INTEGO GM

On-line Generator Partial Discharge Monitor

For the first time Asset Managers have in-depth knowledge of a generator's condition at their fingertips. **INTEGO GM** represents the next key development in online generator monitoring – providing reliable Partial Discharge data that is automatically converted into powerful and intuitive information.

Overview

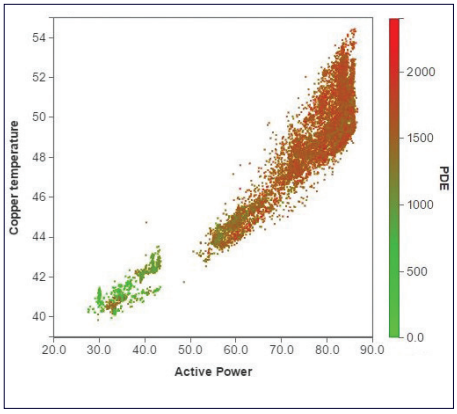
Trending Partial Discharges (PD) over time is a key factor to prevent early failures and extend stator insulation life. Meaningful results and correct data interpretation is achievable only by measuring PD under the same load, temperature and voltage conditions.

INTEGO GM is the only system correlating PD data with generator operating condition, thus providing real information enabling asset managers to dramatically reduce insulation degradation rate and extend generator life. The unique capability of summarizing PD events at different operating conditions, including PD at machine start-up, makes **INTEGO GM** the perfect tool for generators under cycling regime or subjected to highly variable load.

INTEGO GM enables an asset management strategy based on knowledge and reliable information. Designed to the highest industrial standards, **INTEGO GM** is suitable for safe installation in live operating conditions and to operate in extreme environmental conditions.

Product Key Features

- Weekly summary of the PDE (PD Energy) at different operating conditions including machine start and stop
- Genuine continuous 24/7 monitoring
- Machine starts and hours-of-operating counter
- Embedded web server & web-based software
- Dynamic & automatic noise rejection - no manual tuning
- Alarms readily available from day 1 after installation
- Simple, accessible and easy to use
- Fully integrated intelligence and database
- PRPD pattern and raw data available to experts
- Results summarised and shown at configurable time intervals for easy correlation with winding temperature,load, humidity, vibration, etc..)
- Results in both mV and nC
- Advance PD result filtering based on the operating conditions



PDE Map showing an inverse dependency of the PD activity with the temperature

User friendly easy-to-understand information in 3 levels:

1) Basic information

- Immediate picture of the machine status showing PD vs operating condition
- No need for expert interpretation

2) Advanced parameters

- Allows in-depth analysis
- Evaluation of all the common PD parameters for trending (Qmax, Qm+, Qm-, NqN+, NqN-, Repetition Rate, …)

3) Investigation tool

- Additional tools for advanced diagnosis
- PRPD Patterns, operating condition
  - Correlation Map and Pulse Height
  - Analysis plot for advanced diagnosis

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Partial Discharge	
Input channels	4 (3 phase +1 extra)
Simultaneous channels	4
Sensors	Fits existing capacitive couplers
Input measuring range	>20 V peak-peak
Accuracy	12 bit (500uV @ lower range)
Resolution	amplitude:<5% time:10 ns
Sampling rate	100 MS/s
Bandwidth	Utra-wide (<50MHz) & Wide (IEC 60270)

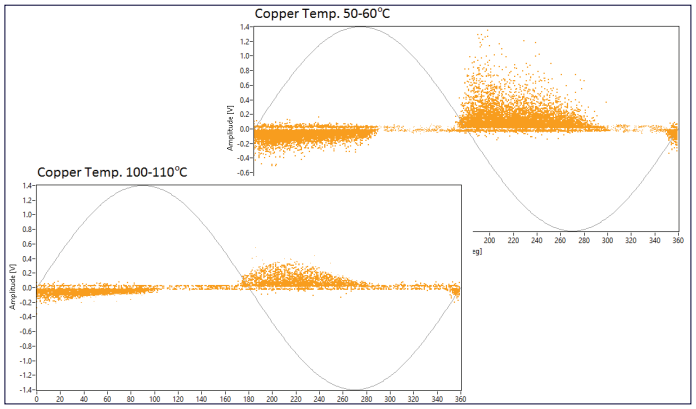
Data	
Acquisition mode	Continuous
Trending	Weekly trend based on operating conditions
Storage	32GB SSD Card, >5 years

Communications	
Protocols (standard)	ModBus
Protocols (optional)	DNP3 & IEC61850
Carrier (standard)	USB, RS232, RS485, Ethernet, 3G
Carrier (optional)	Fibre, PSTN modem, power line carrier

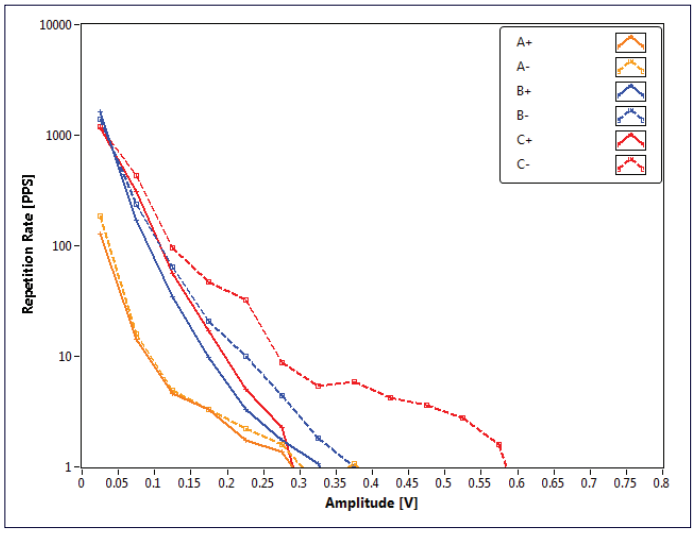
Power	
Power	90 - 250 VAC, 47 - 63 Hz, 100W

Alarms & I/O	
Alarm relay contact	4 x NO or NC, user configurable
Analogue inputs	4 x PT100, 3 x 4-20 mA, 1 x AC
Digital inputs	6 x 24V isolated

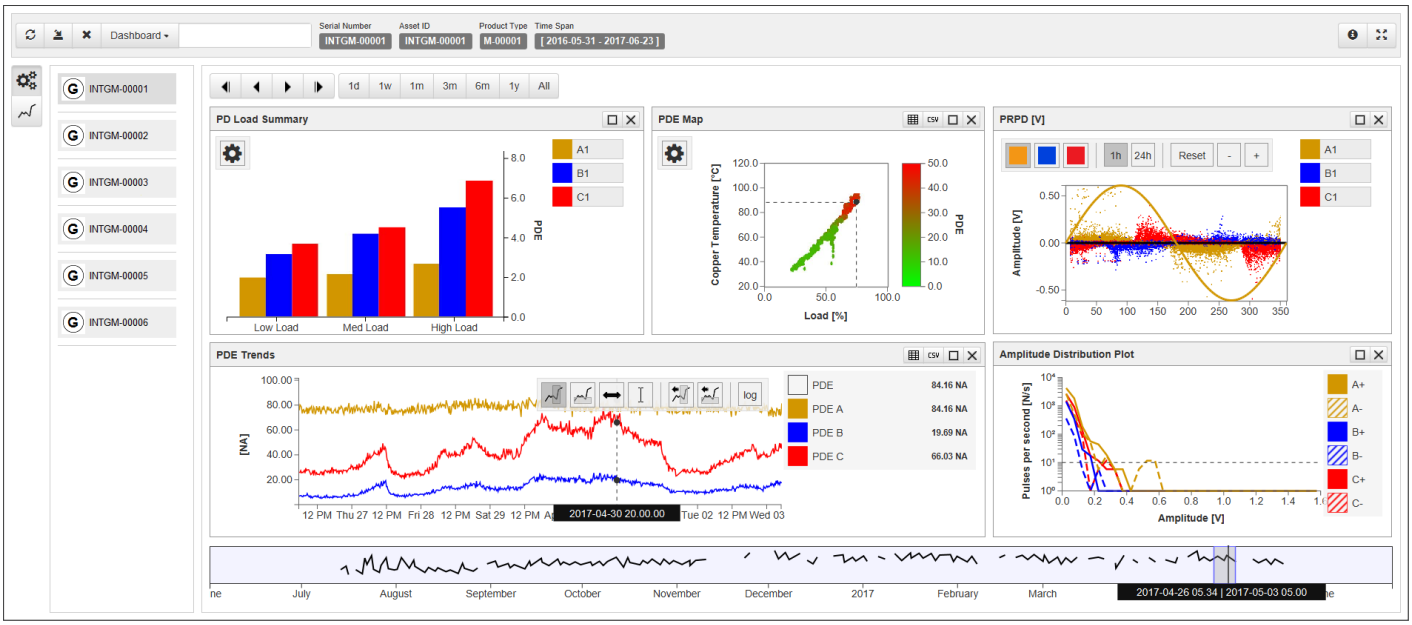
Environmental	
Operating temperature	-45 to +55 °C
Storage temperature	-50 to +85 °C
Operating humidity	0 - 100% RH
IP rating	IP56



PD activity shown below 60°C and above 100°C copper temperature



PD pulse height analysis chart according to IEEE Std 1434-2014 Annex C



Offline software allows data visualization and comparison between machines and analysis

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