

# Isolator Barriers

## mA isolating repeater

Ex i field circuit

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



- For installation in Class I, Div. 1 hazardous areas
- Intrinsically safe (Ex i) input
- 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-conductor transmitters to be connected to I/O cards designed to be operated with two conductors.

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 certificate Gas	IECEX BVS 15.0062 X
IECEX gas explosion protection	Ex ib [ja 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 [ja 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	1 Ex ib [ja Ga] IIC T4 Gb
EAC dust explosion protection	[Ex ia Da] IIIC X

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### 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

Max. voltage $U_o/V_{oc}$	0 V
Max. current $I_o/I_{sc}$	0 mA
Max. 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 V x 20 mA + 20 mA x
Power dissipation max. 2	(Supply voltage - RL x 20 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

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<b>Output</b>	
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 %

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

<b>Mechanical Data</b>	
Degree of protection (IP)	IP30
Terminal degree of protection (IP)	IP20
Connection cross-section	0.2-2.5 mm <sup>2</sup> flexible 0.25-2.5 mm <sup>2</sup> 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

<b>Mounting / Installation</b>	
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 <sup>2</sup>
Conductor cross-section solid max.	1.5 mm <sup>2</sup>
Conductor cross-section flexible min.	0.2 mm <sup>2</sup>
Conductor cross-section flexible max.	1.5 mm <sup>2</sup>

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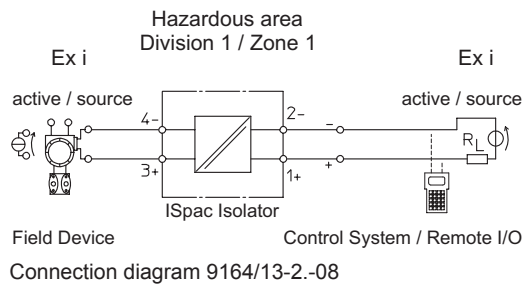
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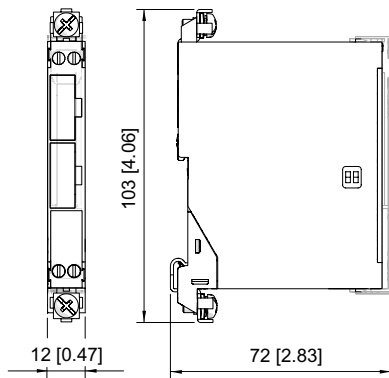
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### Technical Drawings – Subject to Alterations



### 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.