

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

MY R. STAHL 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 gas certificate	IECEX BVS 15.0062 X
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 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
FMus certificate	FM16US0122X
cFM certificate	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
Certificates	ATEX (BVS), Canada (FM), China (NEPSI), IECEX (BVS), SIL (exida), USA (FM)
Ship approval	CCS, EU RO MR (DNV)
Declaration of conformity	ATEX (EUK), China (CCC)

Safety Data

Max. voltage U_i	30 V
Max. current I_i	150 mA
Max. power P_i	1000 mW

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Safety Data

Internal capacitance	0 nF
Internal inductance	0 mH
Max. voltage U_o (input)	0 V
Max. current I_o (input)	0 mA
Max. power P_o (input)	0 mW
Max. voltage U_i (input)	30 V
Max. current I_i (input)	150 mA
Max. power P_i (input)	1000 mW
Internal capacitance C_i (input)	0 nF
Internal inductance L_i (input)	0 mH

Functional Safety

SIL	2
HFT	0
SFF	72%
Lambda SD	0 FIT
Lambda SU	0 FIT
Lambda DD	127 FIT
Lambda DU	48 FIT
PFD _{avg} at T _{proof} 1 year	2,32E-04
PFD _{avg} at T _{proof} 2 years	4,40E-04
PFD _{avg} at T _{proof} 5 years	1,06E-03
PFDavg at Tproof 10 years	2,10E-03

Electrical Data

Number of channels	1
Transmitter feed operation	No
Isolation amplifier operation	Yes
LFD relay	No
Communication signal	HART, 0.5 to 5 kHz

Auxiliary Power

Auxiliary power	without
Auxiliary power nominal voltage	30 V
Nominal current	30 mA
Max. power dissipation	3.7 V x 20 mA + 20 mA x (Supply voltage - RL x 20 mA)
Polarity reversal protection	Yes

Galvanic Isolation

Test voltage as per standard	EN IEC 60079-11
Ex i input to output	500 V AC

Input

Input function	Isolation amplifier
Input	Ex i: 4 to 20 mA HART (sink)
Input signal	3.8 to 20.5 mA with HART
Function range input	3,6 – 25 mA
Input resistance (input) at 0.5 to 5 kHz (AC impedance HART)	= load resistance at output
Isolation amplifier voltage drop	< 3,7 V

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Output	
Output	Ex i: passive HART (sink)
Output signal	3.8 to 20.5 mA with HART
Active supply voltage range	5 – 30 V
Input resistance at output	> 10 kΩ
Behaviour of the output	= input signal
Output current at I _e =0	0 mA
Settling time 10-90%	≤ 1 ms
Deviations / error note	Information in % of the measuring range (20 mA) at U _N , 23 °C
Deviation	≤ 0,1 %
Temperature influence error limits	≤ 0.05% / 10 K
Linearity error	≤ 0,05 %
Offset error	≤ 0,05 %

Ambient Conditions	
Ambient temperature °C	-40 °C ... 75 °C
Ambient temperature °F	-40 °F ... +167 °F
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	≤ 90%
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

Mechanical Data	
Degree of protection (IP)	IP30
Degree of protection (IP) terminals	IP20
Enclosure material	Polyamide
Connection cross-section	0.2 to 2.5 mm ² flexible 0.25 to 2.5 mm ² flexible with core end sleeve
Grid dimension	12 mm
Width	12.2 mm
Width, inches	0.47 in
Height	72 mm
Height in inches	2.83 in
Length	103 mm
Length in inches	4.06 in
Weight	90 g
Weight	0.2 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 ²

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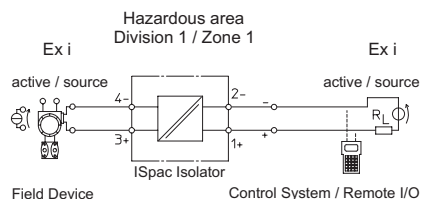
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Mounting / Installation

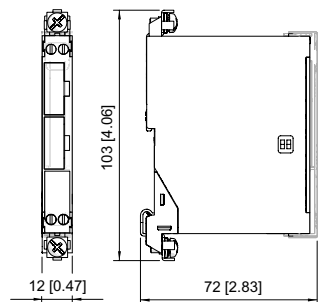
Max. rigid conductor cross section	1.5 mm ²
Min. flex conductor cross section	0.2 mm ²
Max. flex conductor cross section	1.5 mm ²
Connection cross-section AWG	24 ... 16

Technical Drawings – Subject to Alterations



Connection diagram 9164/13-20-08

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.