

Read these instructions before using the product and retain for future information.

**Knick** >

**VariTrans® P 27000-S009**  
**Universal Isolators**



83041

TA-251.102-KNE01 20111128

## 1. Safety Information



The warning symbol on the device (exclamation point in triangle) means: Observe instructions!

### **Warning! Protection against electric shock**

For applications with high working voltages, take measures to prevent accidental contact and make sure that there is sufficient distance or insulation between adjacent devices!



### **Caution!**

Be sure to take protective measures against electrostatic discharge (ESD) when handling the devices!

### **Caution!**

The VariTrans® P 27000 universal isolators must be installed only by qualified and specially trained personnel authorized by the operating company. Do not connect the device to power supply before it is professionally installed. Do not change the measuring range during operation. Observe the national codes and regulations during installation and selection of cables and lines. Equipment shall be provided with a means for disconnecting it from each operating energy supply source. The disconnecting means shall disconnect all current-carrying conductors. (It must be easily accessible and clearly identifiable by the operator.)

Mains supply must be protected by a fuse of 20 A max.



**Warning! EXPLOSION HAZARD**

Do not connect/disconnect equipment unless power has been removed or the area is known to be non-hazardous.



**Warning! EXPLOSION HAZARD**

Substitution of components may impair suitability for Class I, Division 2.

**Conditions for safe use (Haz. Loc.)**



For the use in hazardous locations, this equipment is to be installed into suitable enclosure, providing a degree of protection not less than IP 54.



Devices containing user accessible switches and/or potentiometers: the device must be installed into an end-use enclosure with tool removable cover.

## 2. Intended Use

The special models P 27000-S009 universal isolators are used for galvanic isolation and conversion of input signals from  $0 \dots \pm 10 \text{ V}$  to output signals from  $\pm 0 \dots 10 \text{ V}$  or  $\pm 0 \dots 20 \text{ mA}$ . The calibrated output signal range is selected via DIP switches. Signal transmission is linear. By means of the broad-range mains adapter, the units can be powered by voltages from 20 to 253 V AC/DC. Connection is made using pluggable screw clamp terminals.



### **Warning against misuse**

Do not operate the device outside the conditions specified by the manufacturer, as this might result in hazards to operators or malfunction of the equipment.

## 3. Configuration

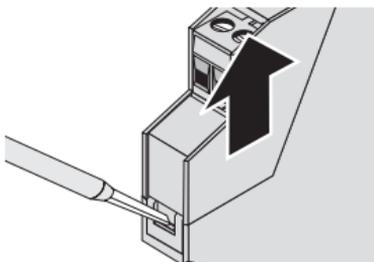
### 3.1 Tools

A screwdriver with a width of 2.5 mm is required to open and adjust the unit and to connect the wires to the screw clamp terminals.

### 3.2 Opening the unit

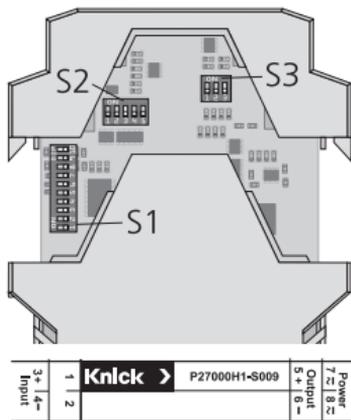
Disengage the top part of the housing on both sides using the screwdriver.

Pull out the top part of the housing and the electronics section until they lock.



### 3.3 Settings

Adjust the output range using DIP switches S1, S2 and S3 as shown in the tables or on the rating plate.



3+ 4- Input	1 2	<b>Knick</b> >	P27000H1-S009	7 8 Output 5+ 6- Power
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Input	Output	S1		S2					S3		
		1	X	1	2	3	4	5	1	2	3
0 ... ± 10 V	0 ... ± 10 V	OFF	OFF	OFF	ON	OFF	ON	ON	ON	ON	OFF
0 ... ± 10 V	0 ... ± 20 mA	ON	OFF	OFF	ON	OFF	ON	ON	OFF	OFF	OFF

#### 4. Mounting

The universal isolators are mounted on standard TS 35 rails.

#### 5. Electrical Connection

##### Terminal assignments

- 1 Do not connect
- 2 Do not connect
- 3 Input +
- 4 Input -
- 5 Output +
- 6 Output -
- 7 Power supply  $\approx$
- 8 Power supply  $\approx$

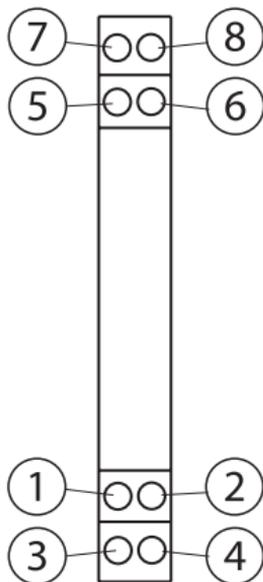
Wire cross-section max. 2,5 mm<sup>2</sup>

Multi-wire connection max. 1 mm<sup>2</sup>

(two wires with same cross-section)

AWG 30-12, tightening torque 0.7 Nm

Wiring has to be suitable for a temperature of min. 75 °C



#### Warning!

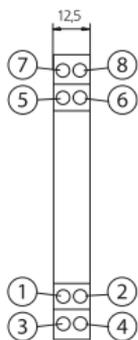
For applications with high working voltages, take measures to prevent accidental contact and make sure that there is sufficient distance or insulation between adjacent devices!



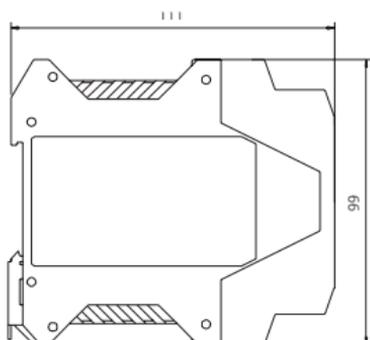
##### 5.1 Power supply

22 to 230 V AC/DC  $\pm$  10 %, 0.9 W, AC 48 to 62 Hz, 2.5 VA,  
(overvoltage category II)

## 6. Dimensions



Fixed screw clamp terminals



Metal lock for fastening on top-hat rail

## 7. Declarations, Certificates and Approvals



### CE marking

The EU Declaration of Conformity is included in the documentation.



The Statement of Conformity for ATEX Zone 2 apparatus is included in the documentation.



Open-type Process Control Equipment also listed

Proc. Contr. Eq. for Use in Haz. Loc.

File: E340287, E308146, E340288



### GL

Certificate No. 42 843 - 02 HH

Environmental Category: D

Test Standard: Regulations of the Performance of Type Tests, Part 1  
EN 61010-1

## 8. Order Information

Adjustable Device	Order No.
	Pluggable screw clamp terminals
P 27000-S009 Universal Isolator	P 27000 H1-S009

## 9. Technical Data

Input data	
Voltage input	$\pm 0 \dots 10 \text{ V}$
Overload Voltage input	limited by 36 V suppressor diode, max. permissible continuous current $\leq 20 \text{ mA}$
Output data	
Output	$0 \dots \pm 10 \text{ V}, 0 \dots \pm 20 \text{ mA}$ calibrated selection
Load for output current for output voltage	$\leq 12 \text{ V}^{1)}$ ( $600 \Omega$ at $20 \text{ mA}$ ) $\leq 10 \text{ mA}$ ( $1 \text{ k}\Omega$ at $10 \text{ V}$ )
Offset error	$20 \mu\text{A} / 10 \text{ mV}$
Residual ripple	approx. $20 \text{ mV}_{\text{rms}}$
General data	
Gain error	$< 0.08 \%$ meas. value typical additional error for AC ( $45 \dots 65 \text{ Hz}$ sinus) $0.05 \%$ meas. value
Temperature coefficient <sup>2)</sup>	$< 50 \text{ ppm/K}$ of final value
Cutoff frequency	approx. $20 \text{ kHz}$
Test voltage	$5 \text{ kV}$ ~ input against output $4 \text{ kV}$ ~ output against power supply
Working voltage <sup>3)</sup> (basic insulation)	$1 \text{ kV}$ ~for overvoltage category II and pollution degree 2 to EN 61010-1 For applications with high working voltages, take precautions to prevent accidental contact and make sure that there is sufficient distance to adjacent devices or sufficient insulation between them.

Protection against electric shock <sup>3)</sup> 	Protective separation to EN 61140 by reinforced insulation according to EN 61010-1 up to 600 V AC/DC across input and output for overvoltage category II and pollution degree 2, up to 300 V AC/DC across output and over supply for overvoltage category II and pollution degree 2. For applications with high working voltages, take measures to prevent accidental contact and make sure that there is sufficient distance to adjacent devices or sufficient insulation between them.	
EMC <sup>4)</sup>	2004/108/EC EN 61326 EN 61326/A1	
Surge withstand	5 kV, 1.2/50 $\mu$ s, to IEC 255-4	
Ambient temperature 	Operation Transport and storage	-10 to +70 °C -40 to +85 °C
Ambient conditions	Stationary application, weather-protected Relative air humidity 5 ... 95 %, no condensation Barometric pressure: 70 ... 106 kPa, altitude up to 2000 m Water or wind-driven precipitation (rain, snow, hail) excluded	
Power supply 	22 to 230 V AC/DC $\pm$ 10 %, 0.9 W, AC 48 to 62 Hz; 2.5 VA, (overvoltage category II)	
Construction	Modular housing with pluggable screw clamp terminals, see dimension drawing	
Protection	IP 20	
Weight	approx. 150 g	

Explosion protection 	Europe:	II 3G Ex nA IIC T4 Gc X
	USA:	Class I Div.2 GRP A,B,C,D T4 Class I Zone 2 AEx nA IIC T4
	Canada:	Class I Zone 2 Ex nA IIC T4 X Class I Div.2 GRP A,B,C,D T4

- 1) Higher output load on request
- 2) Average TC in specified operating temperature range -10 °C ... +70 °C.
- 3) cULus certification: Working voltage (basic insulation) up to 600 V,  
working voltage (reinforced insulation) up to 300 V across input and output,  
each for overvoltage category II and pollution degree 2
- 4) Slight deviations are possible while there is interference

Knick Elektronische Messgeräte  
GmbH & Co. KG  
Beuckestraße 22  
D-14163 Berlin

Phone: +49 (0)30 - 801 91 - 0

Fax: +49 (0)30 - 801 91 - 200

Internet: <http://www.knick.de>

Email: [knick@knick.de](mailto:knick@knick.de)