

PERFORMANCE  
MADE  
SMARTER

# Product manual

## 9203

### *Solenoid / alarm driver*



Segurança  
INMETRO



TEMPERATURE | I.S. INTERFACES | COMMUNICATION INTERFACES | MULTIFUNCTIONAL | ISOLATION | DISPLAY

No. 9203V109-UK  
Product version: 9203-003

**PR**  
electronics

# 6 Product Pillars

## *to meet your every need*

### Individually outstanding, unrivalled in combination

With our innovative, patented technologies, we make signal conditioning smarter and simpler. Our portfolio is composed of six product areas, where we offer a wide range of analog and digital devices covering over a thousand applications in industrial and factory automation. All our products comply with or surpass the highest industry standards, ensuring reliability in even the harshest of environments and have a 5-year warranty for greater peace of mind.



Temperature

Our range of temperature transmitters and sensors provides the highest level of signal integrity from the measurement point to your control system. You can convert industrial process temperature signals to analog, bus or digital communications using a highly reliable point-to-point solution with a fast response time, automatic self-calibration, sensor error detection, low drift, and top EMC performance in any environment.



I.S. Interface

We deliver the safest signals by validating our products against the toughest safety standards. Through our commitment to innovation, we have made pioneering achievements in developing I.S. interfaces with SIL 2 Full Assessment that are both efficient and cost-effective. Our comprehensive range of analog and digital intrinsically safe isolation barriers offers multifunctional inputs and outputs, making PR an easy-to-implement site standard. Our backplanes further simplify large installations and provide seamless integration to standard DCS systems.



Communication

We provide inexpensive, easy-to-use, future-ready communication interfaces that can access your PR installed base of products. All the interfaces are detachable, have a built-in display for readout of process values and diagnostics, and can be configured via push-buttons. Product specific functionality includes communication via Modbus and Bluetooth and remote access using our PR Process Supervisor (PPS) application, available for iOS and Android.



Multifunction

Our unique range of single devices covering multiple applications is easily deployable as your site standard. Having one variant that applies to a broad range of applications can reduce your installation time and training, and greatly simplify spare parts management at your facilities. Our devices are designed for long-term signal accuracy, low power consumption, immunity to electrical noise and simple programming.



Isolation

Our compact, fast, high-quality 6 mm isolators are based on microprocessor technology to provide exceptional performance and EMC-immunity for dedicated applications at a very low total cost of ownership. They can be stacked both vertically and horizontally with no air gap separation between units required.



Display

Our display range is characterized by its flexibility and stability. The devices meet nearly every demand for display readout of process signals, and have universal input and power supply capabilities. They provide a real-time measurement of your process value no matter the industry, and are engineered to provide a user-friendly and reliable relay of information, even in demanding environments.

# Solenoid / alarm driver

## 9203

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## Warning



The following operations should only be carried out on a disconnected device and under ESD-safe conditions:

- General mounting, wire connection and disconnection.
- Troubleshooting the device.

**Repair of the device and replacement of circuit breakers must be done by PR electronics A/S only.**

## Warning



Do not open the front plate of the device as this will cause damage to the connector for the display / programming front PR 45xx.

This device contains no DIP-switches or jumpers.

## Symbol identification



**Triangle with an exclamation mark:** Read the manual before installation and commissioning of the device in order to avoid incidents that could lead to personal injury or mechanical damage. Warning/demand. Potentially lethal situations.



**The CE mark** proves the compliance of the device with the essential requirements of the directives.



**The double insulation symbol** shows that the device is protected by double or reinforced insulation.



**Ex devices** have been approved acc. to the ATEX directive for use in connection with installations in explosive areas. See installation drawings in appendix.

## Safety instructions

### Definitions

**Hazardous voltages** have been defined as the ranges: 75 to 1500 Volt DC, and 50 to 1000 Volt AC.

**Technicians** are qualified persons educated or trained to mount, operate, and also trouble-shoot technically correct and in accordance with safety regulations.

**Operators**, being familiar with the contents of this manual, adjust and operate the knobs or potentiometers during normal operation.

### Receipt and unpacking

Unpack the device without damaging it and check whether the device type corresponds to the one ordered. The packing should always follow the device until this has been permanently mounted.

### Environment

Avoid direct sun light, dust, high temperatures, mechanical vibrations and shock, and rain and heavy moisture. If necessary, heating in excess of the stated limits for ambient temperatures should be avoided by way of ventilation.

The device must be installed in pollution degree 2 or better.

The device is designed to be safe at least under an altitude up to 2 000 m.

## Mounting

Only technicians, who are familiar with the technical terms, warnings, and instructions in the manual and who are able to follow these, should connect the device. Should there be any doubt as to the correct handling of the device, please contact your local distributor or, alternatively,

**PR electronics A/S**  
**www.prelectronics.com**

The use of stranded wires is not permitted for mains wiring except when wires are fitted with cable ends.

Descriptions of input / output and supply connections are shown in the block diagram and on the side label.

The device is provided with field wiring terminals and shall be supplied from a Power Supply having double / reinforced insulation. A power switch shall be easily accessible and close to the device. The power switch shall be marked as the disconnecting unit for the device.

For installation on Power Rail 9400 the power is supplied by Power Control Unit 9410.

Year of manufacture can be taken from the first two digits in the serial number.

## Calibration and adjustment

During calibration and adjustment, the measuring and connection of external voltages must be carried out according to the specifications of this manual. The technician must use tools and instruments that are safe to use.

## Normal operation

Operators are only allowed to adjust and operate devices that are safely fixed in panels, etc., thus avoiding the danger of personal injury and damage. This means there is no electrical shock hazard, and the device is easily accessible.

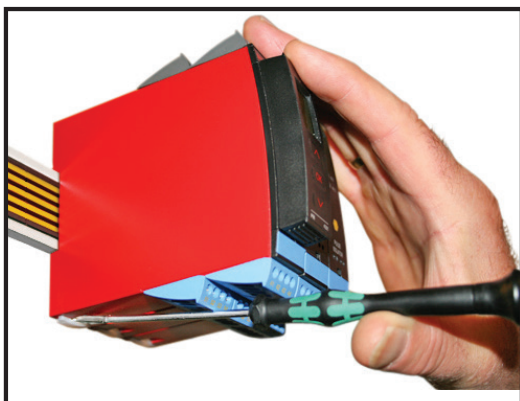
## Cleaning

When disconnected, the device may be cleaned with a cloth moistened with distilled water.

## Liability

To the extent the instructions in this manual are not strictly observed, the customer cannot advance a demand against PR electronics A/S that would otherwise exist according to the concluded sales agreement.

## How to demount system 9000



**Picture 1:**

By lifting the bottom lock, the device is detached from the DIN rail.

# Solenoid / alarm driver 9203

- Universal driver for solenoids, acoustic alarms and LEDs
- Extended self-diagnostics
- 1 or 2 channels
- Can be supplied separately or installed on power rail, PR 9400
- SIL 2-certified via Full Assessment

## Advanced features

- The 9203Bxxxx features three built-in Ex barriers.
- Two hardware versions make it possible to choose either Low (35 mA) or High (60 mA) current output.
- Configuration and monitoring by way of detachable display front (PR 45xx).
- Selection of direct or inverted function for each channel via PR 45xx and the possibility of reducing the output current to the hazardous area to suit the application.
- Optional monitoring of the output current to the hazardous area by way of PR 45xx.
- Optional redundant supply via power rail and/or separate supply.

## Application

- The 9203Axxxx can be mounted in the safe area and in zone 2 / Class 1, Division 2, Group A, B, C, D.
- The 9203Bxxxx can be mounted in the safe area or in zone 2 / Class 1, Division 2 and transmit signals to zone 0, 1, 2 and zone 20, 21, 22 including M1 mining / Class I/II/III, Div. 1, Gr. A-G.
- Driver for the control of ON / OFF solenoids, acoustic alarms and LEDs mounted in safe or hazardous area.
- Monitoring of internal error events via the individual status relay and/or a collective electronic signal via the power rail.
- The 9203 has been designed, developed and certified for use in SIL 2 applications according to the requirements of IEC 61508.
- Suitable for the use in systems up to Performance Level "d" according to ISO-13849.

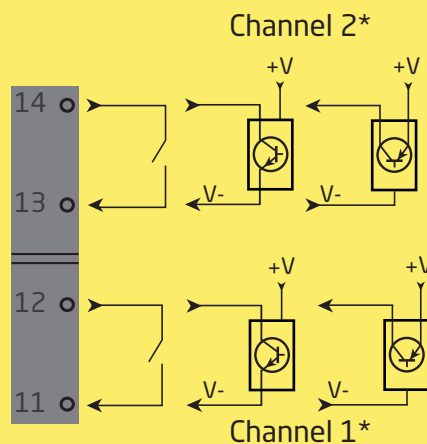
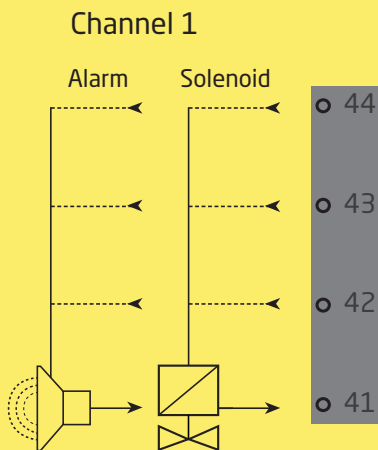
## Technical characteristics

- 1 green and 2 yellow/red front LEDs indicate operation status and malfunction.
- 2.6 kVAC galvanic isolation between input, output and supply.

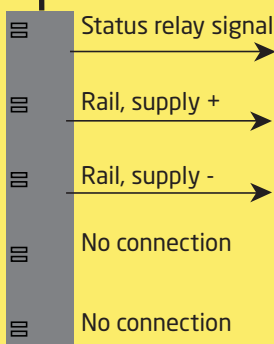
# Applications - 9203Axxxx

Output signals:

Input signals:

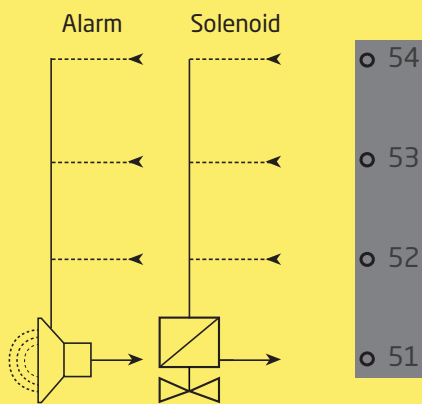


Power rail

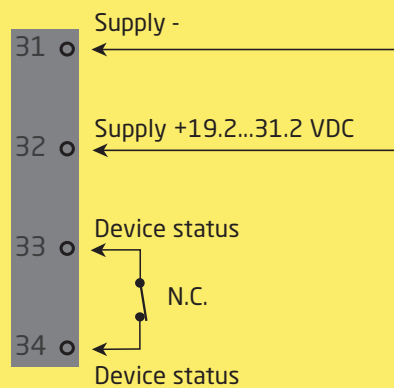


\* For full overview of input connections, refer to page 16.

Channel 2



Power connection:



Supply via power rail

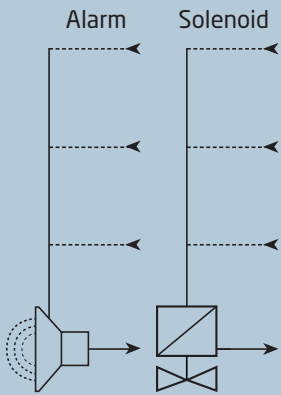
**Zone 2 & Cl. 1, Div. 2, gr. A-D or Safe Area**



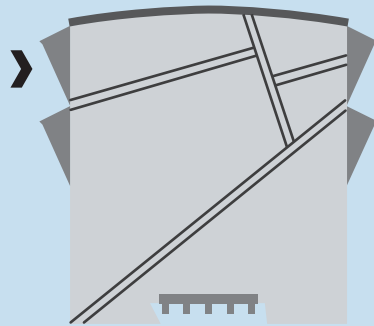
# Applications - 9203Bxxxx

## Output signals:

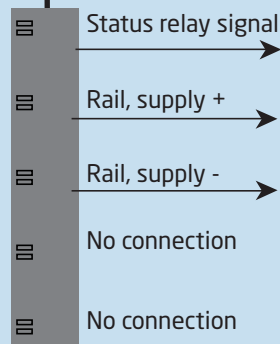
### Channel 1



- 44
- 43
- 42
- 41

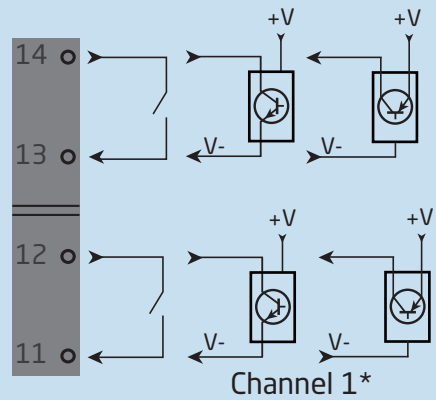


Power rail



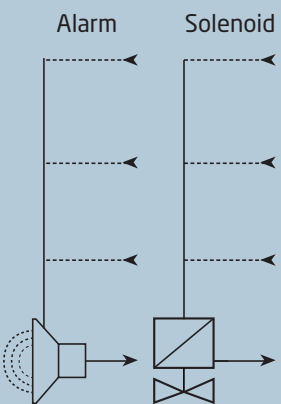
## Input signals:

### Channel 2\*

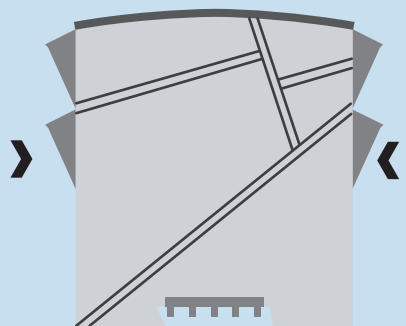


\* For full overview of input connections, refer to page 16.

### Channel 2

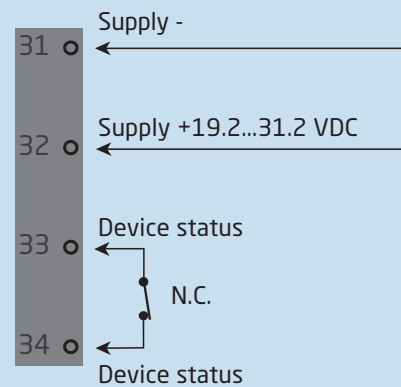


- 54
- 53
- 52
- 51



Supply via power rail

## Power connection:



**Zone 0, 1, 2,  
20, 21, 22, M1 &  
Cl. I/II/III, Div. 1  
gr. A-G**

**Zone 2 & Cl. 1, Div. 2, gr. A-D  
or Safe Area**



## PR 45xx display / programming front



### Functionality

The simple and easily understandable menu structure and the explanatory help texts guide you effortlessly and automatically through the configuration steps, thus making the product very easy to use. Functions and configuration options are described in the section "Configuration / operating the function keys".

### Application

- Communications interface for modification of operational parameters in 9203.
- When mounted in the process, the display shows process values and device status.

### Technical characteristics

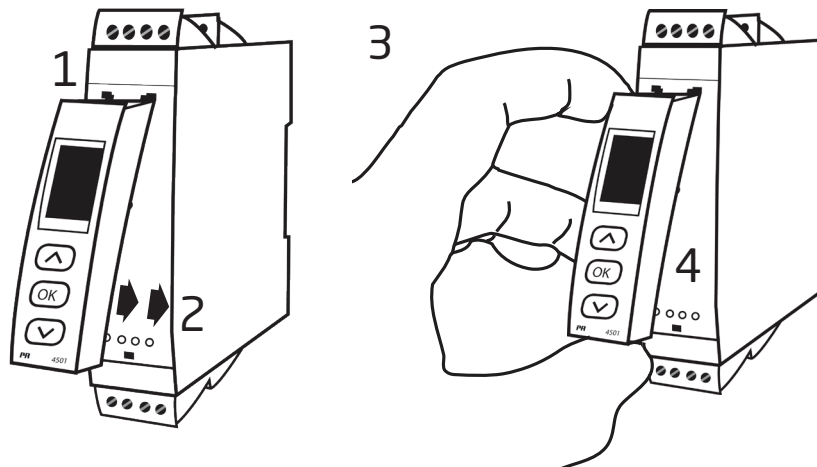
- LCD display with 4 lines:
  - Line 1 (H=5.57 mm) shows status for each channel (OK or error).
  - Line 2 (H=3.33 mm) shows output for channel 1 (ON / OFF).
  - Line 3 (H=3.33 mm) shows output for channel 2 (ON / OFF).
  - Line 4 shows whether the device is SIL-locked. Static dot = SIL-locked and flashing dot = not SIL-locked.
  - Line 4 also indicates if the output is active.
- In order to protect the configuration against unauthorised changes, access to the menus can be blocked by a password.

## Mounting / demounting the PR 45xx

- 1: Insert the tabs of the PR 45xx into the holes at the top of the device.
- 2: Hinge the PR 45xx down until it snaps into place.

### Demounting of the PR 45xx

- 3: Push the release button on the bottom of the PR 45xx and hinge the the PR 45xx out and up.
- 4: With the PR 45xx hinged up, remove from holes at the top of the device.



## Order

Type	Associated apparatus	Output	Channels	Input	I.S. / Ex approvals
9203	No : A	Low current : 1	Single : A	Opto / switch : -	ATEX, IECEx, FM, : - INMETRO, EAC-Ex
	Yes : B		Double : B	PNP : 1	
		High current : 2	Single : A	NPN : 2	cULus, ATEX, IECEx, FM, : -U9 INMETRO, EAC-Ex

Example: 9203B2B2

## Input type selector

	9203xxx-x	9203xxx1x	9203xxx2x
NPN open collector	x		x
PNP open collector	x	x	
Switch	x	x	x
Active signal		x	x

## Accessories

- 4501 = Display / programming front
- 4511 = Communication enabler
- 9400 = Power rail
- 9404 = Module stop for rail
- 9410 = Power control unit
- 9421 = Power supply 24 V - Ex nA nC

## Technical data

### Environmental conditions

- Specifications range . . . . . -20°C to +60°C
- Storage temperature . . . . . -20°C to +85°C
- Calibration temperature. . . . . 20...28°C
- Relative humidity . . . . . < 95% RH (non-cond.)
- Protection degree . . . . . IP20
- Installation in . . . . . Pollution degree 2 & overvoltage category II.

### Mechanical specifications

- Dimensions (HxWxD) . . . . . 109 x 23.5 x 104 mm
- Dimensions (HxWxD) w/ 4501 / 451x . . . . . 109 x 23.5 x 116 / 131 mm
- Weight approx. . . . . 170 g
- Weight incl. 4501 / 451x (approx.) . . . . . 185 g / 200 g
- DIN rail type. . . . . DIN EN 60715 - 35 mm
- Wire size. . . . . 0.13...2.08 mm<sup>2</sup> / AWG 26...14 stranded wire
- Screw terminal torque. . . . . 0.5 Nm
- Vibration. . . . . IEC 60068-2-6
- 2...13.2 Hz . . . . . ±1 mm
- 13.2...100 Hz. . . . . ±0.7 g

### Common electrical specifications

- Supply voltage . . . . . 19.2...31.2 VDC
- Fuse . . . . . 1.25 A SB / 250 VAC

Type	Description	Max. power dissipation	Max. required power
9203x1A-x	1 ch., low current	≤ 1.1 W	≤ 1.9 W
9203x1A1x	1 ch., low current	≤ 1.1 W	≤ 1.9 W
9203x1A2x	1 ch., low current	≤ 1.1 W	≤ 1.9 W
9203x1B-x	2 ch., low current	≤ 2.0 W	≤ 3.1 W
9203x1B1x	2 ch., low current	≤ 2.0 W	≤ 3.1 W
9203x1B2x	2 ch., low current	≤ 2.0 W	≤ 3.1 W
9203x2A-x	1 ch., high current	≤ 1.7 W	≤ 2.5 W
9203x2A1x	1 ch., high current	≤ 1.7 W	≤ 2.5 W
9203x2A2x	1 ch., high current	≤ 1.7 W	≤ 2.5 W

Max. required power is the maximum power needed at terminals 31 and 32.

Max. power dissipation is the maximum power dissipated by the device.

If the 9203 is used with the 45xx, then add 40 mW to the max. power dissipation and 70 mW to the max. required power for each device with the 45xx.

**Isolation - test / working:**

Input / output / supply . . . . . 2.6 kVAC / 250 VAC reinforced isolation  
Output 1 to output 2 . . . . . 1.5 kVAC / 150 VAC reinforced isolation  
Status relay to supply . . . . . 1.5 kVAC / 150 VAC reinforced isolation

Programming . . . . . PR 45xx

EMC - immunity influence. . . . .	< ±0.5% of span
Extended EMC immunity:	
NAMUR NE 21, A criterion, burst . . . . .	< ±1% of span

**9203xxx-x NPN open collector and mechanical switch**

Trig level LOW . . . . . ≤ 2.0 VDC  
Trig level HIGH . . . . . ≥ 4.0 VDC  
Max. external voltage . . . . . 28 VDC  
Input impedance . . . . . 3.5 kΩ  
V open input . . . . . 6.0 VDC

**9203xxx-x PNP open collector**

Trig level LOW . . . . . ≤ 8.0 VDC  
Trig level HIGH . . . . . ≥ 10.0 VDC  
Max. external voltage . . . . . 28 VDC  
Input impedance . . . . . 3.5 kΩ  
V open input . . . . . 6.0 VDC

**9203xxx1x PNP with pull-down resistor**

Trig level low . . . . . ≤ 8.0 VDC  
Trig level high . . . . . ≥ 10.0 VDC  
Max external voltage . . . . . 28 VDC  
Input impedance . . . . . 3.5 kΩ  
V open input . . . . . 6.5 VDC

**9203xxx2x NPN with pull-up resistor**

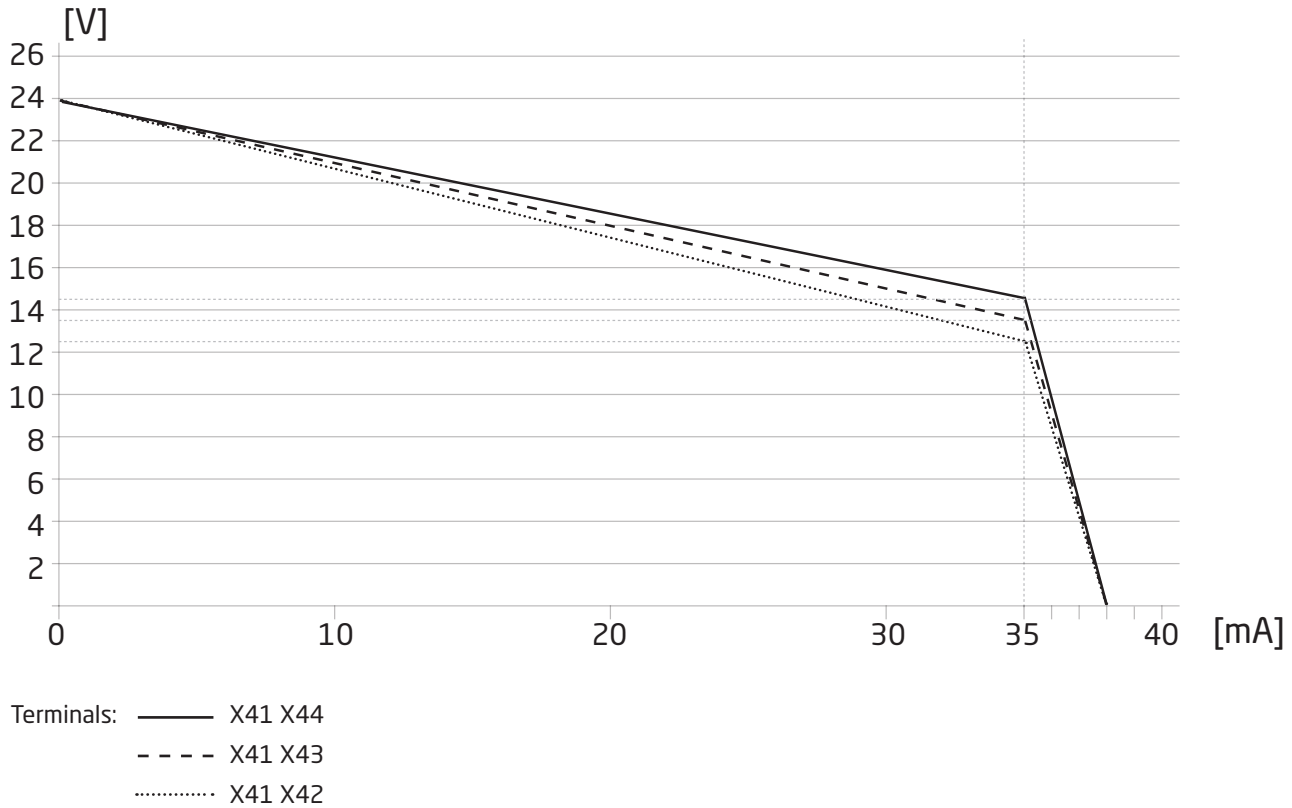
Trig level low . . . . . ≤ 2.0 VDC  
Trig level high . . . . . ≥ 4.0 VDC  
Max external voltage . . . . . 28 VDC  
Input impedance . . . . . 3.5 kΩ  
V open input . . . . . 6.0 VDC

**Outputs**

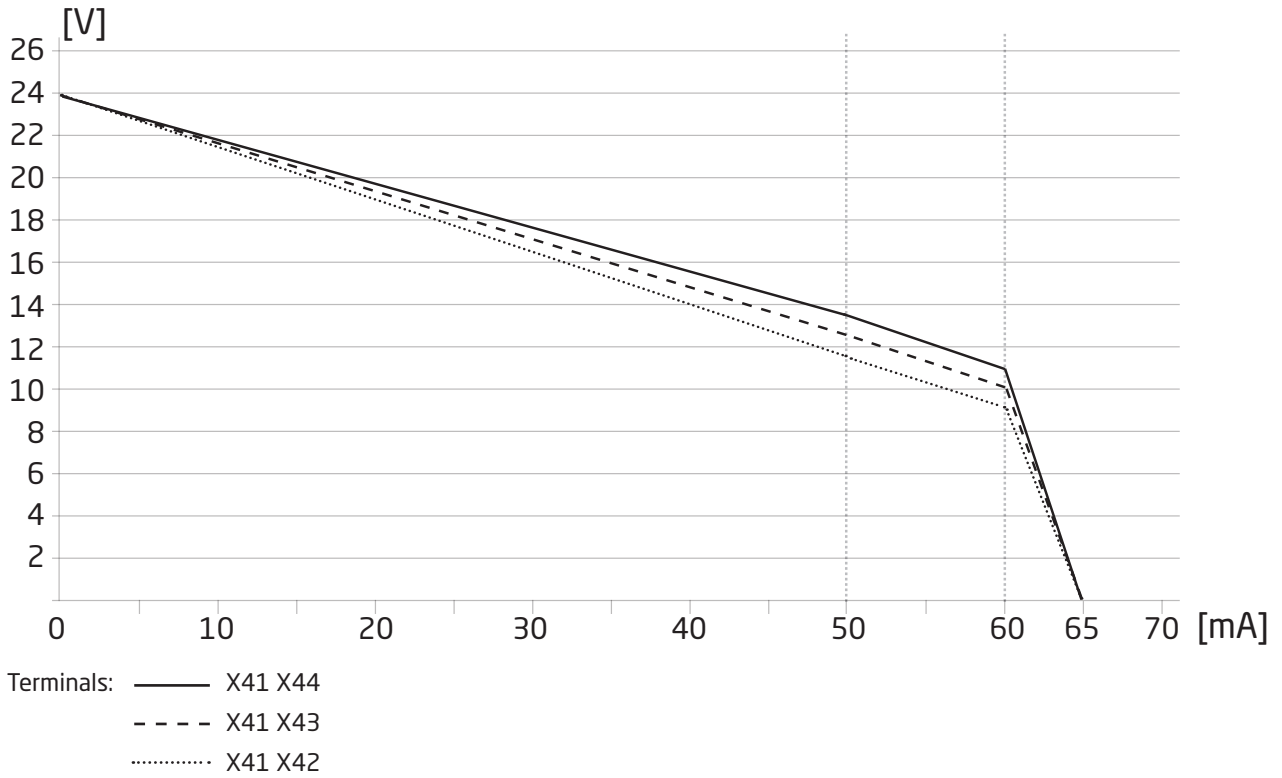
Output ripple . . . . . < 40 mV RMS

## Output loads

Terminal	9203x1Axx (1 channel) / 9203x1Bxx (2 channels)		
	41-42 / 51-52	41-43 / 51-53	41-44 / 51-54
Vout. no load	Min. 24 V	Min. 24 V	Min. 24 V
Vout. with load	Min. 12.5 V	Min. 13.5 V	Min. 14.5 V
Iout. max	35 mA	35 mA	35 mA



Terminal	9203x2Axx (1 channel)					
	41-42		41-43		41-44	
Vout. no load	Min. 24 V		Min. 24 V		Min. 24 V	
Vout. with load	Min. 11.5 V	Min. 9 V	Min. 12.5 V	Min. 10 V	Min. 13.5 V	Min. 11 V
Iout. max	50 mA	60 mA	50 mA	60 mA	50 mA	60 mA



## Relay output

Status relay in safe area:

Max. voltage . . . . .	125 VAC / 110 VDC
Max. current . . . . .	0.5 A AC / 0.3 A DC
Max. power . . . . .	62.5 VA / 32 W

## Observed authority requirements

EMC . . . . .	2014/30/EU
LVD . . . . .	2014/35/EU
ATEX . . . . .	2014/34/EU
RoHS . . . . .	2011/65/EU

## Approvals

DNV-GL, Ships & Offshore . . . . .	TAA00000JD
ClassNK . . . . .	TA18527M
c UL us, UL 61010-1. . . . .	E314307
EAC . . . . .	TR-CU 020/2011
EAC LVD . . . . .	TR-CU 004/2011
EAC Ex . . . . .	TR-CU 012/2011

## I.S. / Ex

ATEX . . . . .	KEMA 07ATEX0147 X
IECEX. . . . .	IECEX KEM 09.0001X
c FM us. . . . .	FM19US0057X / FM19CA0030X
INMETRO . . . . .	DEKRA 16.0006 X
c UL us, UL 913 (only 9203xxxx-U9). . . . .	E233311
EAC Ex . . . . .	RU C-DK.HA65.B.00355/19

## Functional Safety

SIL2 Certified & Fully Assessed acc. to IEC 61508

## Visualisation in 45xx of hardware / software error

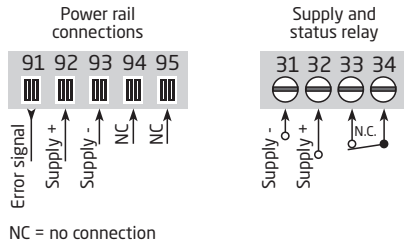
Readout at hardware error		
Error search	Readout	Cause
Communications test 45xx / 9203	NO.CO	Connection error
EEprom error - check configuration	FL.ER	Configuration error or crc mismatch, recovery configuration is loaded
Hardware error	DE.ER	Invalid recovery configuration in device
Hardware error	FC.ER	Invalid code checksum in 45xx
EEprom error - check configuration	CO.ER	Invalid configuration (CRC or data)
Hardware error	CA.ER	Factory calibration error
Hardware error	HW.ER	HW setup - configuration mismatch
Hardware error	OC.ER	Main output controller communication error
Hardware error	MS.ER	Main internal supply out of bounds
Hardware error	MI.ER	Main initialisation selftest failed
Hardware error	MC.ER	Main flash or ram selftest failed

! All error indications in the display flash once per second. The help text explains the error.

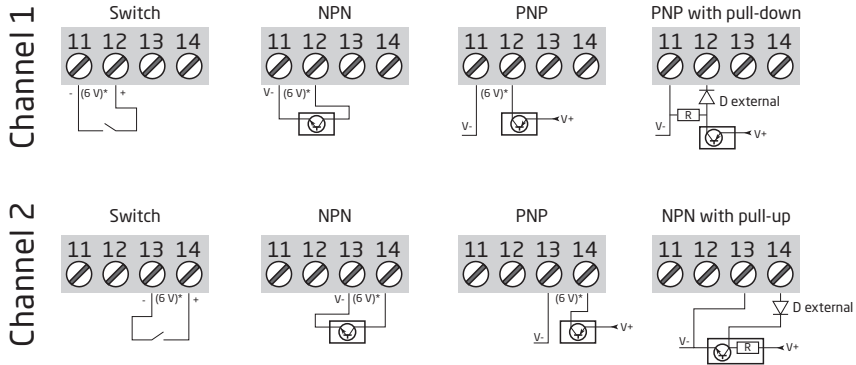
Errors affecting both channels are shown as error on channel 1 - and the line showing channel 2 is blank.

Hardware error can be reset in two ways. Either step through the menus (if the other channel is to stay in operation) or power cycle the device.

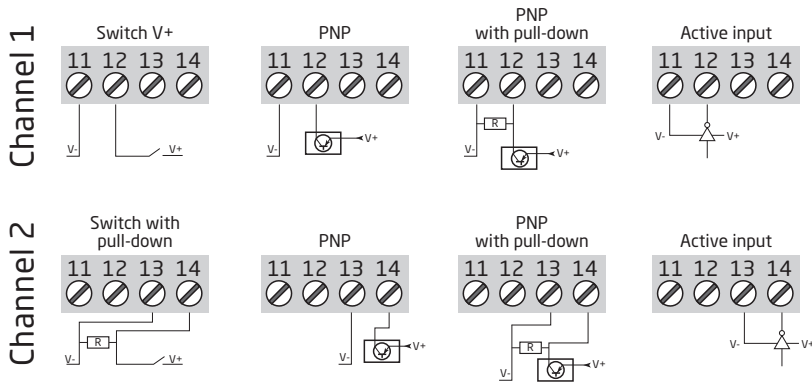
# Connections



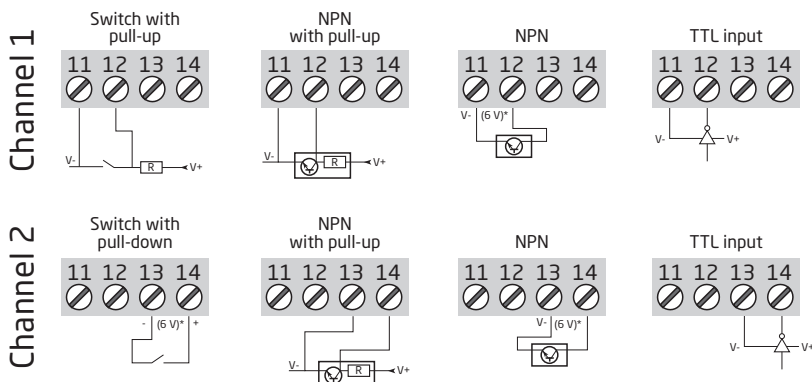
## Inputs - 9203xxx-x:



## Inputs - 9203xxx1x:



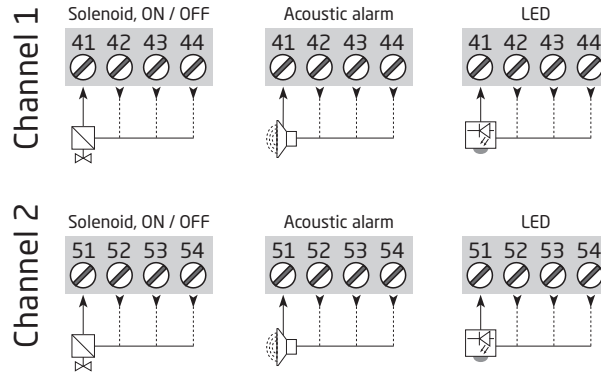
## Inputs - 9203xxx2x:



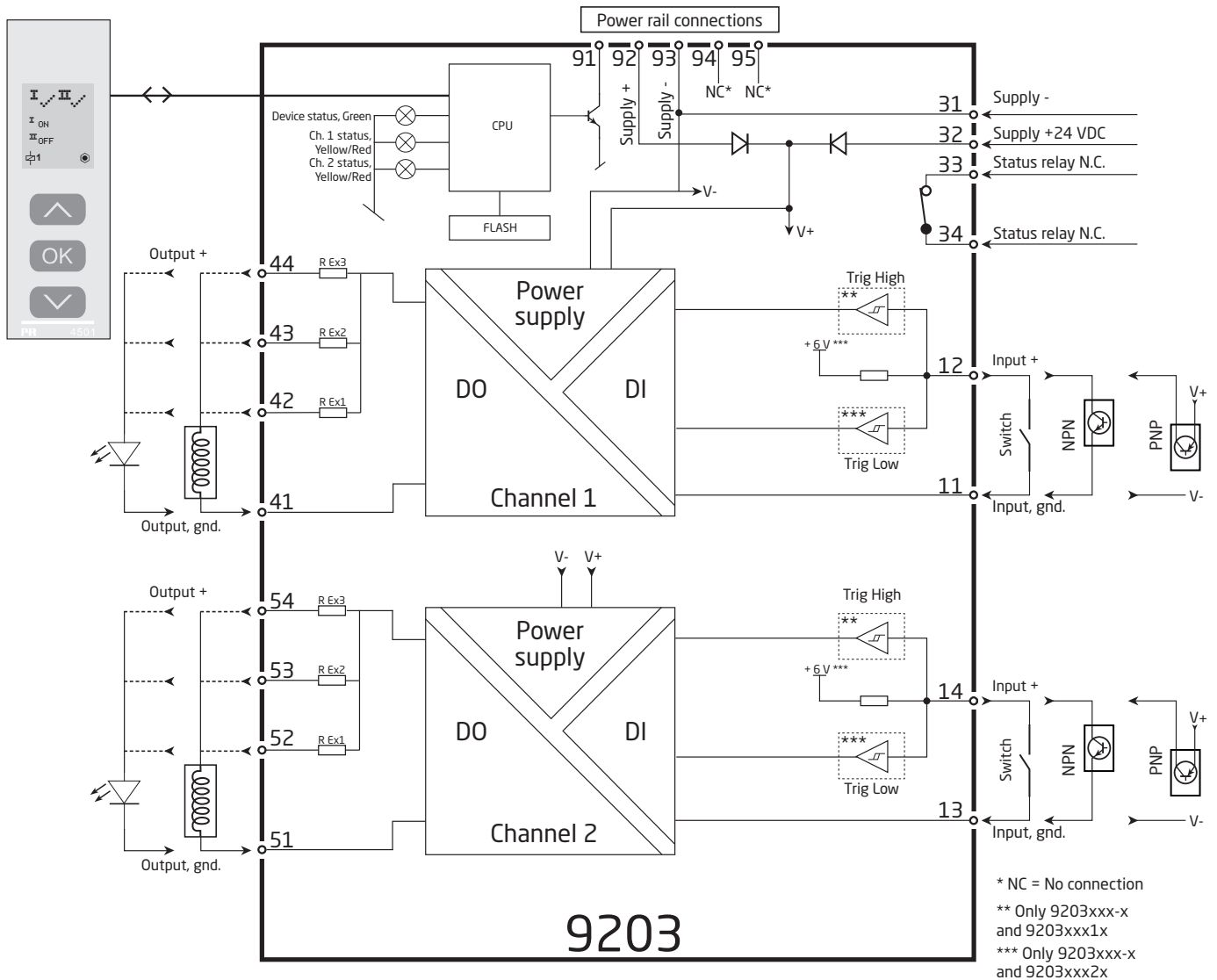
\* 6 V at open state



## Outputs - 9203xxxxx:



## Block diagram



## Signal error indications without display front

List of LED and error signal indications					
Condition	Green LED	Ch. 1: Yellow / Red	Ch. 2: Yellow / Red	Status relay, N.C.	Power rail signal status
Device OK	Flashing			Energized	OFF
No supply	OFF	OFF	OFF	De-energized	ON
Device defective	OFF	Red	Red	De-energized	ON
Ch. 1, output ON	Flashing	Yellow		Energized	OFF
Ch. 1, output OFF	Flashing	OFF		Energized	OFF
Ch. 2, output ON	Flashing		Yellow	Energized	OFF
Ch. 2, output OFF	Flashing		OFF	Energized	OFF

# Configuration / operating the function keys

Documentation for routing diagram.

## In general

When configuring the 9203, you will be guided through all parameters and you can choose the settings which fit the application. For each menu there is a scrolling help text which is automatically shown in line 3 on the display.

Configuration is carried out by use of the 3 function keys:

- ⏪ will increase the numerical value or choose the next parameter
- ⏩ will decrease the numerical value or choose the previous parameter
- ⏹ will save the chosen value and proceed to the next menu

When configuration is completed, the display will return to the default state 1.0. Pressing and holding ⏹ will return to the previous menu or return to the default state (1.0) without saving the changed values or parameters.

If no key is activated for 1 minute, the display will return to the default state (1.0) without saving the changed values or parameters.

## Further explanations

**Password protection:** Programming access can be blocked by assigning a password. The password is saved in the device in order to ensure a high degree of protection against unauthorised modifications to the configuration. If the configured password is not known, please contact PR electronics support - [www.prelectronics.com/contact](http://www.prelectronics.com/contact).

## Signal and sensor error indication via display front 45xx

The display front can be configured to show output status, output current (load) or tag no. for both channels. When selecting "ALT" the readout toggles between digital output and tag no. In case of hardware error, a help text explaining the error will be displayed.

## Advanced functions

The unit gives access to a number of advanced functions which can be reached by answering "Yes" to the point "ADV.SET".

**Display setup:** Here you can adjust the brightness contrast and the backlight. Setup of TAG numbers with 5 alphanumeric. Selection of functional readout in line 2 and 3 of the display - choose between readout of output status, output current (load) or tag no. When selecting "ALT" the readout toggles between the display options.

**Password:** Here you can choose a password between 0000 and 9999 in order to protect the unit against unauthorised modifications to the configuration. The unit is delivered default without password.

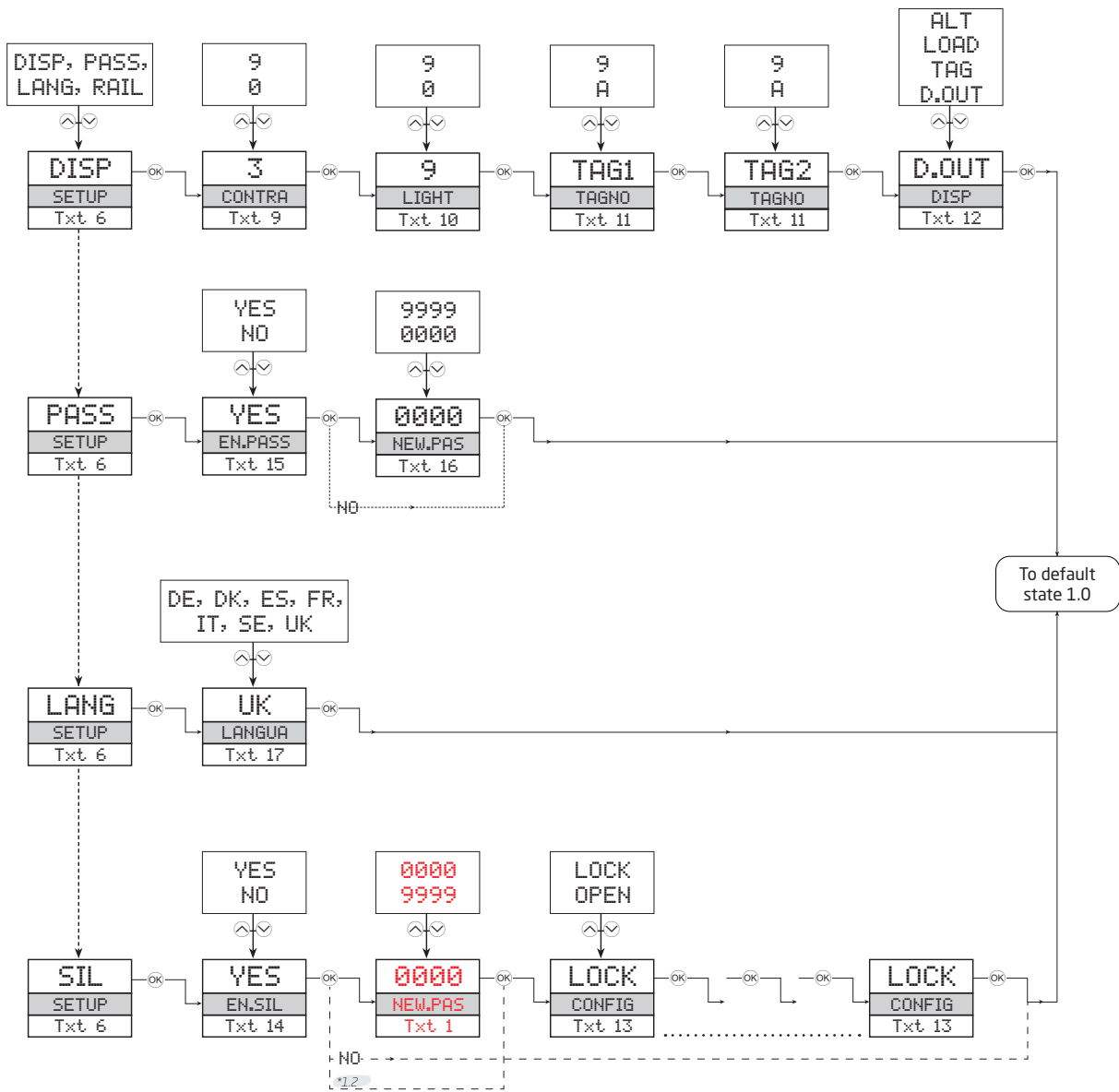
**Language:** In the menu "LANG" you can choose between 7 different language versions of help texts that will appear in the menu. You can choose between UK, DE, FR, IT, ES, SE and DK.

**Safety Integrity Level (SIL):** See Safety Manual for details. 





# Routing diagram, advanced settings (ADV.SET)



\*1.2 If password has been set.

## Help text overview

- [01] Set correct password
- [02] Enter advanced setup?
- [06] Enter language setup
  - Enter password setup
  - Enter display setup
  - Enter SIL setup
- [07] Select direct channel function
  - Select inverted channel function
- [09] Adjust LCD contrast
- [10] Adjust LCD backlight
- [11] Write a 5-character channel tag
- [12] Show output state in display
  - Show output load in display
  - Show tag in display
  - Alternate information shown in display
- [13] Configuration SIL status (Open / Locked)
- [14] Enable SIL configuration lock
- [15] Enable password protection?
- [16] Set new password
- [17] Select language
- [20] No communication - check connections
- [21] EEPROM error - check configuration
- [22] Hardware error

LERBAKKEN 10, 8410 RØNDE DENMARK

## IECEx Installation drawing



For safe installation of 9203 the following must be observed. The module shall only be installed by qualified personnel who are familiar with the national and international laws, directives and standards that apply to this area.

Year of manufacture can be taken from the first two digits in the serial number.



For Installation in Zone 2 / Division 2 the following must be observed.

The 4501 programming module is to be used solely with PRelectronics modules. It is important that the module is undamaged and has not been altered or modified in any way. Only 4501 modules free of dust and moisture shall be installed.

**IECEx Certificate:** IECEx KEM 09.0001X

**Marking 9203Bxxx** [Ex ia Ga] IIC/IIB/IIA  
Ex nA nC IIC T4 Gc  
[Ex ia Da] IIIC  
[Ex ia Ma] I

**Marking 9203Axxx** Ex nA nC IIC T4 Gc

**Standards** IEC60079-15:2010, IEC60079-11:2011, IEC60079-0:2011

Type	Installation	Current Output	Channels	Input
9203	Non Ex / Zone 2 :A	Low current :1	Single :A Double :B	Standard :- PNP : 1
	Ex-Barrier / Zone 2 :B	High current :2	Single :A	NPN : 2

### Installation notes.

Install in pollution degree 2, overvoltage category II as defined in IEC60664-1

Do not separate connectors when energized and an explosive gas mixture is present.

Do not mount or remove modules from the Power Rail when an explosive gas mixture is present.

Disconnect power before servicing.

The wiring of unused terminals is not allowed.

In type of protection [Ex ia Da] the parameters for intrinsic safety for gas group IIB are applicable.

For installation in Zone 2, the module shall be installed in an enclosure in type of protection Ex n or Ex e, providing a degree of protection of at least IP54. Cable entry devices and blanking elements shall fulfill the same requirements.

For installation on Power Rail in Zone 2, only Power Rail type 9400 supplied by Power Control Unit type 9410 (IECEx Certificate of Conformity IECEx KEM 08.0025X ) is allowed.

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Prepared by:

PB

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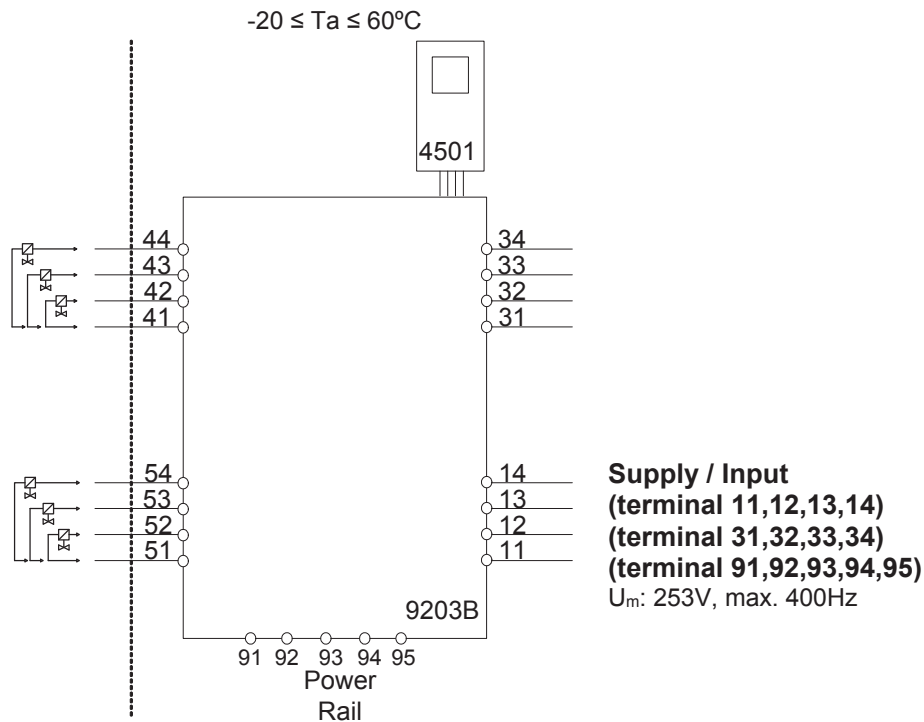
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LERBAKKEN 10, 8410 RØNDE DENMARK

9203Bxxx Installation:

Hazardous area  
Zone 0, 1, 2, 20, 21, 22

Non Hazardous area  
or Zone 2



**Terminal (31,32)  
Supply:**

Voltage 19.2 – 31.2 VDC  
Power max. 3.5 W

**Terminal (11,12 and 13,14)  
Input:**

Voltage max 28 VDC  
Trig: NPN Low < 2 V, High > 4 V  
Trig: PNP Low < 8 V, High > 10 V

**Terminal (33,34)**

**Status Relay: Non Hazardous location**  
Voltage max. 125 VAC / 110 VDC  
Power max. 62.5 VA / 32 W  
Current max. 0.5 AAC / 0.3 ADC

**Zone 2 installation**  
32 VAC / 32 VDC  
16 VA / 32 W  
0.5 AAC / 1 ADC

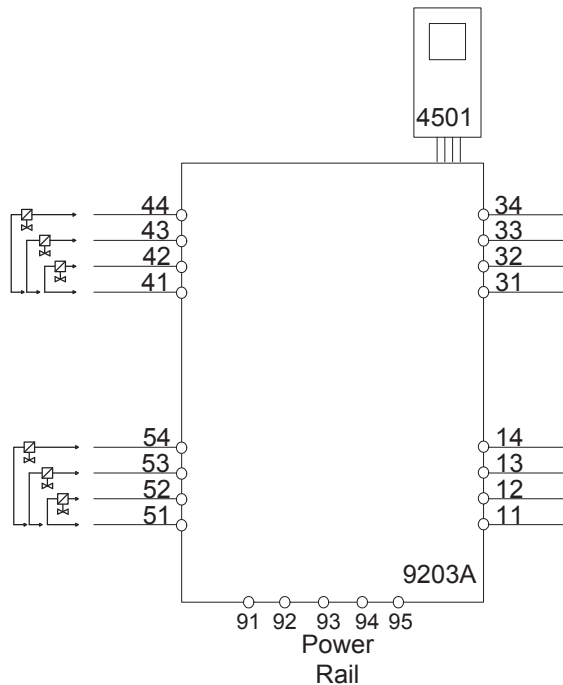


LERBAKKEN 10, 8410 RØNDE DENMARK

9203B1A, 9203B1B Terminal 41-42/51-52			Co	Lo	Lo/Ro	9203B2A Terminal 41-42			Co	Lo	Lo/Ro
Uo	28V	IIC	80nF	4.2mH	54μH/Ω	Uo	28V	IIC	80nF	2.69mH	44μH/Ω
Io	93 mA	IIB	640nF	16.8mH	218μH/Ω	Io	115mA	IIB	640nF	10.8mH	176μH/Ω
Po	0.65W	IIA	2.1μF	32.6mH	436μH/Ω	Po	0.81W	IIA	2.1μF	20.8mH	353μH/Ω
		I	3.76μF	32.6mH	436μH/Ω			I	3.76μF	20.8mH	353μH/Ω
9203B1A, 9203B1B Terminal 41-43/51-53			Co	Lo	Lo/Ro	9203B2A Terminal 41-43			Co	Lo	Lo/Ro
Uo	28V	IIC	80nF	3.5mH	54μH/Ω	Uo	28V	IIC			
Io	100mA	IIB	640nF	14.2mH	218μH/Ω	Io	125mA	IIB	640nF	9.1mH	163μH/Ω
Po	0.70W	IIA	2.1μF	27.6mH	436μH/Ω	Po	0.88W	IIA	2.1μF	17.6mH	327μH/Ω
		I	3.76μF	27.6mH	436μH/Ω			I	3.76μF	17.6mH	327μH/Ω
9203B1A,9203B1B Terminal 41-44/51-54			Co	Lo	Lo/Ro	9203B2A Terminal 41-44			Co	Lo	Lo/Ro
Uo	28V	IIC	80nF	2.9mH	46μH/Ω	Uo	28V	IIC			
Io	110mA	IIB	640nF	11.8mH	184μH/Ω	Io	135mA	IIB	640nF	7.8mH	150μH/Ω
Po	0.77W	IIA	2.1μF	22.8mH	369μH/Ω	Po	0.95W	IIA	2.1μF	15.1mH	301μH/Ω
		I	3.76μF	22.8mH	369μH/Ω			I	3.76μF	15.1mH	301μH/Ω

LERBAKKEN 10, 8410 RØNDE DENMARK

9203Axxx Installation  
Non Classified area or Zone 2



**Terminal (31,32)**

**Supply:**

Voltage 19.2 – 31.2 VDC  
Power max. 3.5 W

**Terminal (11,12 and 13,14)**

**Input:**

Voltage max 28 VDC  
Trig: NPN Low < 2 V, High > 4 V  
Trig: PNP Low < 8 V, High > 10 V

**Terminal (33,34)**

**Status Relay:**

Voltage max. 125 VAC / 110 VDC  
Power max. 62.5 VA / 32 W  
Current max. 0.5 AAC / 0.3 ADC

**Non Hazardous location**

**Zone 2 installation**

32 VAC / 32 VDC  
16 VA / 32 W  
0.5 AAC / 1 ADC

**Terminal (41...44 / 51...54)**

Umax 28 V  
Imax 135 mA  
Pmax 0.95 W

LERBAKKEN 10, 8410 RØNDE DENMARK

## ATEX Installation drawing




For safe installation of 9203 the following must be observed. The module shall only be installed by qualified personnel who are familiar with the national and international laws, directives and standards that apply to this area.  
Year of manufacture can be taken from the first two digits in the serial number.



For Installation in Zone 2 / Division 2 the following must be observed.  
The 4501 programming module is to be used solely with PRelectronics modules. It is important that the module is undamaged and has not been altered or modified in any way. Only 4501 modules free of dust and moisture shall be installed.

ATEX Certificate      KEMA 07ATEX 0147 X

**Marking 9203B**      II (1) G [Ex ia Ga] IIC/IIB/IIA  
 II 3G Ex nA nC IIC T4 Gc  
 I (1) D [Ex ia Da] IIIC  
 I (M1) [Ex ia Ma] I

**Marking 9203A**      II 3G Ex nA nC IIC T4 Gc

**Standards**              EN 60079-0 : 2012, EN 60079-11 : 2012, EN 60079-15 : 2010

Type	Installation	Current Output	Channels	Input
9203	Non Ex / Zone 2      :A	Low current      :1	Single      :A	Standard      :-
			Double      :B	PNP      : 1
	Ex-Barrier / Zone 2      :B	High current      :2	Single      :A	NPN      : 2

### Installation notes.

Install in pollution degree 2, overvoltage category II as defined in EN60664-1

Do not separate connectors when energized and an explosive gas mixture is present.  
Do not mount or remove modules from the Power Rail when an explosive gas mixture is present.  
Disconnect power before servicing.  
The wiring of unused terminals is not allowed.

In type of protection [Ex ia Da] the parameters for intrinsic safety for gas group IIB are applicable.

For installation in Zone 2, the module shall be installed in an enclosure in type of protection Ex n or Ex e, providing a degree of protection of at least IP54. Cable entry devices and blanking elements shall fulfill the same requirements.

For installation on Power Rail in Zone 2, only Power Rail type 9400 supplied by Power Control Unit type 9410 (Type Examination Certificate KEMA 07ATEX0152 X) is allowed.

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PB

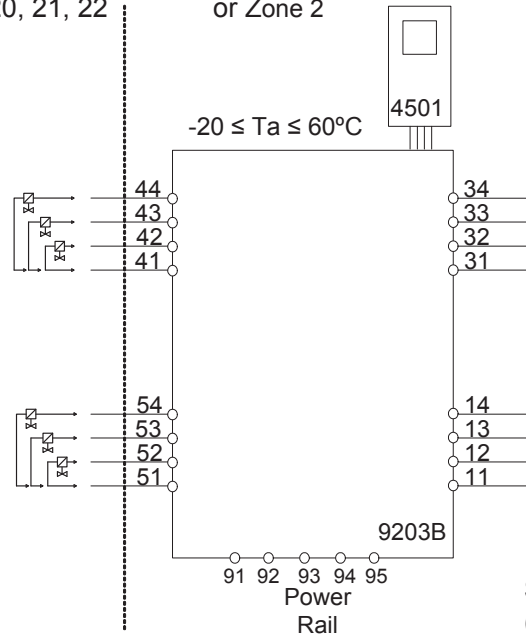
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9203Bxxx Installation:

Hazardous area  
Zone 0,1,2, 20, 21, 22

Non Hazardous Area  
or Zone 2



**Supply / Input**  
**(terminal 11,12,13,14)**  
**(terminal 31,32,33,34)**  
**(terminal 91,92,93,94,95)**  
 $U_m$ : 253V, max. 400Hz

**Terminal (31,32)**

Supply:  
Voltage 19.2 – 31.2 VDC  
Power max. 3.5 W

**Terminal (11,12 and 13,14)**

Input:  
Voltage max 28VDC  
Trig: NPN Low < 2V, High > 4V  
Trig: PNP Low < 8V, High > 10V

**Terminal (33,34)**

Status Relay:	Non Hazardous location	Zone 2 installation
Voltage max.	125 VAC / 110 VDC	32 VAC / 32 VDC
Power max.	62.5 VA / 32 W	16 VA / 32 W
Current max.	0.5 AAC / 0.3 ADC	0.5 AAC / 1 ADC

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9203B1A, 9203B1B Terminal 41-42/51-52			Co	Lo	Lo/Ro	9203B2A Terminal 41-42			Co	Lo	Lo/Ro
U <sub>o</sub>	28V	IIC	80nF	4.2mH	54μH/Ω	U <sub>o</sub>	28V	IIC	80nF	2.69mH	44μH/Ω
I <sub>o</sub>	93 mA	IIB	640nF	16.8mH	218μH/Ω	I <sub>o</sub>	115mA	IIB	640nF	10.8mH	176μH/Ω
P <sub>o</sub>	0.65W	IIA	2.1μF	32.6mH	436μH/Ω	P <sub>o</sub>	0.81W	IIA	2.1μF	20.8mH	353μH/Ω
		I	3.76μF	32.6mH	436μH/Ω			I	3.76μF	20.8mH	353μH/Ω
9203B1A, 9203B1B Terminal 41-43/51-53			Co	Lo	Lo/Ro	9203B2A Terminal 41-43			Co	Lo	Lo/Ro
U <sub>o</sub>	28V	IIC	80nF	3.5mH	54μH/Ω	U <sub>o</sub>	28V	IIC			
I <sub>o</sub>	100mA	IIB	640nF	14.2mH	218μH/Ω	I <sub>o</sub>	125mA	IIB	640nF	9.1mH	163μH/Ω
P <sub>o</sub>	0.70W	IIA	2.1μF	27.6mH	436μH/Ω	P <sub>o</sub>	0.88W	IIA	2.1μF	17.6mH	327μH/Ω
		I	3.76μF	27.6mH	436μH/Ω			I	3.76μF	17.6mH	327μH/Ω
9203B1A, 9203B1B Terminal 41-44/51-54			Co	Lo	Lo/Ro	9203B2A Terminal 41-44			Co	Lo	Lo/Ro
U <sub>o</sub>	28V	IIC	80nF	2.9mH	46μH/Ω	U <sub>o</sub>	28V	IIC			
I <sub>o</sub>	110mA	IIB	640nF	11.8mH	184μH/Ω	I <sub>o</sub>	135mA	IIB	640nF	7.8mH	150μH/Ω
P <sub>o</sub>	0.77W	IIA	2.1μF	22.8mH	369μH/Ω	P <sub>o</sub>	0.95W	IIA	2.1μF	15.1mH	301μH/Ω
		I	3.76μF	22.8mH	369μH/Ω			I	3.76μF	15.1mH	301μH/Ω

 Revision date:  
2015-01-22

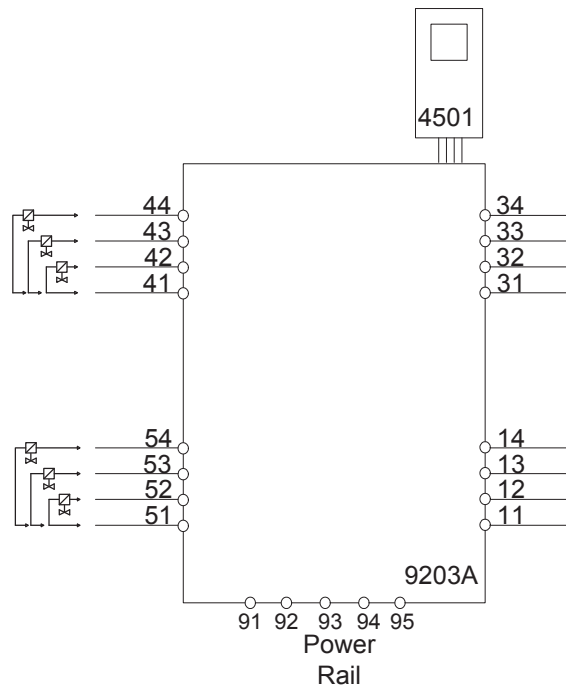
 Version Revision  
V6 R0

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PB

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9203Axxx Installation:  
Non Classified area or Zone 2



**Terminal (31,32)**

**Supply:**

Voltage 19.2 – 31.2 VDC  
Power max. 3.5 W

**Terminal (11,12 and 13,14)**

**Input:**

Voltage max 28VDC  
Trig: NPN Low < 2V, High > 4V  
Trig: PNP Low < 8V, High > 10V

**Terminal (33,34)**

**Status Relay:**

Voltage max. 125 VAC / 110 VDC  
Power max. 62.5 VA / 32 W  
Current max. 0.5 AAC / 0.3 ADC

**Non Hazardous location**

**Zone 2 installation**

32 VAC / 32 VDC  
16 VA / 32 W  
0.5 AAC / 1 ADC

**Terminal (41..44 / 51..54)**

Umax 28 V  
Imax 135 mA  
Pmax 0.95 W

LERBAKKEN 10, 8410 RØNDE DENMARK

## FM Installation drawing



For safe installation of 9203 the following must be observed. The module shall only be installed by qualified personnel who are familiar with the national and international laws, directives and standards that apply to this area.  
Year of manufacture can be taken from the first two digits in the serial number.



For Installation in Zone 2 / Division 2 the following must be observed.  
The 4501 programming module is to be used solely with PRelectronics modules. It is important that the module is undamaged and has not been altered or modified in any way. Only 4501 modules free of dust and moisture shall be installed.

Type	Installation	Current Output	Channels	Input
9203	Non Ex / Zone 2 :A	Low current :1	Single :A	Standard :-
	Ex-Barrier / Zone 2 :B		Double :B	PNP : 1
			High current :2	Single :A

### Installation notes:

In Class I, Division 2 installations, the subject equipment shall be mounted within a too-secured enclosure which is capable of accepting one or more of the Class I, Division 2 wiring methods specified in the National Electrical Code (ANSI/NFPA 70) or the Canadian Electrical Code (C22.1).

In Class I, Zone 2 installations, the subject equipment shall be mounted within a tool secured enclosure which is capable of accepting one or more of the Class I, Zone 2 wiring methods specified in the National Electrical Code (ANSI/NFPA 70) or the Canadian Electrical Code (C22.1). Where installed in outdoor or potentially wet locations, the enclosure shall, at a minimum, meet the requirements of IP54.

In Class I, Zone 2 installations, the installer shall ensure protection of supply terminals against transient voltages exceeding 140% of the rated supply voltage.

Install in environments rated Pollution Degree 2 or better; overvoltage category I or II.

The module must be supplied from a Power Supply having double or reinforced insulation.

The use of stranded wires is not permitted for mains wiring except when wires are fitted with cable ends. For installation on the 9400 Power Rail the power must be supplied from Power Control Module Unit 9410.

The module is galvanically isolated and does not require grounding.

Use 60 / 75 °C copper conductors with wire size AWG: (26-14).

The maximum internal Power dissipation for adjacent modules is assumed to be max. 2W each.

**Warning:** Substitution of components may impair intrinsic safety and / or suitability for Div. 2 / Zone 2.

**Warning:** To prevent ignition of explosive atmospheres, disconnect power before servicing and do not separate connectors when energized and an explosive gas mixture is present.

**Warning:** Do not mount or remove modules from the Power Rail when an explosive gas mixture is present.

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PB

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9203Bxxx Installation:

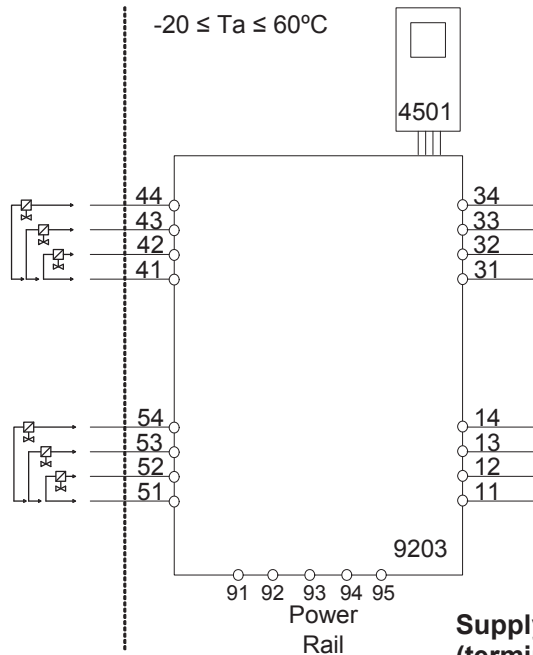
**Hazardous Classified Location**

 Class I/II/III, Division 1, Group A,B,C,D,E,F,G  
 or Class I, Zone 0/1 Group IIC, [AEx ia] IIC  
 or Group IIC, [Ex ia Ga] IIC Gc

**Unclassified Location or**
**Hazardous Classified Location**

 Class I, Division 2, Group A,B,C,D T4  
 or Class I Zone 2 Group IIC T4 Gc

Simple Apparatus or  
 Intrinsically safe apparatus  
 with entity parameters:  
 $V_{max}(U_i) \geq V_t(U_o)$   
 $I_{max}(I_i) \geq I_t(I_o)$   
 $P_i \geq P_t(P_o)$   
 $C_a(C_o) \geq C_{cable} + C_i$   
 $L_a(L_o) \geq L_{cable} + L_i$



**Supply / Input**  
**(terminal 11,12,13,14)**  
**(terminal 31,32,33,34)**  
**(terminal 91,92,93,94,95)**  
 $U_m: 253V, \text{max. } 400\text{Hz}$

**Terminal (31,32)**
**Supply:**

Voltage 19.2 – 31.2 VDC  
 Power max. 3.5 W

**Terminal (11,12 and 13,14)**
**Input:**

Voltage max 28VDC  
 Trig: NPN Low < 2V, High > 4V  
 Trig: PNP Low < 8V, High > 10V

**Terminal (33,34)**
**Status Relay:**

Voltage max. 125 VAC / 110 VDC  
 Power max. 62.5 VA / 32 W  
 Current max. 0.5 AAC / 0.3 ADC

**Non Hazardous location:**
**Division 2 or Zone 2 installation:**

32 VAC / 32VDC  
 16 VA / 32 W  
 0.5 AAC / 1 ADC



**LERBAKKEN 10, 8410 RØNDE DENMARK**

Module 9203B1A & 9203B1B Terminal 41-42 / 51-52		Co/Ca	Lo/La	Lo/Ro or La/Ra
Uo/Voc	28 V	II C or A,B	80 nF	4.2 mH
Io/Isc	93 mA	II B or C,E,F	640 nF	16.8 mH
Po	0.65 W	II A or D,G	2.1 µF	32.6 mH

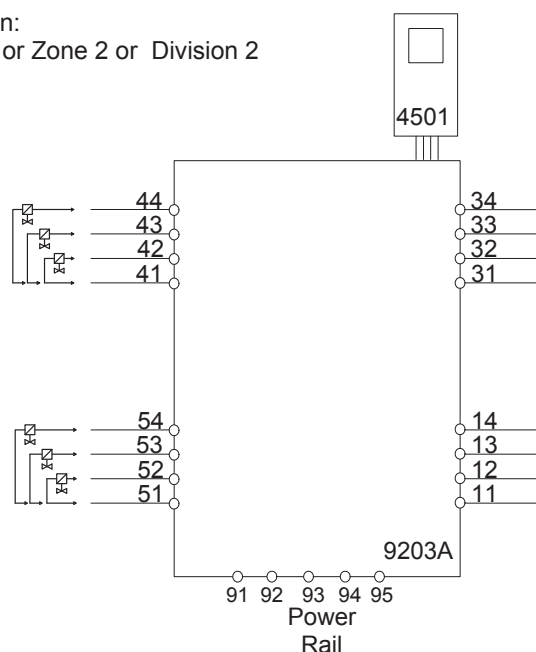
Module 9203B2A Terminal 41-42		Co/Ca	Lo/La	Lo/Ro or La/Ra
Uo/Voc	28 V	II C or A,B	80 nF	2.69 mH
Io/Isc	115 mA	II B or C,E,F	640 nF	10.8 mH
Po	0.81 W	II A or D,G	2.1 µF	20.8 mH

Module 9203B1A & 9203B1B Terminal 41-43 / 51-53		Co/Ca	Lo/La	Lo/Ro or La/Ra
Uo/Voc	28 V	II C or A,B	80 nF	3.5 mH
Io/Isc	100 mA	II B or C,E,F	640 nF	14.2 mH
Po	0.70 W	II A or D,G	2.1 µF	27.6 mH

Module 9203B2A Terminal 41-43		Co/Ca	Lo/La	Lo/Ro or La/Ra
Uo/Voc	28 V	II C or A,B		
Io/Isc	125 mA	II B or C,E,F	640 nF	9.1 mH
Po	0.88 W	II A or D,G	2.1 µF	17.6 mH

Module 9203B1A & 9203B1B Terminal 41-44 / 51-54		Co/Ca	Lo/La	Lo/Ro or La/Ra
Uo/Voc	28 V	II C or A,B	80 nF	2.9 mH
Io/Isc	110 mA	II B or C,E,F	640 nF	11.8 mH
Po	0.77 W	II A or D,G	2.1 µF	22.8 mH

Module 9203B2A Terminal 41-44		Co/Ca	Lo/La	Lo/Ro or La/Ra
Uo/Voc	28 V	II C or A,B		
Io/Isc	135 mA	II B or C,E,F	640 nF	7.8 mH
Po	0.95 W	II A or D,G	2.1 µF	15.1 mH

**9203Axxx Installation:**
**Non Classified area or Zone 2 or Division 2**

**Terminal (31,32)**
**Supply:**

Voltage 19.2 – 31.2 VDC  
Power max. 3.5 W

**Terminal (11,12 and 13,14)**
**Input:**

Voltage max 28VDC  
Trig: NPN Low < 2V, High > 4V  
Trig: PNP Low < 8V, High > 10V

**Terminal (33,34)**
**Status Relay:**

Voltage max. 125 VAC / 110 VDC  
Power max. 62.5 VA / 32 W  
Current max. 0.5 AAC / 0.3 ADC

**Zone 2 installation**

32 VAC / 32 VDC  
16 VA / 32 W  
0.5 AAC / 1 ADC

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V7R0

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PB

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## UL Installation drawing



For safe installation of the Process Control Equipment (Associated Apparatus) 9203 the following must be observed. The module shall only be installed by qualified personnel who are familiar with the national and international laws, directives and standards that apply to this area.



For Installation in DIV2/Zone2 the following must be observed.  
The 4501 programming module is to be used solely with PR electronics modules. It is important that the module is undamaged and has not been altered or modified in any way. Only 4501 modules free of dust and moisture shall be installed

Model: 9203abcd-U9 Solenoid / alarm driver  
a: A or B See below  
b: 1=Low current, 2=High current  
c: A= One Channel, B= Two Channel  
d: blank = Standard, 1=PNP, 2=NPN

### Marking:



Proc. Cont. Eq. for Use in Haz. Loc.  
Install in CL I DIV2 GP A-D T4 provide  
IS circuits to CL I-III DIV 1 GP A-G  
or CL I Zn2 Gp IIC T4 provides IS  
E233311 circuits for CL I Zn0 Gp IIC/Zn20 Gp IIIC  
Um=253V [Exia] Installation Drawing: 9203QU01

The 9203Bxxx-U9 is galvanically isolating associated apparatus intended for installation in non-hazardous locations or Class I, Division 2, Groups A – D hazardous locations with intrinsically safe connections to Class I, II and III hazardous locations.



Proc. Cont. Eq. for Use in Haz. Loc.  
Install in CL I DIV2 GP A-D T4  
or CL I Zn2 Gp IIC T4  
E233311 Installation Drawing: 9203QU01

The 9203Axxx-U9 equipment is intended for installation in non-hazardous locations or Class I, Division 2, Groups A – D or Zone 2 Group IIC hazardous locations.

### Standards:

- UL 121201 NONINCENDIVE ELECTRICAL EQUIPMENT FOR USE IN CLASS I AND II, DIVISION 2 AND CLASS III, DIVISIONS 1 AND 2 HAZARDOUS (CLASSIFIED) LOCATIONS Edition 9 - Revision Date 2018/08/31
- CSA C22.2 NO. 213 NONINCENDIVE ELECTRICAL EQUIPMENT FOR USE IN CLASS I AND II, DIVISION 2 AND CLASS III, DIVISIONS 1 AND 2 HAZARDOUS (CLASSIFIED) LOCATIONS- Edition 3 - Issue Date 2017/09/01
- UL 913 STANDARD FOR INTRINSICALLY SAFE APPARATUS AND ASSOCIATED APPARATUS FOR USE IN CLASS I, II, III, DIVISION 1, HAZARDOUS (CLASSIFIED) LOCATIONS- Edition 8 - Revision Date 2015/10/16
- CSA C22.2 NO. 60079-0 EXPLOSIVE ATMOSPHERES — PART 0: EQUIPMENT — GENERAL REQUIREMENTS- Edition 3 - Issue Date 2015/10/01
- CSA C22.2 NO. 60079-11:14 EXPLOSIVE ATMOSPHERES — PART 11: EQUIPMENT PROTECTION BY INTRINSIC SAFETY “I”- Edition 2 - Issue Date 2014/02/01

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LERBAKKEN 10, 8410 RØNDE DENMARK

**Installation notes 9203Axxx-U9 and 9203Bxxx-U9**

The module must be installed in a tool-secured enclosure suitable for the application in accordance with the National Electrical Code (ANSI/NFPA 70) for installation in the United States, the Canadian Electrical Code for installations in Canada, or other local codes, as applicable.

The module is galvanically isolated and does not require grounding.

Terminal 41, 42, 43, 44 are internally connected to CH1.

Terminal 51, 52, 53, 54 are internally connected to CH2.

Install in pollution degree 2, overvoltage category II in accordance with IEC 60664-1.

Use minimum 75 °C copper conductors with wire size AWG: (26-14)

**Warning:** Substitution of components may impair intrinsic safety.

**Avertissement :** La substitution des composants peut nuire à la sécurité intrinsèque'.

There are no serviceable parts in the equipment and no component substitution is permitted

**Warning:** To prevent ignition of the explosive atmospheres, disconnect power before servicing and do not separate connectors, install or remove module from Power Rail when energized and an explosive gas mixture is present.

**Avertissement :** Pour éviter l'inflammation d'atmosphères explosibles, déconnectez l'alimentation avant les opérations d'entretien. Ne montez pas ou n'enlevez pas les connecteurs quand le module est sous tension et en présence d'un mélange de gaz. Ne montez pas ou n'enlevez pas les modules du rail d'alimentation en présence d'un mélange de gaz.

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**Installation notes 9203Bxxx-U9:**

Associated Equipment /Appareillage Associé [Ex ia]

The Ex output current of this associated apparatus is limited by a resistor such that the output voltage-current plot is a straight line drawn between open-circuit voltage and short-circuit current.

Selected intrinsically safe equipment must be third party listed as intrinsically safe for the application, and have intrinsically safe entity parameters conforming with Table 1 below.

**TABLE 1:**

<u>I.S. Equipment</u>		<u>Associated Apparatus</u>
V max (or Ui)	≥	Voc or Vt (or Uo)
I max (or Ii)	≥	Isc or It (or Io)
P max, Pi	≥	Po
Ci + Ccable	≤	Ca (or Co)
Li + Lcable	≤	La (or Lo)

The module may also be connected to a simple apparatus as defined in Article 504.2 and installed and temperature classified in accordance with Article 504.10(D) of the National Electrical Code (ANSI/NFPA 70), or other local codes, as applicable.

Capacitance and inductance of the field wiring from the intrinsically safe equipment to the associated apparatus shall be calculated and must be included in the system calculations as shown in Table 1. Cable capacitance, Ccable, plus intrinsically safe equipment capacitance, Ci must be less than the marked capacitance, Ca (or Co), shown on any associated apparatus used. The same applies for inductance (Lcable, Li and La or Lo, respectively). Where the cable capacitance and inductance per foot are not known, the following values shall be used: Ccable = 60 pF/ft., Lcable = 0.2 μH/ft.

Where multiple circuits extend from the same piece of associated apparatus, they must be installed in separate cables or in one cable having suitable insulation. Refer to Article 504.30(B) of the National Electrical Code (ANSI/NFPA 70) and Instrument Society of America Recommended Practice ISA RP12.06 for installing intrinsically safe equipment.

Intrinsically safe circuits must be wired and separated in accordance with Article 504.20 of the National Electrical Code (ANSI/NFPA 70) or other local codes, as applicable.

The module has not been evaluated for use in combination with another associated apparatus.

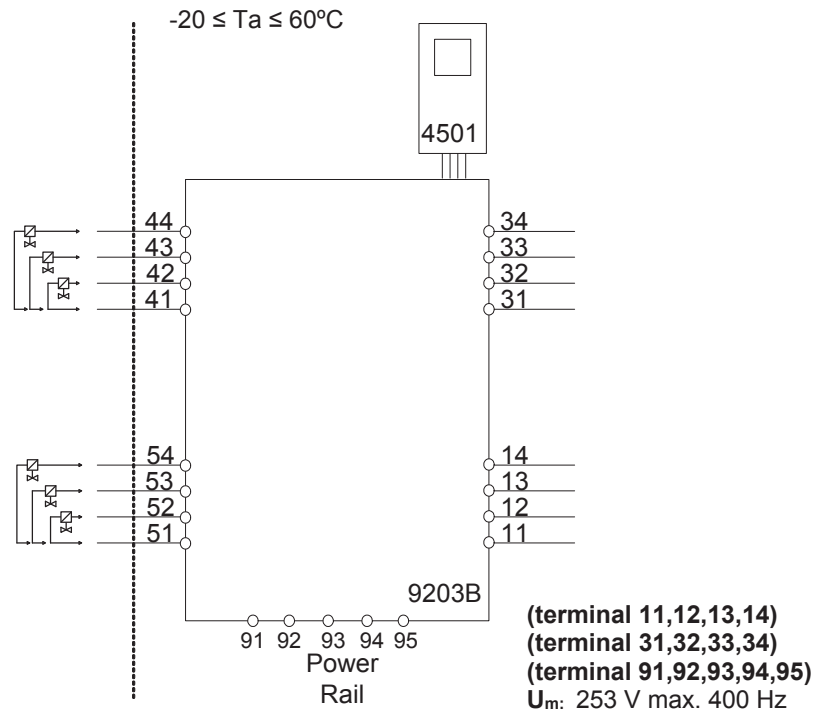
For installations in which both the Ci and Li of the intrinsically safe apparatus exceeds 1% of the Ca (or Co) and La (or Lo) parameters of the associated apparatus (excluding the cable), then 50% of Ca (or Co) and La (or Lo) parameters are applicable and shall not be exceeded. The reduced capacitance shall not be greater than 1 μF for Groups C and/or D, and 600 nF for Groups A and B. The values of Ca (or Co) and La (or Lo) determined by this method shall not be exceeded by the sum of all of Ci plus cable capacitances and the sum of all of the Li plus cable inductances in the circuit respectively.

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**9203Bxxx-U9 Installation:**
**Hazardous Classified Location**

 Class I/II/III, Division 1, Group A,B,C,D,E,F,G  
 Zone 0,1, 2 Group IIC, IIB, IIA or  
 Zone 20, 21

**Unclassified Location or  
Hazardous Classified Location**

 Class I, Division 2, Group ABCD T4  
 Class I Zone 2 Group IIC T4

**Terminal (31,32)**
**Supply:**

 Voltage            19.2 – 31.2 VDC  
 Power max.        3.5 W

**Terminal (11,12 and 13,14)**
**Input:**

 Voltage            max 28VDC  
 Trig: NPN        Low < 2V, High > 4V  
 Trig: PNP        Low < 8V, High > 10V

**Terminal (33,34)**
**Status Relay:**

 Voltage max.      125 Vac / 110 Vdc  
 Current max.      0.5 Aac / 0.3 Adc

**Non Hazardous location**
**Class I Division 2 or  
Zone 2 installation:**

 32 Vac / 32 Vdc  
 0.5 Aac / 0.3 Adc

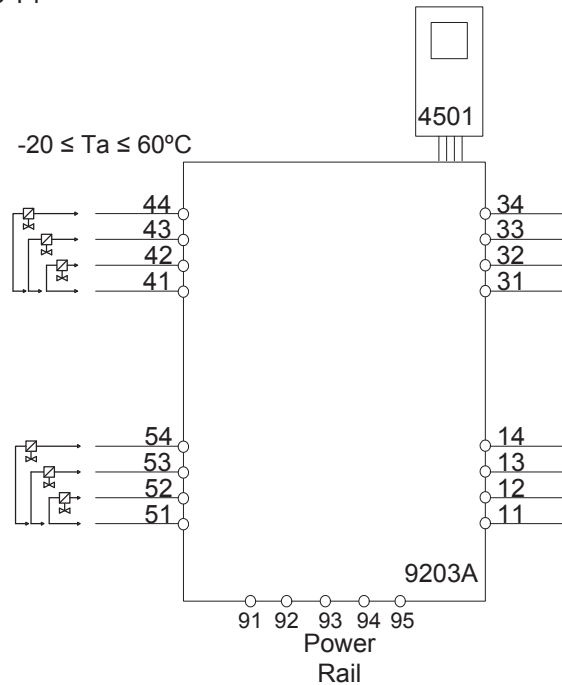
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9203B1A-U9 9203B1B-U9 Terminal 41-42/51-52			Ca, Co	La, Lo	Lo/Ro	9203B2A-U9 Terminal 41-42			Ca, Co	La, Lo	Lo/Ro
Voc, Uo	28V	IIC or A,B	80nF	4.15mH	54μH/Ω	Voc, Uo	28V	IIC or A,B	80nF	2.69mH	44μH/Ω
Isc, Io	93 mA	IIB or C,E,F	640nF	16.6mH	218μH/Ω	Isc, Io	115mA	IIB or C,E,F	640nF	10.8mH	176μH/Ω
Po	0.65W	IIA or D,G	2.1μF	32.6mH	436μH/Ω	Po	0.81W	IIA or D,G	2.1μF	20.8mH	353μH/Ω
9203B1A-U9 9203B1B-U9 Terminal 41-43/51-53			Ca, Co	La, Lo	Lo/Ro	9203B2A-U9 Terminal 41-43			Ca, Co	La, Lo	Lo/Ro
Voc, Uo	28V	IIC or A,B	80nF	3.5mH	51μH/Ω	Voc, Uo	28V	IIC or A,B			
Isc, Io	100mA	IIB or C,E,F	640nF	14.2mH	204μH/Ω	Isc, Io	125mA	IIB or C,E,F	640nF	9.1mH	163μH/Ω
Po	0.70W	IIA or D,G	2.1μF	27.6mH	408μH/Ω	Po	0.88W	IIA or D,G	2.1μF	17.6mH	327μH/Ω
9203B1A-U9 9203B1B-U9 Terminal 41-44/51-54			Ca, Co	La, Lo	Lo/Ro	9203B2A-U9 Terminal 41-44			Ca, Co	La, Lo	Lo/Ro
Voc, Uo	28V	IIC or A,B	80nF	2.9mH	46μH/Ω	Voc, Uo	28V	IIC or A,B			
Isc, Io	110mA	IIB or C,E,F	640nF	11.8mH	184μH/Ω	Isc, Io	135mA	IIB or C,E,F	640nF	7.8mH	150μH/Ω
Po	0.77W	IIA or D,G	2.1μF	22.8mH	369μH/Ω	Po	0.95W	IIA or D,G	2.1μF	15.1mH	301μH/Ω

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**9203Axxx-U9 and 9203Bxxx-U9 Installation:**

Non Hazardous area or  
Class I, Division 2, Group ABCD T4  
or Zone 2 Group IIC T4



**Terminal (31,32)**

**Supply:**

Voltage 19.2 – 31.2 VDC  
Power max. 3.5 W

**Terminal (11,12 and 13,14)**

**Input:**

Voltage max 28VDC  
Trig: NPN Low < 2V, High > 4V  
Trig: PNP Low < 8V, High > 10V

**Terminal (33,34)**

**Status Relay: Non Hazardous location**

Voltage max. 125 Vac / 110 Vdc  
Current max. 0.5 Aac / 0.3 Adc

**Class I Division 2  
Zone 2 installation**

32 Vac / 32 Vdc  
0.5 Aac / 0.3 Adc

**Terminal (41..44 / 51..54)**

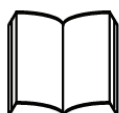
Umax 28 V  
Imax 135 mA  
Pmax 0.95 W

## INMETRO Desenhos para Instalação



Para instalação segura do 9203B o manual seguinte deve ser observado. O módulo deve ser instalado somente por profissionais qualificados que estão familiarizados com as leis nacionais e internacionais, diretrizes e normas que se aplicam a esta área.

Ano de fabricação pode ser obtido a partir dos dois primeiros dígitos do número de série.



### 4501

Para a instalação na Zona 2 o seguinte deve ser observado. O módulo de programação de 4501, deve ser utilizado apenas com os módulos PRelectronics. É importante que o módulo esteja intacto e não tenha sido alterado ou modificado de qualquer maneira. Apenas os módulos 4501 livres de poeira e umidade devem ser instalados.

**INMETRO Certificado ..... DEKRA 16.0006X**

**Marcas 9203Bxxx**

[Ex ia Ga] IIC/IIB/IIA  
Ex nA nC IIC T4 Gc  
[Ex ia Da] IIIC  
[Ex ia Ma] I

**Normas:**

ABNT NBR IEC 60079-0:2013, ABNT NBR IEC60079-11:2013,  
ABNT NBR IEC60079-15:2012

Tipo	Instalação	Saída	Canais	Entrada
9203	Barreira Ex / Zona 2 :B	Corrente baixa :1	Simples :A	Estandarte :-
			Duplo :B	PNP : 1
		Corrente alta :2	Simples :A	NPN : 2

### Notas de instalação:

Instalação em grau de poluição 2, categoria de sobretensão II conforme definido no IEC 60664-1. Os circuitos não intrinsecamente seguros só pode ser connectado para sobretensão limitado ao categoria I/II como definido na IEC 60664-1

Não separe conectores quando energizado ou quando uma mistura de gás explosivo estiver presente. Não monte ou remova módulos do trilho de alimentação quando uma mistura de gás explosivo estiver presente. Para o grupo I (minas), aplicam-se os parâmetros do grupo IIA. Desligue a alimentação antes da manutenção. A fiação de terminais sem uso não é permitida. A fonte de Loop e terminais de entrada de corrente para o mesmo canal não deve ser aplicada ao mesmo tempo.

Em tipo de proteção [Ex ia Da] os parâmetros para a segurança intrínseca para grupo de gás IIB são aplicáveis.

Para a instalação em Zona 2, o módulo deve ser instalado em um invólucro conformidade com o tipo de proteção 'Ex n' ou 'Ex e', fornecendo no mínimo grau de proteção IP54.

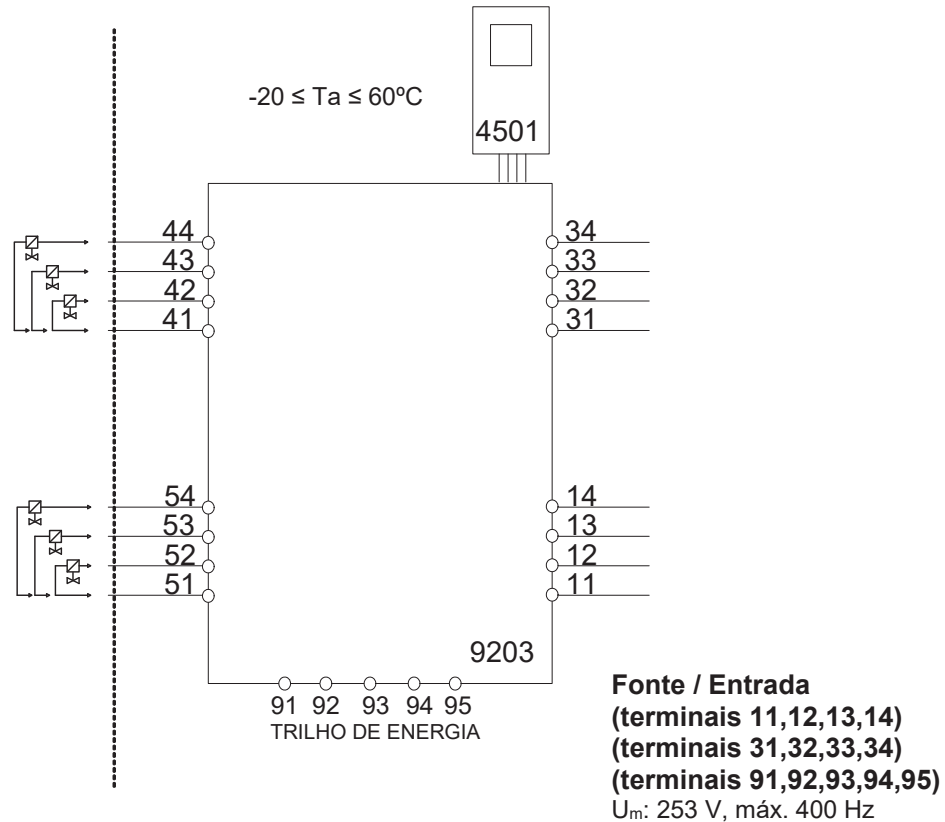
Dispositivos de entrada de cabo e elementos de vedação devem cumprir com os mesmos requisitos.

Para a instalação de trilho de energia na Zona 2, apenas o trilho de alimentação Rail 9400 fornecido pela Unidade de Controle de Potência 9410 é permitido.



Área de classificada  
Zona 0, 1, 2, 20, 21 e 22

Área de não classificada  
ou Zona 2



**Terminal (31,32)**

**Fonte:**

Voltagem 19,2 – 31,2 VDC  
Potência máx. 3,5 W

**Terminais (11,12 e 13,14)**

**Entrada:**

Voltagem máx. 28,VDC  
Gatilho: NPN Baixo < 2,V, Alto > 4,V  
Gatilho: PNP Baixo < 8,V, Alto > 10,V

**Terminais (33,34)**

**Relê de Estado:**

Voltagem máx. 125 VAC / 110 VDC  
Potência máx. 62,5 VA / 32 W  
Corrente máx. 0,5 AAC / 0,3 ADC

**Área de não classificada**

**Instalação Zona 2**

32 VAC / 32 VDC  
16 VA / 32 W  
0,5 AAC / 1 ADC

9203B1A, 9203B1B Terminais 41-42/51-52			Co	Lo	Lo/Ro	9203B2A Terminais 41-42			Co	Lo	Lo/Ro
Uo	28V	IIC	80nF	4.2mH	54μH/Ω	Uo	28V	IIC	80nF	2.69mH	44μH/Ω
Io	93 mA	IIB	640nF	16.8mH	218μH/Ω	Io	115mA	IIB	640nF	10.8mH	176μH/Ω
Po	0.65W	IIA	2.1μF	32.6mH	436μH/Ω	Po	0.81W	IIA	2.1μF	20.8mH	353μH/Ω
9203B1A, 9203B1B Terminais 41-43/51-53			Co	Lo	Lo/Ro	9203B2A Terminais 41-43			Co	Lo	Lo/Ro
Uo	28V	IIC	80nF	3.5mH	50μH/Ω	Uo	28V	IIC			
Io	100mA	IIB	640nF	14.2mH	201μH/Ω	Io	125mA	IIB	640nF	9.1mH	163μH/Ω
Po	0.70W	IIA	2.1μF	27.6mH	402μH/Ω	Po	0.88W	IIA	2.1μF	17.6mH	327μH/Ω
9203B1A,9203B1B Terminais 41-44/51-54			Co	Lo	Lo/Ro	9203B2A Terminais 41-44			Co	Lo	Lo/Ro
Uo	28V	IIC	80nF	2.9mH	46μH/Ω	Uo	28V	IIC			
Io	110mA	IIB	640nF	11.8mH	184μH/Ω	Io	135mA	IIB	640nF	7.8mH	150μH/Ω
Po	0.77W	IIA	2.1μF	22.8mH	369μH/Ω	Po	0.95W	IIA	2.1μF	15.1mH	301μH/Ω

## Document history

The following list provides notes concerning revisions of this document.

<b>Rev. ID</b>	<b>Date</b>	<b>Notes</b>
106	1707	Specifications for max. required power added. New INMETRO certificate and installation drawing.
107	1735	Connection drawings and block diagram updated.
108	1914	CCOE approval discontinued.
109	1949	Variant with UL 913 approval added. New FM certificate and installation drawing.

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