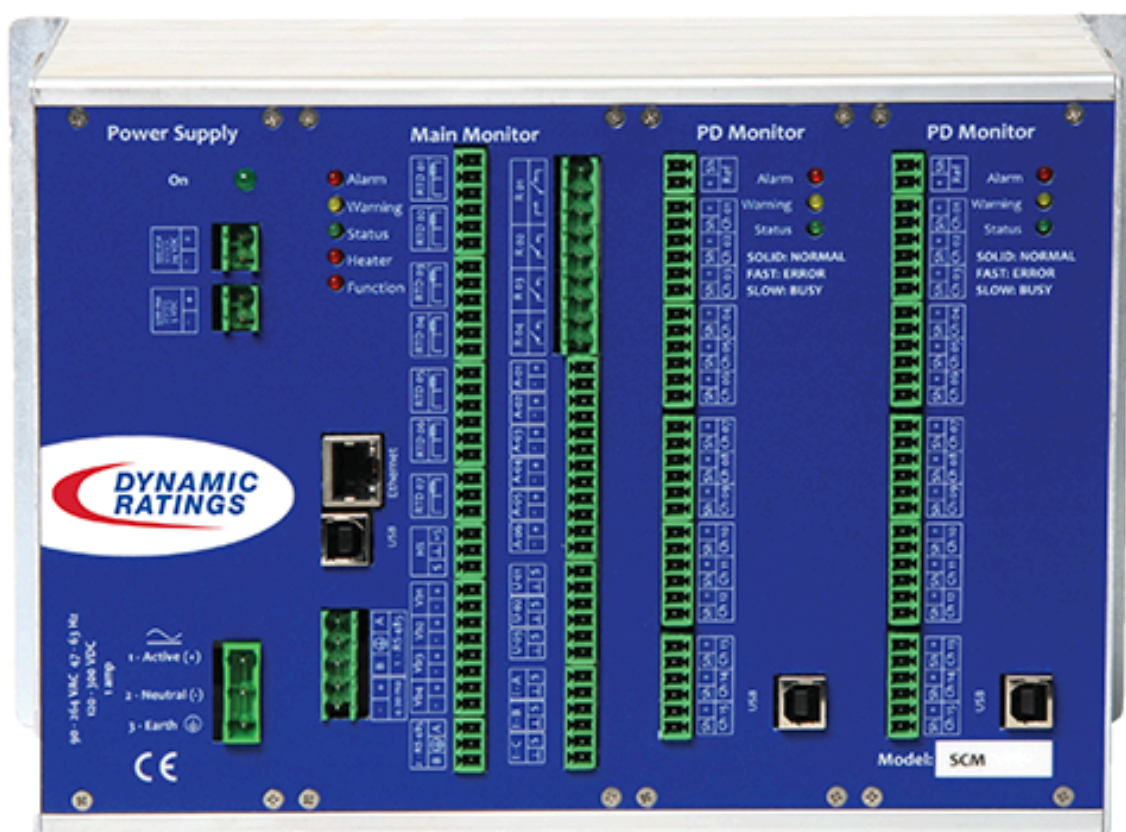


SCM-Series

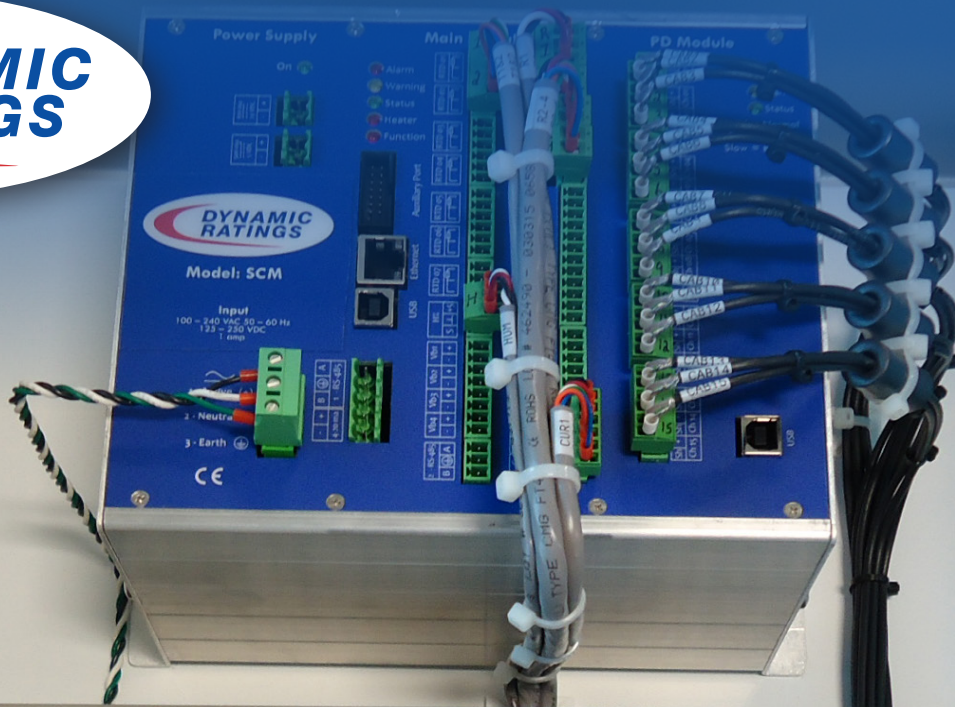
Dynamic Ratings

Distributed by AKRIBIS





**DYNAMIC
RATINGS**



Switchgear & Cable Monitor



Optimal Design



Prevents Unintended Outages



Effective Cable Monitoring

RESPONSIVE

ASSET HEALTH SOLUTIONS

Monitoring Made Easy

The Switchgear and Cable Monitor (SCM) is a continuous partial discharge (PD) monitor which monitors, stores and correlates operating dynamics. The SCM will provide information as to the health of the medium voltage insulation systems of switchgear, cables, bus duct and unit substations.



Each SCM can be assembled, configured, wired and tested in a variety of packaging options to provide a cost effective and efficient field installation.

Features & Benefits

- Remote viewing of data via standard communication protocols
- More sensitive and comprehensive than TEV, acoustic or other methods
- Commonly monitored operating parameters include ambient temperature and humidity.
- Communications ports include Ethernet, USB and RS-485 with a standard communication protocol using ModBus.
- Dry relay contacts are also available to indicate monitor health and alarm conditions.
- SCM's design supports harsh ambient conditions including a wide temperature range, without the need for additional heaters or coolers.
- The SCM provides a full range of advanced noise cancellation capabilities including the elimination of cross coupled signals.
- The included Microsoft Windows® based software application allows for SCM configuration, the uploading of stored data and analysis.
- By centrally locating the SCM, multiple switchgear sections can be monitored with one SCM.



SCM monitors Switchgear, Cables and Bus Duct



Optimal Design

The SCM is the electrical industry's partial discharge monitor of choice. It can be configured to have up to 60 PD inputs (four PD modules). Each module features fifteen independent (concurrently monitored), highly sensitive, user configurable input channels; delivering the industry's best signal-to-noise ratio and allowing connection to a wide variety of PD sensors.



Prevents Unintended Outages

Industry data shows that switchgear has one of the industry's highest failure rates, creating a need for inspection and continuous monitoring. Unlike insulation systems used in motors and generators, the insulation systems in switchgear are not resistant to insulation deterioration caused by partial discharges. When switchgear fails, the outage is usually for an extended period. On older equipment, spare parts are limited and many times custom manufacturing is required, which adds to the outage time. The SCM provides peace of mind and helps to extend the life of your switchgear.

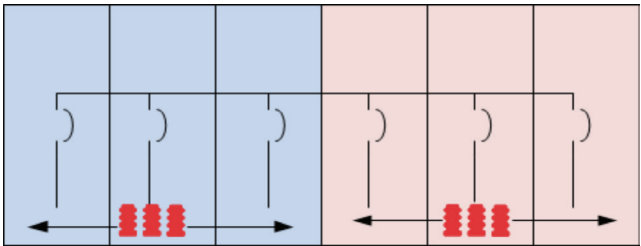


Effective Cable Monitoring

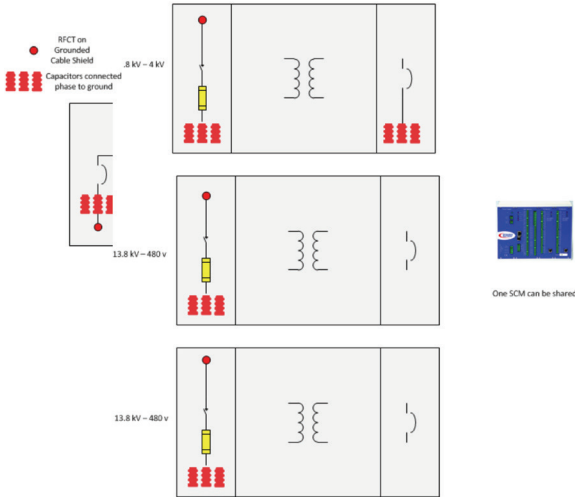
90% of cable failures occur at splices and terminations. As these accessories breakdown, they generally produce partial discharges prior to failure. To monitor cables, the SCM takes data from radio frequency current transformers (RFCTs) that are placed around the cable termination shields. If the shields are ungrounded then a GPCS sensor is used. The condition of the cable, type of insulation, type of shield construction will determine how far one can 'see' down the cable.

Sensors

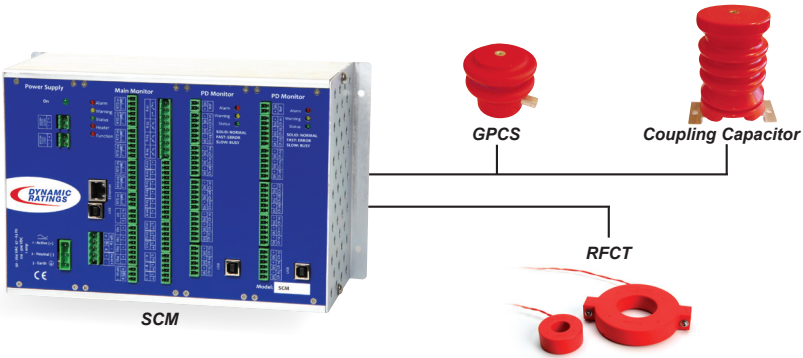
The most common sensor used to monitor partial discharges in switchgear are coupling capacitors (CC). The CCs are distributed throughout the switchgear structure, typically one set of CCs are installed per three sections.



SCM Diagram A



SCM Diagram B



Compatible with Partial Discharge Sensors

Preventing Outages

The SCM monitors switchgear at Industrial, Data Centers, and Power Plant Industries. When a switchgear fails, it usually is catastrophic. With older equipment, spare parts are limited and many times custom manufacturing is required, which adds to the outage time. Based on IEEE data, simple payback for a system is usually less than one year.

IEEE Standard 493-2007 All Industry Equipment Type	Failure Rate/Year	Average Hours/ Outage	Average Downtime Hours/Year
Switchgear - Bus Only 7 Sections	0.0119	261	21.7413
Large Power Transformers	0.013	1076	13.988
MV Synchronous Motors	0.0318	175	5.565
MV Induction Motors	0.0404	76	3.0704
Cables (Below Grade) - 3000 ft.	0.00613	53	0.97467
Cable Terminations (3)	0.000814	284	0.693528
Small Power Transformers	0.0025	217	0.5425
MV Circuit Breakers	0.0064	89.3	0.57152
Bus Duct - 30 ft.	0.0038	128	0.4864

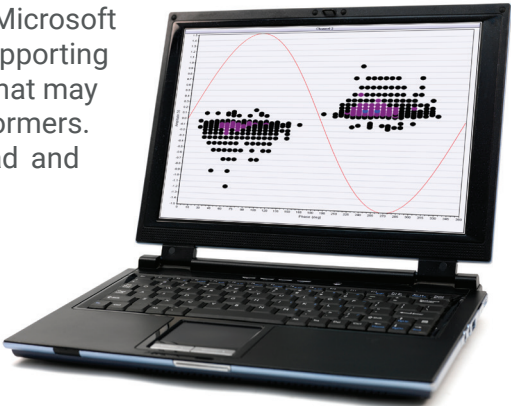
Software Package

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

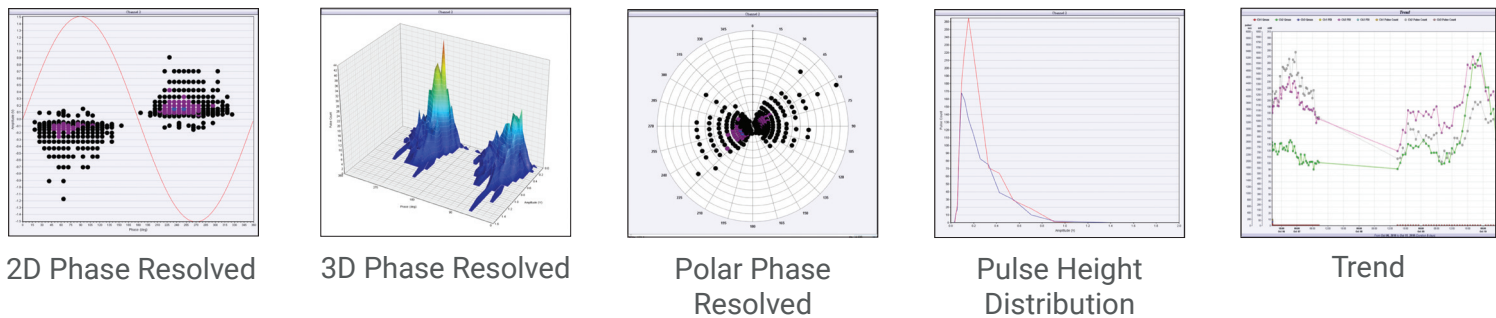
Graphic Results

Test results can be presented in all industry accepted formats:

- 2D Phase Resolved
 - 3D Phase Resolved
 - Polar Phase Resolved
- Pulse Height Distribution
 - Trend



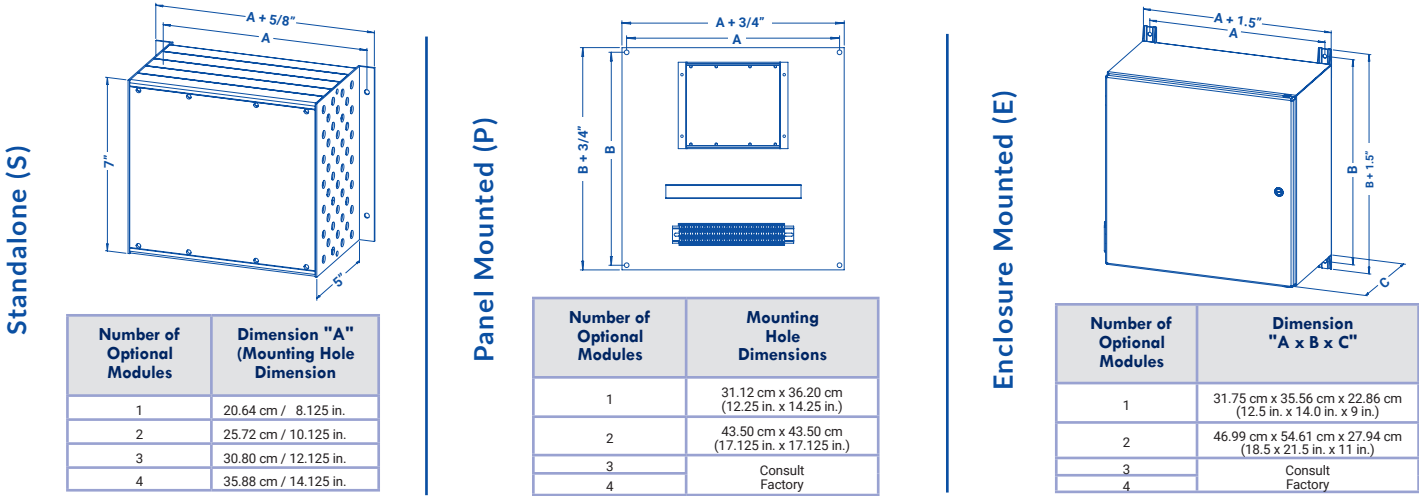
The software allows for the trending of all standard quantities of magnitudes, pulse counts, PD intensity as well as operating dynamics. Multiple channels can be presented on the same screen for easy comparison and analysis.



The SCM may also be combined with Dynamic Ratings Switchgear Monitor to provide high-speed waveform capture and advanced analytics to detect operating deficiencies of the switchgear.

Product Specifications

PD Channels:	15 channels per module, totalling 60 channels using 4 modules
Dynamic Range:	70 dB, 3 mV to 10 V, with no gain adjustment
Power Frequency Phase Resolution:	7.5°
Power Requirement:	90 - 264 VAC line voltage (47 to 63Hz), 120 to 300 VDC
Internal Memory:	8 MB
Magnitude Windows:	32
Measurement Frequency Bandwidth:	1 MHz to 20 MHz
Temperature Range:	-40°C to 70°C (-40°F to 158°F)
User Interface:	PC



An ISO 9001, ISO 14001, ISO 27001, ISO 45001 Certified Company.

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