

# Isolator Barriers

Transmitter supply unit With limit contact

Non-Ex i field circuit

9162/13-11-64k Art. No. 238277



- 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 will issue an alert. A wire-breakage and short-circuit monitoring system affords increased availability.

## Technical Data

Explosion Protection	
Application range (zones)	2
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 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; 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
Measuring transformer feed operation	Yes

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## Electrical Data

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
Auxiliary power max. power dissipation	1.5 W
Power consumption	2 W
Polarity reversal protection	Yes
Undervoltage monitoring	Yes
Operation indication	Green "PWR" 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	( $T < -10 \text{ }^\circ\text{C}$ : 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	2.0-22 mA
Behaviour of the output	= input signal
Switching delay	$< 80 ms$
Load resistance $R_L$	0 to 600 $\Omega$ (terminal 1+/2-)

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Output	
Output residual ripple	$\leq 40 \mu\text{Aeff}$
Load resistance influence	$\leq 0,02 \%$
Analog signal delay	$< 30 \text{ ms}$
Settling time 10-90%	$< 45 \text{ ms}$
Temperature influence error limits	$\leq 0.1\%/10 \text{ K}$
Limit contact (per channel)	2 NO
Switching voltage limiting values	$\leq \pm 30 \text{ V}$
Switching current limiting values	$\leq 170 \text{ mA}$
Limit value contact switching current (max. 1 ms)	$\leq 500 \text{ mA}$
Switch-on resistance	$\leq 2.5 \text{ ohm}$ (typical $< 1 \text{ ohm}$ )
Switching state indication	Yellow "OUT" LED
Switch-back delay	$< 100 \text{ ms}$
Fault message contact switching capacity	30 V / 100 mA
Wire breakage error detection input	$< 3.6 \text{ mA}$
LF switch user adjustment	Activated/deactivated
Indication of line fault	Red "LF" LED
Deviations / error note	Information in % of the measuring range (20 mA) at $U_N$ , 23 °C
Short circuit error detection input	$> 21 \text{ mA}$
Line fault and loss of power signalization	- Contact (30 V/100 mA), closed against earth in case of error - pac-Bus, potential-free contact (30 V/100 mA)
Deviation	$\leq 0,2 \%$
Auxiliary power influence error limits	$\leq 0,01 \%$
Behaviour of the output	= input signal
Linearity error	$\leq 0,1 \%$
Offset error	$\leq 0,1 \%$
Reclosing lockout	Reset using DIP switch or "Power off" (configurable)

## Device Specific Data

Operating conditions LED designation	PWR
Operating conditions LED colour	green

## Ambient Conditions

Ambient temperature °C	-40 °C ... 70 °C (Single device) -40 °C ... 60 °C (Group assembly)
Ambient temperature °F	-40 °F ... +158 °F (Single device) -40 °F ... +140 °F (Group assembly)
Note	The installation conditions affect the ambient temperature. Observe the "Cabinet installation guide".
Storage temperature °C	-40 °C ... 80 °C
Storage temperature °F	-40 °F ... +176 °F
Max. relative humidity	95%
Use at the height of	$< 2000 \text{ m}$
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

## Mechanical Data

Degree of protection (IP)	IP30
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## Mechanical Data

Degree of protection (IP) terminals	IP20
Fire resistance (UL 94)	V0
Enclosure material	Polyamide
Grid dimension	17.6 mm
Width	17.6 mm
Width, inches	0.69 in
Height	114.5 mm
Height, inches	4.51 in
Length	128 mm
Length, inches	5.04 in
Weight	225 g
Weight	0.5 lb

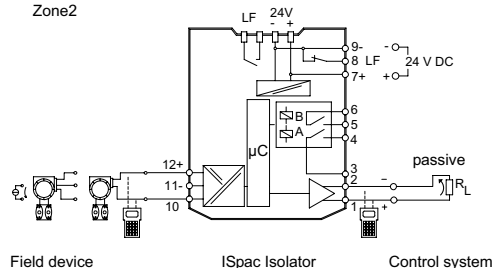
## Mounting / Installation

Mounting type	DIN rail NS35/15, NS35/7.5
Mounting orientation	Horizontal Vertical
Connection type	Spring clamp 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

Nonhazardous Location

Division2  
Zone2



Connection diagram 9162/13-11-64

# Isolator Barriers

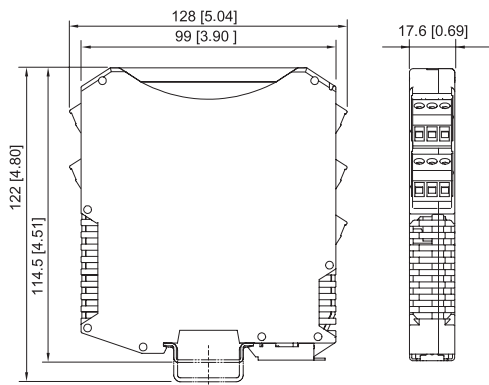
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## Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations



ISpac Series 9146, 9147, 9160, 9162, 9163, 9165, 9167, 9170, 9172, 9175, 9176, 9180, 9182, 9193, Fieldbus Power Supply Series 9412 with spring clamp terminal

## Accessories

### 9162 Parameterisation

Art. No.



Parameterisation ex works optionally available for all variants.

270538

### Parameterization set ISpac - Wizard

Art. No.



The software serves for commissioning, configuring and diagnosing the ISpac isolators Series 9146, 9162, 9182 and 9282.

For further information, see operating instructions.

Form of delivery: USB stick; parameterization software incl. parameterization cable / adaptor

System requirements:

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

RS 232 C interface

RS 232 / USB adaptor

202595

### Transparent cover

Art. No.



For 91xx ISpac modules

Yellow, transparent

Clear identification of the device for SIL applications.

(Packaging unit: 10 pieces)

200914

## Spare Parts

### Screw terminal

Art. No.



3-pole plug, screw connector

thread: M3

stripping length: 7 mm

color: green

112817



3-pole plug, screw connector

thread: M3

stripping length: 7 mm

color: black

112816






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	3-pole plug, screw connector thread: M3 stripping length: 7 mm color: 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 color: green	112825
	3-pole plug with test tap, spring clamp connection stripping length: 10 mm color: black	112824
	3-pole plug with test tap, spring clamp connection stripping length: 10 mm color: 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.