

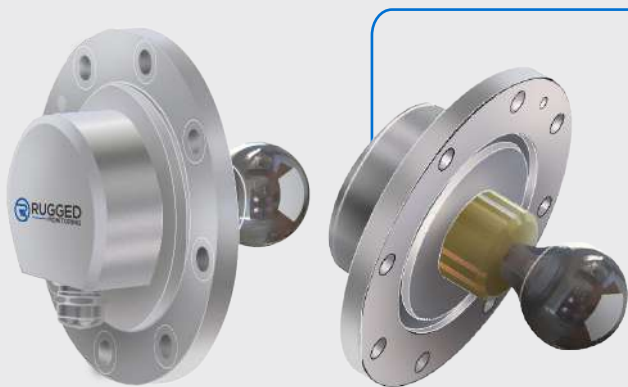
USENS-T

UHF PARTIAL DISCHARGE SENSOR



Rugged design, highly sensitive and accurate Partial Discharge sensor for detecting and monitoring partial discharge activity inside Oil Filled and Dry Type Transformers/ Reactors.

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USENS-T is an Ultra High Frequency (UHF) antenna that can measure Electromagnetic PD signals from the inside of transformer. The sensors are IP68 rated, easy to install on transformer tank and suitable for all types of Transformers. The sensors can easily be bolted on transformer tank (or inspection cover) directly touching the oil or with dielectric window in-between the sensor and oil. Higher sensitivity (up to -90dBm) over wide range of frequencies (200 - 3000 MHz) helps in reducing the cost of PD monitoring, hence higher ROI (Return on Investment).

Rugged Monitoring USENS-T is designed to fit on the transformer tank (or inspection cover) of different types of transformers at all voltage levels. The sensors can also be customized according to customer technical requirements. Sensor's built-in overvoltage protections and N-type connection allows them to relate to any UHF based PD monitoring system, regardless of manufacturers.

Features

- Highly Sensitive, Wide band, UHF PD Sensors for Transformers
- Rugged design, 100% Leak proof
- Easy to Install, Integrated Transient (Over-voltage) Protection
- High Dielectric, shielded to avoid electromagnetic interface
- Suitable for extreme environment, Outdoor Substation
- Customized according to Transformer tank size & inspection covers

Applications

- Power Transformer PD Testing and Monitoring
- Reactor PD Testing and Monitoring
- Distribution Transformer PD Testing and Monitoring
- Continuous Online Partial Discharge Monitoring
- Periodic Partial Discharge Testing and Measurements
- High Voltage Testing during Commissioning

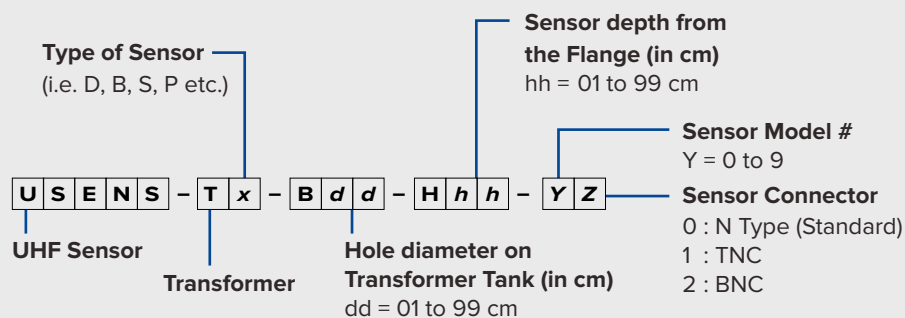
Benefits

- Higher sensitivity (-90dBm); detect even smallest PD activity
- Wider frequency response, compatible with all PDM systems
- High Dielectric Strength, Safest installation, and operation
- Shielded Sensor, Lower Signal-to-Noise Ratio
- Integrated overvoltage protection, for the safety of PDM electronics
- Rugged design, IP68 Protection, Longer life
- 100% leak proof sensor
- Customizable according to the customer requirements

Technical Specifications

UHF Frequency Response	200 - 3000 MHz
Sensitivity	up to -90 dBm
Average Effective Height over 500MHz – 1500MHz	25 mm+
Min. Effective Height over 500MHz – 1500MHz	6 mm+
Withstand Voltage	up to 1500 kV
Output	N-Type connector; Customized option available
Connector Circuit Impedance	50 Ω
Oil Pressure	up to 10bar
Vacuum Tightness	< 0.10 mbar, Leakage rate < 0.0001 mbar/sec
Vibration Testing	Suitable for HV - GIS and Transformer applications
Ingress Protection (IP)	IP-68
Ambient (Operating Temperature)	-60 °C to +150 °C
Storage Temperature	-60 °C to +150 °C
Operating Humidity	95% humidity at 50 °C
Dimensions	Customized as per Transformer Flange Design
Weight	app. 1.5 KG; Customized as per customer requirements / Transformer Design
Install Position	Transformer Tank, Inspection Cover, Transformer Dielectric Window
Signal Cable	Very low attenuation UHF (Coax) cable

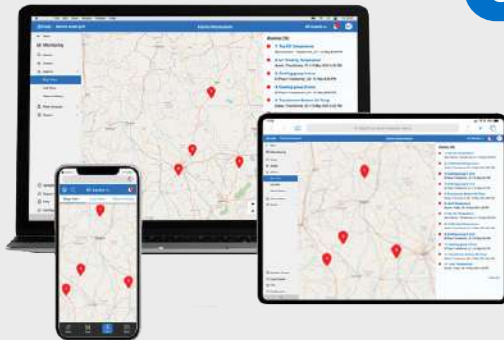
Ordering Code



Asset Monitoring : Enterprise Architecture

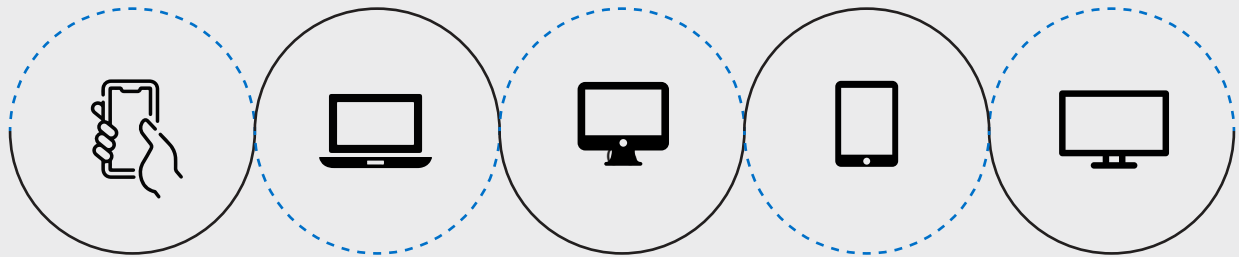
Compatible with Rugged Monitoring Enterprise Solution

UI UX



- Data Layer
- Analytics
- User Interface
- Custom Dashboards
- Reporting
- Email/SMS Notifications

RM EYE



Private Cloud (Customer Cloud),
Rugged Monitoring Cloud

IEC 60870-104

IEC 61850

FTP/SFTP

- XML, JSON

- CSV, COMTRADE



Data Collection

ODBC

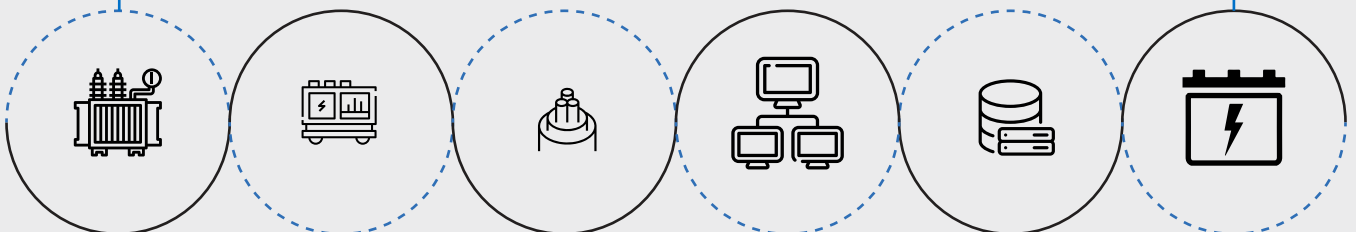
MODBUS

DNP 3.0

HTTPS

MQTT

Asset Data



Transformer
Monitoring
System

Switchgear
Monitoring
System

Power Cable
Monitoring
System

- Offline Test Results
- Inspection Records
- Name Plate

- Historian
- CMMS
- SCADA/ DCS

Power Electronics
(Battery, UPS,
VFD, Relay)

One Solution for Multi-Site Multi Asset Monitoring

Manage different industrial assets on one platform without human intervention

Features

- **Advanced and Exceptional Reporting**
Technology with automated alerts
- **Modern remote monitoring solutions** provide valuable insights to Multiple Assets at Multiple Sites on real-time
- **Robust asset health monitoring** with analysis and recommendations support asset effectiveness in addition to maximizing equipment uptime
- **Establish a real time and consistent monitoring** by getting the right information into right hands
- **An efficient, reliable partial discharge monitoring** for all the assets
- **A detailed comprehensive DGA Analysis**
- **Lifetime Consumption details.**
- **Built on well-established remote and cloud-based monitoring technology**
- **Simple user-friendly interface** providing fast access to all the features and commands
- **Quick and easy 1 step configuration setup**
- **Encompasses a secure access to data and configuration**
- **Advanced asset algorithms** based on standard ones with new ideas
- **Systematic fleet management and analysis**
- **Extended multilingual support** to handle product inquires or troubleshoot problems proactively
- **Up System Level Reporting**
- **Industrial IoT**

Features Specific to PD Monitoring

- Partial Discharge monitoring and Analysis
- PRPD : Phase resolve partial discharge
- Partial Discharge Amplitude and Discharge rate trend analysis
- Partial Discharge Fault localization
- Artificial Intelligence based PD fault Identification
- Realtime PD Alarm system
- Get Alarm notifications for individual bushing parameters over Email, sms and push notifications
- Analytics on Online, and offline partial discharge test data

Why Customers Choose Us?

RM solution, the trusted monitoring solution for over 10000+ assets across 50+ countries. We are a leading High Value Electrical Asset Monitoring Company integrating fibre optic technology to the assets.



Attention to Details

It's our attention to the small stuff, scheduling of timelines and keen project management that makes us stand out from the rest.



A plan for Success

Our Customers are well satisfied with the advisory services that we offer to help them with best in class technological performance and a long durable life.



Experts only

We bring in our diversified experienced team with over 100+ years of experience in Asset Monitoring



Meeting Deadlines

Work with us, and you'll work with seasoned professionals – vigilant of deadlines, and committed to exceeding client expectations.



Money Matters

We protect you against currency fluctuation with competitive and fair market prices



Rugged Monitoring Services

Rugged Monitoring provides customization of sensors, monitors & software. In addition we offer on-site commissioning services, maintenance contracts and technical support to all customers worldwide.

About Rugged Monitoring

Industry's leading team of asset condition monitoring experts with 100+ years of combined experience committed to delivering customizable solutions for challenging applications. We offer a range of reliable, high performance, customizable sensors and monitoring solutions that are immune to external influence.

Certification



ISO 9001



ISO 14001



ISO 45001/
OHSAS 18000



Lloyd's
Register



ATEX
Certification


Our Presence Across the Globe



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