

P42000

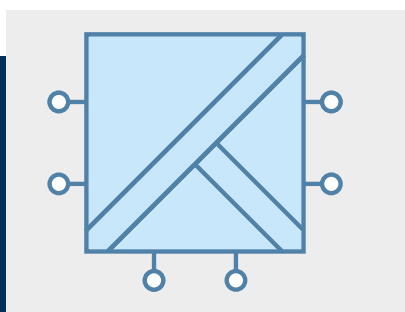
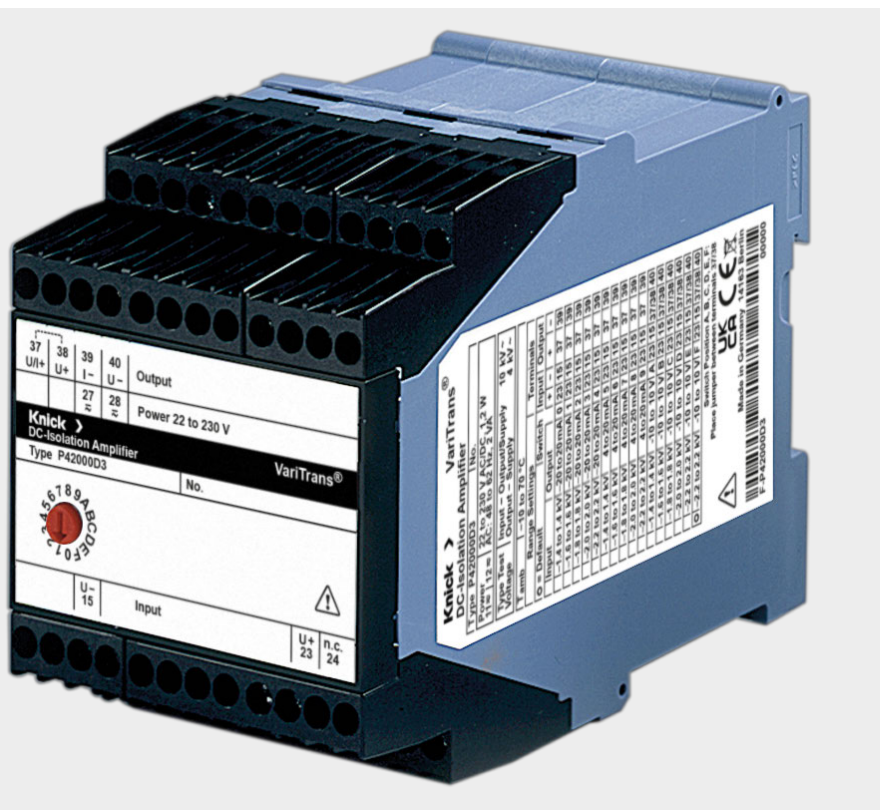
High voltage transducer for the electrically isolated measurement of high DC voltages

For years, the P42000 has been the proven solution for measuring unipolar and bipolar voltages up to ± 3600 V.

The transducer is designed for high continuous voltages up to 3600 V AC/DC and transient over-voltages up to 30 kV.

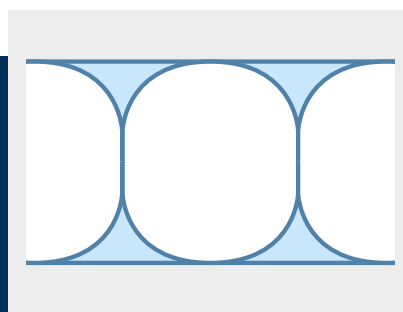
The P42000 safely separates the high potentials of the input circuit. Selected measuring ranges are already calibrated upon conversion.

Protective separation in accordance with EN 61140 from the input to the output and to the auxiliary power reliably protects personnel against electric shock up to 1800 V AC/DC.



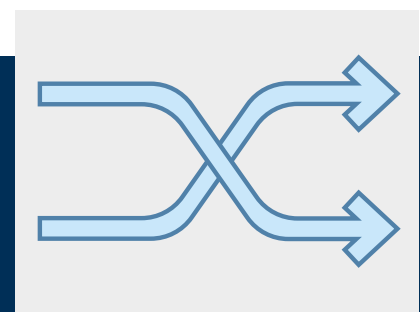
High Insulation

- Continuously voltage-proof in accordance with EN 61010-1, EN 50124-1, UL 347
- Basic insulation up to 3600 V
- Reinforced insulation up to 1800 V



High Signal Integrity

- Precise mapping of the waveform at the input on the output
- Cutoff frequency of 5 kHz
- T_{90} response time of 110 μ s



High Flexibility

- Up to 16 transmission ranges calibrated and switchable
- Freely selectable range limits
- Universal supply 22...230 V AC or DC

Product Identification

Input	Output	Model Designation Working voltage ≤ 2.2 kV AC/DC Test voltage 10 kV AC 1 to 16 ranges in accordance with customer requirements, calibrated and switchable	Model Designation Working voltage ≤ 3.6 kV AC/DC Test voltage 15 kV AC 1 calibrated transmission range in accordance with customer requirements
(±)800 V, (±)1000 V, (±)1500 V, (±)2000 V, uni-/bipolar	(±)20 mA, (±)10 V, uni-/bipolar and 4...20 mA	P42000D2	-
±400 V, ±600 V, ±800 V, ±1000 V, ±1200 V, bipolar	±20 mA, ±10 V, bipolar and 4...20 mA	P42000D3	-
±1400 V, ±1600 V, ±1800 V, ±2000 V, ±2200 V, bipolar	±20 mA, ±10 V, bipolar and 4...20 mA	P42001D3	-
0...(±)100 up to 0...(±)2200 V, uni-/bipolar	(±)20 mA, (±)10 V, uni-/bipolar and/or 4...20 mA	P42000D2-nnnn	-
0...(±)100 up to 0...(±)2200 V, uni-/bipolar	(±)20 mA, (±)10 V, uni-/bipolar and/or 4...20 mA	P42000D3-nnnn	-
0...(±)100 up to 0...(±)3600 V, uni-/bipolar	(±)20 mA, (±)10 V, uni-/bipolar or 4...20 mA	-	P42100D3-nnnn

Delivery including individual test certificate 2.2 in accordance with EN 10204.

Accessories

High-voltage signal cables	ZU1475
Insulation 5400 V DC, 3600 V AC, 2 m, 2 pieces	

Specifications (Excerpt)

Excerpt from the user manual. Detailed information → knick-international.com

Input

Input	P42000D2	(±)800 V, (±)1000 V, (±)1500 V, (±)2000 V, uni-/bipolar Calibrated and switchable Factory setting: ±2000 V
	P42000D3	±400 V, ±600 V, ±800 V, ±1000 V, ±1200 V, bipolar Calibrated and switchable Factory setting: ±1200 V
	P42001D3	±1400 V, ±1600 V, ±1800 V, ±2000 V, ±2200 V, bipolar Calibrated and switchable Factory setting: ±2200 V
	P42000D2-nnnn	0...(±)100 up to 0...(±)2200 V, uni-/bipolar 1 to 16 ranges in accordance with customer requirements, calibrated and switchable
	P42000D3-nnnn	0...(±)100 up to 0...(±)2200 V, uni-/bipolar 1 to 16 ranges in accordance with customer requirements, calibrated and switchable
	P42100D3-nnnn	0...(±)100 up to 0...(±)3600 V, uni-/bipolar 1 range in accordance with customer requirements, fixed settings

Output

Output	P42000D2	(±)20 mA, (±)10 V, uni-/bipolar and 4...20 mA Calibrated and switchable Factory setting: ±10 V
	P42000D3	±20 mA, ±10 V, bipolar and 4...20 mA Calibrated and switchable Factory setting: ±10 V
	P42001D3	±20 mA, ±10 V, bipolar and 4...20 mA Calibrated and switchable Factory setting: ±10 V
	P42000D2-nnnn	(±)20 mA, (±)10 V, uni-/bipolar and/or 4...20 mA 1 or more ranges in accordance with customer requirements, calibrated and switchable Transmission from bipolar input to unipolar output possible
	P42000D3-nnnn	(±)20 mA, (±)10 V, uni-/bipolar and/or 4...20 mA 1 or more ranges in accordance with customer requirements, calibrated and switchable Transmission from bipolar input to unipolar output possible
	P42100D3-nnnn	(±)20 mA, (±)10 V, uni-/bipolar or 4...20 mA 1 range in accordance with customer requirements, fixed settings Transmission from bipolar input to unipolar output possible
Offset	Factory-side up to ±150 %	

Transfer Characteristics

Gain error	< 0.3 % of measured value Optional: < 0.1 % of measured value
Cutoff frequency (–3 dB)	Approx. 5 kHz Configurable to 10 Hz factory-side
Response time T_{90}	Approx. 110 μs

Auxiliary Power

Auxiliary power	22...230 V AC, ±10 %, 48...62 Hz, approx. 2 VA 22...230 V DC, ± 10 %, approx. 1.2 W
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Insulation

Galvanic isolation	3-port isolation between input, output and auxiliary power	
Test voltage	Calibrated and switchable (P42000D2, P42000D3, P42001D3) or fixed settings (P42000D2-nnnn, P42000D3-nnnn)	10 kV AC input to output/auxiliary power
	Fixed settings (P42100D3-nnnn)	15 kV AC input to output/auxiliary power
	All types	4 kV AC output to auxiliary power
Working voltage (basic insulation) in accordance with EN 61010-1	Calibrated and switchable or fixed settings (P42000D2, P42000D3, P42001D3, P42000D2-nnnn, P42000D3-nnnn)	Up to 2200 V AC/DC for overvoltage category OV3 and pollution degree PD2 for input to output/auxiliary power (transient overvoltages: max. 13.5 kV)
	Fixed settings (P42100D3-nnnn)	Up to 3600 V AC/DC for overvoltage category OV3 and pollution degree PD2 for input to output/auxiliary power (transient overvoltages: max. 20 kV)
Rated insulation voltage in accordance with EN 50124-1	Calibrated and switchable or fixed settings (P42000D2, P42000D3, P42001D3, P42000D2-nnnn, P42000D3-nnnn)	Up to 2200 V AC/DC for overvoltage category OV3 and pollution degree PD2 for input to output/auxiliary power
	Fixed settings (P42100D3-nnnn)	Up to 3600 V AC/DC for overvoltage category OV3 and pollution degree PD2 for input to output/auxiliary power
Rated voltage in accordance with UL 347	P420**	2200 V AC (45...65 Hz) / DC
	P421**	3600 V AC (45...65 Hz) / DC
	Input impedance P420**	> 1 M Ω (0.4 VA)
	Input impedance P421**	> 1 M Ω (1 VA)
	BIL/Rated impulse voltage	30 kV (1.2/50 μ s)
	Overvoltage category	OV3
	Pollution degree	PD2
P42000 contains no components that require maintenance. Use copper cables only.		

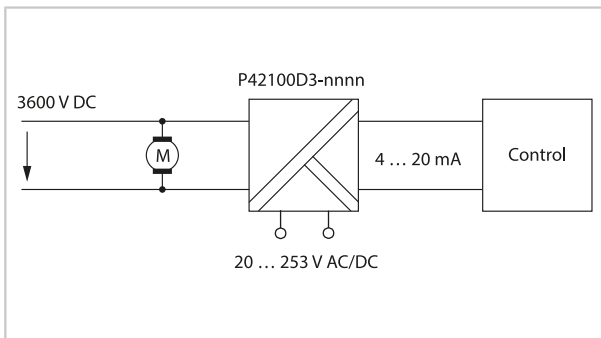
Further Data

MTBF ¹⁾	Approx. 2700 years
Ambient temperature ²⁾	Operation: –10... 70 °C

Application Example

Note: The figure shows an example of direct measurement of the supply voltage. The specified values refer to the P42100D3-nnnn version.

Note: In the figure, *Control* is used as an umbrella term for any form of further processing of the output signal.



1) Mean Time Between Failures (MTBF) determined based on data from field experience.

2) Extended operating temperature range –40... 75 °C (–40... 167 °F), short-time 85 °C (185 °F) on request

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Subject to change.