

Isolators

mA isolating repeater

Ex i field circuit

9164/13-20-08 Art. No. 224364



- For installation in Zone 1 or Class I, Div. 1 or Zone 2 hazardous areas (depending on the variant)
- Inputs can be intrinsically safe (Ex i), feature increased safety (Ex e) or be non-Ex
- Space-saving, 12-mm wide design

WebCode 9164A



The 9164 series mA isolating repeater allows two 4 to 20 mA signal sources to be coupled. For example, it allows four-wire transmitters to be connected to I/O cards designed to be operated with active two wire inputs.

The use of this device therefore saves costs by eliminating the need for additional I/O cards or can be used as the only solution for I/O cards that only operate with two conductors.

Technical Data

Explosion Protection

Application range (zones)	1 2
Ex interface zone	0 1 2 20 21 22
IECEX gas certificate	IECEX BVS 15.0062 X
IECEX gas explosion protection	Ex ib [ia Ga] IIC T4 Gb
IECEX dust certificate	IECEX BVS 15.0062 X
IECEX dust explosion protection	[Ex ia Da] IIIC
ATEX gas certificate	BVS 15 ATEX E 068 X
ATEX gas explosion protection	II 2 (1) G Ex ib [ia Ga] IIC T4 Gb
ATEX dust certificate	BVS 15 ATEX E 068 X
ATEX dust explosion protection	II (1) D [Ex ia Da] IIIC
Certificate FMus	FM16US0122X
Certificate cFM	FM16CA0067X
Marking cFMus	IS, Class I,II,III, Div. 1, Groups A,B,C,D,E,F,G; T4, Class I, Zone 0, AEx/Ex ia Group IIC T4 with connections for Class I,II,III, Div. 1, Groups A,B,C,D,E,F,G; Class I, Zone 0, AEx/Ex [ia] IIC See Doc. 91 646 01 31 1
EAC certificate	EAEU RU S-DE.HA91.B.00100/20
EAC certificate valid until	2025-01-26
EAC gas explosion protection	I 1 Ex ib [ia Ga] IIC T4 Gb
EAC dust explosion protection	[Ex ia Da] IIIC X

Explosion Protection

Certificates	ATEX (BVS), Canada (FM), EAC (ENDCE), EAC (TehnoP), IECEx (BVS), Russia (Meteorological certificate), SIL (exida), USA (FM)
Ship approval	CCS, EU RO MR
Notes	CCC certificate available from 2021 onward

Safety Data

Maximum voltage U_o	0 V
Maximum current I_o	0 mA
Maximum power P_o	0 mW
Max. voltage U_i	30 V
Max. current I_i	150 mA
Max. power P_i	1000 mW
Internal capacitance C_i	0
Internal inductance L_i	0

Functional Safety

SIL	2
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Electrical Data

Signal types	Analog input
Number of channels	1
Transmitter supply mode	No
Isolating repeater mode	Yes
LFD relay	No
Communication signal	HART, 0.5 ... 5 kHz

Auxiliary Power

Auxiliary power	Without
Auxiliary power nominal voltage	30 V
Nominal current	30 mA
Power dissipation max.	$3.7 \text{ V} \times 20 \text{ mA} + 20 \text{ mA} \times$
Power dissipation max. 2	$(\text{Supply voltage} - R_L \times 20 \text{ mA})$
Polarity reversal protection	Yes

Galvanic Isolation

Test voltage according to standard	IEC EN 60079-11
Galvanic isolation Ex i input to Ex i input	500 V AC

Input

Input function	Isolation amplifier
Input	Ex i: 4 to 20 mA HART (sink)
Input signal	3.8 ... 20.5 mA with HART
Input functional range	3,6 – 25 mA
Active supply voltage range	5 – 30 V
Voltage drop	< 3,7 V
Input resistance	> 10 kΩs

Output

Output	Ex i: passive HART (sink)
Output signal	3.8 – 20.5 mA with HART
Output current at $I_e=0$	0 mA

Output

Settling time 10 ... 90 %	≤ 1 ms
Deviation	≤ 0,1 %
Temperature influence error limits	≤ 0,05 % / 10K
Behaviour of the output	= input signal
Linearity error	≤ 0,05 %
Offset error	≤ 0,05 %

Ambient Conditions

Ambient temperature	-40 °C ... +75 °C
Ambient temperature	-40 °F ... +167 °F
Storage temperature	-40 °C ... +80 °C
Storage temperature	-40 °F ... +176 °F
Relative humidity max.	≤ 90%
Use at the height of	< 2000 m
Electromagnetic compatibility	Tested to the following standards and regulations: EN 61326 Use in industrial environment

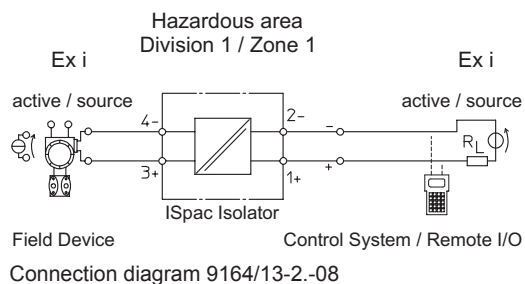
Mechanical Data

Degree of protection (IP)	IP30
Terminal degree of protection (IP)	IP20
Connection cross-section	0.2-2.5 mm ² flexible 0.25-2.5 mm ² flexible core end sleeve
Enclosure material	Polyamide
Clamping range AWG	16 – 12
Connection cross-section AWG	16 ... 12
Grid dimension	12 mm
Width inches	4.06 in
Length inches	0.47 in
Mounting depth inches	2.83 in
Weight	0.09 kg
Weight	0.2 lb

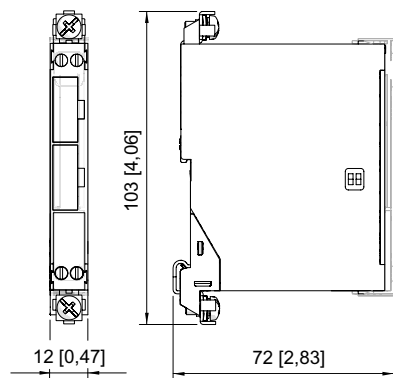
Mounting / Installation

Mounting type	NS35/15, NS35/7.5 DIN rail
Mounting position	Horizontal Vertical
Connection type	Screw terminal
Conductor cross-section solid min.	0.2 mm ²
Conductor cross-section solid max.	1.5 mm ²
Conductor cross-section flexible min.	0.2 mm ²
Conductor cross-section flexible max.	1.5 mm ²

Technical Drawings – Subject to Alterations



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



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.