

Modular Housings

VariTrans® P 27000

■ Product Line

Devices			Order No.	Order No.
	Input	Output	With pluggable screw terminal	With fixed screw terminal
VariTrans® P 27000 Input and output adjustable	0 ... ±20 mV/200 V 0 ... ±0.1 mA/100 mA	0 ... 20 mA 4 ... 20 mA 0 ... 10 V 0 ... ±10 V 0 ... ± 20 mA	P 27000 H1	P 27000 F1
VariTrans® P 27000 Fixed setting	0 ... ± 20 mA 0 ... ± 20 mA 0 ... ±60 mV 0 ... 60 mV 0 ... ±60 mV 0 ... ±150 mV 0 ... 150 mV 0 ... ±150 mV 0 ... ±300 mV 0 ... 300 mV 0 ... ±300 mV 0 ... ±500 mV 0 ... 500 mV 0 ... ±500 mV 0 ... ±1 V 0 ... 1 V 0 ... ±1 V 0 ... ±10 V 0 ... ±10 V	0 ... ± 20 mA 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 0 ... ± 20 mA 4 ... 20 mA 0 ... ±10 V 0 ... ± 20 mA 4 ... 20 mA 0 ... ±10 V 0 ... ± 20 mA 0 ... ±10 V 0 ... ± 20 mA 0 ... ±10 V	P 27016 H1 P 27018 H1 P 27056 H1 P 27057 H1 P 27058 H1 P 27066 H1 P 27067 H1 P 27068 H1 P 27076 H1 P 27077 H1 P 27078 H1 P 27086 H1 P 27087 H1 P 27088 H1 P 27096 H1 P 27097 H1 P 27098 H1 P 27036 H1 P 27038 H1	P 27016 F1 P 27018 F1 P 27056 F1 P 27057 F1 P 27058 F1 P 27066 F1 P 27067 F1 P 27068 F1 P 27076 F1 P 27077 F1 P 27078 F1 P 27086 F1 P 27087 F1 P 27088 F1 P 27096 F1 P 27097 F1 P 27098 F1 P 27036 F1 P 27038 F1
VariTrans® P 27000 Fixed setting to customer requirement			P 27000 H1-nnnn	P 27000 F1-nnnn
Power supply				
20 ... 253 V AC/DC				

Universal Isolation Amplifiers

Isolation Amplifiers
Transmitters

Indicators

Process Analytics

Portable Meters

Laboratory Meters

Sensors

Fittings

Knick 

■ Specifications

Input data

Inputs	P 27000 H1/F1:	Factory setting ± 10 V	
	Voltage	Configurable from 20 mV ... 200 V and switchable in calibrated steps: 60 mV, 100 mV, 150 mV, 300 mV, 500 mV, 1 V, 5 V, 10 V, 100 V, unipolar/bipolar	
	Current	Configurable from 0.1 mA ... 100 mA and switchable in calibrated steps: 1 mA, 5 mA, 10 mA, 20 mA, 50 mA, unipolar/bipolar and 4 ... 20 mA ¹⁾	
Input resistance	Current input	Ranges ≤ 5 mA	approx. 100 ohms
		Ranges > 5 mA	approx. 5 ohms
	Voltage input		approx. 1 Mohm
Overload	Current input	Ranges ≤ 5 mA	≤ 100 mA
		Ranges > 5 mA	≤ 300 mA
	Voltage input	Ranges ≤ 500 mV	limited by suppressor diode 36 V, max. permitted continuous current ≤ 20 mA
		Ranges > 500 mV	limited by suppressor diode 250 V, max. permitted continuous current ≤ 3 mA

Output data

Output	P 27000 H1/F1: factory setting ± 10 V 20 mA, 5 V, 10 V unipolar/bipolar and 4 ... 20 mA, 1 ... 5 V and 2 ... 10 V, calibrated selection		
Offset	-100 %, -50 %, 0 %, 50 %, 100 % of span of the selected output range calibrated selection		
Load	With output current	≤ 12 V (600 ohms at 20 mA)	
	With output voltage	≤ 10 mA (1 kohm at 10 V) ²⁾	
Offset	20 μ A or 10 mV		
Residual ripple	< 10 mV _{rms}		

Transmission behavior

Adjustment range of ZERO potentiometer	± 25 % span of selected output range
Adjustment range of SPAN potentiometer	0.33 ... 3.30 x end value of selected input range (max. $V_{in} = 200$ V)
Gain error	< 0.08 % meas. val. (DC)
Cut-off frequency	P 27000 H1/F1: > 10 kHz, < 10 Hz, switchable -3 dB, fixed-setting models > 10 kHz, -3 dB
Temperature coefficient ³⁾	< 0.005 %/K full scale (reference temperature 23 °C)

1) Input 4 ... 20 mA: Offset switching not calibrated

2) Higher output load on request

3) Average TC in specified operating temperature range -10 °C ... +70 °C

Modular Housings

VariTrans® P 27000

Specifications (continued)

Power supply

Power supply	20 ... 253 V AC/DC; AC 48 ... 62 Hz, approx. 2 VA; DC approx. 0.9 W
--------------	---

Isolation

Galvanic isolation	3-port isolation between input, output and power supply
--------------------	---

Test voltage	5 kV AC input against output; 4 kV AC output against power supply
--------------	---

Working voltage (basic insulation)	1000 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.

Protection against electric shock	Safe Isolation according to EN 61140 by reinforced insulation in accordance with EN 61010-1.
--------------------------------------	--

Working voltages with overvoltage category II and pollution degree 2

Working voltages: up to 600 V AC/DC across input and output
 up to 300 V AC/DC across output and power supply
 up to category II and degree 2

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

Surge withstand	5 kV, 1.2/50 µs, according to IEC 255-4
-----------------	---

EMC ⁴⁾	European EMC regulations; EN 61326
-------------------	------------------------------------

Approvals	CUL: File No. E 216767, Standards UL 3101-1, CSA-C 22.2, No. 10101-1 GL: No. 42843-02 HH KTA 3503/3507
-----------	---

Other data

MTBF ⁵⁾	Approx. 76 years
--------------------	------------------

Ambient temperature	Operation: -10 ... +70 °C Transport and storage: -40 ... +85 °C
---------------------	--

Design	Modular housing, width 12.5 mm, see dimension drawing for other measurements Pluggable screw terminals: Type H1 Fixed screw terminals: Type F1
--------	---

Ingress protection	IP 20
--------------------	-------

Mounting	Metal lock for mounting on 35 mm top hat rail according to EN 50022 See dimension drawings for conductor cross section
----------	---

Weight	Approx. 150 g
--------	---------------

4) Slight deviations are possible while there is interference

5) 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

Universal Isolation Amplifiers

Isolation Amplifiers
Transmitters

Indicators

Process Analytics

Portable Meters

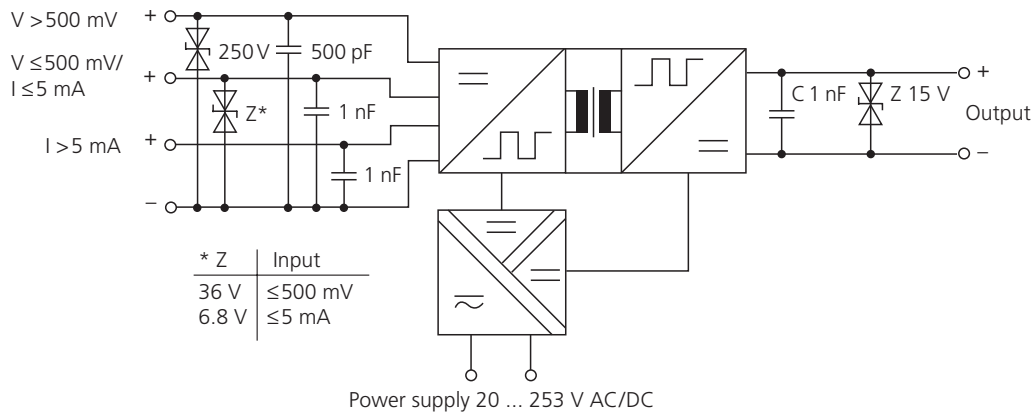
Laboratory Meters

Sensors

Fittings

Knick 

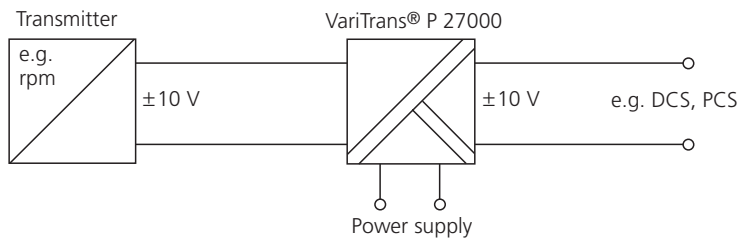
■ Block Diagram



■ Application Examples

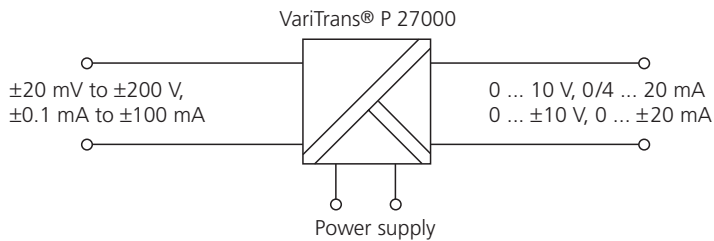
Electrical isolation

for safe coupling of the measurement signals to the evaluation electronics



Signal conversion or range adaptation

for conversion of any measurement signals into 10 V or 20 mA standard signals



Modular Housings

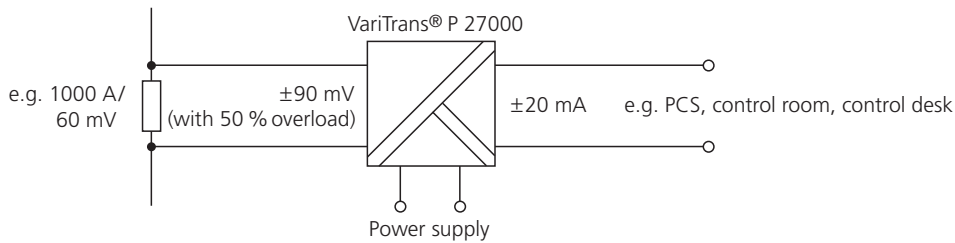
Modular Housings

VariTrans® P 27000

Application Examples (continued)

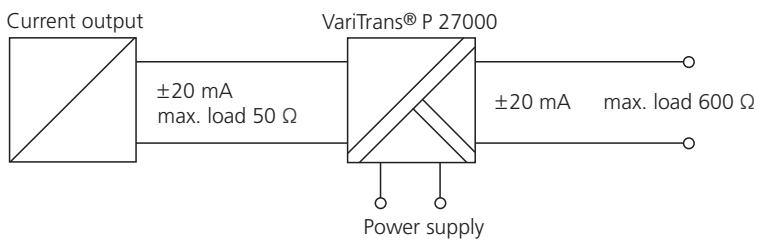
Simple shunt measurement

e.g. also with any overload range setting



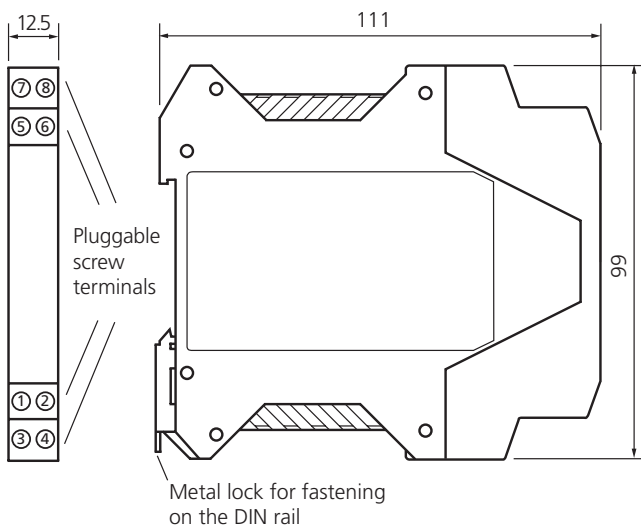
Electrical isolation

for safe coupling of the measurement signals to the evaluation electronics



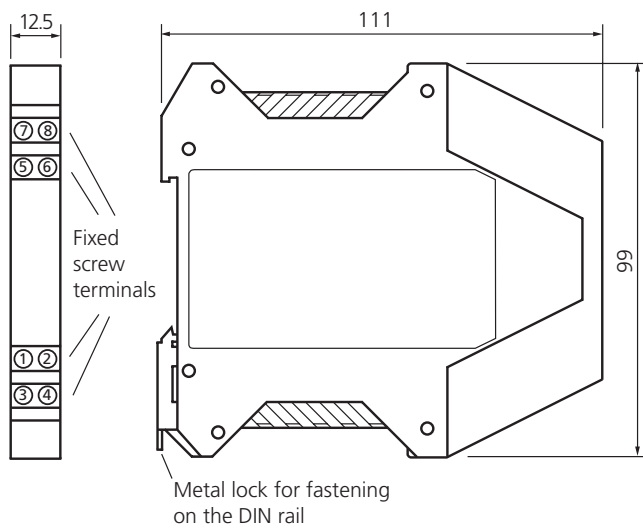
■ Dimension Drawings and Terminal Assignments

Housing with pluggable screw terminals



Dimension Drawings and Terminal Assignments *(continued)*

Housing with fixed screw terminals



Terminal Assignments

- | | |
|--|------------------|
| 1 Input + Current >5 mA | 5 Output + |
| 2 Input + Current ≤5 mA, voltage ≤500 mV | 6 Output - |
| 3 Input + Voltage >500 mV | 7 Power supply ≈ |
| 4 Input - | 8 Power supply ≈ |

Conductor cross-section max. 2,5 mm²

Multi-wire connection max. 1 mm² (two wires with same cross-section)

All dimensions in mm!