Product Manual
7908 / 7916
System 9000 Backplane
Universal wiring manual and I/O card reference list

CE

PR electronics

No. 7900UWM103-UK

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 Portable Plant 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.

System 9000 Backplane

Universal wiring manual and I/O card reference list
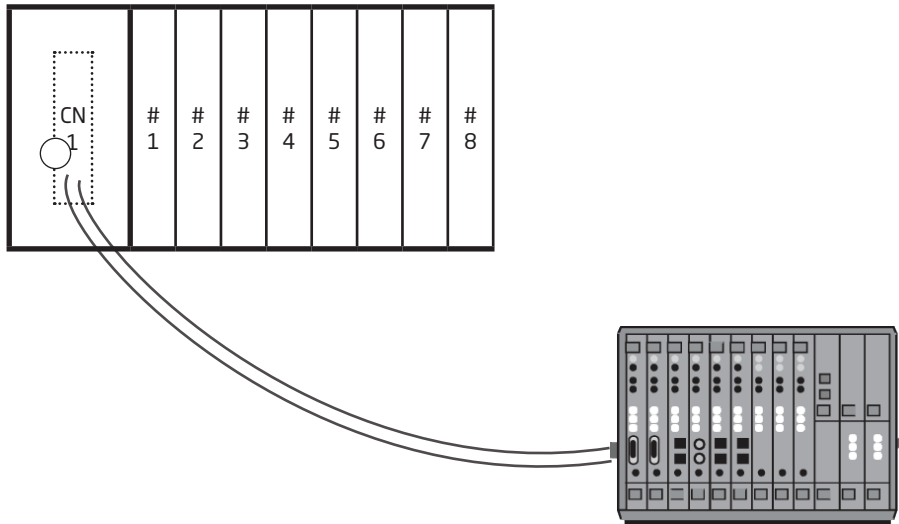
Table of contents

Order code

I/O type	PR system 9000 device	# Slot	PR ordering references
8/16 x I/O	8 x 9_ _ _ xxxx	1...8	7908-UNI-A1B 7908-UNI-H1B (HART connector)
16 x I/O	16 x 9_ _ _ xxxx	1...16	7916-UNI-H1A (HART connector)
16/32 x I/O	16 x 9_ _ _ xxxx	1...16	7916-UNI-A1B

!! Do not mix I.S. and non-I.S. devices on the same backplane

Supply and status relay connections - 7908

Backplane Single connector 7908-UNI-A1B
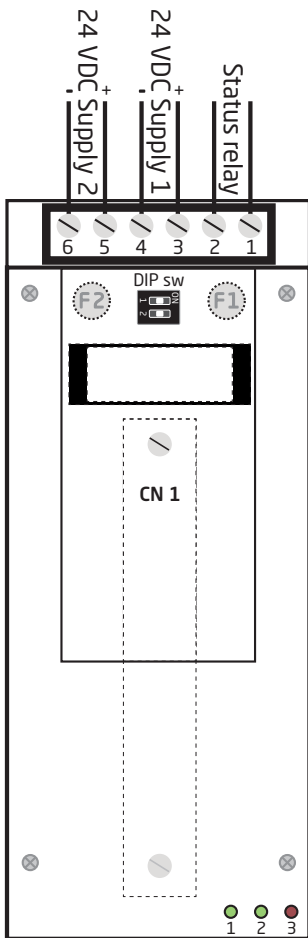
24 VDC Supply 2 − +
24 VDC Supply 1 − +
Status relay

6 5 4 3 2 1

DIP sw
F2 F1
CN 1
1 2 3

Backplane Single connector 7908-UNI-H1B

24 VDC Supply 2 − +
24 VDC Supply 1 − +
Status relay

6 5 4 3 2 1

DIP sw
F2 F1
HART Connector
CN 1
1 2 3

CN 1 SUB D 37 pole

Pin 37

Pin 1
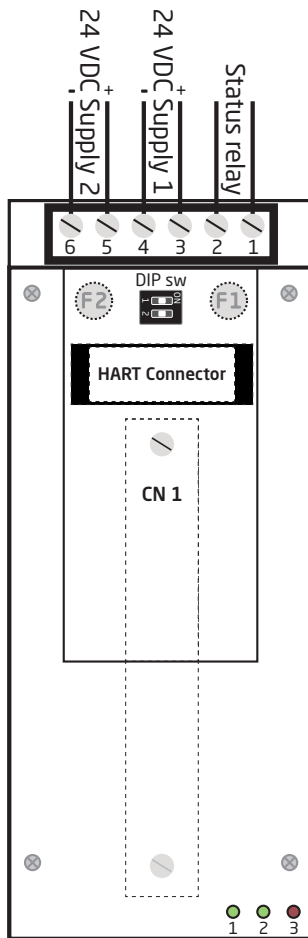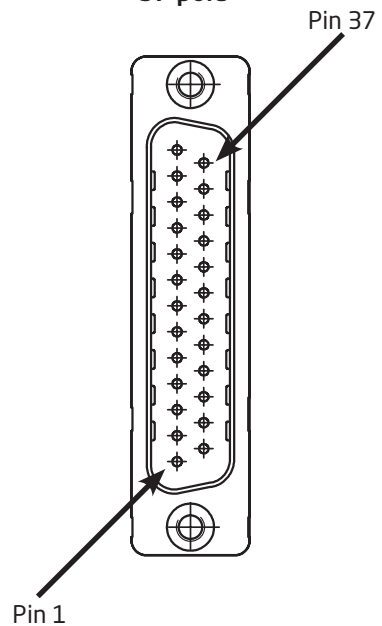
Supply and status relay connections - 7916
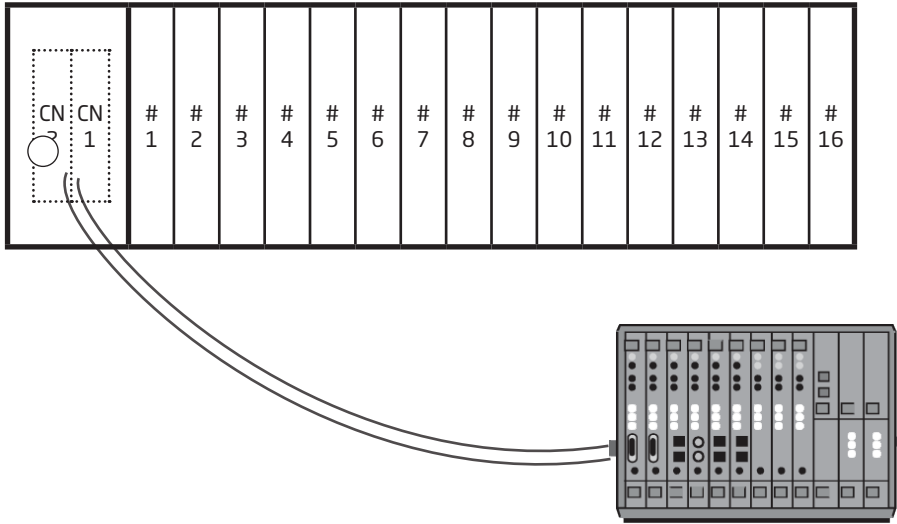
**Backplane
Single connector
7916-UNI-H1A**

24 VDC Supply 2 - +
24 VDC Supply 1 - +
Status relay

6 5 4 3 2 1

DIP sw

F2   F1

HART Connector

CN 1

1 2 3
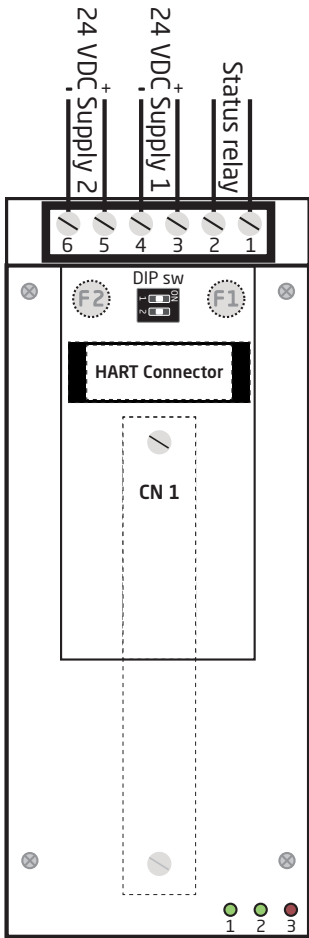
**Backplane
Dual connectors
7916-UNI-A1B**

24 VDC Supply 2 - +
24 VDC Supply 1 - +
Status relay

6 5 4 3 2 1

DIP sw

F2   F1

CN 2   CN 1

1 2 3

**CN 1 & 2
SUB D
37 pole**

Pin 37

Pin 1
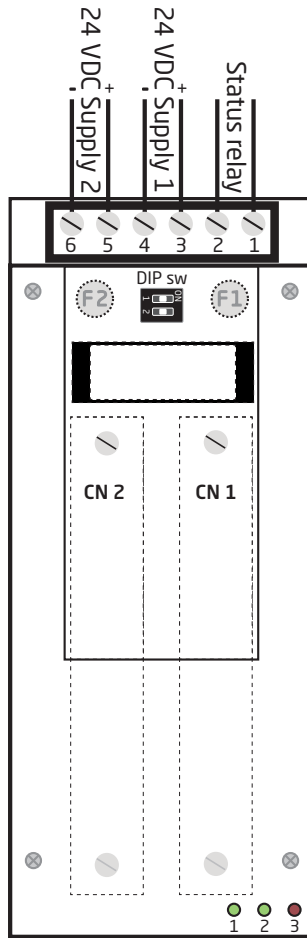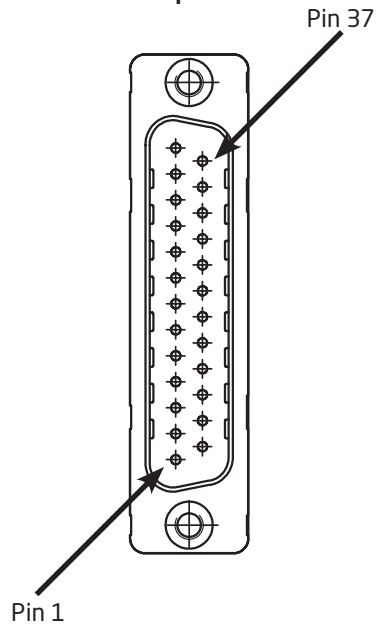
Block diagram for universal backplane 8 modules - 8/16 x I/O

The wiring shown in the table on the following page is 1:1 wiring with no components mounted in the signal chain.

Supported I/O modules:
9106xxx, 9107xx, 9113xx, 9116xx, 9202xxx and 9203xxxx.

Please note:
Check the module manual for correct Input/Output signal wiring.

Universal card wiring, 16 x uni. I/O,
2 channel modules

9_ _ _ xxxxx Field equipment terminals		Non I.S. I/O terminal	SUB-D37 adaptor CN1
Unit	Ch.		
#1	1	Pin 11	Pin 20
#1	1	Pin 12	Pin 1
#1	2	Pin 13	Pin 21
#1	2	Pin 14	Pin 2
#2	1	Pin 11	Pin 22
#2	1	Pin 12	Pin 3
#2	2	Pin 13	Pin 23
#2	2	Pin 14	Pin 4
#3	1	Pin 11	Pin 24
#3	1	Pin 12	Pin 5
#3	2	Pin 13	Pin 25
#3	2	Pin 14	Pin 6
#4	1	Pin 11	Pin 26
#4	1	Pin 12	Pin 7
#4	2	Pin 13	Pin 27
#4	2	Pin 14	Pin 8
#5	1	Pin 11	Pin 28
#5	1	Pin 12	Pin 9
#5	2	Pin 13	Pin 29
#5	2	Pin 14	Pin 10
#6	1	Pin 11	Pin 30
#6	1	Pin 12	Pin 11
#6	2	Pin 13	Pin 31
#6	2	Pin 14	Pin 12
#7	1	Pin 11	Pin 32
#7	1	Pin 12	Pin 13
#7	2	Pin 13	Pin 33
#7	2	Pin 14	Pin 14
#8	1	Pin 11	Pin 34
#8	1	Pin 12	Pin 15
#8	2	Pin 13	Pin 35
#8	2	Pin 14	Pin 16

Block diagram for universal backplane 16 modules with HART - 16 x I/O

The wiring shown in the tables on the following pages is 1:1 wiring with no components mounted in the signal chain.

Supported I/O modules:
9106xxA, 9107xA, 9113xA, 9116xx, 9202xxA and 9203xxAx.

Please note:
Check the module manual for correct Input/Output signal wiring.

**Universal card wiring, 16 x uni. I/O,
1 channel modules**

9_ _ _ xxxxx Field equipment terminals		Non I.S. I/O terminal	SUB-D37 adaptor CN1
Unit	Ch.		
#1	1	Pin 11	Pin 20
		Pin 12	Pin 1
#2	1	Pin 11	Pin 21
		Pin 12	Pin 2
#3	1	Pin 11	Pin 22
		Pin 12	Pin 3
#4	1	Pin 11	Pin 23
		Pin 12	Pin 4
#5	1	Pin 11	Pin 24
		Pin 12	Pin 5
#6	1	Pin 11	Pin 25
		Pin 12	Pin 6
#7	1	Pin 11	Pin 26
		Pin 12	Pin 7
#8	1	Pin 11	Pin 27
		Pin 12	Pin 8
#9	1	Pin 11	Pin 28
		Pin 12	Pin 9
#10	1	Pin 11	Pin 29
		Pin 12	Pin 10
#11	1	Pin 11	Pin 30
		Pin 12	Pin 11
#12	1	Pin 11	Pin 31
		Pin 12	Pin 12
#13	1	Pin 11	Pin 32
		Pin 12	Pin 13
#14	1	Pin 11	Pin 33
		Pin 12	Pin 14
#15	1	Pin 11	Pin 34
		Pin 12	Pin 15
#16	1	Pin 11	Pin 35
		Pin 12	Pin 16

Block diagram for universal backplane 16 modules - 16/32 x I/O

The wiring shown in the tables on the following pages is 1:1 wiring with no components mounted in the signal chain.

Supported I/O modules:
9106xxx, 9107xx, 9113xx, 9116xx, 9202xxx and 9203xxxx.

Please note:
Check the module manual for correct Input/Output signal wiring.

Universal card wiring, 32 x uni. I/O, 2 channel modules

9_ _ _ xxxxx Field equipment terminals		Non I.S. I/O terminal	SUB-D37 adaptor CN1
Unit	Ch.		
#1	1	Pin 11	Pin 20
		Pin 12	Pin 1
	2	Pin 13	Pin 21
		Pin 14	Pin 2
#2	1	Pin 11	Pin 22
		Pin 12	Pin 3
	2	Pin 13	Pin 23
		Pin 14	Pin 4
#3	1	Pin 11	Pin 24
		Pin 12	Pin 5
	2	Pin 13	Pin 25
		Pin 14	Pin 6
#4	1	Pin 11	Pin 26
		Pin 12	Pin 7
	2	Pin 13	Pin 27
		Pin 14	Pin 8
#5	1	Pin 11	Pin 28
		Pin 12	Pin 9
	2	Pin 13	Pin 29
		Pin 14	Pin 10
#6	1	Pin 11	Pin 30
		Pin 12	Pin 11
	2	Pin 13	Pin 31
		Pin 14	Pin 12
#7	1	Pin 11	Pin 32
		Pin 12	Pin 13
	2	Pin 13	Pin 33
		Pin 14	Pin 14
#8	1	Pin 11	Pin 34
		Pin 12	Pin 15
	2	Pin 13	Pin 35
		Pin 14	Pin 16

9_ _ _ xxxx Field equipment terminals		Non I.S. I/O terminal	SUB-D37 adaptor CN2
Unit	Ch.		
#9	1	Pin 11	Pin 20
		Pin 12	Pin 1
	2	Pin 13	Pin 21
		Pin 14	Pin 2
#10	1	Pin 11	Pin 22
		Pin 12	Pin 3
	2	Pin 13	Pin 23
		Pin 14	Pin 4
#11	1	Pin 11	Pin 24
		Pin 12	Pin 5
	2	Pin 13	Pin 25
		Pin 14	Pin 6
#12	1	Pin 11	Pin 26
		Pin 12	Pin 7
	2	Pin 13	Pin 27
		Pin 14	Pin 8
#13	1	Pin 11	Pin 28
		Pin 12	Pin 9
	2	Pin 13	Pin 29
		Pin 14	Pin 10
#14	1	Pin 11	Pin 30
		Pin 12	Pin 11
	2	Pin 13	Pin 31
		Pin 14	Pin 12
#15	1	Pin 11	Pin 32
		Pin 12	Pin 13
	2	Pin 13	Pin 33
		Pin 14	Pin 14
#16	1	Pin 11	Pin 34
		Pin 12	Pin 15
	2	Pin 13	Pin 35
		Pin 14	Pin 16

Unused terminals on SUB-D37: 17, 18, 19, 36, 37

Suggested system able for universal backplanes

Description

- Shielded round cable, assembled with one 37 pole connector on one side and sleeves on the other side.
- D-SUB 37 female connector.
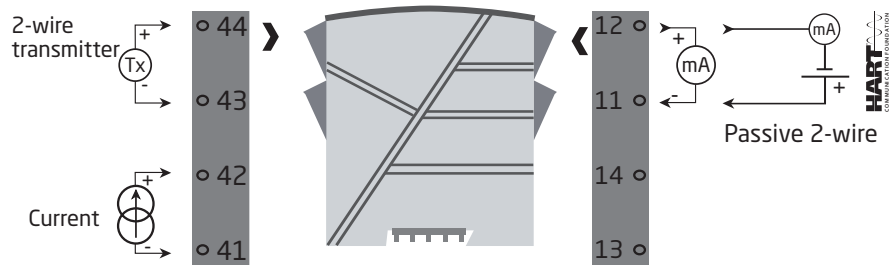- 1:1 connection.
- Cable length: Variable.

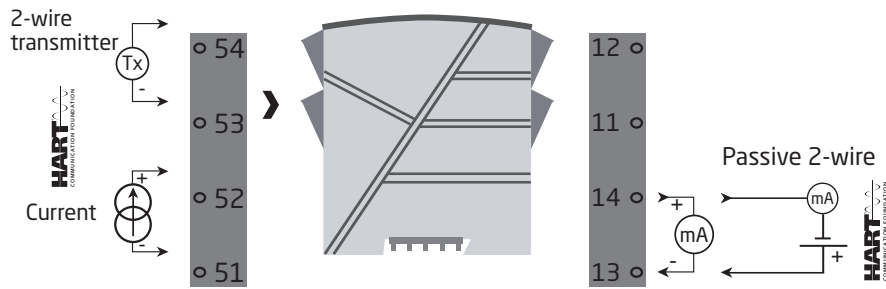Please contact us for further information.
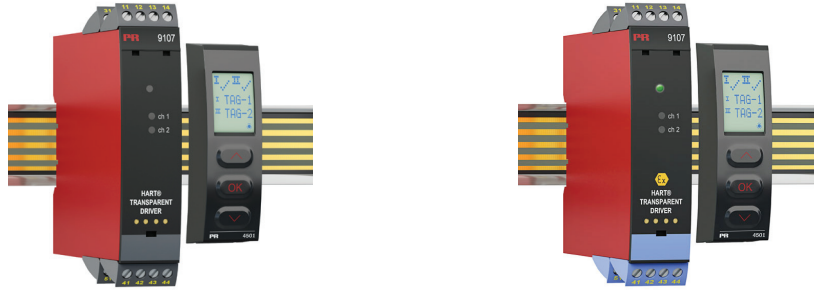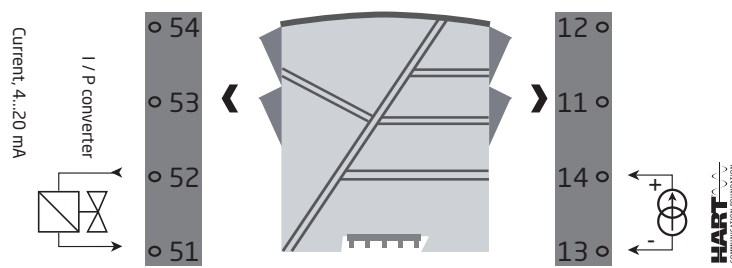
9106
HART transparent repeater

Channel 1

2-wire transmitter

+ 44

Tx

− 43

Current

+ 42

− 41

12 +

mA

11 −

mA

14

13

Passive 2-wire

Channel 2

2-wire transmitter

Tx

+ 54

−

53

Current

+ 52

−

51

12

11

14 +

mA

13 −

mA

Passive 2-wire

7900UWM103-UK

9107
HART transparent driver

Channel 1

Current, 4...20 mA

I / P converter

44
43
42
41

12
11
14
13

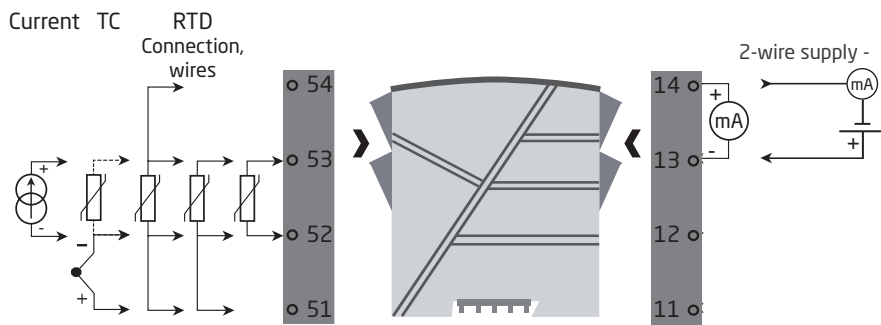Channel 2

Current, 4...20 mA
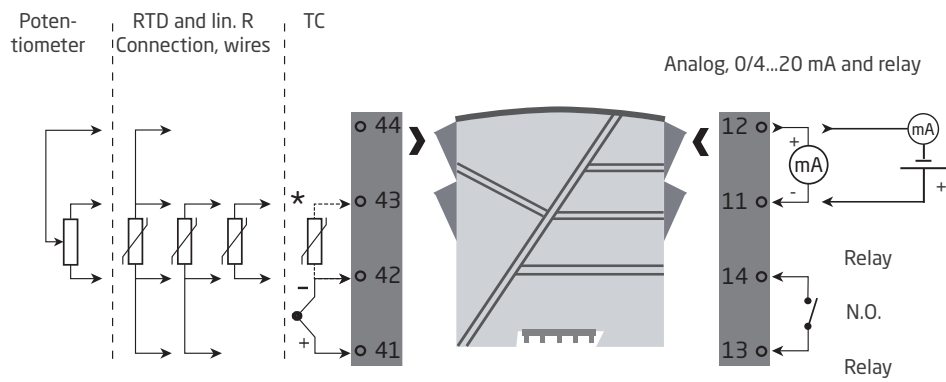
I / P converter

54
53
52
51

12
11
14
13
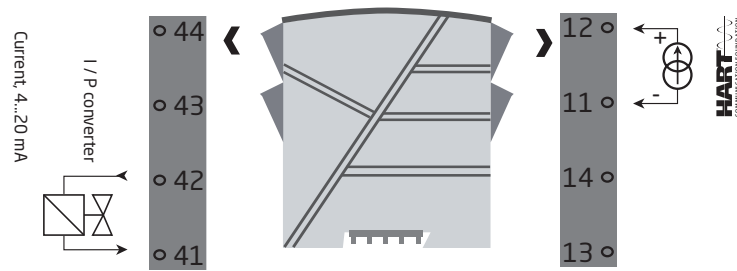
9113
Temperature / mA converter
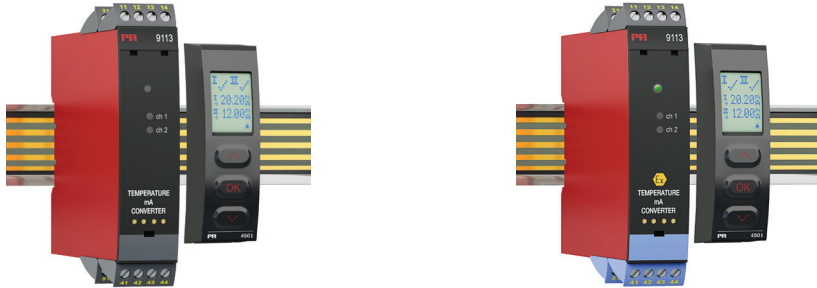
Channel 1:
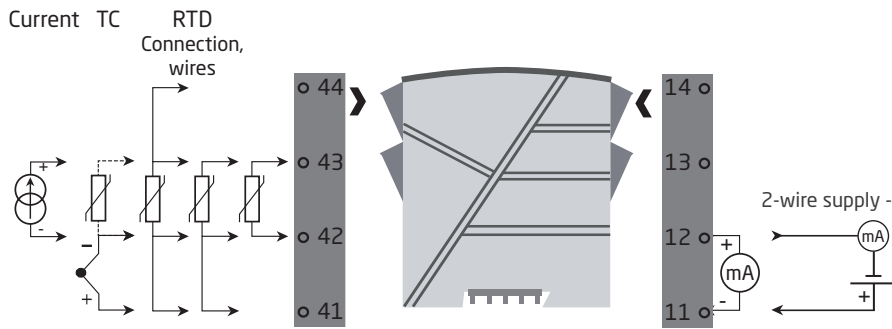
Channel 2:
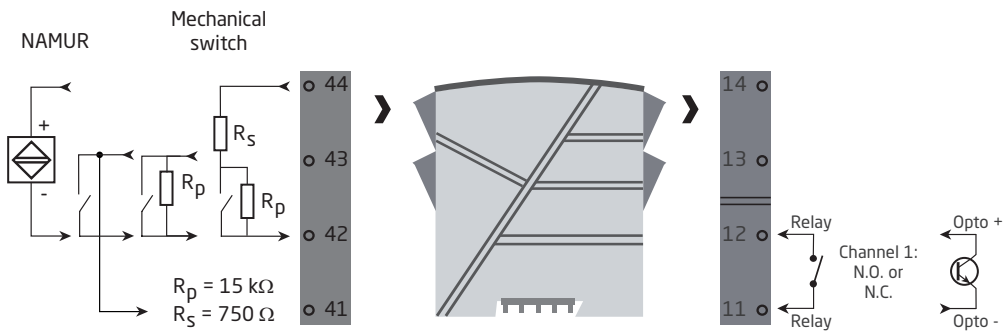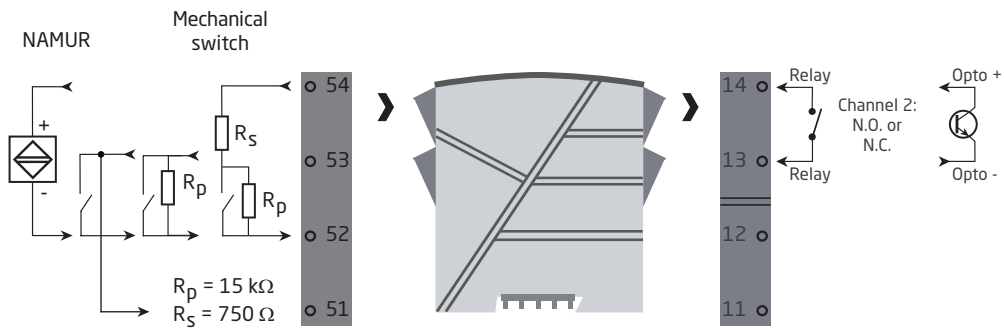
9116
Universal converter

Poten-tiometer | RTD and lin. R Connection, wires | TC

Analog, 0/4...20 mA and relay

44
43
42
41

*

−

+

12
11

+
−
mA
mA
+

Relay
N.O.
13
14

Relay
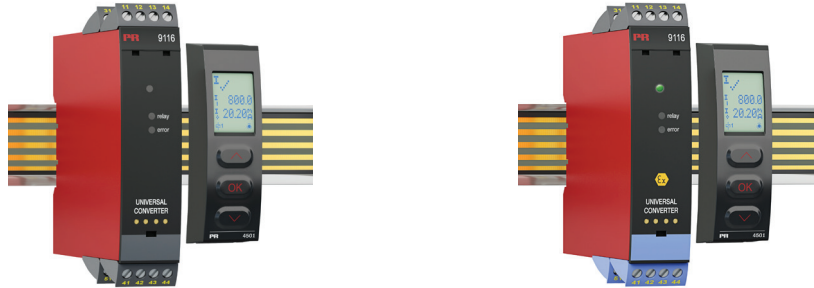
9202
Pulse isolator

Channel 1:

NAMUR

Mechanical switch

$R_p = 15\ k\Omega$
$R_s = 750\ \Omega$

44
43
42
41

14
13
12
11

Relay

Relay

Channel 1:
N.O. or
N.C.

Opto +

Opto -

Channel 2:

NAMUR

Mechanical switch

$R_p = 15\ k\Omega$
$R_s = 750\ \Omega$

54
53
52
51

14
13
12
11

Relay

Relay

Channel 2:
N.O. or
N.C.

Opto +

Opto -
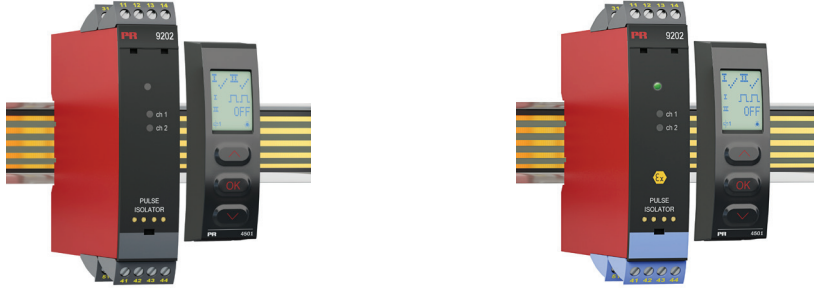
9203
Solenoid / alarm driver

Channel 1

Alarm	Solenoid			
		44		14
		43		13
		42		12
		41		11

+V   +V

Channel 2

Alarm	Solenoid			
		54		14
		53		13
		52		12
		51		11

+V   +V
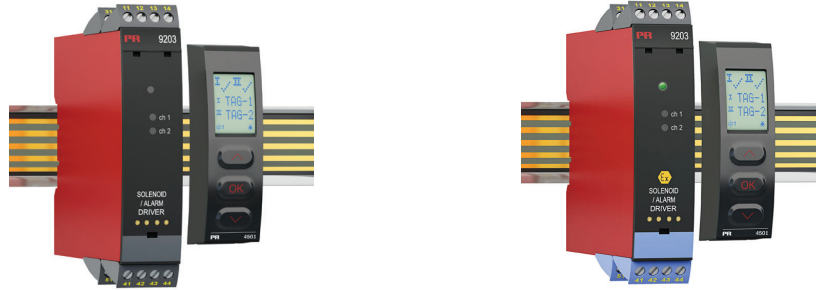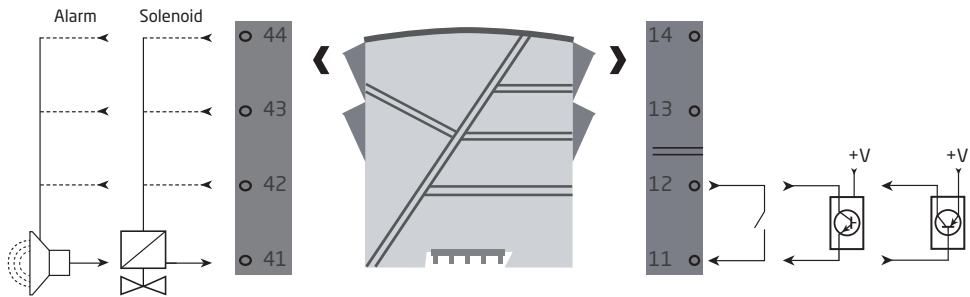
Document history

The following list provides notes concerning revisions of this document.

Rev. ID	Date	Notes
103	1906	Universal card wiring, 16 x uni. I/O with HART, added

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Our innovative, patented technologies are derived from our extensive R&D facilities and from having a great understanding of our customers' needs and processes. We are guided by principles of simplicity, focus, courage and excellence, enabling some of the world's greatest companies to achieve PERFORMANCE MADE SMARTER.

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