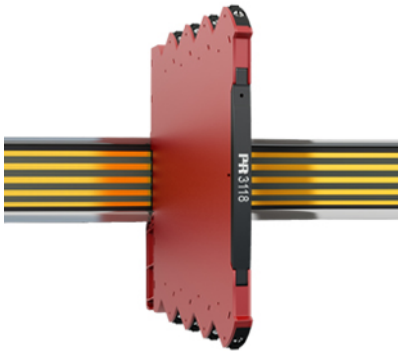
PERFORMANCE MADE SMARTER



Bipolar isolated converter / splitter

3118

- Conversion of voltage and current bipolar process signals to uni-/bipolar signals
- Output: Current and voltage
- Excellent accuracy, better than 0.05% of span
- Splitter function: 1 bipolar signal in and 2 unipolar signals out
- Multiple signal ranges are selectable via DIP switches

Functional highlights

- Isolating converter and splitter which can be used for signal conversion of standard bipolar analog process signals into two individual unipolar analog signals.
- High 4-port isolation provides surge suppression that protects the control system from transients and noise and eliminates ground loops.
- The analog output can be easily configured and programmed to be bipolar in the ranges ±10 mA and ±20 mA.
- 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.

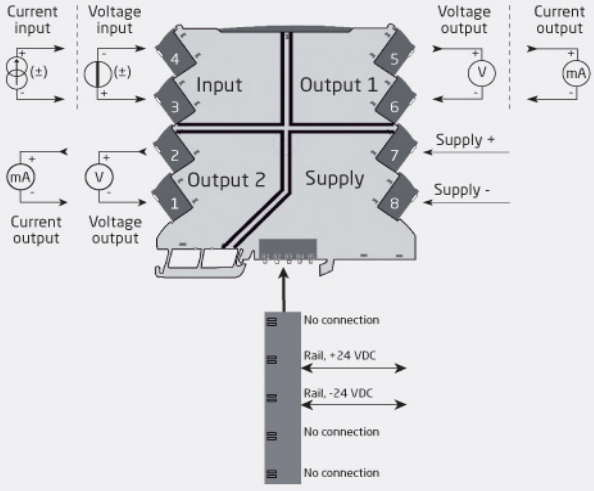
Programming

- Flexible 24 VDC (±30%) supply via power rail or connectors.
- Excellent conversion accuracy in all available ranges, better than 0.05% of span.
- Fast response time < 7 ms / > 100 Hz bandwidth — 10 Hz bandwidth damping possible via DIP switch.
- Meeting the NAMUR NE21 recommendations, this device ensures top measurement performance in harsh EMC environments.
- 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.

Mounting / installation

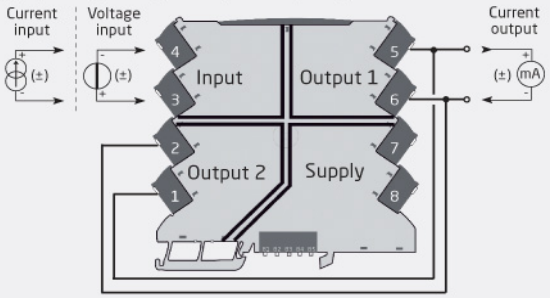
- Fast and easy configuration of factory-calibrated measurement ranges via DIP switches.

Applications



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

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



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Order

Type	Version	
3118	With power rail connector / terminals	:-
	Supplied via terminals	:-N

Example: 3118

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	1.3 W
Max. power dissipation	0.43 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 or < 44 ms
MTBF, acc. to IEC 61709 (SN29500)	> 187 years
Signal / noise ratio	Min. 60 dB (0...100 kHz)
Signal dynamics, input	Analog signal chain
Signal dynamics, output	Analog signal chain
Programming	DIP switches
Cut-off frequency (3 dB)	> 100 Hz or 10 Hz (selectable via DIP-switch)
Accuracy	< ±0.05% of span
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	-23...+23 mA
Programmable measurement ranges	± 10 and ± 20 mA
Input voltage drop	< 1 VDC @ 23 mA

Voltage input

Measurement range	-11.5...+11.5 V
Programmable ranges	±5 and ±10 V
Input resistance	≥ 1 MΩ

Output specifications

Current output

Signal range	0...23 mA
Programmable signal ranges	0 / 4...20 mA
Bipolar wiring and programming set-up	±10 and ± 20 mA
Load (@ current output)	≤ 300 Ω per channel
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 presently selected 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

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