Passive DC signal isolator

SINEAX TI 816

Camille Bauer LTD
Aargauerstrasse 7
CH-5610 Wohlen/Switzerland
Phone +41 56 618 21 11
Fax +41 56 618 35 35
e-mail: info@camillebauer.com
http://www.camillebauer.com

Operating Instructions

3. Brief description

The signal isolator SINEAX TI 816 serves to electrically insulate an analogue DC signal in the range 0…20 mA which depending on version is then converted to a current or voltage signal (0…20 mA or 0…10 V). It does not require a separate power supply.

The instrument fulfills all the important requirements and regulations concerning electromagnetic compatibility (EMC) and safety (IEC 1010 resp. EN 61 010). It was developed and is manufactured and tested in strict accordance with the quality assurance standard ISO 9001.

4. Versions

There are two versions of the DC signal isolator SINEAX TI 816 available.

<table>
<thead>
<tr>
<th>Description</th>
<th>Output signal A</th>
<th>Order code</th>
<th>Order No.</th>
</tr>
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<tbody>
<tr>
<td>Passive DC signal isolator</td>
<td>0…20 mA</td>
<td>816-5110</td>
<td>990 722</td>
</tr>
<tr>
<td></td>
<td>0…10 V</td>
<td>816-5111</td>
<td>994 089</td>
</tr>
</tbody>
</table>

5. Technical data

Input signal E

- DC current: 0…20 mA
- Max. permissible current: 50 mA
- Voltage limiter: 18 V ± 5% (with zener diode)
- Voltage drop: < 2.1 V (for 500 Ω burden)
- Overshoot: < 20 µA (typical 5 µA)

Output signal A

DC current or DC voltage: 0…20 mA or 0…10 V
- Limit: Approx. 30 mA
- Approx. 15 V
- Max. burden: 600 Ω
- Internal resistance: 500 Ω
- Residual ripple: < 20 mV ss
- Time constant: Approx. 5 ms

Accuracy data

Error limits:
- < ± 0,1% (reference value 20 mA, linearly error included)
- < ± 0,2% (reference value 10 V, linearly error included)

Ambient conditions

- Operating temperature: –20 to + 65 °C
- Storage temperature: –40 to + 85 °C
- Annual mean relative humidity: ≤ 75% Standard climatic rating
- Seismic test: 5 g, < 200 Hz, 2 h in each of 3 directions
- Shock test: 50 g, 10 shocks in each of 3 directions
- Altitude: 2000 m max.
- Indoor use statement

6. Mounting

The SINEAX TI 816 isolator is suitable for mounting on two different types of standard rails:
- onto the G-type rail EN 50 035-G32
- onto the top-hat rail EN 50 022-35 × 7.5.

1 With current signal 2 With voltage signal
7. Electrical connections

Easily accessible screw terminals are provided at the front of the signal isolator (Fig. 6) which accept wire gauges up to 2.5 mm² (stranded wire) or 4 mm² (non-stranded wire).

Note that, ...

... the data required to perform the electrical insulation task agree with the data on the nameplate of the SINEAX TI 816 (input signal and output signal, see Fig. 5)!

... in the case of isolators with current outputs 0...20 mA, the total resistance of the external leads (receiver plus leads) does not exceed the max. burden of 600 Ω! See “output signal”, section “5. Technical data”!

... in the case of isolators with a voltage output 0...10 V, the external receiver connected across the output has a sufficiently high internal resistance RIA in relation to the SINEAX TI 816 output impedance of 500 Ω! See “output signal” in Section “5. Technical data”!

The error due to RIA is:

\[
F \% = \frac{500 [\Omega]}{\text{RIA [Ω]}} \times 100
\]

... that input and output cables should be twisted pairs and run as far as possible away from heavy current cables!

8. Commissioning and maintenance

The device is in operation as soon as the input signal E is connected.

The signal isolator requires no maintenance.

9. Releasing the signal isolator

When dismantling the SINEAX TI 816 ...

... from G rails proceed according to Fig. 7. Firstly press the signal isolator upwards (manipulation 1) and tip it upwards at the same time (manipulation 2).

... from top-hat rails proceed according to Fig. 8. Tip the signal isolator upwards.

10. Dimensional drawings

Fig. 9. SINEAX TI 816 on G-type rail

EN 50 035 – G 32.

Fig. 10. SINEAX TI 816 on top-hat rail

EN 50 022 – 35 × 7.5.

11. Declaration of conformity

EG - KONFORMITÄTSERKLÄRUNG
DECLARATION OF CONFORMITY

Dokument-Nr. / Document No.: TI816.DOC

Hersteller / Manufacturer: Camille Bauer AG

Anschrift / Address: Aargauerstrasse 7, CH-5610 Wohlen

Produktbezeichnung / Product name: Passive DC signal isolator

Typ / Type: SINEAX TI 816

Das bezeichnete Produkt stimmt mit den Vorschriften folgender Europäischer Richtlinien überein, nachgewiesen durch die Einhaltung folgender Normen:

The above mentioned product has been manufactured according to the regulations of the following European directives proven through compliance with the following standards:

- EN 55011:1992
- EN 50081-2:1993
- EN 50082-2:1994
- IEC 1000-4-2:1995
- IEC 1000-4-3:1998
- IEC 1000-4-4:1995
- IEC 1000-4-6:1996
- EN 50 081-2 : 1993 EN 55011 : 1992
- EN 50 035 – G 32:1990
- EN 60 950:1990
- EN 50 022 – 35 × 7.5:1993

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- EN 60 950:1990
- EN 50 022 – 35 × 7.5:1993

Typ 816 – 5111

2(s) 0...20 mA 3(s) 0...10 V

99408901
camille bauer 5610 Wohlen Switzerland

Fig. 5. Example of a nameplate.

Connect the input and output leads E and A according to Fig. 6.

Fig. 6. Terminal allocation.

E = Input signal
A = Output signal.

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