

Product Overview Interface Technology



**THE ART
OF MEASURING**

Knicks high-voltage transducers, signal conditioners, isolators, and transmitters are a product of over 75 years of experience in reliable galvanic isolation – bringing peace of mind to whatever you are looking to measure in a high-voltage environment.

> Why Knick?

Knicks electrical measurement solutions are used worldwide in applications where accurate signal transmission and protection from high voltage are required. Knick provides products for up to 6.6 kV of continuous isolation, while delivering reliability, as evidenced by Mean Time Between Failure (MTBF) of up to 2165 years.



Long-term stable transducers and signal conditioners for demanding applications

For reasons of safety and signal quality, the transmission of measurement and control signals requires galvanic isolation.

To minimize the risk of damage, the signal conditioners and measuring transducers used for this purpose must be able to withstand high permanent voltage loads and have safety reserves in terms of isolation and hardware design.

With its comprehensive range of interface components, Knick offers solutions that meet the highest demands for safety, precision, robustness and durability.

This also applies to our latest innovations, which focus on

- high isolation transducers for DC and AC voltages up to (±)4800 V or large DC currents up to approx. (±)20 kA with shunt resistor
- measuring transducers for high voltage and current measurement for applications with functional safety up to SIL 4
- signal conditioners for precise measurement of DC currents in normal operation as well as very high currents in case of overload.

In addition, Knick has recently developed highly innovative solutions for functionally safe speed signal duplication.

To ensure maximum fail-safety and reliability, we consistently rely on robust circuit designs, high-quality components and a conservative design of the components used. As a result, some of our products achieve an MTBF (mean time between failure) of well over 2000 years.



Fields of application: where our solutions bring value.

Due to their quality features and reliability, signal conditioners and transducers from Knick are used wherever fail-safe operation and high quality of measured value transmission are required.

Typical applications are found within power plants, energy storage facilities, rail substations, on board heavy vehicles, within electrical machinery, and in industrial manufacturing environments, to name a few.

For example, many of the electric vehicle systems installed by the automotive industry are subjected to very complex test cycles, some of which last for years. Since failures of the measurement technology would lead to immense costs, Knick products are the first choice in many test scenarios.

For many years, Knick has also established itself as a reliable supplier for railroad technology. Whereas our high-voltage isolation amplifiers were previously used primarily in infrastructure such as substations and signaling technology, we now also supply units for onboard installation.

In addition, the expansion of renewable energy and energy storage technology such as battery and hydrogen, is constantly opening up further fields of application for our interface modules:

In photovoltaics, the monitoring of professional installations requires suitable insulation of the measuring systems to protect the operating personnel as well as the control and evaluation systems.

In the energy storage sector, the need for high-performance, highly insulating electrical measurement transducers for monitoring DC currents and voltages seen within battery packs and fuel cells is growing. Here, too, our product range provides a coherent selection of optimal solutions.

International certifications such as UL, CSA, CE, DNV, SIL, KTA, and ATEX enable worldwide use. As a special unique selling point, Knick also offers application-related modifications to its standard modules or carries out customer-specific developments for challenging tasks.



www.knick-international.com/en/interface-technology/



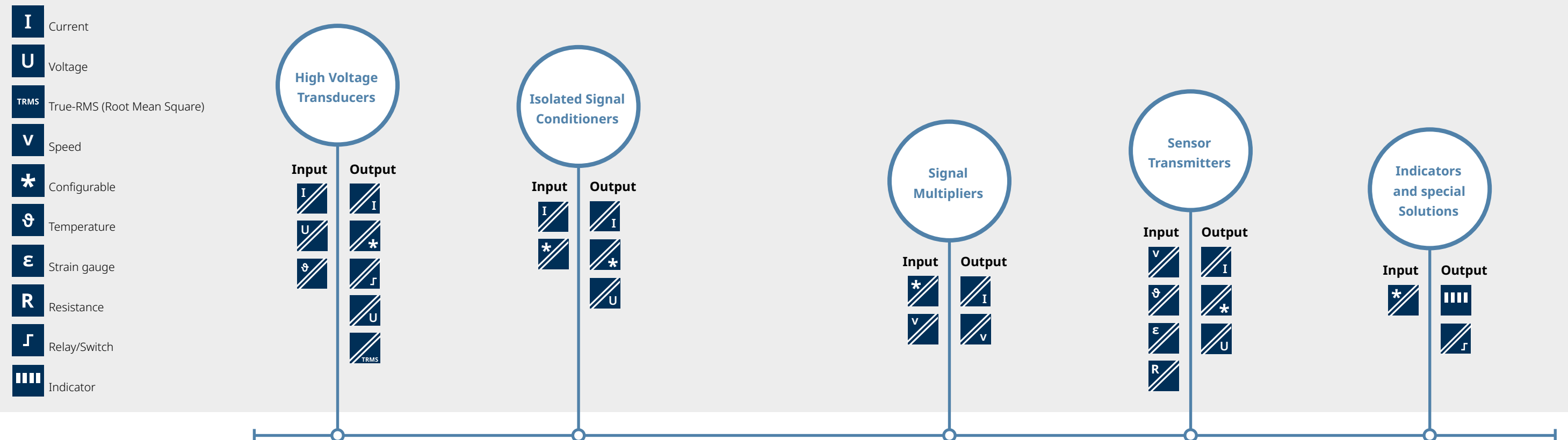
5-year Warranty

If shipped to our factory, deficient products will be repaired or replaced free of charge, if reported to us within 5 years of receipt.

The original warranty period after first delivery applies to repaired or replaced products. Further claims for direct damages or consequential damages are excluded from the warranty.



From high voltage measurement to measured value display: Knick's product categories at a glance



The common denominators found in all Knick products are precision, thoughtful design, and attention to detail.

This is what we refer to as THE ART OF MEASURING.

To provide safety in a high-voltage environment, transducers with high isolation are available for measuring current, voltage, and temperature. Versions are available for both AC and DC applications.

Current measurement uses shunt resistors for high accuracy, low influenceability and robust overload capability. Voltage and current transducers are also available in a highly accurate version to measure energy for billing purposes.

Voltage presence detectors (VPD) supervise a configurable high voltage input threshold, by way of a solid-state relay output.

Universal isolated signal conditioners providing medium to high isolation and flexible conversion of voltage or current signals into selectable standard signals, bringing flexibility in measurement arrangements.

Loop-powered isolators provide a 1:1 transmission of current signals with medium isolation.

Signal multipliers reducing the complexity of measurement arrangements by providing two or four times the input signal at the output, and offering in parallel the possibility to convert the input signals.

A special speed sensor doubler offers signal conversion, high isolation and a high immunity to EMC influences.

Sensor transmitters are available for the conversion of a wide range of sensor signals into standard signals.





Connection is supported for speed sensors, resistance thermometers, thermocouples, potentiometers, shunt resistors, and load cells. These transmitters are available for safety circuits up to SIL 3.

High-precision 4-digit universal digital indicators for physical property (temperature, pressure, level, flow, weight ...), requiring no external power source – perfect for use in difficult environmental conditions.







Compact set-point alarm relay with changeover output contacts for monitoring and controlling of process variables with maximum reliability.


High Voltage Transducers

Current, voltage, and temperature measurement with high isolation.

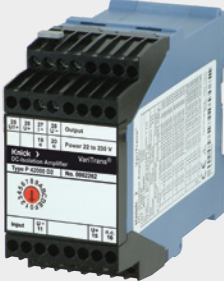
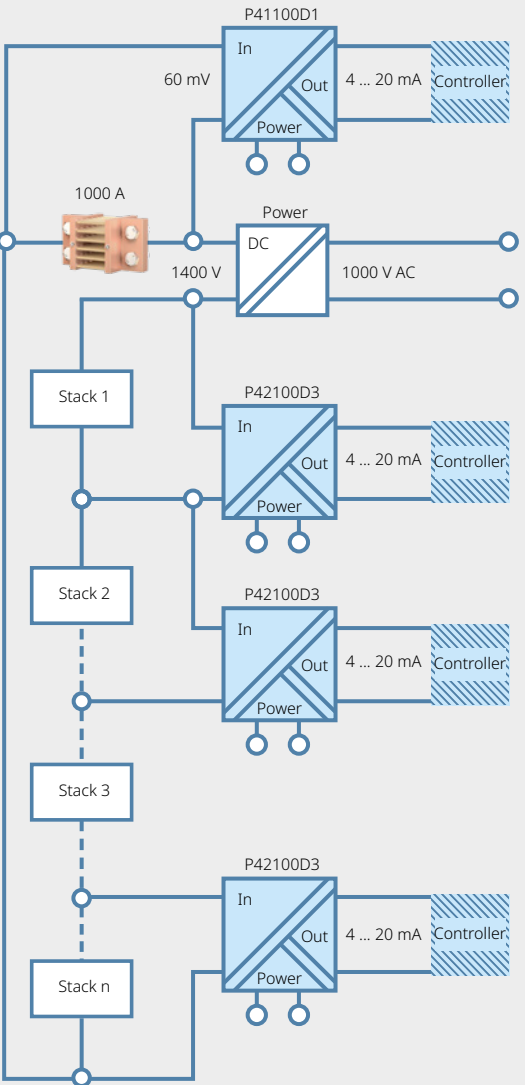
	Current measurement	
	Via shunt resistor	
	P51000	P41000 P41000 TRMS
		
		
Input	0 ... (±)30 mV ... 0 ... (±)125 V	0 ... (±)50 mV ... 0 ... (±)100 V
Output	4 ... 20 mA or 0 ... (±)20 mA or 0 ... (±)5 V or 0 ... (±)10 V	4 ... 20 mA or 0 ... (±)20 mA or 0 ... (±)10 V, peak or TRMS values
Power supply	24 ... 230 V AC/DC	22 ... 230 V AC/DC
Isolation AC/DC	up to 4,800 V	up to 3,600 V
Test voltage	12/18 kV AC	10/15 kV AC
SIL	–	–
Ambient operating temperature	-40 ... +85 °C	-10 ... +70 °C (-40 ... +75/85 °C)
Dimensions (W x L x H)	72.5 x 182 x 116 mm ³	22.5 x 90 x 118 mm ³
Special features	<ul style="list-style-type: none">– Switchable cutoff frequency 14 kHz (P51x00) and 10 Hz, other cutoff frequency on request– For use on rolling stock (EN 50155)– Highly accurate version available for energy measurement on board trains (EN 50463)– Diagnostics of input/output circuits and device function	<ul style="list-style-type: none">– Cutoff frequency 5 kHz, lower cutoff frequency on request– Switchable (16 input/output signal combinations) or customized versions– Exceptionally high MTBF of 2165 years (Mean Time Between Failures), based on field data

Current measurement			
Via shunt resistor			Direct
P41000AG	P29001	BL591	P43000 P43000 TRMS
			
			
0 ... (±)30/330 mV ... 0 ... (±)120/1320 mV	0 ... (±)30 mV ... 0 ... (±)100 V	0 ... (±)30 mV ... 0 ... (±)1000 mV	0 ... (±)0.1 A ... 0 ... (±)5 A
4 ... 16/24 mA	4 ... 20 mA or 0 ... (±)20 mA or 0 ... (±)10 V or passive 4 ... 20 mA	4 ... 20 mA or 0 ... (±)20 mA or 0 ... (±)10 V or passive 4 ... 20 mA	4 ... 20 mA or 0 ... (±)20 mA or 0 ... (±)10 V, peak or TRMS values
22 ... 230 V AC/DC	24 ... 230 V AC/DC	24 V DC 100 ... 230 V AC	22 ... 230 V AC/DC
up to 3,600 V	up to 1,000 V	up to 500 V	up to 3,600 V
10/15 kV AC	5.4 kV AC	3.6 kV AC	10/15 kV AC
–	–	–	–
-10 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C	-10 ... +70 °C (-40 ... +75/85 °C)
22.5 x 90 x 118 mm ³	17.5 x 99 x 114.5 mm ³	17.5 x 99 x 114.5 mm ³	45 x 90 x 118 mm ³
<ul style="list-style-type: none">– Cutoff frequency 5 kHz, lower cutoff frequency on request– Adaptive gain for nominal current and overcurrent measuring.– High accuracy in the nominal current range, sufficient accuracy for up to 11 times of nominal current.	<ul style="list-style-type: none">– Switchable cutoff frequency 10 kHz or 10 Hz, other cutoff frequency on request– Measuring ranges adjusted via DIP switches– A passive current output allows for connection to active PLC inputs	<ul style="list-style-type: none">– Switchable cutoff frequency 5 kHz or 10 kHz– Measuring ranges adjusted via DIP switches– A passive current output allows for connection to active PLC inputs	<ul style="list-style-type: none">– Cutoff frequency 5 kHz, lower cutoff frequency on request– Switchable or customized versions– Exceptionally high MTBF of 2165 years (Mean Time Between Failures), based on field data

	Voltage measurement		
	P52000 P52000VPD	P45000	P42000 P42000 TRMS
			
			
Input	0 ... (±)100 V ... 0 ... (±)4800 max. 4200 V DC or AC peak (VPD)	0 ... (±)500 V 0 ... (±)750 V 0 ... (±)1000 V 0 ... (±)1500 V 0 ... (±)2000 V 0 ... (±)2800 V 0 ... (±)3000 V overrange up to 150 %	0 ... (±)100 V ... 0 ... (±)3600 V
Output	4 ... 20 mA or 0 ... (±)20 mA or 0 ... (±)5 V or 0 ... (±)10 V Solid-state relay, power good signal (VPD)	0 ... (±50) mA or 10 ... 50 mA	4 ... 20 mA or 0 ... (±)20 mA or 0 ... (±)10 V, peak or TRMS values (TRMS)
Power supply	24 ... 230 V AC/DC	±15 ... ±24 V DC	22 ... 230 V AC/DC
Isolation AC/DC	up to 4,800 V	up to 3,600 V AC & 4,800 V DC	up to 3,600 V (D3) & 2,200 V (D2)
Test voltage	12/18 kV AC	10/18 kV AC	10/15 kV AC
SIL	–	For use in SIL2 systems and, redundantly, SIL3 (IEC 61508)	–
Ambient operating temperature	-40 ... +85 °C	-40 ... +85 °C	-10 ... +70 °C (-40 ... +75/85 °C)
Dimensions (W x L x H)	72.5 x 182 x 116 mm ³	28 x 148 x 128.5 mm ³	67.5 (D3)/45 (D2) x 90 x 118 mm ³
Special features	<ul style="list-style-type: none">– Switchable cutoff frequency 9 kHz (P52x00) and 10 Hz, other cutoff frequency on request– For use on rolling stock (EN 50155)– Energy metering (EN 50463)– Diagnostics of input/output circuits and device function– 10 thresholds adjustable via rotary switch for VPD– Diagnostics of input/output circuits and device function	<ul style="list-style-type: none">– Cutoff frequency 10 kHz, lower cutoff frequency on request– For use on rolling stock (EN 50155)– Very compact– Stackable– Optimized for low space demand– DIN rail and wall mounting options– HV input with fixed cables or screw terminals	<ul style="list-style-type: none">– Cutoff frequency 5 kHz, lower cutoff frequency on request– High isolation in a compact housing– Exceptionally high MTBF of 2165 years (Mean Time Between Failures), based on field data– Switchable (16 input/output signal combinations) or customized versions (D2)







	Voltage measurement	
	P29000	BL590
		
		
Input	0 ... (±)100 V ... 0 ... (±)1000 V	0 ... (±)50 V ... 0 ... (±)1000 V
Output	4 ... 20 mA or 0 ... (±)20 mA or 0 ... (±)10 V or passive 4 ... 20 mA	4 ... 20 mA or 0 ... (±)20 mA or 0 ... (±)10 V or passive 4 ... 20 mA
Power supply	24 ... 230 V AC/DC	24 V DC 100 ... 230 V AC
Isolation AC/DC	up to 1,000 V	up to 500 V
Test voltage	5.4 kV AC	3.6 kV AC
SIL	–	–
Ambient operating temperature	-25 ... +70 °C	-25 ... +70 °C
Dimensions (W x L x H)	17.5 x 99 x 114.5 mm ³	17.5 x 99 x 114.5 mm ³
Special features	<ul style="list-style-type: none">– Switchable cutoff frequency 10 kHz or 10 Hz, other cutoff frequency on request– Measuring ranges adjusted via DIP switches, a passive current output allows for connection to active PLC inputs	<ul style="list-style-type: none">– Switchable cutoff frequency 5 kHz or 10 kHz– Measuring ranges adjusted via DIP switches– A passive current output allows for connection to active PLC inputs

DC high voltage and current measurement for fuel cell and hydrogen electrolyzer stack monitoring

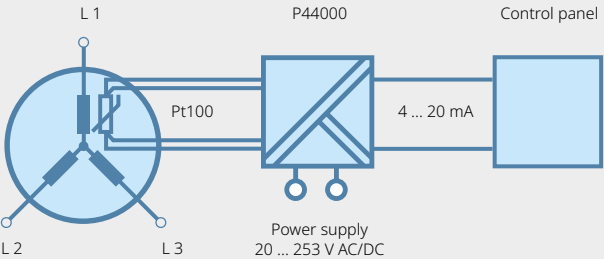


6 ... 18 x P42100D3

1 x P41100D1

Temperature measurement			
	P44000D3	P44000D1	205/206 210/211
			
			
Input	Pt100 resistance thermometer (RTD) with 2/3/4- wire configuration 0 ... 100 °C 0 ... 200 °C 0 ... 300 °C	Pt100 resistance thermometer (RTD) with 2/3/4- wire configuration 0 ... 100 °C 0 ... 200 °C 0 ... 300 °C	Resistance thermometers, thermocouples
Output	4 ... 20 mA	4 ... 20 mA	4 ... 20 mA or 0 ... 20 mA or 0 ... 10 V
Power supply	22 ... 230 V AC/DC	22 ... 230 V AC/DC	24 V DC
Isolation AC/DC	up to 6,600 V	up to 2,000 V	up to 1000 V
Test voltage	15 kV AC	7.5 kV AC	4 kV
SIL	–	–	–
Ambient operating temperature	-10 ... +70 °C	-10 ... +70 °C	-10 ... 60 °C
Dimensions (W x L x H)	67.5 x 90 x 118 mm ³	22.5 x 90 x 118 mm ³	22.5 x 118.2 x 73.5 mm ³
Special features	<ul style="list-style-type: none">– Cutoff frequency 5 kHz, lower cutoff frequency on request– For temperature measurement in high-voltage applications– Low measurement error of typically 0.5 K– Short T90 delay time of 100 ms	<ul style="list-style-type: none">– Cutoff frequency 5 kHz, lower cutoff frequency on request– For temperature measurement in high-voltage applications– Low measurement error of typically 0.5 K– Short T90 delay time of 100 ms	<ul style="list-style-type: none">– For temperature measurement in high-voltage applications

Condition monitoring of high-voltage motors



Ensuring safety with temperature transmitters containing high electrical isolation

Having an active predictive maintenance campaign in place for large rotating equipment can be a key strategy for maximizing process uptime.

Condition monitoring programs that employ the collection and analysis of temperature and vibration data have become more and more widespread across a number of industries.













Some of this rotating equipment, such as motors and generators, find themselves operating in particularly high-voltage environments.











The P44000 series accurately measures temperature from Pt100 RTDs in high-voltage environments, up to 11kV. The P44000 converts the RTD signal to a standard 4-20mA output that can be easily read by the majority of control systems.

This measurement and conversion is performed across a high galvanic isolation barrier, where the input, output and power supply channels are safely protected against a potential transfer of dangerous voltage.

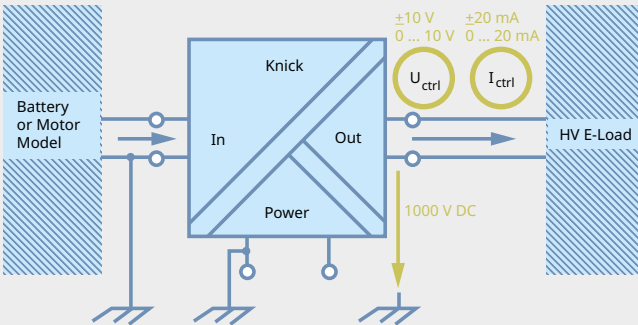
Isolated Signal Conditioners

Current and voltage measurement, signal doubling & conditioning with medium isolation.

	Universal signal conditioner		Standard signal conditioner and repeater power supply			
	P27000	A26000	P15000	A21000	P22400	A20400
						
						
Input	0 ... (±)0.1 mA ... 0 ... (±)100 mA or 0 ... (±)20 mV ... 0 ... (±)200 V or 4 ... 20 mA or 0 ... (±)20 mA or 0 ... (±)10 V	0 ... (±)20 mA or 0 ... (±)10 V	0 ... 20 mA or 4 ... 20 mA or 0 ... 10 V	0 ... 20 mA or 4 ... 20 mA or 0 ... 10 V	0 ... 20 mA or 4 ... 20 mA	0 ... 20 mA or 4 ... 20 mA
Output	4 ... 20 mA or 0 ... (±)20 mA or 0 ... (±)10 V	0 ... (±)20 mA or 0 ... (±)10 V	0 ... 20 mA or 4 ... 20 mA or 0 ... 10 V	4 ... 20 mA or 0 ... 20 mA	Like input 1:1 transmission	Like input 1:1 transmission
Power supply	22 ... 230 V AC/DC	22 ... 230 V AC/DC	22 ... 230 V AC/DC	24 ... 110 V DC / 110 ... 230 V AC	–	–
Isolation AC/DC	up to 1,000 V	up to 1,000 V	up to 1,000 V	up to 300 V	up to 600 V	up to 600 V
Test voltage	5 kV AC	4 kV AC	4 kV AC	2.5 kV AC	5.4 kV AC	2.5 kV AC
SIL	–	–	–	–	For safety circuits up to SIL 3 (EN 61508), up to PL c/PL e (EN 13849-1)	–
Ambient operating temperature	-10 ... +70 °C	-10 ... +70 °C	-10 ... +70 °C	0 ... +55 °C	-40 ... +70 °C	-20 ... +65 °C
Dimensions (W x L x H)	12.5 x 99 x 111 mm ³	12.5 x 99 x 111 mm ³	12.5 x 99 x 111 mm ³	6.2 x 93 x 101 mm ³	12.5 x 99 x 114.5 mm ³	6.2 x 101 x 93 mm ³
Special features	<ul style="list-style-type: none">– Switchable cutoff frequency 10 kHz or 10 Hz, other cutoff frequency on request– The "Multimeter" among the signal conditioners– Calibrated switching of 480 input and output ranges using DIP switches	<ul style="list-style-type: none">– Cutoff frequency 5 kHz or 10 Hz– Specifically for precise conversion and galvanic isolation of bipolar signals– Convenient configuration via DIP switches– Even after range switching, the transmission ranges remain calibrated and there is no need for re-adjustment	<ul style="list-style-type: none">– Cutoff frequency 10 kHz or 10 Hz, other cutoff frequency on request– The standard-signal pro with high isolation– Almost perfect signal conversion with analog signal processing and transmission– Calibrated, digitally controlled range selection without adjustment after switching– With broad-range power supply for universal, global use	<p>The first standard-signal conditioner with protective separation and broad-range power supply in the 6 mm class.</p> <ul style="list-style-type: none">– Extraordinary operating time and reliability with specially adapted design. MTBF (mean time between failures): 280 years	<ul style="list-style-type: none">– Transformer-based isolation of 0(4) ... 20 mA standard current signals– One or two channels per device– High reliability: MTBF of 1106 years– Also available as a signal splitter with 2 electrically isolated outputs	<ul style="list-style-type: none">– The first decoupled passive isolator with load stop function (option)– Extremely reliable: MTBF (mean time between failures) 1031 years– Extremely high component density of 320 channels per meter of mounting rail– Excellent price-performance ratio

	Standard signal conditioner and repeater power supply			Standard signal conditioner and repeater power supply	
	41	WG21	A20100	WG25	36/37
					
					
Input	0 ... 20 mA or 4 ... 20 mA or 0 ... 50 mA	4 ... 20 mA	4 ... 20 mA	4 ... 20 mA	0 ... 20 mA or 4 ... 20 mA
Output	Like input 1:1 transmission	4 ... 20 mA	0 ... 20 mA or 4 ... 20 mA or 0 ... 10 V	4 ... 20 mA	Like input 1:1 transmission
Power supply	–	24 V AC, 110/115 V AC, 220/230 V AC	24 V DC	–	–
Isolation AC/DC	up to 500 V	up to 1000 V	up to 600 V	up to 1000 V	up to 3600 V
Test voltage	2.5 kV AC	4 kV AC	2.5 kV AC	4 kV AC	10 kV AC
SIL	–	–	–	–	–
Ambient operating temperature	-25 ... +80 °C	-10 ... +60 °C	0 ... +55 °C	-10 ... +50 °C	-10 ... +50 °C
Dimensions (W x L x H)	22.5 x 88 x 99 mm ³	22.5 x 73.5 x 118.2 mm ³	6.2 x 98 x 88 mm ³	22.5 x 73.5 x 118.2 mm ³	22.5 x 73.5 x 118.2 mm ³
Special features	Transformer-based isolation of 0(4) ... 20 mA standard current signals on up to 3 channels – Extreme precision: 0.02 % meas. val. transmission error – Extreme efficiency: Low voltage drop of 1.2 V	– ATEX: II (1) G [EEx ia] IIC – Transmission of HART signals	The first standard-signal conditioner with protective separation and broad-range power supply in the 6 mm class. – Extraordinary operating time and reliability with specially adapted design. MTBF (mean time between failures): 280 years	– TEX: II (1) G [EEx ia] IIC – Transmission of HART signals	– ATEX: II (1) G [EEx ia] IIC – Transmission of HART signals







Power Hardware
in the Loop (P-HIL) –
High voltage testing
for e-automotive



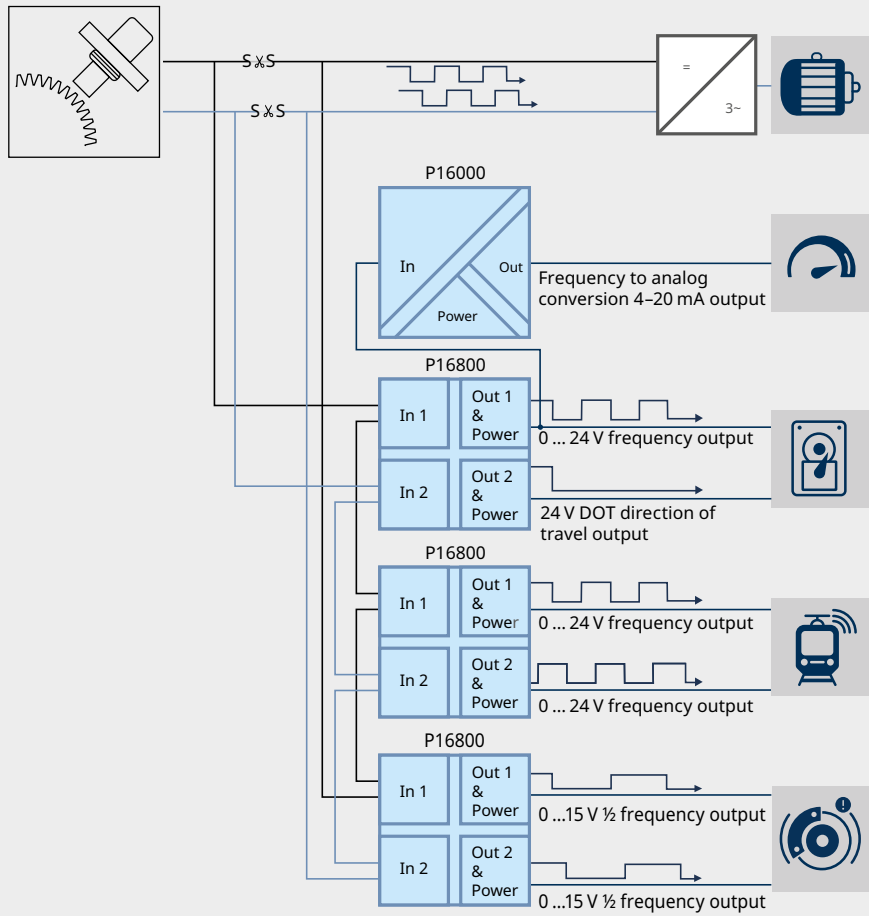
- Testing of High Voltage Systems
- 0 ... 10 V and 0/4 ... 20 mA standard signals for controlling function
- Requires output insulation of 1000 V or more from emulating model on ground potential to equipment under test on high electrical potential
- T90 response time 70 µs for highly dynamic simulation and test systems
- Accuracy is maintained with the conversion from input to output through a gain error of < 0.1 % of the measured value

Signal Multipliers

Doublers, converters and separators of speed sensor signals with high EMC, doublers and quadruplers of standard signals.

	Signal doubler	Signal quadrupler	Speed signal doubler
	A20300	A20340	P16800
			
			
Input	0 ... 20 mA or 4 ... 20 mA or 0 ... 10 V	0 ... 20 mA or 4 ... 20 mA or 0 ... 10 V	Speed sensor signals 10 ... 33.6 V DC (max. 35 V) with Low: < 30 %, High: > 70 % or 6/7 ... 14/20 mA (max. 200 mA) with Low: < 8.5 mA, High: > 12.5 mA
Output	4 ... 20 mA or 0 ... 20 mA	4 ... 20 mA or 0 ... 20 mA	Low: < 1 V, High: = UB, Stand-still detection: 7.2 V (Option for f < 1 Hz) or Low: 6 mA, High: 14 or 20 mA or Direction of Travel (DoT) -one output only
Power supply	24 V DC	24 V DC	12 ... 24 V DC (UB)
Isolation AC/DC	up to 300 V	up to 300 V	up to 1,000 V
Test voltage	up to 2.5 kV AC	2.5 kV AC	up to 8.8 kV AC
SIL	-	-	Safe decoupling acc. SIL 4, safe transmission acc. SIL 2 (EN 50129)
Ambient operating temperature	0 ... +55 °C	0 ... +55 °C	-40 ... +70 °C
Dimensions (W x L x H)	6.2 x 101 x 93 mm ³	6.2 x 101 x 93 mm ³	28 x 142 x 118 mm ³
Special features	Signal doubler with calibrated, switchable inputs and outputs - 2 electrically isolated outputs, each with full load of 500 ohms - All channels galvanically decoupled (4-port isolation)	- Signal quadrupler with calibrated inputs and - 4 outputs, each driving full loads up to 500 ohms - All ports galvanically decoupled (6-port isolation)	- Doubling of speed sensor signals - Optional conversion of speed sensor signals - High immunity to EMC influences





Speed Signal Doubling on Rolling Stock









- Providing flexibility in connecting speed sensors with control units
- Simplifies rolling stock upgrades
- SIL 4/SIL 2 (P16800) and SIL 3 (P16000) certified functional safety
- Strong isolation and ultra high EMC immunity

Sensor Transmitters





Measurement of speed, temperature, strain, force, resistance, and shunt voltages with low isolation.





	Signal conditioning with low isolation	
	Speed signal conditioner	Universal measurements
	P16000	P32000
	 	 
Input	Speed sensor signal 0 ... 0.5 kHz or 0 ... 1 kHz or 0 ... 2 kHz or 0 ... 5 kHz or 0 ... 10 kHz or 0 ... 20 kHz	Resistance thermometers, strain gauges, thermocouples, potentiometers, resistors, shunt voltages up to ±1000 mV
Output	4 ... 20 mA or 0 ... 20 mA or 0 ... 10 V	4 ... 20 mA or 0 ... 20 mA or 0 ... (±)5 V or 0 ... 10 V
Power supply	24 ... 110 V DC	24 V DC
Isolation AC/DC	up to 300 V	up to 300 V
Test voltage	3 kV AC	2.5 kV AC
SIL	Safe decoupling acc. SIL 3 (IEC 61508)	For safety circuits up to SIL 3
Ambient operating temperature	-40 ... +70 °C	0 ... +55 (65) °C
Dimensions (W x L x H)	12.5 x 99 x 114.5 mm ³	6.2 x 101 x 93 mm ³
Special features	Decoupling of safety-related encoder signals for detecting the train's speed from existing circuits – Signal doubling omits the need to retrofit sensors	Universal transmitter for temperature, strain gauges, and potentiometers in a 6 mm housing – Interface for configuration via PC – Rotary and DIP switches for easy, intuitive configuration

Signal conditioning with low isolation		
Temp. measurement	Strain measurement	Resistance measurement
P32100/A20210	P32200/A20220	P32300/A20230
 	 	 
Resistance thermometers, thermocouples, resistors, shunt voltages up to ±1000 mV	Strain gauges, load cells	Potentiometers and resistors
4 ... 20 mA or 0 ... 20 mA or 0 ... (±)5 V or 0 ... 10 V	4 ... 20 mA or 0 ... 20 mA or 0 ... (±)5 V or 0 ... 10 V	4 ... 20 mA or 0 ... 20 mA or 0 ... (±)5 V or 0 ... 10 V
24 V DC	24 V DC	24 V DC
up to 300 V	up to 300 V	up to 300 V
2.5 kV AC	2.5 kV AC	2.5 kV AC
For safety circuits up to SIL 3	For safety circuits up to SIL 3	For safety circuits up to SIL 3
0 ... +55 (65) °C	0 ... +55 (65) °C	0 ... +55 (65) °C
6.2 x 101 x 93 mm ³	6.2 x 101 x 93 mm ³	6.2 x 101 x 93 mm ³
Transmitter for platinum temperature sensors and thermocouples or for measuring mV shunt voltages, in a 6 mm housing – Interface for configuration via PC (P32100) – Rotary and DIP switches for easy, intuitive configuration	Transmitter for load cells and strain gauges (full bridges) in a 6 mm housing – Interface for configuration via PC (P32200) – Rotary and DIP switches for easy, intuitive configuration	Transmitter for resistors and potentiometers in a 6 mm housing – Interface for configuration via PC (P32300) – Rotary and DIP switches for easy, intuitive configuration

Indicator and Special Solutions

Loop powered digital indicators for panel mounting or in separate housing, and compact set-point alarm relay for monitoring and controlling process variables.

	Special	
	Set-point alarm relay	Digital indicator
	BL550	830R
		
		
Input	0 ... 20 mA or 4 ... 20 mA or 0 ... 10 V	0 ... 20 mA 4 ... 20 mA
Output	Changeover relay contact (SPDT), 240 V AC/2 A	4-digit measured value display for physical property (temperature, pressure, level, flow, weight ...) Optional floating solid-state switches (min and max), 60 V DC, 350 mA
Power supply	24 V DC	0.5 V or 3.2 V voltage drop in current loop
Isolation AC/DC	up to 50 V	N/A
Test voltage	1.5 kV AC	N/A
SIL	–	–
Ambient operating temperature	0 ... +55 °C	-25 to +65 °C
Dimensions (W x L x H)	6.2 x 101 x 93 mm ³	200 x 80 x 57 mm ³
Special features	<ul style="list-style-type: none">Adjustable hysteresis and switching delayShreshold freely adjustable via front potentiometer	<ul style="list-style-type: none">Loop powered digital indicator in an IP65 filed housingCan be inserted into 0/4 ... 20 mA current loops

Special	
Digital indicator	
830S1	830S2
	
	
0 ... 20 mA 4 ... 20 mA	0 ... 20 mA 4 ... 20 mA
4-digit measured value display for physical property (temperature, pressure, level, flow, weight ...) Optional floating solid-state switches (min and max), 60 V DC, 350 mA	4-digit measured value display for physical property (temperature, pressure, level, flow, weight ...) Optional floating solid-state switches (min and max), 60 V DC, 350 mA
0.5 V or 3.2 V voltage drop in current loop	0.5 V or 3.2 V voltage drop in current loop
N/A	N/A
N/A	N/A
–	–
-25 to +55 °C	-25 to +55 °C
96 x 48 x 118 mm ³	144 x 72 x 57 mm ³
<ul style="list-style-type: none">Loop powered digital indicator for panel mountingCan be inserted into 0/4 ... 20 mA current loops	<ul style="list-style-type: none">Loop powered digital indicator for panel mountingCan be inserted into 0/4 ... 20 mA current loops

Precision and Reliability – Made in Germany



Pioneering
New standards developed
through experience
and know-how –
Our driving force then
and now



Performance
Optimal solutions for
demanding conditions –
Application challenges
welcomed



Precision
Sophisticated technology
and meticulous verification –
Accuracy is our target



Premium Quality
First-rate materials and
outstanding reliability –
Delivery of excellent
products is our promise

[www.knick-international.com/en/
interface-technology/](http://www.knick-international.com/en/interface-technology/)

Interface Technology

- High Voltage Transducers
- Isolated Signal Conditioners
- Sensor Transmitters
- Signal Multipliers
- Digital Indicators



**KNICK
INTERFACE LLC**

1-888-62-KNICK (56425)
info@knick-interface.com
www.knick-interface.com