

# STAHL Intrinsicly Safe Isolators



## Overview

STAHL's easy-to-connect and user-friendly isolating barriers provide intrinsic safety and galvanic separation between the control system and the field device, insulating the field device from other parts of the system. Their isolating barrier range is easy to use and boasts an impressive range of functions and a long service life.

## Features

- Compact: Dual Channel modules for most functions
- Analog cards are HART capable
- Analog and digital cards are rated for SIL applications
- pac-Bus provides time-saving system for wiring

## STAHL Intrinsicly Safe Isolators Selection Guide

Part Number	Price	Isolator Type	Field Device	Channels	Controller Side (PLC/DCS)	Drawing
<b>Analog Input (From Hazardous Area)</b>						
<a href="#">9260-13-11-10S</a>	\$471.00	Transmitter (1 channel)	0 to 20 mA or 4 to 20 mA	1 in / 1 out	Output range will match input range (active or passive)	<a href="#">PDF</a>
<a href="#">9260-19-11-10S</a>	\$665.00	Transmitter (splitter)	0 to 20 mA or 4 to 20 mA	1 in / 2 out	Output range will match input range (active)	<a href="#">PDF</a>
<a href="#">9260-23-11-10S</a>	\$746.00	Transmitter (2 channel)	0 to 20 mA or 4 to 20 mA	2 in / 2 out	Output range will match input range (active)	<a href="#">PDF</a>

<b>Analog Output (To Hazardous Area)</b>						
<a href="#">9165-16-11-11S</a>	\$526.00	Isolating repeater	Output range will match input range (active)	1 in / 1 out	0 to 20 mA or 4 to 20 mA	<a href="#">PDF</a>
<a href="#">9265-26-11-10S</a>	\$750.00	Isolating repeater	Output range will match input range (active)	2 in / 2 out	0 to 20 mA or 4 to 20 mA	<a href="#">PDF</a>

<b>Digital Input (From Hazardous Area)</b>						
<a href="#">9270-11-16-14S</a>	\$291.00	Switching repeater, 1 channel DC power	NAMUR sensor* or dry contacts	1 in / 1 out	1 changeover contact (SPDT relay)	<a href="#">PDF</a>
<a href="#">9170-11-13-21S</a>	\$212.00	Switching repeater, 1 channel AC power	NAMUR sensor* or dry contacts	1 in / 2 out	2 changeover contacts (2 SPDT relays)	<a href="#">PDF</a>
<a href="#">9270-21-17-14S</a>	\$337.00	Switching repeater, 2 channel DC power	NAMUR sensor* or dry contacts	2 in / 2 out	1 NO relay (max 250V / 2A)	<a href="#">PDF</a>
<a href="#">9170-21-12-21S</a>	\$261.00	Switching repeater, 2 channel AC power	NAMUR sensor* or dry contacts	2 in / 2 out	1 changeover contact (SPDT relay)	<a href="#">PDF</a>
<a href="#">9172-20-11-00S</a>	\$285.00	Ex i relay module (2 channel)	Intrinsically safe coil (14 to 30 V)	2 in / 2 out	1 changeover contact (SPDT relay)	<a href="#">PDF</a>

<b>Digital Output (To Hazardous Area)</b>						
<a href="#">9275-10-24-48-11S</a>	\$351.00	Digital output	Open circuit: 24.3 V 48mA at 9.7 V	1 in / 1 out	15 to 30 V for ON 0 to 5 V for OFF	<a href="#">PDF</a>
<a href="#">9175-20-14-11S</a>	\$490.00	Digital output	Open circuit: 17.5 V 43mA at 12V	2 in / 2 out	15 to 31.2 V for ON 0 to 5 V for OFF	<a href="#">PDF</a>

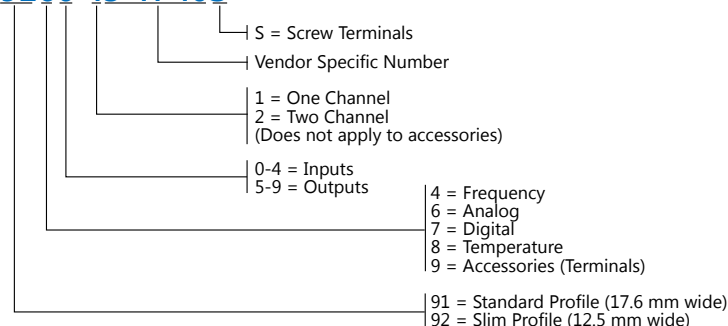
<b>Temperature Converter (From Hazardous Area)</b>						
<a href="#">9182-10-51-11S</a>	\$602.00	Temperature transmitter	Thermocouple and RTD	1 in / 1 out	0 to 20 mA or 4 to 20 mA (active)	<a href="#">PDF</a>
<a href="#">9180-10-77-11S</a>	\$506.00	RTD repeater	RTD (PT 100)	1 in / 1 out	Equal to input signal (resistor)	<a href="#">PDF</a>
<a href="#">9180-20-77-11S</a>	\$740.00	RTD repeater	RTD (PT 100)	2 in / 2 out	Equal to input signal (resistor)	<a href="#">PDF</a>

<b>Frequency Transmitter (From Hazardous Area)</b>						
<a href="#">9146-10-11-12S</a>	\$743.00	Frequency transmitter	NAMUR sensor* or voltage pulses	1 in / 1 out	0 to 20 mA or 4 to 20 mA (active) with two configurable dry contacts	<a href="#">PDF</a>
<a href="#">9146-20-11-11S</a>	\$964.00	Frequency transmitter	NAMUR sensor* or voltage pulses	2 in / 2 out	0 to 20 mA or 4 to 20 mA (active)	<a href="#">PDF</a>

\* A NAMUR sensor is an intrinsically safe 2-wire sensor which supplies one of two signal levels depending on sensor state.

## Part Number Nomenclature

### 9260-13-11-10S



# STAHL Intrinsically Safe Isolators

## Digital Input



STAHL Digital Input Intrinsically Safe Isolators Specifications						
		<u>9270-11-16-14S</u>	<u>9170-11-13-21S</u>	<u>9270-21-17-14S</u>	<u>9170-21-12-21S</u>	<u>9172-20-11-00S</u>
<b>Isolator Type</b>		Switching repeater (1 channel)	Switching repeater (1 channel)	Switching repeater (2 channel)	Switching repeater (2 channel)	Ex i relay module (2 channel)
<b>Explosion Protection</b>	Installation Location (per NEC 500)	Class I, Division 2	Safe area	Class I, Division 2	Safe area	Class I, Division 2
	Ex Interface (per NEC 500)	Class I, II, III Division 1 or 2	Class I, II, III Division 1 or 2	Class I, II, III Division 1 or 2	Class I, II, III Division 1 or 2	Class I, II, III Division 1 or 2
	Agency Approvals	ATEX (IBE), Canada / USA (UL), IECEx (IBE), SIL (exida)	ATEX (BVS) Canada /USA (FM and UL) EAC (ENDCE), IECEx (BVS), SIL (exida), along with Brazil, India, and Korea	ATEX (IBE), Canada / USA (UL), IECEx (IBE), SIL (exida)	ATEX (BVS) Canada /USA (FM and UL) EAC (ENDCE), IECEx (BVS), SIL (exida), along with Brazil, India, and Korea	ATEX (BVS), Canada (FM), EAC (ENDCE), IECEx (BVS), India (PESO), SIL (exida), USA (FM), USA (UL)
<b>Safety Data</b>	Max Voltage ( $U_0$ )	9.6 V	9.6 V	9.6 V	9.6 V	30V
	Max Current ( $I_0$ )	10mA	10mA	10mA	10mA	150mA
	Max Power ( $P_0$ )	25mW	24mW	25mW	24mW	1.3 W
<b>Functional Safety</b>	Safety Integrity Level (SIL)	2	2	2	2	2
<b>Electrical Data</b>	Number of Channels	1 in / 1 out	1 in / 2 out	2 in / 2 out	2 in / 2 out	2 in / 2 out
	Line Fault Detection Relay	Yes - via pac-Bus (requires 9294-31-12)	No	Yes - via pac-Bus (requires 9294-31-12)	No	No
	Auxiliary Power Range	19.2 to 30VDC	96 to 253 VAC	19.2 to 30VDC	96 to 253 VAC	No aux power
	Nominal Current	21mA	12mA	35mA	18mA	—
	Power Consumption	0.65 W	1.8 W	1.0 W	2.8 W	12 V (<16 mA) 24-30 V (<11 mA)
	Max Dissipation	0.65 W	1.3 W	1.0 W	2W	0.4W
	Operation Indication	Green LED "PWR" Red LED "LF" Yellow LED "OUT"	Green LED "PWR" Red LED "LF" Yellow LED "OUT"	Green LED "PWR" (2) Red LED "LF" (2) Yellow LED "OUT"	Green LED "PWR" (2) Red LED "LF" (2) Yellow LED "OUT"	(2) Yellow LED "OUT"
	Input Function	Galvanic isolated switching Repeater	Galvanic isolated switching Repeater	Galvanic isolated switching repeater	Galvanic isolated switching repeater	Intrinsically safe interposing relay
	Input Type	NAMUR sensor or dry contacts	NAMUR sensor or dry contacts	NAMUR sensor or dry contacts	NAMUR sensor or dry contacts	Intrinsically safe coil (14 to 30 V)
	Output (Channel A)	1 changeover contact (SPDT relay)	2 changeover contacts (2 SPDT relays)	1 NO relay (max 250V / 2A)	1 changeover contact (SPDT relay)	1 changeover contact (SPDT relay)
	HART Compatible	No	No	No	No	No
	Output Min Load	5V / 10mA	12V / 0.1 mA	5V / 10mA	12V / 0.1 mA	1V / 1mA
	Output Max Load	250 VAC / 2A 30 VDC / 2A	250VAC / 4A 250VDC / 2A	250 VAC / 2A 30 VDC / 2A	250VAC / 4A 250VDC / 2A	250VAC / 4A* 30VDC / 4A *In case of Zone 2, max = 125V AC/DC
	Output (Channel B)	—	—	1 NO relay	1 changeover contact (SPDT relay)	1 changeover contact (SPDT relay)
<b>Ambient Conditions</b>	Operating Temperature (Group Assembly)	-20°C to 60°C [-4°F to 140°F]	-20°C to 65°C [-4°F to 149°F]	-20°C to 60°C [-4°F to 140°F]	-20°C to 60°C [-4°F to 140°F]	-20°C to 60°C [-4°F to 140°F]
	Operating Temperature (Single Assembly)		-20°C to 70°C [-4°F to 158°F]		-20°C to 70°C [-4°F to 158°F]	-20°C to 70°C [-4°F to 158°F]
	Storage Temperature	-40°C to 80°C [-40°F to 176°F]	-40°C to 80°C [-40°F to 176°F]	-40°C to 80°C [-40°F to 176°F]	-40°C to 80°C [-40°F to 176°F]	-40°C to 80°C [-40°F to 176°F]
<b>Mechanical Data</b>	Degree of Protection	IP20	IP20	IP20	IP20	IP20
	Width	12.5 mm [0.49 in] (slim profile)	17.6 mm [0.69 in] (standard)	12.5 mm [0.49 in] (slim profile)	17.6 mm [0.69 in] (standard)	17.6 mm [0.69 in] (standard)
	Mounting Type	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail
	Wire Gauge Range	16 - 12 AWG	24-14 AWG	16 - 12 AWG	24-14 AWG	16 - 12 AWG
	Mounting Position	Vertical or horizontal	Vertical or horizontal	Vertical or horizontal	Vertical or horizontal	Vertical or horizontal
	Weight	0.22 lb [99g]	0.4 lb [180g]	0.24 lb [109g]	0.5 lb [225g]	0.25 lb [112g]

# STAHL Intrinsically Safe Isolators

## Digital Input

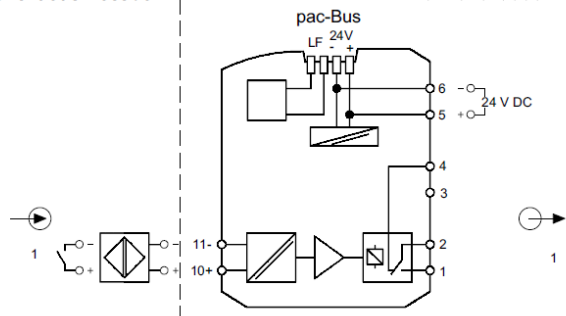


### Connection Diagrams

#### 9270-11-16-14S

Hazardous Location

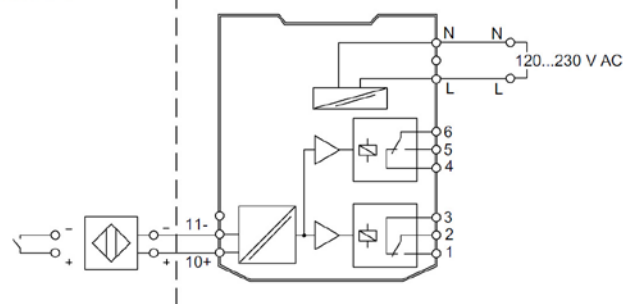
Nonhazardous Location



#### 9170-11-13-21S

Hazardous Location

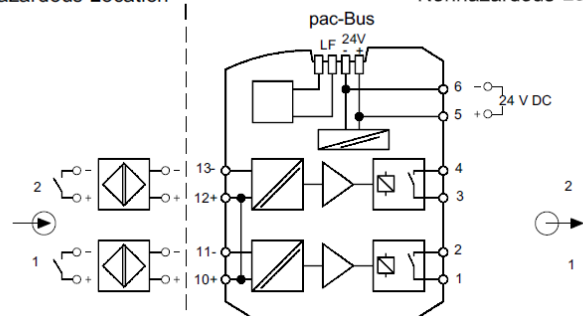
Nonhazardous Location

Division 1  
Zone 0 / 1

#### 9270-21-17-14S

Hazardous Location

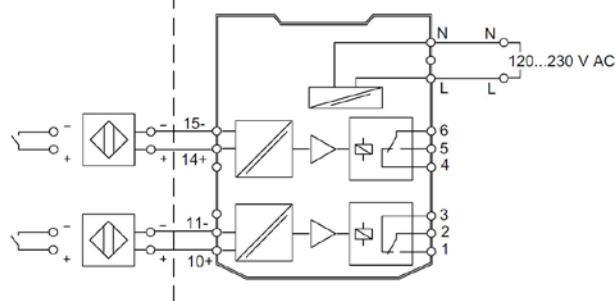
Nonhazardous Location



#### 9170-21-12-21S

Hazardous Location

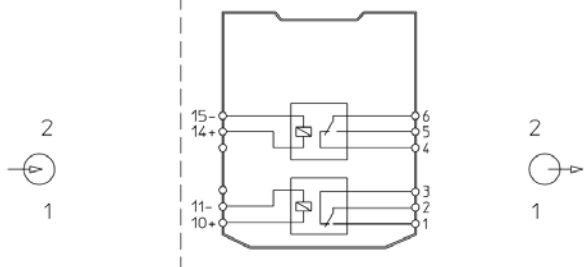
Nonhazardous Location

Division 1  
Zone 0 / 1

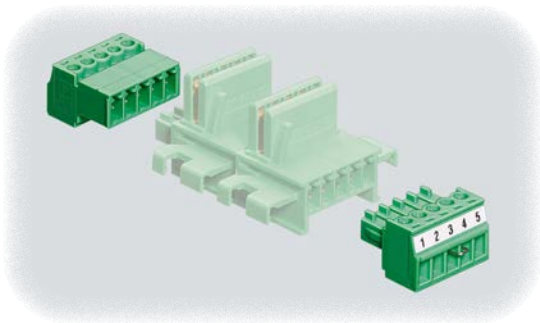
#### 9172-20-11-00S

Hazardous area

Safe area

Division 1  
Zone 0 / 1Division 2  
Zone 2

# STAHL Intrinsically Safe Isolators Accessories – pac-Bus System



## Benefits of Using the pac-Bus System

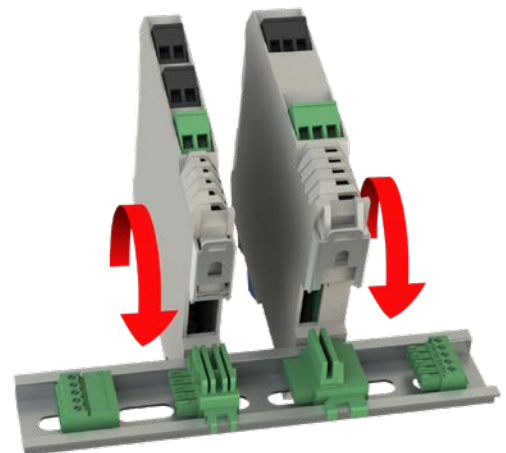
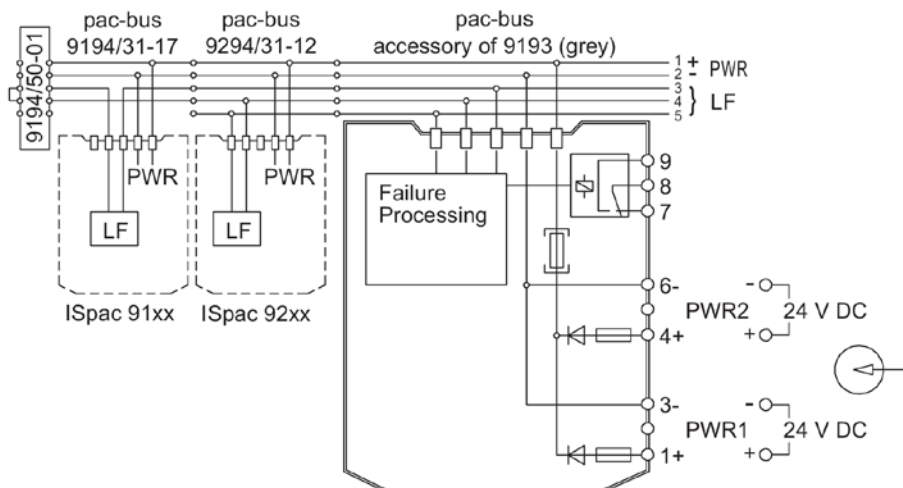
- Quick, easy wiring
- Can be installed on standard DIN rail without tools by simply snapping into place
- Can be expanded at any time with additional pac-Bus units
- Suitable for industrial environments subject to vibration
- Optional power supply module 9193 enables refused redundant 24VDC supply and fault signalization

## STAHL Intrinsically Safe Isolators Accessories (pac-Bus System) Selection Guide

Part Number	Price	Description	Weight	Drawing
<b>9194-50-01</b>	\$22.50	End terminal set for pac-Bus system	0.29 oz [8 g]	<a href="#">PDF</a>
<b>9294-31-12</b>	\$29.50	pac-Bus terminal for 92xx (12.5 mm [0.49 in] width) isolators	0.16 oz [5 g]	<a href="#">PDF</a>
<b>9194-31-17</b>	\$22.50	pac-Bus terminal for 91xx (17.6 mm [0.69 in] width) isolators	0.16 oz [5 g]	<a href="#">PDF</a>
<b>9193/21-11-11S</b>	\$269.00	pac-Bus supply module	0.4 lb [180g]	<a href="#">PDF</a>
<b>111412</b>	\$40.00	Qty 10 spare fuses for use with pac-Bus supply module	0.07 lb [2g]	<a href="#">PDF</a>

**9194-50-01****9294-31-12****9194-31-17****9193/21-11-11S****111412**

## Connection Diagram



Refer to installation instructions for details

# STAHL Intrinsically Safe Isolators Accessories – pac-Bus System



STAHL pac-Bus Supply Module Specifications		
		<b><i>9193/21-11-11S</i></b>
<b>Explosion Protection</b>	Installation Location (per NEC 500)	Class I, Division 2
	Ex Interface (for intrinsically safe interface) (per NEC 500)	Class I, II, III Division 1 or 2
	Agency Approvals	ATEX (BVS), Canada (FM), China (NEPSI), IECEx (BVS), India (PESO), USA (FM)
<b>Electrical Data</b>	Power Supply	24VDC 4A, primary and redundant
	Auxiliary Power Voltage Range	18.0 to 31.2 VDC
	Max Power Dissipation	2.5 W
<b>Ambient Conditions</b>	Operating Temperature	-40°C to 55°C [-40°F to 131°F]
	Storage Temperature	-40°C to 80°C [-40°F to 176°F]
<b>Mechanical Data</b>	Degree of Protection	IP20
	Mounting Type	DIN rail
	Wire Gauge Range	16AWG for terminals 12AWG for ground connections

# Safety Products



*Warning: Safety products sold by AutomationDirect are Safety components only. The purchaser/installer is solely responsible for the application of these components and ensuring all necessary steps have been taken to assure each application and use meets all performance and applicable safety requirements and/or local, national and/or international safety codes as required by the application. AutomationDirect cannot certify that our products, used solely or in conjunction with other AutomationDirect or other vendors' products, will assure safety for any application. Any person using or applying any products sold by AutomationDirect is responsible for learning the safety requirements for their individual application and applying them, and therefore assumes all risks, and accepts full and complete responsibility, for the selection and suitability of the product for their respective application.*

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