Series 9000 INTRINSPAK Intrinsic Safety Barrier

One Step, Snap-On 35mm DIN Rail Mounting and Grounding
... eliminates external ground bars, wiring, tools, and adaptors.

Patented Replaceable 160mA Fuse
... provides overvoltage and reverse polarity protection.

Lowest Internal Resistance
... reduces circuit loading problems.

Common 1/2" Wide Housing for Single and Dual Channel Versions
... easily accessible terminals.

Short-Circuit Proof Connections
... prevents blown fuses when field wiring is shorted.

Approvals to Worldwide Standards
... FM, UL, CSA, PTB (CENELEC), MSHA, SA and others

General Description
First introduced in 1991, the Series 9000 INTRINSPAK has quickly become the industry standard for intrinsic safety barrier design. Within the series the user can choose from the Type 9001 single channel, Type 9002 dual channel, or for applications requiring up to 3/4W of power, the Type 9004 single channel with electronic current limitation.

All three types share a common 1/2" wide housing which snaps directly to a 35mm DIN rail. Once mounted, an electrical connection is formed between the barrier and the rail. This rail now serves as the intrinsic safety ground bus when connected to the designated grounding point. Two additional ground lugs are provided and may be used as a redundant grounding method or for terminating shields.

Each barrier also contains a replaceable 160mA fuse cartridge for each channel. This fuse is located within the front faceplate and protects the barrier from pole reversal and voltage spikes at the input side (terminals 1 and 2). Unlike other safety barrier designs, this fuse will not blow should the field wiring be shorted to ground.

Safety barriers are polarity sensitive devices therefore they are available in +DC, -DC, and AC voltage ratings. They also contain an internal resistance which may cause loading problems in some applications. STAHL safety barriers have been designed to minimize this resistance and offer the lowest available ratings in the industry.

Many voltage and resistance value combinations are available within the Series 9000 INTRINSPAK. However, most instrumentation applications can be handled by no more than four models. Refer to the Program Overview on page 5 for a complete listing.
**Electrical Specifications**

The following are common characteristics of the Types 9001, 9002, and 9004 safety barriers.

- **Rated Voltage**
  - Refer to tables

- **Rated Current**
  - Refer to tables

- **Replaceable Fuse Rating**
  - 160mA per channel

- **Pole Reversal Protection**
  - Protected by replaceable fuse

- **Current Limitation**
  - **Type 9001**
    - Resistive
  - **Type 9002**
    - Resistive
  - **Type 9004**
    - Electronic

- **Leakage Current**
  - 1μA unless stated otherwise
  - <2mA for 9004/5.

- **Temperature Effect**
  - <0.25%/10K

- **Short Circuit Proof**
  - Yes, unless stated otherwise

- **Frequency Range**
  - **Type 9001**
    - 100kHz @ I_sc > 50mA
    - 50kHz @ I_sc ≤ 50mA
  - **Type 9002**
    - 100kHz @ I_sc > 50mA
    - 50kHz @ I_sc ≤ 50mA
  - **Type 9004**
    - 1kHz

- **Grounding Method**
  - Through mounting platform (NS35/15).

**Environmental Specifications**

- **Vibration Frequency**
  - 55Hz

- **Vibration Amplitude**
  - ± 0.2" (± 5mm)

- **Shock Resistance**
  - 20g

- **Operating Temp. Range**
  - -4° to +140°F (-20°C to +60°C)

- **Storage Temp. Range**
  - -40° to +167°F (-40°C to +75°C)

- **Relative Humidity Range**
  - To 95%, no condensation

**Mechanical Specifications**

- **Mounting Method**
  - NS35/15 DIN Rail (Standard)
  - Surface Mount (with adaptor)

- **Mounting Location**
  - Nonhazardous or Class I, Div. 2 location

- **Mounting Orientation**
  - any

- **Housing Material**
  - Polyamide

- **Degree of Protection**
  - IP40 to IEC 529

- **Flame Resistance Rating**
  - HB to UL94

- **Weight**
  - 0.22 lbs. (100grams)

- **Screw Terminal Size**
  - Four #14 AWG (1.5mm²) captured, self-opening
  - Two #12 AWG (4.0 mm²) for ground and shield

**Test Certificates**

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<th>UL</th>
<th>CSA</th>
<th>CENELEC</th>
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<td>E 81680</td>
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Contact R. STAHL for other agency approval status, i.e. SA, MSHA, JIS, CIS.
Type 9002/13-280-110-00
Dual Channel 24VDC Barrier

The Type 9002/13-280-110-00 is a dual channel, 24VDC safety barrier which can be used on a wide variety of process measurement and control applications where both leads must be elevated above ground potential.

When used with energy-storing devices such as transmitters, positioners, alarms, and solenoid valves care should be taken to select a device which has been designed for use in an intrinsically safe system.

Application
- 4/20mA transmitters
- Smart transmitters
- i/p positioners
- Solenoid valves
- Audible alarms
- Pilot lights
- Switches
- PNP proximity switches

Internal Specifications
- Number of channels: 2
- Rated voltage: +24...26VDC per channel
- Pole reversal protection: Yes, by replaceable fuse
- Replaceable fuse rating: 160mA per channel
- Internal resistance: 280 ohms, channel 1
- 1V drop, channel 2
- Short-circuit proof: yes

Safety Data, FM
Refer to data tables for other agency values.
- Open circuit voltage, $V_{OC}$: 31V
- Short circuit current, $I_{SC}$: 109.1mA
- Allowable capacitance, $C_A$: Gas groups A/B: 0.11µF, Gas groups C/E: 0.33µF, Gas groups D/F/G: 0.88µF
- Allowable inductance, $L_A$: Gas groups A/B: 2.9mH, Gas groups C/E: 11.6mH, Gas groups D/F/G: 23.6mH