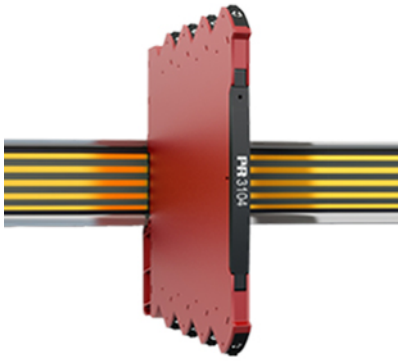
PERFORMANCE MADE SMARTER



Isolated converter

3104

– Isolation and conversion of standard DC signals
– Power supply and signal isolator for 2-wire transmitter
– Loop supply >17 V
– DIP switch configuration
– Slimline 6.1 mm housing

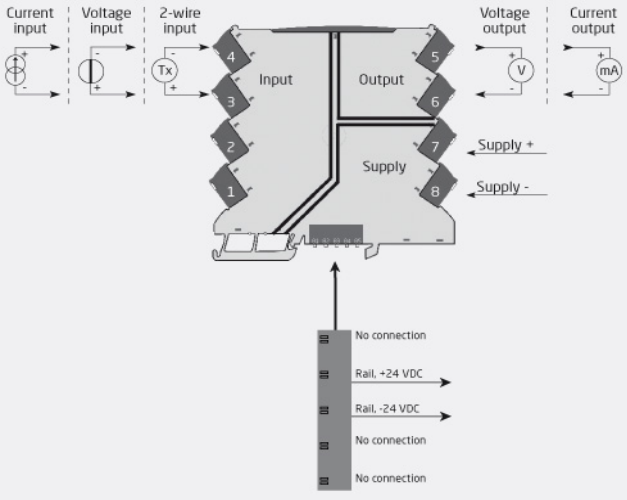
Functional highlights
- Galvanic separation of analog current and voltage signals.
- A competitive choice in terms of both price and technology for galvanic isolation of all signal types to SCADA systems or PLC equipment.
- High 3-port isolation provides surge suppression that protects the control system from transients and noise and eliminates ground loops.
- All terminals are over-voltage protected, polarity protected and short-circuit protected.
- The device can be mounted in Safe area or in Zone 2 / Division 2 areas and is approved for marine applications.

Technical highlights
- Flexible 24 VDC (±30%) supply via power rail or connectors.
- Factory-calibrated measurement ranges.
- Fast response time < 7 ms.
- Excellent signal/noise ratio > 60 dB.
- High galvanic isolation of 2.5 kVAC.
- Inputs and outputs are floating and galvanically separated.
- A green front LED indicates normal operation and malfunction.
- Wide ambient temperature range: -25...+70°C.

Programming
- Easy configuration via DIP switches.

Mounting / installation
- The narrow 6.1 mm housing allows up to 163 units per meter.
- Units can be mounted side by side, horizontally and vertically, without air gap on a standard DIN rail, even at 70°C ambient temperature.
- Units can be supplied separately or installed on PR 9400 power rail.

Applications



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

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Order

Type	Version	
3104	With power rail connector / terminals	: -
	Supplied via terminals	: -N

Example: 3104-N

Environmental Conditions

Operating temperature	-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 & meas. / 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...2.5 mm^2 / AWG 26...12 stranded wire
Screw terminal torque	0.5 Nm
Vibration	IEC 60068-2-6
2...25 Hz	±1.6 mm
25...100 Hz	±4 g

Common specifications

Supply

Supply voltage	16.8...31.2 VDC
Max. required power	≤ 1.2 W (1)
Max. power dissipation	0.55 W

Isolation voltage

Isolation voltage, test / working	2.5 kVAC / 300 VAC (reinforced)
Zone 2 / Div. 2	250 VAC

Response time

Response time (0...90%, 100...10%)	< 7 ms
Programming	DIP switches
Signal / noise ratio	> 60 dB
Cut-off frequency (3 dB)	> 100 Hz
Signal dynamics, input	Analog signal chain
Signal dynamics, output	Analog signal chain
Accuracy	Better than 0.05% of selected range
Temperature coefficient	< ±0.01% of span / °C
EMC immunity influence	< ±0.5% of span
Extended EMC immunity: NAMUR NE21, A criterion, burst	< ±1% of span

Input specifications

Current input

Measurement range	0...23 mA
Programmable measurement ranges	0...20 and 4...20 mA
Input voltage drop	< 1.5 VDC
Input resistance	Nom. 20 Ω + PTC 50 Ω
2-wire transmitter supply	> 17 V / 20 mA

Voltage input

Measurement range	0...10.25 V
Functional range	0...11.5 V / 0...5.75 V
Programmable measurement ranges	0/1...5 and 0/2...10 V
Input resistance	≥ 500 kΩ

Output specifications

Current output

Signal range	0...23 mA
Programmable signal ranges	0 / 4...20 mA
Load (@ current output)	≤ 600 Ω
Load stability	≤ 0.002% of span / 100 Ω
Current limit	≤ 28 mA

Voltage output

Signal range	0...10 VDC
Programmable signal ranges	0/1...5 and 0/2...10 V
Load (@ voltage output)	≥ 10 kΩ
of span	= of the DIP switch selected output range

I.S. / Ex marking

ATEX	II 3 G Ex ec IIC T4 Gc
IECEx	Ex ec IIC T4 Gc
FM, US	Cl. I, Div. 2, Gp. A, B, C, D T4 or Cl. I, Zone 2, AEx nA IIC T4
FM, CA	Cl. I, Div. 2, Gp. A, B, C, D T4 or Cl. I, Zone 2, Ex nA IIC T4
EAC Ex	2Ex nA IIC T4 Gc X

Observed authority requirements

EMC	2014/30/EU & UK SI 2016/1091
LVD	2014/35/EU & UK SI 2016/1101
ATEX	2014/34/EU & UK SI 2016/1107
RoHS	2011/65/EU & UK SI 2012/3032
EAC	TR-CU 020/2011
EAC Ex	TR-CU 012/2011

Approvals

ATEX	KEMA 10ATEX0147 X
IECEx	KEM 10.0068X
UKEX	DEKRA 21UKEX0055X
c FM us	FM17US0004X / FM17CA0003X
c UL us, UL 61010-1	E314307
CCC	2020322310003554
EAC Ex	EAEU KZ 7500361.01.01.08756
DNV Marine	TAA00001RW