Isolator Barriers

Vibration transducer Supply device
Ex i field circuit ISpac
9147/20-99-10s Art. No. 212433

- Space-saving two-channel variant reduces installation costs
- Easily accessible rotary switch makes adjustment simple
- Can be used up to SIL 2 (IEC 61508)

WebCode **9147A**

9147 series vibration transducer power supply units connect vibration, acceleration and speed sensors to analytical systems. The measuring signals are galvanically separated when they are transmitted. They are transmitted at frequencies of up to 50 Hz. These units have already been tested with numerous sensors from well-known manufacturers such as Bently Nevada and are in use in systems across the globe.

Technical Data

Explosion Protection	
Application range (Zones)	2
Ex interface zone	0 1 2 20 21 22
IECEx certificate Gas	IECEx BVS 12.0001 X
IECEx gas explosion protection	Ex ec [ia Ga] IIC T4 Gc
IECEx dust certificate	IECEx BVS 12.0001 X
IECEx dust explosion protection	[Ex ia Da] IIIC
IECEx firedamp certificate	IECEx BVS 12.0001 X
IECEx firedamp protection	[Ex ia Ma] I
ATEX gas certificate	BVS 12 ATEX E 007 X
ATEX gas explosion protection	II 3 (1) G Ex ec [ia Ga] IIC T4 Gc
ATEX dust certificate	BVS 12 ATEX E 007 X
ATEX dust explosion protection	II (1) D [Ex ia Da] IIIC
ATEX firedamp certificate	BVS 12 ATEX E 007 X
ATEX firedamp protection	I (M1) [Ex ia Ma] I
Certificate FMus	FM16US0122X
Certificate cFM	FM16CA0067X
Marking cFMus	Class I, Div. 2, Groups A,B,C,D; Class I, Zone 2, AEx/Ex nA 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. 9147 6 031 001 1

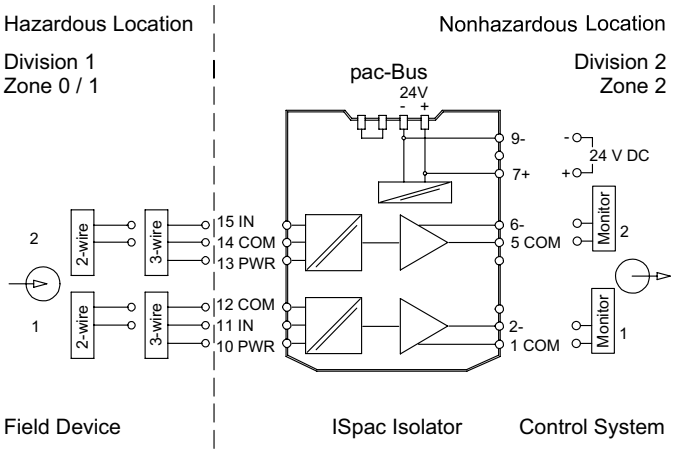
Explosion Protection	
EAC certificate	EAEU RU S-DE.HA91.B.00100/20
EAC certificate valid until	2025-01-26
EAC gas explosion protection	Ex 2 Ex nA [ia Ga] IIC T4 Gc X
EAC dust explosion protection	Ex [Ex ia Da] IIIC X
Certificates	ATEX (BVS), Canada (FM), EAC (ENDCE), IECEx (BVS), India (PESO), SIL (exida), USA (FM)
Ship approval	CCS, EU RO MR
Installation	in Zone 2
Further information	see respective certificate and operating instructions
Safety Data	
Max. voltage U_o/V_{oc}	26.3 V
Max. current I_o/I_{sc}	88.3 mA
Max. power P_o	579 mW
Max. permissible external capacitance C_o/C_a for IIC	0.097 µF
Max. permissible external capacitance C_o/C_a for IIB	0.74 µF
Max. permissible external capacitance C_o for IIA	2.51 µF
Max. permissible external capacitance C_o for I	3.95 µF
Max. permissible external inductance L_o/La for IIC	4.4 mH
Max. permissible external inductance L_o/La for IIB	18 mH
Max. permissible external inductance L_o for IIA	36 mH
Max. permissible external inductance L_o for I	58 mH
Internal capacitance C_i	2.4 nF
Internal inductance L_i	Negligible
Safety-related maximum voltage	253 V
Functional Safety	
SIL	2
Electrical Data	
Signal types	Vibration transducer
Number of channels	2
LFD relay	No
Operation indication	LED green "PWR"
Internal resistance R_i	30 Ω
Output current for 2-wire operation	2.6 / 4.3 / 7.9 mA at -10 V
Output current for 3-wire operation	10 mA at -20 V; 20 mA at -17 V

AC transmission fault at U_N and 20 °C and an offset of 10 V	Frequency	Phase fault	Amplitude fault
	0 ... 200 Hz	≤ 0.5°	± 1 %
	< 400 Hz	≤ 1.0°	± 1 %
	> 600 Hz	≤ 1.5°	± 1 %
	<1 Hz	≤ 2.5°	± 1 %
	< 10 k Hz	≤25°	+ 1 / - 5 %
	< 20 kHz	≤ 50°	+ 1 / - 5 %
	< 50 kHz	≤ 125°	- 30 %

Auxiliary Power	
Auxiliary power	24 V DC
Nominal voltage V_{nom}	24 V DC
Auxiliary power voltage range	18 ... 31.2 V
Voltage range residual ripple	≤ 3,6 V_{SS}
Nominal current	88 mA
Power consumption	2.1 VA
Power dissipation max.	1.8 W
Polarity reversal protection	Yes
Undervoltage monitoring	yes (no faulty devices / output states)
Galvanic Isolation	
Test voltage according to standard	IEC EN 60079-11
Galvanic isolation Ex i input to output	1.5 kV AC
Galvanic isolation Ex i input to auxiliary power	1.5 kV AC
Galvanic isolation Ex i input to Ex i input	500 V AC
Test voltage according to standard 2	EN 50178
Galvanic isolation output to auxiliary power	350 V AC
Galvanic isolation output to output	350 V AC
Input	
Input	-20 - -0.5 V
Input signal	-20 ... -0.5 V
Input functional range	-24 – 0 V
Input resistance	10 kΩs
Output	
Output	-20 - -0.5 V
Output signal	-20 to -0.5 V
Load resistance R_L	> 10 kΩ
Signal transmission delay	< 7 µs
Signal transmission phase fluctuation	< 0.6% / period
Signal transmission frequency range	0 – 50 kHz
Auxiliary power influence error limits	< 0,05 %
Temperature influence error limits	< 0.05% / 10 K
Ambient Conditions	
Ambient temperature °C	-20 °C ... +70 °C (Single device) -20 °C ... +70 °C (Group assembly)

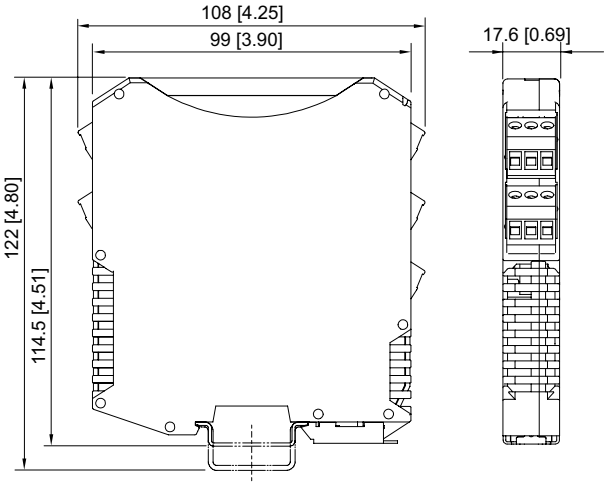
Ambient Conditions	
Ambient temperature °F	-4°F ... +158°F (Single device) -4°F ... +158°F (Group assembly)
Storage temperature °C	-40 °C ... +80 °C
Storage temperature °F	-40°F ... +176°F
Max. relative humidity	95%
Use at the height of	< 2000 m
Mechanical Data	
Degree of protection (IP)	IP30
Terminal degree of protection (IP)	IP20
Fire resistance (UL 94)	V0
Enclosure material	Polyamide
Clamping range AWG	24 – 12
Grid dimension	17.6 mm
Width inches	4.25 in
Length inches	0.69 in
Mounting depth inches	4.51 in
Weight	0.21 kg
Weight	0.46 lb
Mounting / Installation	
Mounting type	NS35/15, NS35/7.5 DIN rail
Mounting position	Horizontal Vertical
Connection type	Screw terminal

Technical Drawings – Subject to Alterations



Connection diagram 9147/20-99-10

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

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
	3-pole plug, screw connector thread: M3 stripping length: 7 mm color: blue	112818

Screw terminal with test tap		Art. No.
	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

Spring clamp terminal		**Art. No.**
	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.