

Electrical Measurement Solutions

For Reliable Current and Voltage Measurements with High Isolation Requirements, up to 4800 Volts



CONTROL

CONTROL

Electrical Measurement Solutions

Knick Interface voltage and current transducers bring true CONTROL to electrical measurement applications across a wide-range of industries.

Solutions for:

Railway

Substation Traction Power and Rolling Stock

Power Generation

Renewable and Traditional Energy Sources

Energy Conversion

Motors, Generators, Drives and Inverters

Heavy Industrial

Metals Processing and Chemical Production

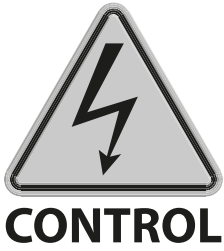
Vehicle Electrification

Vehicles, Charging Stations and Auxiliary Systems

Energy Storage

Monitoring / Testing of Batteries and Supercapacitors





Precise measurement of both AC and DC systems is possible, while ensuring safety by way of high voltage galvanic isolation across input, output and power supply channels. Quality craftsmanship and sound design bring peace of mind to applications where run of the mill voltage and current measurement products just will not do.

CONTROL means not having to make compromises with critical measurement needs. Knick Interface stands behind our voltage and current measurement solutions by offering a 5-year warranty on all products. High quality is ensured through careful product development, comprehensive design verification, and 100% routine testing.

5 YEAR
WARRANTY



RAILWAY

Solutions for ...
Substation Traction Power and Rolling Stock



Components for use in Railway systems must meet the toughest requirements. In addition to maintaining a high level of uptime for passengers and cargo, personal and machine safety considerations must also be considered. Knick Interface specializes in voltage and current measurement devices optimized for Railway operation.

Successful applications include:

- Protection of traction power systems within DC substations
- Overall energy measurement on Rolling-Stock (per EN 50463)
- Monitoring of converters, drives, and accumulator batteries



POWER GENERATION

Solutions for ... Renewable and Traditional Energy Sources

Energy production requires regular measurement of the power being produced. Monitoring of voltage and current at different steps of the production and conversion processes is also important, in an effort to gauge performance of the equipment used within the systems and facilities.

Knick Interface voltage and current transducers are key elements to consider in critical applications like:

- Measurement of DC electrical energy production in Wind Power
- Voltage and string current monitoring of inverters on solar arrays for Photovoltaic systems
- Current measurement and isolation on excitation systems used within Hydro Energy



ENERGY CONVERSION

Solutions for ...

Motors, Generators, Drives and Inverters



Machines and systems produced by electrical equipment manufacturers are only as dependable as the components used within them. Operation of this equipment, within the many industries they serve, must offer safety, precision and reliability. Voltage and current measurements are often critical pieces of this operation. In addition to using sensor data for control purposes, many machine builders are electing to also collect this data for predictive maintenance and energy optimization.

Knick Interface electrical measurement solutions have proven to show value in applications such as:

- Current monitoring within high voltage drive systems
- Electrical signature of motors for energy optimization and predictive maintenance
- Measurement of DC voltage input to inverters



HEAVY INDUSTRIAL

Solutions for ... Metals Processing and Chemical Production

The environments often found within heavy industrial processing plants demand robust sensing solutions be used. This is especially true for measurements designed for electrical systems. Due to high voltages encountered, isolation for safety purposes is critical. In addition, galvanic isolation found in Knick Interface high voltage and current transducers also helps with accuracy, by minimizing effects seen with noise and ground loops encountered within the plant.

Installed applications include:

- Operation of electric arc furnaces (EAFs)
- DC voltage monitoring on overhead cranes
- Energy storage levels for backup power systems



VEHICLE ELECTRIFICATION

Solutions for ...
Vehicles, Charging Stations and Auxiliary Systems



As electrification becomes more prevalent across many different classes and types of vehicles, the technology that drives its backbone of systems and components continues to advance.

Safe monitoring of electrical parameters is critical, as the industry continues to make gains in areas such as vehicle power, energy capacity and charging time. Knick solutions are proving to be particularly valuable for Vehicle Electrification, as the voltages continue to rise to meet cutting-edge application demand.

Some of the use cases include:

- Bidirectional electrical measurements within charging systems/ stations
- Onboard DC link voltage monitoring
- Calculation of current within BMS test stands, while maintaining high isolation requirements



ENERGY STORAGE

Solutions for ...

Monitoring and Testing of Batteries and Supercapacitors

From data centers to renewable energy, many industries rely heavily on energy storage as a crucial part of their business strategy. This is especially true with the direct relationship seen between battery technology and vehicle electrification. Capacity needs continue to rise, and this often corresponds to an increase in the DC voltage levels seen. Accuracy, speed of response and safety are important specifications to assess, when considering transducers to manage important electrical measurements of energy storage systems.

Knick's experience has been seen in:




- Supercapacitor charge and discharge level confirmation
- Control of systems on high battery potential
- Safety detection of "power-off" status






ELECTRICAL MEASUREMENT SOLUTIONS

For Reliable Current and Voltage Measurements
with High Isolation Requirements



PRODUCTS	VariTrans P 27000	VariTrans P 29000	VariTrans P 41000
Working Voltage Isolation	1000 VAC/DC Isolation	1000 VAC/DC Isolation	3600 VAC/DC Isolation
Voltage Measurement Range	0 - 200 VDC Measurement	0 - 1000 VDC Measurement	
Current Measurement Range	Up to 20 kA with shunt voltage measurement (mV)	Up to 20 kA with shunt voltage measurement (mV)	Up to 20 kA with shunt voltage measurement (mV)
AC Ranges Available			Yes AC to DC conversion w/ TRMS output 3600 V AC/DC
Input	0 ... 20 mV/ 200 V 0 ... 0.1mA/ 100 mA unipolar/ bipolar	0 ... 30 mV/ 1000 V unipolar/ bipolar	0 ... 50 mV/ 100 V unipolar/ bipolar
Output	0/4 ... 20 mA 0 ... 10 V 1 ... 5 V unipolar/ bipolar	0/4 ... 20 mA 0 ... 10 V 4 ... 20 mA passive unipolar/ bipolar	0/4 ... 20 mA 0 ... 10 V unipolar/ bipolar
Special Features	<ul style="list-style-type: none"> • 480 Calibrated Ranges • Measurement error < 0.08% • 10 kHz Cuto Frequency • 20-253 V AC/DC Power Supply 	<ul style="list-style-type: none"> • Calibrated Range Selection via Dip Switches • Measurement error < 0.20% • Test Jacks for Measuring Output Without Wire Disconnect • 20-253 V AC/DC Power Supply 	<ul style="list-style-type: none"> • Switchable & Fixed Units Available • Measurement error < 0.10% • High Immunity to Transient Common-Mode Interference • 20-253 V AC/DC Power Supply
Certifications & Approvals	 <p>Class I Div II GL</p>		



PRODUCTS	VariTrans P 42000	ProLine P 51000	ProLine P 52000
Working Voltage Isolation	3600 VAC/DC Isolation	4800 VAC/DC Isolation	4800 VAC/DC Isolation
Voltage Measurement Range	0 - 3600 VAC/DC Measurement		0 - 4800 VDC Measurement
Current Measurement Range		Up to 20 kA with shunt voltage measurement (mV)	
AC Ranges Available	Yes AC to DC conversion w/ TRMS output 3600 V AC/DC		
Input	0 ... 100 mV/ 3600 V unipolar/ bipolar	0 ... 30 mV/ 125 V unipolar/ bipolar	0 ... 100 V/ 4800 V unipolar/ bipolar
Output	0/4 ... 20 mA 0 ... 10 V unipolar/ bipolar	0/4 ... 20 mA 0 ... 10 V 0 ... 5 V unipolar/ bipolar	0/4 ... 20 mA 0 ... 10 V 0 ... 5 V unipolar/ bipolar
Special Features	<ul style="list-style-type: none"> • Switchable & Fixed Units Available • Measurement error < 0.30% • High Measurement Accuracy Without Long-Term Drift • 20-253 V AC/DC Power Supply 	<ul style="list-style-type: none"> • Switchable & Fixed Units Available • Measurement error < 0.10% • Diagnostic Outputs for Wiring & Device Health • 20-253 V AC/DC Power Supply 	<ul style="list-style-type: none"> • Switchable & Fixed Units Available • Measurement error < 0.10% • Diagnostic Outputs for Wiring & Device Health • 20-253 V AC/DC Power Supply
Certifications & Approvals	 LISTED	 LISTED EN50155	 LISTED EN50155

High Voltage Solution

ProLine P 44000

Temperature Transmitter



Designed for high voltage environments to 6.6 kVAC/DC, Knick's P44000 temperature transmitter converts a 2, 3 or 4-wire Pt100 RTD signal to a standard 4-20 mA output, so it can be more easily read by control systems. This is done with minimal delay and high accuracy.

Electrical isolation is critical in high voltage RTD applications, due to the metal to metal contact possible between the RTD and the equipment it is installed in.

Two typical examples of this are temperature measurement of windings within high voltage motors for condition monitoring and temperature verification of heat sinks for system safety. The Knick P44000 ensures that the high voltage is not transferred from the monitored equipment to the control system, while at the same time providing a quality measurement of the temperature.

Facts:

- Transmitter for 2, 3 or 4-wire Pt100 RTDs
- Continuous isolation up to 6.6 kVAC/DC
- Fixed input ranges for 0 to 150, 200 or 300 °C
- RTD signal conversion to 4-20 mA output
- Transmission error $< \pm 1K$
- T90 response time $< 100ms$
- Compact 22.5 mm and 67.5 mm modular housing, dependent on isolation level



High Voltage Solution

ProLine P 52000 VPD

Voltage Presence Detector

Knicks P52000 VPD provides a switch-based output once a User defined voltage level has been reached. This applies for both positive and negative voltage, to ± 4200 VAC/DC.

The solid state relay at the output of the device can be used to control a hardware relay, or be fed into a safety device or controller.

Voltage Presence Devices, or VPDs, are often used in some of the same systems or environments as their electrical measurement transducer relatives.

This means that maintaining safety by way of electrical isolation is just as critical. Knick employs the same high quality isolation methods for the P52000 VPD as is engineered into our transducer families. Applications are diverse – from determining live voltage presence at an electrified rail or catenary line to the operation of DC motorized disconnect switches, and from limiting overvoltage onboard heavy vehicles to the verification of electrical machinery de-energization on the plant floor.

Facts

- High voltage input detection to ± 4200 VAC/DC
- Continuous isolation to 4800 VAC/DC and test voltage to 18 kVAC
- Configuration possible for up to 10 User defined input thresholds
- Rotary switches for easy device setting
- Housing offers finger-safe protection and resistance to shock and vibration
- Diagnostic output indication of "Power Good" status
- Solid-state output with switching delay < 2 ms



COMPANY

KNICK ELEKTRONISCHE MESSGERÄTE GMBH & CO. KG

Founded by engineer Ulrich Knick in Berlin, Germany 75 years ago, Knick Elektronische Messgeräte GmbH & Co. KG still upholds the family company tradition today.

Knick manufactures measuring and monitoring devices for a variety of industries – including Transit, Energy Production, Factory Automation and Process Control.

Innovations are developed based on an intensive exchange of knowledge and expertise between our company, suppliers, customers and sales partners. Knick transducers have been synonymous with “high precision” for decades.

MADE IN
GERMANY

INTERFACE



ANALYTICS



NORTH AMERICA
KNICK INTERFACE LLC.

Knick Interface is the North American subsidiary for Berlin based Knick Elektronische Messgeräte GmbH & Co. KG.

With Sales and Service operations in California and products shipping out of Ohio, Knick Interface strives to bring value to our diverse North American customer base. Application know-how, attention to detail, strong support, and legitimate caring for our customers' success are our primary areas of focus.

Contact us for further information as to how these High Voltage Measurement Solutions might bring value to your challenging applications.



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INTERFACE

Interface Technology

- High Voltage Transducers
- Isolated Signal Conditioners
- Sensor Transmitters
- Signal Duplication Devices
- Power Supplies
- Digital Indicators

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