

SINEAX B812

Transmitter – Power Supply Unit

for intelligent and conventional 2-wire transmitters, in housing P12/17 for rail mounting



II (1) G [Ex ia Ga] IIC
II (1) D [Ex ia Da] IIIC



Application

The transmitter-power supply unit **SINEAX B812** (Fig. 1) provides the DC power supply for **2-wire transmitters** and transfers the measured variable unchanged to the **electrically insulated** output.

All versions of the SINEAX B812 are **designed for FSK¹ communication**. They are used in conjunction with “intelligent” 2-wire transmitters which are capable of dialogue and operation according to the FSK principle and the HART or user-specific protocol.

The series also includes “intrinsically safe” versions [Ex ia Ga] IIC and [Ex ia Da] IIIC with an intrinsically safe input. These operate in conjunction with intrinsically safe 2-wire transmitters located in explosion hazard areas.

Provision is made for monitoring the measurement/supply to detect short and open-circuits. Either of these faults is signalled by the red LED.

The instrument fulfils all the important requirements and regulations concerning electromagnetic compatibility **EMV** and **Safety** (EN 61010). It was developed and is manufactured and tested in strict accordance with the **quality assurance standard** ISO 9001.

Production QA is also certified according to guideline 94/9/EG.

Features / Benefits

- Designed for FSK communication / This facilitates operation in conjunction with an “intelligent” 2-wire transmitter designed for FSK and with a HART or user-specific protocol
- Electrically insulated between input, output and power supply / Fulfils IEC 1010 resp. EN 61010
- AC/DC power supply / Universal
- “Intrinsically safe” version [Ex ia Ga] IIC and [Ex ia Da] IIIC available (see section “Explosion protection data”)
- Measurement/supply circuit monitored for open and short-circuits / Faults signalled by red LED
- Green power on LED
- Compact and narrow



Technical Data

Input →

Measurement / supply circuit

| | |
|----------------------------------|------------------|
| Signal range | 4 ... 20 mA |
| Power supply voltage (I = 20 mA) | 18.0 V ± 1 V |
| No-load voltage (I = 0 mA) | 25.5 V ± 1 V |
| Short circuit current limitation | 25 mA ± 2 mA |
| Source resistance | 330 Ω ± 5 Ω |
| Open circuit detection | 3.5 mA ± 0.1 mA |
| Short circuit detection | 21.2 mA ± 0.2 mA |

Output ⇄

| | |
|--|--|
| Signal range | 4 ... 20 mA |
| No-load voltage (I = 0 mA) | 17.0 V ± 1 V |
| Internal communication resistor R _C | 250 Ω |
| Permitted load | 0 ... 750 Ω 0 ... 500 Ω (via R _C) |

¹FSK = Frequency Shift Keying

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Power supply →○

Universal power supply for DC and AC

| | Low-range version | High-range version |
|----------------------------|---------------------------|----------------------------|
| Voltage range AC/DC | 24 – 60 V ±15% | 85 – 230 V ±15% *) |
| Switching-on current I / τ | 2.5 A / 1.0 ms at 24 V DC | 20 A / 0.15 ms at 325 V DC |
| Frequency range AC | 50 ... 400 Hz | |
| Power consumption max. | 3 VA / 2.4 W | |

*) Voltages > 125 V DC require external protection with max. 10 A trip current. For the Ex version, the data in the EC type examination certificate are valid (U_m = 253 V AC or 125 V DC).

Accuracy

| | |
|--|--|
| Reference conditions | T _{amb} = 23 °C, I _{load} = 300 Ω Warm up time 20 minutes Power supply = 24 V DC or 230 V AC Range = 16 mA ± 100% |
| Error tolerance incl. linearity error under reference conditions | ± 0.2% |
| Effect of output load | < 0.1% |
| Temperature effect | < 0.1% / 10 K |
| Effect of power supply | < 0.05% |

Transfer

| | |
|---------------------------|---|
| Signal current over-range | 10% |
| Response time | < 0.3 ms |
| HART® | Transparent for HART signals in both directions |

Galvanic isolation

All three circuits (input / power supply / output) are galvanically isolated from each other.

Regulations

| | |
|--------------------------------------|--------------------------------|
| Electromagnetic compatibility: | EN 61000-6-2 EN 61000-6-4 |
| Intrinsic safety: | EN 60079-11 , EN 60079-26 |
| Protection (IEC 529 resp. EN 60529): | Terminals IP20 Housing IP40 |
| Electrical safety: | EN 61010-1 |
| Working voltage: | 300 V |
| Contamination level: | 2 |
| Overvoltage category: | III |
| Test voltage: | 3.6 kV |
| Flammability class | UL 94 V0 |

Ambient conditions

| | |
|-----------------------|-----------------------------|
| Operating temperature | -20 ... +50 °C |
| Storage temperature | -20 ... +70 °C |
| Relative humidity | ≤ 75%, without condensation |

Installation data

| | |
|-------------------------|---|
| Mounting: | For snapping onto top hat rail (35 x 15 mm or 35 x 7.5 mm) acc. to EN 50022 |
| Position of use: | Any |
| Terminal cross section: | 0.14 mm ² to 2.5 mm ² |
| Plug-in terminals: | Coded to prevent incorrect connection |
| Weight: | Approx. 100 g |

Versions

Device Ex-versions [Ex ia Ga] IIC and [Ex ia Da] IIIC


| Power supply | Connection terminals | Order number |
|--------------------------|----------------------|--------------|
| 85 – 230 V AC / 125 V DC | not plugable | 155 102 |
| 85 – 230 V AC / 125 V DC | plugable | 155 144 |
| 24 – 60 V AC / DC | not plugable | 155 095 |
| 24 – 60 V AC / DC | plugable | 155 136 |

Device standard versions

| Power supply | Connection terminals | Order number |
|--------------------|----------------------|--------------|
| 85 – 230 V AC / DC | not plugable | 155 087 |
| 85 – 230 V AC / DC | plugable | 155 128 |
| 24 – 60 V AC / DC | not plugable | 155 079 |
| 24 – 60 V AC / DC | plugable | 155 110 |

Explosion protection data

| | |
|-------------------------------|------------------------------------|
| Type examination certificate: | ZELM 04 ATEX 0217 |
| Type of protection: | [Ex ia Ga] IIC and [Ex ia Da] IIIC |

Marking:  II (1) G
II (1) D

| | |
|----------------|--------|
| U _o | 28.2 V |
| I _o | 95 mA |
| P _o | 0.67 W |
| Characteristic | linear |

| | IIC | IIB |
|----------------|-------|--------|
| C _o | 81 nF | 641 nF |
| L _o | 4 mH | 15 mH |

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Indicator LEDs

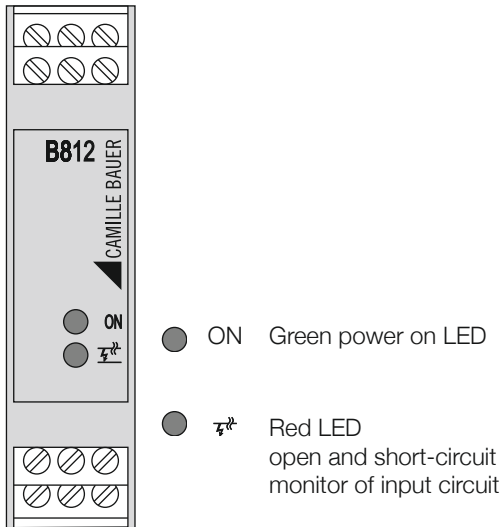


Fig. 2

Electrical connections

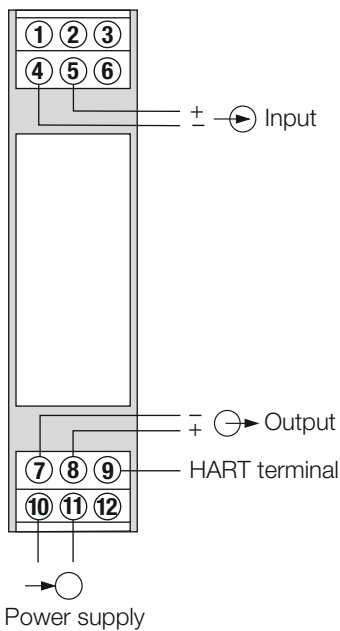


Fig. 3

Dimensional drawings

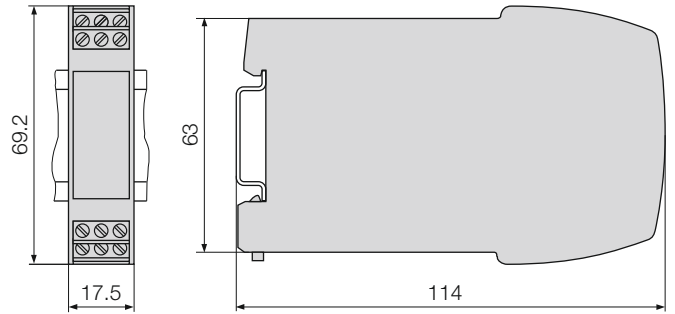


Fig. 4. SINEAX B812 in housing **P12/17** clipped onto a top-hat rail (35 x 15 mm or 35 x 7.5 mm, acc. to EN 50022). **Connection terminals not plugable.**

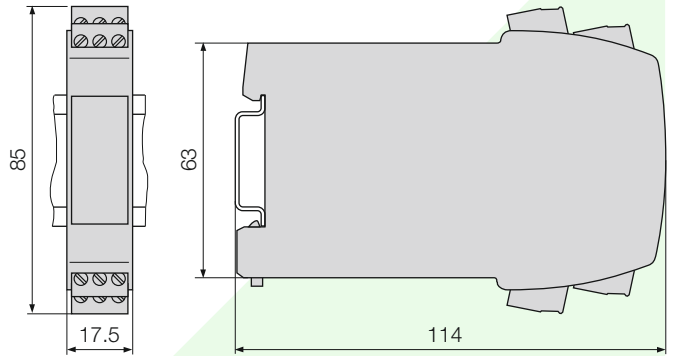


Fig. 5. SINEAX B812 in housing **P12/17 St** clipped onto a top-hat rail (35 x 15 mm or 35 x 7.5 mm, acc. to EN 50022). **Connection terminals plugable.**

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