

Selection Guide Isolators ISpac

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Ex i Power Supply

Type	9143/10-065-200-10	9143/10-114-200-10	9143/10-124-150-10	9143/10-156-160-10	9143/10-156-160-20
Function					
For the intrinsically safe operation of field devices e.g. transmitters...	x	x	x	x	x
Number of channels	1	1	1	1	1
Footprint					
35,2 mm	x	x	x	x	x
Explosion protection					
Installation in Zone 2	x	x	x	x	
Ex i interface [Zone 1 und 21]	x	x	x	x	x
Nominal voltage (U_N) [V]					
4,0...5,6	x				
9,4...10,4		x			
9,5...11,8			x		
12,5...14,7				x	x
Max. Nominal current I_N					
130 mA			x		
140 mA				x	x
160 mA	x				
180 mA		x			
Power supply					
24 V AC / DC	x	x	x	x	
85 V...230 V AC					x

Frequency Transmitter

Type	9146/10-11-12	9146/20-11-11
Function		
Monitoring the speed of rotating devices like fans, centrifuges, tube extruder,...	x	x
Number of Channels	1	2
Footprint		
17,6 mm	x	x
Explosion protection		
Installation in Zone 2	x	x
Ex i Interface [Zone 0 and 20]	x	x
Inputsignal		
acc. to. EN 60947-5-6 (NAMUR)	x	x
Input frequency 0,001 Hz...20 kHz	x	x
Output		
0/4 mA ...20 mA	x	x
Trip amplifier		
2 x NO/NCr	x	
Pulse output		
one NO selectable	x	
Power supply 24 V DC	x	x
Line fault signalization		
via output signal (0/4...20 mA)	x	x
via LED	x	x
via contact (Terminal)	x	x
via contact (pac-Bus)	x	x
Ambient temperature (operation)		
-20 ... +60°C (+70 single installation)	x	x

Vibration transducer supply

Type	9147/10-99-10s	9147/20-99-10s
Function		
for intrinsically safe operation of vibration transducer, speed and acceleration sensors	x	x
Number of Channels	1	2
Footprint		
17,6 mm	x	x
Explosion protection		
Installation in Zone 2	x	x
Ex i Interface [Zone 0 and 20]	x	x
SIL (IEC 61508)	2	2
Ex i input signal		
Input signal -0,5 ... -20 V	x	x
Functional range 0 ... -24 V	x	x
Output		
-0,5 ... -20 V	x	x
Power supply 24 V DC	x	x
Ambient temperature (operation)		
-20 ... +60°C (+70 Single device installation)	x	x

Transmitter supply unit (AI)

Type	Ex i										Non Ex i	
	9260/13-11-10	9160/13-11-11	9160/13-11-13	9160/15-11-10	9260/19-11-10	9160/19-11-11	9260/23-11-10	9160/23-11-11	9160/23-10-10	9162/13-11-14		9162/13-11-64
Function												
Transmitter supply with HART	x	x	x	x	x	x	x	x	x	x	x	x
Isolating repeater for 4-wire	x	x	x	x	x	x	x	x	x	x	x	x
Isolating repeater for 4-wire HART	x				x							
Trip amplifier											x	
..Special output values				x								
Number of channels	1	1	1	1	1/2	1/2	2	2	2	1	1	1
Signal duplication					x	x						
Footprint												
12,5 mm	x				x		x					
17,6 mm		x	x	x		x		x	x	x	x	x
Explosion protection												
Installation in Zone 2	x	x	x	x	x	x	x	x	x	x	x	x
Ex i Interface [Zone 0 and 20]	x	x	x	x	x	x	x	x	x	x		
SIL (IEC 61508)	2	2	3	2	2	2	2	2	2	2	2	2
Input												
Ex i: 0/4 mA...20 mA with HART	x	x	x	x	x	x	x	x	x	x		
Non Ex i: 0/4 mA...20 mA with HART												x
Output A												
0/4 mA...20 mA Source/Active with HART	x	x	x	x	x	x	x	x		x	x	
0/4 mA...20 mA Sink/Passive with HART	x								x			
Output B												
0/4 mA...20 mA Source/Active ohne HART					x	x						
0/4 mA...20 mA Source/Active with HART							x	x				
0/4 mA...20 mA Sink/Passive with HART									x			
Trip amplifier contact												
2 x NO/NCr											x	x
Power supply 24 V DC	x	x	x	x	x	x	x	x	x	x	x	x
Line fault signalization												
via output signal	x	x	x	x	x	x	x	x	x	x	x	x
via LED		x	x			x		x		x	x	
via contact (terminal)		x	x			x		x		x	x	
via contact (pac-Bus)		x	x			x		x		x	x	
Ambient temperature (operation)	x	x	x	x	x	x	x	x	x	x	x	x
-20 ... +60°C (+70 single device installation)		x	x	x		x		x	x			
-20 ... +60°C	x				x		x					
-40 ... +70°C	x									x	x	

Isolating repeater output (AO)

Type	9265/16-11-10	9165/16-11-11	9265/26-11-10	9165/26-11-11	9167/11-11-00	9167/13-11-00	9167/23-11-00
Function							
intrinsically safe operation of control valves, i/p-converters or indicators.....	x	x	x	x	x	x	x
Number of Channels	1	1	2	2	1	1	2
Footprint							
12,5 mm	x		x				
17,6 mm		x		x	x	x	x
Explosion protection							
Installation in Zone 2	x	x	x	x	x	x	x
Ex i Interface [Zone 0 and 20]	x	x	x	x	x	x	x
SIL (IEC 61508)	2	2	2	2	3	3	3
Input							
0/4 mA...20 mA with HART	x	x	x	x	x	x	x
Output							
Exi: 0/4 mA...20 mA with HART	x	x	x	x	x	x	x
Max. Load resistance R_L							
360 Ω					x		
700 Ω	x		x				
800 Ω		x		x		x	x
Power supply							
24 V DC	x	x	x	x			
Loop powered					x	x	x
Line fault signalization							
via input signal	x	x	x	x			
via LED		x		x			
via contact (terminal)		x		x			
via contact (pac-Bus)		x		x			
Ambient temperature (operation)							
-20 ... +60°C (+70 single installation)		x		x	x	x	x
-40 ... +70°C	x		x				

Switching Repeater (DI)

Type	9270/11-16-14	9270/11-17-15	9270/11-19-15	9170/11-11-11	9170/11-12-11	9170/11-13-21	9170/11-14-11	9270/21-17-14	9270/21-14-14	9170/21-10-11	9170/21-11-11	9170/21-12-11	9170/21-12-21	9170/21-14-11	9170/21-14-12
Function															
For intrinsically safe operation of contacts, optocoupler outputs etc.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Number of Channels	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
Footprint															
12,5 mm	x	x	x					x	x						
17,6 mm				x	x	x	x			x	x	x	x	x	x
Explosion protection															
Installation in Zone 2	x	x	x	x			x	x	x	x	x			x	x
Ex i Interface [Zone 0 and 20]	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
SIL (IEC 61508)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Input Ex i															
gem. EN 60947-5-6 (Namur)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Output per channel															
Change over (125 V / 1 A)				2						1					
Change over (250 V / 2 A)	1														
Change over (250 V / 4 A)					1	2						1	2		
NO (125 V / 1 A)											2				
NO (250 V / 2 A)		2						1							
Electronic (35 V / 50mA)							1							1	
Electronic (35 V / 50mA) LFT															1
Electronic (30 V / 50mA)			2						1						
Switching frequencies															
≤ 6 Hz					x	x						x	x		
≤ 15 Hz	x	x		x				x		x	x				
≤ 5 kHz			x						x						
≤ 10 kHz							x							x	x
Power supply															
24 V DC	x	x	x	x	x		x		x	x	x	x		x	x
110 V ... 230 V						x		x					x		
Line fault signalization															
via input signal (LFT)															x
via LED	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
via contact (terminal)		x*)	x*)	x	x		x			x	x	x		x	x
via contact (pac-Bus)	x**)	x**)	x**)	x	x		x	x**)	x**)	x	x	x		x	x
Ambient temperature (operation)															
-20 ... +60°C (+70 single device installation)				x	x	x	x			x	x	x	x	x	x
-20 ... +60°C	x	x	x					x	x						

x*) One output of the device can be selected to signalize line faults.

x**) Requires supply module 9193/21-11-11 for reading out the pac-Bus fault signalization..

Binary Output / Digital output (DO)

Type	9275/10-21-25-11	9275/10-24-48-11	9175/10-16-11	9175/20-12-11	9175/20-14-11	9175/20-16-11	9276/10-21-25-00	9276/10-21-40-00	9276/10-21-60-00	9276/10-24-48-00	9176/10-15-00	9176/10-16-00	9176/20-14-00	9176/20-15-00	9176/20-16-00	9176/20-17-00
Function																
for the intrinsically safe operation of Ex i solenoid valves or indicators.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Number of channels	1	1	1	2	2	2	1	1	1	1	1	1	2	2	2	2
Footprint																
12,5 mm	x	x					x	x	x	x						
17,6 mm			x	x	x	x					x	x	x	x	x	x
Explosion protection																
Installation in Zone 2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Ex i Interface [Zone 0 and 20]	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
SIL (IEC 61508)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Output																
[Ex ia] IIC	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x
[Ex ia] IIB									x							
[Ex ib] IIC			x	x	x	x	x				x	x	x	x	x	
Max. output current (I_{A max})																
25 mA	x						x									
29 mA											x			x		
35 mA			x			x						x			x	
40 mA								x								x
45 mA					x								x			
48 mA		x									x					
58 mA									x							
60 mA				x						x						
Open circuit voltage (U_A)																
10 V				x					x	x						
17,5 V					x								x			
21,1 V	x															
21,9 V							x	x	x							
24 V		x								x						
25 V			x			x					x	x		x	x	x
Power supply																
24 V DC	x	x	x	x	x	x										
Loop powered							x	x	x	x	x	x	x	x	x	x
Line fault signalization																
via LED	x	x	x	x	x	x										
via contact (Terminal)	x	x	x	x	x	x										
via contact (pac-Bus)	x*)	x*)	x	x	x	x										
Ambient temperature (operation)																
-20 ... +60°C (+70 single device installation)			x	x	x	x					x	x	x	x	x	x
-20 ... +60°C	x	x														
-40 ... +60°C							x	x	x	x						

x*) Requires supply module 9193/21-11-11 for reading out the pac-Bus fault signalization.

Relay module

Type	9172/20-11-00	9172/21-11-00	9172/22-11-00
Number of channels	2	2	2
Footprint			
17,6 mm	x	x	x
Explosion protection			
Installation in Zone 2	x	x	x
Ex i Interface [Zone 0 and 20]	x	x	x
SIL (IEC 61508)	2	2	2
Input / control			
Ex i	x		x
Non Ex i		x	
Output per channel			
Change over (250 V / 4 A)	1		
Ex i, Change over (125 V / 4 A, 30 V / 4 A)		1	1
Switching frequency			
≤ 15 Hz	x	x	x
Ambient temperature (operation)			
-20 ... +60°C (+70 single device installation)	x	x	x

Resistance Isolator and Temperature Transmitter (TI)

Type	Ex i											Non Ex i	
	9180/10-77-11	9180/20-77-11	9180/11-77-11	9180/21-77-11	9282/11-51-16	9282/12-51-16	9182/10-51-11	9182/10-51-13	9182/10-51-14	9182/20-51-11	9182/20-50-12		9182/10-51-64
Function													
Resistance isolator Pt100	x	x											
Resistance isolator Pt1000			x	x									
Temperature transmitter for RTD (z.B. Pt100)					x		x	x	x	x	x	x	
Temperature transmitter for thermo couples						x	x	x	x	x	x	x	
Number of channels	1	2	1	2	1	1	1	1	1	2	2	1	
Footprint													
12,5 mm					x	x							
17,6 mm	x	x	x	x			x	x	x	x	x	x	
Explosion protection													
Installation in Zone 2	x	x	x	x	x	x	x	x	x	x	x	x	
Ex i Interface [Zone 0 and 20]	x	x	x	x	x	x	x	x	x	x	x		
SIL (IEC 61508)					2	2		2	2				2
Output													
0/4 mA...20 mA Source/Active					x	x	x	x	x	x			x
Resistance	x	x	x	x									
Trip amplifier contact 2 x NO									x				x
Configuration													
via Software					x	x	x	x	x	x	x	x	x
via DIP-switchr							x			x			
Power supply 24 V DC	x	x	x	x	x	x	x	x	x	x	x	x	x
Line fault signalization													
via output signal	x	x	x	x	x	x	x	x	x	x	x	x	x
via LED	x	x	x	x	x	x	x	x	x	x	x	x	x
via contact (terminal)	x	x	x	x			x	x	x	x	x	x	x
via contact (pac-Bus)	x	x	x	x			x	x	x	x	x	x	x
Ambient temperature (operation)													
-20 ... +60°C (+70 single device installation)	x	x	x	x			x	x	x	x	x	x	x
-40 ... +70°C					x	x							