



ASENS

**Highly Accurate Acoustic Sensor for
Partial Discharge Localization**

Designed for Diverse Utility and Industry Applications

ASENS

Modular design for partial discharge monitoring in electrical assets



Partial Discharge activity is an indicator of increasing defects in insulation. PD is a discharge or spark that partially bridges the gap between conducting electrodes. The discharge may be in oil filled equipment or in a gas filled environment.

RM's ASENS with acquisition system is specifically designed to detect partial discharge using portable measurement/ continuous monitoring methods and is also capable to locate PD position by studying the PD amplitude and phase delay of the acoustic waves propagating through the discharge activity. The location of the PD can be estimated by measuring the time of arrival of the acoustic wave, and PD localization is

ascertained by using sensors at multiple locations of assets. This makes acoustic emission sensing a preferable measuring tool in real time PD signal detection.

RM's advanced acoustic measurement has an additional advantage of possessing better- signal to noise ratio for real-time applications. To avoid the damage to high voltage equipment, detecting and locating PD is crucial both in industries and utilities. Acoustic waves are measured by ASENS, and the AE System will identify the real PD and their location based on ML/Time Difference of Arrival (TDOA) algorithm with the highest percentage of location accuracy to fault location.

The highly sensitive ASENS can be used for measurement of PD on Transformer Tanks, GIS, Reactors, Large Pressure Vessels, and for Leak Detection. Depending on the application and environment the sensors are available with three different resonant frequencies of 50 KHz, 80 KHz and 150 KHz.

Benefits

- PD localization with multiple sensors
- High noise immunity for online partial discharge detection
- Integrated amplifier for better SNR
- Significant time saving through fast localization of the fault
- Quick and easy application
- Good return on investment

Features

- Built in pre-amplifier
- Narrow band resonant sensor with highest signal to noise ratio
- Simple and rugged sensor
- Easy to use, light weight
- Plug and play connections
- Highly sensitive

Applications



Oil Filled Reactors



Oil Filled Transformers

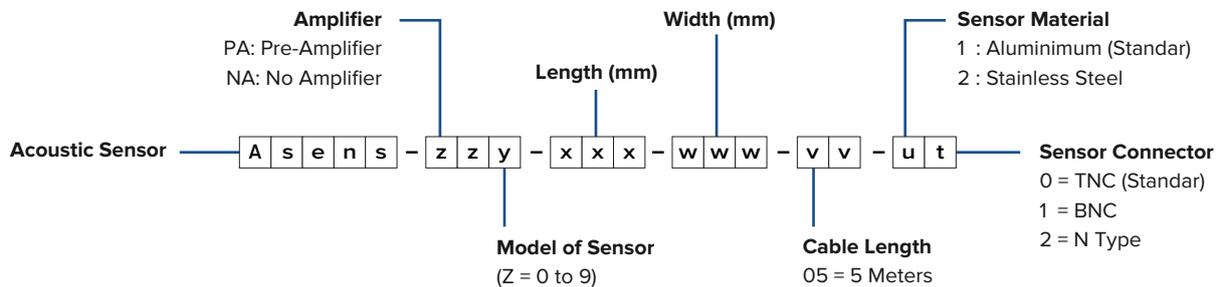


Gas Insulated Switchgears and Gas Insulated Lines

Technical Specifications

Specifications	Gas Insulated Switchgear (GIS)	Oil Filled Transformer/ Reactors	Oil Filled Transformers
Resonant Frequency	50 KHz	80 KHz	150 KHz
Frequency Range	15 KHz - 70 KHz	20 KHz - 180 KHz	60 KHz - 400 KHz
Sensitivity Peak	>115 dB	>70 dB	>115 dB
Built in Preamplifier	40 dB 28 V	-	40 dB 28 V
Size mm	Φ30 x 57	Φ19 x 19.5	Φ30 x 36.5
Applicable Temperature °C	-20 to 50°C	-20 to 80°C	-20 to 50°C
Housing Material	SUS-504	SUS-304	SUS-304
Receiving Surface Material	Ceramic	Ceramic	Ceramic
Protection Grade	IP62	IP62	IP62
Connector Type	BNC	M5	BNC
Connector Position	Side Face	Side Face	Side Face
Product Features	Built in Pre-Amplifier	Low Frequency	Built in Pre-Amplifier

Ordering Code



Asset Monitoring : Enterprise Architecture

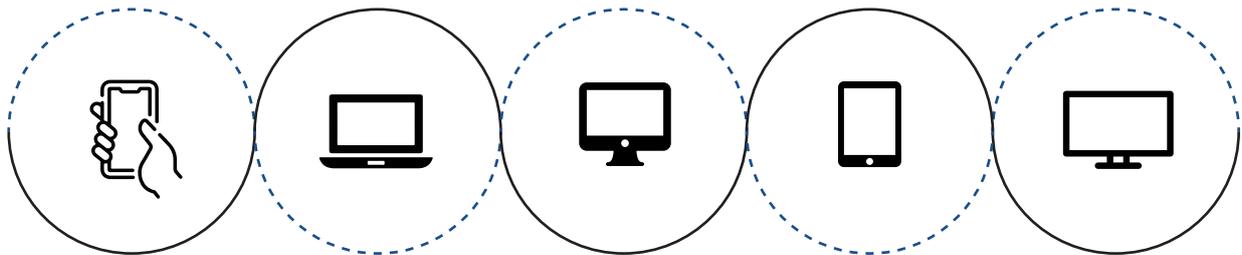
Compatible with Rugged Monitoring Enterprise Solution

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

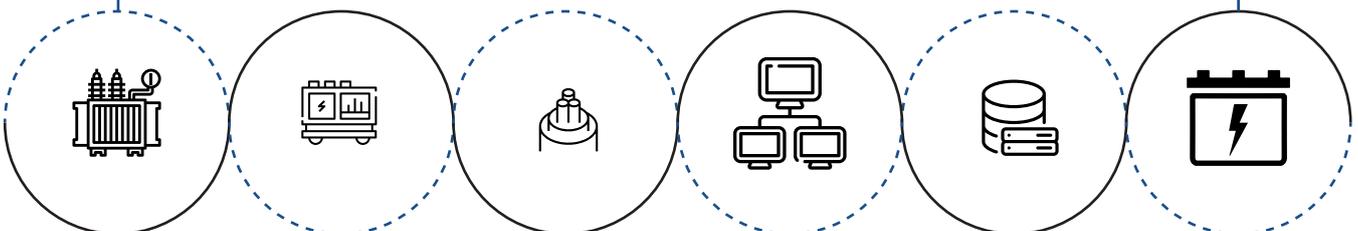
MODBUS

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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