

English

13

**BasicLine BL 513****Standard-Signal Isolator**

For your safety:

First read, then start operation



## 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!**

Only trained and qualified personnel should install the BasicLine BL 513 standard-signal isolators.

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 for 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  $\leq 20$  A.

## 2. Intended Use

The BasicLine BL 513 standard-signal isolators are used for galvanic isolation of 0(4) to 20 mA and 0 to 10 V standard signals. DIP switches allow selection of calibrated input and output signals. Fine-adjusting is not required.

Signal transmission is linear. The universal power supply allows operating the device with 24 V DC or with 100 ... 230 V AC. Connection is made using 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.

**Caution**

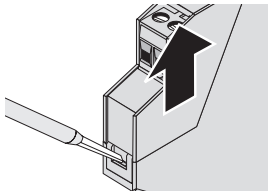
The system installer is responsible for the safety of the system in which the device is integrated.

**3. Configuration****3.1 Tools**

A screwdriver with a width of 3 mm is required to open the unit and to connect the wires to the screw clamp terminals.

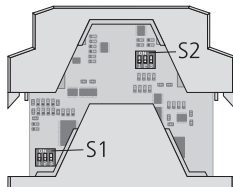
**3.2 Opening the unit**

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

Set the input / output range using DIP switches S1 and S2 as indicated in the table.



Input	Output	S1			S2		
		1	2	3	1	2	3
0 ... 20 mA	0 ... 20 mA						
0 ... 20 mA	4 ... 20 mA	ON					
0 ... 20 mA	0 ... 10 V		ON		ON	ON	
4 ... 20 mA	0 ... 20 mA	ON	ON				
4 ... 20 mA	4 ... 20 mA						
4 ... 20 mA	0 ... 10 V			ON	ON	ON	
0 ... 10 V	0 ... 20 mA	ON		ON			
0 ... 10 V	4 ... 20 mA		ON	ON			
0 ... 10 V	0 ... 10 V	ON	ON	ON	ON	ON	

Empty field = OFF

Selected range can be documented on rating plate and front label.  
Factory setting: 0 ... 20 mA / 0 ... 20 mA

#### 4. Mounting

The standard-signal isolators are mounted on standard TS 35 rails.

#### 5. Electrical Connection

##### Terminal assignments

- 1 Input + current
- 2 Input – current
- 3 Input + voltage
- 4 Input – voltage

- 5 Output +
- 6 Output –
- 7 Power supply  $\approx$
- 8 Power supply  $\approx$

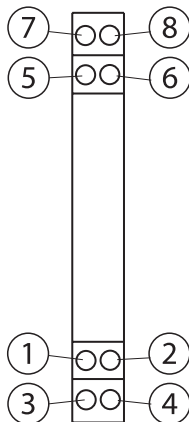
Conductor cross-section max. 2.5 mm<sup>2</sup>

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

(two wires with equal diameters)

AWG 30-12, tightening torque 0.7 Nm

The connected cable must be suitable for a temperature of at least 75 °C.



#### Caution!

Do not operate inputs for current and voltage simultaneously!

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!

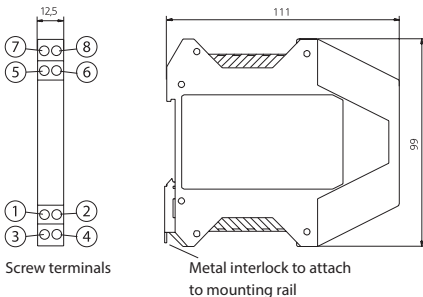
## 5.1 Power Supply

24 V DC ( $\pm 15\%$ ), 1 W

100 ... 230 V AC ( $\pm 10\%$ ), 48 ... 62 Hz, 2 VA

Overtoltage category II

## 6. Dimensions



(Dimensions in mm)

## 7. Declarations, Certificates and Approvals



See [www.knick.de](http://www.knick.de) for Declaration of Conformity with Low Voltage and EMC Directive.



UL Listed, File No. E340287, Standard: UL 61010-1, CAN/CSA C22.2 No. 61010-1



## 8. Order Information

Order information	Order no.
BasicLine BL 513 Standard-Signal Isolator Calibrated selection of input and output	BL 513

## 9. Specifications

Input data		
Inputs	0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V	
Input resistance	Current input	voltage drop approx. 500 mV at 20 mA
	Voltage input	approx. 1 MΩ
Input capacitance	Approx. 1 nF	
Overload capacity	Current input	≤ 300 mA
	Voltage input	voltage limited to 30 V by suppressor diode, max. permitted continuous current: 20 mA
Output data		
Outputs	0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V Transmission of negative signals up to approx. -5 % full scale	
Load	With output current ≤ 10 V (500 Ω at 20 mA)	
	With output voltage ≤10 mA (1 kΩ at 10 V <sup>1)</sup> )	
Offset	20 μA or 10 mV	
Residual ripple	< 20 mV <sub>rms</sub>	
General data		
Gain error	< 0.3 % full scale	
Temperature coefficient <sup>2)</sup>	< 0.015 %/K full scale	
Cutoff frequency	> 100 Hz	



Test voltage	1.5 kV AC input against output against power supply	
Working voltage (basic insulation)	300 V with overvoltage category II and pollution degree 2 according to EN 61010-1 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>3)</sup>	Product family standard: EN 61326	
Ambient temperature	Operation Transport and storage	0 ... +55 °C -25 ... +85 °C
Ambient conditions 	Stationary operation, weatherproof, rel. humidity 5 ... 95 %, no condensation, altitude up to 2000 m, water or wind-driven precipitation (rain, snow, hail, etc.) excluded	
Power supply 	24 V DC ( $\pm 15\%$ ); 1 W 100 ... 230 V AC ( $\pm 10\%$ ); 48 ... 62 Hz, 2 VA overvoltage category II	
Design	Modular housing with screw terminals See dimension drawings for dimensions	
Ingress protection	IP 20	
Weight	Approx. 150 g	

<sup>2)</sup> Average TC at 0 ... +55 °C, reference temperature 23 °C

<sup>3)</sup> Slight deviations are possible while there is interference.