



- ◆ **Reduced cable costs**
- ◆ **Reduced termination costs**
- ◆ **Control room space saving**
- ◆ **Scaleable**
- ◆ **Flexible system design**

#### Introduction

The growth of open architecture in the process automation industry is founded on standard open fieldbuses providing fast reliable communication between field device, control elements, operator stations and interfacing into the plant wide IT system. The MTL Relcom fieldbus connection range is designed to make it easy to design, install and maintain fieldbus networks. The MTL fieldbus connection range provides the power conditioning and all wiring components for IEC61158-2 networks. The MTL fieldbus connection range will support all leading fieldbus networks used in process automation applications.

#### Designed to survive harsh environments

Equipment designed for environments like climate controlled switch rooms will not survive in harsh process applications; its service life will be limited, its operation impaired and its integrity compromised. MTL has adopted a new approach. The environmental requirements for field mounting equipment, e.g. sensors and actuators, are well understood and NET9000 has been designed to meet a similar specification in terms of operating temperature range; shock and vibration and corrosion resistance.

#### For all hazardous area applications

Complete hazardous area capability is essential for any fieldbus power and connection system to satisfy all applications in today's process environments. For field mounted fieldbus this means the ability to connect to certified field devices and even to locate it in hazardous areas.

MTL NET9000 meets hazardous area needs with safety beyond question.

# NET9000 SERIES

## SYSTEM SPECIFICATION

### MECHANICAL

#### Mounting method

Flat panel or DIN-rail

#### DIN-rail types

'Top hat', 35 x 7.5mm to EN 50022 or 35 x 15mm to EN 50022

### ENVIRONMENTAL

#### Ambient temp

#### Operating, optimum orientation \*

-40°C to +70°C

(except where stated in individual module specifications)

#### Operating, non-optimum orientation \*

-40°C to +50°C

(except where stated in individual module specifications)

#### Storage

-40°C to +85°C

#### Relative Humidity

5 to 95% RH (non-condensing)

#### Vibration - Storage & Transport

Sinusoidal Vibration EN 60068-2-6	10-500 Hz. 5 g for surface mounting, 1 g for DIN-rail mounting
Random Vibration BS2011:Part 2.1	20-500 Hz 5 g for surface mounting 1 g for DIN-rail mounting

#### Vibration - Operating

Sinusoidal Vibration EN 60068-2-6	10-500 Hz. 5 g for surface mounting, 1 g for DIN-rail mounting
Random Vibration BS2011:Part 2.1	20-500 Hz 5 g for surface mount 1 g for DIN-rail mounting

#### Shock - Storage & Transport

EN 60068-2-32	1 m drop onto flat concrete
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#### Shock - Operating

EN 60068-2-27	30 g peak acceleration with 11 ms pulse width
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#### Ingress Protection

IP20 to BS EN 6529 (Additional protection by means of enclosure).

#### Corrosive atmospheres:

Designed to meet ten year service in Class G3 corrosive environment, as defined by ISA Standard SP71.04.

## ELECTRICAL

#### EMC compliance

To EN61326:1998 Electrical equipment for measurement, control and laboratory use - EMC requirements.

#### Electrical safety

EN 61010-1

## HAZARDOUS AREA APPROVALS

#### Location of equipment

Safe area or Class 1, Div 2, Groups A-D, T4 hazardous location or Zone 2, IIC T4 hazardous area.

#### Location of field wiring

See individual data sheets.

#### Applicable standards:

- Factory Mutual Research Co., Class No. 3610 for Class I, II, III, Divisions 1 and 2, Groups A - G hazardous locations (Intrinsically safe circuits).
- Factory Mutual Research Co., Class No. 3611 for Class I, Division 2, Groups A, B, C, D hazardous locations
- EN 50014: 1997 Electrical apparatus for potentially explosive atmospheres, general requirements
- EN 50020: 1994 & 2002 Electrical apparatus for potentially explosive atmospheres, intrinsic safety "i"
- EN 50021: 1999 Electrical apparatus for potentially explosive atmospheres, "n"
- EN50039 :1980 Electrical apparatus for potentially explosive atmospheres. Specification for intrinsically safe electrical systems "i"
- IEC/TS 60079-27:2002 FISCO Technical Specification
- EC Directive 94/9/EC (ATEX 100A)

## PHYSICAL NETWORK

IEC61158-2

FOUNDATION Fieldbus H1

Profibus PA

\*Optimum orientation is when the DIN rail is mounted horizontally on a vertical surface.

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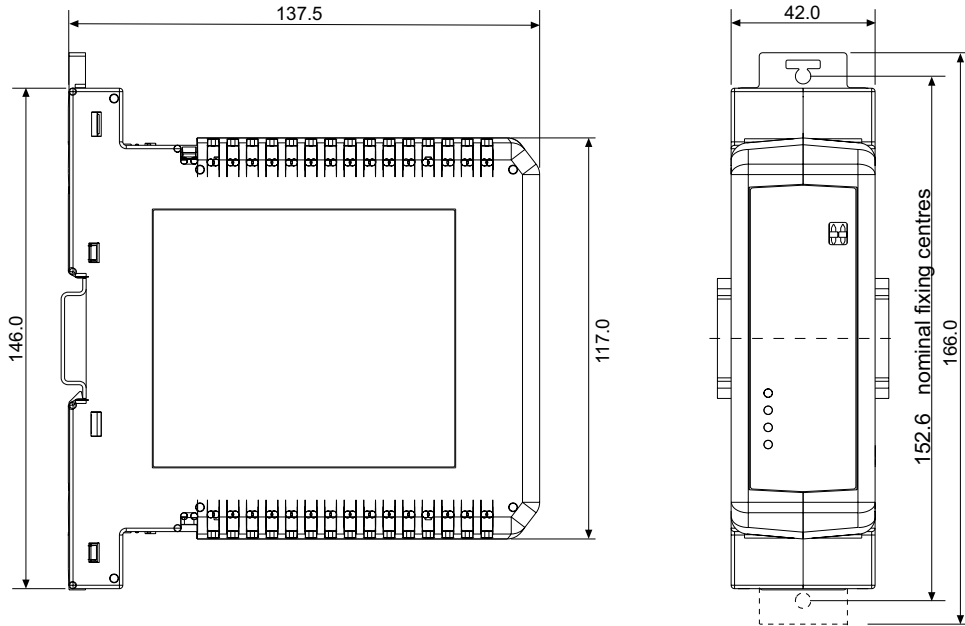
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May 2003

## DIMENSIONS (mm)



## SYSTEM DESIGN

When designing a system the total current consumption of the fieldbus devices should be calculated for normal operation. This should be within the range of the published design current for the power supply. For a NET9000 power supply, the current limit is at least 20mA higher than the maximum published output current. This provides a margin for inrush current when a new device is added to the network. Therefore, with a fieldbus loaded with its maximum design current, a fieldbus device can be disconnected and reconnected without the risk that other devices on the bus will reset.

## CONNECTIONS

### Power Host



### NI/IS trunk

## TERMINALS (Pluggable)

### Rising cage clamp screw terminals

Specify -PS

Conductor size: 0.14 to 2.5mm<sup>2</sup>

### Spring clamp terminals

Specify -PC

Conductor size: 0.14 to 2.5mm<sup>2</sup>

## FIELDBUS TERMINATOR

### Host side

Selectable by switch on top of unit

### NI/IS side

Permanently connected terminator

## HOST SIDE POWER (selectable by switch on top of unit)

### Voltage

14V

### Current

0 to 30mA

### Output ripple

Complies with clause 22.6.2 of the fieldbus standard†

### Minimum load

No load

### Maximum cable length

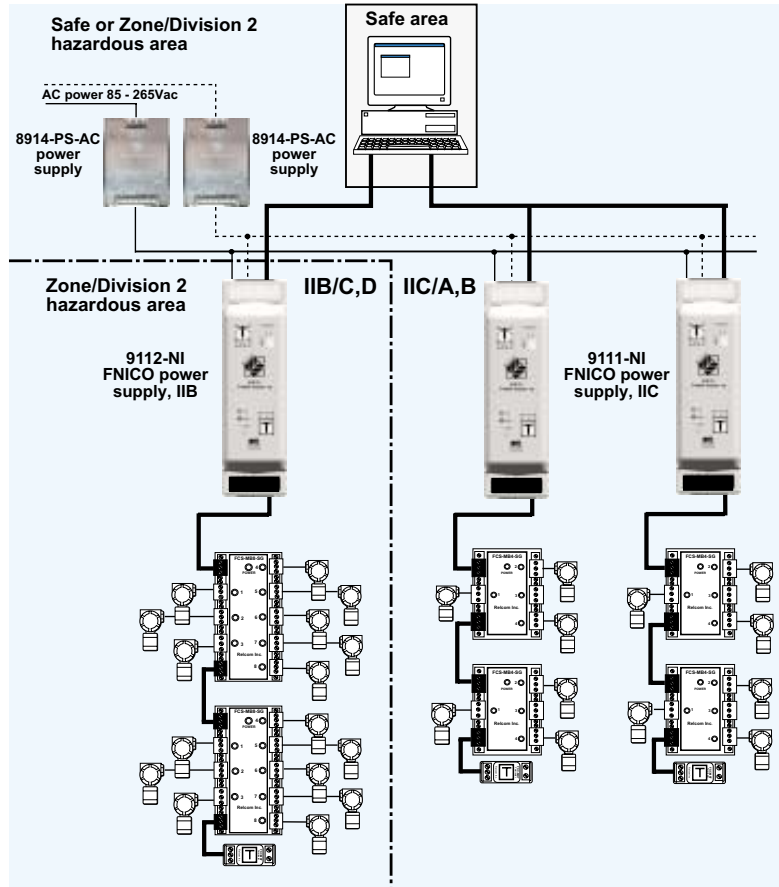
Determined by host side load

	Host side		NI/IS connection
1	Power Supply No 1 +ve	7	NI/IS fieldbus trunk +ve
2	Power Supply 0V	8	NI/IS fieldbus trunk shield
3	Power Supply No 2 +ve	9	NI/IS fieldbus trunk -ve
4	Fieldbus trunk -ve		
5	Fieldbus trunk shield		
6	Fieldbus trunk +ve		

† The applicable fieldbus specifications and standards are:  
 — FOUNDATION™ Fieldbus 31.25 kb/s Physical Layer Profile Specification, document FF-816.  
 — IEC 61158-2: 2000.  
 — ISA-S50.02-1992 for 31.25 kb/s fieldbus systems.



# 911X-NI FNICO POWER SUPPLIES



## OVERVIEW

The 9111-NI and 9112-NI are fieldbus repeater power supplies which repeat the fieldbus signal from a safe area host to a non-incendive (energy-limited) fieldbus for connection to devices in a Zone 2 or Division 2 hazardous area. The power supplies may be located in a safe area, Zone 2 or Division 2. The 9111-NI provides up to 180mA for field devices in IIC/Groups A-D Gas Groups, while the 9112-NI provides up to 320mA for devices in IIB/Groups C, D.

The 911x-NI supplies can be used with fieldbus devices that are certified Ex n or non-incendive. In addition, the design is compatible with the FNICO (Fieldbus Non-Incendive CONcept) Technical Specification, which means they can be used with fieldbus devices that are FNICO-certified or certified as intrinsically safe to the Fieldbus FOUNDATION FF816-FISCO physical layer profile and IEC/TS 60079-27 FISCO Technical Specification. This allows the power supplied to the non-incendive fieldbus to power up to 16 x 20mA devices in a Zone 2 or Division 2, IIB/Groups C-D hazardous area, while maintaining the ability to disconnect devices without the requirement for a gas clearance certificate.

Fieldbus non-incendive systems installed in accordance with the FNICO Technical Specification enjoy the same benefits as FISCO, namely:

- ◆ eliminate the need to calculate cable parameters
- ◆ reduce the safety documentation to a list of devices
- ◆ permit the addition of devices without a review of the safety documentation
- ◆ As proven by test, allow longer cables with higher capacitance

To install a fieldbus system to the FNICO Technical Specification, the cable used must comply with the following parameters:

Loop resistance  $R_c$  15 to 120  $\Omega$ /Km  
 Loop inductance  $L_c$  0,4 to 1 mH/ Km  
 Capacitance  $C_c$  80 to 200 nF/Km

When cable complying with this specification is used, no further consideration of cable parameters is necessary. Virtually any instrument cable suitable for a fieldbus will comply.

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# 9111-NI FNICO POWER SUPPLY - IIC

- ◆ Typically more than 9 Non-Incendive fieldbus devices per power supply
- ◆ Fieldbus repeater allows connection to an uncertified host
- ◆ 250V ac input/output/power supply isolation
- ◆ Switch selectable terminator on host side
- ◆ Fixed terminator on NI side
- ◆ Switch selectable power for host side
- ◆ Mountable in Zone 2/Division 2

## MODULE SPECIFICATION

See also System Specification

### OUTPUT

#### Number of channels

One

#### Voltage

12.4V (min.) at 25°C (see note)

#### Design current

0 to 180mA

#### Current limit

>200mA

#### Output ripple

Complies with clause 22.6.2 of the fieldbus standard†

#### Minimum load

No load

#### Maximum cable length

Determined by NI load

#### Isolation

Input to output: 250V ac rms  
Input and output to power supply: 250V ac rms

### INPUT

#### Input voltage

20 - 30V dc

#### Current consumption:

300 mA (typical) 330 mA (max.) at 20V  
250 mA (typical) 280 mA (max.) at 24V  
210 mA (typical) 235 mA (max.) at 30V

#### Power dissipation with 180mA field load + 30mA host load:

3.3 W (typical) 4.5 W (max.)

#### Input protection

Fuse + supply reversal diode



### SAFETY

#### Location of module

Safe area, Zone 2, IIC T4 hazardous area or Class 1, Div 2, Groups A, B, C, D T4 hazardous location.

#### Location of field wiring

Zone 2, IIC T4 hazardous area or Class 1, Div 2, Groups A, B, C, D T4 hazardous location.

#### Field wiring protection

Non-incendive

#### Certification Code

II 3 G EEx nA[L] IIC T4

#### Safety description

14.0V, 233mA

#### FM entity parameters

14.0V, 233mA

#### FM Certificate number

FM3016981

#### ATEX Certificate number

MTL03ATEX9111X

### MECHANICAL

#### Mounting

DIN rail/surface mounting

#### Module width

42mm

#### Weight

360g

### LED INDICATORS

	OFF	ON
Power (green)	Power fail	Power OK
Fault (red)	Normal	Fault
Host Comm (yellow)	Comms failure	Comms OK
NI Comm (yellow)	Comms failure	Comms OK

Note: Temperature coefficient 12mV/°C. If the power supply and fieldbus cable are operated at low temperatures, the reduced resistance of the cable more than compensates for the reduction in output voltage.

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- † The applicable fieldbus specifications and standards are:
- FOUNDATION™ Fieldbus 31.25 kb/s Physical Layer Profile Specification, document FF-816.
  - IEC 61158-2: 2000.
  - ISA-S50.02-1992 for 31.25 kb/s fieldbus systems.



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# 9112-NI FNICO POWER SUPPLY - IIB

- ◆ Typically more than 16 Non-Incendive fieldbus devices per power supply
- ◆ Fieldbus repeater allows connection to an uncertified host
- ◆ 250V ac input/output/power supply isolation
- ◆ Switch selectable terminator on host side
- ◆ Fixed terminator on NI side
- ◆ Switch selectable power for host side
- ◆ Mountable in Zone 2/Division 2

## MODULE SPECIFICATION

See also System Specification

### OUTPUT

#### Number of channels

One

#### Voltage

13.1V (min.) at 25°C (see note)

#### Design current

0 to 320mA - 60°C maximum ambient temperature

#### Current limit

>340mA

#### Output ripple

Complies with clause 22.6.2 of the fieldbus standard†

#### Minimum load

No load

#### Maximum cable length

Determined by NI load

#### Isolation

Input to output: 250V ac rms  
Input and output to power supply: 250V ac rms

### INPUT

#### Input voltage

20 - 30V dc

#### Current consumption

490 mA (typical) 550 mA (max.) at 20V  
400 mA (typical) 460 mA (max.) at 24V  
320 mA (typical) 370 mA (max.) at 30V

#### Power dissipation with 320mA field load + 30mA host load

4.5 W (typical) 6 W (max.)

#### Input protection

Fuse + supply reversal diode



## SAFETY

### Location of module

Safe area, Zone 2, IIB T4 hazardous area or Class 1, Div 2, Groups C, D T4 hazardous location.

### Location of field wiring

Zone 2, IIB T4 hazardous area or Class 1, Div 2, Groups C, D T4 hazardous location.

### Field wiring protection

Non-incendive

### Certification Code

II 3 G EEx nA[L] IIB T4

### Safety description

14.8V, 380mA

### FM entity parameters

14.8V, 380mA

### FM Certificate number

FM3016981

### ATEX Certificate number

MTL03ATEX9112X

## MECHANICAL

### Mounting

DIN rail/surface mounting

### Module width

42mm

### Weight

360g

## LED INDICATORS

	OFF	ON
Power (green)	Power fail	Power OK
Fault (red)	Normal	Fault
Host Comm (yellow)	Comms failure	Comms OK
NI Comm (yellow)	Comms failure	Comms OK

Note: Temperature coefficient 12mV/°C. If the power supply and fieldbus cable are operated at low temperatures, the reduced resistance of the cable more than compensates for the reduction in output voltage.

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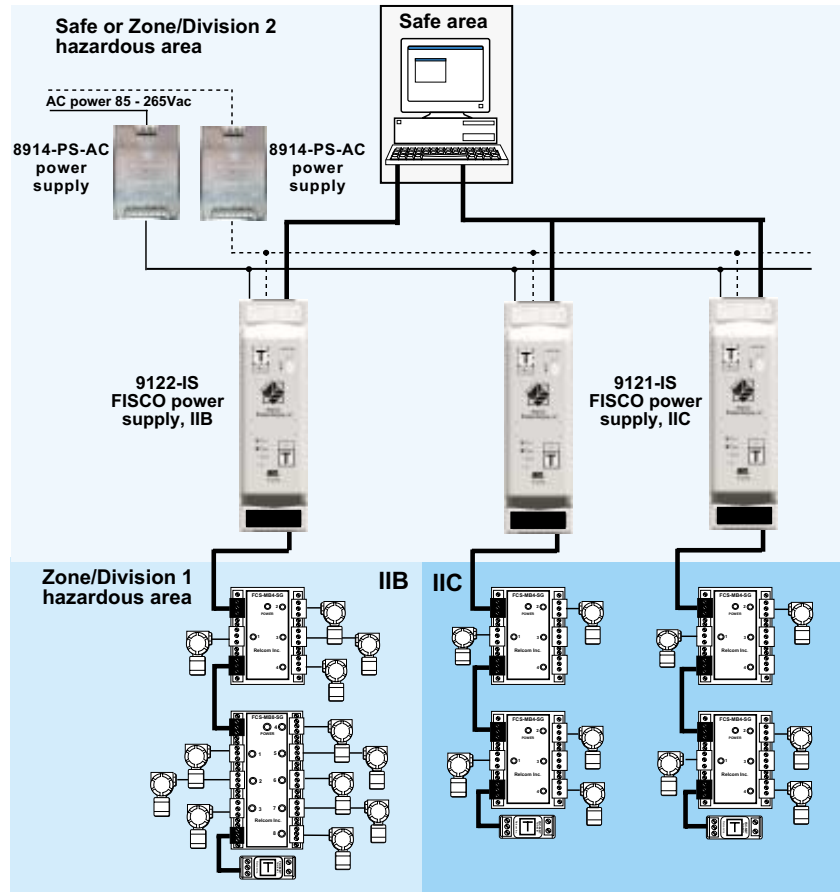
- † The applicable fieldbus specifications and standards are:
- FOUNDATION™ Fieldbus 31.25 kb/s Physical Layer Profile Specification, document FF-816.
  - IEC 61158-2: 2000.
  - ISA-S50.02-1992 for 31.25 kb/s fieldbus systems.



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# 912X-IS FISCO POWER SUPPLIES



## OVERVIEW

The 9121-IS and 9122-IS are fieldbus repeater isolators which repeat the fieldbus signal from a safe area, Zone 2 or Division 2 fieldbus to an intrinsically safe fieldbus for connection to devices in Zone or Division 1. The 9121-IS provides up to 120mA, typically powering more than 6 field devices in Gas Group IIC and the 9122-IS provides up to 265mA, typically powering more than 12 field devices in Gas Group IIB.

The 912x-IS is certified to FISCO (Fieldbus Intrinsically Safe COnccept) based on the Fieldbus FOUNDATION FF816-FISCO physical layer profile and IEC/TS 60079-27 FISCO Technical Specification. This allows the power supplied to the IS fieldbus to exceed the limit set in the original FF-816 IS physical layer profile. This increases the number of devices on an IS fieldbus from typically 4 x 20mA devices with maximum of 80m cable run, to up to 12 x 20mA devices with 250m cable run using the 9122-IS.

In addition, FISCO reduces the documentation required. Intrinsically safe systems have been installed in accordance with IEC/EN60079-14 or similar local code of practice. This requires:

- ◆ calculation of cable parameters
- ◆ comparison of safety descriptions
- ◆ creation of descriptive system document

The administrative work involved in carrying this out in accordance with the end users procedures is usually considerable. Simply adding a new field device to an IS segment will require all this documentation to be updated.

Fieldbus intrinsically safe systems can now also be installed in accordance with IEC/TS 60079-27 FISCO Technical Specification. This:

- ◆ eliminates need to calculate cable parameters
- ◆ reduces safety documentation to a list of devices
- ◆ allows addition of devices without a review of safety documentation
- ◆ as proven by test, allows longer cables with higher capacitance

To install a fieldbus system to IEC/TS 60079-27 FISCO Technical Specification, the cable used in the system must comply with the following parameters:

Loop resistance  $R_C$ : 15 to 150  $\Omega$ /km  
 Loop inductance  $L_C$ : 0,4 to 1 mH/km  
 Capacitance  $C_C$ : 80 to 200 nF/km

Maximum length of each spur cable: 30 m in IIC and IIB  
 Maximum length of each trunk cable: 1 km in IIC 5 km in IIB

When cable which complies with this specification is used, no further consideration of cable parameters is necessary. Virtually any instrument cable suitable for a fieldbus signal will comply.

Alternatively if all these cable requirements are not met on a segment, the FISCO power supplies can still be used in intrinsically safe systems, calculating the cable parameters to IEC/EN60079-14 in the usual way.

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# 9121-IS FISCO POWER SUPPLY - IIC



- ◆ Typically more than 6 IS fieldbus devices per power supply
- ◆ Fieldbus repeater
- ◆ Multidrop isolators on single fieldbus link
- ◆ Power, fault and repeater LEDs
- ◆ 250V ac input/output/power supply isolation
- ◆ Switch selectable terminator on host side
- ◆ Fixed terminator on IS side
- ◆ Switch selectable power for host side
- ◆ Mountable in Zone/Division 2

## MODULE SPECIFICATION

See also System Specification

### OUTPUT

#### Number of channels

One

#### Voltage

12.4V (min.) at 25°C (see note)

#### Design current

0 to 120mA

#### Current limit

>140mA

#### Output ripple

Complies with clause 22.6.2 of the fieldbus standard†

#### Minimum load

No load

#### Maximum cable length

Determined by IS load, see Application Note AN9026 for details

#### Isolation

Input to output: 250V ac rms

Input and output to power supply: 250V ac rms

$U_m = 250V$  rms

### INPUT

#### Input voltage

19.2 - 30V dc

#### Current consumption:

235mA (typical) 330mA (max.) at 20V

190mA (typical) 265mA (max.) at 24V

155mA (typical) 215mA (max.) at 30V

#### Power dissipation with 110mA load:

2.9W (typical) 4.3W (max.)

#### Input protection

Fuse + supply reversal diode

Note: Temperature coefficient 12mV/°C. If the power supply and fieldbus cable are operated at low temperatures, the reduced resistance of the cable more than compensates for the reduction in output voltage.

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† The applicable fieldbus specifications and standards are:

- FOUNDATION™ Fieldbus 31.25 kb/s Physical Layer Profile Specification, document FF-816.
- IEC 61158-2: 2000.
- ISA-S50.02-1992 for 31.25 kb/s fieldbus systems.

### SAFETY

#### Location of module

Safe area, Zone 2, IIC T4 hazardous area or Class 1, Div 2, Groups A, B, C, D T4 hazardous location.

#### Location of field wiring

Zone 1, IIC T4 hazardous area or Class 1, Div 1, Groups A, B, C, D T4 hazardous location.

#### Field wiring protection

Intrinsically safe

#### Certification Code

II(2) GD [EEx ib] IIC, II 3 GD EEx nA IIC T4.

#### Safety description

14V, 180mA, 2.52W, 0.20µF\*, 300µH\*

#### FM entity parameters

14V, 180mA, 2.52W, 0.20µF\*, 300µH\*

#### ATEX certificate numbers

MTL02ATEX9121

BAS02ATEX7276

#### FM certificate number

J.I.3012571

#### Certification is compatible with

Fieldbus FOUNDATION FF816-FISCO.

IEC/TS 60079-27 FISCO Technical Specification.

### MECHANICAL

#### Mounting

DIN rail/surface mounting

#### Module width

42mm

#### Weight

360g

### LED INDICATORS

	OFF	ON
Power (green)	Power fail	Power OK
Fault (red)	Normal	Fault
Host Comm (yellow)	Comms failure	Comms OK
IS Comm (yellow)	Comms failure	Comms OK

\* When used in accordance with IEC/TS 60079-27, there is no need to take into consideration  $C_o$  and  $L_o$ .



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# 9122-IS FISCO POWER SUPPLY - IIB

- ◆ Typically more than 12 IS fieldbus devices per power supply
- ◆ Fieldbus repeater
- ◆ Multidrop isolators on single fieldbus link
- ◆ Power, fault and repeater LEDs
- ◆ 250V ac input/output/power supply isolation
- ◆ Switch selectable terminator on host side
- ◆ Fixed terminator on IS side
- ◆ Switch selectable power for host side
- ◆ Mountable in Zone/Division 2

## MODULE SPECIFICATION

See also System Specification

### OUTPUT

#### Number of channels

One

#### Voltage

13.1V (min.) at 25°C (see note)

#### Design current

0 to 265mA

#### Current limit

>285mA

#### Output ripple

Complies with clause 22.6.2 of the fieldbus standard†

#### Minimum load

No load

#### Maximum cable length

Determined by IS load, see Application Note AN9026 for details

#### Isolation

Input to output: 250V ac rms  
 Input and output to power supply: 250V ac rms  
 $U_m = 250V$  rms

### INPUT

#### Input voltage

19.2 - 30V dc

#### Current consumption

380mA (typical) 495mA (max.) at 20V  
 315mA (typical) 410mA (max.) at 24V  
 255mA (typical) 330mA (max.) at 30V

#### Power dissipation with 250mA load

4.1W (typical) 6W (max.)

#### Input protection

Fuse + supply reversal diode

Note: Temperature coefficient 12mV/°C. If the power supply and fieldbus cable are operated at low temperatures, the reduced resistance of the cable more than compensates for the reduction in output voltage.

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- ISA-S50.02-1992 for 31.25 kb/s fieldbus systems.



### SAFETY

#### Location of module

Safe area, Zone 2, IIC T4 hazardous area or Class 1, Div 2, Groups A, B, C, D T4 hazardous location.

#### Location of field wiring

Zone 1, IIB T4 hazardous area or Class 1, Div 1, Groups C, D T4 hazardous location.

#### Field wiring protection

Intrinsically safe

#### Certification Code

II(2) GD [Ex ib] IIB, II 3 GD EEx nA IIB T4.

#### Safety description

14.8V, 359mA, 5.31W, 0.50µF\*, 550µH\*

#### FM entity parameters

14.8V, 359mA, 5.31W, 0.50µF\*, 550µH\*

#### ATEX certificate numbers

MTL02ATEX9122  
 BAS02ATEX7277

#### FM certificate number

J.I.3012571

#### Certification is compatible with

Fieldbus FOUNDATION FF816-FISCO.  
 IEC/TS 60079-27 FISCO Technical Specification.

### MECHANICAL

#### Mounting

DIN rail/surface mounting

#### Module width

42mm

#### Weight

360g

### LED INDICATORS

	OFF	ON
Power (green)	Power fail	Power OK
Fault (red)	Normal	Fault
Host Comm (yellow)	Comms failure	Comms OK
IS Comm (yellow)	Comms failure	Comms OK

\* When used in accordance with IEC 60079-27, there is no need to take into consideration  $C_o$  and  $L_o$ .

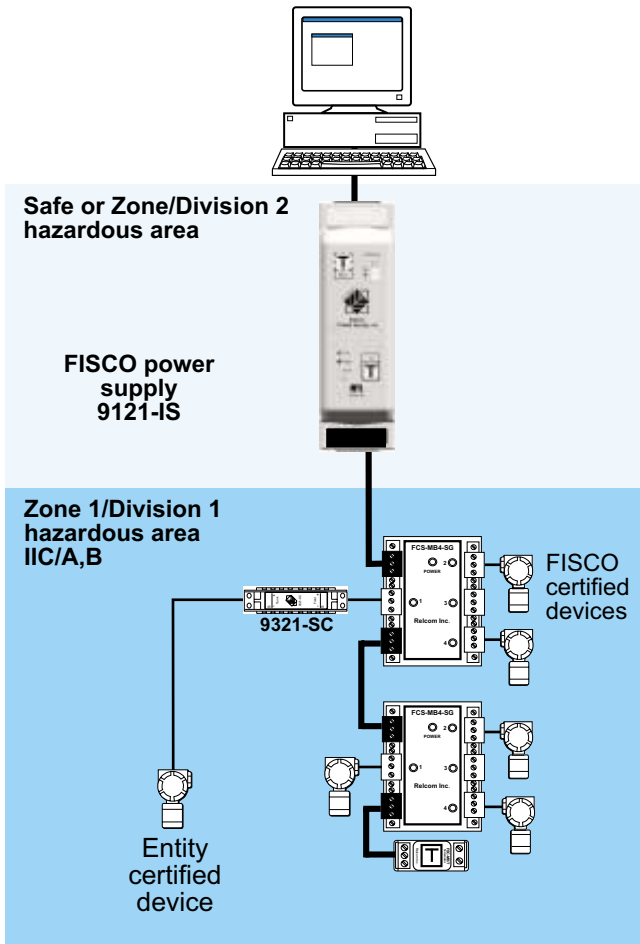


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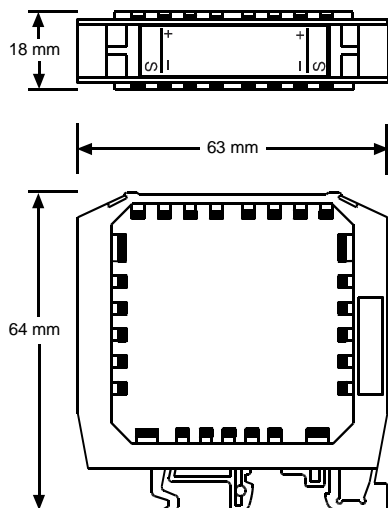
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# 9321-SC SPUR CONNECTOR - ENTITY



- ◆ **9321-SC connects FF816 entity certified devices to FISCO power supply segment**
- ◆ **DIN rail mounting**

## DIMENSIONS (9321/9322)



If field devices certified only to the FF816 IS Entity physical layer profile require to be added to a segment powered by the 9121-IS FISCO power supply, then a 9321-SC Entity spur connector can be used. This is connected in the spur, limiting the power to be compatible with the safety description of an Entity certified device, 24V, 250mA and 1.2W.



## SPECIFICATION

### OUTPUT

#### Number of channels

One

#### Current

0 to 40mA

#### Voltage drop

0.2V @ 10mA spur current

0.4V @ 20mA spur current

#### DC impedance

22Ω total spur resistance

### INPUT

#### Input voltage

<17.5V dc

### SAFETY

#### Location of connector

Zone 1, IIC T4 hazardous area or Class 1, Div 1, Groups A–D T4 hazardous location.

#### Location of field wiring

Zone 1, IIC T4 hazardous area or Class 1, Div 1, Groups A–D T4 hazardous location.

#### Certification is compatible with

Fieldbus FOUNDATION FF816-FISCO and Entity.  
IEC/TS 60079-27 FISCO Technical Specification.

#### Certification code

II 1 G EEx ia IIC T4

#### Safety description/FM entity parameters (when used with 9121-IS)

14V, 180mA, 1.19W

Baseefa Certificate Number

Baseefa03ATEX0108X

FM Certificate Number

Pending

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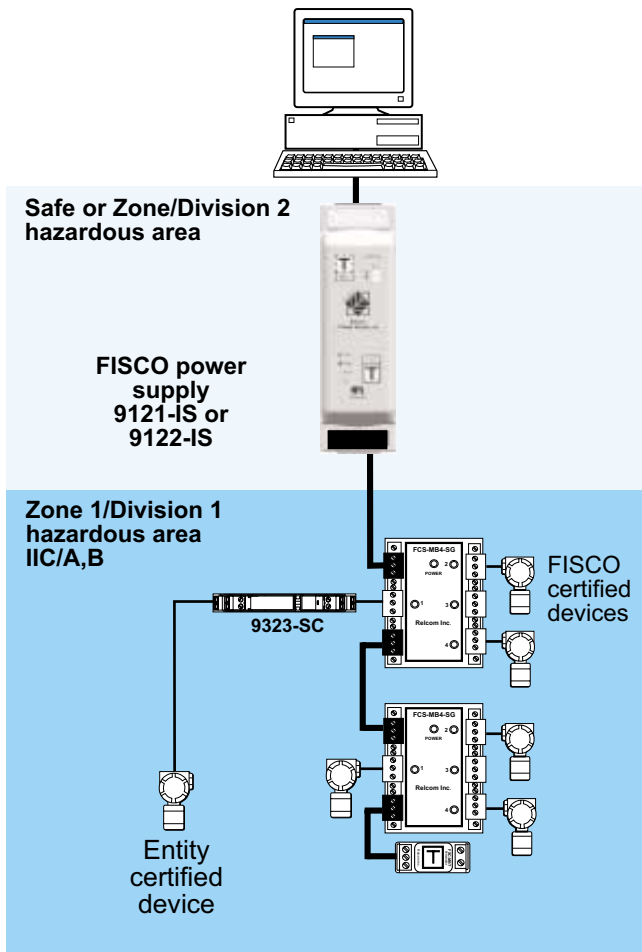
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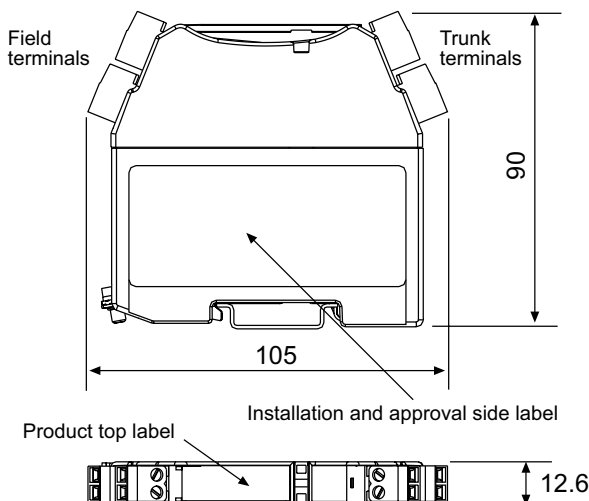
Nov 2003

# 9323-SC SPUR CONNECTOR - ENTITY



- ◆ **9323-SC connects FF816 entity certified devices to FISCO power supply segment**
- ◆ **DIN rail mounting**

## DIMENSIONS



For use with Entity certified\* devices that need to be added to a segment powered by a 9121-IS or 9122-IS FISCO power supply. The 9323-SC is connected in the spur to limit the power for compatibility with the safety description of an Entity certified device, 24V, 250mA and 1.2W.

\* To FF816 IS Entity physical layer profile



## SPECIFICATION

### OUTPUT

#### Number of channels

One

#### Current

Normal operation 0 to 40mA  
Spur short-circuit condition 60mA

#### Voltage drop

0.3V @ 10mA spur current  
0.5V @ 20mA spur current

#### DC impedance

28Ω total spur resistance

### INPUT

#### Input voltage

<17.5V dc

#### Input power

≤5.31W

### SAFETY

#### Location of connector

Zone 1, IIC T4 hazardous area or Class 1, Div 1, Groups A—D  
T4 hazardous location.

#### Location of field wiring

Zone 1, IIC T4 hazardous area or Class 1, Div 1, Groups A—D  
T4 hazardous location.

#### Certification is compatible with

Fieldbus FOUNDATION FF816-FISCO and Entity.  
IEC/TS 60079-27 FISCO Technical Specification.

#### Certification code

II 1 G EEx ib IIC T4

#### Safety description/FM entity parameters

14V, 60mA, 1.05W - when used with 9121-IS  
14.8V, 60mA, 1.05W - when used with 9122-IS  
Baseefa Certificate Number Pending  
FM Certificate Number Pending

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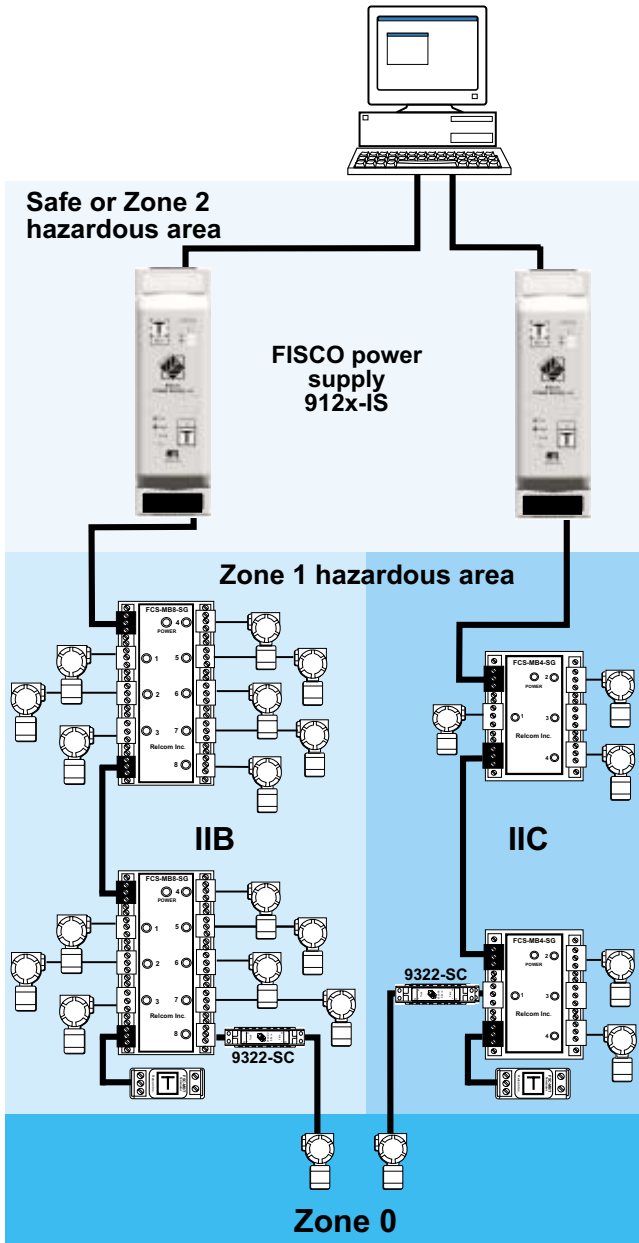


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# 9322-SC SPUR CONNECTOR - EEx ia



- ◆ **9322-SC connects devices located in Zone 0 to EEx ib fieldbus trunk**
- ◆ **DIN rail mounting**

If field devices are to be mounted in Zone 0, or have an electrical connection into Zone 0 requiring EEx ia certification of the devices, then a 9322-SC spur connector can be used. This is connected in the spur providing EEx ia current limiting. The 9322-SC is designed to work with the 9121-IS IIC or 9122-IS IIB FISCO power supplies. This can only convert a 'ib' source to a 'ia' when the source voltage is clamped to 'ia' as in the 9121 and 9122



## SPECIFICATION

### OUTPUT

#### Number of channels

One

#### Current

0 to 40mA

#### Voltage drop

0.94V @ 10mA spur current  
1.88V @ 20mA spur current

#### DC impedance

94Ω total spur resistance

### INPUT

#### Input voltage

<17.5V dc

### SAFETY

#### Location of connector

Zone 1, IIC T4 hazardous area with 9121-IS  
Zone 1, IIB T4 hazardous area with 9122-IS

#### Location of field wiring

Zone 0, IIC T4 hazardous area or Zone 0, IIB T4 hazardous area with 9122-IS

#### Certification is compatible with

Fieldbus FOUNDATION FF816-FISCO and Entity.  
IEC/TS 60079-27 FISCO Technical Specification.

#### Spur wiring protection

Intrinsically safe EEx ia

#### Certification code

II 1 G EEx ia IIC T4

Baseefa certificate number

Baseefa03ATEX0108X

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Nov 2003

## ORDERING INFORMATION

Model No.	Product Description
9111-NI-PC	FNICO power supply, IIC, with spring clamp terminals
9111-NI-PS	FNICO power supply, IIC, with screw terminals
9112-NI-PC	FNICO power supply, IIB, with spring clamp terminals
9112-NI-PS	FNICO power supply, IIB, with screw terminals
9121-IS-PC	FISCO power supply, IIC, with spring clamp terminals
9121-IS-PS	FISCO power supply, IIC, with screw terminals
9122-IS-PC	FISCO power supply, IIB, with spring clamp terminals
9122-IS-PS	FISCO power supply, IIB, with screw terminals
9321-SC	Spur Connector - Entity
9322-SC	Spur Connector - Ex ia

