product Type | Art. No. | Weight |
| 6 V DC   | 24 $\Omega$     | 29 $\Omega$                  | 8.3 V                        | 442 mA             | 917.2 mW           | Image B          | 9001/01-083-442-101 | 158338       | 110 g    |        |
|  | 28 $\Omega$     | 33 $\Omega$                  | 8.6 V                        | 390 mA             | 839 mW             | Image B          | 9001/01-086-390-101 | 158439       | 110 g    |        |
|  | 39 $\Omega$     | 45 $\Omega$                  | 8.6 V                        | 270 mA             | 580.5 mW           | –                | 9001/01-086-270-101 | 158428       | 110 g    |        |
|  | 65 $\Omega$     | 73 $\Omega$                  | 8.6 V                        | 150 mA             | 322.5 mW           | Image B          | 9001/01-086-150-101 | 158418       | 110 g    |        |
|  | 129 $\Omega$    | 145 $\Omega$                 | 8.6 V                        | 75 mA              | 161.3 mW           | –                | 9001/01-086-075-101 | 158391       | 110 g    |        |
|  | 196 $\Omega$    | 218 $\Omega$                 | 8.6 V                        | 50 mA              | 107.5 mW           | Image B          | 9001/01-086-050-101 | 158379       | 110 g    |        |
|  | 870 $\Omega$    | 964 $\Omega$                 | 8.6 V                        | 10 mA              | 21.5 mW            | –                | 9001/01-086-010-101 | 158350       | 110 g    |        |
| 8 V DC   | 93 $\Omega$     | 106 $\Omega$                 | 12.6 V                       | 150 mA             | 473 mW             | Image B          | 9001/01-126-150-101 | 158502       | 110 g    |        |
| 12 V DC  | 50 $\Omega$     | 57 $\Omega$                  | 15.8 V                       | 390 mA             | 1541 mW            | Image E          | 9001/01-158-390-101 | 158509       | 110 g    |        |
|  | 120 $\Omega$    | 135 $\Omega$                 | 15.8 V                       | 150 mA             | 593 mW             | Image B          | 9001/01-158-150-101 | 158535       | 110 g    |        |
|  | 235 $\Omega$    | 262 $\Omega$                 | 16.8 V                       | 75 mA              | 315 mW             | Image B          | 9001/01-168-075-101 | 158568       | 110 g    |        |
|  | 871 $\Omega$    | 966 $\Omega$                 | 16.8 V                       | 20 mA              | 84 mW              | –                | 9001/01-168-020-101 | 158555       | 110 g    |        |
| 16 V DC  | 216 $\Omega$    | 241 $\Omega$                 | 19.9 V                       | 100 mA             | 498 mW             | Image B          | 9001/01-199-100-101 | 158632       | 110 g    |        |
|  | 415 $\Omega$    | 462 $\Omega$                 | 19.9 V                       | 50 mA              | 249 mW             | –                | 9001/01-199-050-101 | 158616       | 110 g    |        |
|  | 2097 $\Omega$   | 2320 $\Omega$                | 19.9 V                       | 10 mA              | 50 mW              | –                | 9001/01-199-010-101 | 158589       | 110 g    |        |
| 20 to 35 V DC  | 259 $\Omega$    | 268 $\Omega$                 | 25.2 V                       | 100 mA             | 630 mW             | Image M          | 9001/01-252-100-141 | 158697       | 110 g    |        |
|  | 455 $\Omega$    | 506 $\Omega$                 | 25.2 V                       | 60 mA              | 378 mW             | Image D          | 9001/01-252-060-141 | 158693       | 110 g    |        |
| 24 V DC  | 115 $\Omega$    | 128 $\Omega$                 | 28 V                         | 280 mA             | 1960 mW            | Image E          | 9001/01-280-280-101 | 158722       | 110 g    |        |
|  | 177 $\Omega$    | 198 $\Omega$                 | 28 V                         | 165 mA             | 1155 mW            | Image B          | 9001/01-280-165-101 | 158392       | 110 g    |        |
|  | 263 $\Omega$    | 294 $\Omega$                 | 28 V                         | 110 mA             | 770 mW             | Image B          | 9001/01-280-110-101 | 158380       | 110 g    |        |
|  | 287 $\Omega$    | 320 $\Omega$                 | 28 V                         | 100 mA             | 700 mW             | Image B          | 9001/01-280-100-101 | 158365       | 110 g    |        |
|  | 340 $\Omega$    | 375 $\Omega$                 | 28 V                         | 85 mA              | 595 mW             | Image B          | 9001/01-280-085-101 | 158351       | 110 g    |        |
|  | 415 $\Omega$    | 462 $\Omega$                 | 28 V                         | 75 mA              | 525 mW             | –                | 9001/01-280-075-101 | 158339       | 110 g    |        |
|  | 599 $\Omega$    | 666 $\Omega$                 | 28 V                         | 50 mA              | 350 mW             | Image B          | 9001/01-280-050-101 | 158665       | 110 g    |        |
|  | 1435 $\Omega$   | 1590 $\Omega$                | 28 V                         | 20 mA              | 140 mW             | –                | 9001/01-280-020-101 | 158655       | 110 g    |        |

| Selection Table  |                 |                              |                              |                    |                    |                  |                     |                     |          |        |
|--|-----------------|------------------------------|------------------------------|--------------------|--------------------|------------------|---------------------|---------------------|----------|--------|
| Series 9001/02, single-channel safety barrier for alternating potential  |                 |                              |                              |                    |                    |                  |                     |                     |          |        |
| Product variant  | Nominal voltage | Minimum resistance $R_{min}$ | Maximum resistance $R_{max}$ | Max. voltage $U_o$ | Max. current $I_o$ | Max. power $P_o$ | Schematic           | Product Type        | Art. No. | Weight |
| ± 0.7 V AC+DC  | 19.9 Ω          | 20.1 Ω                       | 1.6 V                        | 150 mA             | 60 mW              | Image F          | 9001/02-016-150-111 | 158685              | 110 g    |        |
|  | 37 Ω            | 40 Ω                         | 1.6 V                        | 50 mA              | 20 mW              | –                | 9001/02-016-050-111 | 158677              | 110 g    |        |
|  | 120 Ω           | 134 Ω                        | 1.6 V                        | 15 mA              | 6 mW               | Image F          | 9001/02-016-015-101 | 158669              | 110 g    |        |
| ± 6 V AC+DC  | 31 Ω            | 36 Ω                         | 9.3 V                        | 390 mA             | 906.8 mW           | Image F          | 9001/02-093-390-101 | 158755              | 110 g    |        |
|  | 70 Ω            | 80 Ω                         | 9.3 V                        | 150 mA             | 348.8 mW           | Image F          | 9001/02-093-150-101 | 158753              | 110 g    |        |
|  | 319 Ω           | 355 Ω                        | 9.3 V                        | 30 mA              | 69.8 mW            | Image F          | 9001/02-093-030-101 | 158743              | 110 g    |        |
|  | 3141 Ω          | 3473 Ω                       | 9.3 V                        | 3 mA               | 6.975 mW           | –                | 9001/02-093-003-101 | 158741              | 110 g    |        |
| ± 10 V AC+DC   | 102 Ω           | 115 Ω                        | 13.3 V                       | 150 mA             | 498.8 mW           | –                | 9001/02-133-150-101 | 158758              | 110 g    |        |
| ± 12 V AC+DC   | 198 Ω           | 223 Ω                        | 17.5 V                       | 100 mA             | 437.5 mW           | –                | 9001/02-175-100-101 | 158301              | 110 g    |        |
| ± 24 V AC+DC   | 320 Ω           | 357 Ω                        | 28 V                         | 90 mA              | 630 mW             | –                | 9001/02-280-090-101 | 158317              | 110 g    |        |
| Series 9001/02, Single-channel safety barriers for alternating polarity  |                 |                              |                              |                    |                    |                  |                     |                     |          |        |
| Product variant  | Nominal voltage | Minimum resistance $R_{min}$ | Maximum resistance $R_{max}$ | Max. voltage $U_o$ | Max. current $I_o$ | Max. power $P_o$ | Schematic           | Product Type        | Art. No. | Weight |
| ± 6 V AC+DC  | 148 Ω           | 166 Ω                        | 9.3 V                        | 75 mA              | 174.4 mW           | –                | 9001/02-093-075-101 | 158749              | 110 g    |        |
| Series 9001/03, single-channel evaluation barrier for positive potential |                 |                              |                              |                    |                    |                  |                     |                     |          |        |
| Product variant  | Nominal voltage | Minimum resistance $R_{min}$ | Maximum resistance $R_{max}$ | Max. voltage $U_o$ | Max. current $I_o$ | Max. power $P_o$ | Schematic           | Product Type        | Art. No. | Weight |
| 16 V DC  | –               | –                            | 19.9 V                       | –                  | –                  | –                | Image G             | 9001/03-199-000-101 | 158475   | 110 g  |
| 24 V DC  | –               | –                            | 28 V                         | –                  | –                  | –                | Image G             | 9001/03-280-000-101 | 158486   | 110 g  |
| Series 9001/51, single-channel safety barrier for transmitters           |                 |                              |                              |                    |                    |                  |                     |                     |          |        |
| Product variant  | Nominal voltage | Minimum resistance $R_{min}$ | Maximum resistance $R_{max}$ | Max. voltage $U_o$ | Max. current $I_o$ | Max. power $P_o$ | Schematic           | Product Type        | Art. No. | Weight |
| 20 to 35 V DC  | –               | –                            | 28 V                         | 91 mA              | 637 mW             | –                | Image L             | 9001/51-280-091-141 | 158524   | 110 g  |
|  | –               | –                            | 28 V                         | 110 mA             | 770 mW             | –                | Image K             | 9001/51-280-110-141 | 158530   | 110 g  |

Safety barrier schematics are available online at [r-stahl.com](http://r-stahl.com)

| Technical Data                  |  |
|---------------------------------|--|
| Explosion Protection            |  |
| IECEX gas explosion protection  | Ex ec [ja Ga] IIC T4 Gc  |
| IECEX dust explosion protection | [Ex ia Da] IIIC  |
| ATEX gas explosion protection   | Ⓔ II 3 (1) G Ex ec [ja Ga] IIC T4 Gc   |
| ATEX dust explosion protection  | Ⓔ II (1) D [Ex ia Da] IIIC   |
| Certificates                    | ATEX (PTB), Brazil (ULB), Canada (CSA), China (NEPSI), IECEx (PTB), India (PESO), Japan (CML), Korea (KGS), USA (FM), USA (UL) |
| Declaration of Conformity       | ATEX (EUK), China (CCC)  |
| Installation                    | in Zone 2, Division 2 and in safe areas  |
| Further information             | See relevant certificate and operating instructions  |

| Technical Data                      |                          |
|-------------------------------------|--------------------------|
| Ambient Conditions                  |                          |
| Ambient temperature                 | -20 °C ... 60 °C         |
| Storage temperature                 | -20 °C ... 75 °C         |
| Mechanical Data                     |                          |
| Degree of protection (IP)           | IP40                     |
| Degree of protection note           | according to IEC 60529   |
| Degree of protection (IP) terminals | IP20                     |
| Enclosure material                  | Polyamide 6GF            |
| Number of connection terminals      | 4                        |
| Connection cross section min.       | 1.5 mm <sup>2</sup>      |
| Connection cross-section max.       | 1.5 mm <sup>2</sup>      |
| Type of connection cable            | Finely stranded<br>Solid |
| Weight                              | 110 g                    |

### Technical Drawings – Subject to Alterations

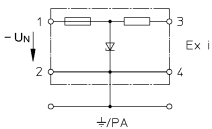


Image A

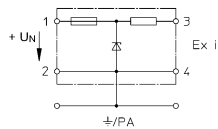


Image B

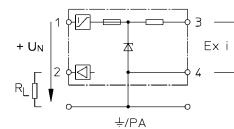


Image D

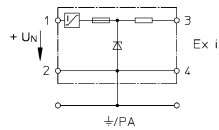


Image E

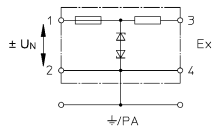


Image F

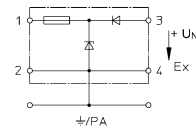


Image G

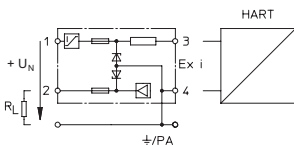


Image K

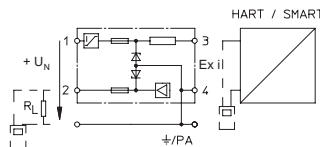


Image L

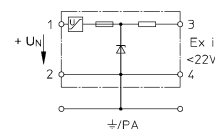
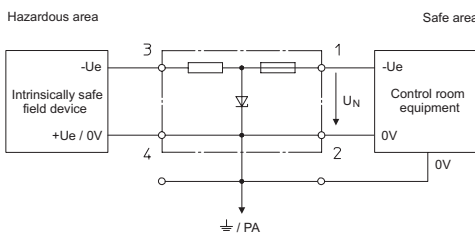
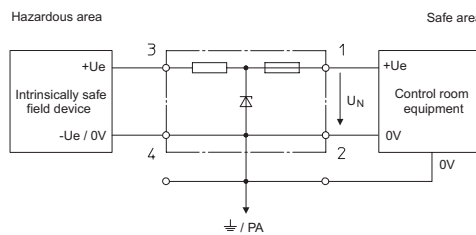


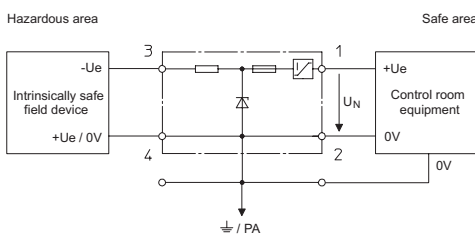
Image M



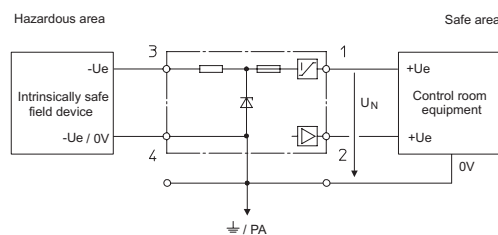
Single-Channel Safety Barriers for Negative Polarity



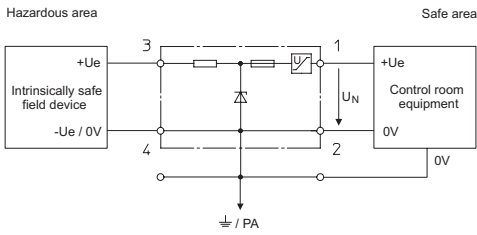
Single-Channel Safety Barriers for Positive Polarity



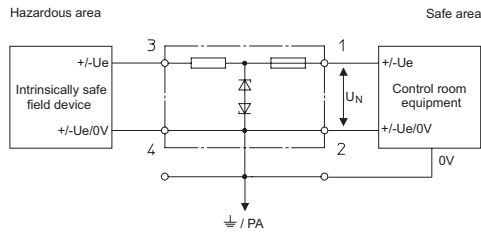
Single-Channel Safety Barriers for Positive Polarity



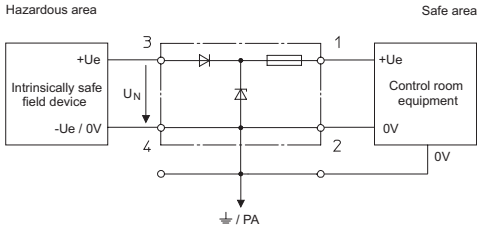
Single-Channel Safety Barriers for Positive Polarity



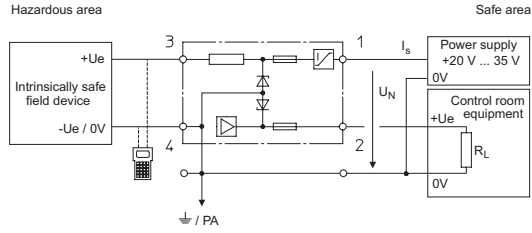
Single-Channel Safety Barriers for Positive Polarity



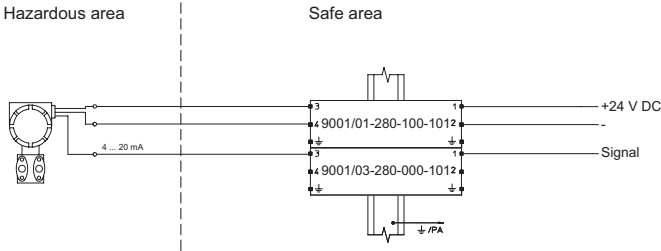
Single-Channel Safety Barriers for Alternating Polarity



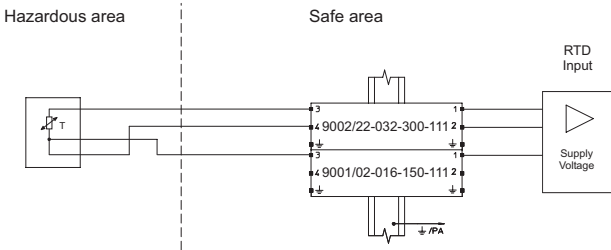
Single-Channel Diode Return Barriers for Positive Polarity



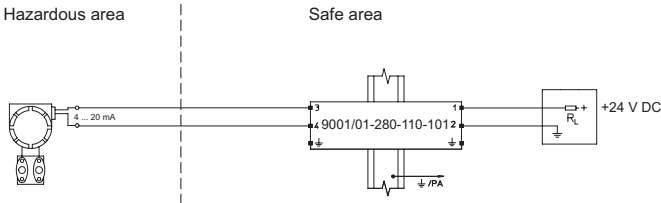
Single-Channel Safety Barriers for Transmitters



Application: 3-wire 4... 20 mA transmitter

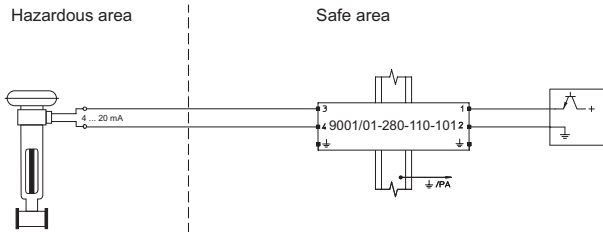


Application: Pt100, 3-wire circuit, field circuit unearthed

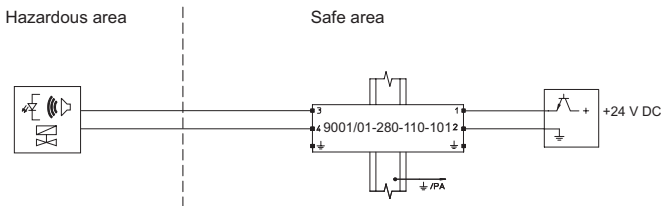


Application: 2-wire 4/20 mA transmitter - Standard

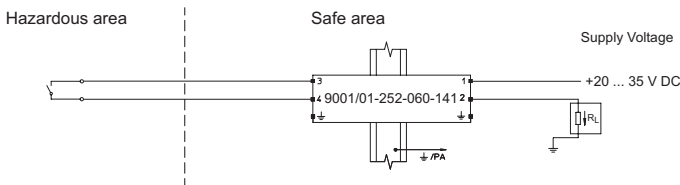
A2



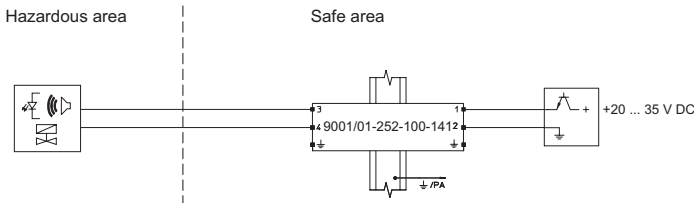
Application: Analog output (current source) with I/P converter etc. Field circuit earthed



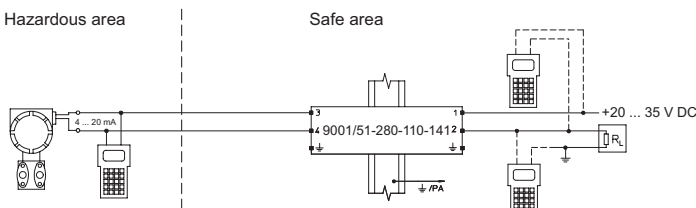
Application: Discrete 2-wire output for magnet reed switches, LEDs and audible alarm indicators



Application: Binary input with switch (load on ground) Field circuit earthed



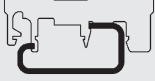
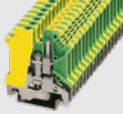
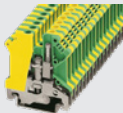
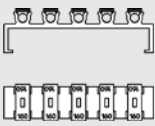
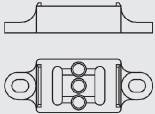
Application: Binary output (current source) for valves, LEDs etc. Field circuit earthed


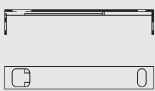


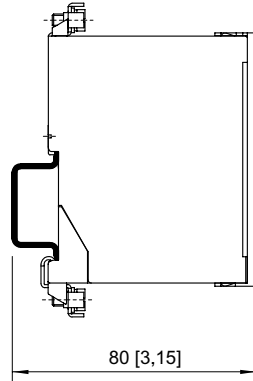
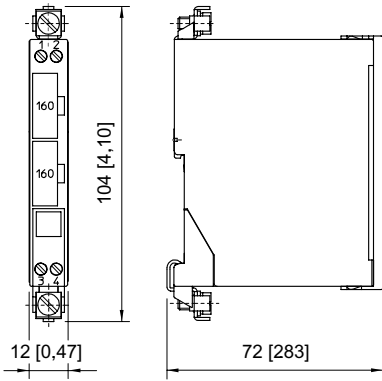
Application: Analog input with standard transmitter Field circuit earthed

### Accessories

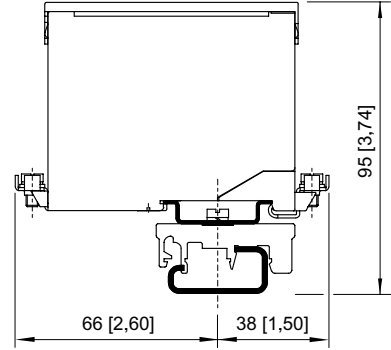
| Figure | Description  | Art. No. | Weight |
|--------|--|----------|--------|
|        | The adaptor enables a series 900x safety barrier to be installed on a mounting plate from a previous series. | 158826   | 6 g    |

| Accessories   |   |          |        |
|---|---|----------|--------|
| Figure  | Description   | Art. No. | Weight |
| <b>Clamping base, moulded material</b>  |   |          |        |
|    | Enables the safety barrier to be mounted on a G-rail.   | 165283   | 4 g    |
| <b>Protective conductor terminal</b>  |   |          |        |
|    | USLKG 5 (clamping range 4 mm <sup>2</sup> )<br>The terminal enables protective conductors to be connected to the DIN rail. Colour green-yellow.                       | 112760   | 12 g   |
| <b>Earthing terminal</b>  |   |          |        |
|    | USLKG 6 N (clamping range 6 mm <sup>2</sup> )<br>The terminal enables protective conductors/earthing conductors to be connected to the DIN rail. Colour green-yellow. | 112599   | 30 g   |
| <b>Fuse holder</b>  |   |          |        |
|    | The fuse holder is snapped onto the side of a safety barrier and can be equipped with up to five back-up fuses (replacement).   | 158834   | 20 g   |
| <b>Insulation and fastening material</b>  |   |          |        |
|  | Suitable for the NS 35/15 DIN rail, makes it possible to install the DIN rail such that it is electrically insulated from the mounting plate.                         | 158828   | 23 g   |

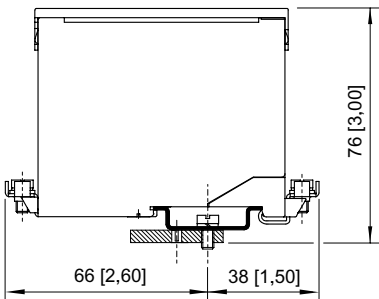
| Spare Parts   |  |          |        |
|---|--|----------|--------|
| Figure  | Description  | Art. No. | Weight |
| <b>Back-up fuse</b>   |  |          |        |
|  | For all series 9001, 9002 and 9004 safety barriers<br>Packaging unit: 5 pieces | 158964   | 8 g    |
| <b>Label carrier</b>  |  |          |        |
|  | Transparent cover for the label  | 158977   | 2 g    |



mounted on the NS 35/15 mounting rail



mounted on the NS 32 mounting rail with adaptor and clamping base made of moulded material



installed on mounting plate with adaptor