

## Isolated converter

### 3104

- Isolation 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



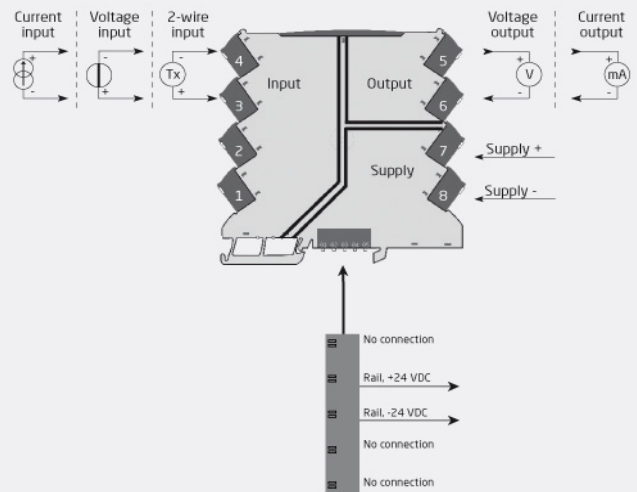
#### Application

- 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.

#### Applications



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

**Order**

| Type | Version  |
|------|--|
| 3104 | With power rail connector / terminals :-<br>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. /<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.....    | 1.20 W          |
| Max. power dissipation..... | 0.55 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                                 |
| 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<br>range |
| 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.....               | 0...23 mA            |
| Programmable measurement ranges..... | 0...20 and 4...20 mA |
| Input voltage drop.....              | < 1.5 VDC            |

**Voltage input**

|                                      |                         |
|--------------------------------------|-------------------------|
| Measurement range.....               | 0...10.25 V             |
| Measurement range.....               | 0...11.5 V / 0...5.75 V |
| Programmable measurement ranges..... | 0/1...5 and 0/2...10 V  |
| Input resistance.....                | ≥ 500 kΩ                |
| 2-wire transmitter supply.....       | > 17 V / 20 mA          |

**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<br>output range |

**I.S. / Ex marking**

|             |   |
|-------------|---|
| ATEX.....   | II 3 G Ex nA IIC T4 Gc  |
| IECEx.....  | Ex nA 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  |
| EAC Ex..... | 2Ex nA IIC T4 Gc X  |

**Observed authority requirements**

|             |                |
|-------------|----------------|
| EMC.....    | 2014/30/EU     |
| LVD.....    | 2014/35/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 /<br>FM17CA0003X |
| c UL us, UL 61010-1..... | E314307                      |
| DNV-GL Marine.....       | TAA00001RW                   |
| EAC Ex.....              | RU C-DK.HA65.B.00355/19      |