

## PDGuard-C500

On-line PD Monitoring System for Power Cable



# PDGuard-C500

## On-line PD Monitoring System for Power Cables



### Features

- Continuously tests single or multiple LIVE CABLES for PD activity
- Works with all types of HV/MV cable up to 4km long
- Simple plug-and-play deployment – permanent or temporary
- Clear graphical display of PD activity via web-enabled hub
- Available to buy or as a site survey service

### Benefits

- Identifies PD faults in cables BEFORE they develop into failures
- Monitors cable condition in REAL TIME
- Automatically generates alarms when cable PD activity is at critical levels
- Captures waveforms for optional analysis service, mapping the location of PD activity

### Why you need partial discharge monitoring?

Power cables, terminations and joints are factory-tested before installation to ensure quality and reliability according to customer requirements and standards.

However, cables can be damaged during transportation, laying and during the installation of terminations and joints. These defects may not cause initial failure under voltage but can create partial discharge (PD) in the insulation system.

### Partial discharge destroys cable insulation

If allowed to continue, PD will degrade the insulation and result in flashovers and cable system failures. This causes unplanned power outages, loss of plant production, damage to adjacent equipment, and in the worst case, personal injury.

### Detect and remove defects prior to failure

By detecting and trending PD activity with a monitoring system, it is possible to continuously observe its development over time. This information helps you to make important decisions regarding the timely replacement of the HV cable or cable accessory before a failure occurs.

### PDGuard-C500 is your right choice

The PDGuard-C500 monitors cable accessories in short and long cable systems. As these accessories breakdown, they generally produce partial discharges prior to failure. To monitor cables, high frequency current transformers (HFCTs) are placed around the cable termination shields.

## What can PDGuard-C500 do?

### Continuous PD detection in HV cables

Our PDGuard-C500 permanent on-line PD monitoring system combines advanced hardware and software technologies for continuous condition assessment of electrical insulation in HV cables, terminations and joints.

### Suitable for cable system after-installation testing

PDGuard-C500 can also be used to perform simultaneous PD measurements at each cable accessory during the AC voltage after-installation test of the cable system. Potential defects are quickly detected.

### PD data evaluation

Automated features are available via the same web interface to make PD data evaluation and report generation more convenient for users.

Multiple PD sources are automatically separated from each other and from external noise through

### Automatic notification of asset status changes

Our PDGuard-C500 permanent on-line PD monitoring system combines advanced hardware and software technologies for continuous condition assessment of electrical insulation in HV cables, terminations and joints.

### Intuitive web-based user interface

The PDGuard-C500 software web-based user interface allows you to remotely configure the monitoring system, view real-time PD data and historical trends, and to analyze the collected raw data. The software also allows you to correlate the PD data with data from other sensors (e.g. temperature, oil pressure, etc.) also installed on the cable system.

### Complete monitoring project support

We have extensive experience in the field of PD monitoring on HV cable systems. Our dedicated team of service engineers provides you with complete guidance and support during the design, installation and commissioning of the PDGuard-C500 PD monitoring system.



## System components

### ① HFCT sensors

- Designed and made for permanent installation at cable terminations and joints
- Split core for easy installation on the cable sheaths or grounding connections
- Ensures sensitive measurements even when there are high currents on the cable sheath or grounding connections

### ③ IPS 200 Inductive power supply

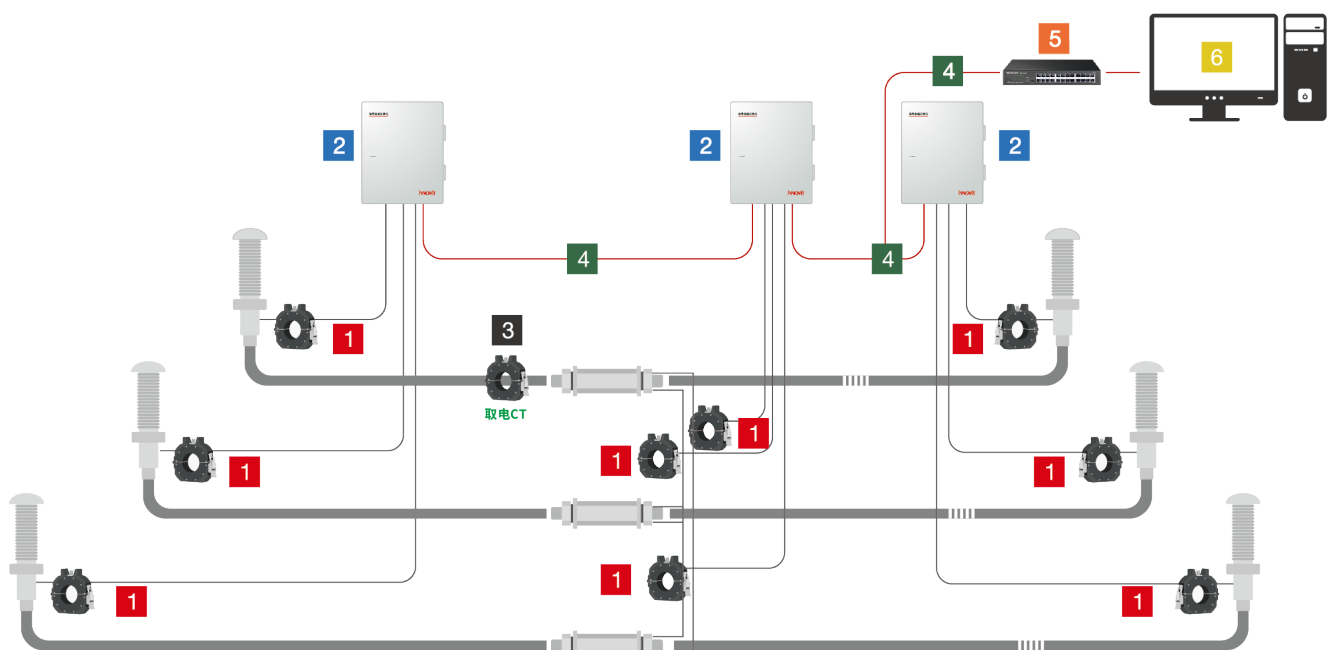
- Installed on one phase of the power cable
- Inductive power supply for tunnel cable systems where conventional low-voltage sources are not allowed or available
- Ensures stable output voltage for the monitoring system supply, even under low cable loads

### ② DAU-C500 PD Data acquisition unit

- 3, 6, 9 synchronous channels, IEC 60270 certified PD data acquisition
- Fully digital bandpass filter with adjustable bandwidth and center frequency
- Robust enclosure (IP66) protects data acquisition unit from dust, moisture and unauthorized access

### ④⑤ fiber optic communications

- Converts the optical signal to an electrical signal and transfers it to the computer via the USB
- Can operate with both single-mode and multi-mode fiber
- Enables uninterrupted data transmission over long distances
- Ensures the synchronicity of PD data acquisition



## System components

### Central computer with monitoring software

- State-of-the art database system for long-term data CLOUD storage and retrieval
- Web-based data access & visualization
- Customizable integration of third-party sensors and export to SCADA systems

### Sensors and Accessories

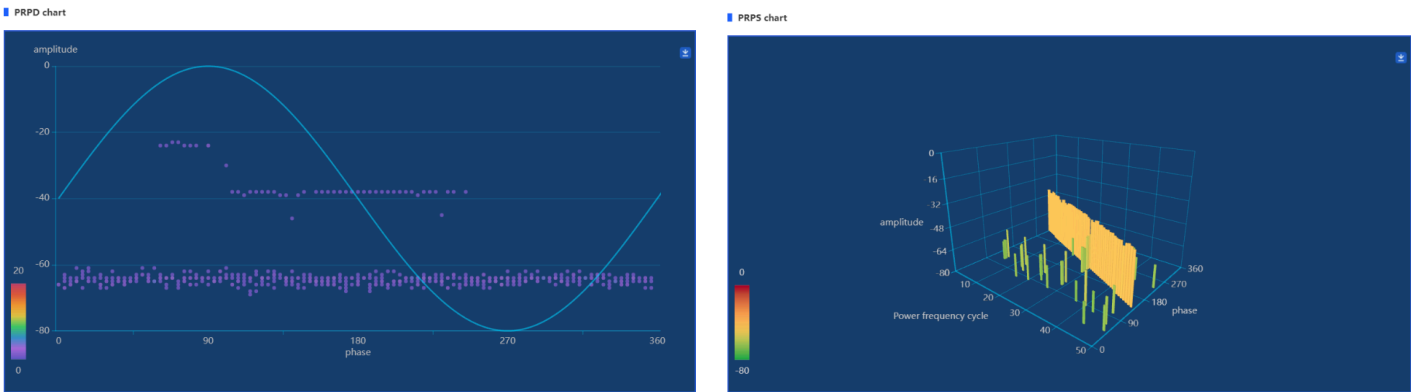
The sensor used in this system is an advanced iHFCT series high-frequency current transformer independently developed by Innovit Electric. Please refer to our website for more information and parameters.

### Data-sheet of PD Data acquisition unit

Measuring Bandwidth		0.3 ~ 150 MHz
External Power Supply		110 ~ 240Vac / 50-60Hz    110 ~ 300Vdc
Inductive power supply		> 50 A
Number of Input Channels		3, 6, 9
Connector type		BNC
Frequency range	AC:DC	16 kHz
Communications	Interface	Ethernet / RS-485
	Protocol	Modbus-RTU
Analog Module	Dynamic Range	0 dBmv ~ 60 dBmv
Environmental	Operating Temperature	-32 ~ +60 °C
	Humidity	5 ~ 90% RH Non-condensing
Protective enclosure	Dimension (W*H*D)	400 mm x 500 mm x 210 mm
	Weight	~15 kg
	Enclosure Rating	IP66
	Make	Rittal

## Software Package

The supplied application software is intended to run on PC's with Microsoft Windows™ software. Our application software is a versatile product supporting PDGuard continuous insulation monitoring systems that may be found on switchgear, cables, and transformers. The software allows the user to configure the instrumentation, download and store the data and provides tools for data presentation and analysis.



### Specification for PD Analysis and Report Software

PC (optional)	OS	Microsoft Windows
	Specification	Regular
PD Monitoring System Software	Measuring Mode	Real time, event, trend
	Display	Real time data display (PRPD / PRPS / 2D / 3D)
		Event data display (PRPD / PRPS / 2D / 3D)
		Trend data graph (daily / weekly / monthly)
	Expert PD Analysis	Programmable alarm criteria
		Warning of PD activity
		Automatic communication of warning / alarm condition
		Report generation (daily / weekly / monthly)
		Data stored on cloud, no limit on time and capacity
		Online data access using remote desktop software



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