



Interface Technology

Indicators

Process Analytics

Portables

Laboratory Meters

Sensors

Fittings

**Knick
Elektronische Messgeräte
GmbH & Co. KG**

Beuckestraße 22, 14163 Berlin
Phone: +49 30 801 91 - 0
Fax: +49 30 801 91 - 200
info@knick-international.com
www.knick-international.com

The Art of Measuring.



Transducers for
High Voltage and
Current Measurement
in Railway Applications

ProLine P 50000

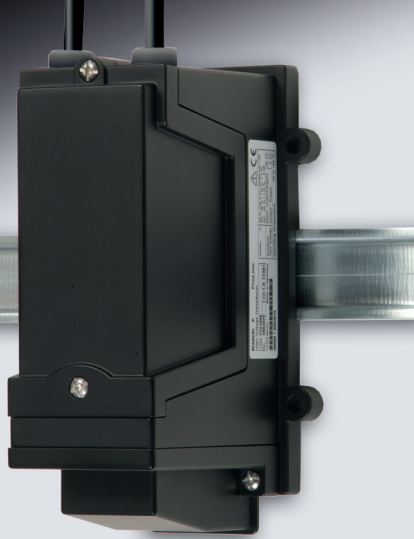


Knick
High-Voltage Transducer
Type: P50100A
No. 0003879 | SW 1.0 | ES01
14163 Berlin | Made in Germany
00000 / 0003879

Power	24 to 230 V AC
DC	30% I _N / 1.5 W
AC	20% I _N / 1.5 W
Isolation	1000 V
Test Voltage	10 kV
Output	4 V
Operating Temperature	-20 to +85 °C

preliminary

ProLine P 50000



Higher safety and flexibility achieved through a new housing concept - specifically designed for railway applications with conformity to all relevant railway standards including fire and smoke regulations.

Electric as well as diesel-electric locomotives and multiple units require multifold monitoring and control of electric energy. Voltage and current sensors used for this purpose need to meet the particular demands posed by railway operations.

This is a matter particularly regarding fire and smoke protection, electrical safety, as well as robustness towards extreme environmental conditions, mechanical stress and EMC influences.

The transducer series P50000 was specifically designed for applications on locomotives and multiple units for short circuit recognition, monitoring and control of traction motors and

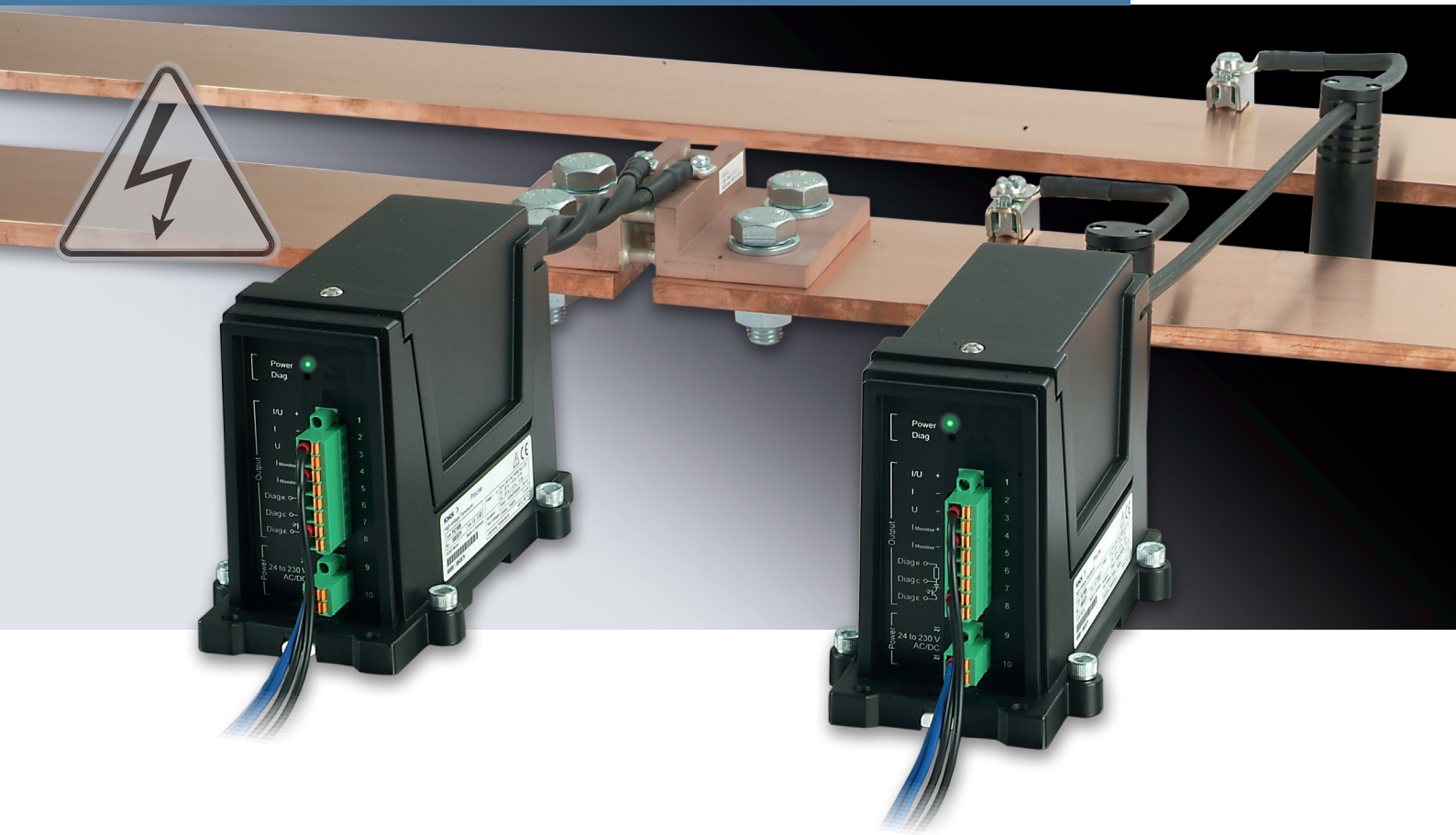
inverters, auxiliary inverters, accumulator batteries and others. Brand new is the flexibility through switchable measurement ranges and an integrated broad-range power supply.

Not least the product mean business regarding the specific railway requirements as they meet all relevant standards.

ProLine P 50000 at a glance

- 4800 V AC/DC protection at PD3, OV3 according to EN 50124-1, UL 347, no partial discharge up to 10 kV
- 18 kV AC test voltage
- Voltage measurement up to 4200 V with calibrated switching of up to 10 input ranges
- Overload protected current measurement via shunt resistor from amps to kiloamps
- Particularly low measurement error < 0.1 % of meas. value + 0.1 % f.s.
- Potential-free standard signal output (switchable: 0/4 ... 20 mA, 0 ... 10 V) and additional monitoring output
- Integrated broad-range power supply (16,8) 24 to 230 (253) V DC/AC Stable during brownout to EN 50155 (S2) and RIA 12-1984
- Undisturbed signal transmission thanks to 3-port isolation between input, output and power supply
- Fire and smoke: hazardous level HL3 to EN 45545-2:2016
- Suited for use on railway vehicles: EN 50125-1/-2 and EN 50155
- Suited for use in substations for railway power supply: EN 50123-1
- RAMS: diagnosis contact for device status, MTBF up to 155 years
- Resistant against vibration and mechanical shock to EN 61373 (railway applications)
- EMC to EN 50121-1, EN 50121-3-2 (railway applications) and EN 61326-1 (industrial applications)
- Temperature class TX to EN 50155-1 (-40...+85 °C)
- Altitude class AX to EN 50155-1, EN 50155-2 (up to 4000 m.a.s.l.)
- Contact protection through protective cover, housing IP protection up to IP54 (HV side), IP33 (LV side)
- Suited for energy measurement to EN 50463-2 (0.5 R and 1.0 R)
- Isolation coordination to EN 50124-1, EN 50123-1 (railway) and EN 50178, UL 347 (industry)
- Wall or DIN-rail mounting
- Mechanically stable HV connection for wires up to 16 mm² (M5 studs)
- Simplified installation due to push-in terminals for output and power supply (up to 2.5 mm² wires)

Transducers for High Voltage and Current Measurement in Railway Applications



ProLine P 50000 with contact protection through protective covers over terminals, wire cross sections 1.5 to 16 mm²

Robust high voltage terminals as M5 studs / self-locking nut, push-in terminals for output and auxiliary power

DIN Rail mounting as alternative to direct mounting on (conducting and non-conducting) surfaces

Block Diagram

