

## Smart Diagnostic Monitoring Technologies

# PD700

A complete Partial Discharge (PD) monitoring system for Gas Insulated Switchgears (GIS).



#### Key Features

- Online Measurement
- PD Location
- PD Expert System
- Advanced Data Display

Knowing you have PD (partial discharge) is a worry, knowing where the PD is allows you to make risk assessments. The highly advanced timing system in the PD700 allows the location of the PD to be calculated within the GIS. The PD700 system can provide automated simple results, or advanced screens for experts even down to showing the pulse timing sequences between channels.

The PD700 offers unrivalled features for a cost effective solution. Monitor full GIS substations with one simple system. Local units (LAUs) are mounted at convenient location close to the GIS. Simple daisychain style connections means fast and simple installation between LAUs and server. Automatically generated warnings for PD within the GIS before failure occurs.

### Benefits

- Reliable PD monitoring
- Competitive Cost
- Remote Monitoring
- IEC 61850 ready

The unique PD Intensity is used to measure the energy in the PD. Advanced analysis developed from experts in the field of GIS and PD signals. The combined results give accurate warnings that minimise the false alarms for the operator.

Dedicated hardware allows the location of the PD to be calculated. Knowing where the PD is located is as important as detecting PD. Only with the location information can the true risk be assessed. This built in feature avoids costly site visits from PD experts to locate the signal.

The location system has the additional benefit of removing the same signal being seen on multiple channels. A common problem of UHF PDM systems is to have many additional signals spread across a number of sensors. This is no longer a problem for the PD700, the operator need only look at one signal from each PD source.

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Installation is simplified by the daisy-chain configuration. 2 fibres and 1 power connection link unit to unit. The PD700 system self calibrates to allow the time of arrival results to be accurate to better than 1 nanosecond. The far end of the daisy-chain can be linked back to the server to provide an alternate data path for security. A star configuration can be used over Ethernet, however, the precision timing between units is only available if the daisy-chain fibre is connected. Standard Ethernet is not suitable for timing between units.

The graphical interface and monitoring system is not limited to the GIS or PD700. Many of the installed monitoring systems from SDMT can be added on to extend the system to monitor other parts of the substation. The PD700 systems is designed to work with most UHF PD sensors. SDMT recommend a minimum specification for best results, or can design specific sensors for any application within a GIS. Contact SDMT for further details on UHF sensor suitability and design.



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The main software interface is simple enough to be used with minimal training. A full range of trends, patterns and parameters are available for the expert user. Custom real views can be used if available, or any other representation of the GIS. Basic parameters are displayed on the real and schematic views.





3D sequence



Manual parsing of the data is through the interactive graphical single line diagram. Any custom screens can be added to the software to represent the GIS or substation components. A simple traffic light system shows the operator where to look for problems. The operator need only look at the more in depth data when needed, saving unnecessary time wasting.

ATR2-125MVA	ATR2 110kV Substation	
		110kV
TR1-125MVA		Cable mtr
15 av		110kV
		Cable mtr
TR2-125MVA		
ATR1-125MVA		
	SPARE	

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Specifications			
Number of PD channels per unit	6		
Maximum number of units	100+ (600+ HF/UHF channels)		
UHF PD frequency bandwidth	300MHz to 1500MHz		
UHF PD amplitude range	-75 to -5dBm		
PD location accuracy	<50cm		
Communication interfaces	Fiber Ethernet, USB, RS-485		
Connectivity output	SCADA, IEC61850		
Input power supply	90V to 260V, AC (50/60Hz) or DC		
Operating temperature range	-20°C to 70°C		
Relative humidity range	not more than 95%, non-condensing		