



- Compact Ex i frequency transmitter for monitoring rotational speed in hazardous areas
- Limit value analysis + frequency-current conversion + pulse divider function over a width of just 17.6 mm
- Parameterization made easy by "ISpac Wizard" software

07 b

MY R. STAHL 9146A



9146 series Ex i- frequency transmitters monitor the speed of rotating parts on one or two channels, e.g. the speed of fans or centrifuges. The frequency measured at the intrinsically safe input (between 0.001 Hz and 20 kHz) is issued as a unit signal (0/4 mA to 20 mA) or processed by a frequency divider. In single-channel devices, these frequency transmitters check whether speeds have exceeded or fallen below the limit values.

	NEC® 500 CE Code Appendix J					
	Class I		Class II		Class III	
Division	1	2	1	2	1	2
Ex interface	•	•	•	•	•	•
Installation in		•				

	CE Code Section 18					
	NEC® 505			NEC® 506		
	Class I					
Zone	0	1	2	20	21	22
Ex interface	•	•	•			
Installation in			•			

	IECEX / ATEX					
	0	1	2	20	21	22
Zone						
Ex interface	•	•	•	•	•	•
Installation in			•			

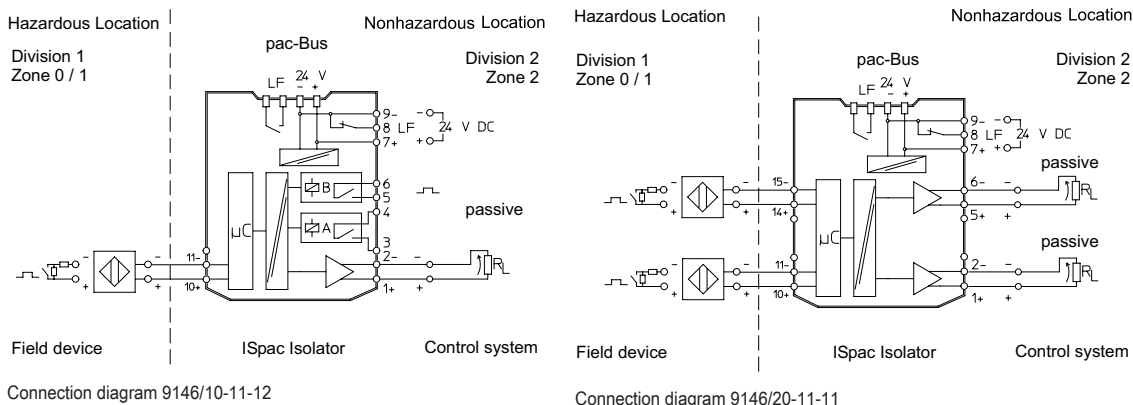
Selection Table						
Number of channels	1					
Output signal	Limit contact (per channel)	Pulse output	Connection type	Product Type	Art. No.	Weight lb
0/4 to 20 mA	2 NO/NC	One configurable NO	Screw terminal	9146/10-11-12s	159883	0.28 lb
	2 NO/NC	One configurable NO	Spring clamp terminal	9146/10-11-12k	159884	0.28 lb
Number of channels	2					
Output signal	Limit contact (per channel)	Pulse output	Connection type	Product Type	Art. No.	Weight lb
0/4 to 20 mA	without	without	Screw terminal	9146/20-11-11s	159886	0.3 lb
	without	without	Spring clamp terminal	9146/20-11-11k	159887	0.3 lb


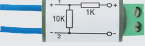
Parameterisation ex works optionally available for all variants. Art. No. 270534

Technical Data		
Variant	Number of channels 1	Number of channels 2
Explosion Protection		
FMus certificate	FM16US0122X	FM16US0122X
cFM certificate	FM16CA0067X	FM16CA0067X
cFM certificate	FM16CA0067X	FM16CA0067X
Marking cFMus	Class I, Div. 2, Groups A,B,C,D; Class I, Zone 2, AEx/Ex nA nC Group IIC AIS Class I,II,III, Div. 1, Groups A,B,C,D,E,F,G; Class I, Zone 0, [AEx/Ex ia] IIC T4 at Ta = 70°C See Doc. 9146 6 031 001 1	Class I, Div. 2, Groups A,B,C,D; Class I, Zone 2, AEx/Ex nA nC Group IIC AIS Class I,II,III, Div. 1, Groups A,B,C,D,E,F,G; Class I, Zone 0, [AEx/Ex ia] IIC T4 at Ta = 70°C See Doc. 9146 6 031 001 1

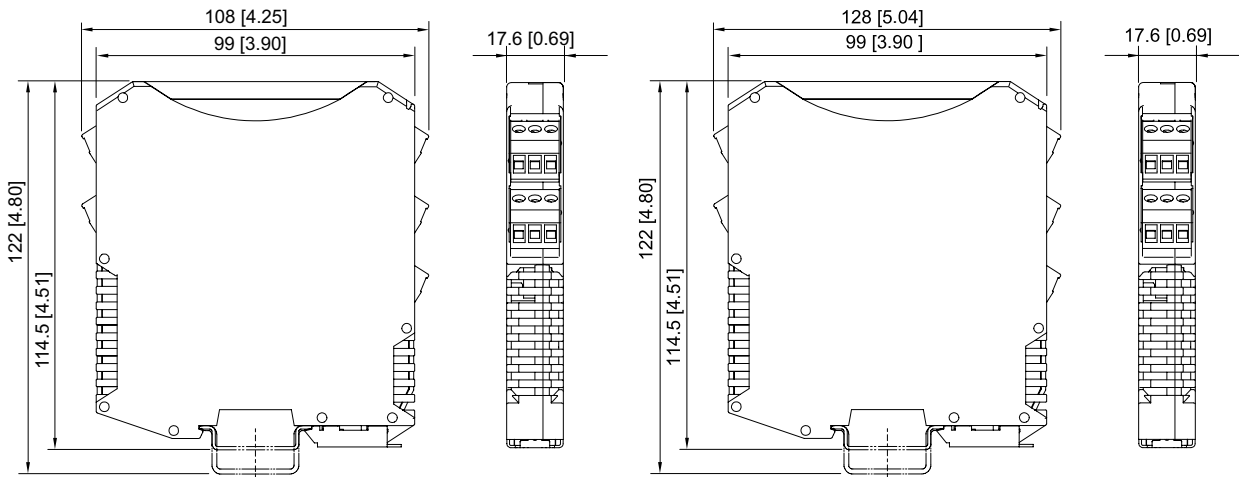
Technical Data		
Variant	Number of channels 1	Number of channels 2
Explosion Protection		
IECEX gas explosion protection	Ex ec nC [ia Ga] IIC T4 Gc	Ex ec nC [ia Ga] IIC T4 Gc
IECEX dust explosion protection	[Ex ia Da] IIIC	[Ex ia Da] IIIC
IECEX firedamp protection	[Ex ia Ma] I	[Ex ia Ma] I
Certificates	ATEX (BVS), Canada (FM), IECEx (BVS), India (PESO), USA (FM)	ATEX (BVS), Canada (FM), IECEx (BVS), India (PESO), USA (FM)
Ship approval	CCS, EU RO MR (DNV)	CCS, EU RO MR (DNV)
Declaration of conformity	ATEX (EUK)	ATEX (EUK)
Safety Data		
Max. voltage U_i/V_{oc}	10.5 V	10.5 V
Max. current I_i/I_{sc}	23.4 mA	23.4 mA
Max. power P_o	61.4 mW	61.4 mW
Safety-related max. voltage	253 V	253 V
Auxiliary Power		
Auxiliary power	24 V DC	24 V DC
Nominal current	55 mA	75 mA
Input		
Input signal	As per EN 60947-5-6 (NAMUR)	As per EN 60947-5-6 (NAMUR)
Input frequency	0.0010 – 20000 Hz	0.0010 – 20000 Hz
Output		
Line fault and loss of power signalization	- Contact (30 V/100 mA), closed against earth in case of error - pac-Bus, potential-free contact (30 V/100 mA)	- Contact (30 V/100 mA), closed against earth in case of error - pac-Bus, potential-free contact (30 V/100 mA)
Ambient Conditions		
Ambient temperature °F	-40 °F ... +158 °F (Single device) -40 °F ... +140 °F (Group assembly)	-40 °F ... +158 °F (Single device) -40 °F ... +140 °F (Group assembly)
Ambient temperature °C	-40 °C ... +70 °C (Single device) -40 °C ... +60 °C (Group assembly)	-40 °C ... +70 °C (Single device) -40 °C ... +60 °C (Group assembly)
Storage temperature °F	-40 °F ... +176 °F	-40 °F ... +176 °F
Storage temperature °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Mounting / Installation		
Mounting type	DIN rail NS35/15, NS35/7.5	DIN rail NS35/15, NS35/7.5

Technical Drawings – Subject to Alterations



Accessories				
Figure	Description	Product Type	Art. No.	Weight lb
Parameterization set ISpac - Wizard				
	The software serves for commissioning, configuring and diagnosing the ISpac isolators Series 9146, 9162, 9182 and 9282. For further information, see operating instructions. Form of delivery: USB stick; parameterization software incl. parameterization cable / adaptor System requirements: IBM compatible PC with MS XP, Vista, Windows 7, 10 RS 232 C interface RS 232 / USB adaptor	9199/20-02 set for parameterization ispa	202595	0.52
Resistive coupling element				
	Additional connection of contacts also in hazardous areas to enable short-circuit and wire breakage detection	Resistive coupling element for 9170	105944	0.02

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



ISpac Series 9143, 9146, 9147, 9160, 9162, 9163, 9165, 9167, 9170, 9172, 9175, 9176, 9180, 9182, 9193, ISubs Series 9412 with screw terminal

ISpac Series 9146, 9147, 9160, 9162, 9163, 9165, 9167, 9170, 9172, 9175, 9176, 9180, 9182, 9193, Fieldbus Power Supply Series 9412 with spring clamp terminal