

Isolator Barriers

Isolating repeater Without auxiliary power

Ex i field circuit ISpac

9167/23-11-00s Art. No. 160247



- Compact, loop-powered one- and two- channel Ex i output isolating repeater
- Suitable for fire and gas detectors
- Can be used up to SIL 3 (IEC 61508)

WebCode 9167A



9167 series Ex i isolating repeaters operate without auxiliary power and can be used for the intrinsically safe operation of control valves, I/P transducers, analogue indicators and fire or gas detectors, for example. They have one or two channels. They transmit superimposed HART communication signals in both directions.

Technical Data

Explosion Protection

Application range (Zones)	2
Ex interface zone	0 1 2 20 21 22
IECEX gas certificate	IECEX BVS 11.0089 X
IECEX gas explosion protection	Ex nA [ia Ga] IIC T4 Gc
IECEX dust certificate	IECEX BVS 11.0089 X
IECEX dust explosion protection	[Ex ia Da] IIIC
ATEX gas certificate	BVS 04 ATEX E 082 X
ATEX gas explosion protection	Ex II 3 (1) G Ex nA [ia Ga] IIC T4 Gc
ATEX dust certificate	BVS 04 ATEX E 082 X
ATEX dust explosion protection	Ex II (1) D [Ex ia Da] IIIC
FMus certificate	FM16US0122X
cFM certificate	FM16CA0067X
Marking cFMus	Class I, Div. 2, Groups A,B,C,D; Class I, Zone 2, Group IIC AIS Class I,II,III, Div. 1, Groups A,B,C,D,E,F,G; Class I, Zone 0, [AEx ia]/[Ex ia] IIC T4 at Ta = 70°C See Doc. 91 676 01 31 1
USA UL gas certificate	E81680V1S7
Marking ULus	providing intrinsically safe circuits for use in Class I,II,III, GROUPS A,B,C,D,E,F,G; See Doc. 91 676 01 31 3
EAC certificate	TS RU S-DE.GB04.B.00353

Isolator Barriers

Isolating repeater Without auxiliary power

Ex i field circuit ISpac

9167/23-11-00s Art. No. 160247



Explosion Protection

EAC gas explosion protection	Ex 2 Ex nA [ia Ga] IIC T4 Gc X
EAC dust explosion protection	[Ex ia Da] IIC
Certificates	ATEX (BVS), Canada (FM), EAC (ENDCE), IECEx (BVS), India (PESO), Russia (Meteorological certificate), SIL (exida), USA (FM), USA (UL)
Ship approval	CCS, EU RO MR (DNV GL)

Safety Data

Max. voltage U_o/V_{oc}	25 V
Max. current I_o/I_{sc}	99 mA
Max. power P_o	613 mW
Max. permissible external capacitance C_o/C_a for IIC	0.11 μ F
Max. permissible external capacitance C_o/C_a for IIB	0.84 μ F
Max. permissible external inductance L_o/L_a for IIC	2.5 mH
Max. permissible external inductance L_o/L_a for IIB	11 mH
Internal capacitance	Negligible
Internal inductance	Negligible
Safety-related max. voltage	253 V

Functional Safety

SIL	3
-----	---

Electrical Data

Number of channels	2
LFD relay	No
Communication signal	HART

Auxiliary Power

Auxiliary power	without
Nominal voltage V_{nom}	Loop-powered
Polarity reversal protection	Yes

Galvanic Isolation

Test voltage as per standard	IEC EN 60079-11
Galvanic separation Ex i OFF to ON	1.5 kV AC
Ex i output to Ex i output	500 V AC
Test voltage as per standard 2	EN 50178
ON to ON galvanic separation	350 V AC

Input

Input	0/4 to 20 mA with HART
Input signal	0/4 to 20 mA with HART
Function range input	0 – 40 mA
Internal resistance R_i at 20 mA	380 Ω
Internal resistance R_i at 40 mA	330 Ω
Additional voltage drop	1 V
Internal consumption	$\leq 10 \mu$ A
Input voltage UE	≤ 31.2 V

Isolator Barriers

Isolating repeater Without auxiliary power

Ex i field circuit ISpac

9167/23-11-00s Art. No. 160247



Input

Behaviour of the input at wire breakage	≤ 1 mA
---	-------------

Output

Output	0/4 to 20 mA with HART
--------	------------------------

Output signal	0/4 to 20 mA with HART
---------------	------------------------

Function range output	0 – 40 mA
-----------------------	-----------

Max. load resistance R_L	800 Ω
----------------------------	--------------

Current residual ripple	$\leq 0.5\%$
-------------------------	--------------

Open-circuit voltage U_a	25 V
----------------------------	------

Settling time 10-90%	≤ 1 ms
----------------------	-------------

Output short-circuit current	≤ 60 mA
------------------------------	--------------

Average measurement fault	0,35%
---------------------------	-------

Temperature influence error limits	$\leq 0.1\%/10$ K
------------------------------------	-------------------

Ambient Conditions

Ambient temperature $^{\circ}\text{C}$	-20 $^{\circ}\text{C}$... +70 $^{\circ}\text{C}$ (Single device) -20 $^{\circ}\text{C}$... +60 $^{\circ}\text{C}$ (Group assembly)
--	---

Ambient temperature $^{\circ}\text{F}$	-4 $^{\circ}\text{F}$... +158 $^{\circ}\text{F}$ (Single device) -4 $^{\circ}\text{F}$... +140 $^{\circ}\text{F}$ (Group assembly)
--	---

Storage temperature $^{\circ}\text{C}$	-40 $^{\circ}\text{C}$... +80 $^{\circ}\text{C}$
--	---

Storage temperature $^{\circ}\text{F}$	-40 $^{\circ}\text{F}$... +176 $^{\circ}\text{F}$
--	--

Max. relative humidity	95%
------------------------	-----

Use at the height of	< 2000 m
----------------------	----------

Electromagnetic compatibility	Tested to the following standards and regulations: EN 61326-1 Use in industrial environment; NAMUR NE 21
-------------------------------	--

Mechanical Data

Degree of protection (IP)	IP30
---------------------------	------

Terminal degree of prot. (IP)	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	108 mm
--------	--------

Length, inches	4.25 in
----------------	---------

Weight	0.182 kg
--------	----------

Weight	0.4 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
------------------------------------	---------------------

Max. rigid conductor cross section	2.5 mm ²
------------------------------------	---------------------

Min. flex conductor cross section	0.2 mm ²
-----------------------------------	---------------------

Isolator Barriers



Isolating repeater Without auxiliary power

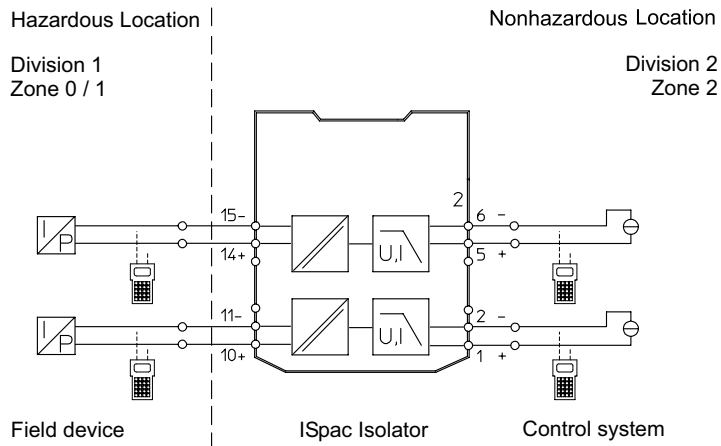
Ex i field circuit ISpac

9167/23-11-00s Art. No. 160247

Mounting / Installation

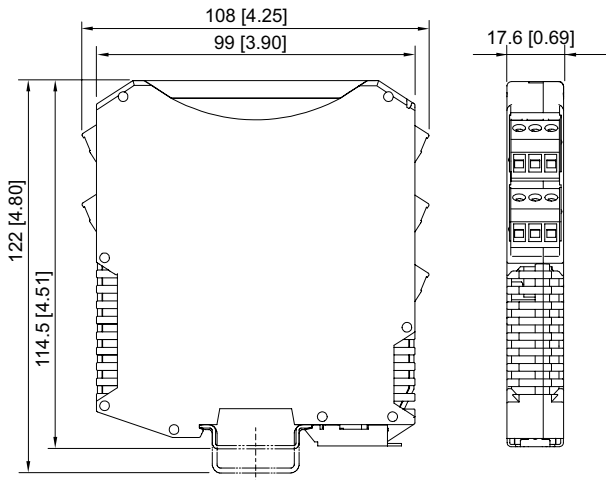
Max. flex conductor cross section	2.5 mm ²
Connection cross-section AWG	24 – 13

Technical Drawings – Subject to Alterations




Connection diagram 9167/2

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, ISbus Series 9412 with screw terminal

Accessories

Front cover		Art. No.
	for ISpac modules 91xx yellow, transparent Clear marking of the device for SIL applications. (Packaging unit: 10 pieces)	200914

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.