

# STAHL Intrinsically 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 Intrinsically 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>

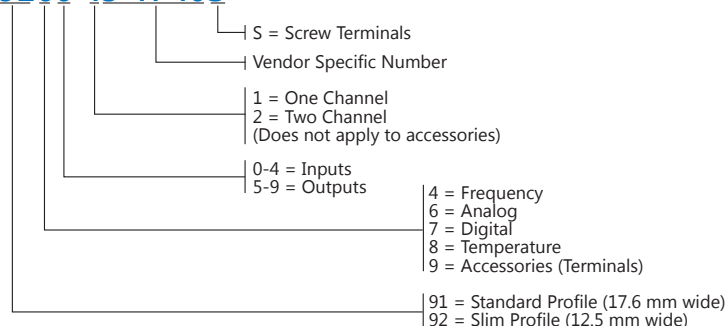
<b>Temperature Converter (From Hazardous Area)</b>						
<a href="#">9182-10-51-11S</a>	\$602.00	Temperature transmitter	Thermocouple and RTD	1 in / 1 out	0 to 20 mA or 4 to 20 mA (active)	<a href="#">PDF</a>
<a href="#">9180-10-77-11S</a>	\$506.00	RTD repeater	RTD (PT 100)	1 in / 1 out	Equal to input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

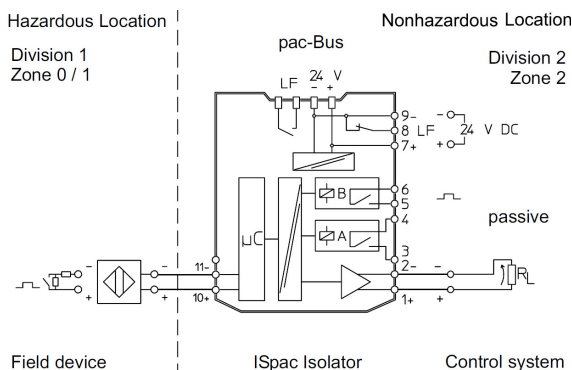


STAHL Intrinsicly Safe Isolators Frequency Converter Specifications*			
		9146-10-11-12S	9146-20-11-11S
<b>Isolator Type</b>		Frequency converter (1 channel)	Frequency converter (2 channel)
<b>Explosion Protection</b>	Installation Location (per NEC 500)	Class I, Division 2	Class I, Division 2
	Ex Interface (for intrinsicly safe interface) (per NEC 500)	Class I, II, III Division 1 or 2	Class I, II, III Division 1 or 2
	Agency Approvals	ATEX (BVS), Canada (FM), EAC (ENDCE), IECEX (BVS), India (PESO), USA (FM)	ATEX (BVS), Canada (FM), EAC (ENDCE), IECEX (BVS), India (PESO), USA (FM)
<b>Safety Data</b>	Max Voltage ( $U_0$ )	10.5 V	10.5 V
	Max Current ( $I_0$ )	23.4 mA	23.4 mA
	Max Power ( $P_0$ )	61.4 mW	61.4 mW
<b>Functional Safety</b>	Safety Integrity Level (SIL)	-	-
<b>Electrical Data</b>	Number of Channels	1 in / 1 out with two configurable dry contacts	2 in / 2 out
	Line Fault Detection Relay	Yes	Yes
	Auxiliary Power Range	18 to 31.2 VDC	18 to 31.2 VDC
	Nominal Current	55mA	75mA
	Power Consumption	1.32 W	1.8 W
	Max Power Dissipation	1.1 W	1.5 W
	Operation Indication	Green LED "PWR" Red LED "LF" Yellow LED "STAT"	Green LED "PWR" (2) Red LED "LF" (2) Yellow LED "STAT"
	Input Function	Galvanic isolated frequency converter	Galvanic isolated frequency converter
	Input Type	NAMUR sensor or voltage pulses (not to be used with magnetic pickup sensors)	NAMUR sensor or voltage pulses (not to be used with magnetic pickup sensors)
	Frequency Range	0.001 Hz to 20kHz	0.001 Hz to 20kHz
	HART Compatible	No	No
	Output (Channel A)	0-20 mA or 4-20 mA (active) with two configurable dry contacts	0-20 mA or 4-20 mA (active)
	Output Load Resistance Max ( $R_L$ )	600Ω	600Ω
	Output (Channel B)	-	0-20 mA or 4-20 mA (active)
<b>Ambient Conditions</b>	Operating Temperature (Group Assembly)	-40°C to 60°C [-40°F to 140°F]	-40°C to 60°C [-40°F to 140°F]
	Operating Temperature (Single Device Installation)	-40°C to 70°C [-40°F to 158°F]	-40°C to 70°C [-40°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]
<b>Mechanical Data</b>	Degree of Protection	IP20	IP20
	Width	17.6 mm [0.69 in] (standard)	17.6 mm [0.69 in] (standard)
	Mounting Type	DIN rail	DIN rail
	Wire Gauge Range	24 - 14 AWG	24 - 14 AWG
	Mounting Position	Vertical or horizontal	Vertical or horizontal
	Weight	0.28 lb [125g]	0.3 lb [135g]

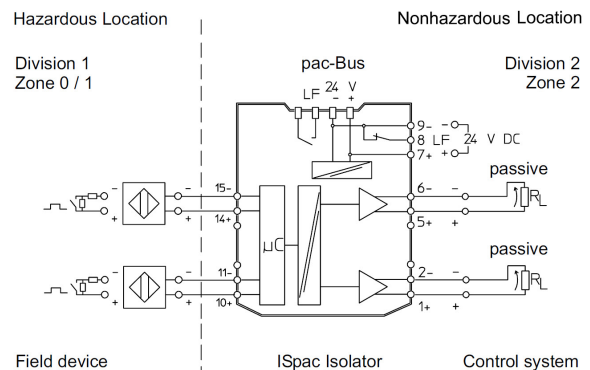
\* The 9146 series frequency converter requires configuration using the 9199-20-02 cable and software.

## Connection Diagrams

### 9146-10-11-12S



### 9146-20-11-11S



# STAHL Intrinsically Safe Isolators Configuration Set



## ISpac Wizard Software and Configuration Set

The 9199-20-02 configuration set allows serial communication between a PC and an isolator via the included USB-to-Serial Converter.

This set-up allows for quick programming. The software is provided on an included USB drive or as a free download. The software allows the user to save configuration files easily so that the same configuration can be duplicated on multiple cards. Windows operating system is required

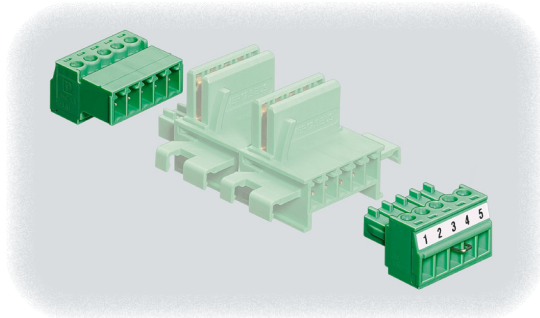
The configuration set will work with the following safety isolators:

- 9182 series Temperature Converter Isolator (for thermocouple applications)
- 9146 series Frequency Transmitter Isolator



Configuration Set Selection Guide		
Part Number	Price	Description
<a href="#">9199-20-02</a>	\$312.00	STAHL configuration set, for use with STAHL 9146 and 9182 isolators.

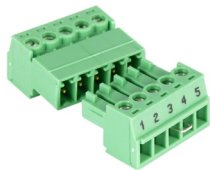
# STAHL Intrinsicly Safe Isolators Accessories – pac-Bus System



## 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

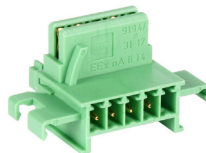
STAHL Intrinsicly Safe Isolators Accessories (pac-Bus System) Selection Guide				
Part Number	Price	Description	Weight	Drawing
<a href="#">9194-50-01</a>	\$22.50	End terminal set for pac-Bus system	0.29 oz [8 g]	<a href="#">PDF</a>
<a href="#">9294-31-12</a>	\$29.50	pac-Bus terminal for 92xx (12.5 mm [0.49 in] width) isolators	0.16 oz [5 g]	<a href="#">PDF</a>
<a href="#">9194-31-17</a>	\$22.50	pac-Bus terminal for 91xx (17.6 mm [0.69 in] width) isolators	0.16 oz [5 g]	<a href="#">PDF</a>
<a href="#">9193/21-11-11S</a>	\$269.00	pac-Bus supply module	0.4 lb [180g]	<a href="#">PDF</a>
<a href="#">111412</a>	\$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](#)

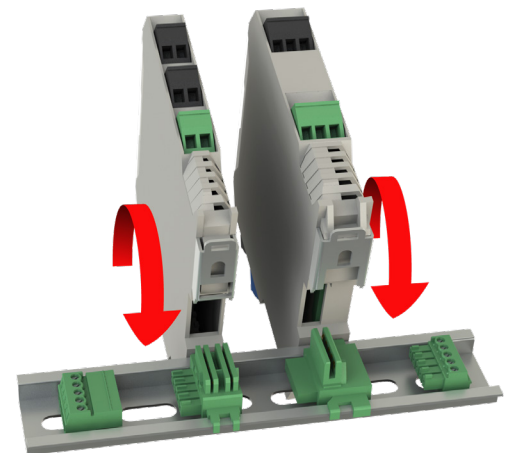
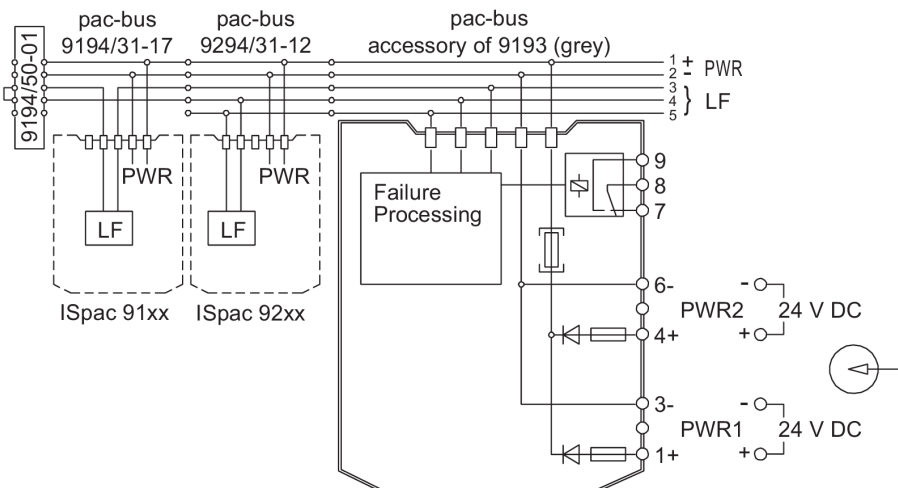


[9193/21-11-11S](#)



[111412](#)

## Connection Diagram



Refer to installation instructions for details

# STAHL Intrinsicly Safe Isolators Accessories – pac-Bus System



STAHL pac-Bus Supply Module Specifications		
<b>9193/21-11-11S</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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