Signal conditioning
& Communication
Product catalog

PERFORMANCE
MADE
SMARTER

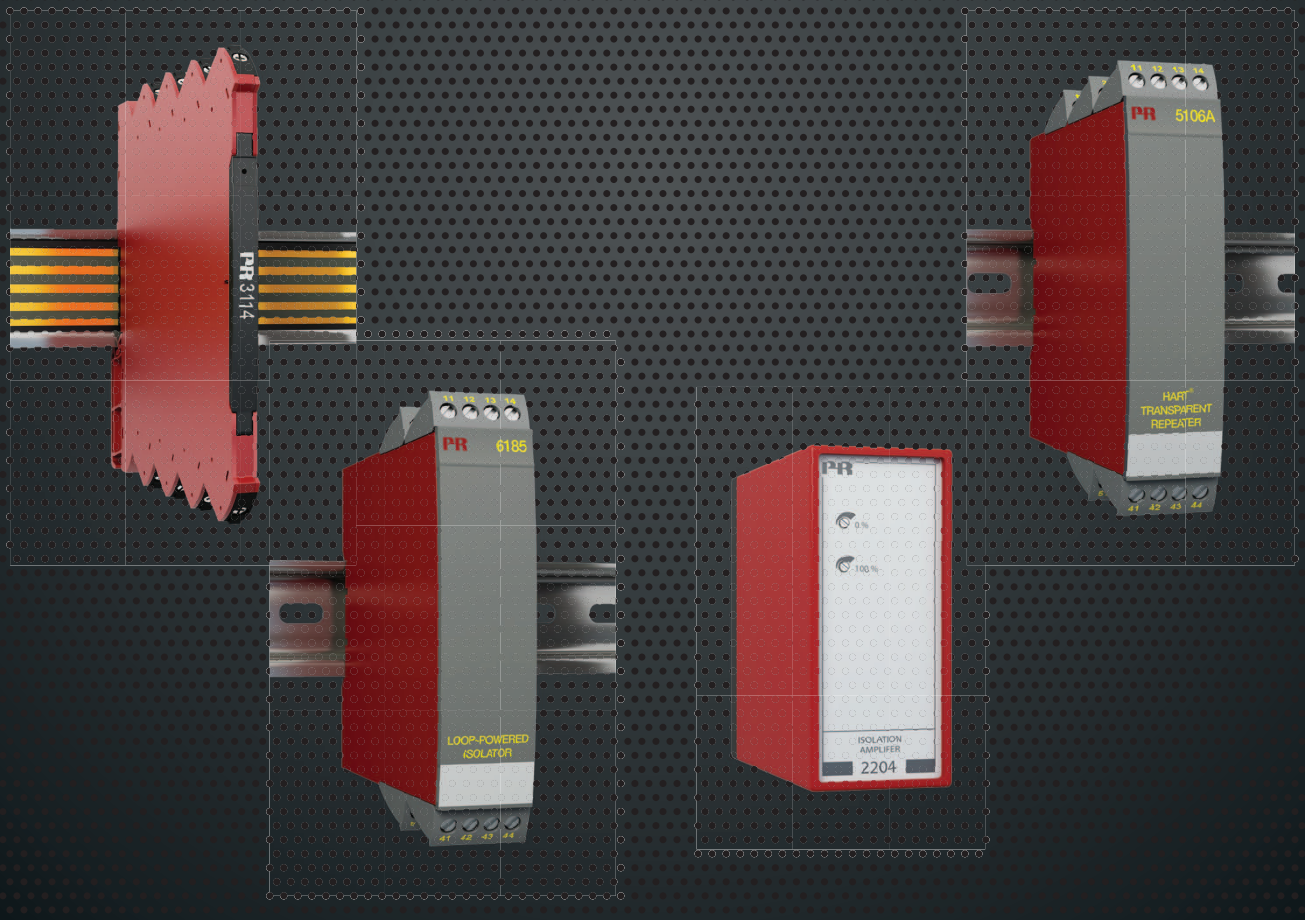
TEMPERATURE | I.S. INTERFACES | COMMUNICATION INTERFACES | MULTIFUNCTIONAL | ISOLATION | DISPLAY

PR electronics

Eliminate measurement errors with better isolation. Isolators with exceptional performance for dedicated applications

Our compact, fast and high-quality 6 mm isolators provide you with exceptionally high, safe signal isolation, no matter the type of signal. They can be stacked both vertically and horizontally with no air gap separation required, accommodating up to 50 units or 100 channels in just 30 centimeters.

All our isolators offer high isolation levels and exceptional EMC performance, utilizing our patented technology to provide high basic accuracy, low power consumption, and maximum protection against error due to electromagnetic noise (EMC).



Isolation

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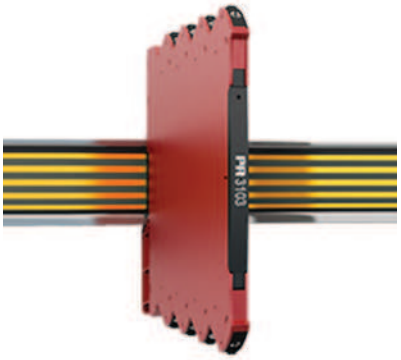


Isolated repeater

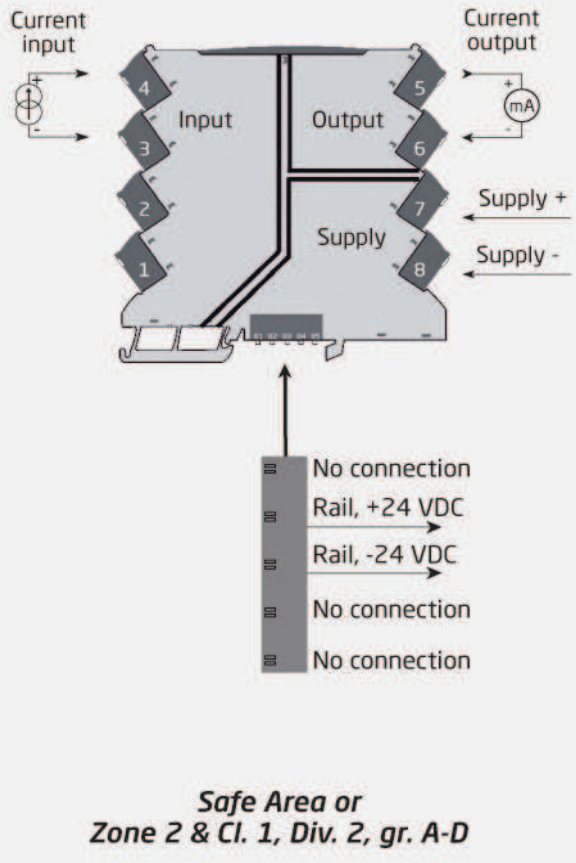
3103

– Isolation and 1:1 conversion of standard current signals
– Slimline housing of 6 mm
– Response time < 7 ms
– Low cost
– Simple - no setup needed

Application
- Isolation and 1:1 conversion of standard current signals.
- Galvanic separation of analog current signals.
- Elimination of ground loops and measurement of floating signals.
- A competitive choice in terms of both price and technology for galvanic isolation of current signals to SCADA systems or PLC equipment.
- Installation in ATEX Ex zone 2 / IECEx Zone 2 / FM division 2.
- Suitable for environments with high vibration stress, e.g. ships.

Technical characteristics
- The input is protected against overvoltage and polarity error.
- Factory-calibrated measurement ranges.
- Inputs and outputs are floating and galvanically separated.

Connections



Order:

Type
3103

Environmental Conditions

Specifications range	-25°C to +70°C
Storage temperature	-40°C to +85°C
Calibration temperature	20...28°C
Relative humidity	< 95% RH (non-cond.)
Protection degree	IP20
Installation in	Pollution degree 2 & measurement / overvoltage cat. II

Mechanical specifications

Dimensions (HxWxD)	113 x 6.1 x 115 mm
Weight approx.	70 g
DIN rail type	DIN EN 60715/35 mm
Wire size	0.13 x 2.5 mm^2 / AWG 26...12 stranded wire
Screw terminal torque	0.5 Nm

Common specifications

Supply voltage	16.8...31.2 VDC
Max. power consumption	0.8 W
Internal consumption	0.4 W (typ.) / 0.65 W (max.)
Isolation voltage, test	2.5 kVAC
Isolation voltage, working	300 VAC (reinforced) / 250 VAC (Zone 2, Div. 2)
Signal / noise ratio	> 60 dB
Response time (0...90%, 100...10%)	< 7 ms
Accuracy	< ±0.05% of span
Temperature coefficient	< ±0.01% of span / °C
EMC immunity influence	< ±0.5% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst	< ±1% of span

Input specifications

Current input: Measurement range	0...20.5 mA
Functional range, current input	0...23 mA
Input voltage drop	< 1.5 VDC

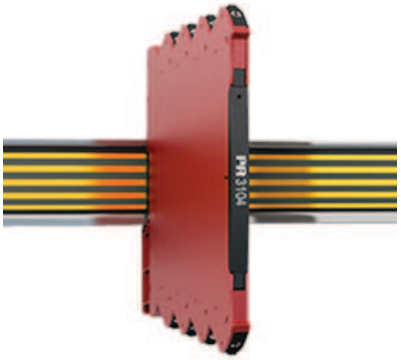
Output specifications

Current output: Signal range	0...20.5 mA (span)
Load (max.)	23 mA/600 Ω
Load stability, current output	≤0.01% of span / 100 Ω
Current limit	≤ 28 mA
*of span	= 0...20 mA

Approvals

EMC	EN 61326-1
LVD	EN 61010-1
ATEX	KEMA 10ATEX0147 X
IECEx	KEM 10.0068X
FM	3041043-C
DNV Marine	Stand. f. Certific. No. 2.4
GL	V1-7-2
GOST R	Yes
UL	UL 61010-1

E



Isolated converter

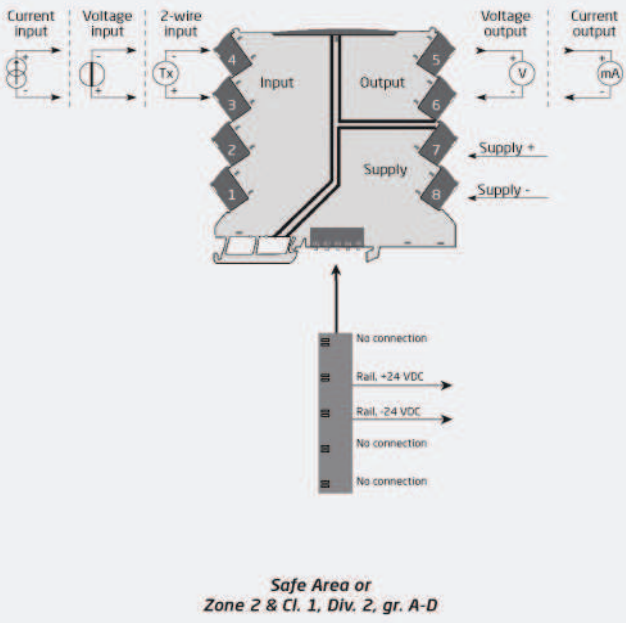
3104

– Isolation 2.5 mm² and conversion of standard DC signals
– Slimline housing of 6 mm
– Power supply and signal isolator for 2-wire transmitter
– Loop supply >17 V
– DIP-switch configured

Application
- Isolation and conversion of standard DC signals.
- Galvanic separation of analog current and voltage signals.
- Elimination of ground loops and measurement of floating signals.
- A competitive choice in terms of both price and technology for galvanic isolation of current and voltage signals to SCADA systems or PLC equipment.
- Installation in ATEX Ex zone 2 / IECEx zone 2 / FM division 2.
- Suitable for environments with high vibration stress, e.g. ships.

Technical characteristics
- Easy configuration via DIP-switches.
- The input is protected against overvoltage and polarity error.
- Factory-calibrated measurement ranges.
- Inputs and outputs are floating and galvanically separated.

Connections



Order:

Type
3104

Environmental Conditions

Specifications range	-25°C to +70°C
Storage temperature	-40°C to +85°C
Calibration temperature	20...28°C
Relative humidity	< 95% RH (non-cond.)
Protection degree	IP20
Installation in	Pollution degree 2 & measurement / overvoltage cat. II

Mechanical specifications

Dimensions (HxWxD)	113 x 6.1 x 115 mm
Weight approx.	70 g
DIN rail type	DIN EN 60715/35 mm
Wire size	0.13 x 2.5 mm^2 / AWG 26...12 stranded wire
Screw terminal torque	0.5 Nm

Common specifications

Supply voltage	16.8...31.2 VDC
Max. power consumption	1.2 W
Internal consumption	0.4 W (typ.) / 0.65 W (max.)
Isolation voltage, test	2.5 kVAC
Isolation voltage, working	300 VAC (reinforced) / 250 VAC (Zone 2, Div. 2)
Signal / noise ratio	> 60 dB
Response time (0...90%, 100...10%)	< 7 ms
Accuracy	< ±0.05% of span
Temperature coefficient	< ±0.01% of span / °C
EMC immunity influence	< ±0.5% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst	< ±1% of span

Input specifications

Current input: Measurement range	0...20.5 mA
Functional range, current input	0...23 mA
Current input: Programmable measurement ranges	0...20 and 4...20 mA
Input voltage drop	< 1.5 VDC
2-wire transmitter supply	> 17 V / 20 mA
Voltage input: Measurement range	0...10.25 V
Functional range, voltage input	0...11.5 V / 0...5.75 V
Programmable measurement ranges, VDC	0/1...5 and 0/2...10 V
Input resistance, voltage input	≥ 500 kΩ

Output specifications

Current output: Signal range	0...20.5 mA (span)
Programmable current ranges	0 / 4...20 mA
Load (max.)	23 mA/600 Ω
Load stability, current output	≤0.01% of span / 100 Ω
Current limit	≤ 28 mA
Voltage output: signal range	0...10 VDC
Programmable voltage ranges	0/1...5 and 0/2...10 V
Load (min.)	> 10 kΩ

Approvals

EMC	EN 61326-1
LVD	EN 61010-1
ATEX	KEMA 10ATEX0147 X
IECEx	KEM 10.0068X
FM	3041043-C
GOST R	Yes
DNV Marine	Stand. f. Certific. No. 2.4
GL	V1-7-2
UL	UL 61010-1

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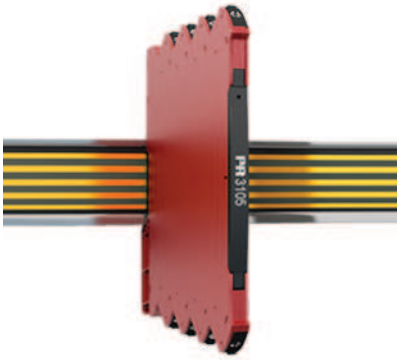


Isolated converter

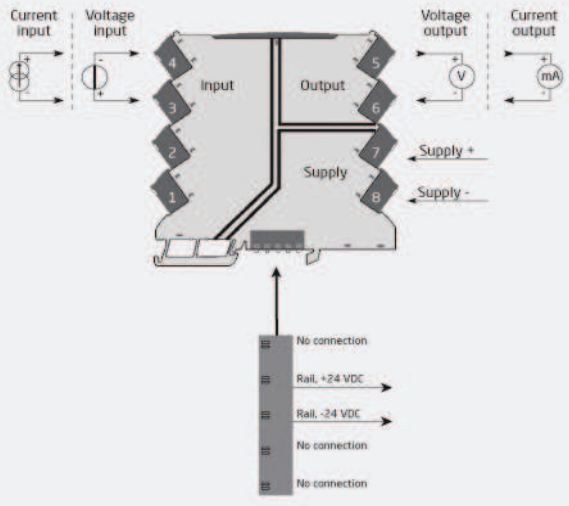
3105

– Isolation and conversion of standard DC signals
– Slimline housing of 6 mm
– Response time <7 ms
– Low cost
– DIP-switch configured

Application
- Isolation and conversion of standard DC signals.
- Galvanic separation of analog current and voltage signals.
- Elimination of ground loops and measurement of floating signals.
- A competitive choice in terms of both price and technology for galvanic isolation of current and voltage signals to SCADA systems or PLC equipment.
- Suitable for environments with high vibration stress, e.g. ships.

Technical characteristics
- Easy configuration via DIP-switches.
- The input is protected against overvoltage and polarity error.
- Factory-calibrated measurement ranges.
- Inputs and outputs are floating and galvanically separated.

Connections



Order:

Type
3105

Environmental Conditions

Specifications range	0°C to +70°C
Storage temperature	-40°C to +85°C
Calibration temperature	20...28°C
Relative humidity	< 95% RH (non-cond.)
Protection degree	IP20
Installation in	Pollution degree 2 & measurement / overvoltage cat. II

Mechanical specifications

Dimensions (HxWxD)	113 x 6.1 x 115 mm
Weight approx.	70 g
DIN rail type	DIN EN 60715/35 mm
Wire size	0.13 x 2.5 mm^2 / AWG 26...12 stranded wire
Screw terminal torque	0.5 Nm

Common specifications

Supply voltage	16.8...31.2 VDC
Max. power consumption	0.8 W
Internal consumption	0.4 W (typ.) / 0.65 W (max.)
Isolation voltage, test	2.5 kVAC
Isolation voltage, working	300 VAC
Signal / noise ratio	> 60 dB
Response time (0...90%, 100...10%)	< 7 ms
Accuracy	< ±0.2% of span
Temperature coefficient	< ±0.015% of span / ˚C
EMC immunity influence	< ±0.5% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst	< ±1% of span

Input specifications

Current input: Measurement range	0...20.5 mA
Functional range, current input	0...23 mA
Current input: Programmable measurement ranges	0...20 and 4...20 mA
Input voltage drop	< 1.5 VDC
Voltage input: Measurement range	0...10.25 V
Functional range, voltage input	0...11.5 V / 0...5.75 V
Programmable measurement ranges, VDC	0/1...5 and 0/2...10 V
Input resistance, voltage input	≥ 500 kΩ

Output specifications

Current output: Signal range	0...20.5 mA (span)
Programmable current ranges	0 / 4...20 mA
Load (max.)	23 mA/600 Ω
Load stability, current output	≤0.01% of span / 100 Ω
Current limit	≤ 28 mA
Voltage output: signal range	0...10 VDC
Programmable voltage ranges	0/1...5 and 0/2...10 V
Load (min.)	> 10 kΩ
*of span	= of the DIP-switch selected output range

Approvals

EMC	EN 61326-1
LVD	EN 61010-1
GOST R	Yes
DNV Marine	Stand. f. Certific. No. 2.4
GL	V1-7-2
UL	UL 508

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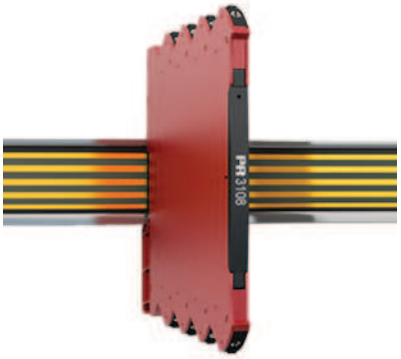


Isolated repeater / splitter

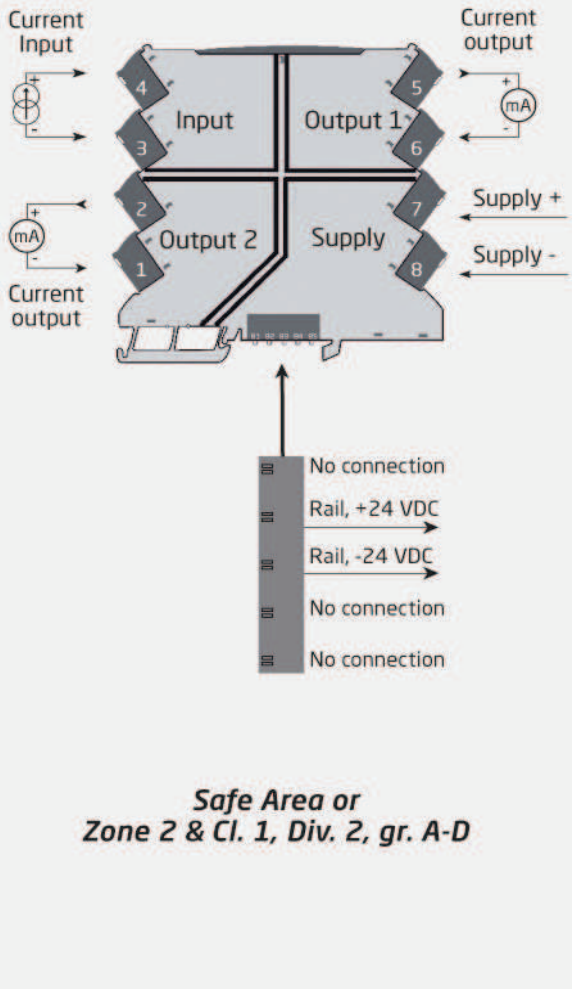
3108

– Isolation and conversion of current signals
– Slimline housing of 6 mm
– Response time <7 ms
– Splitter function: 1 in - 2 out
– Simple - no setup needed

Application
- Isolation and conversion of standard DC signals.
- Galvanic separation of analog current signals.
- Elimination of ground loops and measurement of floating signals.
- A competitive choice in terms of both price and technology for galvanic isolation of current signals to SCADA systems or PLC equipment.
- Installation in ATEX Ex zone 2 / IECEx Zone 2 / FM division 2.
- Suitable for environments with high vibration stress, e.g. ships.

Technical characteristics
- The input is protected against overvoltage and polarity error.
- Factory-calibrated measurement ranges.
- Inputs and outputs are floating and galvanically separated.

Connections



Order:

Type
3108

Environmental Conditions

Specifications range	-25°C to +70°C
Storage temperature	-40°C to +85°C
Calibration temperature	20...28°C
Relative humidity	< 95% RH (non-cond.)
Protection degree	IP20
Installation in	Pollution degree 2 & measurement / overvoltage cat. II

Mechanical specifications

Dimensions (HxWxD)	113 x 6.1 x 115 mm
Weight approx.	70 g
DIN rail type	DIN EN 60715/35 mm
Wire size	0.13 x 2.5 mm^2 / AWG 26...12 stranded wire
Screw terminal torque	0.5 Nm

Common specifications

Supply voltage	16.8...31.2 VDC
Max. power consumption	0.8 W
Internal consumption	0.4 W (typ.) / 0.65 W (max.)
Isolation voltage, test	2.5 kVAC
Isolation voltage, working	300 VAC (reinforced) / 250 VAC (Zone 2, Div. 2)
Signal / noise ratio	> 60 dB
Response time (0...90%, 100...10%)	< 7 ms
Accuracy	< ±0.05% of span
Temperature coefficient	< ±0.01% of span / °C
EMC immunity influence	< ±0.5% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst	< ±1% of span

Input specifications

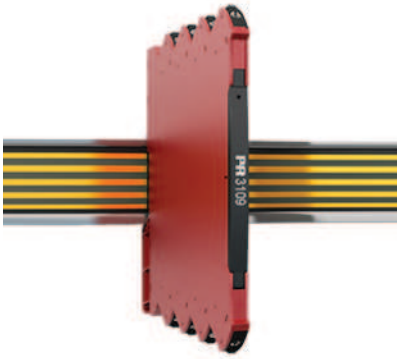
Current input: Measurement range	0...20.5 mA
Functional range, current input	0...23 mA
Input voltage drop	< 1.5 VDC

Output specifications

Current output: Signal range	0...20.5 mA (span)
Load (max.)	23 mA/300 Ω
Load stability, current output	≤0.01% of span / 100 Ω
Current limit	≤ 28 mA
*of span	= 0...20 mA

Approvals

EMC	EN 61326-1
LVD	EN 61010-1
ATEX	KEMA 10ATEX0147 X
IECEx	KEM 10.0068X
FM	3041043-C
GOST R	Yes
DNV Marine	Stand. f. Certific. No. 2.4
GL	V1-7-2
UL	UL 61010-1



Isolated converter / splitter

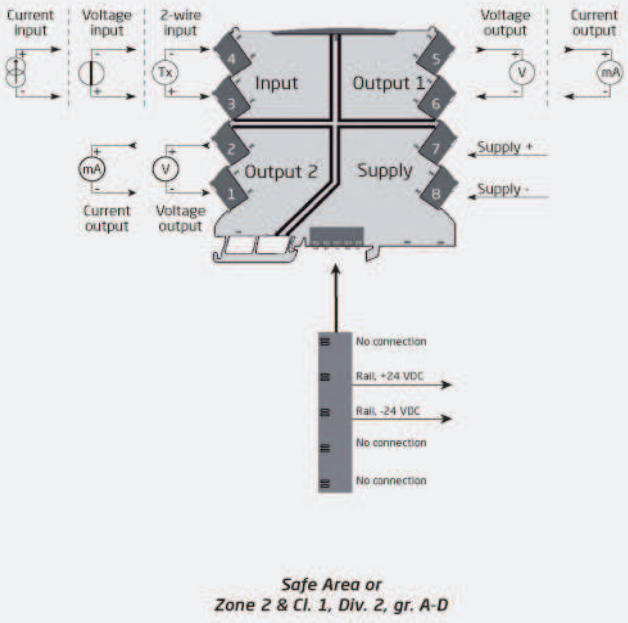
3109

– Isolation and conversion of standard DC signals
– Slimline housing of 6 mm
– Power supply and signal isolator for 2-wire transmitter
– Splitter function: 1 in - 2 out
– DIP-switch configured

Application
- Isolation and conversion of standard DC signals.
- Galvanic separation of analog current and voltage signals.
- Elimination of ground loops and measurement of floating signals.
- A competitive choice in terms of both price and technology for galvanic isolation of current and voltage signals to SCADA systems or PLC equipment.
- Installation in ATEX Ex zone 2 / IECEx zone 2 / FM division 2.
- Suitable for environments with high vibration stress, e.g. ships.

Technical characteristics
- Easy configuration via DIP-switches.
- The input is protected against overvoltage and polarity error.
- Factory-calibrated measurement ranges.
- Inputs and outputs are floating and galvanically separated.

Connections



Order:

Type
3109

Environmental Conditions

Specifications range	-25°C to +70°C
Storage temperature	-40°C to +85°C
Calibration temperature	20...28°C
Relative humidity	< 95% RH (non-cond.)
Protection degree	IP20
Installation in	Pollution degree 2 & measurement / overvoltage cat. II

Mechanical specifications

Dimensions (HxWxD)	113 x 6.1 x 115 mm
Weight approx.	70 g
DIN rail type	DIN EN 60715/35 mm
Wire size	0.13 x 2.5 mm^2 / AWG 26...12 stranded wire
Screw terminal torque	0.5 Nm

Common specifications

Supply voltage	16.8...31.2 VDC
Max. power consumption	1.2 W
Internal consumption	0.4 W (typ.) / 0.65 W (max.)
Isolation voltage, test	2.5 kVAC
Isolation voltage, working	300 VAC (reinforced) / 250 VAC (Zone 2, Div. 2)
Signal / noise ratio	> 60 dB
Response time (0...90%, 100...10%)	< 7 ms
Accuracy	< ±0.05% of span
Temperature coefficient	< ±0.01% of span / °C
EMC immunity influence	< ±0.5% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst	< ±1% of span

Input specifications

Current input: Measurement range	0...20.5 mA
Functional range, current input	0...23 mA
Current input: Programmable measurement ranges	0...20 and 4...20 mA
Input voltage drop	< 1.5 VDC
2-wire transmitter supply	> 17 V / 20 mA
Voltage input: Measurement range	0...10.25 V
Programmable measurement ranges, VDC	0/1...5 and 0/2...10 V
Functional range, voltage input	0...11.5 V / 0...5.75 V
Input resistance, voltage input	≥ 500 kΩ

Output specifications

Current output: Signal range	0...20.5 mA (span)
Programmable current ranges	0 / 4...20 mA
Load (max.)	23 mA/300 Ω
Load stability, current output	≤0.01% of span / 100 Ω
Current limit	≤ 28 mA
Voltage output: signal range	0...10 VDC
Programmable voltage ranges	0/1...5 and 0/2...10 V
Load (min.)	> 10 kΩ

Approvals

EMC	EN 61326-1
LVD	EN 61010-1
ATEX	KEMA 10ATEX0147 X
IECEx	KEM 10.0068X
FM	3041043-C
GOST R	Yes
DNV Marine	Stand. f. Certific. No. 2.4
GL	V1-7-2
UL	UL 61010-1

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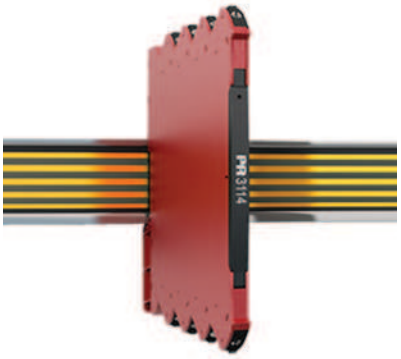


Isolated universal converter

3114

– Input for RTD, TC, Ohm, potentiometer, mA and V
– Slimline housing of 6 mm
– 2-wire supply >15 V
– Output for current and voltage
– Can be supplied separately or installed on power rail, PR 9400

Application

- Linearized, electronic temperature measurement with RTD or TC sensor.
- Conversion of linear resistance variation to a standard analog current / voltage signal, i.e. from solenoids and butterfly valves or linear movements with attached potentiometer.
- Power supply and signal isolator for 2-wire transmitters.
- Process control with standard analog output.
- Galvanic separation of analog signals and measurement of floating signals.
- The device can be mounted in Safe area or in Zone 2 and Cl. 1 Div 2. area.

Advanced features

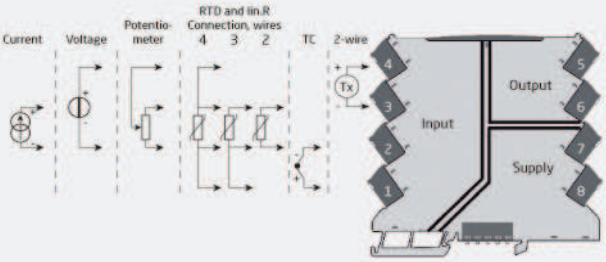
- When 3114 is used in combination with the 4501 display / programming front and ConfigMate 4590, all operational parameters can be modified to suit any application. As the 3114 is designed with electronics hardware switches, it is not necessary to open the device for setting of DIP-switches.

Technical characteristics

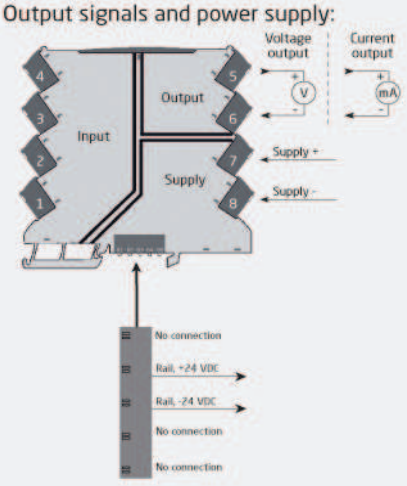
- A green / red front LED indicates normal operation and malfunction.
- 3-port 2.5 kVAC galvanic isolation.

Connections

Input signals:



Output signals and power supply:



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

Order:

Type
3114

Environmental Conditions

Specifications range	-25°C to +70°C
Storage temperature	-40°C to +85°C
Calibration temperature	20...28°C
Relative humidity	< 95% RH (non-cond.)
Protection degree	IP20
Installation in	Pollution degree 2 & measurement / overvoltage cat. II

Mechanical specifications

Dimensions (HxWxD)	113 x 6.1 x 115 mm
Weight approx.	70 g
DIN rail type	DIN EN 60715/35 mm
Wire size	0.13 x 2.5 mm^2 / AWG 26...12 stranded wire
Screw terminal torque	0.5 Nm

Common specifications

Supply voltage	16.8...31.2 VDC
Fuse	400 mA SB / 250 VAC
Max. power consumption	1.2 W
Internal consumption	0.4 W (typ.) / 0.65 W (max.)
Isolation voltage, test	2.5 kVAC
Isolation voltage, working	300 VAC (reinforced) / 250 VAC (Zone 2, Div. 2)
Signal / noise ratio	> 60 dB
Response time (0...90%, 100...10%): Temperature input	≤ 1 s
Response time (0...90%, 100...10%): mA / V input	≤ 400 ms
EMC immunity influence	< ±0.5% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst	< ±1% of span

Input specifications

RTD input	Pt10, Pt20, Pt50, Pt100, Pt200, Pt250, Pt300, Pt400, Pt500, Pt1000, Ni50, Ni100, Ni120, Ni1000
RTD input	Linear resistance
RTD input	Potentiometer
Cable resistance per wire (max.), RTD	50 Ω
Sensor current, RTD	Nom. 0.2 mA
Effect of sensor cable resistance (3-/4-wire), RTD	< 0.002 Ω / Ω
Sensor error detection, RTD	Yes
Short circuit detection, RTD	< 15 Ω
TC input: Thermocouple type	B, E, J, K, L, N, R, S, T, U, W3, W5, LR
CJC via internally mounted sensor	±(2.0°C + 0.4°C * Δt)
Δt =	Internal temperature-ambient temperature
Sensor error detection, TC	Yes
Sensor error current: When detecting / else	Nom. 2 µA / 0 µA
Current input: Measurement range	0...20 mA
Current input: Programmable measurement ranges	0...20 and 4...20 mA
Input resistance, current input	Nom. 20 Ω + PTC 50 Ω
2-wire transmitter supply	> 15 V / 20 mA
Voltage input: Measurement range	0...12 VDC
Programmable measurement ranges, VDC	0/0.2...1, 0/1...5, 0/2...10 VDC
Input resistance, voltage input	Nom. 10 MΩ

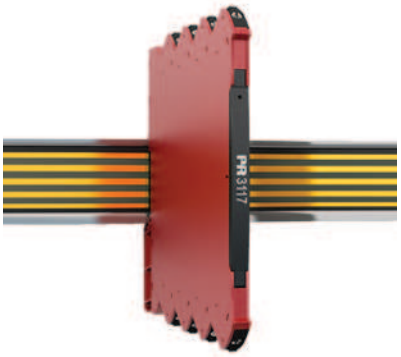
Output specifications

Current output: Signal range	0…20 mA (span)
Programmable current ranges	0...20 / 4...20 / 20...0 and 20...4 mA
Load (max.)	20 mA/600 Ω/15 VDC
Load stability, current output	≤0.01% of span / 100 Ω
Sensor error indication, current output	0 / 3.5 / 23 mA / none
NAMUR NE 43 Upscale/Downscale	23 mA / 3.5 mA
Current limit	≤ 28 mA
Voltage output: signal range	0...10 VDC
Programmable voltage ranges	0/0.2...1; 0/1...5 ; 0/2...10; 1...0.2/0; 5...1/0; 10...2/0 V
Load (min.)	> 10 kΩ
*of span	= of the currently selected measurement range

Approvals

EMC	EN 61326-1
LVD	EN 61010-1
ATEX	KEMA 10ATEX0147 X
IECEx	KEM 10.0068X
FM	3041043-C
GOST R	Yes
DNV Marine	Stand. f. Certific. No. 2.4
GL	V1-7-2
UL	UL 61010-1

E



Bipolar isolated converter

3117

– Conversion of voltage and current bipolar process signals to unipolar signals
– Multiple signal ranges are selectable via DIP-switches
– Fast response time < 7 ms and high output load stability
– Excellent accuracy, better than 0.05 % of selected range
– Slimline 6 mm housing

Application

- The 3117 is an isolating converter which can be used for signal conversion of standard bipolar analog process signals into a unipolar analog signal.
- The unit offers 3-port isolation and provides surge suppression and protects control systems from transients and noise.
- The 3117 also eliminates ground loops and can be used for measuring floating signals.
- Mounting of the 3117 can be in Safe area or in Zone 2 and Cl. 1 Div 2 area and is approved for marine applications.

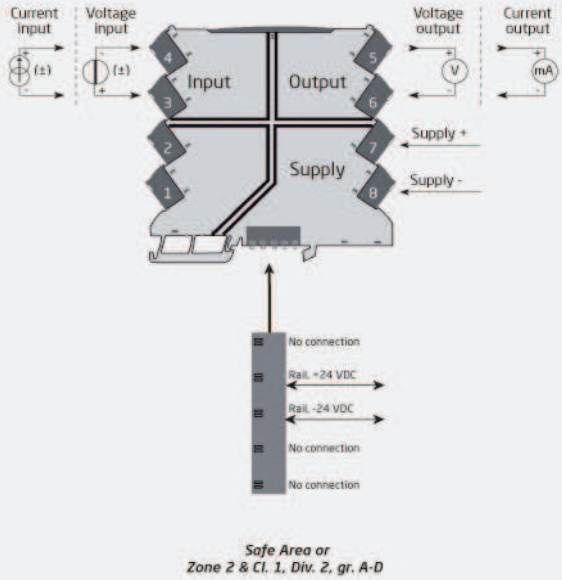
Technical characteristics

- Flexible 24 VDC (±30%) supply via power rail or connectors.
- Excellent conversion accuracy, better than 0.05% of selected range.
- Inputs and outputs are floating and galvanically separated.
- A green front LED indicates operation status for the device.
- All terminals are protected against overvoltage and polarity error.
- Meeting the NAMUR NE21 recommendations, the 3117 ensures top measurement performance in harsh EMC environments.
- High galvanic isolation of 2.5 kVAC.
- Fast input to output response time < 7 ms / > 100 Hz – 10 Hz bandwidth damping possible via DIP-switch.
- Excellent signal/noise ratio > 60 dB.

Mounting / installation / programming

- Fast and easy configuration of factory calibrated measurement ranges via DIP-switches.
- A very low power consumption allows DIN rail mounting without the need for any air gap.
- Wide temperature operation range: -25...+70°C.

Connections



Order:

Type
3117

Environmental Conditions

Specifications range	-25°C to +70°C
Storage temperature	-40°C to +85°C
Calibration temperature	20...28°C
Relative humidity	< 95% RH (non-cond.)
Protection degree	IP20
Installation in	Pollution degree 2 & measurement / overvoltage cat. II

Mechanical specifications

Dimensions (HxWxD)	113 x 6.1 x 115 mm
Weight approx.	70 g
DIN rail type	DIN EN 60715/35 mm
Wire size	0.13 x 2.5 mm^2 / AWG 26...12 stranded wire
Screw terminal torque	0.5 Nm

Common specifications

Supply voltage	16.8...31.2 VDC
Max. power consumption	0.8 W
Internal consumption	0.4 W (typ.) / 0.65 W (max.)
Isolation voltage, test	2.5 kVAC
Isolation voltage, working	300 VAC (reinforced) / 250 VAC (Zone 2, Div. 2)
MTBF, acc. to IEC 61709 (SN29500)	> 241 years
Signal / noise ratio	> 60 dB
Cut-off frequency (3 dB)	> 100 Hz or 10 Hz (selectable via DIP-switch)
Response time (0...90%, 100...10%)	< 7 ms or < 44 ms
Accuracy	< ±0.05% of span
Temperature coefficient	< ±0.01% of span / °C
EMC immunity influence	< ±0.5% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst	< ±1% of span

Input specifications

Current input: Programmable measurement ranges	± 10 and ± 20 mA
Functional range, current input	-23...+23 mA
Input voltage drop	< 1 VDC @ 23 mA
Voltage input: Programmable ranges	±5 and ±10 V
Functional range, voltage input	-11.5...+11.5 V
Input resistance, voltage input	≥ 1 MΩ

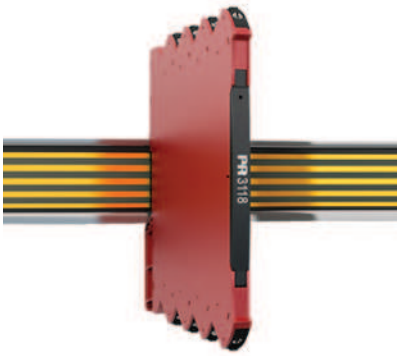
Output specifications

Programmable current ranges	0 / 4...20 mA
Functional range, current output	0...23 mA
Load (max.)	23 mA/600 Ω
Load stability, current output	≤ 0.002% of span / 100 Ω
Current limit	≤ 28 mA
Programmable voltage ranges	0/1...5 and 0/2...10 V
Functional range, voltage output	0...11.5 V
Load (min.)	> 10 kΩ
*of span	= of the presently selected range

Approvals

EMC	EN 61326-1
LVD	EN 61010-1
ATEX	KEMA 10ATEX0147 X
IECEx	KEM 10.0068X
FM	3041043-C
GOST R	Yes
DNV Marine	Stand. f. Certific. No. 2.4
GL	V1-7-2
UL	UL 61010-1

E



Bipolar isolated converter / splitter

3118

– Conversion of voltage and current bipolar process signals to
 uni-/bipolar signals
– Multiple signal ranges are selectable via DIP-switches
– Splitter function: 1 signal in and 2 signals out
– Excellent accuracy, better than 0.05 % of selected range and high output load stability

Application

- The 3118 is an isolating converter and splitter which can be used for signal conversion of standard bipolar analog process signals into two individual unipolar analog signals.
- The unit offers 4-port isolation and provides surge suppression and protects control systems from transients and noise.
- The 3118 also eliminates ground loops and can be used for measuring floating signals.
- Mounting of the 3118 can be in Safe area or in Zone 2 and Cl. 1 Div 2 area and is approved for marine applications.
- The analog output can be easily configured and programmed to be bipolar in the ranges ±10 mA and ±20 mA (*special setup).

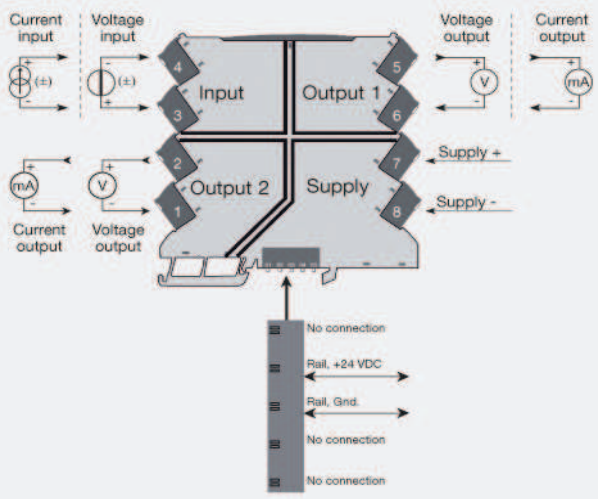
Technical characteristics

- Flexible 24 VDC (±30%) supply via power rail or connectors.
- Excellent conversion accuracy, better than 0.05% of selected range.
- A green front LED indicates operation status for the device.
- All terminals are protected against overvoltage and polarity error.
- Meeting the NAMUR NE21 recommendations, the 3118 ensures top measurement performance in harsh EMC environments.
- High galvanic isolation of 2.5 kVAC.
- Fast input to output response time < 7 ms / > 100 Hz – 10 Hz bandwidth damping possible via DIP-switch.
- Excellent signal/noise ratio > 60 dB.

Mounting / installation / programming

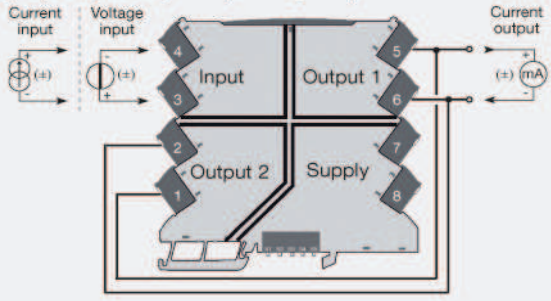
- Easy configuration of factory calibrated measurement ranges via DIP-switches.
- A very low power consumption allows DIN rail mounting without the need for any air gap.
- Wide temperature operation range: -25...+70°C.

Connections



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

(*) Bipolar Input to bipolar output wiring set-up:



Order:

Type
3118

Environmental Conditions

Specifications range	-25°C to +70°C
Storage temperature	-40°C to +85°C
Calibration temperature	20...28°C
Relative humidity	< 95% RH (non-cond.)
Protection degree	IP20
Installation in	Pollution degree 2 & measurement / overvoltage cat. II

Mechanical specifications

Dimensions (HxWxD)	113 x 6.1 x 115 mm
Weight approx.	70 g
DIN rail type	DIN EN 60715/35 mm
Wire size	0.13 x 2.5 mm^2 / AWG 26...12 stranded wire
Screw terminal torque	0.5 Nm

Common specifications

Supply voltage	16.8...31.2 VDC
Max. power consumption	0.8 W
Internal consumption	0.4 W (typ.) / 0.65 W (max.)
Isolation voltage, test	2.5 kVAC
Isolation voltage, working	300 VAC (reinforced) / 250 VAC (Zone 2, Div. 2)
MTBF, acc. to IEC 61709 (SN29500)	> 187 years
Signal / noise ratio	> 60 dB
Cut-off frequency (3 dB)	> 100 Hz or 10 Hz (selectable via DIP-switch)
Response time (0...90%, 100...10%)	< 7 ms or < 44 ms
Accuracy	< ±0.05% of span
Temperature coefficient	< ±0.01% of span / °C
EMC immunity influence	< ±0.5% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst	< ±1% of span

Input specifications

Current input: Programmable measurement ranges	± 10 and ± 20 mA
Functional range, current input	-23...+23 mA
Input voltage drop	< 1 VDC @ 23 mA
Voltage input: Programmable ranges	±5 and ±10 V
Functional range, voltage input	-11.5...+11.5 V
Input resistance, voltage input	≥ 1 MΩ

Output specifications

Programmable current ranges	0 / 4...20 mA
Functional range, current output	0...23 mA
Load (max.)	23 mA / 300 Ω / per ch.
Load stability, current output	≤ 0.002% of span / 100 Ω
Current limit	≤ 28 mA
Programmable voltage ranges	0/1...5 and 0/2...10 V
Functional range, voltage output	0...11.5 V
Load (min.)	> 10 kΩ
Bipolar wiring and programming set-up	±10 and ± 20 mA
*of span	= of the presently selected range

Approvals

EMC	EN 61326-1
LVD	EN 61010-1
ATEX	KEMA 10ATEX0147 X
IECEx	KEM 10.0068X
FM	3041043-C
GOST R	Yes
DNV Marine	Stand. f. Certific. No. 2.4
GL	V1-7-2
UL	UL 61010-1

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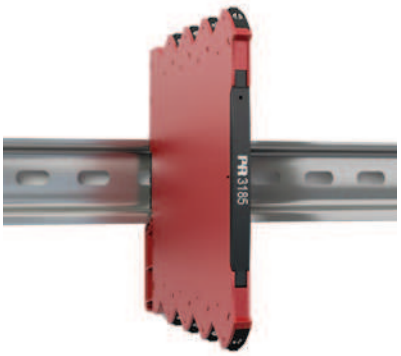


Loop powered isolator

3185

– 1 or 2 channel input loop powered isolator
– Signal 1:1 functional range 0...23 mA
– Low input voltage drop and fast response time
– Excellent accuracy and high load stability
– Slimline 6 mm housing

Application

- 1:1 input loop powered isolator of current signals in the range 0(4)...20 mA.
- 3185 is an easy mounting DIN rail unit.
- A very competitive choice in terms of both price and technology for galvanic isolation of current signals.
- Provides surge suppression and protects control systems from transients and noise.
- 3185 eliminates ground loops and can be used for measuring floating signals.
- The device can be mounted in Safe area or in Zone 2 and Cl. 1 Div 2. area.

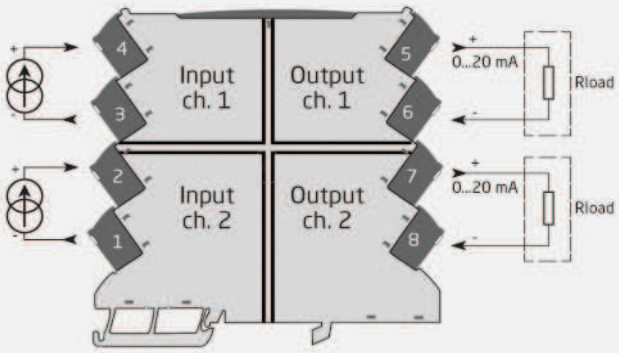
Technical characteristics

- 3185 is powered by the analog input current signal loop.
- Low input voltage drop, typ 1.35 V + Vout.
- Excellent conversion accuracy, better than 0.1% in the range 0…20.5 mA.
- Functional range is 0...23 mA which means that 3185 is NAMUR NE43 compliant.
- Inputs and outputs are floating and galvanically separated.
- The output is voltage limited to 17.5 VDC.
- High galvanic isolation of 2.5 kVAC.
- Fast response time < 5 ms.
- Excellent signal/noise ratio > 60 dB.

Mounting / installation / programming

- DIN rail mounting with up to 330 channels per meter.
- Temperature operation range is from -25...+70°C.

Connections



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

Order:

Type	Unit channels
3185A1	1
3185A2	2

Environmental Conditions

Specifications range..... -25°C to +70°C
Storage temperature..... -40°C to +85°C
Calibration temperature..... 20...28°C
Relative humidity..... < 95% RH (non-cond.)
Protection degree..... IP20
Installation in..... Pollution degree 2 & measurement / overvoltage cat. II

Mechanical specifications

Dimensions (HxWxD)..... 113 x 6.1 x 115 mm
Weight approx..... 70 g
DIN rail type..... DIN EN 60715/35 mm
Wire size..... 0.13 x 2.5 mm^2 / AWG 26...12 stranded wire
Screw terminal torque..... 0.5 Nm

Common specifications

Internal consumption, per channel..... 30 mW
Isolation voltage, test..... 2.5 kVAC
Isolation voltage, working..... 300 VAC (reinforced) / 250 VAC (Zone 2, Div. 2)
Signal / noise ratio..... > 60 dB
Cut-off frequency (3 dB)..... 100 Hz
Response time (0...90%, 100...10%)..... < 5 ms
EMC immunity influence..... < ±0.5% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst..... < ±1% of span

Input specifications

Signal range, input to output..... 0...20.5 mA
Signal conversion..... 1:1
Functional range, current input..... 0...23 mA
Start up current, typ..... 10 uA
Current input overload, max..... 50 mA
Input to output voltage drop, typ..... 1.25 V + (0.015 x Vout.)
Input to output voltage drop, typ..... (Vout. = Iout.xRoutput load)
Input voltage drop..... (Unit voltage drop) + Vout.

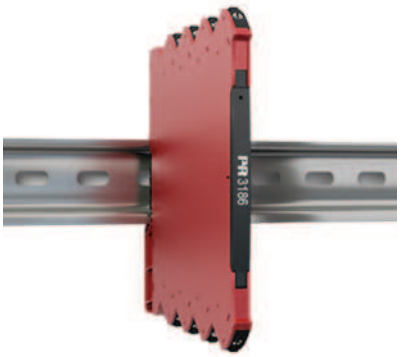
Output specifications

Output load, max..... 600 Ω
Output load stability..... < 0.01% of span / 100 Ω
Voltage limit..... 17.5 V
*of span..... = 0...20 mA

Approvals

EMC..... EN 61326-1
LVD..... EN 61010-1
ATEX..... KEMA 10ATEX0147 X
IECEx..... KEM 10.0068X
FM..... 3041043-C
GOST R..... Yes
DNV Marine..... Stand. f. Certific. No. 2.4
GL..... V1-7-2
UL..... UL 61010-1

E



2-wire transmitter isolator

3186

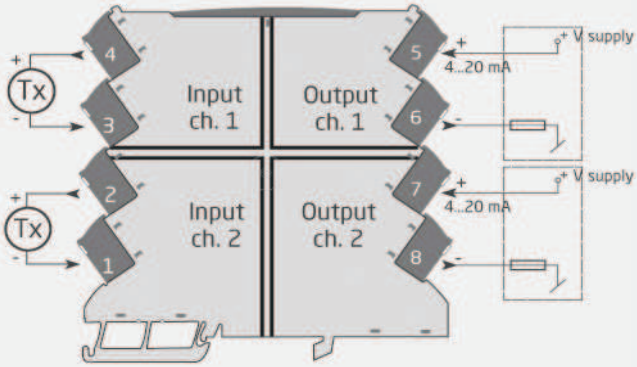
– 1 or 2 channel 2-wire transmitter isolator
– Signal 1:1 functional range 3.5...23 mA
– Low channel voltage drop and fast response time
– Excellent accuracy
– Slimline 6 mm housing

Application
- 1:1 output loop powered isolator of 2-wire transmitter 4...20 mA signals.
- 3186 is an easy mounting DIN rail unit.
- A very competitive choice in terms of both price and technology for galvanic isolation of 2-wire transmitter signals.
- Provides surge suppression and protects control systems from transients and noise.
- 3186 eliminates ground loops and can be used for measuring floating signals.
- The device can be mounted in Safe area or in Zone 2 and Cl. 1 Div 2. area.

Technical characteristics
- 3186 is powered by the host loop voltage.
- Wide supply range from 6...35 V.
- Low input to output voltage drop typ. 2.5 V.
- Excellent conversion accuracy, better than 0.05% in the range 3.8…20.5 mA.
- Functional range is 3.5...23 mA which means that 3186 is NAMUR NE43 compliant.
- Inputs and outputs are floating and galvanically separated.
- High galvanic isolation of 2.5 kVAC.
- Fast response time < 5 ms.
- Excellent signal/noise ratio > 60 dB.

Mounting / installation / programming
- DIN rail mounting with up to 330 channels per meter.
- Temperature operation range is from -25...+70°C.

Connections



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

Order:

Type	Unit channels	
3186A	Single Double	1 2

Environmental Conditions

Specifications range..... -25°C to +70°C
Storage temperature..... -40°C to +85°C
Calibration temperature..... 20...28°C
Relative humidity..... < 95% RH (non-cond.)
Protection degree..... IP20
Installation in..... Pollution degree 2 & measurement / overvoltage cat. II

Mechanical specifications

Dimensions (HxWxD)..... 113 x 6.1 x 115 mm
Weight approx..... 70 g
DIN rail type..... DIN EN 60715/35 mm
Wire size..... 0.13 x 2.5 mm^2 / AWG 26...12 stranded wire
Screw terminal torque..... 0.5 Nm

Common specifications

Supply voltage..... 6...35 VDC
Internal consumption, per channel..... 50 mW
Isolation voltage, test..... 2.5 kVAC
Isolation voltage, working..... 300 VAC (reinforced) / 250 VAC (Zone 2, Div. 2)
Signal / noise ratio..... > 60 dB
Cut-off frequency (3 dB)..... 100 Hz
Response time (0...90%, 100...10%)..... < 5 ms
EMC immunity influence..... < ±0.5% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst..... < ±1% of span

Input specifications

Available 2-wire transmitter (Tx) supply..... 3.5...32.5 V
Signal range, input to output..... 3.8...20.5 mA
Signal conversion..... 1:1
Functional range, current input..... 3.5...23 mA

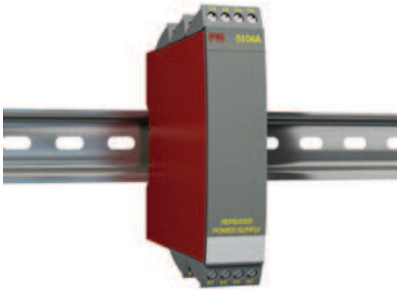
Output specifications

Output loop current limitation, typ..... 24 mA
Current output overload, max..... 50 mA
*of span..... = 4...20 mA

Approvals

EMC..... EN 61326-1
LVD..... EN 61010-1
ATEX..... KEMA 10ATEX0147 X
IECEx..... KEM 10.0068X
FM..... 3041043-C
GOST R..... Yes
DNV Marine..... Stand. f. Certific. No. 2.4
GL..... V1-7-2
UL..... UL 61010-1

PERFORMANCE MADE SMARTER



Repeater / power supply

5104A

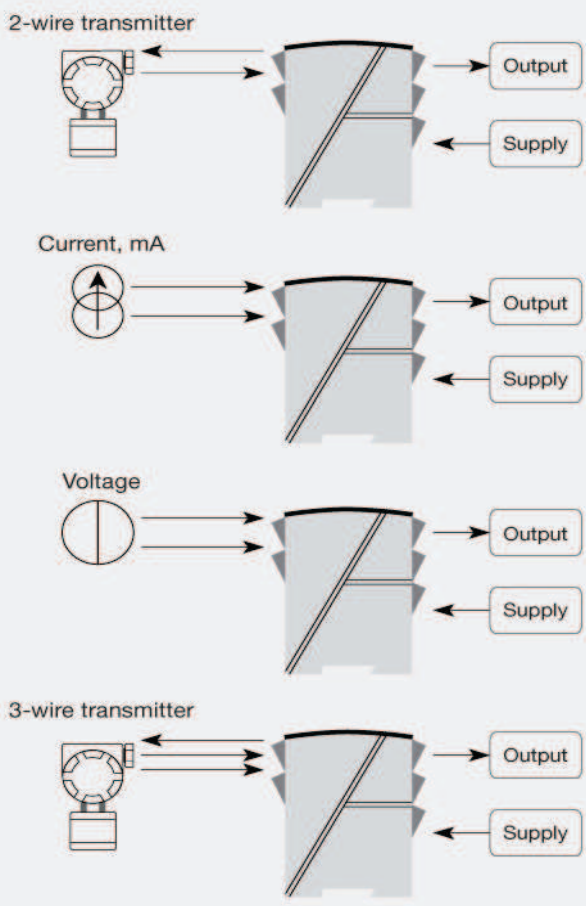
– 1- or 2-channel version
– 3- / 5-port 3.75 kVAC galvanic isolation
– Loop supply > 17.1 V
– 20 programmable measurement ranges
– Universal supply by AC or DC

Application
- Power supply and signal isolator for 2-wire transmitters.
- Signal isolator for analog current / voltage signals.
- 1 : 1 or signal conversion of analog current / voltage signals.

Technical characteristics
- The 20 factory-calibrated measurement ranges in the 5104A can be selected by the internal DIP-switches without the need for recalibration. Special measurement ranges can be delivered.
- PR5104A is based on microprocessor technology for gain and offset. The analog signal is transmitted at a response time of less than 25 ms.
- Inputs, outputs, and supply are floating and galvanically separated.
- The output can be connected either as an active current / voltage transmitter or as a 2-wire transmitter.

Mounting / installation
- Mounted vertically or horizontally on a DIN rail. By way of the 2-channel version up to 84 channels per meter can be mounted.

Connections



Order:

Type	Input		Output		Channels	
5104A	0...20 mA	: A	Special	: 0	Single	: A
	4...20 mA	: B	0...20 mA	: 1	Double	: B
	0...10 V	: E	4...20 mA	: 2		
	2...10 V	: F	0...1 V	: 4		
	Special	: X	0.2...1 V	: 5		
			0...10 V	: 6		
			2...10 V	: 7		

Environmental Conditions

Specifications range..... -20°C to +60°C
Calibration temperature..... 20...28°C
Relative humidity..... < 95% RH (non-cond.)
Protection degree..... IP20

Mechanical specifications

Dimensions (HxWxD)..... 109 x 23.5 x 130 mm
Weight approx..... 225 g
DIN rail type..... DIN 46277
Wire size..... 1 x 2.5 mm^2 stranded wire
Screw terminal torque..... 0.5 Nm

Common specifications

Supply voltage, universal..... 21.6...253 VAC, 50...60 Hz or 19.2...300 VDC
Fuse..... 400 mA SB / 250 VAC
Max. power consumption..... ≤ 3 W (2 channels)
Internal consumption..... ≤ 2 W (2 channels)
Isolation voltage, test / working..... 3.75 kVAC / 250 VAC
Signal / noise ratio..... Min. 60 dB (0...100 kHz)
Response time (0...90%, 100...10%)..... < 25 ms
Auxiliary supply: 2-wire supply (pin 44...42 and 54...52)..... 28...17.1 VDC / 0...20 mA
EMC immunity influence..... < ±0.5% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst..... < ±1% of span

Input specifications

Max. offset..... 20% of max. value
Current input: Measurement range..... 0...20 mA
Min. measurement range (span), current input..... 16 mA
Input resistance, current input..... Nom. 10 Ω + PTC 10 Ω
Voltage input: Measurement range..... 0...10 VDC
Min. measurement range (span), voltage input..... 8 VDC
Input resistance, voltage input..... > 2 MΩ

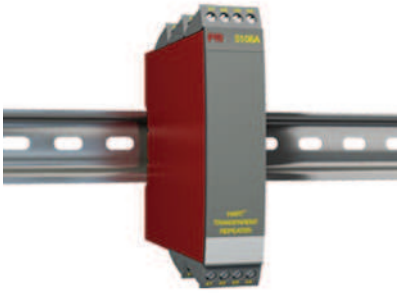
Output specifications

Max. offset..... 20% of max. value
Current output: Signal range..... 0...20 mA
Min. signal range..... 16 mA
Load (max.)..... 20 mA/600 Ω/12 VDC
Load stability, current output..... ≤0.01% of span / 100 Ω
Current limit..... ≤ 28 mA
Max. external 2-wire supply..... 29 VDC
Effect of external 2-wire supply voltage variation..... < 0.005% of span / V
Voltage output: signal range..... 0...1 VDC / 0...10 VDC
Voltage output, min. signal range..... 0.8 VDC / 8 VDC
Load (min.)..... 500 kΩ
*of span..... = of the presently selected range

Approvals

EMC..... EN 61326-1
LVD..... EN 61010-1
PELV/SELV..... IEC 364-4-41 and EN 60742
UL..... UL 508
GOST R..... Yes
DNV Marine..... Stand. f. Certific. No. 2.4

E



HART® transparent repeater

5106A

– 3- / 5-port 3.75 kVAC galvanic isolation
– Low response time
– 2-wire supply > 17 V
– 1- or 2-channel version
– Universal supply by AC or DC

Application

- Power supply and signal isolator with 2-way HART® communication for 2-wire transmitters installed in the hazardous area.
- Signal isolator with 2-way HART® communication for supplied current transmitters installed in the hazardous area.
- Signal isolator with low response time on analog current signals.

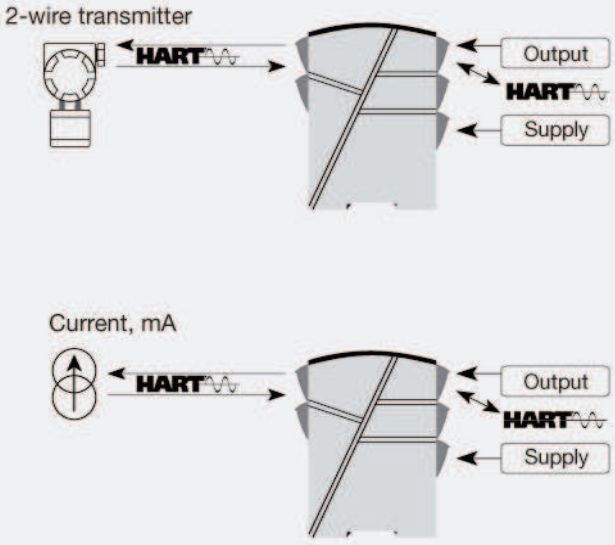
Technical characteristics

- PR5106A primarily processes current signals of 4...20 mA.
- PR5106A is based on microprocessor technology for gain and offset. The analog signal is transmitted at a response time of less than 25 ms.
- Inputs, outputs, and supply are floating and galvanically separated.
- The output can be connected either as an active current transmitter or as a 2-wire transmitter.

Mounting / installation

- Mounted vertically or horizontally on a DIN rail. As the devices can be mounted without distance between neighboring units, up to 84 channels can be mounted per meter.

Connections



Order:

Type	Input	Output	Channels
5106A	4...20 mA : B	4...20 mA : 2 20...4 mA : 9	Single : A Double : B

Environmental Conditions

Specifications range..... -20°C to +60°C
Calibration temperature..... 20...28°C
Relative humidity..... < 95% RH (non-cond.)
Protection degree..... IP20

Mechanical specifications

Dimensions (HxWxD)..... 109 x 23.5 x 130 mm
Weight approx..... 65 g
Weight approx..... 245 g
DIN rail type..... DIN 46277
Wire size..... 1 x 2.5 mm^2 stranded wire
Screw terminal torque..... 0.5 Nm

Common specifications

Supply voltage, universal..... 21.6...253 VAC, 50...60 Hz or 19.2...300 VDC
Fuse..... 400 mA SB / 250 VAC
Max. power consumption..... ≤ 3 W (2 channels)
Internal consumption..... ≤ 2 W (2 channels)
Isolation voltage, test / working..... 3.75 kVAC / 250 VAC
Signal / noise ratio..... Min. 60 dB (0...100 kHz)
Accuracy..... Better than 0.1% of selected range
Response time (0...90%, 100...10%)..... < 25 ms
Effect of supply voltage change..... < ±10 µA
Auxiliary supply: 2-wire supply (pin 44...42 and 54...52)..... 25...17 VDC / 0...20 mA
EMC immunity influence..... < ±0.5% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst..... < ±1% of span

Input specifications

Current input: Measurement range..... 4...20 mA
Min. measurement range (span), current input..... 16 mA
Input resistance: Supplied unit..... Nom. 10 Ω
Input resistance: Non-supplied unit..... Rshunt = ∞, Vdrop < 4 V

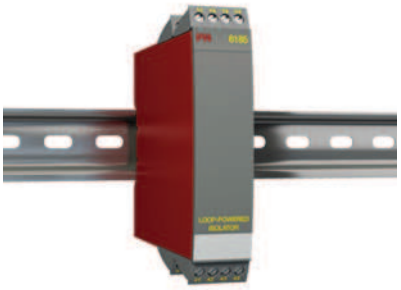
Output specifications

Current output: Signal range..... 4…20 mA
2-wire 4...20 mA output: Signal range..... 4...20 mA
Min. signal range..... 16 mA
Load (max.)..... 20 mA/600 Ω/12 VDC
Load stability, current output..... ≤0.01% of span / 100 Ω
Current limit..... ≤ 28 mA
Effect of external 2-wire supply voltage variation..... < 0.005% of span / V
Output ripple..... < 3 mVRMS on HART communication
Max. external 2-wire supply..... 29 VDC
*of span..... = of the presently selected range

Approvals

EMC..... EN 61326-1
LVD..... EN 61010-1
PELV/SELV..... IEC 364-4-41 and EN 60742
UL..... UL 508
GOST R..... Yes

E



Loop-powered isolator

6185

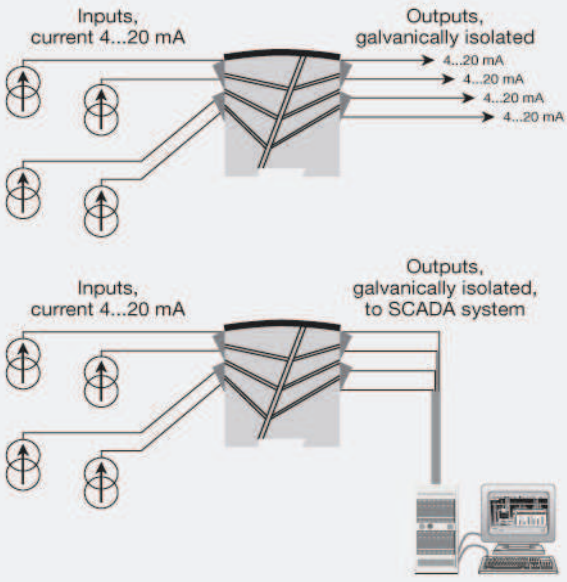
– 1-, 2- and 4-channel galvanic isolation
– Slimline channel width of less than 6 mm
– No separate supply necessary
– Low response time
– High noise suppression

Application
- Galvanic separation of analog current signals.
- Elimination of ground loops and measurement of floating signals.
- A competitive choice in terms of both price and technology for galvanic isolation of current signals to SCADA systems or PLC equipment.
- Especially useful in applications necessitating an unproblematic transmission of current signals according to NAMUR (sensor error detection).

Technical characteristics
- PR 6185 is powered by the measured signal and loads the loop with max. 1.8 VDC.
- The input is protected against overvoltage and polarity error.
- The drop voltage for each channel can be calculated according to the following expression: Vdrop = 1.8 + (Iout. * Rload).
- The output is voltage-limited to 15 VDC.
- Inputs and outputs are floating and galvanically separated.

Mounting / installation
- Mounted vertically or horizontally on a DIN rail. As the devices can be mounted without distance between neighboring units, up to 168 channels can be mounted per meter.

Connections



Order:

Type	Channels	
6185	1 channel	: A
	2 channels	: B
	4 channels	: D

Environmental Conditions

Specifications range..... -20°C to +60°C
Calibration temperature..... 20...28°C
Relative humidity..... < 95% RH (non-cond.)
Protection degree..... IP20

Mechanical specifications

Dimensions (HxWxD)..... 109 x 23.5 x 104 mm
Weight approx..... 155 / 180 / 230 g (1 / 2 / 4 channels)
DIN rail type..... DIN 46277
Wire size..... 1 x 2.5 mm^2 stranded wire
Screw terminal torque..... 0.5 Nm

Common specifications

Internal consumption, per channel..... 40 mW
Voltage drop..... < 1.8 VDC, min.
Voltage drop..... 1.8 V + (Iout.*Rload), max.
Isolation voltage, test..... 2 kVAC
Signal / noise ratio..... Min. 60 dB (0...100 kHz)
Response time (0...90%, 100...10%)..... < 4 ms
EMC immunity influence..... < ±0.5% of span

Input specifications

Current input: Measurement range..... 0...23 mA
Input resistance, current input..... ≈ 90 Ω + Rload (@ 20 mA)

Output specifications

Current output: Signal range..... 0...23 mA
Min. signal range..... 1:1
Load (max.)..... 20 mA/600 Ω/12 VDC
Load stability, current output..... < 0.03% of span / 100 Ω
Current limit..... 50 mA
Voltage limit..... 15 VDC
*of span..... = of the presently selected range

Approvals

EMC..... EN 61326-1
GOST R..... Yes

E

PERFORMANCE MADE SMARTER

Isolation amplifier

2204

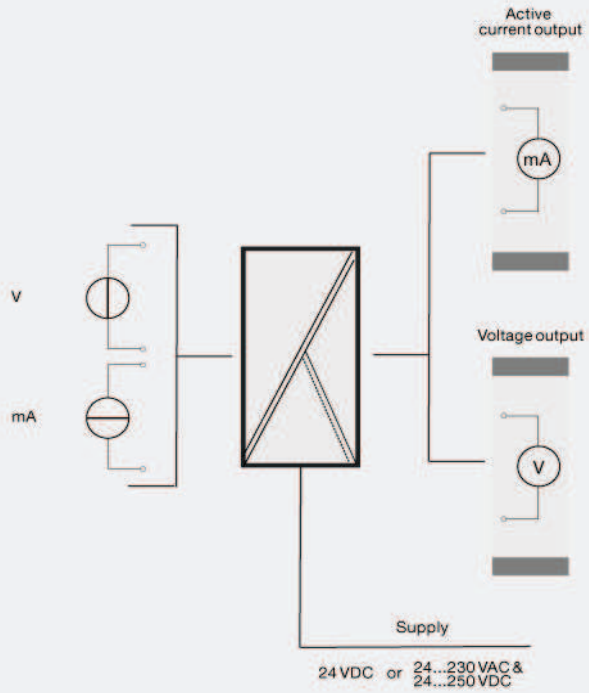
– Input galvanically separated from output and supply
– Current or voltage input
– Signal conversion
– Current and voltage output
– 24 VDC supply or universally supplied
– Applicable in PELV/SELV circuits

Advanced features
- Factory-calibrated measurement ranges for input and outputs in the 2204 can be selected by the internal DIP-switches without the need for recalibration.

Application
- Signal isolator for analog current / voltage signals.
- 1 : 1 or signal conversion of analog current /voltage signals within the ranges: 0...10 VDC or 0...50 mA on the input and 0...20 mA and 0...10 VDC in fixed ranges on the output.
- Analog signal conditioning with microprocessor based gain and zero offset giving a response time of less than 25 ms.

Technical characteristics
- Universally supplied units have a 3-port galvanic separation between input, supply, and output.
- Mounting for a standard 11-pole socket which can be adapted for DIN rail or plate use with PR's 7023 adaptor and 7024 mounting keying.

Connections



Order:

Type	Input		Output		Supply	
2204	0...20 mA	: A	Special	: 0	24 VDC	: D
	4...20 mA	: B	0...20 mA	: 1	24...230 VAC &	: P
	0...1 V	: C	4...20 mA	: 2	24...250 VDC	
	0.2...1 V	: D	0...5 mA	: 3		
	0...10 V	: E	0...1 V	: 4		
	2...10 V	: F	0.2...1 V	: 5		
	Special	: X	0...10 V	: 6		
			2...10 V	: 7		

Environmental Conditions

Specifications range..... -20°C to +60°C
Calibration temperature..... 20...28°C
Relative humidity..... < 95% RH (non-cond.)
Protection degree..... IP50

Mechanical specifications

Dimensions (HxWxD)..... 80.5 x 35.5 x 84.5 mm (D is without pins)
Weight DC / universally supplied..... 110 g / 160 g

Common specifications

Supply voltage..... 19.2...28.8 VDC
Supply voltage, universal..... 21.6...253 VAC, 50...60 Hz or 19.2...300 VDC
Internal consumption..... ≤ 1.3 W (2204--D)
Internal consumption..... ≤ 1.8 W (2204--P)
Isolation voltage, test / working..... 3.75 kVAC / 250 VAC
Signal / noise ratio..... Min. 60 dB
Response time (0...90%)..... < 25 ms
Temperature coefficient..... < ±0.01% of span / °C
Linearity error..... < 0.1% of span
Effect of supply voltage change..... < ±0.002% of span / %V
EMC immunity influence..... < ±0.5% of span

Input specifications

Max. offset..... 20% of max. value
Current input: Measurement range..... 0...50 mADC
Min. measurement range (span), current input..... 4 mA
Input resistance, current input..... Nom. 50 Ω
Voltage input: Measurement range..... 0...10 VDC
Min. measurement range (span), voltage input..... 0.2 VDC
Input resistance, voltage input..... 10 MΩ

Output specifications

Max. offset..... 20% of max. value
Current output: Signal range..... 0...5 mA / 0...20 mA
Min. signal range..... 4 mA / 16 mA
Load (max.)..... 20 mA/600 Ω/12 VDC
Load stability, current output..... ≤0.01% of span / 100 Ω
Current limit..... 23...28 mA
*of span..... = of the presently selected range

Approvals

EMC..... EN 61326-1
LVD..... EN 61010-1
PELV/SELV..... IEC 364-4-41 and EN 60742
GOST R..... Yes

E

PERFORMANCE MADE SMARTER

AC / DC transmitter

2279

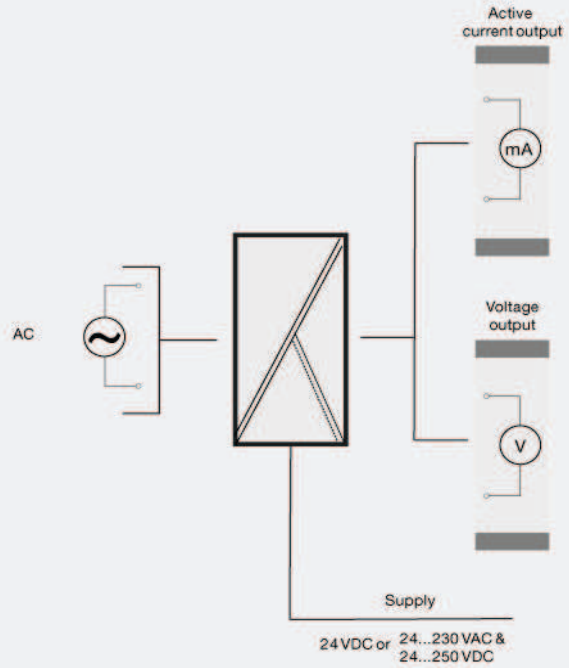
– Input galvanically separated from output and supply
– AC current measurement
– AC voltage measurement
– Current and voltage output
– 24 VDC supply or universally supplied
– Applicable in PELV/SELV circuits

Advanced features
- ±20% adjustment of the 0 and the 100% measurement range is possible at the front panel.
- Input and output ranges are programmable by use of internal DIP-switches.

Application
- AC current measurement e.g. in connection with a current transformer or a current clamp.
- Direct AC voltage measurement.

Technical characteristics
- Analog signal conditioning with microprocessor based gain and zero offset.
- Signals in the ranges 0.5...250 VRMS sinusoidal voltage can be connected directly to the input, ranges are programmed via DIP-switches and jumpers.
- Analog standard current output of 0/4...20 mA or standard voltages of 0...1 or 0...10 VDC ranges are programmed via DIP-switches and jumpers.
- Special currents and voltages within the signal range.
- Signal reversal e.g. 20...4 mA is possible in a special version.
- Universally supplied units have a 3-port galvanic separation between input, supply, and output.
- Mounting for a standard 11-pole socket which can be adapted for DIN rail or plate use with PR's 7023 adaptor and 7024 mounting keying.

Connections



E

Order:

Type	Input		Output		Supply	
2279	0...0.5 VRMS	: A	Special	: 0	24 VDC	: D
	0...1 VRMS	: B	0...20 mA	: 1	24...230 VAC &	: P
	0...2.83 VRMS	: C	4...20 mA	: 2	24...250 VDC	
	(0...4 V peak)		0...1 V	: 4		
	0...5 VRMS	: D	0.2...1 V	: 5		
	0...120 VRMS	: E	0...10 V	: 6		
	0...230 VRMS	: F	2...10 V	: 7		
	0...0.5 ARMS	: G				
	0...1 ARMS	: H				
	Special	: X				

Environmental Conditions

Specifications range..... -20°C to +60°C
Calibration temperature..... 20...28°C
Relative humidity..... < 95% RH (non-cond.)
Protection degree..... IP50

Mechanical specifications

Dimensions (HxWxD)..... 80.5 x 35.5 x 84.5 mm (D is without pins)
Weight DC / universally supplied..... 100 g / 160 g

Common specifications

Supply voltage..... 19.2...28.8 VDC
Supply voltage, universal..... 21.6...253 VAC, 50...60 Hz or 19.2...300 VDC
Max. power consumption..... ≤ 1.3 W (2279--D)
Max. power consumption..... ≤ 2.2 W (2279--P)
Isolation voltage, test / working..... 3.75 kVAC / 250 VAC
Signal / noise ratio..... Min. 60 dB
Response time (0...90%)..... < 1.5 s
Effect of supply voltage change..... < 0.005% of span / VDC
Temperature coefficient..... < ±0.01% of span / °C
Linearity error..... < ±1% of span
EMC immunity influence..... < ±0.5% of span

Input specifications

Max. offset..... 50% of max. value
Current input: Measurement range..... 0...1 ARMS / 40...400 Hz
Min. measurement range (span), current input..... 500 mARMS
Input resistance, current input..... Nom. 1 Ω
Voltage input: Measurement range..... 0...250 VRMS / 40...400 Hz
Min. measurement range (span), voltage input..... 0.5 VRMS
Input resistance, voltage input..... > 1 MΩ

Output specifications

Max. offset..... 20% of max. value
Current output: Signal range..... 0...5 mA / 0...20 mA
Min. signal range..... 4 mA / 16 mA
Load (max.)..... 20 mA/600 Ω/12 VDC
Load stability, current output..... ≤0.01% of span / 100 Ω
Current limit..... 23...28 mA
Voltage output through internal shunt..... See manual for details
*of span..... = of the presently selected range

Approvals

EMC..... EN 61326-1
LVD..... EN 61010-1
PELV/SELV..... IEC 364-4-41 and EN 60742
GOST R..... Yes

E

Isolation amplifier

2284

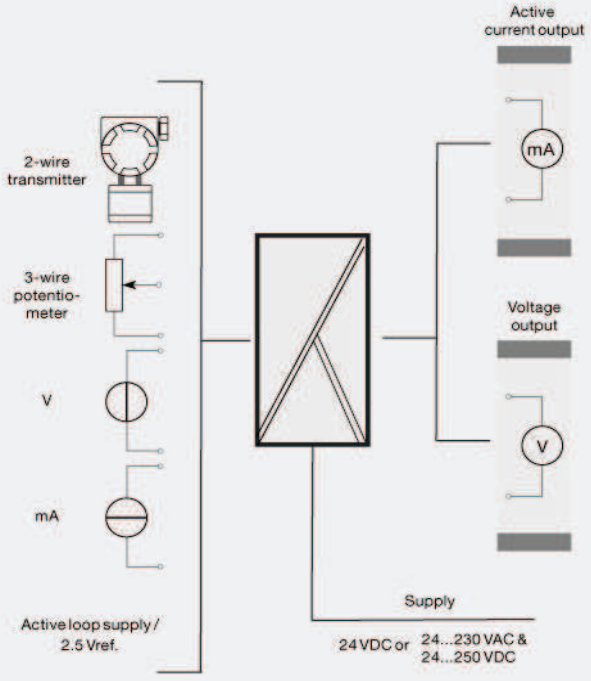
– Galvanically separated input, output, and supply
– Bipolar current / voltage input
– Signal conversion
– Current and voltage output
– 24 VDC supply or universally supplied
– Applicable in PELV/SELV circuits

Advanced features
- Programmable input and output ranges using internal DIP-switches.
- Front panel fine adjustment of 0 and 100% values for special ranges.

Application
- Galvanic separation of analog signals.
- Measurement of floating signals.

Technical characteristics
- Analog signal conditioning with microprocessor based gain and zero offset with a fast response time of less than 25 ms.
- Signal conversion within the ranges: -250...+250 VDC or -50...+50 mA on the input and 0...10 (20) VDC and 0...20 mA on the output.
- Galvanically separated between input, supply, and output.
- 2-wire transmitter supply and a reference voltage of 2.5 VDC, max. 15 mA for short circuit-protected supply of potentiometers.
- Buffered voltage output 0...20 V, 10 mA.
- The output can be ordered for standard 0/4...20 mA, and 0/1...5mA or special currents and selectable voltages within the signal range 0...1 VDC or and ranges 0...10 VDC.
- Output signal reversal.
- Mounting for a standard 11-pole socket which can be adapted for DIN rail or plate use with PR's 7023 adaptor and 7024 mounting keying.

Connections



Order:

Type	Input	Output	Supply	Output type
2284	0...20 mA : A	Special : 0	24 VDC : D	Standard : 1
	4...20 mA : B	0...20 mA : 1	24...230 VAC : P	Buffered
	0...1 V : C	4...20 mA : 2	& 24...250 VDC	voltage : 2
	0.2...1 V : D	0...5 mA : 3		
	0...10 V : E	0...1 V : 4		
	2...10 V : F	0.2...1 V : 5		
	0...2.5 V : G	0...10 V : 6		
	-10...+10 V : H	2...10 V : 7		
	Special : X	0...2.5 V : 8		

Environmental Conditions

Specifications range..... -20°C to +60°C
Calibration temperature..... 20...28°C
Relative humidity..... < 95% RH (non-cond.)
Protection degree..... IP50

Mechanical specifications

Dimensions (HxWxD)..... 80.5 x 35.5 x 84.5 mm (D is without pins)
Weight DC / universally supplied..... 125 g / 165 g

Common specifications

Supply voltage..... 19.2...31.2 VDC
Supply voltage, universal..... 21.6...253 VAC, 50...60 Hz or 19.2...300 VDC
Max. power consumption..... ≤ 2.4 W (2284--D)
Max. power consumption..... ≤ 2.5 W (2284--P)
Isolation voltage, test / working..... 3.75 kVAC / 250 VAC
Signal / noise ratio..... Min. 60 dB
Response time (0...90%)..... < 25 ms
Effect of supply voltage change..... < 0.005% of span / VDC
2-wire transmitter supply (pin 7...5)..... 19...28 VDC / 20...0 mA
Auxiliary voltages: Reference voltage..... 2.5 VDC ±0.5% / 15 mA
Temperature coefficient..... < ±0.01% of span / °C
Linearity error..... < 0.1% of span
EMC immunity influence..... < ±0.5% of span

Input specifications

Max. offset..... 50% of max. value
Current input: Measurement range..... -50...+50 mADC
Min. measurement range (span), current input..... 0.53 mADC
Input resistance, current input..... Nom. 50 Ω
Voltage input: Measurement range..... -250...+250 VDC
Min. measurement range (span), voltage input..... 27 mVDC
Input resistance, voltage input..... >1 MΩ...<10 MΩ

Output specifications

Max. offset..... 20% of max. value
Current output: Signal range..... 0...20 mA
Min. signal range..... 4 mA
Load (max.)..... 20 mA/1000 Ω/20 VDC
Load stability, current output..... ≤0.01% of span / 100 Ω
Current limit..... 23...28 mA
Voltage output through internal shunt..... See manual for details

Approvals

EMC..... EN 61326-1
LVD..... EN 61010-1
PELV/SELV..... IEC 364-4-41 and EN 60742
GOST R..... Yes

E