



## 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  $\pm 10$  mA and  $\pm 20$  mA (\*special setup).

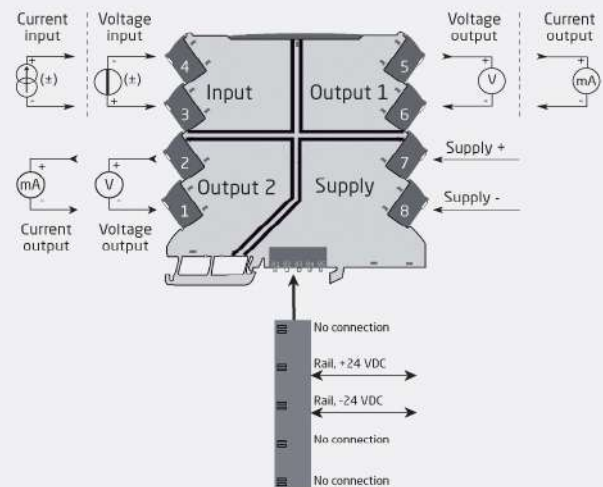
#### Technical characteristics

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

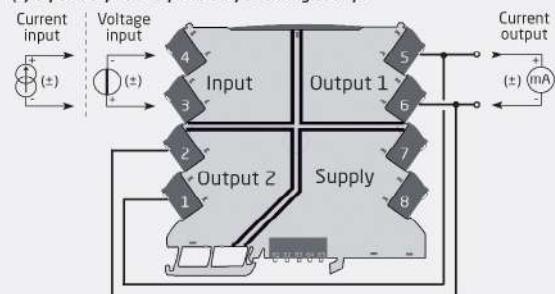
- Easy configuration of factory calibrated measurement ranges via DIP-switches.
- A very low power consumption allows DIN rail mounting without the need for any air gap.
- Wide temperature operation range:  $-25...+70^{\circ}\text{C}$ .

#### Applications



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

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



## Order

| Type | Version  |
|------|--|
| 3118 | With power rail connector / terminals : -<br>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. /<br>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 <sup>2</sup> / AWG 26...12<br>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         |
| Max. power dissipation..... | 0.43 W          |

### Isolation voltage

|   |                                    |
|---|------------------------------------|
| Isolation voltage, test /<br>working..... | 2.5 kVAC / 300 VAC<br>(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<br>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<br>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<br>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<br>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<br>or Cl. I, Zone 2, AEx nA IIC T4 |
| FM, CA..... | Cl. I, Div. 2, Gp. A, B, C, D T4<br>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 /<br>FM17CA0003X |
| c UL us, UL 61010-1..... | E314307                      |
| CCC.....                 | 2020322310003554             |
| EAC Ex.....              | RU C-DK.HA65.B.00355/19      |
| DNV Marine.....          | TAA00001RW                   |