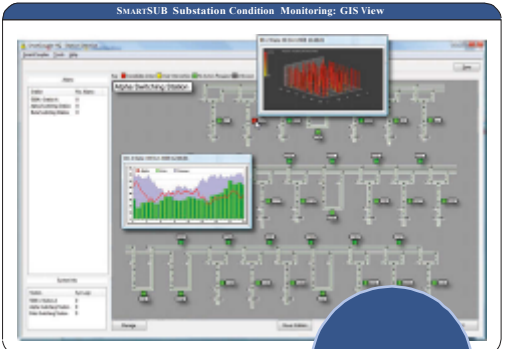
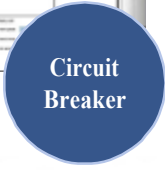
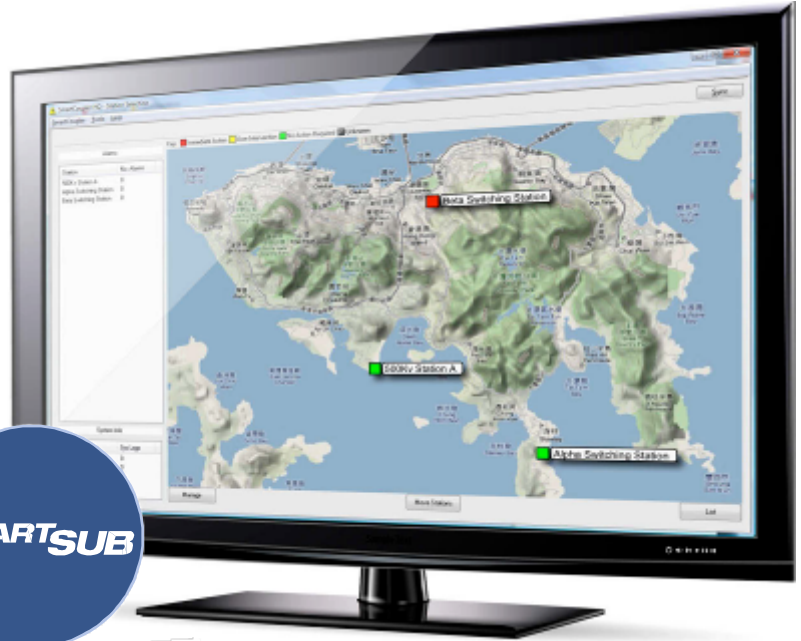
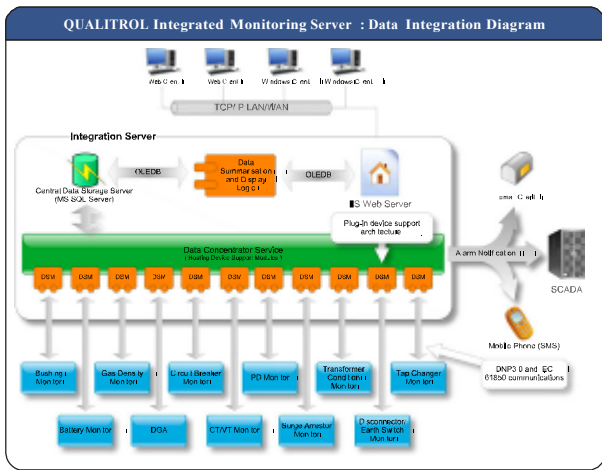


Solution Overview



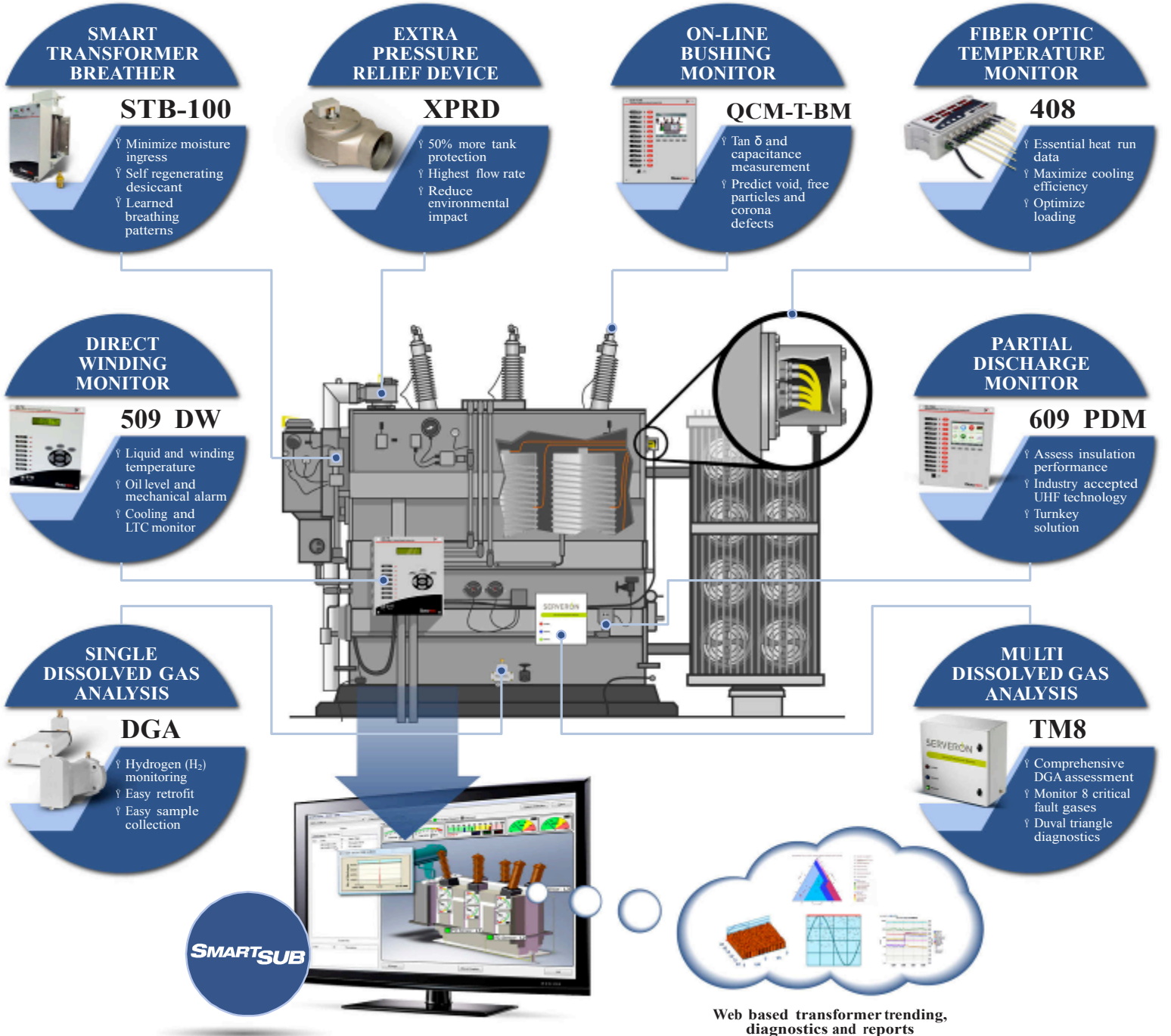
Asset Condition Monitoring
Extend operational life and reduce downtime

Total Enterprise Condition Monitoring Software



Continuous, real time condition monitoring of ALL substation assets

Total Transformer Condition Monitoring



Extend operational life and reduce downtime

Total Breaker Condition Monitoring



SF₆ GAS DENSITY MONITORS



AKM 38...

- ✓ Accurate SF₆ monitoring
- ✓ Customer options
- ✓ Electronic alarm and limit control

ONLINE SF₆ GAS DENSITY MONITOR



iSGM

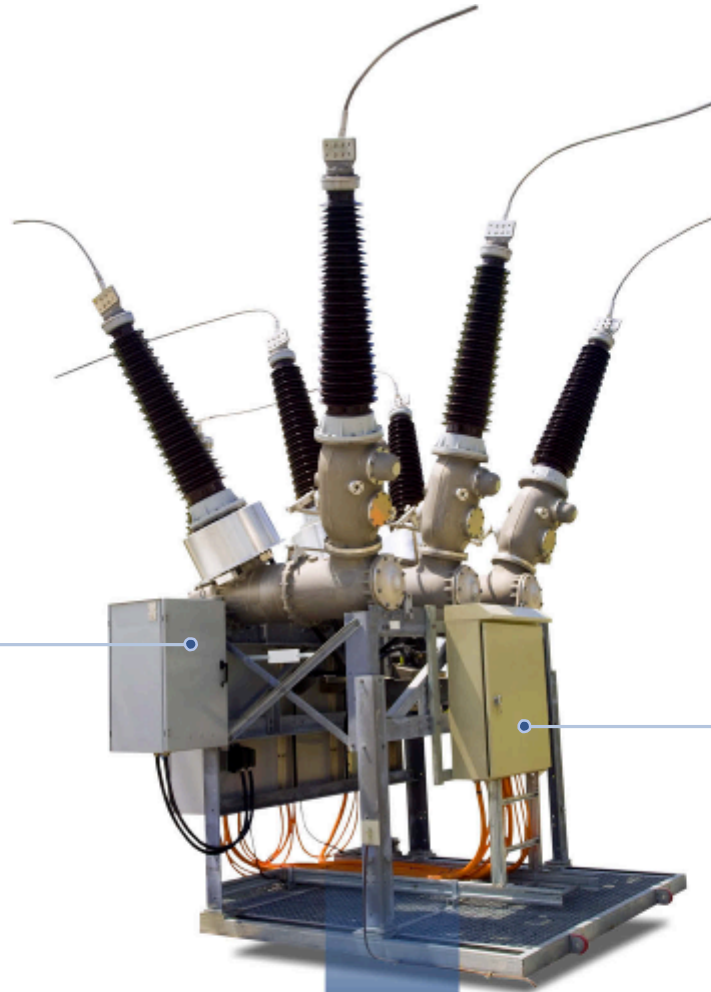
- ✓ Reduce SF₆ management costs
- ✓ Automate regulatory emissions reports

BREAKER CONDITION MONITOR



BCM

- ✓ Increase breaker availability
- ✓ Detailed failure diagnostics
- ✓ Fleetwide monitoring



SMARTSUB



Web based circuit breaker trending, diagnostics and reports

Comprehensive next generation breaker condition monitoring

Total GIS Condition Monitoring



SF₆ GAS DENSITY MONITORS

AKM 38...

- ✓ Accurate SF₆ monitoring
- ✓ Customer options
- ✓ Electronic alarm and limit control

PORTABLE PARTIAL DISCHARGE MONITOR

PPDM

- ✓ Rapid and easy deployment
- ✓ Intelligent customizable reporting
- ✓ Easy retrofit

PARTIAL DISCHARGE MONITOR

PDMG-RH

- ✓ Automatic PD fault classification
- ✓ High resolution
- ✓ Selectable UHF filters and gain

MINI PARTIAL DISCHARGE MONITOR

PDM Mini

- ✓ Cost effective solution for smaller GIS
- ✓ Full PD characterization

ONLINE SF₆ GAS DENSITY MONITOR

iSGM

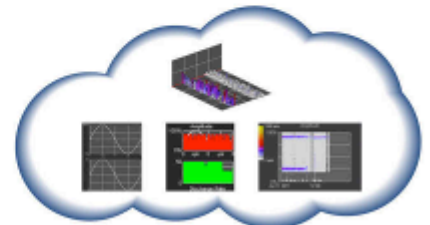
- ✓ Reduce SF₆ management costs
- ✓ Automate regulatory emissions reports



BREAKER CONDITION MONITOR

BCM

- ✓ Increase breaker availability
- ✓ Detailed failure diagnostics
- ✓ Fleetwide monitoring



Web based GIS trending, diagnostics and reports

Reduce GIS lifetime costs and avoid unplanned outages

Total Power Cable Condition Monitoring



HIGH FREQUENCY CURRENT TRANSFORMER SENSOR



HFCT Sensor

- ∇ No outage required
- ∇ Wide frequency response
- ∇ Acquires PD values in pC

POWER CABLE PARTIAL DISCHARGE SURVEY



QCM-C-PDS

- ∇ Eliminates risk of unplanned outages
- ∇ Minimizes maintenance expenditure
- ∇ Higher ROI

TRANSIENT EARTH VOLTAGE SENSOR



TEV Sensor

- ∇ Cable terminations condition monitoring
- ∇ Measures surface discharges accurately

PORTABLE PARTIAL DISCHARGE MONITOR FOR CABLES



QCM-C-PDP

- ∇ Accuracy of 0.2% to 1% of the total cable length
- ∇ Extends cable lifetimes
- ∇ Online testing

AIRBORNE ACOUSTIC EMISSION SENSOR



AAE Sensor

- ∇ Detects acoustic energy emitted into air by PD
- ∇ Detects internal discharges from sealing ends

CONTINUOUS PARTIAL DISCHARGE MONITOR FOR CABLES

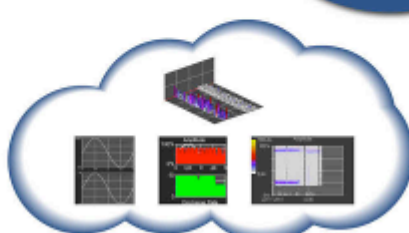


QCM-C-PDM

- ∇ Monitors multiple cables
- ∇ Multiple events analysis
- ∇ Advanced denoising



Expert Analysis



Web based power cable trending, diagnostics and reports

Ensure the reliable continued operation of power cables

Total Electrical Power System Condition Monitoring



PHASOR MEASUREMENT UNIT

Q-PMU

- For substation hardened PMUs
- Full compliance to IEEE C37.118
- Simple web configuration

CLASS A POWER QUALITY MONITOR

INFORMA

- IEC 61000-4-30 Class A (Edition 2.0)
- Digital fault recording
- Embedded EN 50160 report

MULTIFUNCTION POWER SYSTEM MONITOR

IDM⁺

- DFR, DDR, PMU, TWS FL and Class A PQ in one device
- Most accurate measurement chain

EXTREME DIGITAL FAULT RECORDER

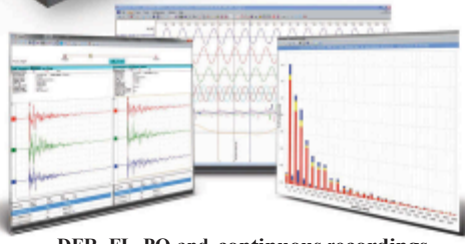
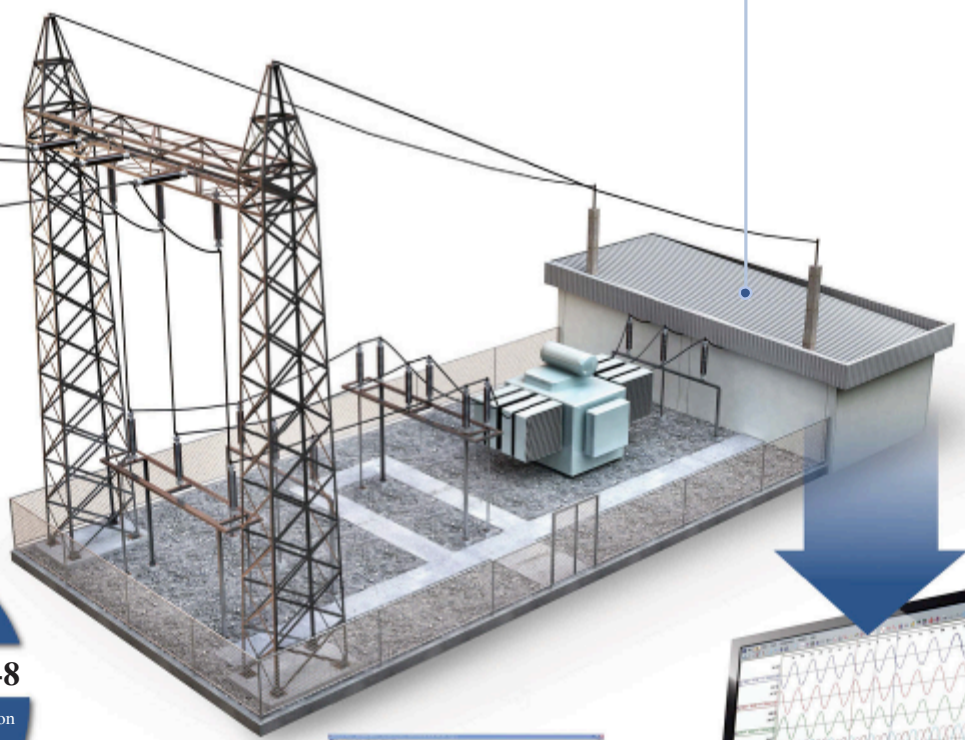
BEN 6000

- Continues to record no matter what!
- Monitor large networks from a single system
- IEC 61850

TRAVELING WAVE FAULT LOCATOR

TWS FL-8

- Exact fault location to one tower
- Minimize search time and reduce downtime
- Email alerts



iQ⁺

iQ⁺ class leading client-server multifunction master station software

Maximize the utilization of the power network at minimum cost

Total On-Line DGA Monitoring



8 GAS
DISSOLVED GAS
ANALYSIS

TM8

- ∇ The most comprehensive DGA analysis
- ∇ GSU's, large transmission and critical transformers



3 GAS
DISSOLVED GAS
ANALYSIS

TM3

- ∇ Identify the most critical transformer fault types
- ∇ Large transmission and critical transformers



SINGLE
DISSOLVED GAS
ANALYSIS

TM1

- ∇ Breakthrough price/performance
- ∇ On-line DGA across the distribution transformer fleet

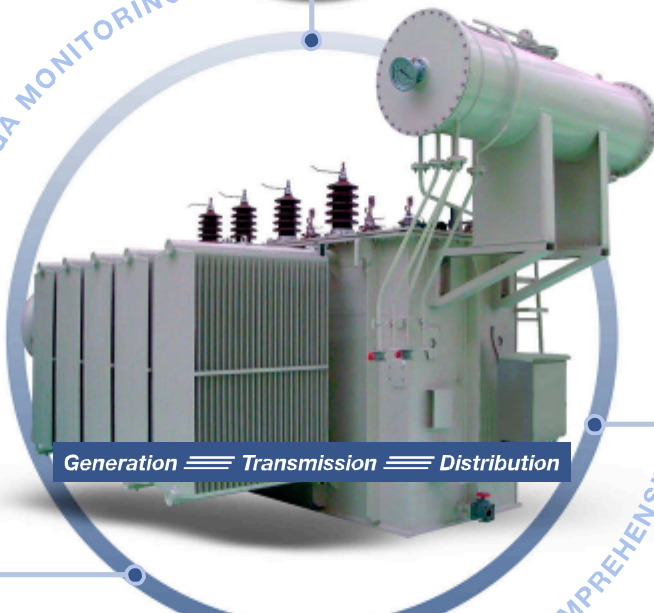


CONTINUOUS ON-LINE DGA MONITORING

DIAGNOSTICS

COMPREHENSIVE

Generation ≡ Transmission ≡ Distribution



SMARTSUB

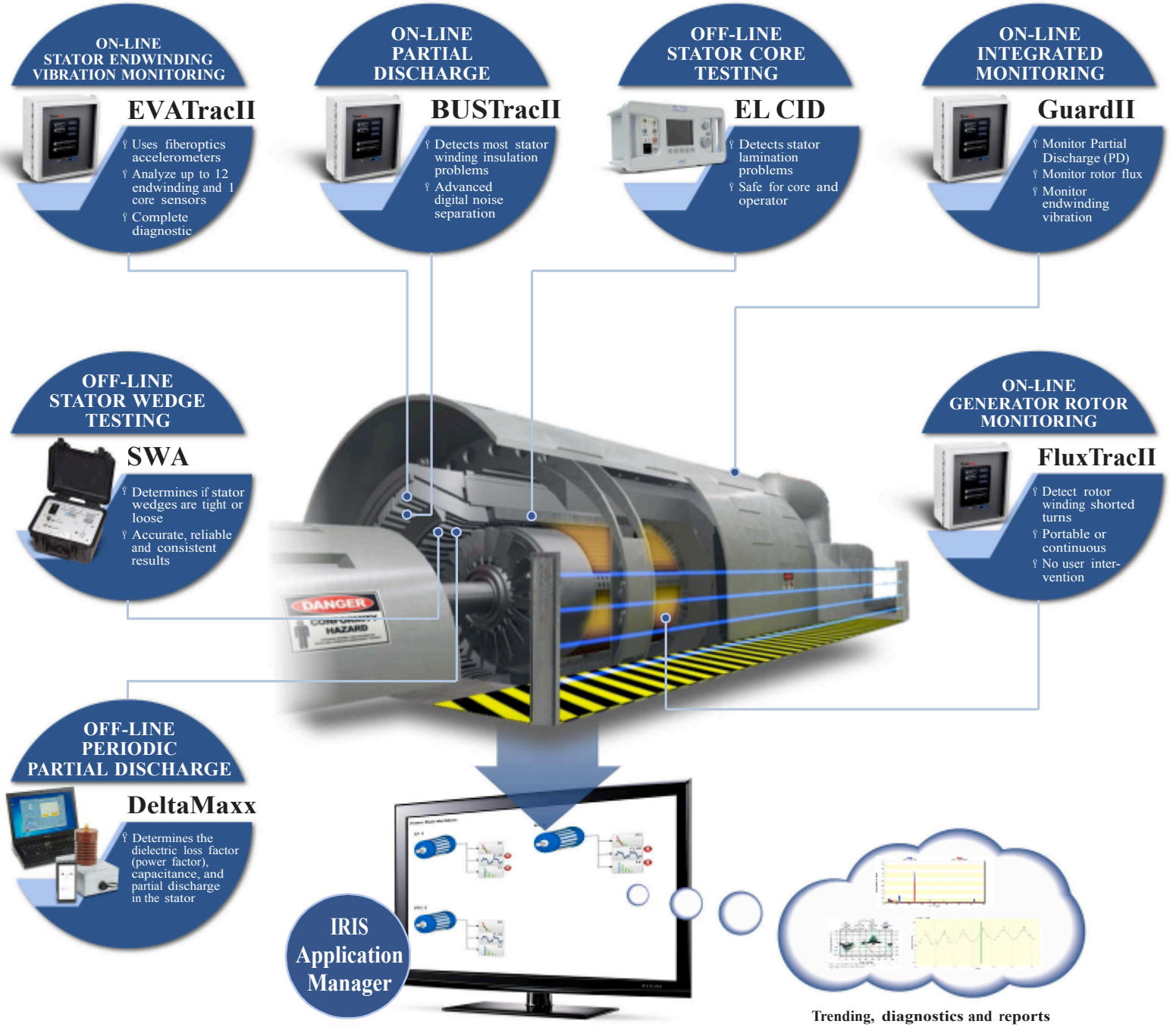
SERVERON[™]
A QUALITROL Company



Transformer DGA trending,
diagnostics and reports

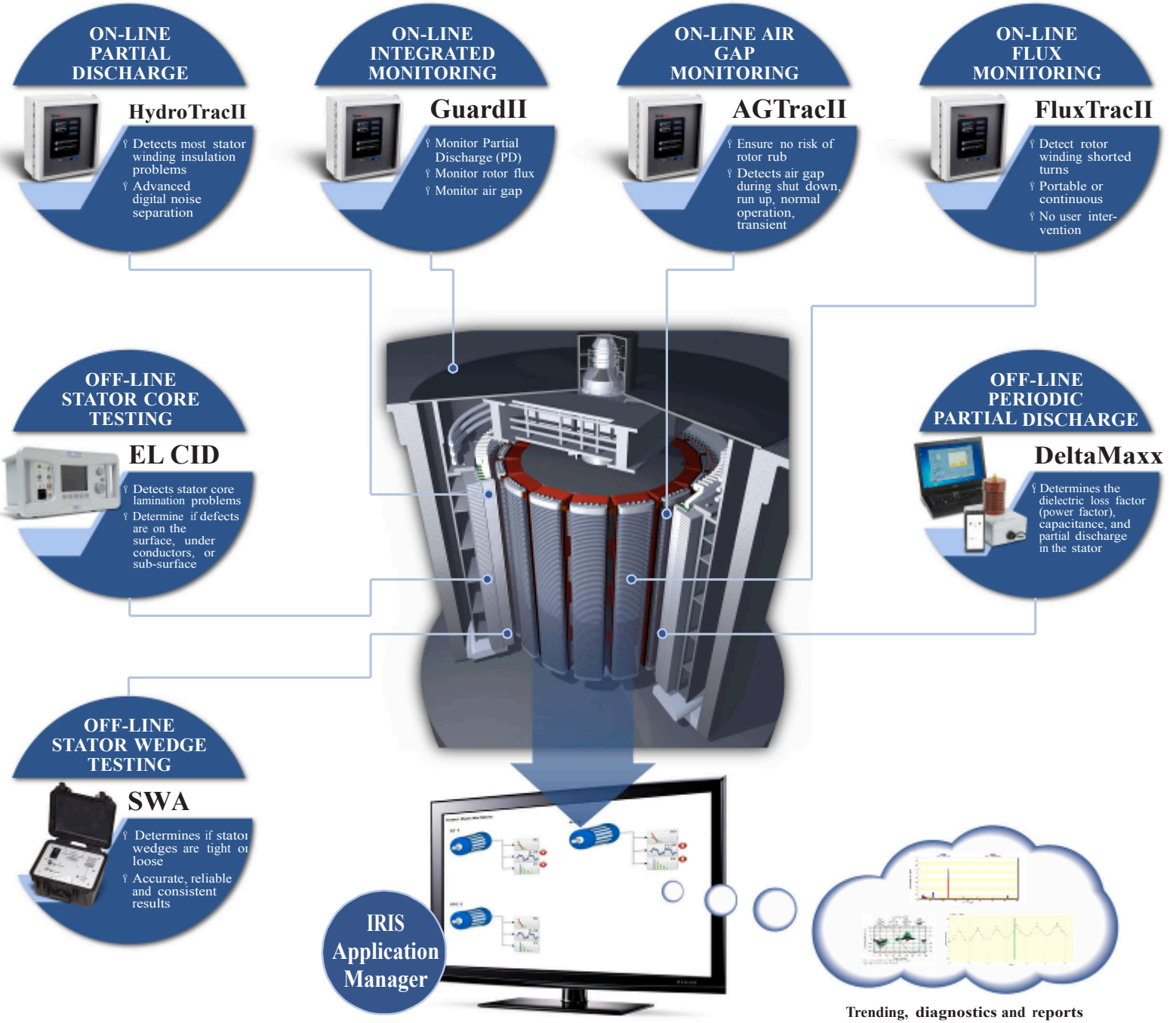
On-line DGA analysis across your transformer fleet

Total Turbine Generator Condition Monitoring



Manage your risk and ROI

Total Hydro-Generator Condition Monitoring



Prevent catastrophic failures

Total Motor Condition Monitoring



ON-LINE PARTIAL DISCHARGE

PDTracII

- ✓ Detects most stator winding insulation problems
- ✓ Installed on >15,000 machines

OFF-LINE STATOR WEDGE TESTING

SWA

- ✓ Determines if stator wedges are tight or loose
- ✓ Accurate, reliable and consistent results

OFF-LINE STATOR CORE TESTING

EL CID

- ✓ Detects stator lamination problems
- ✓ Safe for core and operator

ON-LINE STATOR ENDWINDING VIBRATION MONITORING

EVATracII

- ✓ Uses fiberoptics accelerometers
- ✓ Analyze up to 12 endwinding and 1 core sensors
- ✓ Complete diagnostic

OFF-LINE PERIODIC PARTIAL DISCHARGE

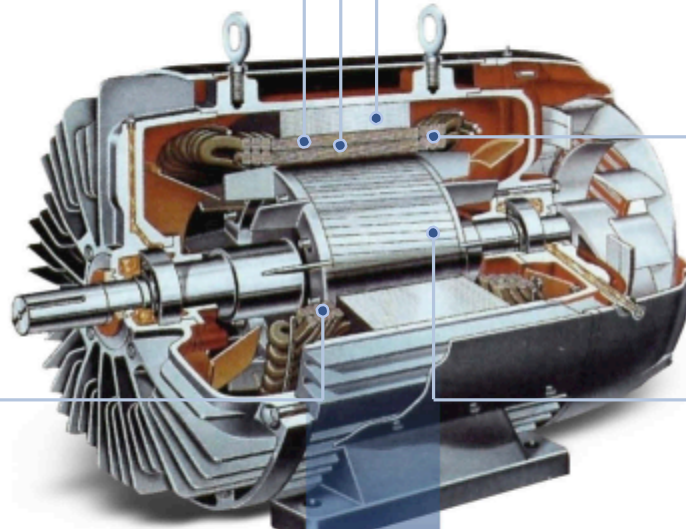
DeltaMaxx

- ✓ Determines the dielectric loss factor (power factor), capacitance, and partial discharge in the stator

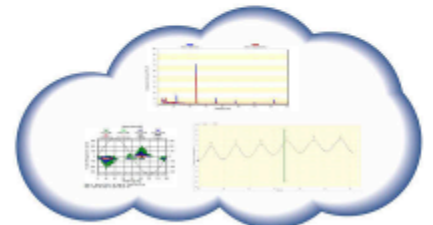
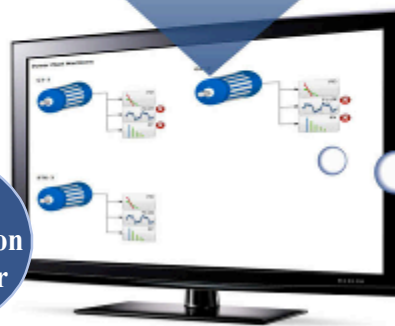
ON-LINE MOTOR ROTOR MONITORING

MDSP3

- ✓ Detects broken rotor bars in squirrel cage induction motor rotors
- ✓ Portable instrument



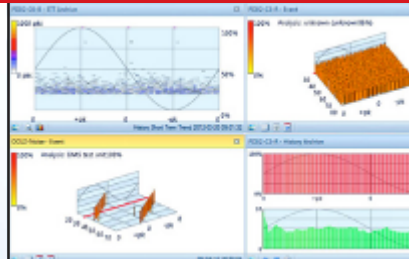
IRIS Application Manager



Trending, diagnostics and reports

Lower repair costs and extend asset life

Avoid these failures with Qualitrol Solutions



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depend on the durability and quality of QUALITROL.**

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