



VariTrans® P 42000 TRMS AC/DC High-Voltage Transmitters With True RMS AC Input 0.1 A~ to 5 A~

Universal AC/DC high-voltage transmitter for sinusoidal and non-sinusoidal AC input signals in the range from 0.1 A to 5 A. True RMS value as standard-signal output for further processing in controllers or data acquisition systems. Calibrated selection of input and output.

■ Product Line

Devices	AC input	Output TRMS value	Working voltage	Test voltage	Order no.
VariTrans® P 43000 TRMS input and output selectable	0.1 A ... 5 A AC; 1 to 16 ranges to customer requirement	0 ... 20 mA, 4 ... 20 mA, and/or 0 ... 10 V, 1 to 16 ranges to customer requirement	≤2.2 kV AC/DC	10 kV AC	P 43000 D2 TRMS-nnnn
VariTrans® P 43100 TRMS input and output with fixed settings	0.1 A ... 5 A AC; to customer requirement	0 ... 20 mA, 4 ... 20 mA, or 0 ... 10 V, to customer requirement	≤3.6 kV AC/DC	10 kV AC	P 43100 D2 TRMS-nnnn

“Specific Test Report” included in shipment

Power supply

20 ... 253 V AC/DC



■ Specifications

Input Data

input	P 43000 D2 TRMS-nnnn	0.1 A ... 5 V AC; 1 to 16 customer-specific ranges, calibrated selection
	P 43100 D2 TRMS-nnnn	0.1 A ... 5 A AC; range fixed to customer requirement
Rated frequency	50/60 Hz	
Frequency range	40 ... 1000 Hz (frequency \leq 40 Hz on request)	
Input resistance	<0.6 ohm	
Input capacitance	Approx. 1 nF	
Overload	20 % full scale (max. crest factor 8)	

Output Data

Output	P 43000 D2 TRMS-nnnn	0 ... 20 mA, 4 ... 20 mA and/or 0 ... 10 V to customer requirement, switchable
	P 43100 D2 TRMS-nnnn	0 ... 20 mA, 4 ... 20 mA or 0 ... 10 V to customer requirement, fixed settings
Displacement	Up to 100 % as default	
Load	With output current	\leq 12 V (600 ohms at 20 mA)
	With output voltage	\leq 10 mA (1000 ohms at 10 V)
Residual ripple	<10 mVrms	

Transmission behavior

Gain error	<0.5 % full scale Gain error for sinusoidal input signals (crest factor $\sqrt{2}$) in the frequency range 45 ... 65 Hz		
Response T90	<150 msec rising <300 msec falling		
Influential factors (additional error)	Frequency 40 ... 1000 Hz	<1 % meas. val. (typ. 0.5 %)	
	Crest factor 1... 3 (non-sinusoidal signals)	<0.5 % meas. val.	
	Crest factor >3 ... 5	<1 % meas. val.	
Common mode rejection ratio	CMRR	DC: approx. 150 dB	AC 50 HZ, approx. 120 dB
	CMRR: Common-Mode Rejection Ratio = Differential voltage gain : Common-mode voltage gain		
Temperature influence	<50 ppm/K full scale Reference temperature for TC specifications = 23 °C, average TC is specified		

VariTrans® P 43000 D2 TRMS

Specifications (continued)

Power Supply

Power supply	20 ... 253 V AC/DC, AC 48 ... 62 Hz, approx. 2 VA; DC approx. 1.2 W
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Isolation

Galvanic isolation	3-port isolation between input, output, and power supply	
Test voltage	Calibrated switching	10 kV AC input against output and power supply
	Fixed settings (Model P 43100 D2 TRMS-nnnn)	15 kV AC input against output and power supply
	All models	4 kV AC output against power supply
Working voltage (basic insulation) to EN 61010-1	Calibrated switching	Up to 2200 V AC/DC across input, output, and power supply with overvoltage category III and pollution degree 2 (fast transients: 13.5 kV)
	Fixed settings (Model P 43100 D2 TRMS-nnnn)	Up to 3600 V AC/DC across input, output, and power supply with overvoltage category III and pollution degree 2 (fast transients: 20 kV)
Rated isolation voltage to EN 50124-1	Calibrated switching	Up to 2200 V AC/DC across input, output, and power supply with overvoltage category III and pollution degree 2
	Fixed settings (Model P 43100 D2 TRMS-nnnn)	Up to 3600 V AC/DC across input, output, and power supply with overvoltage category III and pollution degree 2
Protection against electric shock	Calibrated switching	Safe Isolation to EN 61140 by reinforced insulation according to EN 61010-1. Working voltages with overvoltage category III and pollution degree 2: - Up to 1100 V AC/DC across input, output, and power supply - Up to 300 V AC/DC across output and power supply
	Fixed settings (Model P 43100 D2 TRMS-nnnn)	Safe Isolation to EN 61140 by reinforced insulation according to EN 61010-1. Working voltages with overvoltage category III and pollution degree 2: - Up to 1800 V AC/DC across input, output, and power supply - Up to 300 V AC/DC across output and power supply

For applications with high working voltages, you should ensure there is sufficient spacing or isolation from neighboring devices and protection against electric shocks.

Specifications *(continued)*

Standards and Approvals

EMC	Product family standard	EN 61326
	Emitted interference	Class B
	Immunity to interference	Industry
	Slight deviations are possible while there is interference	

Other Data

Ambient temperature	Operation	-10 ... +70 °C
	Operation with restricted data (on request)	-40 ... +85 °C
	Transport and storage	-40 ... +85 °C

Design	Modular housing	Housing width D2	45 mm
	With screw terminals	See dimension drawings for further measurements	

Ingress protection	IP 40 enclosure, IP 20 terminals
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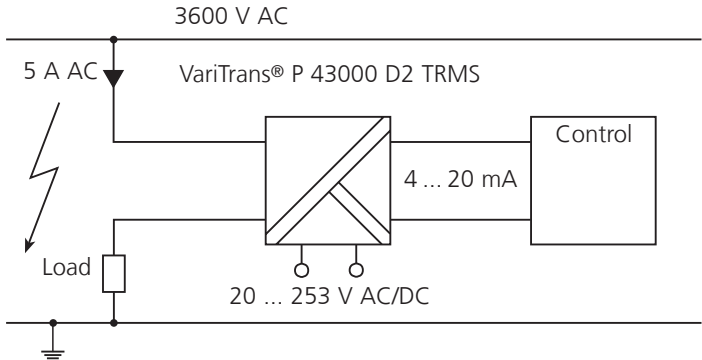
Fastening	With snap-on mounting for 35 mm top-hat rail according to EN 60715
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Weight	Approx. 350 g
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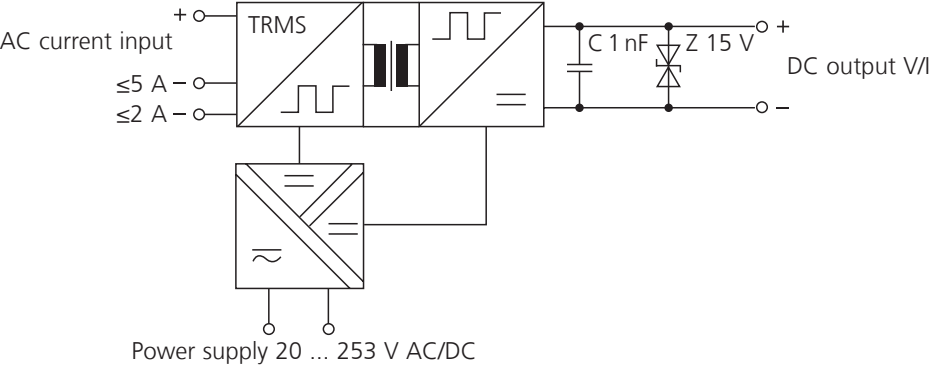
VariTrans® P 43000 D2 TRMS

■ Application Example

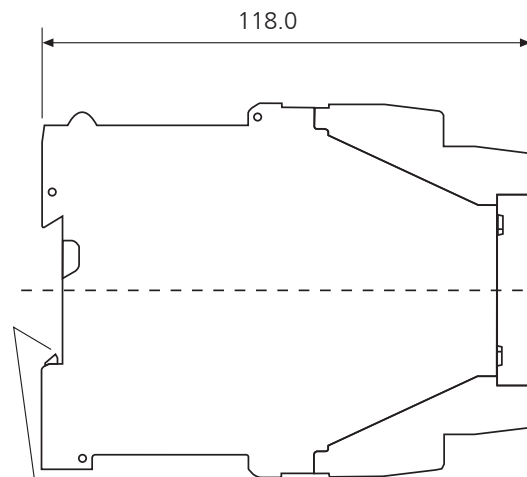
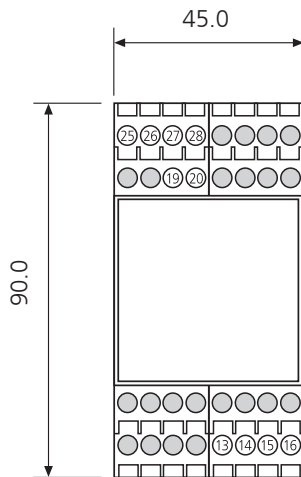
Direct current measurement with a high input potential



■ Block Diagram



■ Dimension Drawings and Terminal Assignments



Snap-on mounting for 35 mm top hat rail EN 50 022

Please note: All dimensions in mm.

Terminal Assignments:

Input 1 ... 5 A

13	n. c.
14	Input current \pm
15	Input current 0 (≤ 5 A)
16	Input current 0 (≤ 2 A)

19	AC/DC power supply
20	AC/DC power supply

25	Output current/voltage +
26	Output voltage +
27	Output current -
28	Output voltage -

Input 0.1 ... 5 A

13	+0.1 A ... +1 A
14	+2 A ... +5 A
15	-2 A ... -5 A
16	-0.1 A ... -1 A

19	AC/DC power supply
20	AC/DC power supply

25	Output current/voltage +
26	Output voltage +
27	Output current -
28	Output voltage -

M 3.5 connecting screws with self-releasing terminal housing
Conductor cross-section max. 1 x 4 mm² solid or 1 x 2.5 mm² stranded with sleeve,
min. 1 x 0.5 mm² solid or stranded with sleeve

For switchable devices and voltage output, place jumper across terminals 25 and 26