

Modular Housings

Knick ➤

For isolation and conversion of sinusoidal alternating currents and voltages into standard signals.

IsoTrans® 600



The Task

For monitoring mains supplies, control of electric motors etc., alternating currents up to 10 A and voltages up to 800 V are converted to 0(4) ... 20 mA or 0 ... 10 V standard signals.

The Problem

is the provision of several AC/DC transmitters for different measurement ranges. Furthermore the maintenance staff and the system need to be protected against high potentials.

The Solution

comes with the switchable loop-powered IsoTrans® 600 AC/DC transmitters.

Only the transmitters with 4 ... 20 mA output require 230 V AC power supply.

The calibrated range selection for all regular alternating voltages and the 22.5 mm slim modular housing allow universal use.



The Advantages

The accuracy class is 0.5 – no need to readjust the switchable ranges.

The IsoTrans® 600 provides Safe Isolation up to 600 V AC/DC according to EN 61010-1.

This allows use in 3-phase systems. Further measures for ensuring safe isolation are not necessary.

Except for the 4 ... 20 mA output, the IsoTrans® 600 is supplied directly from the measurement signal. There are no costs for a power supply and wiring.

Optimized switching technology makes the power consumption and the resulting self-heating very low. This protects against unnecessary temperature-related component aging and thus increases reliability.

The Technology

For conversion, the average input values are calibrated to form r. m. s values.

Short rise times, very low residual ripple and excellent overload behavior guarantee maximum transmission quality.

AC/DC Transmitters

Isolation Amplifiers
Transmitters

Indicators

Process Analytics

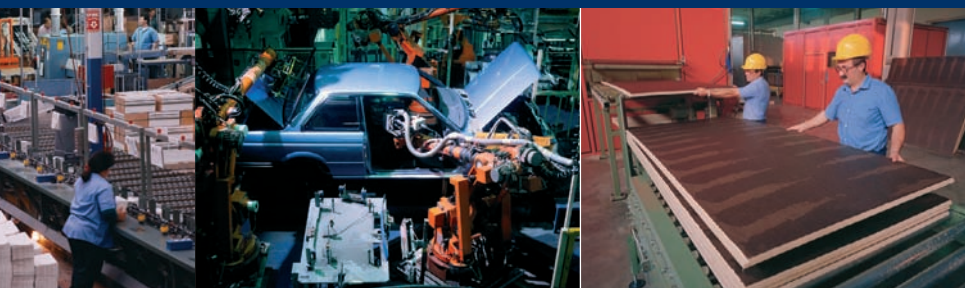
Portable Meters

Laboratory Meters

Sensors

Fittings

Knick ➤



■ The Facts

Calibrated range selection

Simple stockkeeping due to universal application possibilities, no need for complicated readjustment

Loop-powered models with 0 ... 20 mA and 0 ... 10 V output

Reduced wiring effort, no mains influences

Safe Isolation according to EN 61140

Protection of maintenance staff and subsequent devices against non-permitted high voltages

Modular 22.5 mm housing

Low space requirement due to compact design

High long-term stability and accuracy

Reliable operation without recalibration

Very low power consumption

allows minimum ratings of the upstream current and voltage transformer

Very low self-heating

No temperature-related component aging, high MTBF

Maximum reliability

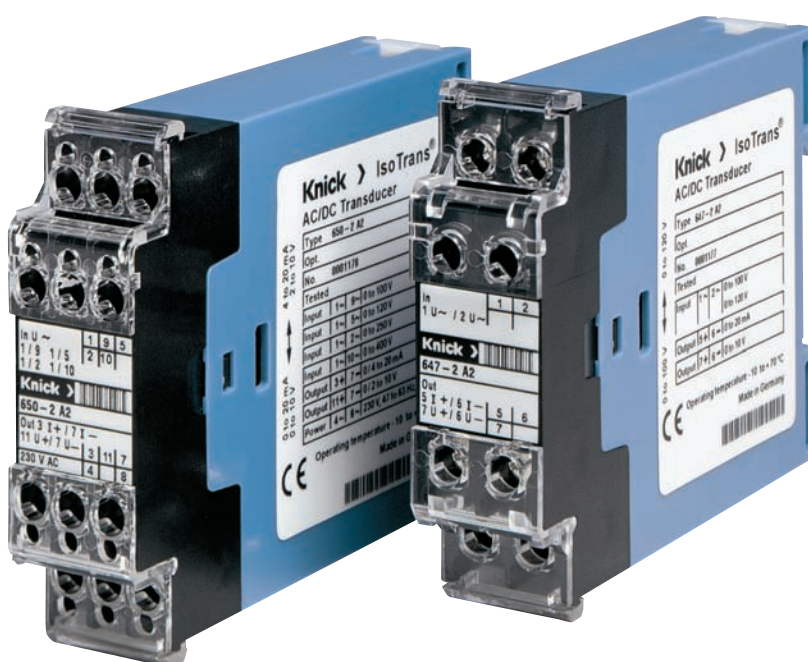
No repair and failure costs

High reliability

5-year warranty

**Warranty
5 years!**

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



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■ Product Line

Devices

IsoTrans® 600
with current input

	Input	Output	Order No.
IsoTrans® 611-1	0 ... 1 A	0 ... 20 mA	611-1 A2
IsoTrans® 621-1	0 ... 1 A	4 ... 20 mA	621-1 A2
(with power supply)	0 ... 1 A	0 ... 10 V	631-1 A2
IsoTrans® 631-1	0 ... 1 A	0 ... 20 mA	615-1 A2
IsoTrans® 615-1	0 ... 5 A	4 ... 20 mA	625-1 A2
IsoTrans® 625-1	0 ... 5 A	0 ... 10 V	635-1 A2
(with power supply)	0 ... 5 A		
IsoTrans® 635-1	0 ... 5 A		

IsoTrans® 600
with voltage input

IsoTrans® 647-2	0 ... 100/120 V switch selectable	0 ... 20 mA / 0 ... 10 V terminal selectable	647-2 A2
IsoTrans® 648-2	0 ... 250/400 V switch selectable	0 ... 20 mA / 0 ... 10 V terminal selectable	648-2 A2
IsoTrans® 650-2	0 ... 100 / 120 / 250 / (with power supply) 400 V, terminal selectable	0 ... 20 mA / 4 ... 20 mA 0 ... 10 V, switch/terminal selectable	650-2 A2

Power supply

621-1, 625-1, 650-2: 230 V AC, others: none, supply from input signal

Options

IsoTrans® 635-1 and IsoTrans® 650-2 for input frequency 16 2/3 Hz
(635-1: response time 1 s, load ≥ 7.5 kohms)

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■ Selection Aid

		Output		
		0 ... 20 mA	4 ... 20 mA	0 ... 10 V
Input	0 ... 1 A AC	611-1 A2	621-1 A2*)	631-1 A2
	0 ... 5 A AC	615-1 A2	625-1 A2*)	635-1 A2
	0 ... 100 V AC	647-2 A2 650-2 A2*)	650-2 A2*)	647-2 A2 650-2 A2*)
	0 ... 120 V AC	647-2 A2 650-2 A2*)	650-2 A2*)	647-2 A2 650-2 A2*)
	0 ... 250 V AC	648-2 A2 650-2 A2*)	650-2 A2*)	648-2 A2 650-2 A2*)
	0 ... 400 V AC	648-2 A2 650-2 A2*)	650-2 A2*)	648-2 A2 650-2 A2*)

*) With power supply

Specifications

Input data	IsoTrans® 600 with current input		IsoTrans® 600 with voltage input			
	6x1	6x5	647	648	650	
Input ¹⁾	0 ... 1 A	0 ... 5 A	0 ... 100 / 120 V	0 ... 250 / 400 V	0 ...100 / 120 / 250/400 V	
	48 ... 63 Hz	48 ... 63 Hz	switch selectable Measurement from 10 % full scale 48 ... 63 Hz	switch selectable Measurement from 10 % full scale 48 ... 63 Hz	terminal selectable 48 ... 63 Hz	
Overload	Continuous: 2 times I _{nom} 1 s: 50 times I _{nom}		Continuous: 1.5 times V _{nom} 1 s: 4 times V _{nom}			
Input power	Approx. 1 VA			max. 0.4 VA		
Output data	IsoTrans® 600 with current input		IsoTrans® 600 with voltage input			
	61x	62x	63x	647	648	650
Output	0 ... 20 mA	4 ... 20 mA	0 ... 10 V	0 ... 20 mA / 0 ... 10 V terminal selectable		0(4) ... 20 mA / 0(2) ... 10 V switch / terminal selectable
Load	≤750 ohms		≥2 kohms	with output current: ≤600 ohms with output current: ≥1 kohm		
Response time (T ₉₀)			<0.2 s	Approx. 0.25 s		
Load 0 ohm	Approx. 0.1 s					
Load 750 ohms	Approx. 0.2 sec					
Transmission behavior						
Transmission error	Class 0.5 (EN 60688)					
Power supply						
Power supply (models with 4 ... 20 mA output)	230 V AC –15 % +10 %, 47 ... 63 Hz, approx. 1 VA (IsoTrans® 650 approx. 1.5 VA)					
Isolation						
Galvanic isolation	With power supply: Loop-powered:		3-port isolation between input, output and power supply Isolation between input and output			
Test voltage	With current input:		6 kV AC for models with power supply: 6 kV AC (input against output / power supply), 4 kV AC (output against power supply)			
	With voltage input:		4 kV AC			

1) Other input values up to 10 A or 800 V in the frequency range 16 ... 63 Hz are available on request

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IsoTrans® 600

Specifications (continued)

Isolation (continued)

Protection against electric shock	<p>Safe Isolation according to EN 61140 by reinforced insulation in accordance with EN 61010-1.</p> <p>Working voltages with overvoltage category II and pollution degree 2:</p> <p>up to 400 V AC/DC across output and power supply,</p> <p>up to 600 V AC/DC across input and output and, where necessary, power supply (current isolator up to category III, degree 2).</p> <p>For applications with high working voltages, you should ensure there is sufficient spacing or isolation from neighboring devices and protection against electric shocks.</p>
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Standards and approvals

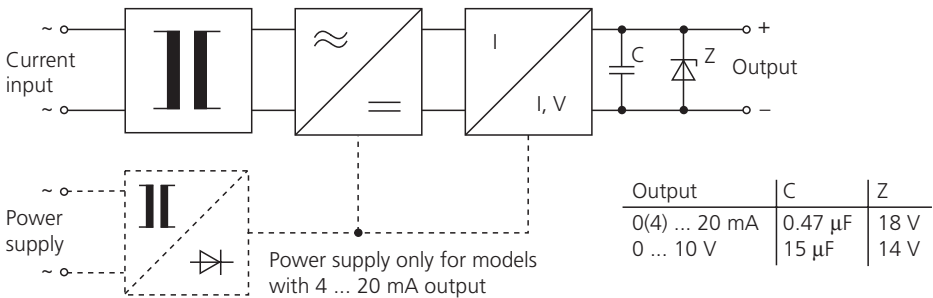
Surge withstand	5 kV, 1.2/50 µs, according to IEC 255-4
EMC	89/336/EEC directive; EN 61326

Other data

Ambient temperature	<p>Operation: –10 ... +70 °C</p> <p>Transport and storage: –30 ... +80 °C</p>
Design	<p>A7 modular housing, width 22.5 mm, screw terminals</p> <p>See dimension drawings for further measurements</p>
Ingress protection	Housing IP 40, terminals IP 20
Mounting	With snap-on mounting for 35 mm top hat rail according to EN 50022 or M4 screw mounting, see dimension drawings for conductor cross section
Weight	<p>6xx-1: Approx. 350 g</p> <p>6xx-2: Approx. 250 g</p>

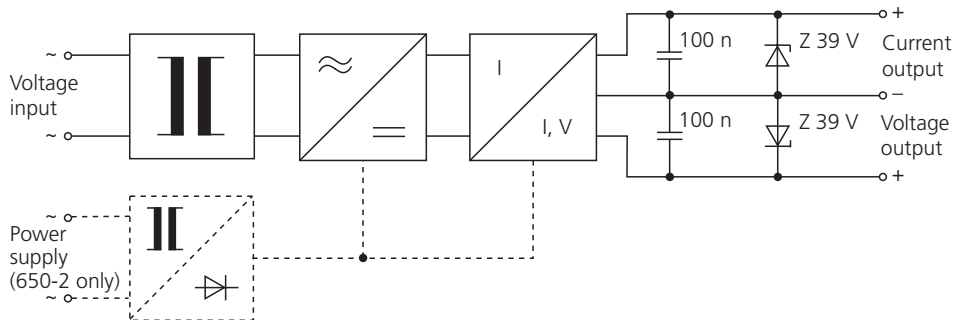
■ Block Diagrams

AC/DC Transmitter with Current Input

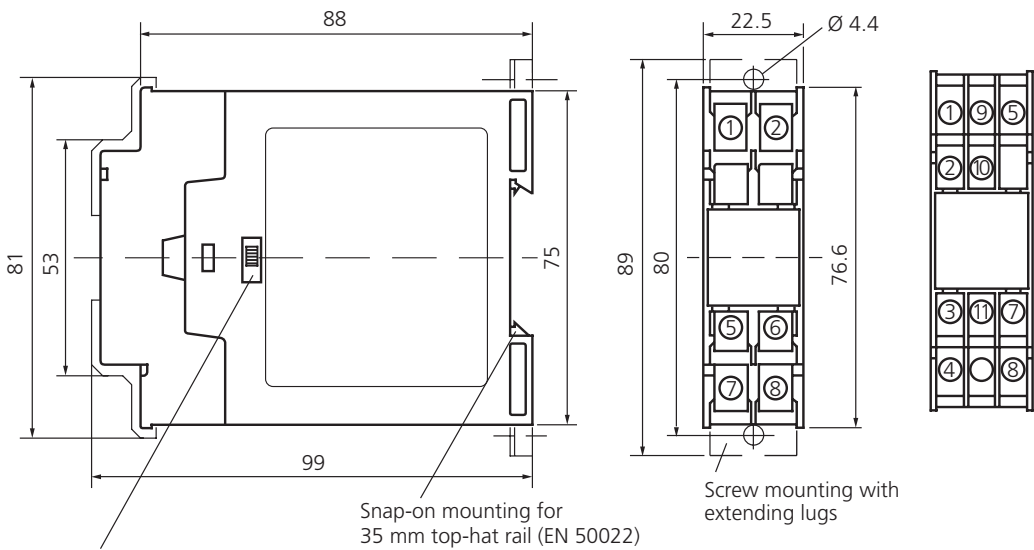


Block Diagrams (continued)

AC/DC Transmitter with Voltage Input



Dimension Drawings and Terminal Assignments



Range switch, do not use during operation!

M2.5x8 connecting screws
with self-releasing clamping pieces
max. conductor cross-section
2x2.5 mm² solid or
2x1.5 mm² stranded wire with ferrule

AC/DC Transmitters with Current Input 6**-1

- 1 Input ~
 - 2 Input ~
 - 5 Output +
 - 6 Output -
 - 7 Power supply ~
 - 8 Power supply ~
- (only for Models 621 and 625,
otherwise not connected)

AC/DC Transmitters with Voltage Input 647-2 and 648-2

- 1 Input ~
- 2 Input ~
- 5 Output + 20 mA
- 6 Output -
- 7 Output + 10 V

AC/DC Transmitters with Voltage Input 650-2

- 1 Input 0
- 9 Input 100 V ~
- 5 Input 120 V ~
- 2 Input 250 V ~
- 10 Input 400 V ~
- 7 Output -
- 11 Output + 20 mA
- 3 Output + 10 V
- 4 Power supply ~
- 8 Power supply ~

All dimensions in mm!