

Modular Housings

Knick >

The world's first 3-port standard signal isolator in a 6 mm modular housing.

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 requirements for transfer in the selection.

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

With its extreme compactness and low self-heating, the new standard-signal isolator from Knick sets new standards. The VariTrans® B 10000 is available with nine selectable, calibrated ranges or as one of eight different variants with fixed settings. In any case it has an extremely attractive price.

The Housing

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

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

VariTrans® B 10000



The Advantages

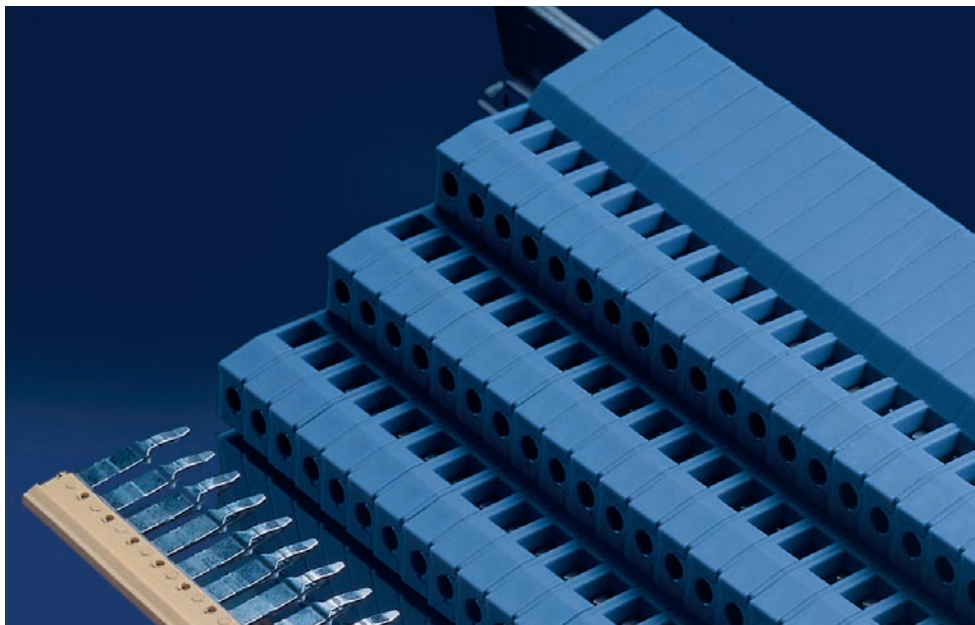
In spite of the reduced space, the VariTrans® B 10000 provides true 3-port isolation between input, output, and power supply to prevent parasitic voltages.

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 works (carriage and insurance paid by sender).



Isolation Amplifiers for Standard Signals

Isolation Amplifiers
Transmitters

Indicators

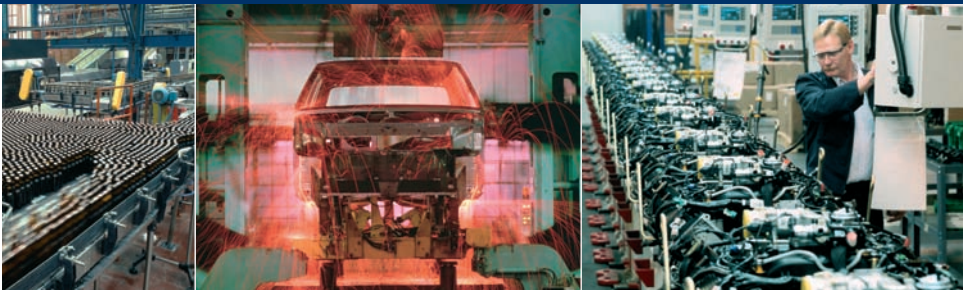
Process Analytics

Portable Meters

Laboratory Meters

Sensors

Fittings



Knick >

■ The Facts

Safety in the smallest of spaces
3-port isolation in a 6-mm housing

Space-saving assembly
No ventilation clearances required since there is no noticeable heat development

Attractive price
One of the cheapest high-quality isolators on the market

Long service life
Extremely low failure rate (MTBF of 440 years) due to reduced self-heating

Good accuracy
Exemplary signal transmission for standard applications

Low-cost installation
Pluggable cross-connections allow easy and extremely cost-efficient connection of power supply to several VariTrans® B 10000 units

Calibrated range selection
without complicated adjustments

8 fixed-range variants
if range shifting is to be avoided

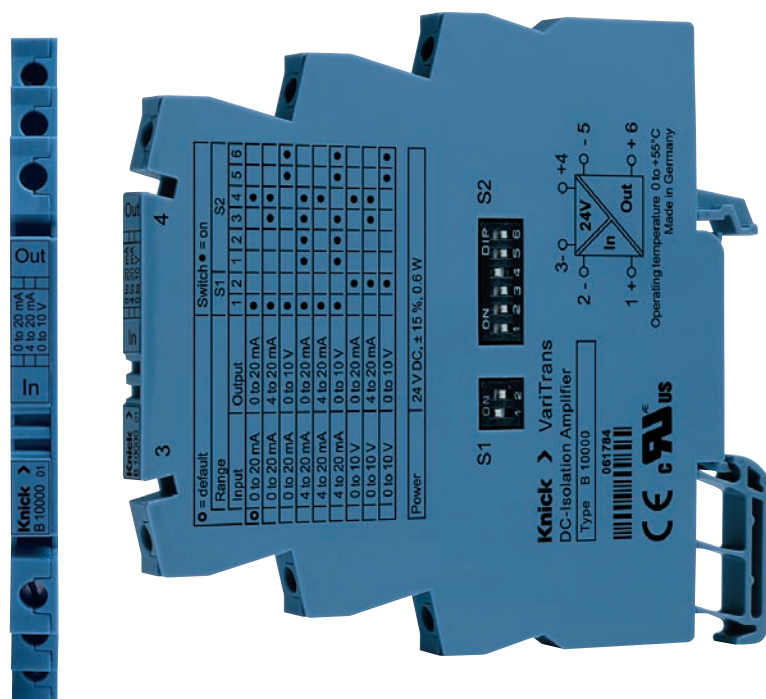
3-port isolation
Prevention of incorrect measurements caused by potential differences

Simple configuration
DIL switches accessible from outside

5-year warranty

CE **RU** US

6
mm
CLASS



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VariTrans® B 10000

■ Product Line

Devices	Input	Output	Order No.
VariTrans® 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 FO
VariTrans® 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 FO B 10017 FO B 10018 FO B 10026 FO B 10016 FO B 10028 FO B 10036 FO B 10037 FO B 10038 FO
Cross-connections	Pluggable cross-connection for looping through of the power supply for up to 41 power supply connections of the 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 range selection or fixed settings (see Product Line)
Input resistance	Current input: Voltage input:	Voltage drop < 0.1 V at 20 mA, with open current output or power failure approx. 350 mV 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 range selection or fixed settings (see Product line)
Load	With output current: With output voltage:	≤ 10 V (≤ 500 ohms at 20 mA) ≤ 1 mA (≥ 10 kohms at 10 V)
Offset	< 20 µA or < 10 mV	
Residual ripple	< 10 mV _{rms}	

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Specifications (continued)

Transmission behavior

Gain error ¹⁾	< 0.3 % full scale
Cut-off frequency	> 100 Hz, -3 dB
Temperature coefficient ²⁾	< 0.01 %/K full scale (reference temperature 23 °C)

Power supply

Power supply	24 V DC (± 15 %), 0.6 W The power supply can be routed from once device to another via cross-connections.
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Isolation

Galvanic isolation	3-port isolation between input, output and power supply
Test voltage	510 V AC
Working voltage (basic insulation)	100 V AC/DC 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 electric shocks.

Standards and approvals

EMC ³⁾	Product standard EN 61326, emitted interference: Class B, Immunity to interference: Industry
Approval	cURus, File No. E 220033, Standards: UL 508 and CAN/CSA 22.2 no. 14-95

Other data

MTBF ⁴⁾	Approx. 440 years
Ambient temperature	Operation: 0 ... +55 °C Transport and storage: -25 ... +85 °C
Design	Modular housing with screw terminals, width 6.1 mm, see dimension drawings for further measurements
Ingress protection	IP 20
Mounting	For 35 mm top hat rail to EN 60715, see dimension drawings for conductor cross section
Weight	Approx. 50 g

1) Additional error in live-zero operation 20 µA or 10 mV

2) Average TC in specified operating temperature range 0 °C ... +55 °C

3) Slight deviations are possible while there is interference

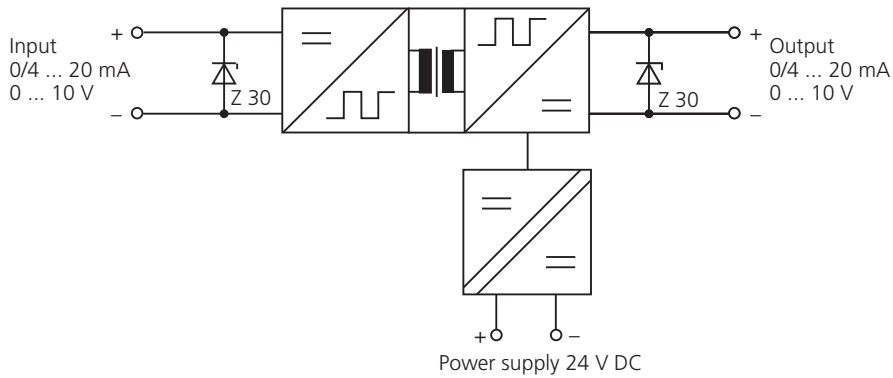
4) Mean Time Between Failures – MTBF – according to EN 61709 (SN 29500).

Conditions: stationary operation in well-kept rooms, average ambient temperature 40 °C, no ventilation, continuous operation

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VariTrans® B 10000

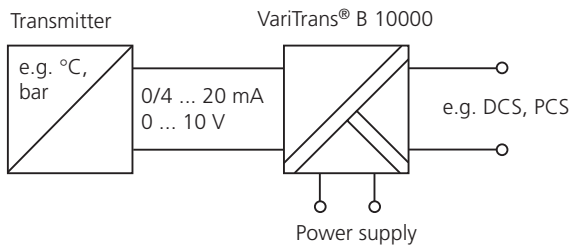
■ Block Diagram



■ Application Examples

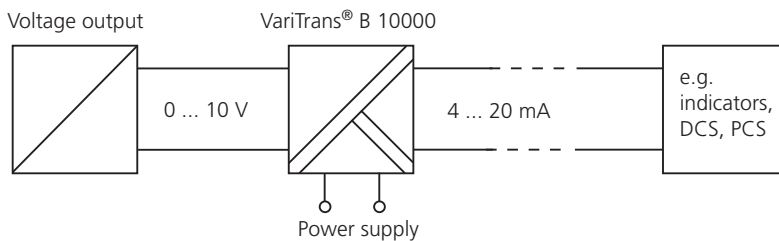
Electrical isolation

for safe coupling of the measurement signals to the evaluation electronics



Signal conversion

e.g. conversion of voltage signals into current signals for interference-free signal transmission over long distances



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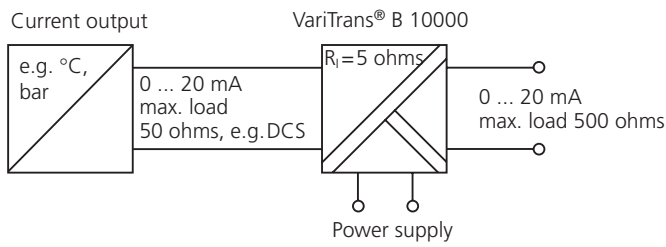
Fittings

Knick 

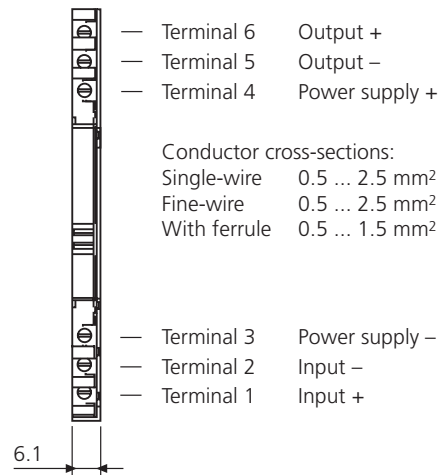
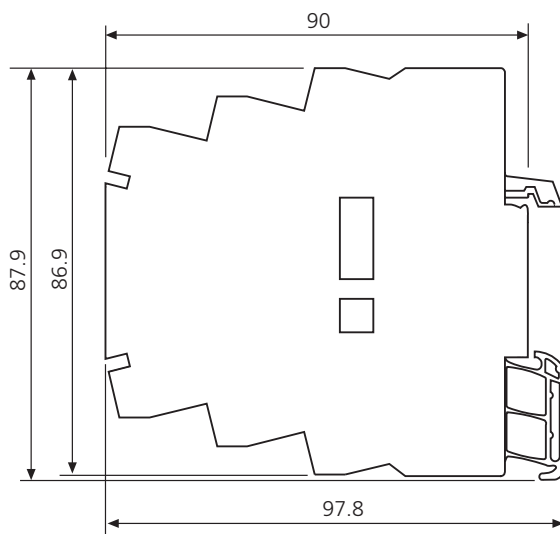
Application Examples (continued)

Load increase

e. g. for low load capability signals



■ Dimension Drawings and Terminal Assignments



All dimensions in mm!

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