

PTSPM16 Motor Insulation Monitoring

Product Overview

The PTSPM16 is an industrial-grade, online insulation monitoring device designed specifically for neutral-point ungrounded (IT) power distribution networks. Operating across pure AC, DC, and hybrid AC/DC topologies, the device continuously evaluates ground insulation integrity and system leakage capacitance in mission-critical applications where service continuity is paramount.

Utilizing an active low-frequency pulse square-wave injection technique, the PTSPM16 couples between the active phase lines (L1, L2) and the protective earth (PE). High-speed internal micro-controllers sample and compute micro ampere-level return currents superimposed onto the electrical network. This measurement method remains immune to common-mode electrical noise, DC bias, and variable-speed drive harmonics, providing accurate and drift-free insulation diagnostics even across high-capacitance industrial cable runs.

Core Characteristic

The PTSPM16 provides online insulation resistance and distributed capacitance monitoring for ungrounded electrical systems. Engineered with active signal injection, it delivers stable measurements across complex power distribution setups and variable-speed drives

- **Continuous Online Monitoring:** Measures line-to-ground insulation resistance in real time without taking the motor or distribution system offline.
- **Two-Stage Alarm Supervision:** Features two independent alarm thresholds (Alarm 1 and Alarm 2) with adjustable hysteresis and trip delay (0–60 s) to guard against transient dips.
- **Coupler Expandability:** Monitors voltages directly up to 800 VAC / 1000 VDC, with support for high-voltage coupling units expanding coverage up to 10.5 kV systems.
- **System Integration:** Provides real-time fieldbus integration via Modbus-RTU over RS-485 alongside a scalable 4–20 mA analog output for remote telemetry and SCADA integration.
- **Remote Control & Self-Diagnostics:** Equipped with remote digital inputs for test, reset, and operational standby, paired with an integrated graphic LCD and scheduled automatic self-testing.

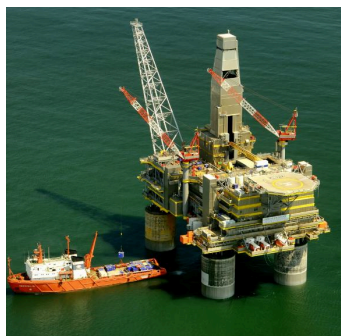


Applications

Industrial Process



Off-shore Marine



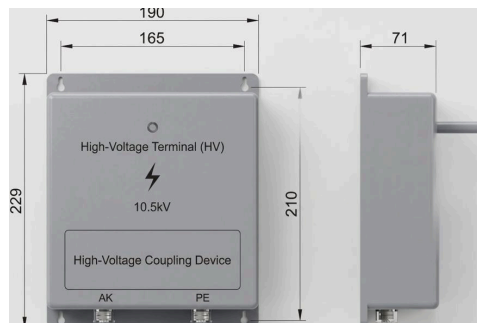
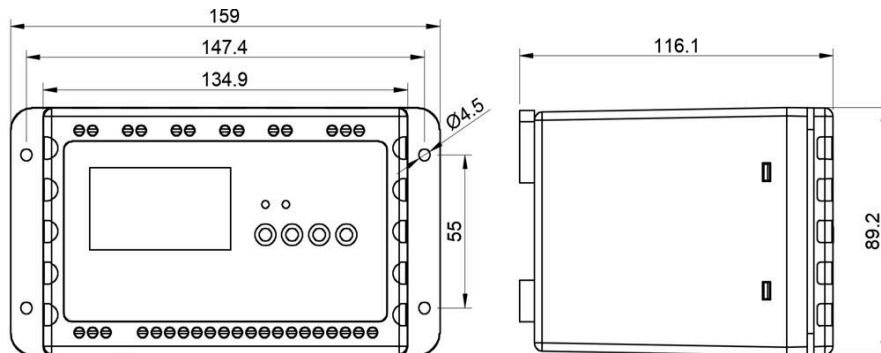
Mining



Key Features

- **Low-Frequency Pulse Square-Wave Injection:** The device injects a specialized low-frequency square-wave test voltage between the monitored IT network and protective earth (PE).
- **Microampere Detection:** High-precision internal microcontrollers measure the resulting microampere-level return current ($I_m \leq 220\mu A$).
- **Capacitance Compensation:** The active measurement method filters out system disturbances and compensates for high distributed leakage capacitance (C_e), preventing false trips even in cable-heavy or complex inverter-fed setups.

Dimensions (unit: mm, tolerance: $\pm 1\%$)



Specifications

Working Environment	-20~60°C, $\leq 95\%$ RH
Power Supply Mode	AC85V-265V, 50/60Hz, DC 85V-265 or DC 18V~36V
Power Consumption	$\leq 5W$
Weight	$\leq 0.6kg$
Maximum Insulation Voltage	800VAC / 1000VDC
Monitored Voltage With HV Coupler	Up to 10.5 kV
Rated impulse voltage	8kV
Pollution level	Class 3
Relative instability	$\pm 10\%$
Hysteresis (1~10k Ω)	$\pm 2k\Omega$
Hysteresis (10k Ω ~10M Ω)	25%
Current/Voltage Output	4mA~20mA ($\leq 500\Omega$) / 0~10V
Current Output Accuracy (1k~1M Ω)	$\pm 10\%$, $\pm 1k\Omega$

Measure Voltage	$\leq 48V$
Measuring Current	$\leq 220\mu A$
Direct Flow Is Blocked Internally	$\geq 600k\Omega$
AC Impedance	$\geq 600k\Omega$
Relay Alarm Contacts	2 sets
Lifespans	12,000 times
Housing / Installation	DIN-rail mounting & embedded panel mounting
Compliance	EN 62479:2010 EN 61326-1: 2021; EN 220, 300, 301, 400, 489

Ordering Information

Part Number	Product Description
PTSPM16	PTSen™ Motor Insulation Monitoring