

## 2-wire transmitter isolator / current isolator

### 3186

- 1 or 2 channel 2-wire transmitter isolator / current isolator
- 1:1 conversion in the range 3.5...23 mA
- Low channel voltage drop and fast response time < 5 ms
- Excellent accuracy, better than 0.05%
- Slimline 6 mm housing



#### Application

- 3186A is a 1:1 output loop-powered 2-wire transmitter isolator that excites and measures passive input signals.
- 3186B is a 1:1 output loop-powered 2-wire current isolator that measures active input signals.
- A very competitive choice in terms of both price and technology for galvanic isolation.
- Provides surge suppression and protects control systems from transients and noise.
- 3186 eliminates ground loops and can be used for measuring floating signals.
- The device can be mounted in Safe area or in Zone 2 and CL 1 Div 2. area.

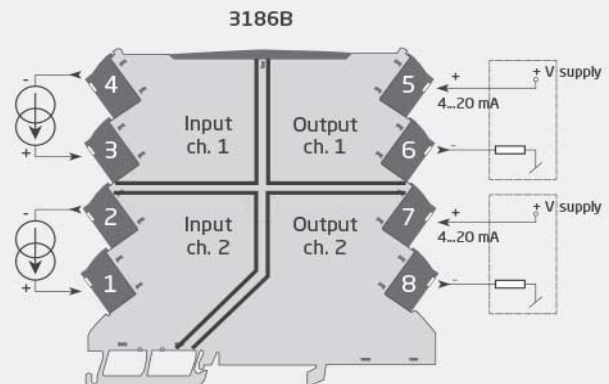
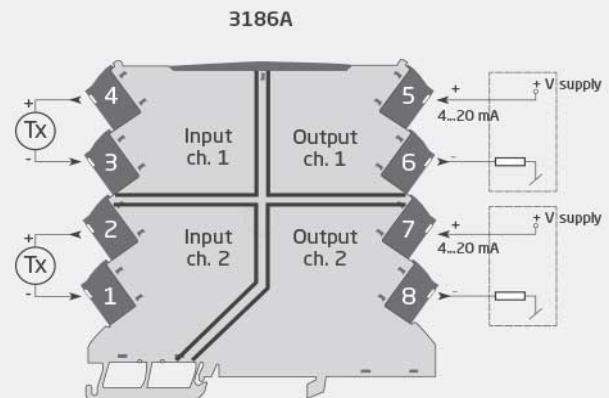
#### Technical characteristics

- 3186 is powered by the host loop voltage.
- Wide supply range from 6...35 V.
- Low input to output voltage drop typ. 2.5 V (3186A).
- Low input drop  $\leq 3$  V (3186B), even when no loop power is applied to the output terminals.
- Excellent conversion accuracy, better than 0.05% in the range 3.8...20.5 mA.
- Signal range is 3.5...23 mA which means that 3186 is NAMUR NE43 compliant.
- Inputs and outputs are floating and galvanically separated.
- High galvanic isolation of 2.5 kVAC.
- Fast response time < 5 ms.
- Excellent signal/noise ratio > 60 dB.

#### Mounting / installation

- DIN rail mounting with up to 330 channels per meter.
- Extended operating temperature range from -25...+70°C.

#### Applications



## Order

| Type | Version                         | Unit channels |
|------|---------------------------------|---------------|
| 3186 | 2-wire transmitter isolator : A | Single : 1    |
|      | 2-wire current isolator : B     | Double : 2    |

## 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

|                                     |                       |
|-------------------------------------|-----------------------|
| <b>Supply</b>                       |                       |
| Supply voltage.....                 | 6...35 VDC            |
| Power dissipation, per channel..... | 50 mW (3186A)         |
| Power dissipation, per channel..... | Vterminal x I (3186B) |

### 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%).....                       | < 5 ms              |
| Signal / noise ratio.....                                     | > 60 dB             |
| Signal dynamics, input.....                                   | Analog signal chain |
| Signal dynamics, output.....                                  | Analog signal chain |
| Accuracy.....   | Better than 0.05%   |
| Cut-off frequency (3 dB).....                                 | 100 Hz              |
| 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.....  | 3.5...23 mA   |
| Input to output voltage drop,<br>typ.....                       | 2.5 V (3186A) |
| Input voltage drop typ.: Supplied<br>and non-supplied unit..... | ≤ 3 V (3186B) |
| 2-wire transmitter supply.....                                  | 3.5...32.5 V  |
| Signal conversion.....  | 1:1           |

## Output specifications

### Current output

|   |               |
|---|---------------|
| Signal range.....                           | 3.5...23 mA   |
| Signal range, input to output.....          | 3.8...20.5 mA |
| Output loop current limitation,<br>typ..... | 24 mA         |
| Current output overload, max.....           | 50 mA         |

## 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  |
| EAC Ex..... | 2Ex nA IIC T4 Gc X  |

## 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 /<br>FM17CA0003X |
| c UL us, UL 61010-1..... | E314307                      |
| CCC.....                 | 2020322310003554             |
| EAC Ex.....              | RU C-DK.HA65.B.00355/19      |
| DNV Marine.....          | TAA00001RW                   |