OptiFinder
Monitoring Platform

Continuous acoustic PD monitoring for power transformers

The OptiFinder Monitoring Platform is designed to continuously monitor the condition of power transformers. It detects, tracks and localizes partial discharges (PD), which are early indicators of insulation degradation and potential equipment failure.

THE PURPOSE OF THE OPTIFINDER MONITORING PLATFORM IS TO:

- Enable continuous, 24/7 monitoring of electrical assets with automated alerts.
- Reduce costs associated with maintenance, unplanned outages and asset replacement.
- Detect partial discharges before they evolve into major failures.
- Provide precise PD localization to support maintenance teams — up to 15 cm under validated conditions.

SENSOR | ORPD 040 V5

The ORPD 040 IP-68 rated sensor is designed to perform in harsh conditions. It offers superior protection against dust and moisture, ensuring reliable operation.
The sensor is passive, non-metallic and immune to electromagnetic interference, with no power requirement at the sensing location.



PERFORMANCE

Full frequency range	1 kHz to 475 kHz
Sensitivity	Down to 2 pC
Amplitude of the Pencil Lead Break Test (PLB) Ref nm/ (1pm)	92–96 dB

ENVIRONMENTAL

Operating temperature	–40 to 140 °C
Degree of protection	NEMA-6P*, IP-68*

* Performance verified through internal testing to NEMA 6P and IP68 standards; certification pending.

PHYSICAL

Dimensions	Sensor 33 x 33 x 24 mm; splice box 175 × 58 × 29 mm
Sensor core	High-performance thermoplastic
Housing material	High-performance thermoplastic (sensor); polycarbonate (splice box)
O-ring	EPDM 70 shore A
Standard sensing cable length	15 m standard, can be customized
Cable jacket	Sensor to splice box: High Strength EZH cable jacket, 3 mm
Cable bend radius	18 mm
Connectors	MTP
Pull force strength	Up to 20 kg
Mounting	Magnetic clamp or cable straps

24/7 monitoring, localization accuracy and sensor-coverage claims apply under validated deployment conditions. The OptiFinder Monitoring Platform provides acoustic PD detection and localization; it is not an IEC 60270 electrical partial-discharge measurement instrument.
The platform is currently marketed publicly under the name “OptiFender.”

INTERROGATOR

The OptiFender Interrogator is Optics11's next-generation, 16 and 32- channel fiber-optic interrogator designed to work seamlessly with the company's passive acoustic ORPD 040 v5 sensors. Engineered for harsh, high-voltage environments, it delivers continuous, real-time condition data with zero electromagnetic interference and no onsite calibration.

PERFORMANCE

Sampling resolution	1.05 µs
Signal resolution	16 bit
Multiplexing capability	16 or 32 sensors
Signal acquisition	True simultaneous

ENVIRONMENTAL

Operating temperature	–5 to 50 °C
Storage temperature	–5 to 50 °C
Maximum humidity	85 % (non-condensing)
Maximum altitude	2000 m

PHYSICAL

Dimensions (W × L × H)	480 × 361 × 265 mm (19-inch rack, 6U)
Max. weight	12 kg
Input voltage	220–240 VAC or 110–120 VAC
Input voltage frequency	50–60 Hz
Input power (32 ch)	50 W (max)
Main fuse	250 VAC, 5 A, 5 mm × 20 mm
Data port Ethernet	RJ-45
Trigger/Clock BNC inputs	LVTTL 2.5 V input (5 V tolerant), input impedance 100 kOhm; V(T–) = 0.45–1.0V high to low; V(T+) = 1.0–1.7 V low to high
Optical ports	MTP

LASER

Operating mode	Continuous wave (CW)
Laser classification	1M
Wavelength range	1527.6 nm – 1565.5 nm (tuneable)
Internal optical power range	6 dBm – 13.5 dBm
Optical power at output ports	–3 dBm (±1 dB)

ACCESSORIES

The OptiFinder Monitoring Platform is supplied with the deployment, service and transport accessories required for the monitoring installation.

Sensor deployment
Mounting and cabling for the planned sensor array: magnetic clamps (v1.1) and strap solutions, acoustic-coupling material, MPO/MTP trunk cables (100 m or more), fanout cables (1.5 m), extension cables (15 m), splice boxes and cable-management items.

Field service items
Optical-interface cleaning and maintenance supplies (cleaning pens, wipes, IPA).

Connectivity items
Power cords, power-distribution unit, Ethernet switch and Ethernet cables; the monitoring installation additionally includes a router and data plan for secure remote data transfer.

Travel equipment
Rugged Peli cases for secure transportation of the interrogator, sensors and accessories.

System supplied
Common equipment: OptiFinder Interrogator, Edge PC, OptiFinder Monitoring Platform software license (one year), optical and multifibre cabling, optical-interface cleaning equipment, acoustic-coupling equipment, cable-management equipment, rugged transport cases, power-distribution equipment, power cords, Ethernet switch and Ethernet cables, router and data plan. Configuration-dependent equipment: 16 or 32 ORPD 040 v5 sensors, sensor clamps and splice boxes.

EDGE PC

The Edge PC performs local data processing and secure data transfer from the interrogator to the OptiFinder Monitoring Platform.

SPECIFICATIONS

Processor	AMD EPYC™ 8004 series, up to 64 cores / 128 threads
Memory	6 DIMM slots, up to 768 GB 4800 MT/s ECC DDR5 RDIMM
LAN	1× dedicated BMC LAN port, 2× 10 GbE RJ-45 LAN ports
USB	4× USB ports
Power supply	2× 600 W redundant, typical 96 % efficiency
Form factor	1U rackmount, 436.88 × 44.5 × 429.3 mm
Operating temperature	0 to 40 °C
Operating humidity	8–90 % non-condensing