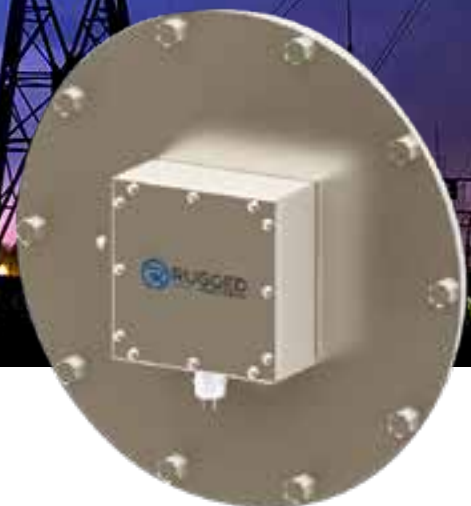




# USENS-G

## UHF PARTIAL DISCHARGE SENSOR



Highly sensitive and accurate Partial Discharge sensor for measuring ultrahigh frequency signals emitted by partial discharge activity inside Gas Insulated Switchgears (GIS).

# USENS-G UHF PARTIAL DISCHARGE SENSOR



- **Wide band, Highly Sensitive, UHF PD Sensors for GIS**
- **High Dielectric, Rugged, and Reliable design**
- **Built-in overvoltage (transient) protection**
- **Shielded to avoid electromagnetic interface**
- **100% Leak proof and pressure tested for 10 bar (Helium)**
- **Suitable for extreme environment, Outdoor Substation**
- **Customized according to GIS flange design & voltage level**

Monitoring partial discharge (PD) activity into the GIS (Gas Insulated Switchgear) is very important in determining the condition of the GIS and decide on condition-based maintenance. All major power utilities and industrial customers are demanding for built-in PD sensors in their new GIS installations. Rugged Monitoring has developed the most advanced UHF PD sensor for GIS, capable of detecting smallest PD signals.

USENS-G is an Ultra High Frequency (UHF) antenna that can detect smallest UHF frequencies emitted by the partial discharge (PD) activity. The sensors are suitable for all types of GIS, and easy installation on the GIS flange. The sensors can easily be bolted on GIS flange. The IP65 rated ingress protection allows sensor to be installed at Outdoor GIS installations. Their wide band (200 - 3000 MHz) frequency response and high sensitivity (up to -90dBm) enables lower cost of PD monitoring system and higher ROI (Return on Investment).

Rugged Monitoring USENS-G is designed to fit into most of the GIS at all voltage levels. The sensors can also be customized according to GIS design and customer technical requirements. The sensors come with built-in overvoltage protections and N-type connection. The sensors can relate to any UHF based PD monitoring system regardless of manufacturers.

**Highly sensitive and accurate Partial Discharge sensor for measuring ultrahigh frequency signals emitted by partial discharge activity inside Gas Insulated Switchgears (GIS).**

## Applications

- Continuous Online Partial Discharge Monitoring
- Periodic Partial Discharge Testing and Measurements
- High Voltage Testing during Commissioning
- GIS PD Testing and Monitoring
- MV Switchgear PD Testing and Monitoring
- Circuit Breaker PD Testing and Monitoring

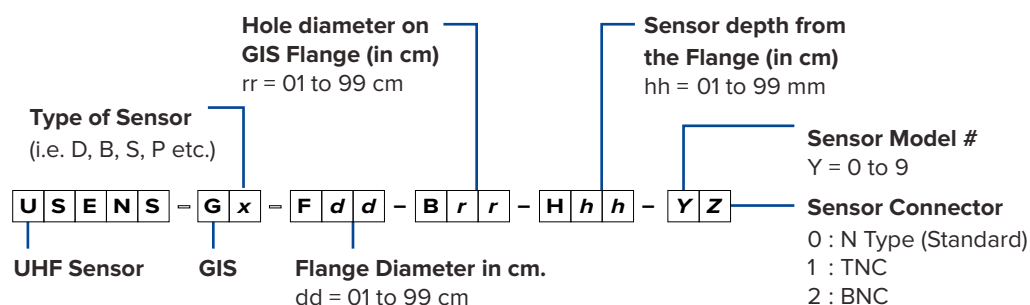
## Benefits

- Higher sensitivity (-90dBm) ensure higher ROI of monitoring
- Wide frequency response, compatible with all PDM systems
- Easy installable, and High Dielectric strength, Safest Sensors
- Shielded Sensor, Noise Immunity
- Built-in overvoltage protection keeps the PDM electronics safer
- IP65 protection and rugged design, suitable for outdoor installations
- Leak proof sensors enables safety and 0% SF6 leakage
- Customizable according to GIS design and customer requirements

## Technical Specifications

UHF Frequency Response	200 - 3000 MHz
Sensitivity	up to -90 dBm
Average Effective Height over 500MHz – 1500MhHz	25mm+
Min. Effective Height over 500Mhz – 1500Mhz	16mm+
Withstand Voltage	up to 1500 kV
Output	N-Type connector; Customized option available
Connector Circuit Impedance	50 Ω
Pressure Testing	up to 10bar (with Helium Gas)
Vibration Testing	Suitable for HV - GIS and Transformer applications
Ingress Protection (IP)	IP-65
Ambient (Operating Temperature)	-60 °C to +100 °C
Storage Temperature	-60 °C to +100 °C
Operating Humidity	95% humidity at 50 °C
Dimensions	Customized as per GIS design
Weight	app. 2.0 KG; Customized as per customer requirements
Install Position	GIS Enclosure
Signal Cable	Very low attenuation UHF (Coax) cable

## Ordering Code



# Asset Monitoring : Enterprise Architecture

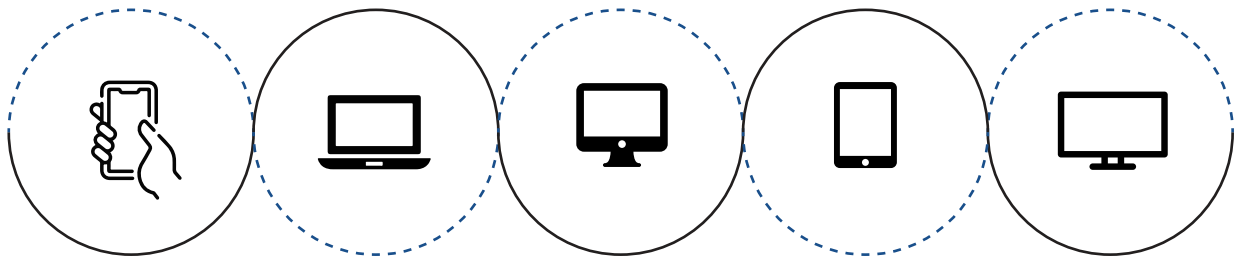
Compatible with Rugged Monitoring Enterprise Solution

## 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**

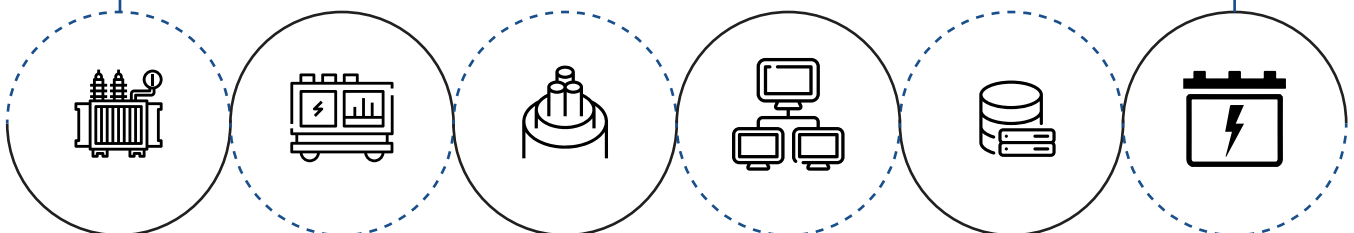
**MODBUS**

**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 Advanced Asset Performance Management System

**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 Detail

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.



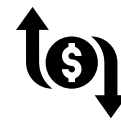
## Experts only

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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