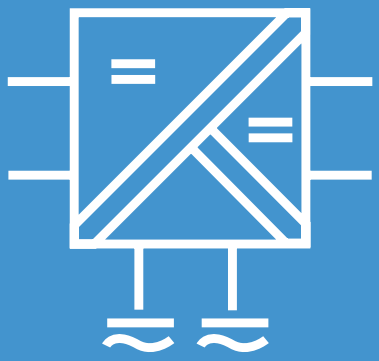
VariTrans® B 10000



The only 3-port standard signal isolation amplifier in a 6 mm modular case.

The task

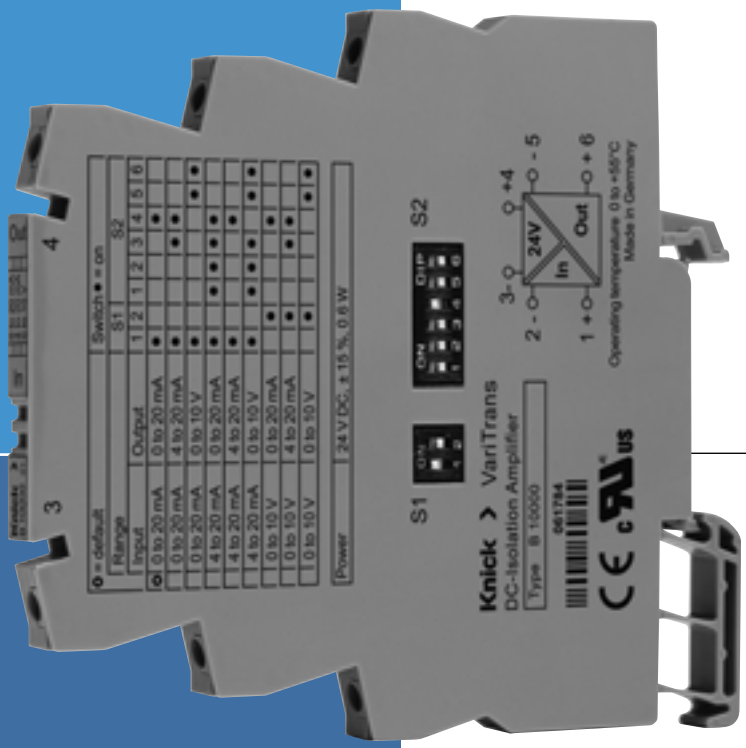
Isolation and, if necessary, conversion of 0 ... 20 mA, 4 ... 20 mA as well as 0 ... 10 V standard signals. If you have limited space and budget, there could still be difficulties when it comes to selecting a suitable isolator despite the standard transmission requirements.

The problems

Up to now the only way of reducing costs substantially was to opt for low quality products. As a large number of different signals also required a large number of isolators, this also led to considerable stockkeeping costs.

The solution

The 3-port standard signal isolation amplifier from Knick sets new standards due to its extremely compact design and its low self-heating. The VariTrans® B 10000 is available with 9 selectable, calibrated ranges or as one of eight different variants with fixed settings. In any case it has an extremely attractive price.



The enclosure

Measuring only 6 mm, the closed modular case of the VariTrans® B 10000 allows up to 163 active isolation amplifiers per meter top-hat rail.

The advantages

In spite of the reduced space, the VariTrans® B 10000 provides true 3-port separation between input, output, and power supply (24 V DC) to prevent parasitic voltages.

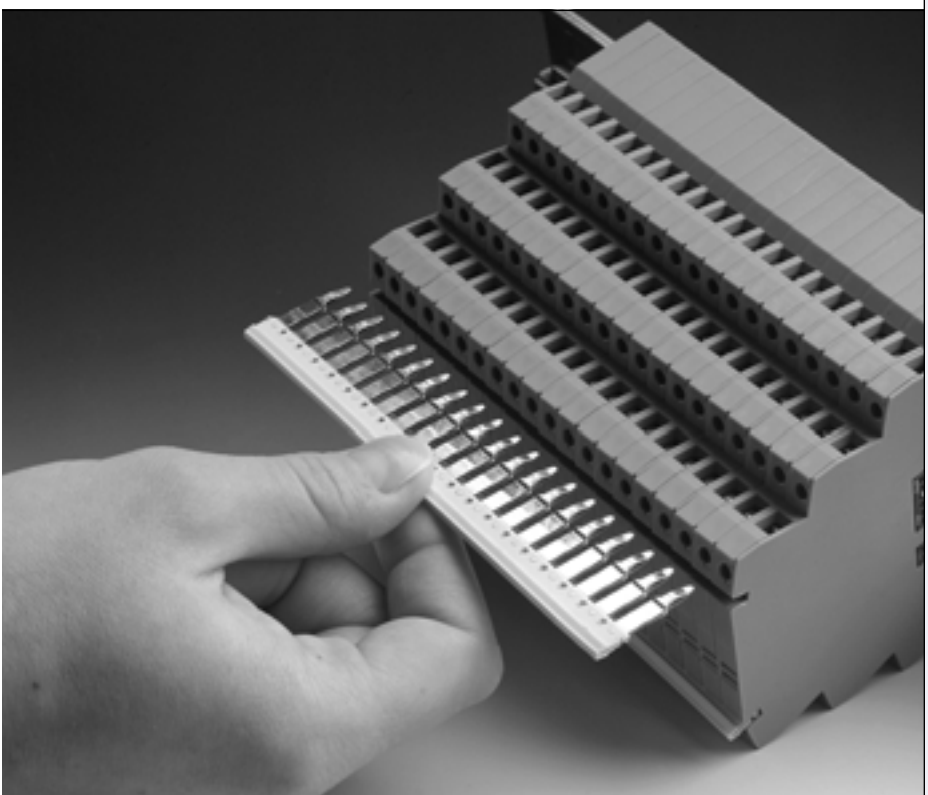
A pluggable cross-connection for power supply ensures quick and therefore inexpensive mounting.

The technology

Analog signal processing with transformer isolation ensures excellent signal transmission. The input and output ranges can easily be selected using DIP switches.

Warranty
5 years!

Defects occurring within 5 years from delivery are remedied free of charge at our plant (carriage and insurance paid by sender).



The facts

- **Safety in the smallest of spaces**
  3-port isolation in a 6 mm enclosure
- **Space-saving mounting**
  No ventilation clearances required since there is no noticeable heat development
- **Attractive price**
  One of the cheapest quality isolators on the market
- **Long life**
  Extremely low failure rate (MTBF of 440 years) due to reduced self-heating
- **Good accuracy**
  Exemplary signal transmission for standard applications
- **Low-cost mounting**
  using pluggable cross-connection allows the power supply to be connected to several VariTrans® B 10000 units easily and extremely cost efficient
- **Calibrated range switching**
  no tedious readjustment
- **8 fixed range variants**
  if range shifting is to be avoided
- **3-port isolation**
  prevention of incorrect measurements caused by potential differences
- **Simple configuration**
  DIL switches accessible from outside
- **5-year warranty**

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Product line

Devices			Order no.
	Input	Output	
B 10000 with calibrated input and output selection	0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V	0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V	B 10000 F0
B 10000 with fixed settings	0 ... 20 mA 0 ... 20 mA 0 ... 20 mA 4 ... 20 mA 4 ... 20 mA 4 ... 20 mA 0 ... 10 V 0 ... 10 V 0 ... 10 V	0 ... 20 mA 4 ... 20 mA 0 ... 10 V 0 ... 20 mA 4 ... 20 mA 0 ... 10 V 0 ... 20 mA 4 ... 20 mA 0 ... 10 V	B 10016 F0 B 10017 F0 B 10018 F0 B 10026 F0 B 10016 F0 B 10028 F0 B 10036 F0 B 10037 F0 B 10038 F0
Cross-connections	Pluggable cross-connection for looping through of the power supply for up to 41 power supply connections VariTrans® B 10000, splittable.		ZU 0542

Power supply

24 V DC

Specifications

Input data

Inputs	0 ... 20 mA 4 ... 20 mA 0 ... 10 V	Calibrated selection or fixed settings (see Product line)
Input resistance	Current input Voltage input	Voltage drop < 0.1 V at 20 mA Approx. 100 kOhms
Overload	Current input Voltage input	< 100 mA Voltage limitation with suppressor diode 30 V, max. permitted continuous current 3 mA

Output data

Outputs	0 ... 20 mA 4 ... 20 mA 0 ... 10 V	Calibrated selection or fixed settings (see Product line)
Load	With output current With output voltage	≤ 500 Ohms ≥ 10 kOhms

Specifications, continued

Transmission behavior

Transmission error [1]	< 0.4 %
Cut-off frequency	> 100 Hz –3 dB

Power supply

Power supply	24 V DC (± 15 %), 0.6 W

Isolation

Galvanic isolation	3-port isolation between input, output and power supply
Test voltage	510 V AC (higher test voltage up to 1.5 kV on request)
Working voltage (basic isolation)	100 V with overvoltage category II and pollution degree 2 according to EN 61010-1. For applications with high working voltages, you should ensure there is sufficient spacing or isolation from neighboring devices and protection against electrical shocks.

Standards and approvals

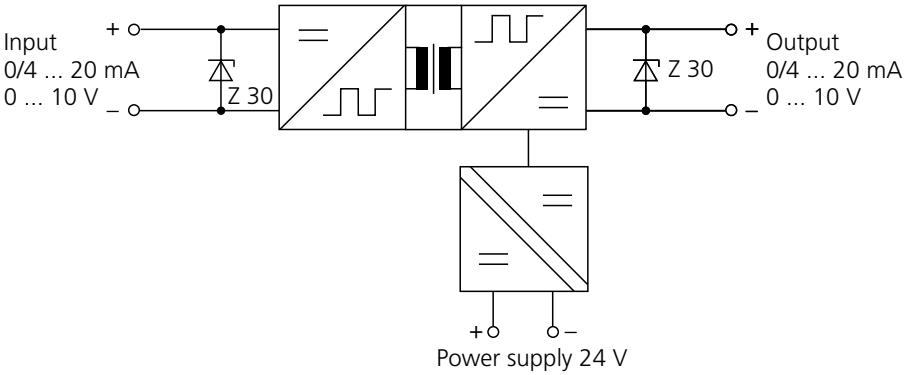
EMC [2]	Product standard EN 61326, emitted interference: Class B, Immunity to interference: Industry
Approval	cUL, File No. E 220033, Standards: UL 508 and CAN/CSA 22.2 No. 14

Other data

Ambient temperature	Operation: 0 ... +55 °C Transport and storage: –25 ... +85 °C
Version	Modular case with screw terminals, power supply also possible via cross-connections, width 6.1 mm, see dimension drawing for other measurements
Protection class	IP 20
Mounting	For 35 mm top hat rail to EN 50022 See dimension drawings for conductor cross section
Weight	Approx. 50 g

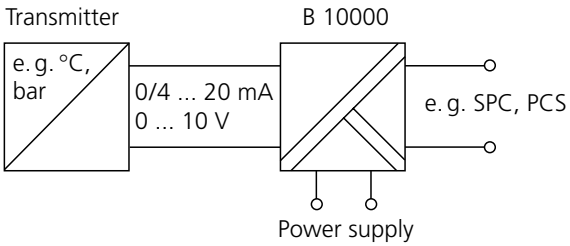
1) Additional faults in live-zero operation 20 µA or 10 mV
2) Slight deviations are possible while there is interference

Schematic diagram

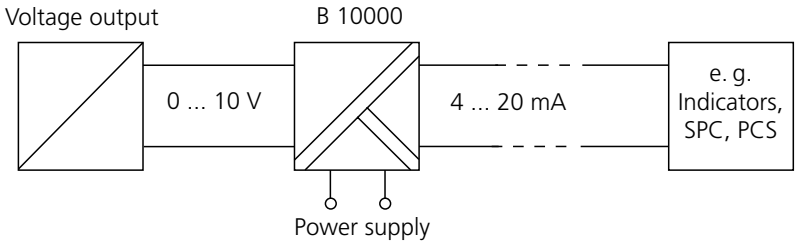


Application examples

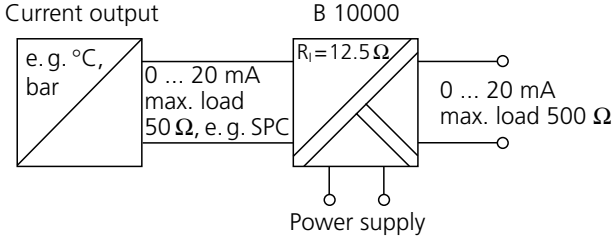
Electrical isolation
For safe coupling of the measuring signals to the evaluation electronics



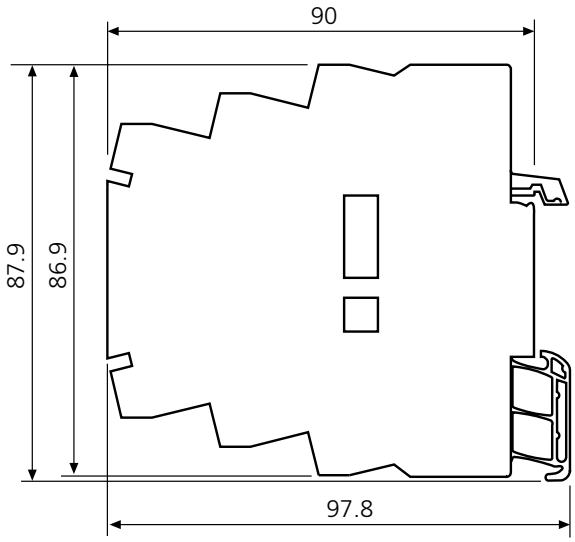
Signal conversion
For example, conversion of voltage signals into current signals for interference-free signal transmission over long distances

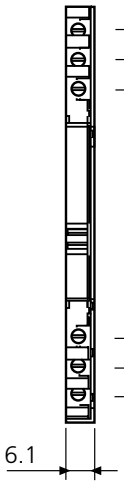


Load increase
e. g. for low load capability measuring signals



Dimension drawings and terminal assignments





— Terminal 6 Output +
— Terminal 5 Output –
— Terminal 4 Power supply +

Conductor cross sections:
Single-wire 0.5 ... 2.5 mm²
Finely stranded 0.5 ... 2.5 mm²
With ferrule 0.5 ... 1.5 mm²

— Terminal 3 Power supply +
— Terminal 2 Output –
— Terminal 1 Output +

All dimensions in mm.