

# Isolators

Transmitter supply unit With limit contact

Non-Ex i field circuit

9162/13-11-64s Art. No. 238253



- Compact limit value switch with two configurable limit values and output of 4 to 20 mA
- Bidirectional HART transmission

MY R. STAHL 9162B



9162 series transmitter power supply units with limit values can be used for the operation of two- and three-conductor transmitters or for connecting to mA sources. Two limit values can be easily set using the "ISpac Wizard" software. If the value exceeds or falls below these limit values, these units trips an electronic contact. A wire-breakage and short-circuit monitoring function affords increased availability.

## Technical Data

### Explosion Protection

|                                |  |
|--------------------------------|--|
| Application range (zones)      | 2  |
| IECEX gas certificate          | IECEX BVS 15.0013 X  |
| IECEX gas certificate          | IECEX BVS 15.0013 X  |
| IECEX gas explosion protection | Ex nA nC IIC T4 Gc   |
| ATEX gas certificate           | BVS 15 ATEX E017 X   |
| ATEX gas certificate           | BVS 15 ATEX E017 X   |
| ATEX gas explosion protection  | Ex II 3 G Ex nA nC IIC T4 Gc   |
| FMus certificate               | FM16US0122X  |
| cFM certificate                | FM16CA0067X  |
| Marking cFMus                  | Class I, Div. 2, Groups A,B,C,D;<br>Class I, Zone 2, nA nC Group IIC<br>T4 at Ta = 70°C<br>See Doc. 9162 6 031 002 1 |
| Certificates                   | ATEX (BVS), Canada (FM), China (NEPSI), IECEX (BVS), SIL (exida), USA (FM)   |
| Ship approval                  | CCS, EU RO MR (DNV)  |

### Functional Safety

|  |          |
|--|----------|
| HFT  | 0        |
| SFF  | 90%      |
| Lambda SD  | 0 FIT    |
| Lambda SU  | 0 FIT    |
| Lambda DD  | 436 FIT  |
| Lambda DU  | 46 FIT   |
| PFD <sub>avg</sub> at T <sub>proof</sub> 1 year  | 2,23E-04 |
| PFD <sub>avg</sub> at T <sub>proof</sub> 2 years | 4,19E-04 |
| PFD <sub>avg</sub> at T <sub>proof</sub> 5 years | 1,10E-03 |

#### Electrical Data

|                               |  |
|-------------------------------|--|
| Number of channels            | 1  |
| Transmitter feed operation    | Yes  |
| Isolation amplifier operation | Yes  |
| LFD relay                     | Yes  |
| Communication signal          | HART, 0.5 to 10 kHz                        |
| Limiting values configuration | Using ISpac Wizard (V3.04 and more recent) |

#### Auxiliary Power

|                                 |                           |
|---------------------------------|---------------------------|
| Auxiliary power                 | 24 V DC                   |
| Auxiliary power nominal voltage | 24 V DC                   |
| Auxiliary power voltage range   | 18 to 31.2 V              |
| Voltage range residual ripple   | $\leq 3,6 V_{SS}$         |
| Nominal current                 | 85 mA                     |
| Max. power dissipation          | 1.5 W                     |
| Power consumption               | 2 W                       |
| Polarity reversal protection    | Yes                       |
| Undervoltage monitoring         | Yes                       |
| Operation indication            | Green &quot;PWR&quot; LED |

#### Galvanic Isolation

|  |                 |
|--|-----------------|
| Test voltage as per standard             | EN IEC 60079-11 |
| Ex i input to output                     | 1.5 kV AC       |
| Ex i input to auxiliary power            | 1.5 kV AC       |
| Ex i input to fault message contact      | 1.5 kV AC       |
| Test voltage as per standard             | EN 50178        |
| Output to auxiliary power                | 350 V AC        |
| Output to output                         | 350 V AC        |
| Galvanic separation FMC to HE and output | 350 V AC        |

#### Input

|                                      |  |
|--------------------------------------|--|
| Input function                       | Isolation amplifier<br>Transmitter power unit          |
| Input                                | 4 to 20 mA with HART                                   |
| Input signal                         | 4 to 20 mA with HART                                   |
| Function range input                 | 2 – 22 mA  |
| Max. input current, mA sources       | 50 mA  |
| Input for open-circuit voltage $U_a$ | $\leq 26 V$  |
| Short-circuit current                | $\leq 35 mA$   |
| Supply voltage for transmitter       | $\geq 16 V$ at 20 mA                                   |
| Note about supply voltage            | ( $T < -10 \text{ }^\circ\text{C}$ : US - 0.2 V / 10K) |
| HART input resistance (AC)           | $> 250 \Omega$   |
| Input resistance                     | $30 \Omega$  |

#### Output

|                         |                      |
|-------------------------|----------------------|
| Output                  | 4 to 20 mA with HART |
| Output signal           | 4 to 20 mA with HART |
| Function range output   | 2 – 22 mA            |
| Behaviour of the output | = input signal       |

| <b>Output</b>                                     |   |
|---|---|
| Output residual ripple                            | ≤ 40 $\mu$ Aeff   |
| Load resistance $R_L$                             | 0 to 600 $\Omega$ (terminal 1+/2-)  |
| Load resistance influence                         | ≤ 0,02 %  |
| Analog signal delay                               | < 30 ms   |
| Settling time 10-90%                              | < 45 ms   |
| Limit contact (per channel)                       | 2 NO  |
| Switching voltage limiting values                 | ≤ ± 30 V  |
| Switching current limiting values                 | ≤ 170 mA  |
| Limit value contact switching current (max. 1 ms) | ≤ 500 mA  |
| Switch-on resistance                              | ≤ 2.5 ohm (typical < 1 ohm)   |
| Switching state indication                        | Yellow "OUT"; LED   |
| Switching delay                                   | < 80 ms   |
| Switch-back delay                                 | < 100 ms  |
| Reclosing lockout                                 | Reset using DIP switch or "Power off" (configurable)  |
| LF switch user adjustment                         | Activated/deactivated   |
| Wire breakage error detection input               | < 3.6 mA  |
| Short circuit error detection input               | > 21 mA   |
| Line fault indication                             | Red "LF"; LED   |
| Fault message contact switching capacity          | 30 V / 100 mA   |
| Line fault and loss of power signalisation        | - Contact (30 V/100 mA), closed against earth in case of error<br>- pac-Bus, potential-free contact (30 V/100 mA) |
| Deviations / error note                           | Information in % of the measuring range (20 mA) at $U_N$ , 23 °C  |
| Deviation   | ≤ 0,2 %   |
| Temperature influence error limits                | ≤ 0.1%/10 K   |
| Auxiliary power influence error limits            | ≤ 0,01 %  |
| Linearity error                                   | ≤ 0,1 %   |
| Offset error                                      | ≤ 0,1 %   |
| Behaviour of the output                           | = input signal  |
| <b>Device Specific Data</b>                       |   |
| Operating status LED designation                  | PWR   |
| Operating conditions LED colour                   | green   |
| <b>Ambient Conditions</b>                         |   |
| Ambient temperature                               | -40 °C ... 70 °C (Single device)<br>-40 °C ... 60 °C (Group assembly)   |
| Ambient temperature                               | -40 °F ... +158 °F (Single device)<br>-40 °F ... +140 °F (Group assembly)   |
| Note  | Installation conditions influence the ambient temperature.<br>Please observe the "Cabinet installation guide".    |
| Storage temperature                               | -40 °C ... 80 °C  |
| Storage temperature                               | -40 °F ... +176 °F  |
| Maximum relative humidity                         | 95%   |
| Use at the height of                              | < 2000 m  |
| Max. operating altitude                           | 2000 m  |
| Electromagnetic compatibility                     | Tested to the following standards and regulations: EN 61326-1 For use in industrial areas;<br>NAMUR NE 21         |

#### Mechanical Data

|                                     |  |
|-------------------------------------|--|
| Degree of protection (IP)           | IP30   |
| Degree of protection (IP) terminals | IP20   |
| Fire resistance (UL 94)             | V0   |
| Enclosure material                  | Polyamide  |
| Connection cross-section            | 0.2 to 2.5 mm <sup>2</sup> flexible<br>0.25 to 2.5 mm <sup>2</sup> flexible with core end sleeve |
| Grid dimension                      | 17.6 mm  |
| Width                               | 17.6 mm  |
| Width, inches                       | 0.69 in  |
| Height                              | 114.5 mm   |
| Height in inches                    | 4.51 in  |
| Length                              | 108 mm   |
| Length in inches                    | 4.25 in  |
| Weight                              | 225 g  |
| Weight                              | 0.5 lb   |

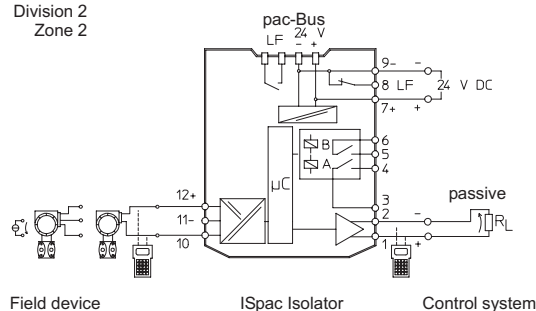
#### Mounting / Installation

|                                    |                            |
|------------------------------------|----------------------------|
| Mounting type                      | DIN rail NS35/15, NS35/7.5 |
| Mounting orientation               | Horizontal<br>Vertical     |
| Connection type                    | Screw terminal             |
| Min. rigid conductor cross section | 0.2 mm <sup>2</sup>        |
| Max. rigid conductor cross section | 2.5 mm <sup>2</sup>        |
| Min. flex conductor cross section  | 0.2 mm <sup>2</sup>        |
| Max. flex conductor cross section  | 2.5 mm <sup>2</sup>        |
| Connection cross-section AWG       | 24 ... 14                  |

#### Technical Drawings – Subject to Alterations

Safe area

Division 2  
Zone 2



Field device                      ISpac Isolator                      Control system

Connection diagram 9162/13-11-64

# Isolators

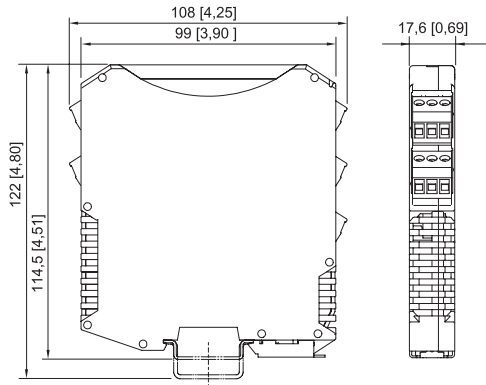
Transmitter supply unit With limit contact

Non-Ex i field circuit

9162/13-11-64s Art. No. 238253



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



ISpac Series 9143, 9146, 9147, 9160, 9162, 9163, 9165, 9167, 9170, 9172, 9175, 9176, 9180, 9182, 9193, ISbus Series 9412 with screw terminal

## Accessories

### 9162 Parameterisation



Parameterisation ex works optionally available for all variants.

**Art. No.**

270538

### ISpac Wizard parameterising set



The software is used to commission, configure and diagnose Series 9146, 9162 and 9182 ISpac isolators.

For further information, see the operating instructions.

Delivery form: USB stick; parameterising software incl. parameterising cable/adaptor

System requirements:

IBM-compatible PC with MS XP, Vista, Windows 7, 10

RS 232 C interface

RS 232/USB adaptor

**Art. No.**

202595

### Transparent cover



For 91xx ISpac modules

Yellow, transparent

Clear identification of the device for SIL applications.

(Packaging unit: 10 pieces)

**Art. No.**

200914

## Spare Parts

### Screw terminal



3-pole plug, screw connector

thread: M3

stripping length: 7 mm

colour: green

**Art. No.**

112817



3-pole plug, screw connector

thread: M3

stripping length: 7 mm

colour: black

**Art. No.**

112816





# Isolators

Transmitter supply unit With limit contact

Non-Ex i field circuit

9162/13-11-64s Art. No. 238253



|  |   |                 |
|--|---|-----------------|
|    | 3-pole plug, screw connector<br>thread: M3<br>stripping length: 7 mm<br>colour: blue                | 112818          |
| <b>Screw terminal with test tap</b>  |   | <b>Art. No.</b> |
|    | 3-pole plug with test tap, screw connector<br>thread: M3<br>stripping length: 7 mm<br>colour: black | 113005          |
|    | 3-pole plug with test tap, screw connector<br>thread: M3<br>stripping length: 7 mm<br>colour: blue  | 113004          |
| <b>Spring clamp terminal</b>   |   | <b>Art. No.</b> |
|    | 3-pole plug with test tap, spring clamp connection<br>stripping length: 10 mm<br>colour: green      | 112825          |
|  | 3-pole plug with test tap, spring clamp connection<br>stripping length: 10 mm<br>colour: black      | 112824          |
|  | 3-pole plug with test tap, spring clamp connection<br>stripping length: 10 mm<br>colour: blue       | 112826          |

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.