

# 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
ATEX gas certificate	BVS 15 ATEX E017 X
FMus certificate	FM16US0122X
cFM certificate	FM16CA0067X
Marking cFMus	Class I, Div. 2, Groups A,B,C,D; Class I, Zone 2, nA nC Group IIC T4 at Ta = 70°C 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

#### Electrical Data

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	IEC EN 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 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 °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
Output residual ripple	$\leq 40 \mu A_{eff}$
Load resistance $R_L$	0 to 600 $\Omega$ (terminal 1+/2-)
Load resistance influence	$\leq 0,02 \%$
Analog signal delay	< 30 ms

<b>Output</b>	
Settling time 10-90%	< 45 ms
Limit contact (per channel)	2 NO
Switching voltage limiting values	$\leq \pm 30$ V
Switching current limiting values	$\leq 170$ mA
Limit value contact switching current (max. 1 ms)	$\leq 500$ mA
Switch-on resistance	$\leq 2.5$ 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 - 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	$\leq 0,2$ %
Temperature influence error limits	$\leq 0.1\%/10$ K
Auxiliary power influence error limits	$\leq 0,01$ %
Linearity error	$\leq 0,1$ %
Offset error	$\leq 0,1$ %
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) -40 °C ... 60 °C (Group assembly)
Ambient temperature	-40 °F ... +158 °F (Single device) -40 °F ... +140 °F (Group assembly)
Note	Installation conditions influence the ambient temperature. 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; NAMUR NE 21
<b>Mechanical Data</b>	
Degree of protection (IP)	IP30
Degree of protection (IP) terminals	IP20
Fire resistance (UL 94)	V0

#### Mechanical Data

Enclosure material	Polyamide
Connection cross-section	0.2 to 2.5 mm <sup>2</sup> flexible 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	0.5 lb

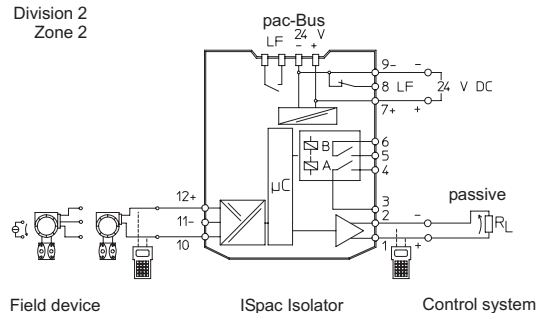
#### Mounting / Installation

Mounting type	DIN rail NS35/15, NS35/7.5
Mounting orientation	Horizontal 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



Connection diagram 9162/13-11-64

# Isolators

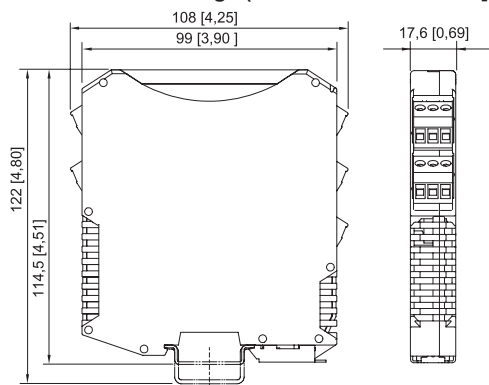
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## Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations



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





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