

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 span
- 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.

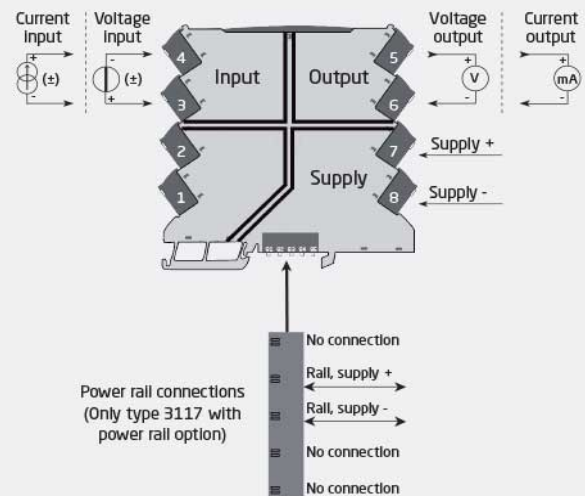
Technical characteristics

- Flexible 24 VDC ($\pm 30\%$) 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.

Applications



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

Order

| Type | Version |
|------|--|
| 3117 | With power rail connector / terminals :- Supplied via terminals :-N |

Example: 3117

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..... | 0.80 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)..... | > 241 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 |
| 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 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 |
| LVD..... | 2014/35/EU |
| ATEX..... | 2014/34/EU |
| RoHS..... | 2011/65/EU |
| EAC..... | TR-CU 020/2011 |
| EAC Ex..... | TR-CU 012/2011 |

Approvals

| | |
|--------------------------|------------------------------|
| ATEX..... | KEMA 10ATEX0147 X |
| IECEX..... | KEM 10.0068X |
| c FM us..... | FM17US0004X / FM17CA0003X |
| c UL us, UL 61010-1..... | E314307 |
| CCC..... | 2020322310003554 |
| EAC Ex..... | RU C-DK.HA65.B.00355/19 |
| DNV Marine..... | TAA00001RW |