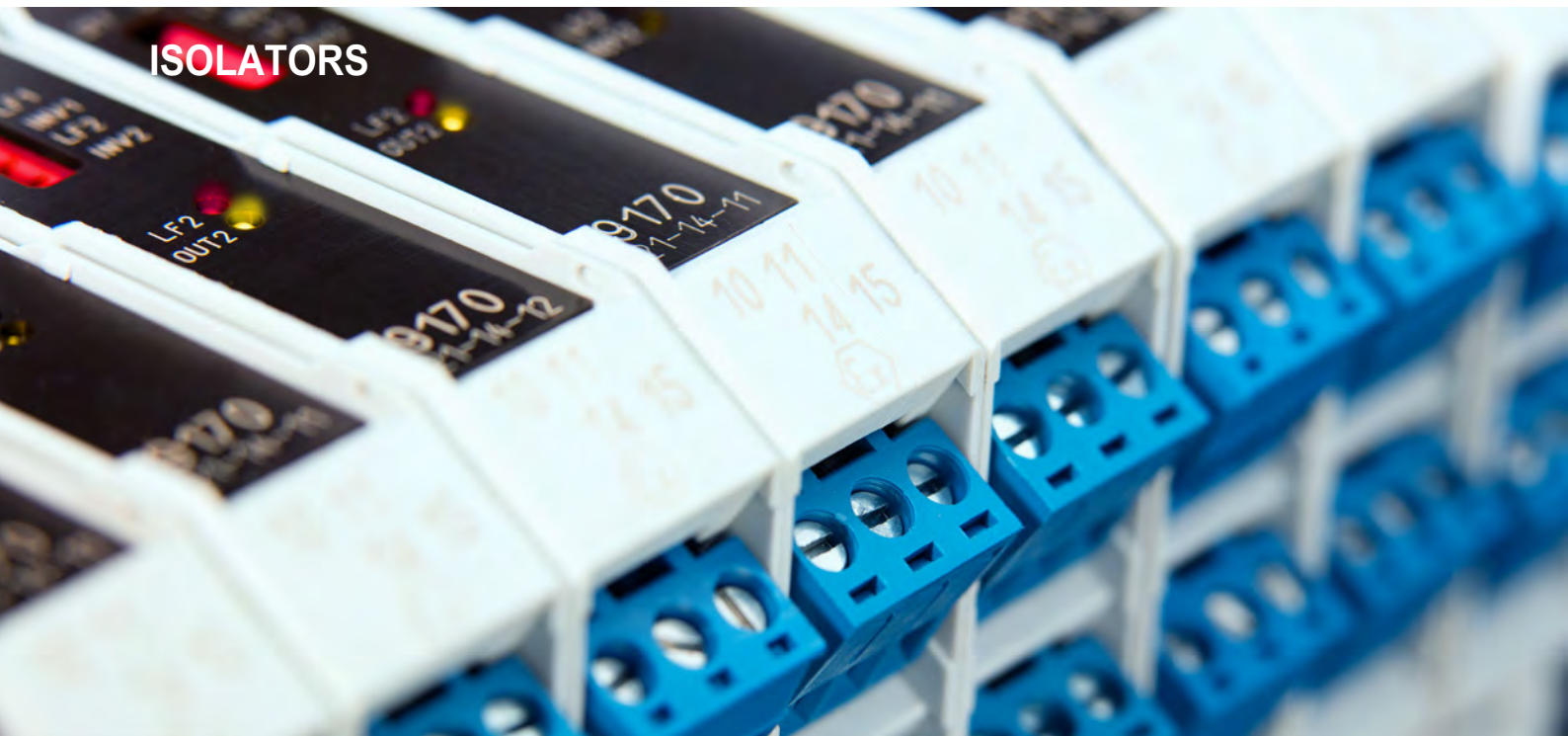


ISOLATORS

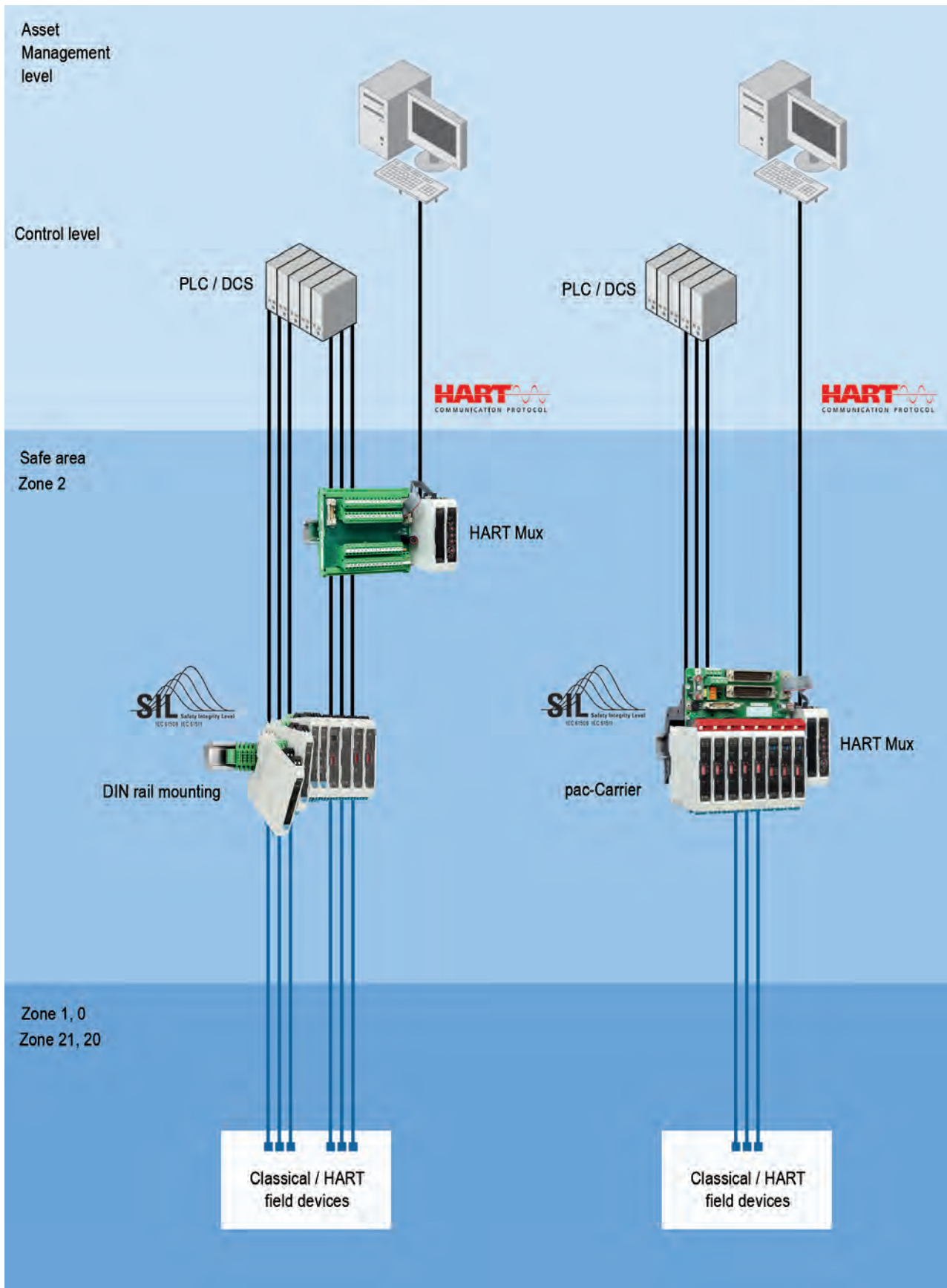


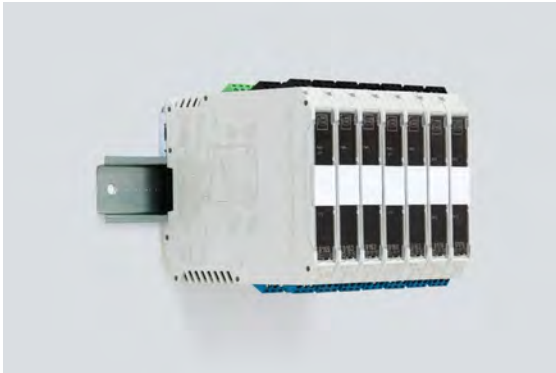
Product	Installation in Zone						Series	Page	WebCode
	0	1	2	20	21	22			
Ex i-Isolators – Analog Input									
mA-Isolating Repeater		•	•				9164	36	9164A
Transmitter Supply Unit			•				9160	30	9160A
Transmitter Supply Unit Slim Design 12.5 mm Wide			•				9260	32	9260A
Transmitter Supply Unit with Limit Value			•				9162	34	9162A
Vibration Transducer Supply Unit			•				9147	28	9147A
Ex i-Isolators – Analog Output									
Isolating Repeater			•				9165	38	9165A
Isolating Repeater Loop Powered			•				9167	42	9167A
Isolating Repeater Slim Design 12.5 mm Wide			•				9265	40	9265A
Ex i-Isolators – Digital Input									
Frequency Transmitter			•				9146	26	9146A
Switching Repeater			•				9170	44	9170A
Switching Repeater Slim Design 12.5 mm Wide			•				9270	46	9270A
Ex i-Isolators – Digital Output									
Binary Output			•				9175	50	9175A
Binary Output Slim Design 12.5 mm Wide			•				9275	52	9275A
Digital Output Loop Powered			•				9176	54	9176A
Digital Output Loop Powered Slim Design 12.5 mm Wide			•				9276	56	9276A
I.S. Relay Module			•				9172	48	9172A
Ex i-Isolators – Temperature Input									
Resistance Isolator			•				9180	58	9180A
Temperature Transmitter			•				9182	60	9182A
Temperature Transmitter Slim Design 12.5 mm Wide			•				9282	62	9282A

Product	Installation in Zone						Series	Page	WebCode
	0	1	2	20	21	22			
General									
Applications Isolators								23	
General								23	ISpacA
Overview Network Structure with Isolators								22	
Power Supply									
Ex i Power Supply			•			•	9143	24	9143A
System Components									
HART Multiplexer			•			•	9192	64	9192A
HART Termination Board			•			•	9196	72	9196A
pac-Bus			•			•	9194	67	9194A
pac-Bus Slim Design 12.5 mm Wide							9294	69	9294A
pac-Carrier			•			•	9195	70	9195A
Supply Module							9193	66	9193A
Accessories and Spare Parts									
Accessories and Spare Parts ISpac								74	
Dimensional Drawings									
Dimensional Drawings ISpac								75	

A3

For additional products and information please refer to r-stahl.com





- New: modules with a width of just 12 mm.
- Time-saving system for wiring: pac-Bus or pac-Carrier
- Wide array of applications: can be used for SIL applications up to SIL 3
- HART-capable

A3

WebCode **ISpacA**



The combination of pac-Bus and ISpac isolators makes it incredibly easy to connect the auxiliary power supply and read error messages: All you need to do is snap the pac-Bus and the device onto the DIN rail and the wiring is complete; power is supplied via the DIN rail. This is the only such module on the market for which all devices can be mounted on a DIN rail or in the pac-Carrier.

All ISpac isolators for analogue signals can transmit HART signals. This combination of isolators, HART multiplexers and transmission boards enables efficient transmission of these signals to asset management systems.

Consequently, ISpac isolators were designed for functional safety and are rated at SIL2 or SIL3, including devices with a trip amplifier function.

Overview Typical Applications of Isolators

Symbol	Application	ISpac Type	Ex i signal circuit
	2-wire HART transmitter	9160 9260 9162 (with limit value)	Page 30 Page 32 Page 34
	4-wire HART transmitter	9260	Page 32
	i/p-converter, HART control valve	9165 9265	Page 38 Page 40
	Resistance thermometers, resistance temperature detectors	9182 9282 9180	Page 60 Page 62 Page 58
	Contact, NAMUR proximity switch	9170 9270	Page 44 Page 46
	Solenoid valve, LED indicating lamp, horn	9175 9176 9275 9276	Page 50 Page 54 Page 52 Page 56
	Vibration sensor	9147	Page 28

A3



- For the intrinsically safe supply of power to three- or four-conductor transmitters, solenoid valves, light barriers and controllers
- Stable, adjustable output voltage
- Extensive portfolio with either DC or AC auxiliary power

WebCode **9143A**



The 9143 series compact Ex i power supply is used for the intrinsically safe supply of power to field devices, e.g. three- or four-conductor transmitters, solenoid valves, light barriers and controllers. It delivers stable, adjustable output voltage via intrinsically safe outputs.

	ATEX / IECEx						NEC 505 Class I			NEC 506		
Zone	0	1	2	20	21	22	0	1	2	20	21	22
Ex interface		•	•		•	•		•	•			
Installation in			•			•		•				

Selection Table									
Auxiliary power			24 V AC / DC						
Min. nominal voltage	Max. nominal voltage	Max. nominal current I _N	Maximum voltage U ₀	Maximum current I ₀	Maximum power P ₀	Product Type	Art. No.	PS	Weight kg
4 V	5.6 V	160 mA	6.5 V	200 mA	1.3 W	9143/10-065-200-10s	159820 ▲	29	0.190
9.4 V	10.4 V	180 mA	11.4 V	200 mA	2.28 W	9143/10-114-200-10s	159788	29	0.190
9.5 V	11.8 V	130 mA	12.4 V	150 mA	1.86 W	9143/10-124-150-10s	159823 ▲	29	0.190
12.5 V	14.7 V	140 mA	15.6 V	160 mA	2.496 W	9143/10-156-160-10s	159797 ▲	29	0.190
Auxiliary power			110 / 115 / 230 V AC						
Min. nominal voltage	Max. nominal voltage	Max. nominal current I _N	Maximum voltage U ₀	Maximum current I ₀	Maximum power P ₀	Product Type	Art. No.	PS	Weight kg
12.5 V	14.7 V	140 mA	15.6 V	160 mA	2.496 W	9143/10-156-160-20s	159829 ▲	29	0.190

The order numbers listed in the table are for devices equipped with screw terminals.

Technical Data		
Variant	24 V AC / DC	110 / 115 / 230 V AC
Explosion Protection		
IECEx gas explosion protection	Ex nA [ib Gb] IIC/IIB T4 Gc	Ex [Ex ib Gb] IIC/IIB
IECEx dust explosion protection	[Ex ib Db] IIIC	[Ex ib Db] IIIC
IECEx firedamp protection	[Ex ib Mb] I	[Ex ib Mb] I
ATEX gas explosion protection	⊕ II 3 (2) G Ex nA [ib Gb] IIC/IIB T4 Gc	⊕ II (2) G Ex [Ex ib Gb] IIC/IIB
ATEX dust explosion protection	⊕ II (2) D [Ex ib Db] IIIC	⊕ II (2) D [Ex ib Db] IIIC

Technical Data		
Variant	24 V AC / DC	110 / 115 / 230 V AC
Explosion Protection		
ATEX firedamp protection	Ⓔ I (M2) [Ex ib Mb] I	Ⓔ I (M2) [Ex ib Mb] I
EAC gas explosion protection	Ⓔ 2 Ex nA [ib Gb] IIC/IIB T4 Gc X	Ⓔ [Ex ib Gb] IIC/IIB X
EAC dust explosion protection	Ⓔ [Ex ib Db] IIIC	Ⓔ [Ex ib Db] IIIC
Certificates	ATEX (BVS), Brazil (ULB), Canada / USA (CSA), EAC (STV), IECEx (BVS), India (PESO), Korea (KGS)	ATEX (BVS), Brazil (ULB), Canada / USA (CSA), EAC (STV), IECEx (BVS), India (PESO), Korea (KGS)
Ship approval	CCS, DNVGL	CCS, DNVGL
Installation	in Zone 2, 22 and in the safe area	in Zone 22 and in the safe area
Further information	see respective certificate and operating instructions	see respective certificate and operating instructions
Safety Data		
Safety-related maximum voltage	253 V	253 V
Auxiliary Power		
Auxiliary power voltage range	20 ... 28 V AC, 18 ... 35 V DC	85 ... 230 V AC
Ambient Conditions		
Ambient temperature	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)
Storage temperature	-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)
Accessories and spare parts see page 74		
Dimensional drawings see page 75		



- 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

WebCode **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.

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

	NEC 505 Class I			NEC 506		
Zone	0	1	2	20	21	22
Ex interface	•					
Installation in			•			

	NEC 500					
	Class I		Class II		Class III	
Division	1	2	1	2	1	2
Ex interface	•	•	•	•	•	•
Installation in		•				

Selection Table						
Number of channels	1					
Output signal	Limit contact (per channel)	Pulse output	Product Type	Art. No.	PS	Weight kg
0/4 – 20 mA	2 NO / NC	One configurable NO	9146/10-11-12s	159883 ▲	21	0.125
Number of channels	2					
Output signal	Limit contact (per channel)	Pulse output	Product Type	Art. No.	PS	Weight kg
0/4 – 20 mA	Without	Without	9146/20-11-11s	159886 ▲	21	0.135

The order numbers listed in the table are for devices equipped with screw terminals. Further versions on the Internet r-stahl.com.

Technical Data		
Variant	Number of channels 1	Number of channels 2
Explosion Protection		
IECEx gas explosion protection	Ex nA nC [ia Ga] IIC T4 Gc	Ex nA 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
ATEX gas explosion protection	Ⓔ II 3 (1) G Ex nA nC [ia Ga] IIC T4 Gc	Ⓔ II 3 (1) G Ex nA nC [ia Ga] IIC T4 Gc
ATEX dust explosion protection	Ⓔ II (1) D [Ex ia Da] IIIC	Ⓔ II (1) D [Ex ia Da] IIIC
ATEX firedamp protection	Ⓔ I (M1) [Ex ia Ma] I	Ⓔ I (M1) [Ex ia Ma] I
EAC gas explosion protection	Ⓕ 2Ex nA nC [ia Ga] IIC T4 Gc X	Ⓕ 2Ex nA nC [ia Ga] IIC T4 Gc X
EAC dust explosion protection	Ⓕ [Ex ia Da] IIIC	Ⓕ [Ex ia Da] IIIC

Technical Data		
Variant	Number of channels 1	Number of channels 2
Explosion Protection		
Certificates	ATEX (BVS), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), USA (FM)	ATEX (BVS), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), USA (FM)
Ship approval	CCS, DNVGL	CCS, DNVGL
Safety Data		
Maximum voltage U_o	10.5 V	10.5 V
Maximum current I_o	23.4 mA	23.4 mA
Maximum power P_o	61.4 mW	61.4 mW
Safety-related maximum voltage	253 V	253 V
Auxiliary Power		
Auxiliary power	24 V DC	24 V DC
Nominal current	55 mA	75 mA
Input		
Input signal	In accordance with EN 60947-5-6 (NAMUR)	In accordance with EN 60947-5-6 (NAMUR)
Input frequency	0.0010 – 20000 Hz	0.0010 – 20000 Hz
Message of line fault and auxiliary power failure	- Contact (30 V / 100 mA) closed to ground in case of fault - pac-Bus, floating contact (30 V / 100 mA)	- Contact (30 V / 100 mA) closed to ground in case of fault - pac-Bus, floating contact (30 V / 100 mA)
Ambient Conditions		
Ambient temperature	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Mounting / Installation		
Mounting type	NS35/15, NS35/7.5 DIN rail	NS35/15, NS35/7.5 DIN rail
Accessories and spare parts see page 74		
Dimensional drawings see page 75		



- 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 analysis 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.

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

	NEC 505 Class I			NEC 506		
Zone	0	1	2	20	21	22
Ex interface	•	•	•			
Installation in			•			•

	NEC 500					
	Class I		Class II		Class III	
Division	1	2	1	2	1	2
Ex interface	•	•	•	•	•	•
Installation in		•		•		•

Selection Table

Product variant		Vibration Transducer Supply Unit			
Number of channels	Product Type	Art. No.	PS	Weight kg	
1	9147/10-99-10s	212432 ▲	21	0.150	
2	9147/20-99-10s	212433 ▲	21	0.210	

The order numbers listed in the table are for devices equipped with screw terminals. Variants with a spring clamp terminal are available. Further versions on the Internet r-stahl.com.

Technical Data

Explosion Protection	
IECEx gas explosion protection	Ex nA [ja Ga] IIC T4 Gc
IECEx dust explosion protection	[Ex ia Da] IIIC
IECEx firedamp protection	[Ex ia Ma] I
ATEX gas explosion protection	⊕ II 3 (1) G Ex nA [ja Ga] IIC T4 Gc
ATEX dust explosion protection	⊕ II (1) D [Ex ia Da] IIIC
ATEX firedamp protection	⊕ I (M1) [Ex ia Ma] I
EAC gas explosion protection	⊕ 2 Ex nA [ja Ga] IIC T4 Gc X
EAC dust explosion protection	⊕ [Ex ia Da] IIIC
Certificates	ATEX (BVS), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), SIL (exida), USA (FM)
Ship approval	CCS, DNVGL
Installation	in Zone 2
Further information	see respective certificate and operating instructions

Technical Data	
Safety Data	
Maximum voltage U_o	26.3 V
Maximum current I_o	88.3 mA
Maximum power P_o	579 mW
Safety-related maximum voltage	253 V
Functional Safety	
SIL	2
Electrical Data	
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
Auxiliary Power	
Auxiliary power	24 V DC
Power dissipation max.	1.4 W
Input	
Input signal	-20 ... -0.5 V
Input functional range	-24 – 0 V
Input resistance	10 k Ω s
Output	
Output signal	-20 to -0.5 V
Signal transmission frequency range	0 – 50 kHz
Ambient Conditions	
Ambient temperature	-20 °C ... +70 °C (Single device) -20 °C ... +70 °C (Group assembly)
Storage temperature	-40 °C ... +80 °C
Mounting / Installation	
Mounting type	DIN rail (NS35/15, NS35/7.5)
Accessories and spare parts see page 74	
Dimensional drawings see page 75	



- Can be used universally for two- and three-conductor transmitters and mA sources (four-conductor transmitters)
- High degree of accuracy
- Standard variant can be used up to SIL 2, special variant up to SIL 3 (IEC/EN 61508)

WebCode **9160A**



9160 series Ex i transmitter power supply units can be used for the intrinsically safe operation of two- and three-conductor transmitters or intrinsically safe mA sources such as four-conductor transmitters. The unit allows HART signals to be transmitted in both directions. The portfolio includes one- and two-channel units and a variant for signal duplication. Special versions are available for higher output voltages and SIL 3.

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

	NEC 505 Class I			NEC 506		
Zone	0	1	2	20	21	22
Ex interface	•	•	•			
Installation in			•			•

	NEC 500					
	Class I		Class II		Class III	
Division	1	2	1	2	1	2
Ex interface	•	•	•	•	•	•
Installation in		•		•		•

Selection Table									
Product variant		Transmitter supply unit							
Number of channels	Output	Output A	Output B	LFD relay	SIL	Product Type	Art. No.	PS	Weight kg
1	0/4 ... 20 mA with HART	0/4 ... 20 mA	-	Yes	2	9160/13-11-11s	214895 ▲	21	0.195
		0/4 ... 20 mA	-	Yes	3	9160/13-11-13s	214897	21	0.195
		0/4 ... 20 mA	0/4 ... 20 mA (without HART)	Yes	2	9160/19-11-11s	220324 ▲	21	0.195
2	Passive with HART	Passive	Passive	No	2	9160/23-10-10s	214903	21	0.195
	0/4 ... 20 mA with HART	0/4 ... 20 mA	0/4 ... 20 mA	Yes	2	9160/23-11-11s	220322 ▲	21	0.200

LFD – line fault diagnosis
no – device transmits line fault on the field side via the 4 ... 20 mA signal. Without LED / relay contact.
yes – device transmits line fault on the field side via the 4 ... 20 mA signal. With LED / relay contact.

The order numbers listed in the table are for devices equipped with screw terminals.
Further versions on the Internet r-stahl.com.

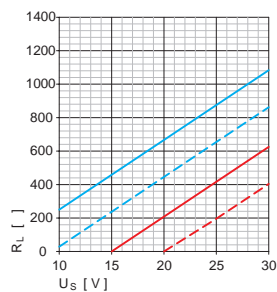
Technical Data		
Variant	9160/...-11 9160/...-13	9160/...-10
Explosion Protection		
IECEx gas explosion protection	Ex nA nC [ia Ga] IIC T4 Gc	Ex nA [ia Ga] IIC T4 Gc
IECEx dust explosion protection	[Ex ia Da] IIIC	[Ex ia Da] IIIC
IECEx firedamp protection	[Ex ia Ma] I	[Ex ia Ma] I

Technical Data		
Variant	9160/...-11 9160/...-13	9160/...-10
Explosion Protection		
ATEX gas explosion protection	⊕ II 3 (1) G Ex nA nC [ia Ga] IIC T4 Gc	⊕ II 3 (1) G Ex nA [ia Ga] IIC T4 Gc
ATEX dust explosion protection	⊕ II (1) D [Ex ia Da] IIIC	⊕ II (1) D [Ex ia Da] IIIC
ATEX firedamp protection	⊕ I (M1) [Ex ia Ma] I	⊕ I (M1) [Ex ia Ma] I
EAC gas explosion protection	⊕ 2 Ex nA nC [ia Ga] IIC T4 Gc X	⊕ 2 Ex nA [ia Ga] IIC T4 Gc X
EAC dust explosion protection	⊕ [Ex ia Da] IIIC	⊕ [Ex ia Da] IIIC
Certificates	ATEX (BVS), Brazil (ULB), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), Korea (KTL), Russia (Meteorological certificate), SIL (exida), USA (FM)	ATEX (BVS), Brazil (ULB), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), Korea (KTL), Russia (Meteorological certificate), SIL (exida), USA (FM)
Ship approval	CCS, DNVGL	CCS, DNVGL
Auxiliary Power		
Auxiliary power	24 V DC	24 V DC
Input		
Input	0/4 ... 20 mA with HART	0/4 ... 20 mA with HART
Input signal	0/4 ... 20 mA with HART	0/4 ... 20 mA with HART
Ex i input supply voltage for transmitter	≥ 16 V at 20 mA (for 2-wire)	≥ 16 V at 20 mA (for 2-wire)
Supply voltage for transmitter	≥ 16 V at 20 mA	≥ 16 V at 20 mA
Output		
Load resistance R_L	0 ... 600 Ω (terminal 1+ / 2- or 5+ / 6-) 0 ... 379 Ω (terminal 3+ / 2- or 4+ / 6-) (with internal 221 Ω resistor for HART)	
Load resistance R_L max. HART	379 Ω	See characteristic curve
Load R_L max. with resistor	379 Ω	
Load resistance R_L max.	600 Ω	
Load resistance R_L max. note	With internal 221 Ω resistor	
Temperature influence error limits	≤ 0,05 % / 10K	≤ 0,05 % / 10K
Deviation	≤ 0,1 %	≤ 0,1 %
Ambient Conditions		
Ambient temperature	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Mounting / Installation		
Mounting type	NS35/15, NS35/7.5 DIN rail	NS35/15, NS35/7.5 DIN rail

Load Resistance R_L

Output version (control) 0/4 ... 20 mA passive / sink with HART

Type 9160/...-10-10s



U_S supply voltage
 R_L load resistance
 R_{max} max. load resistance terminals 1, 2 & 5, 6
 R_{min} min. load resistance terminals 1, 2 & 5, 6
 $R_{max R}$ max. load resistance terminals 1, 3 & 4, 6
 $R_{min R}$ min. load resistance terminals 1, 3 & 4, 6

Accessories and spare parts see page 74

Dimensional drawings see page 75

A3



- Universal use for transmitters and mA sources (4-wire transmitter)
- Slim design – 12.5 mm wide – for one- and two-channel versions
- Can be used for safety levels up to SIL 2 (IEC/EN 61508)

WebCode **9260A**



Series 9260 Ex i transmitter supply units can be used for the intrinsically safe operation of transmitters or intrinsically safe mA sources such as 4-wire transmitters. The device allows HART signals to be transmitted in both directions. The portfolio includes one- and two-channel devices and a variant for signal duplication.

	ATEX / IECEx						NEC 505 Class I			NEC 506			NEC 500					
	0	1	2	20	21	22	0	1	2	20	21	22	Class I		Class II		Class III	
Zone													1	2	1	2	1	2
Ex interface	•	•	•	•	•	•	•	•	•				•	•	•	•	•	•
Installation in			•			•			•			•		•		•		•

Selection Table							
Output version (control)		0/4 ... 20 mA active / passive with HART					
Number of channels	Input signal	Output A	Output B	Product Type	Art. No.	PS	Weight kg
1	0/4 ... 20 mA with HART	0/4 ... 20 mA	-	9260/13-11-10s	261384 ▲	21	0.185
Output version (control)		0/4 ... 20 mA active / with HART					
Number of channels	Input signal	Output A	Output B	Product Type	Art. No.	PS	Weight kg
1	0/4 ... 20 mA with HART	0/4 ... 20 mA	0/4 ... 20 mA (without HART)	9260/19-11-10s	261385 ▲	21	0.195
2	4 ... 20 mA with HART	4 ... 20 mA	4 ... 20 mA	9260/23-11-10s	261386 ▲	21	0.195

Technical Data			
Variant	9260/13-11-10s	9260/19-11-10s	9260/23-11-10s
Explosion Protection			
IECEX gas explosion protection	Ex nA [ja Ga] IIC T4 Gc	Ex nA [ja Ga] IIC T4 Gc	Ex nA [ja Ga] IIC T4 Gc
IECEX dust explosion protection	[Ex ia Da] IIIC	[Ex ia Da] IIIC	[Ex ia Da] IIIC
IECEX firedamp protection	[Ex ia Ma] I		
ATEX gas explosion protection	⊕ II 3 (1) G Ex nA [ja Ga] IIC T4 Gc	⊕ II 3 (1) G Ex nA [ja Ga] IIC T4 Gc	⊕ II 3 (1) G Ex nA [ja Ga] IIC T4 Gc
ATEX dust explosion protection	⊕ II (1) D [Ex ia Da] IIIC	⊕ II (1) D [Ex ia Da] IIIC	⊕ II (1) D [Ex ia Da] IIIC
ATEX firedamp protection	⊕ I (M1) [Ex ia Ma] I		
Certificates	ATEX (BVS), Canada / USA (UL), IECEX (BVS), SIL (BVS)	ATEX (BVS), Canada / USA (UL), IECEX (BVS), SIL (BVS)	ATEX (BVS), Canada / USA (UL), IECEX (BVS), SIL (BVS)
Ship approval	DNVGL	DNVGL	DNVGL
Safety Data			
Maximum voltage U ₀	25.2 V	25.2 V	25.2 V

Technical Data			
Variant	9260/13-11-10s	9260/19-11-10s	9260/23-11-10s
Safety Data			
Maximum current I_o	93 mA	93 mA	93 mA
Maximum power P_o	587 mW	587 mW	587 mW
Safety-related maximum voltage	253 V AC	253 V AC	253 V AC
Functional Safety			
SIL	2	2	2
Electrical Data			
LFD relay	No	No	No
Input			
Input function	Isolation amplifier Transmitter power unit	Isolation amplifier Transmitter power unit	Transmitter power unit
Supply voltage for transmitter	≥ 16 V at 20 mA	≥ 16 V at 20 mA	≥ 16 V at 20 mA
Output			
Load resistance R_L max.	1000 Ω	450 Ω	450 Ω
Deviation	$\leq 0,1$ %	$\leq 0,1$ %	$\leq 0,1$ %
Temperature influence error limits	$< 0.1\%$ / 10 K	$< 0.1\%$ / 10 K	$< 0.1\%$ / 10 K
Ambient Conditions			
Ambient temperature	-20 °C ... +60 °C	-20 °C ... +60 °C	-20 °C ... +60 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Mounting / Installation			
Mounting type	NS35/15, NS35/7.5 DIN rail	NS35/15, NS35/7.5 DIN rail	NS35/15, NS35/7.5 DIN rail
Accessories and spare parts see page 74			
Dimensional drawings see page 75			

A3



- Compact limit value switch with two configurable limit values and output of 4 to 20 mA
- Bidirectional HART transmission
- Can be used up to SIL 2 (IEC/EN 61508)

WebCode **9162A**



9162 series Ex i transmitter power supply units with limit values can be used for the intrinsically safe operation of two- and three-conductor transmitters or for connecting to intrinsically safe mA sources. Two limit values can be easily set using the "ISpac Wizard" software. If the value exceeds or falls below these limit values, these units will issue an alert. A wire-breakage and short-circuit monitoring system affords increased availability.

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

	NEC 505 Class I			NEC 506		
Zone	0	1	2	20	21	22
Ex interface	•	•	•			
Installation in			•			•

	NEC 500					
	Class I		Class II		Class III	
Division	1	2	1	2	1	2
Ex interface	•	•	•	•	•	•
Installation in		•		•		•

Selection Table						
Number of channels	1					
Input	Output	Limit contact (per channel)	Product Type	Art. No.	PS	Weight kg
4 ... 20 mA with HART	4 ... 20 mA with HART	2 NOs	9162/13-11-14s	238251▲	21	0.225

The order numbers listed in the table are for devices equipped with screw terminals.
Further versions on the Internet r-stahl.com.

Technical Data	
Explosion Protection	
IECEx gas explosion protection	Ex nA nC [ia Ga] IIC T4 Gc
IECEx dust explosion protection	[Ex ia Da] IIIC
ATEX gas explosion protection	⊕ II 3 (1) G Ex nA nC [ia Ga] IIC T4 Gc
ATEX dust explosion protection	⊕ II (1) D [Ex ia Da] IIIC
EAC gas explosion protection	⊕ 2 Ex nA nC [ia Ga] IIC T4 Gc X
EAC dust explosion protection	⊕ [Ex ia Da] IIIC
Certificates	ATEX (BVS), Canada (FM), IECEx (BVS), India (PESO), SIL (exida), USA (FM)
Ship approval	CCS, DNVGL
Safety Data	
Maximum voltage U_o	27 V
Maximum current I_o	87.9 mA
Maximum power P_o	574 mW

Technical Data	
Safety Data	
Safety-related maximum voltage	253 V
Functional Safety	
SIL	2
Electrical Data	
Limiting values configuration	using ISpac wizard (V3.04 and following)
Auxiliary Power	
Auxiliary power	24 V DC
Nominal current	85 mA
Input	
Message of line fault and auxiliary power failure	- Contact (30 V / 100 mA) closed to ground in case of fault - pac-Bus, floating contact (30 V / 100 mA)
Output	
Output signal	4 ... 20 mA with HART
Load resistance R_L	0 ... 600 Ω (terminal 1+ / 2-)
Switching voltage limiting values	$\leq \pm 30$ V
Switching current limiting values	≤ 170 mA
Ambient Conditions	
Ambient temperature	-40 °C ... +70 °C (Single device) -40 °C ... +60 °C (Group assembly)
Storage temperature	-40 °C ... +80 °C
Mounting / Installation	
Mounting type	NS35/15, NS35/7.5 DIN rail
Accessories and spare parts see page 74	
Dimensional drawings see page 75	

A3

A3



- For installation in Zone 1 or Zone 2 hazardous areas (depending on the variant)
- Inputs can be intrinsically safe (Ex i), feature increased safety (Ex e) or be non-Ex
- Space-saving, 12-mm wide design

WebCode **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.

	ATEX / IECEx						NEC 505 Class I						NEC 506						NEC 500											
	0		1		2		20		21		22		0		1		2		20		21		22		Class I		Class II		Class III	
Zone																														
Ex interface	•		•		•		•		•		•		•		•		•		•		•		•		•		•		•	
Installation in			•		•																									

Selection Table							
Number of channels		1					
Input	Output	Product Type			Art. No.	PS	Weight kg
Ex e: 4 ... 20 mA HART (sink)	Ex i: passive HART (sink)	9164/13-20-06			224365 ▲	29	0.140
Ex i: 4 to 20 mA HART (sink)	Ex i: passive HART (sink)	9164/13-20-08			224364 ▲	29	0.090

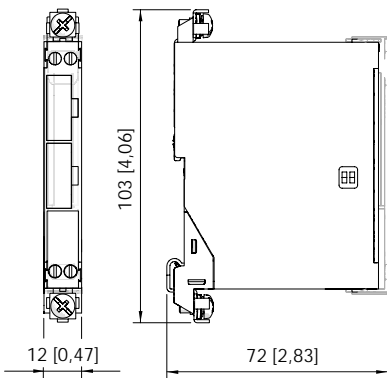
The transmission of the HART signal can be deactivated by means of a DIP switch.

Technical Data		
Variant	9164/13-20-06 Ex e input	9164/13-20-08 Ex i input
Explosion Protection		
IECEx gas explosion protection	Ex e mb [ia Ga] IIC T4 Gb	Ex ib [ia Ga] IIC T4 Gb
IECEx dust explosion protection	[Ex ia Da] IIIC	[Ex ia Da] IIIC
ATEX gas explosion protection	⊕ II 2 (1) G Ex e mb [ia Ga] IIC T4 Gb	⊕ II 2 (1) G Ex ib [ia Ga] IIC T4 Gb
ATEX dust explosion protection	⊕ II (1) D [Ex ia Da] IIIC	⊕ II (1) D [Ex ia Da] IIIC
EAC gas explosion protection	⊕ 1 Ex e mb [ia Ga] IIC T4 Gb X	⊕ 1 Ex ib [ia Ga] IIC T4 Gb
EAC dust explosion protection	⊕ [Ex ia Da] IIIC	⊕ [Ex ia Da] IIIC
Certificates	ATEX (BVS), EAC (TehnoP), IECEx (BVS), Russia (Meteorological certificate), SIL (exida)	ATEX (BVS), Canada (FM), EAC (TehnoP), IECEx (BVS), Russia (Meteorological certificate), SIL (exida), USA (FM)
Ship approval	CCS, DNVGL	CCS, DNVGL
Safety Data		
Max. voltage U _i	30 V	30 V
Max. current I _i	150 mA	150 mA

Technical Data		
Variant	9164/13-20-06 Ex e input	9164/13-20-08 Ex i input
Safety Data		
Max. power P_i	1000 mW	1000 mW
Functional Safety		
SIL	2	2
Auxiliary Power		
Auxiliary power	Without	Without
Input		
Input signal	3,8 ... 20,5 mA with HART	3,8 ... 20,5 mA with HART
Output		
Output signal	3,8 – 20,5 mA with HART	3,8 – 20,5 mA with HART
Ambient Conditions		
Ambient temperature	-40 °C ... +75 °C	-40 °C ... +75 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Mounting / Installation		
Mounting type	NS35/15, NS35/7.5 DIN rail	NS35/15, NS35/7.5 DIN rail

A3

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





- Compact one- and two-channel Ex i output isolating repeater
- Wire-breakage and short-circuit monitoring system, which can be disconnected and features a signalling contact
- Can be used up to SIL 2 (IEC/EN 61508)

WebCode **9165A**



9165 series Ex i isolating repeaters can be used for the intrinsically safe operation of control valves, I/P transducers or indicators. They transmit superimposed HART communication signals in both directions. The input, output and auxiliary power are galvanically separated from one another. The two channels in the two-channel variants are galvanically separated from one another.

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

	NEC 505 Class I			NEC 506		
Zone	0	1	2	20	21	22
Ex interface	•	•	•			
Installation in			•			•

	NEC 500					
Division	Class I		Class II		Class III	
Ex interface	1	2	1	2	1	2
Ex interface	•	•	•	•	•	•
Installation in		•		•		•

Selection Table						
Number of channels		1				
Input signal	Output signal	LFD relay	Product Type	Art. No.	PS	Weight kg
0/4 ... 20 mA with HART	0/4 ... 20 mA with HART	Yes	9165/16-11-11s	201270 ▲	21	0.180
4 ... 20 mA with HART	4 ... 20 mA with HART	No	9165/16-11-10s	207909 ▲	21	0.180
Number of channels		2				
Input signal	Output signal	LFD relay	Product Type	Art. No.	PS	Weight kg
0/4 ... 20 mA with HART	0/4 ... 20 mA with HART	Yes	9165/26-11-11s	201272 ▲	21	0.190

LFD - line fault diagnosis
 no - device transmits field-side line fault via 4 ... 20 mA signal and via LED. Function cannot be deactivated.
 yes - device transmits field-side line fault via 4 ... 20 mA signal via LED and relay contact.

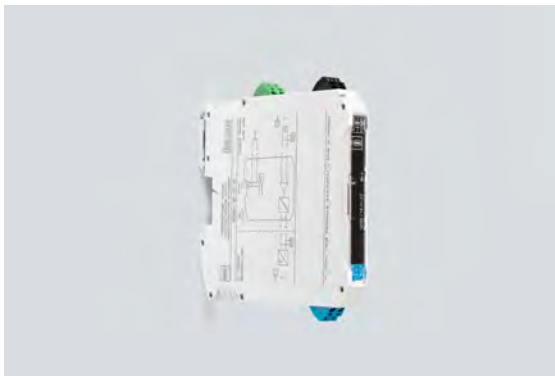
The order numbers listed in the table are for devices equipped with screw terminals.
 Further versions on the Internet r-stahl.com.

Technical Data	
Explosion Protection	
IECEx gas explosion protection	Ex nA nC [ia Ga] IIC T4 Gc
IECEx dust explosion protection	[Ex ia Da] IIIC
ATEX gas explosion protection	⊕ II 3 (1) G Ex nA nC [ia Ga] IIC T4 Gc
ATEX dust explosion protection	⊕ II (1) D [Ex ia Da] IIIC
EAC gas explosion protection	⊕ 2 Ex nA nC [ia Ga] IIC T4 Gc X

Technical Data	
Explosion Protection	
EAC dust explosion protection	II [Ex ia Da] IIIC
Certificates	ATEX (BVS), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), Korea (KTL), Russia (Meteorological certificate), SIL (exida), USA (FM)
Ship approval	CCS, DNVGL
Safety Data	
Maximum voltage U_o	25.6 V
Maximum current I_o	96 mA
Maximum power P_o	605 mW
Safety-related maximum voltage	253 V
Output	
Load resistance R_L	0 ... 800 Ω
Ambient Conditions	
Ambient temperature	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)
Storage temperature	-40 °C ... +80 °C
Mounting / Installation	
Mounting type	DIN rail (NS35/15, NS35/7.5)
Accessories and spare parts see page 74	
Dimensional drawings see page 75	

A3

A3



- Compact one- and two-channel Ex i output isolating repeater
- Space savings due to a slim design – 12.5 mm wide
- Can be used up to SIL 2 (IEC/EN 61508)

WebCode **9265A**



9265 series Ex i isolating repeaters can be used for the intrinsically safe operation of control valves, I/P transducers or indicators. They transmit superimposed HART communication signals in both directions. The input, output and auxiliary power are galvanically separated from one another. The two channels in the two-channel variants are galvanically separated from one another.

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

Selection Table

Isolating repeater							
Product variant	Input signal	Output signal	LFD relay	Product Type	Art. No.	PS	Weight kg
1	0/4 ... 20 mA with HART	0/4 ... 20 mA with HART	No	9265/16-11-10s	261403 ▲	21	0.185
2	0/4 ... 20 mA with HART	0/4 ... 20 mA with HART	No	9265/26-11-10s	261404	21	0.195

The order numbers listed in the table are for devices equipped with screw terminals. Further versions on the Internet r-stahl.com.

Technical Data

Variant	9265/16-11-10s	9165/26-11-10s
Explosion Protection		
IECEx gas explosion protection	Ex ec [ia Ga] IIC T4 Gc	Ex ec [ia Ga] IIC T4 Gc
IECEx dust explosion protection	[Ex ia Da] IIIC	[Ex ia Da] IIIC
IECEx firedamp protection	Ex [Ex ia Ma] I	Ex [Ex ia Ma] I
ATEX gas explosion protection	Ⓜ II 3 (1) G Ex ec [ia Ga] IIC T4 Gc	Ⓜ II 3 (1) G Ex ec [ia Ga] IIC T4 Gc
ATEX dust explosion protection	Ⓜ II (1) D [Ex ia Da] IIIC	Ⓜ II (1) D [Ex ia Da] IIIC
ATEX firedamp protection	Ⓜ I (M1) Ex [Ex ia Ma] I	Ⓜ I (M1) Ex [Ex ia Ma] I
Ship approval	DNVGL	
Safety Data		
Maximum voltage U_o	25.2 V	25.2 V
Maximum current I_o	93 mA	93 mA
Maximum power P_o	587 mW	587 mW

Technical Data		
Variant	9265/16-11-10s	9165/26-11-10s
Safety Data		
Safety-related maximum voltage	253 V	253 V
Output		
Load resistance R_L max.	700 Ω	700 Ω
Ambient Conditions		
Ambient temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C	-40 °C ... +85 °C
Mounting / Installation		
Mounting type	NS35/15, NS35/7.5 DIN rail	NS35/15, NS35/7.5 DIN rail
Accessories and spare parts see page 74		
Dimensional drawings see page 75		

A3

A3



- 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 and issue HART signals (0/4 to 20 mA) from the analogue output. They transmit superimposed HART communication signals in both directions.

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

	NEC 505 Class I			NEC 506		
Zone	0	1	2	20	21	22
Ex interface	•	•	•			
Installation in			•			•

	NEC 500					
	Class I		Class II		Class III	
Division	1	2	1	2	1	2
Ex interface	•	•	•	•	•	•
Installation in		•		•		•

Selection Table							
Product variant	Isolating Repeater Loop Powered						
Number of channels	Product Type				Art. No.	PS	Weight kg
1	9167/13-11-00s				160244 ▲	21	0.161
2	9167/23-11-00s				160247 ▲	21	0.182

The order numbers listed in the table are for devices equipped with screw terminals. Further versions on the Internet r-stahl.com.

Technical Data	
Explosion Protection	
IECEx gas explosion protection	Ex nA [ja Ga] IIC T4 Gc
IECEx dust explosion protection	[Ex ia Da] IIIC
ATEX gas explosion protection	Ⓔ II 3 (1) G Ex nA [ja Ga] IIC T4 Gc
ATEX dust explosion protection	Ⓔ II (1) D [Ex ia Da] IIIC
EAC gas explosion protection	Ⓕ 2 Ex nA [ja Ga] IIC T4 Gc X
EAC dust explosion protection	Ⓕ [Ex ia Da] IIIC
Certificates	ATEX (BVS), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), Russia (Meteorological certificate), SIL (exida), USA (FM), USA (UL)
Ship approval	CCS, DNVGL
Safety Data	
Maximum voltage U ₀	25 V
Maximum current I ₀	99 mA

Technical Data	
Safety Data	
Maximum power P_o	613 mW
Auxiliary Power	
Auxiliary power	Without
Input	
Input signal	0/4 ... 20 mA with HART
Input functional range	0 – 40 mA
Internal resistance R_i , at 20mA	380 Ω
Internal resistance R_i , at 40mA	330 Ω
Voltage drop additional	1 V
Output	
Output signal	0/4 ... 20 mA with HART
Output functional range	0 – 40 mA
Load resistance R_L max.	800 Ω
Open-circuit voltage U_o	25 V
Output short-circuit current	≤ 60 mA
Average measurement fault	0,35%
Temperature influence error limits	$\leq 0.1\%$ / 10 K
Ambient Conditions	
Ambient temperature	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)
Storage temperature	-40 °C ... +80 °C
Mounting / Installation	
Mounting type	DIN rail (NS35/15, NS35/7.5)
Accessories and spare parts see page 74	
Dimensional drawings see page 75	



- Can be used up to SIL 2 (IEC/EN 61508)
- Wire-breakage and short-circuit monitoring system, which can be disconnected and issues alerts
- Optional line error transparency: The device notifies the control system directly of any field-side line faults via the signal output.

WebCode **9170A**



9170 series Ex i switching repeaters can be used for operating contacts, NAMUR proximity sensors or opto-couplers. Models are available with one or two channels. The intrinsically safe digital input is always galvanically separated from the output and auxiliary power. The channels in the two-channel devices are galvanically separated. The devices transmit frequencies of up to 10 kHz, and the output signal can be inverted.

	ATEX / IECEx						NEC 505 Class I						NEC 506						NEC 500											
	0		1		2		20		21		22		0		1		2		20		21		22		Class I		Class II		Class III	
Zone	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Ex interface	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Installation in			•																											

Selection Table							
Output version (control)				Electronic (35 V / 50 mA)			
Number of channels	Auxiliary power	Output	Product Type	Art. No.	PS	Weight kg	
2	24 V DC	1 electronic output	9170/21-14-11s	203152 ▲	21	0.180	
Output version (control)				Electronic (35 V / 50 mA) with LFT (line fault transparency)			
Number of channels	Auxiliary power	Output	Product Type	Art. No.	PS	Weight kg	
2	24 V DC	1 LFT electronic output	9170/21-14-12s	203153	21	0.180	
Output version (control)				Power relay (250 V / 4 A)			
Number of channels	Auxiliary power	Output	Product Type	Art. No.	PS	Weight kg	
1	24 V DC	1 change-over contact - power relay	9170/11-12-11s	203285 ▲	21	0.180	
	110 – 230 V AC	2 change-over contacts - power relay	9170/11-13-21s	203294 ▲	21	0.180	
2	24 V DC	1 change-over contact - power relay	9170/21-12-11s	203147 ▲	21	0.225	
	110 – 230 V AC	1 change-over contact - power relay	9170/21-12-21s	203281 ▲	21	0.225	
Output version (control)				Signal relay (125 V / 1 A)			
Number of channels	Auxiliary power	Output	Product Type	Art. No.	PS	Weight kg	
1	24 V DC	2 change-over contacts - signal relay	9170/11-11-11s	203283 ▲	21	0.180	
2	24 V DC	1 change-over contact - signal relay	9170/21-10-11s	203143 ▲	21	0.225	
		2 NO - signal relays	9170/21-11-11s	203145 ▲	21	0.225	

LFT - line fault transparency
Device signals line fault on field side to the control directly via the signal output.

The order numbers listed in the table are for devices equipped with screw terminals.
Further versions on the Internet r-stahl.com.

A3

Technical Data			
Variant	Electronic (35 V / 50 mA)	Power relay (250 V / 4 A)	Signal relay (125 V / 1 A)
Explosion Protection			
IECEX gas explosion protection	Ex nA nC [ia Ga] IIC T4 Gc	Ex [Ex ia Ga] IIC	Ex nA nC [ia Ga] IIC T4 Gc
IECEX dust explosion protection	[Ex ia Da] IIIC	[Ex ia Da] IIIC	[Ex ia Da] IIIC
ATEX gas explosion protection	⊕ II 3 (1) G Ex nA nC [ia Ga] IIC T4 Gc	⊕ II (1) G Ex [Ex ia Ga] IIC	⊕ II 3 (1) G Ex nA nC [ia Ga] IIC T4 Gc
ATEX dust explosion protection	⊕ II (1) D [Ex ia Da] IIIC	⊕ II (1) D [Ex ia Da] IIIC	⊕ II (1) D [Ex ia Da] IIIC
EAC gas explosion protection	Ⓜ 2Ex nA nC [ia Ga] IIC T4 Gc X	Ⓜ [Ex ia Ga] IIC X	Ⓜ 2Ex nA nC [ia Ga] IIC T4 Gc X
EAC dust explosion protection	Ⓜ [Ex ia Da] IIIC	Ⓜ [Ex ia Da] IIIC	Ⓜ [Ex ia Da] IIIC
Certificates	ATEX (BVS), Brazil (ULB), Canada (FM), EAC (STV), IECEX (BVS), India (PESO), Korea (KGS), SIL (exida), USA (FM)	ATEX (BVS), Brazil (ULB), Canada (FM), EAC (STV), IECEX (BVS), India (PESO), Korea (KGS), SIL (exida), USA (FM)	ATEX (BVS), Brazil (ULB), Canada (FM), EAC (STV), IECEX (BVS), India (PESO), Korea (KGS), SIL (exida), USA (FM)
Ship approval	CCS, DNVGL	CCS, DNVGL	CCS, DNVGL
Installation	in Zone 2, Division 2 and in the safe area	in safe area	in Zone 2, Division 2 and in the safe area
Notes	see respective certificate and operating instructions		
Safety Data			
Maximum voltage U_0	9.6 V	9.6 V	9.6 V
Maximum current I_0	10 mA	10 mA	10 mA
Maximum power P_0	24 mW	24 mW	24 mW
Safety-related maximum voltage	253 V	253 V	253 V
Functional Safety			
SIL	2	2	2
Input			
Input signal	In accordance with EN 60947-5-6 (NAMUR)	In accordance with EN 60947-5-6 (NAMUR)	In accordance with EN 60947-5-6 (NAMUR)
Output			
Output switching frequency	10 kHz	6 Hz	15 Hz
Ambient Conditions			
Ambient temperature	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Mounting / Installation			
Mounting type	NS35/15, NS35/7.5 DIN rail	NS35/15, NS35/7.5 DIN rail	NS35/15, NS35/7.5 DIN rail
Accessories and spare parts see page 74			
Dimensional drawings see page 75			

A3



- Slim design – 12.5 mm wide – for one- and dual-channel versions
- Can be used for functional safety levels up to SIL 2 (IEC/EN 61508)
- Offers line fault detection with signalization

WebCode **9270A**



Series 9270 switching repeaters can be used for operating contacts, NAMUR proximity sensors or optocouplers. A relay output or electronic output transmits the signals to the control level. The intrinsically safe digital input is galvanically separated from the output and auxiliary power.

	ATEX / IECEx						NEC 505 Class I						NEC 506						NEC 500 Class I Class II Class III					
Zone	0	1	2	20	21	22	Zone	0	1	2	20	21	22	Division	1	2	1	2	1	2				
Ex interface	•	•	•	•	•	•	Ex interface	•						Ex interface	•	•	•	•	•	•				
Installation in			•			•	Installation in		•				Installation in		•									

Selection Table						
Output version (control)		Electronic (35 V / 50 mA)				
Number of channels	Output per channel	Product Type	Art. No.	PS	Weight kg	
1	2 electronic outputs	9270/11-19-15s	261412 ▲	21	0.160	
2	1 electronic output	9270/21-14-14s	261413 ▲	21	0.165	
Output version (control)		Relay (250 V / 2 A)				
Number of channels	Output per channel	Product Type	Art. No.	PS	Weight kg	
1	1 change-over contact	9270/11-16-14s	261409 ▲	21	0.160	
	2 NOs	9270/11-17-15s	261410 ▲	21	0.165	
2	1 NO	9270/21-17-14s	261411 ▲	21	0.170	

Technical Data		
Variant	Electronic (35 V / 50 mA)	Relay (250 V / 2 A)
Explosion Protection		
IECEx gas explosion protection	Ex nA Gc, [Ex ia Ga] IIC T4 Gc	Ex nA nC [Ex ia Ga] IIC T4 Gc
IECEx dust explosion protection	[Ex ia Da] IIIC	[Ex ia Da] IIIC
ATEX gas explosion protection	⊕ II 3 (1) G Ex nA Gc, [Ex ia Ga] IIC T4 Gc	⊕ II 3 (1) G Ex nA nC [Ex ia Ga] IIC T4 Gc
ATEX dust explosion protection	⊕ II (1) D [Ex ia Da] IIIC	⊕ II (1) D [Ex ia Da] IIIC
Certificates	ATEX (IBE), Canada / USA (UL), IECEx (IBE), SIL (exida)	ATEX (IBE), Canada / USA (UL), IECEx (IBE), SIL (exida)
Ship approval	DNVGL	DNVGL
Safety Data		
Maximum voltage U _o	9.6 V	9.6 V

Technical Data		
Variant	Electronic (35 V / 50 mA)	Relay (250 V / 2 A)
Safety Data		
Maximum current I_o	10 mA	10 mA
Maximum power P_o	25 mW	25 mW
Safety-related maximum voltage	253 V AC	253 V AC
Functional Safety		
SIL	2	2
Input		
Input signal	In accordance with EN 60947-5-6 (NAMUR)	In accordance with EN 60947-5-6 (NAMUR)
Output		
Output switching frequency	5 kHz	20 Hz
Output switching capacity	30 V DC	500 VA
Ambient Conditions		
Ambient temperature	-20 °C ... +60 °C	-20 °C ... +60 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Mounting / Installation		
Mounting type	NS35/15, NS35/7.5 DIN rail	NS35/15, NS35/7.5 DIN rail
Accessories and spare parts see page 74		
Dimensional drawings see page 75		

A3



- Binary input or output with two channels
- For separating intrinsically safe and non-intrinsically safe signal and control circuits
- Can be used up to SIL 2 (IEC/EN 61508)

WebCode **9172A**



The 9172 series relay module separates intrinsically safe and non-intrinsically safe binary signal and control circuits. To do this, it makes intrinsically safe inputs and outputs available with two channels. Depending on the version, the device has either an intrinsically safe drive or an intrinsically safe output contact, and can therefore be used as an output or input isolator.

	ATEX / IECEx						NEC 505 Class I						NEC 506						NEC 500													
	0		1		2		20		21		22		0		1		2		20		21		22		Division		Class I		Class II		Class III	
Zone	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
Ex interface	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
Installation in			•			•			•			•			•			•			•			•			•			•		

Selection Table						
Input signal		Switching signal input		Ex i 14 – 30 V		
Number of channels	Output	Product Type	Art. No.	PS	Weight	kg
2	Change-over contact - Ex i	9172/22-11-00s	169653	21	0.190	
	Change-over contact - power relay	9172/20-11-00s	160363 ▲	21	0.190	
Input		Switching signal input		Non-Ex i signal 12 – 31.2 V		
Number of channels	Output	Product Type	Art. No.	PS	Weight	kg
2	Change-over contact - Ex i	9172/21-11-00s	160369 ▲	21	0.190	

The order numbers listed in the table are for devices equipped with screw terminals. Further versions on the Internet r-stahl.com.

Technical Data		
Variant	Input signal: Ex i	Input signal: Non-Ex i signal
Explosion Protection		
IECEx gas explosion protection	Ex nA nC [ia Ga] IIC T4 Gc	Ex nA nC [ia Ga] IIC T4 Gc
IECEx dust explosion protection	[Ex ia Da] IIIC	[Ex ia Da] IIIC
ATEX gas explosion protection	Ⓜ II (1) G Ex nA nC [ia Ga] IIC T4 Gc	Ⓜ II 3 (1) G Ex nA nC [ia Ga] IIC T4 Gc
ATEX dust explosion protection	Ⓜ II (1) D [Ex ia Da] IIIC	Ⓜ II (1) D [Ex ia Da] IIIC
EAC gas explosion protection	Ⓜ 2 Ex nA nC [ia Ga] IIC T4 Gc X	Ⓜ 2 Ex nA nC [ia Ga] IIC T4 Gc X
EAC dust explosion protection	Ⓜ [Ex ia Da] IIIC	Ⓜ [Ex ia Da] IIIC

Technical Data		
Variant	Input signal: Ex i	Input signal: Non-Ex i signal
Explosion Protection		
Certificates	ATEX (BVS), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), SIL (exida), USA (FM), USA (UL)	ATEX (BVS), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), SIL (exida), USA (FM), USA (UL)
Ship approval	CCS, DNVGL	CCS, DNVGL
Installation	in Zone 2, Division 2 and in the safe area	in Zone 2, Division 2 and in the safe area
Further information	see respective certificate and operating instructions	see respective certificate and operating instructions
Safety Data		
Max. voltage U_i	30 V	
Max. current I_i	150 mA	
Max. power P_i	1.3 W	
Internal capacitance C_i	Negligible	Negligible
Internal inductance L_i	Negligible	Negligible
Safety-related maximum voltage	253 V	253 V
Functional Safety		
SIL	2	2
Auxiliary Power		
Power dissipation max.	0.4 W	0.4 W
Auxiliary power	Without	Without
Ambient Conditions		
Ambient temperature	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Mounting / Installation		
Mounting type	NS35/15, NS35/7.5 DIN rail	NS35/15, NS35/7.5 DIN rail
Accessories and spare parts see page 74		
Dimensional drawings see page 75		



- Comprehensive portfolio to cater for all characteristics
- Two-channel variants reduce the amount of space required
- Can be used up to SIL 3 (IEC/EN 61508)

WebCode **9175A**



9175 series binary outputs issue binary signals via one or two channels for the intrinsically safe operation of Ex i solenoid valves, indicator lamps or horns. The devices feature three-way galvanic separation. A wire-breakage and short-circuit monitoring system, which can be disconnected, directly monitors the state of the field circuit.

	ATEX / IECEx						NEC 505 Class I						NEC 506						NEC 500											
	0		1		2		20		21		22		0		1		2		20		21		22		Class I		Class II		Class III	
Zone	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Ex interface	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Installation in			•			•			•			•			•			•			•			•			•			•

Selection Table							
Number of channels	1						
Output open-circuit voltage U_o	Max. output current $I_{a \max}$	Internal Resistance R_i	Product Type	Art. No.	PS	Weight kg	
25 V	35 mA	250 Ω	9175/10-16-11s	160416 ▲	21	0.175	
Number of channels	2						
Output open-circuit voltage U_o	Max. output current $I_{a \max}$	Internal Resistance R_i	Product Type	Art. No.	PS	Weight kg	
17.5 V	Channels parallel: 90 mA*	130 Ω / 65 Ω *	9175/20-14-11s	160413	21	0.190	
25 V	Channels parallel: 70 mA*	250 Ω / 125 Ω *	9175/20-16-11s	160419 ▲	21	0.190	

* Parallel connection of the outputs possible; thus, doubling of the output current.

The order numbers listed in the table are for devices equipped with screw terminals. Further versions on the Internet r-stahl.com.

Technical Data		
Variant	Type 9175/20-14-11.	Type 9175/0-16-11.
Explosion Protection		
IECEx gas explosion protection	Ex nA nC [ia Ga] IIC T4 Gc	Ex nA nC [ia Ga] IIC T4 Gc
IECEx dust explosion protection	[Ex ia Da] IIIC	[Ex ia Da] IIIC
ATEX gas explosion protection	Ⓜ II 3 (1) G Ex nA nC [ia Ga] IIC T4 Gc	Ⓜ II 3 (1) G Ex nA nC [ia Ga] IIC T4 Gc
ATEX dust explosion protection	Ⓜ II (1) D [Ex ia Da] IIIC	Ⓜ II (1) D [Ex ia Da] IIIC
EAC gas explosion protection	Ⓜ 2 Ex nA nC [ia Ga] IIC T4 Gc X	Ⓜ 2 Ex nA nC [ia Ga] IIC T4 Gc X
EAC dust explosion protection	Ⓜ [Ex ia Da] IIIC	Ⓜ [Ex ia Da] IIIC

Technical Data		
Variant	Type 9175/20-14-11.	Type 9175/0-16-11.
Explosion Protection		
Certificates	ATEX (BVS), Brazil (ULB), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), Korea (KTL), SIL (exida), USA (FM), USA (UL)	ATEX (BVS), Brazil (ULB), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), Korea (KTL), SIL (exida), USA (FM), USA (UL)
Ship approval	CCS, DNVGL	CCS, DNVGL
Safety Data		
Maximum voltage U_o	19.6 V	27.6 V
Max. current I_o (Ex ia)	150 mA	110 mA
Max. current I_o (Ex ib)	60 mA	50 mA
Maximum power P_o	732 mW	760 mW
Safety-related maximum voltage	253 V	253 V
Functional Safety		
SIL	3	3
Auxiliary Power		
Auxiliary power	24 V DC	24 V DC
Nominal current	140 mA	80 mA
Input		
Input voltage for ON	15 – 31.2 V	15 – 31.2 V
Input voltage for OFF	0 – 5 V	0 – 5 V
Output		
Message of line fault and auxiliary power failure	- Contact (30 V / 100 mA) closed to ground in case of fault - pac-Bus, floating contact (30 V / 100 mA)	- Contact (30 V / 100 mA) closed to ground in case of fault - pac-Bus, floating contact (30 V / 100 mA)
Ambient Conditions		
Ambient temperature	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Mounting / Installation		
Mounting type	NS35/15, NS35/7.5 DIN rail	NS35/15, NS35/7.5 DIN rail
Accessories and spare parts see page 74		
Dimensional drawings see page 75		



- Space savings due to a slim design – 12.5 mm wide
- Can be used for functional safety levels up to SIL 3 (IEC/EN 61508)
- Offers line fault detection with signalization

WebCode **9275A**



Series 9275 digital outputs issue signals for the intrinsically safe operation of Ex i solenoid valves, indicator lamps or horns. The devices feature three-way galvanic separation.

	ATEX / IECEx						NEC 505						NEC 506						NEC 500					
	Class I		Class II		Class III		Class I		Class II		Class III		Class I		Class II		Class III							
Zone	0	1	2	20	21	22	0	1	2	20	21	22	0	1	2	20	21	22	1	2	1	2	1	2
Ex interface	•	•	•	•	•	•	•	•	•				•	•	•	•	•	•	•	•	•	•	•	•
Installation in			•			•			•			•			•			•			•			•

Selection Table							
Number of channels	1						
Output open-circuit voltage U_o	Max. output current $I_{o,max}$	Output internal resistance R_i	LFD relay	Product Type	Art. No.	PS	Weight kg
21.1 V	25.1 mA	641 Ω	Yes	9275/10-21-25-11s	261434 ▲	21	0.160
24.3 V	48 mA	297 Ω	Yes	9275/10-24-48-11s	261435 ▲	21	0.160

Technical Data		
Variant	9275/10-21-25-11s	9275/10-24-48-11s
Explosion Protection		
IECEx gas explosion protection	Ex nA [ia Ga] IIC T4 Gc	Ex nA [ia Ga] IIC T4 Gc
IECEx dust explosion protection	[Ex ia Da] IIIC	[Ex ia Da] IIIC
ATEX gas explosion protection	⊕ II 3 (1) G Ex nA [ia Ga] IIC T4 Gc	⊕ II 3 (1) G Ex nA [ia Ga] IIC T4 Gc
ATEX dust explosion protection	⊕ II (1) D [Ex ia Da] IIIC	⊕ II (1) D [Ex ia Da] IIIC
Certificates	ATEX (IBE), Canada / USA (UL), IECEx (IBE), SIL (BVS)	ATEX (IBE), Canada / USA (UL), IECEx (IBE), SIL (BVS)
Ship approval	DNVGL	DNVGL
Safety Data		
Maximum voltage U_o	23.98 V	27.06 V
Max. current I_o (Ex ia)	37.4 mA	91.11 mA
Maximum power P_o	224 mW	616 mW
Safety-related maximum voltage	253 V AC	253 V AC
Functional Safety		
SIL	3	3
Auxiliary Power		
Auxiliary power	24 V DC	24 V DC
Nominal current	50 mA	90 mA

Technical Data		
Variant	9275/10-21-25-11s	9275/10-24-48-11s
Auxiliary Power		
Power consumption	1.2 W	2.16 W
Polarity reversal protection	Yes	Yes
Input		
Input voltage for ON	15 – 30 V	15 – 30 V
Input voltage for OFF	0 – 5 V	0 – 5 V
Output		
Switching capacity fault message contact	30 V / 50 mA	30 V / 50 mA
Ambient Conditions		
Ambient temperature	-20 °C ... +60 °C	-20 °C ... +60 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Mounting / Installation		
Mounting type	NS35/15, NS35/7.5 DIN rail	NS35/15, NS35/7.5 DIN rail
Accessories and spare parts see page 74		
Dimensional drawings see page 75		

A3



- Comprehensive portfolio to cater for all characteristics
- Two-channel variants reduce the amount of space required
- Can be used up to SIL 3 (IEC/EN 61508)

WebCode **9176A**



9176 series binary outputs issue binary signals for the intrinsically safe operation of Ex i solenoid valves, indicator lamps or horns. The devices do not require a separate auxiliary power supply as they are powered by the control circuit. The intrinsically safe outputs are galvanically separated from the inputs. The two-channel variants are characterised by galvanically separated channels.

	ATEX / IECEx						NEC 505 Class I						NEC 506						NEC 500													
	0		1		2		20		21		22		0		1		2		20		21		22		Division		Class I		Class II		Class III	
Zone	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
Ex interface	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
Installation in			•			•			•			•			•			•			•			•			•			•		

Selection Table							
Number of channels	1						
Output open-circuit voltage U_o	Max. output current $I_{a \max}$	Internal Resistance R_i	Product Type	Art. No.	PS	Weight kg	
25 V	35 mA	250 Ω	9176/10-16-00s	222182	21	0.170	
Number of channels	2						
Output open-circuit voltage U_o	Max. output current $I_{a \max}$	Internal Resistance R_i	Product Type	Art. No.	PS	Weight kg	
25 V	29 mA / 58 mA*	320 Ω / 160 Ω *	9176/20-15-00s	222180	21	0.185	
	35 mA / 70 mA*	250 Ω / 125 Ω *	9176/20-16-00s	222184	21	0.185	

The order numbers listed in the table are for devices equipped with screw terminals. Further versions on the Internet r-stahl.com.

* Parallel connection of the outputs possible; thus, doubling of the output current.

Technical Data		
Variant	9176/20-15-00s	9176/0-16-00s
Explosion Protection		
IECEx gas explosion protection	Ex nA [ia Ga] IIC T4 Gc	Ex nA [ia Ga] IIC T4 Gc
IECEx dust explosion protection	[Ex ia Da] IIC	[Ex ia Da] IIC
ATEX gas explosion protection	Ⓔ II 3 (1) G Ex nA [ia Ga] IIC T4 Gc	Ⓔ II 3 (1) G Ex nA [ia Ga] IIC T4 Gc
ATEX dust explosion protection	Ⓔ II (1) D [Ex ia Da] IIC	Ⓔ II (1) D [Ex ia Da] IIC
EAC gas explosion protection	Ⓕ 2 Ex nA [ia Ga] IIC T4 Gc X	Ⓕ 2 Ex nA [ia Ga] IIC T4 Gc X
EAC dust explosion protection	Ⓕ [Ex ia Da] IIC	Ⓕ [Ex ia Da] IIC

Technical Data		
Variant	9176/20-15-00s	9176/0-16-00s
Explosion Protection		
Certificates	ATEX (BVS), Brazil (ULB), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), Korea (KTL), SIL (exida), USA (FM)	ATEX (BVS), Brazil (ULB), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), Korea (KTL), SIL (exida), USA (FM)
Ship approval	CCS, DNVGL	CCS, DNVGL
Safety Data		
Maximum voltage U_o	27.6 V	27.6 V
Max. current I_o (Ex ia)	86.5 mA	110 mA
Max. current I_o (Ex ib)	44 mA	50 mA
Maximum power P_o	596 mW	760 mW
Safety-related maximum voltage	253 V	253 V
Functional Safety		
SIL	3	3
Auxiliary Power		
Auxiliary power	Without	Without
Input		
Input voltage for ON	18 – 31.2 V	18 – 31.2 V
Input voltage for OFF	0 – 5 V	0 – 5 V
Output		
Notes	Output characteristics, see data sheet on the Internet r-stahl.com	
Ambient Conditions		
Ambient temperature	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Mounting / Installation		
Mounting type	NS35/15, NS35/7.5 DIN rail	NS35/15, NS35/7.5 DIN rail
Accessories and spare parts see page 74		
Dimensional drawings see page 75		



- A comprehensive portfolio for a wide range of solenoid valves
- Space savings due to a slim design – 12.5 mm wide
- Can be used for functional safety levels up to SIL 3 (IEC/EN 61508)

WebCode **9276A**



Series 9276 digital outputs issue signals for the intrinsically safe operation of Ex i solenoid valves, indicator lamps or horns. The devices do not require a separate auxiliary power supply as they are powered by the control circuit. The intrinsically safe outputs are galvanically separated from the inputs.

	ATEX / IECEx						NEC 505 Class I						NEC 506						NEC 500													
	0		1		2		20		21		22		0		1		2		20		21		22		Division		Class I		Class II		Class III	
Zone	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
Ex interface	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
Installation in			•			•			•			•			•			•			•			•			•			•		

Selection Table								
Number of channels	1							
Maximum voltage U ₀	Max. current I ₀ (Ex ia)	Maximum power P ₀	Output internal resistance R _i	Max. output current I _{0,max}	Product Type	Art. No.	PS	Weight kg
25.1 V	39 mA	245 mW	641.1 Ω	25 mA	9276/10-21-25-00s	261440 ▲	21	0.165
	87 mA	550 mW	287 Ω	40 mA	9276/10-21-40-00s	261441 ▲	21	0.165
	188 mA	1180 mW	133.4 Ω	58 mA	9276/10-21-60-00s	261443 ▲	21	0.165
27.7 V	101 mA	697 mW	275.5 Ω	48 mA	9276/10-24-48-00s	261442 ▲	21	0.165

Technical Data		
Variant	9276/10-21-25-00s, 9276/10-21-40-00s, 9276/10-24-48-00s	9276/10-21-60-00s
Explosion Protection		
IECEx gas explosion protection	Ex nA [ja Ga] IIC T4 Gc	Ex nA [ja IIB Ga] IIC T4 Gc
IECEx dust explosion protection	[Ex ia Da] IIIC	[Ex ia Da] IIIC
ATEX gas explosion protection	⊕ II 3 (1) G Ex nA [ja Ga] IIC T4 Gc	⊕ II 3 (1) G Ex nA [ja IIB Ga] IIC T4 Gc
ATEX dust explosion protection	⊕ II (1) D [Ex ia Da] IIIC	⊕ II (1) D [Ex ia Da] IIIC
Certificates	ATEX (IBE), Canada / USA (UL), IECEx (IBE), SIL (exida)	ATEX (IBE), Canada / USA (UL), IECEx (IBE), SIL (exida)
Ship approval	DNVGL	DNVGL
Safety Data		
Safety-related maximum voltage	253 V AC	253 V AC
Functional Safety		
SIL	3	3
Auxiliary Power		
Auxiliary power	Without	Without

Technical Data		
Variant	9276/10-21-25-00s, 9276/10-21-40-00s, 9276/10-24-48-00s	9276/10-21-60-00s
Input		
Input voltage for ON	15 – 30 V	15 – 30 V
Input voltage for OFF	0 – 5 V	0 – 5 V
Ambient Conditions		
Ambient temperature	-40 °C ... +60 °C	-40 °C ... +60 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Mounting / Installation		
Mounting type	NS35/15, NS35/7.5 DIN rail	NS35/15, NS35/7.5 DIN rail
Accessories and spare parts see page 74		
Dimensional drawings see page 75		

A3



- Ex i resistance isolator for Pt100 or Pt1000
- World's only two-channel device requiring just 8.8 mm of space per channel
- For two-, three- and four-conductor connection

WebCode **9180A**



9180 series Ex i resistance isolators can be used for the intrinsically safe operation of Pt100 or Pt1000 resistance temperature detectors. The resistance measured at the input is transmitted to the output and can thereby be measured by an I/O card. The auxiliary power, output and intrinsically safe input are galvanically separated.

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

	NEC 505 Class I			NEC 506		
Zone	0	1	2	20	21	22
Ex interface	•	•	•			
Installation in			•			•

	NEC 500					
	Class I		Class II		Class III	
Division	1	2	1	2	1	2
Ex interface	•	•	•	•	•	•
Installation in		•		•		•

Selection Table						
Number of channels	1					
Measuring range	Medium resolution input	Input for resistance temperature detector	Product Type	Art. No.	PS	Weight kg
18 ... 391 Ω	0.01 Ω	Pt 100	9180/10-77-11s	160491 ▲	21	0.160
180 ... 3910 Ω	0.1 Ω	Pt 1000	9180/11-77-11s	160499 ▲	21	0.160
Number of channels	2					
Measuring range	Medium resolution input	Input for resistance temperature detector	Product Type	Art. No.	PS	Weight kg
18 ... 391 Ω	0.01 Ω	Pt 100	9180/20-77-11s	160494 ▲	21	0.180
180 ... 3910 Ω	0.1 Ω	Pt 1000	9180/21-77-11s	160502 ▲	21	0.180

The order numbers listed in the table are for devices equipped with screw terminals. Further versions on the Internet r-stahl.com.

Technical Data	
Explosion Protection	
IECEx gas explosion protection	Ex nA nC [ia Ga] IIC T4 Gc
IECEx dust explosion protection	[Ex ia Da] IIIC
ATEX gas explosion protection	⊕ II 3 (1) G Ex nA nC [ia Ga] IIC T4 Gc
ATEX dust explosion protection	⊕ II (1) D [Ex ia Da] IIIC
EAC gas explosion protection	⊕ 2 Ex nA nC [ia Ga] IIC T4 Gc X
EAC dust explosion protection	⊕ [Ex ia Da] IIIC
Certificates	ATEX (BVS), Brazil (ULB), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), Korea (KTL), Russia (Meteorological certificate), USA (FM)

Technical Data	
Explosion Protection	
Ship approval	CCS, DNVGL
Safety Data	
Maximum voltage U_o	6.5 V
Maximum current I_o	16.4 mA
Maximum power P_o	27 mW
Safety-related maximum voltage	253 V
Auxiliary Power	
Auxiliary power	24 V DC
Input	
Message of line fault and auxiliary power failure	- Contact (30 V / 100 mA) closed to ground in case of fault - pac-Bus, floating contact (30 V / 100 mA)
Output	
Output signal	Equal to input signal (resistor)
Settling time output	< 10 ms
Response time output	< 1 s
Ambient Conditions	
Ambient temperature	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)
Storage temperature	-40 °C ... +80 °C
Mounting / Installation	
Mounting type	NS35/15, NS35/7.5 DIN rail
Accessories and spare parts see page 74	
Dimensional drawings see page 75	



- Ex i temperature transmitter, can be configured for virtually any common sensor type
- Broad range, including variants with signal conversion and trip amplifier function
- Can be used up to SIL 2 (IEC/EN 61508)

WebCode **9182A**



9182 series Ex i temperature transmitters for field circuits can be used to connect temperature sensors and potentiometers. They are easy to configure for virtually any sensor type by means of software or a DIP switch. These sensor types include Pt100 sensors, thermocouples and potentiometers. Variants with a trip amplifier function allow the input signal to be analysed using two independent contacts.

	ATEX / IECEx						NEC 505 Class I						NEC 506						NEC 500					
	0		1		2		20		21		22		20		21		22		Class I		Class II		Class III	
Zone	0	1	2	20	21	22	0	1	2	20	21	22	0	1	2	20	21	22	1	2	1	2	1	2
Ex interface	•	•	•	•	•	•	•	•	•				•	•	•				•	•	•	•	•	•
Installation in			•			•			•			•			•			•			•			•

Selection Table							
Output		0/4 ... 20 mA active / source					
Number of channels	Limit contact (per channel)	Load resistance R _L max.	SIL	Product Type	Art. No.	PS	Weight kg
1	2 NO / NC	750 Ω	2	9182/10-51-14s	201682 ▲	21	0.170
	Without	750 Ω	-	9182/10-51-11s	160546 ▲	21	0.195
	Without	750 Ω	2	9182/10-51-13s	201653 ▲	21	0.170
2	Without	600 Ω	-	9182/20-51-11s	160541 ▲	21	0.195

Signal duplication due to parallel connection of inputs (dual-channel version 9182/2). Further information see operating instruction.

The order numbers listed in the table are for devices equipped with screw terminals. Further versions on the Internet r-stahl.com.

Technical Data	
Explosion Protection	
IECEx gas explosion protection	Ex nA nC [ia Ga] IIC T4 Gc
IECEx dust explosion protection	[Ex ia Da] IIIC
ATEX gas explosion protection	⊕ II 3 (1) G Ex nA nC [ia Ga] IIC T4 Gc
ATEX dust explosion protection	⊕ II (1) D [Ex ia Da] IIIC
EAC gas explosion protection	⊕ 2 Ex nA nC [ia Ga] IIC T4 Gc X
EAC dust explosion protection	⊕ [Ex ia Da] IIIC
Certificates	ATEX (BVS), Brazil (ULB), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), Korea (KTL), Russia (Meteorological certificate), SIL (exida), USA (FM), USA (UL)
Ship approval	CCS, DNVGL

Technical Data	
Safety Data	
Maximum voltage U_o	6.5 V
Maximum current I_o	19.7 mA
Maximum power P_o	32 mW
Safety-related maximum voltage	253 V
Auxiliary Power	
Auxiliary power	24 V DC
Input	
Input potentiometer	up to 100 k Ω
Input resistance temperature detector (RTD)	Types Pt 100, Pt 500, Pt 1000, Ni 100, Ni 500, Ni 1000
Input resistance temperature detector (RTD) Connection type	2-, 3-, 4-wire circuit
Input thermocouple	Types B, E, J, K, N, R, S, T, L, U, XK
Message of line fault and auxiliary power failure	- Contact (30 V / 100 mA) closed to ground in case of fault - pac-Bus, floating contact (30 V / 100 mA)
Ambient Conditions	
Ambient temperature	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)
Storage temperature	-40 °C ... +80 °C
Mounting / Installation	
Mounting type	NS35/15, NS35/7.5 DIN rail
Accessories and spare parts see page 74	
Dimensional drawings see page 75	



- Ex i temperature transmitter, can be configured for virtually any common sensor type
- Space savings due to a slim design – 12.5 mm wide
- Can be used up to SIL 2 (IEC/EN 61508)

WebCode **9282A**



9282 series temperature transmitters for Ex i field circuits can be used to connect temperature sensors and potentiometers. The devices are easy to configure for virtually any sensor type by means of software. These sensor types include Pt100 sensors, thermocouples and potentiometers. The devices feature three-way galvanic separation.

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

Selection Table

Number of channels	1			
Signal type	Product Type	Art. No.	PS	Weight kg
RTD, potentiometer	9282/11-51-16s	261452	21	0.170
Thermocouple, mV-source	9282/12-51-16s	261453	21	0.175

In the scope of delivery of 9282/12-51-16, a Pt100 is included as cold junction compensation, for mounting on the terminal. Alternatively, cold junction compensation 9191/VS-04 is also available (see accessories and spare parts section).

The order numbers listed in the table are for devices equipped with screw terminals. Further versions on the Internet r-stahl.com.

Parameterisation adapter (software is readily available to download online at r-stahl.com, WebCode: 9282A), see accessories and spare parts page 74

Technical Data

Variant	9282/11-51-16s	9282/12-51-16s
Explosion Protection		
IECEx gas explosion protection	Ex ec ic [ia Ga] IIC T4 Gc	Ex ec ic [ia Ga] IIC T4 Gc
IECEx dust explosion protection	[Ex ia Da] IIIC	[Ex ia Da] IIIC
IECEx firedamp protection	Ex [Ex ia Ma] I	Ex [Ex ia Ma] I
ATEX gas explosion protection	⊕ II 3 (1) G Ex ec ic [ia Ga] IIC T4 Gc	⊕ II 3 (1) G Ex ec ic [ia Ga] IIC T4 Gc
ATEX dust explosion protection	⊕ II (1) D [Ex ia Da] IIIC	⊕ II (1) D [Ex ia Da] IIIC
ATEX firedamp protection	⊕ I (M1) Ex [Ex ia Ma] I	⊕ I (M1) Ex [Ex ia Ma] I
Certificates	ATEX (IBE)	ATEX (IBE)
Ship approval	DNVGL	DNVGL

Technical Data		
Variant	9282/11-51-16s	9282/12-51-16s
Safety Data		
Maximum voltage U_o	6 V	6 V
Maximum current I_o	16.8 mA	16.8 mA
Maximum power P_o	25.2 mW	25.2 mW
Safety-related maximum voltage	253 V	253 V
Functional Safety		
SIL	2	2
Auxiliary Power		
Auxiliary power	24 V DC	24 V DC
Input		
Input thermocouple	—	J, K, E, R, S, T, B, N (IEC 584), C, D (ASTM), U, L (DIN 43710), L, A1, A2, A3, M (GOST 8.585)
Input resistance temperature detector (RTD)	Pt 50, Pt 100, Pt 200, Pt 500, Pt 100S, Pt 500S, Ni 100, Ni 500, Cu 50, Cu 53	—
Input resistance temperature detector (RTD) Connection type	2-, 3-, 4-wire connection	—
Input potentiometer	up to 50 k Ω	—
Output		
Output	0/4 ... 20 mA active / source	0/4 ... 20 mA active / source
Load resistance R_l max.	600 Ω	600 Ω
Ambient Conditions		
Ambient temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Mounting / Installation		
Mounting type	NS35/15, NS35/7.5 DIN rail	NS35/15, NS35/7.5 DIN rail
Accessories and spare parts see page 74		
Dimensional drawings see page 75		



- Multiplexers for HART field devices with 32 channels
- Simple application: HART Mux master and HART Mux slave in one device
- Can be used up to SIL 3

WebCode **9192A**



The 9192 series HART multiplexer can connect up to 32 HART-capable field devices, such as transmitters or control valves, to asset management systems via RS-485 bus. The HART multiplexer is the ideal solution if you want to operate asset management systems and distributed control systems from different manufacturers in parallel or for enabling HART communication when using a PLC.

	ATEX / IECEx					
Zone	0	1	2	20	21	22
Installation in			•			•

	NEC 505 Class I			NEC 506		
Zone	0	1	2	20	21	22
Installation in			•			•

	NEC 500					
	Class I		Class II		Class III	
Division	1	2	1	2	1	2
Installation in		•		•		•

Selection Table

Product Description	HART multiplexer ISpac		
Product Type	Art. No.	PS	Weight kg
9192/32-10-10	160695 ▲	21	0.100

- incl. 14-core connection cable for pac-Carrier Series 9195 or HART connection board Series 9196

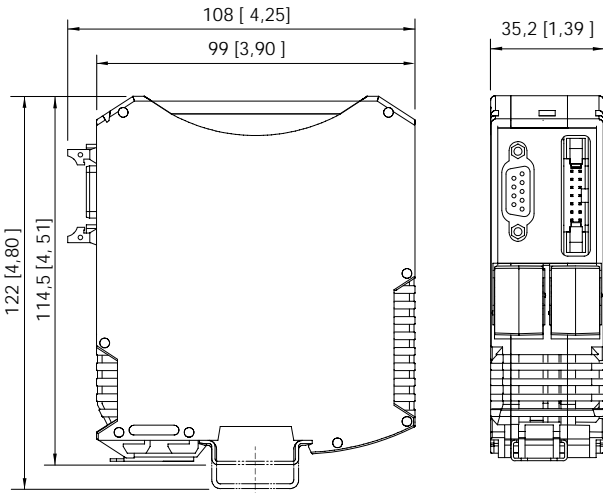
- CommDTM available, download under the given WebCode 9192A

Technical Data

Explosion Protection	
IECEx gas explosion protection	Ex nA IIC T4 Gc
ATEX gas explosion protection	Ⓔ II 3 G Ex nA IIC T4 Gc
EAC gas explosion protection	Ⓔ 2 Ex nA IIC T4 Gc X
Certificates	ATEX (BVS), Brazil (ULB), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), SIL (exida), USA (FM)
Ship approval	CCS, DNVGL
Electrical Data	
Connection RS485 Interface	Sub-D socket, 9-pole
Protocol RS-485 Interface	Compatible with Cornerstone Occupational safety & health management system PDM PRM FDM
HART-multiplexer RS-485 interface	Max. 31 (per bus segment)
Number of RS-485 interfaces	1
Number of channels field device interface (HART)	16 or 32, setting via switch

Technical Data	
Electrical Data	
Connection field device interface (HART)	Ribbon cable, 14-pole (inclusive)
Signal field device interface (HART)	HART FSK
Specification field device interface (HART)	HART Field Communication Protocol Rev. 7.x (downwards compatible to Rev. 4.0); FSK Physical Layer Specification (Rev. 7.x)
Auxiliary Power	
Auxiliary power	24 V DC
Ambient Conditions	
Ambient temperature	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)
Storage temperature	-40 °C ... +80 °C
Mounting / Installation	
Mounting type	DIN rail (NS35/15, NS35/7.5)
Accessories and spare parts on the Internet r-stahl.com	

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





- Redundant supply for increased availability
- DIP switch makes adjusting operating statuses easy
- Can be used for ISpac Series 91xx und 92xx

WebCode 9193A

The 9193 series supply module supplies the pac bus with auxiliary power and reads any line fault messages or auxiliary power failures for all of the ISpac devices installed on the pac bus. The supply current of up to 4 A is sufficient for approximately 30-50 modules. Power can be supplied using a single or redundant system. The device is provided with an interchangeable fuse.

Selection Table

Product Description		Supply module ISpac		
Supply	Product Type	Art. No.	PS	Weight kg
24 V / 4 A, primary + redundant	9193/21-11-11s	268183 ▲	29	0.135

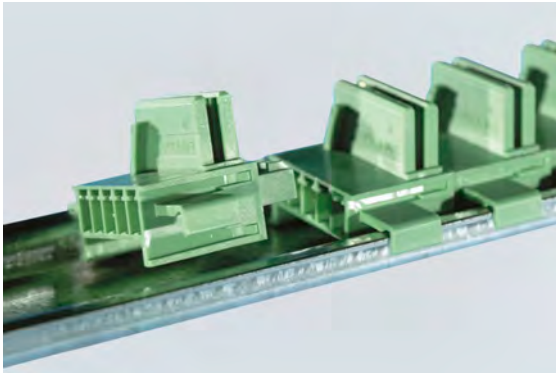
The order numbers listed in the table are for devices equipped with screw terminals.
Further versions on the Internet r-stahl.com

Technical Data

Auxiliary Power	
Auxiliary power	24 V DC
Auxiliary power voltage range	18 ... 31,2 V
Output	
Output	24 V / max. 4 A, supply via pac-Bus
Collective error message	35 V / 100 mA relay contact
Ambient Conditions	
Ambient temperature	-40 °C ... +70 °C (Single device) -40 °C ... +55 °C (Group assembly)
Storage temperature	-40 °C ... +80 °C
Mounting / Installation	
Mounting type	NS35/15, NS35/7.5 DIN rail

Accessories and spare parts see page 74

Dimensional drawings see page 75



- ISpac devices are quick to wire, reducing costs
- Can be installed on standard DIN rails without tools by simply snapping into place – can be expanded at any time
- Suitable for industrial environments subject to vibration

A3

WebCode **9194A**



The 9194 series pac bus supplies 30 to 50 ISpac devices of the 91xx series per pac bus segment with auxiliary power and receives error messages from these devices via a zero-potential contact. It is quick and easy to install on high- or low-profile DIN rails without the need for tools, and can be expanded at any time. The system is mechanically highly robust, making it perfect for industrial environments.

The pac-Bus 9194/31-17 can be combined with pac-Bus 9294/31-12.

	ATEX / IECEx					
Zone	0	1	2	20	21	22
Installation in			•			•

	NEC 505 Class I			NEC 506		
Zone	0	1	2	20	21	22
Installation in			•			•

	NEC 500					
	Class I		Class II		Class III	
Division	1	2	1	2	1	2
Installation in		•		•		•

Selection Table						
Product Description		pac-Bus single element ISpac				
Figure	Description	Grid dimension	Product Type	Art. No.	PS	Weight kg
	Wiring auxiliary power and collective error message	17.6 mm	9194/31-17	160731 ▲	21	0.004
Product Description		pac-Bus terminal set ISpac				
Figure	Description	Grid dimension	Product Type	Art. No.	PS	Weight kg
	For the supply of 24 V DC auxiliary power via terminals (alternative to using the supply module 9193/21-11-11), with jumper for error message chain for ISpac module 91xx	-	9194/50-01	160730 ▲	21	0.008

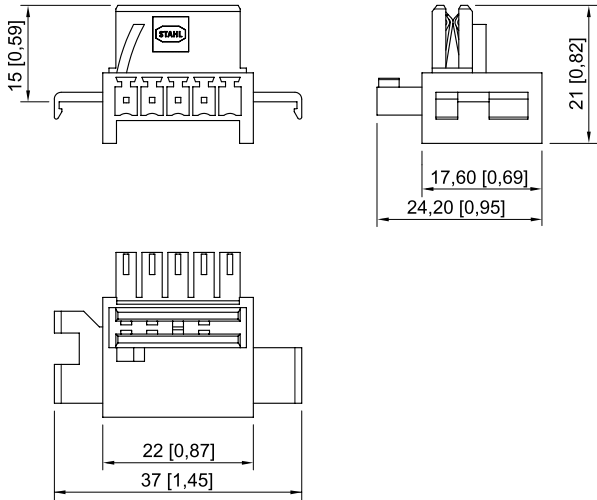
Technical Data	
Explosion Protection	
IECEX gas explosion protection	Ex nA IIC T4 Gc
ATEX gas explosion protection	Ⓔ II 3 G Ex nA IIC T4 Gc
EAC gas explosion protection	Ⓔ 2 Ex nA IIC T4 Gc X
Certificates	ATEX (BVS), Brazil (ULB), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), USA (FM)
Ship approval	CCS, DNVGL
Electrical Data	
Connections	using pac-Bus terminal set 9194/50-01 or supply module 9193/21-11-11.
Mounting / Installation	
Mounting type	NS35/15, NS35/7.5 DIN rail

Technical Data

Mounting / Installation

Mounting position	Horizontal Vertical
-------------------	------------------------

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



Series 9194




- ISpac devices are quick to wire, reducing costs
- Can be installed on standard DIN rails without tools by simply snapping into place – can be expanded at any time
- Suitable for industrial environments subject to vibration

A3

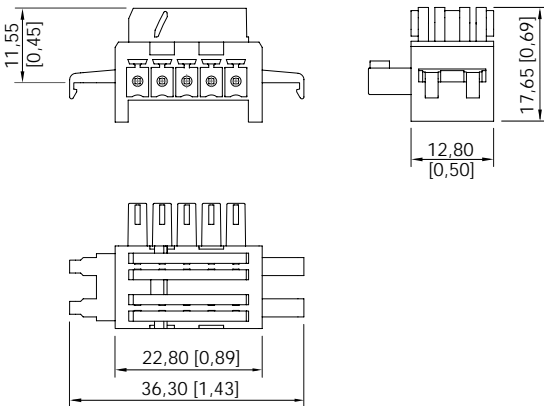
WebCode **9294A**

The pac-Bus 9294/31-12 supplies 30 to 50 ISpac devices of series 92xx. The auxiliary power can be fed into the pac-Bus segment via the terminal set 9194/50-01. The supply module 9193/21-11-11 can alternatively be used for a redundant supply and for reading out the collective error message. The pac-Bus can be clipped onto DIN rails NS 35/15 and NS35/7.5. The pac-Bus 9294/31-12 can be combined with pac-Bus 9194/31-17.

Selection Table						
Product Description		pac-Bus single element ISpac				
Figure	Description	Grid dimension	Product Type	Art. No.	PS	Weight kg
	Wiring for power supply and common error messaging	12.5 mm	9294/31-12	262928 ▲	29	0.006

Technical Data	
Electrical Data	
Connections	using pac-Bus terminal set 9194/50-01 or supply module 9193/21-11-11.
Mounting / Installation	
Mounting position	Horizontal Vertical
Mounting type	NS35/15, NS35/7.5 DIN rail

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



Series 9294



- Prefabricated system cables make it quick and easy to install – simply snaps onto a DIN rail or mounting plate
- Can be used with the Emerson Delta V, Schneider Foxboro/Tricon, Honeywell C300, Siemens ET200M and ET200F, Yokogawa Centum VP and ProSafe-RS
- All ISpac isolators 91xx can be used in the pac carrier

WebCode 9195A



The 9195 series pac carrier is a cost-effective solution allowing Ex i field devices to be connected to common I/O modules of distributed control systems and programmable logic controllers. The extremely robust carrier is suitable for eight or 16 standard ISpac isolators and can process 32 signals, including a combination of Ex i and non-Ex i signals. It can be adapted to accommodate new I/O modules at any time. The carrier can be combined with the 9192 series HART Mux.

	ATEX / IECEx						NEC 505 Class I						NEC 506						NEC 500								
	0	1	2	20	21	22	0	1	2	20	21	22	0	1	2	20	21	22	Class I	Class II	Class III	1	2	1	2	1	2
Zone																											
Ex interface	•	•	•	•	•	•	•	•	•				•	•	•				•	•	•	•	•	•	•	•	•
Installation in			•			•			•			•			•			•			•			•			•


Selection Table							
I/O type	Type of signal	Number of slots	Redundancy	Product Type	Art. No.	PS	Weight kg
Any	DI, DO, AI, AO	16	No	9195/16H-XX0-01C	209268 ▲	27	0.843

Customer specific versions for the following DCS: Yokogawa Centum VP, Yokogawa Pro-Safe-RS, Schneider Electric (TRICONEX, Foxboro), Honeywell, Siemens.

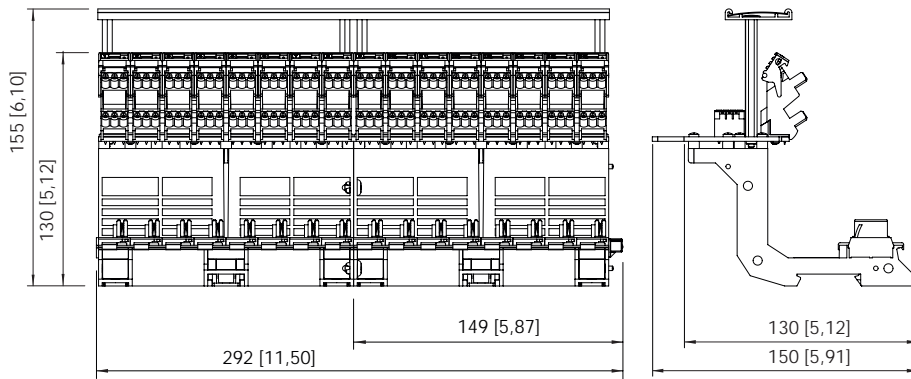
Detailed information on available pac-carrier versions and the technical description can be found online at WebCode 9195A.

Technical Data	
Explosion Protection	
IECEx gas explosion protection	Ex nA nC IIC T4 Gc
ATEX gas explosion protection	Ⓔ II 3 G Ex nA nC IIC T4 Gc
EAC gas explosion protection	Ⓔ 2 Ex nA nC IIC T4 Gc X
Certificates	ATEX (BVS), Brazil (ULB), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), SIL (exida), USA (FM)
Ship approval	CCS, DNVGL
Electrical Data	
Number of channels field device interface (HART)	8, 16, 32
Fuse	2 x TR5; T 2 A; exchangeable, for primary and redundant supply
Auxiliary Power	
Auxiliary power	24 V DC

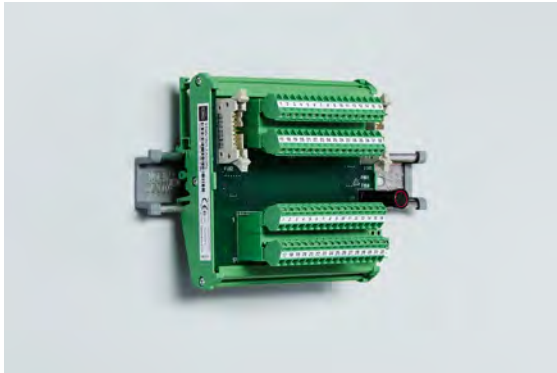
Technical Data	
Auxiliary Power	
Redundant supply	yes, decoupled with diodes
Input	
Message of line fault and auxiliary power failure	- Contact (30 V / 100 mA) closed to ground in case of fault
Ambient Conditions	
Ambient temperature	-20 °C ... +70 °C
Storage temperature	-40 °C ... +80 °C
Mounting / Installation	
Mounting orientation	horizontal or vertical
Mounting type	DIN rail or wall mounting

Accessories				
Figure	Description	Art. No.	PS	Weight kg
ISpac Dummy-Module				
	The Dummy module is used for the connection of unused cable. There is no electrical connection between input and output terminal.	160674	Z2	0.060

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



Type 9195/16.-...-..., 16 slots



- Cost- and space-saving system for HART communication
- Different variants available with or without signal conversion
- Easy to install on DIN rails

WebCode **9196A**



Used in combination with the HART multiplexer (9192), the 9196 series HART termination board enables the transmission of data using the HART protocol between field devices and an asset management system. The boards are very easy to install on DIN rails and can process 4 to 20 mA signals with HART FSK. If Ex i separation is necessary, this will require separate Ex i isolators.

	ATEX / IECEx						NEC 505 Class I						NEC 506						NEC 500													
	0		1		2		20		21		22		0		1		2		20		21		22		1		2		1		2	
Zone																																
Installation in																																

Selection Table						
Connection isolators / Non-Ex field devices		via pluggable terminal; connected to the field device in parallel / automation system; in or output				
Signal to the control system	Terminal	Product Type	Art. No.	PS	Weight kg	
4 ... 20 mA	One terminal for field and control system side, detachable	9196/16H-XX0-03c	160891 ▲	29	0.150	
Connection isolators / Non-Ex field devices Connection automation system		via pluggable terminal; connected to the field device in parallel / automation system; in or output via integrated screw terminal				
Signal to the control system	Terminal	Product Type	Art. No.	PS	Weight kg	
4 ... 20 mA	One terminal for field side, one terminal for control system side, detachable	9196/16H-XX0-05c	249297 ▲	29	0.520	

32 channels if two HART termination boards Series 9196 are connected to HART multiplexer Series 9192.

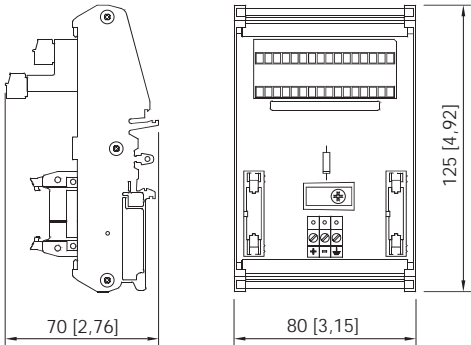
Technical Data	
Explosion Protection	
IECEx gas explosion protection	Ex nA IIC T4 Gc
ATEX gas explosion protection	Ⓔ II 3 G Ex nA IIC T4 Gc
EAC gas explosion protection	Ⓔ 2 Ex nA IIC T4 Gc X
Certificates	ATEX (BVS), Brazil (ULB), Canada (FM), EAC (STV), IECEx (BVS), India (PESO), SIL (exida), USA (FM)
Ship approval	CCS, DNVGL
Auxiliary Power	
Auxiliary power	24 V DC
Ambient Conditions	
Ambient temperature	-20 °C ... +70 °C
Storage temperature	-40 °C ... +80 °C

Technical Data

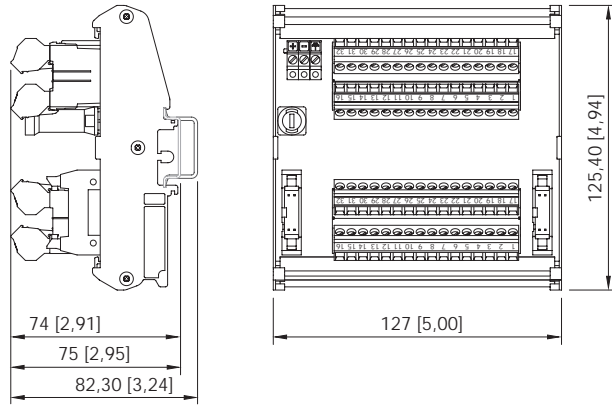
Mounting / Installation	
Mounting type	DIN rail (NS35/15, NS35/7.5)

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

A3










HART Termination board Type 9196/16H-XX0-03c



HART Termination board Type 9196/16H-XX0-05c

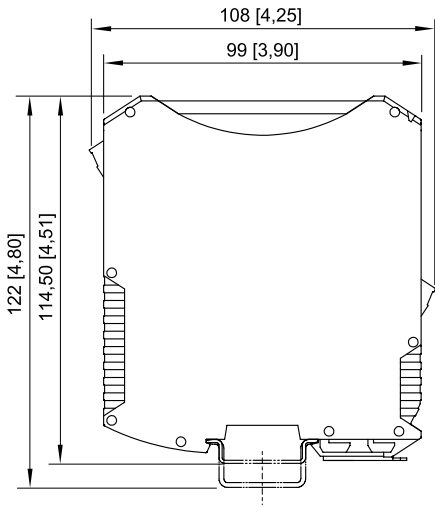
Accessories

Figure	Description	Art. No.	PS	Weight kg
External reference junction				
	External reference junction for 2 x thermocouple (1 x Pt100 for 2, 3 or 4 wire connection) integrated into the 4-pole terminal block. Installation takes place on the DIN rail.	160675	Z2	0.030
	External reference junction for 1 x thermocouple (Pt100 in 2 wire connection) integrated into the pluggable terminal (3-pole). Installation takes place in the ISpac device instead of the standard terminal.	160676	Z2	0.030
ISpac Dummy-Module				
	The Dummy module is used for the connection of unused cable. There is no electrical connection between input and output terminal.	160674	Z2	0.060
Front cover				
	for ISpac modules 91xx yellow, transparent Clear marking of the device for SIL applications. (Packaging unit: 10 pieces)	200914	Z2	0.020
Resistance coupling element				
	Connection of additional contacts in the Ex area as well, in order to enable short circuit and open circuit detection.	105944	Z2	0.010
Parameterising set ISpac - Wizard				
	The software serves for commissioning, configuring and diagnosing the ISpac isolators Series 9146, 9162 and 9182. For further information, see operating instructions. Form of delivery: USB stick; parameterising software incl. parameterising cable / adaptor System requirements: IBM compatible PC with MS XP, Vista, Windows 7, 10 RS 232 C interface RS 232 / USB adaptor	202595	Z2	0.235
Parameterisation adapter				
	Used for parameterisation and diagnostics on 9282 series ISpac isolators. Interface to PC: USB Scope of delivery: Adapter and cable (software is available to download online at r-stahl.com, WebCode: 9282A)	261507	Z2	0.160

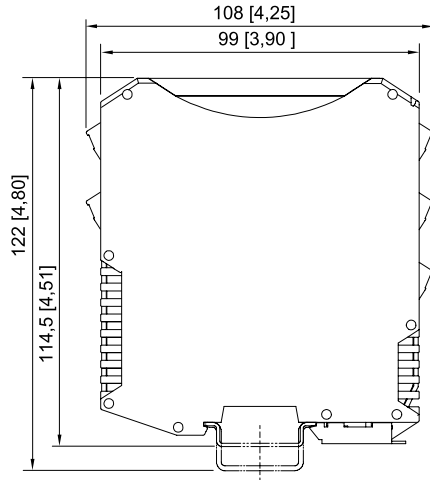
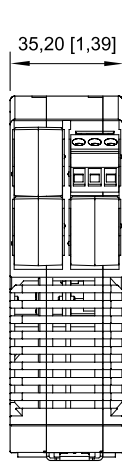
A3

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

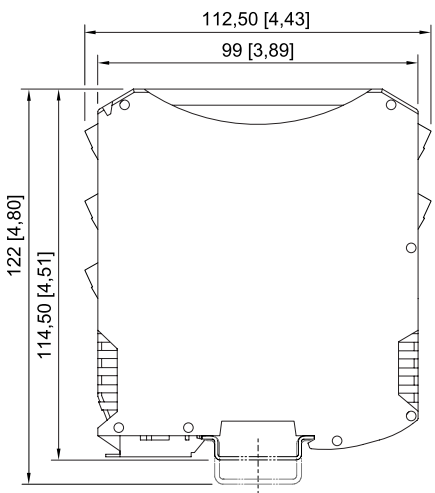
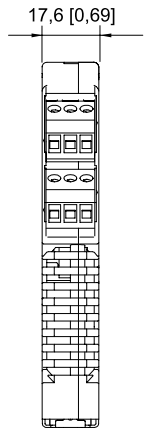
A3



ISpac Series 9143, 9185, 9192 with screw terminal



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



ISpac Series 9260, 9265, 9270, 9275, 9276, 9282 with screw terminal

