XYMA ANALYTICS
Sensor Driven Decisions

*An **IIT Madras** Incubated Company*

PREVENT UNPLANNED DOWNTIME

The Disruptive Ultrasonic Waveguide Technology

Powered by AI & IIoT

For more information, visit
www.xyma.in

DRDO | SRF | Indian Institute of Technology Madras | SAINT-GOBAIN | GMR

V3

About us

Born out of the innovative spirit of IIT-Madras, we are a deep-tech innovation company dedicated to revolutionizing industries with our cutting-edge ultrasonic waveguide sensors. Our advanced technology integrated with AI delivers robust and reliable measurements, perfectly tailored to meet the dynamic demands of Industry 4.0.

50+ Years of Industrial Experience

20+ Engineers from Premier Institutes like IITs and NITs

15+ Intellectual Properties

"Process Efficiency is Our Priority"

- Increase in efficiency, production and asset life
- Reduced power consumption
- Designed for hostile and hazardous environment

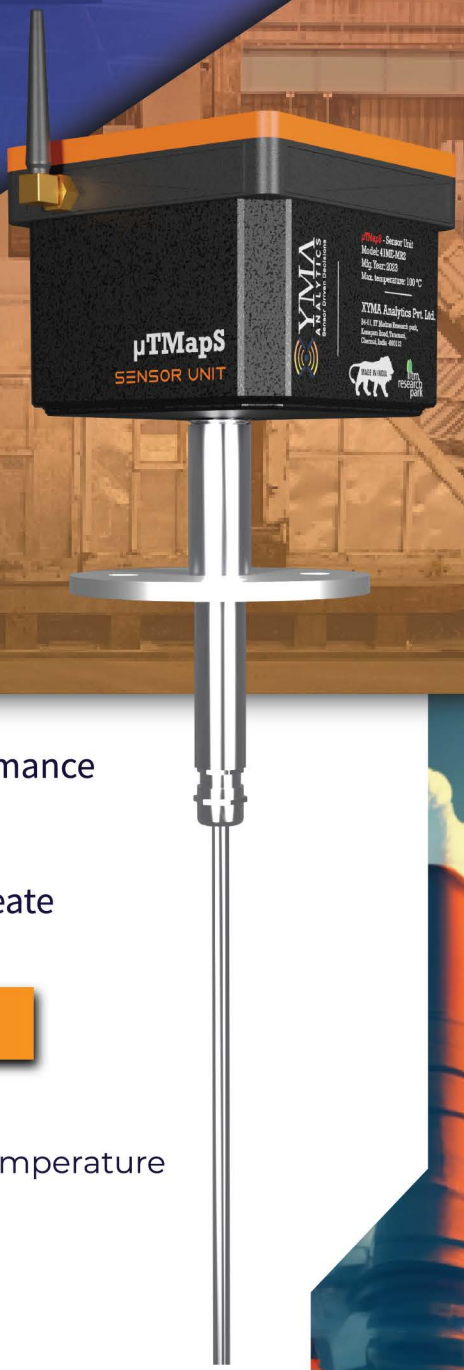
Improving Productivity Across Various Industries

- Metals
- Oil & Gas
- Semiconductor
- Ceramics
- Marine
- Paints
- Polymers
- Chemicals
- Mining
- Glass

µTMapS® & µSTMapS

Multi Point Temperature Mapping Sensor

XYMA's Proprietary Patented Technology



µTMapS and µSTMapS are robust, intelligent, high-performance ultrasonic waveguide sensors engineered for multi-point temperature monitoring using a single sensing element. Integrated with AI-driven soft sensing technology, they create real-time 3D temperature profiles of industrial assets.

Specifications

- **Functions:** Measures Unit Temperature & Skin Temperature
- **Measuring Range:** 20°C - 1450°C
- **Resolution:** 0.5°C
- **Accuracy:** ±1.5°C or ±0.5%
- **Communication:** Compatible with Industrial Standards

NABL Standard Calibration

µTMapS & µSTMapS: Applications

Aluminium
Pot Health Monitoring

Oil & Gas
Furnace Tube Skin Temperature Monitoring

Semiconductor
Continuous Temperature Monitoring of Pedestal

PoRTS®

Portable Rheology and Temperature Sensor

Invasive and Non-Invasive

XYMA's Proprietary Patented Technology

PORTS is an automated ultrasonic sensor system that provides simultaneous, continuous, and precise measurement of viscosity, density, and temperature in fluids—offering reliable, real-time insights for efficient industrial operations.

Specifications

Functions: Measures Viscosity, Density and Temperature simultaneously

Measuring Range:

Viscosity	: 50 cP - 15000 cP
Density	: 700 kg/m3 to 1500 kg/m3
Temperature	: Upto 600°C

Resolution:

Viscosity	: 1 cP
Density	: 0.1 kg/m³
Temperature	: 0.5°C

Accuracy:

Viscosity	: ±3% to 5% of full scale
Density	: ±0.3% to 0.6% of full scale
Temperature	: ± 1°C

Power Supply: Compatible with Industrial Standards

PoRTS: Applications

Marine
Lubrication Oil Condition Monitoring

Paint
Paint Mixture Homogeneity Monitoring

Oil & Gas
Continuous Viscosity and Density Measurement

www.xyma.in

Ztar®
Ultrasonic Level Measurement Sensor

Contact and non-contact based

XYMA's Proprietary Patented Technology

Ztar is our waveguide-based ultrasonic level sensor that provides accurate measurements even at higher temperatures. It is compatible with corrosive and hazardous fluids due to wide range of waveguide sensing element materials.

Specifications

- **Functions:** Measures Fluid Level at High Temperature (~180°C)
- **Measuring Level:** 3 mm to 3000 mm
- **Resolution:** >0.5 mm
- **Accuracy:** ±1%
- **Power Supply:** Compatible with Industrial Standards

Ztar: Applications

- Continuous Level Measurement in Reactor Bath and Canister
- Continuous Refrigerant Cylinder Location and Level Monitoring

I-PAMS

IoT for Plant Asset Monitoring System

I-PAMS is our Industrial-IoT based asset monitoring system for industries. It provides real- time data visualization and detailed analysis delivering complete process control to the operator.

Specifications

Functions: Real time monitoring of assets

Security Protocol: HTTPS(TCL/SSL), IPsec, SSH, WPA/WPA2/WPA3, Bcrypt, Keberos

Data Connectivity Protocol: Zigbee, WiFi(2.49Hz, 5.49Hz), Bluetooth-LE, LORA, RS-232, TCP/IP, Modbus, RS-485, Cellular

I-PAMS: Applications

- Real-time Thermal Mapping
- Predictive Maintenance
- Data Visualisation

CEROSENS®

Continuous Erosion Monitoring Sensor

XYMA's Proprietary Patented Technology

CEROSENS is a custom-engineered system for continuous erosion monitoring. It uses non-intrusive ultrasonic techniques to measure wall loss and compute erosion rates without interrupting the process. This solution deliver repeatable, micron resolution and trend-based erosion-rate outputs. This monitoring solution that minimizes downtime, simplifies installation and supports predictive-maintenance workflows.

Specifications

- **Functions:** Continuous Wall Loss Monitoring of Metals, Ceramics, and Refractories
- **Temperature Range:** -40°C to +500°C [-40°F to +932°F]
- **Measuring Range: Metallic:** 1 mm - 100 mm
  Ceramic: 3 mm - 300 mm
  Electrofused Refractories: 25 mm - 150 mm
- **Metal Loss Identification:** >25 µm (0.00098 in)
- **Minimum Wall Thickness:** 1 mm (0.039 in)
- **Power Supply:** Battery / Compatible with Industrial Standards
- **Certification:** Hazardous Environments Intrinsically Safe(IS)

CEROSENS: Applications

Upto Class 1 Zone 0 Certified

Oil & Gas
Pipe thickness measurement

Glass Industry
Refractory thickness measurement

Mineral Processing
Ceramic / refractory Liner thickness measurement

www.xyma.in

Data Logger

Multi-Channel Data Acquisition Device

Highly Customisable

Data Logger is an IoT-enabled device designed to collect and transmit multiple thermocouple data simultaneously. It seamlessly integrates with cloud-based platforms, offering real-time data visualization for enhanced monitoring and analysis. Engineered to operate reliably even under strong magnetic field conditions, it ensures precise data collection and streamlined analysis to drive operational efficiency and innovation.

Specifications

- **Functions:** Multi channel temperature measurement
- **Communication:** IIoT enabled cellular based
- **Battery Life:** upto 120 Hrs
- **Accuracy:** ±0.25°C
- **Power Supply:** Battery-operated device

Data Logger: Applications

Aluminium Industry

Pot Shell Temperature Monitoring

µTMapS- Continuous Temperature Monitoring for Industrial Excellence

Oil & Gas Industry

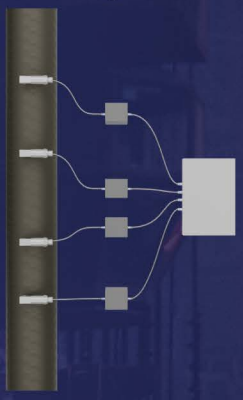
Refinery operations in critical units such as reformer tubes, VDU, and NHT operate under extreme temperatures (900°C–1000°C) and pressures, where real-time temperature monitoring is essential to prevent thermal stress, material degradation, and tube failures. XYMA's advanced clamping mechanism, made from the same metallurgy as the parent tube, ensures reliable, long-term performance and stability even under these severe operating conditions.

±20°C above the design temperature, the lifetime of the tube may become half

Impact of Overheating

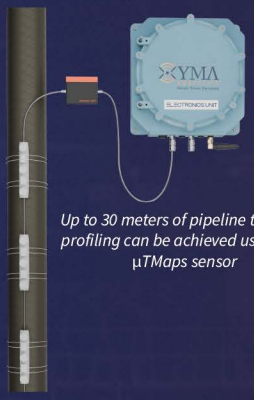
880°C	5 Years
900°C	2.5 Years

Existing Sensor



Multiple conventional sensors for multi-point temperature measurement

XYMA Waveguide Sensor



Up to 30 meters of pipeline thermal profiling can be achieved using the µTMaps sensor

Single waveguide sensor for multi-point temperature measurement

µTMapS provide multi-point continuous skin temperature monitoring of reformer tubes, VDU, and NHT in the challenging refinery environments.

µTMapS empowers refineries to operate more efficiently, safely, and sustainably, transforming their approach to temperature monitoring.

Aluminium Industry

Aluminum smelting involves extreme temperatures (up to 1100°C) and harsh conditions that degrade traditional thermocouples, causing inaccurate data, frequent replacements, and operational inefficiencies.

Continuous Molten Cryolite Bath Temperature Measurement

Continuous Collector bar Temperature measurement

Eliminates frequent thermocouple replacements, enhancing sustainability

µTMapS provides real-time, accurate temperature monitoring for critical components, such as collector bars, side shells, and cryolite baths.

µTMapS is a smarter, more sustainable solution for addressing challenges in aluminum smelting.

Impact of Temperature Deviation

Increased Environment Hazard
CF4 - 6,500 times high GWP
C2F6 - 9,200 times high GWP
**Compared to CO2*

Electricity wasted for 10 dysfunctional pots

PoRTS – Revolutionizing Oil Condition Monitoring

Lubrication Industry

Oil condition monitoring is vital in the lubrication industry to maintain operational efficiency and extend equipment lifespan. Monitoring oil properties like Viscosity, Density, and Temperature enables early detection of potential issues, allowing for timely maintenance.

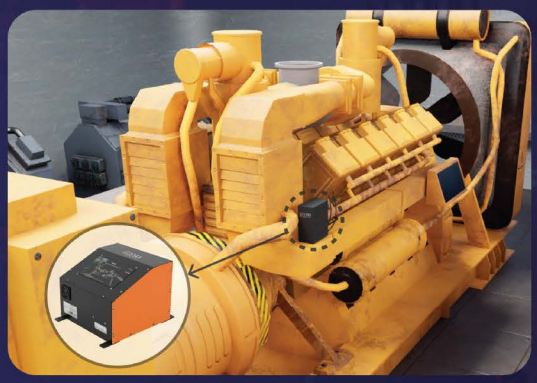
27% Engines

36% Gearboxes

30% Hydraulic Systems

Key machinery affected by lubricant failure

Imminent Lubricants failures can consume up to 30% of the maintenance budget



Continous real-time multi-parameter monitoring with PoRTS

PoRTS system enables continuous and simultaneous measurement of Viscosity, Density, and Temperature, catering to industries such as Oil & Gas, Polymers, Paint, and Marine.

- Reduces maintenance cost
- Extends asset lifespan
- Reduces downtime

PoRTS empowers industries to ensure operational efficiency, reduce asset failures, and optimize lubrication performance with unmatched precision and real-time insights.

CEROSENS – Continuous Erosion Monitoring Sensor

Mining, Oil & Gas, and Chemical Processing

In Oil & Gas and mining operations, raw material processing and transportation occur under harsh and extreme conditions. Pipelines are lined with ceramic materials of varying thickness to extend their lifespan, but these liners inevitably suffer from erosion and wear over time.

Efficiency: Prevent unplanned shutdowns

Maintenance: Reduce downtime with early wear detection

IoT Integration: Seamlessly connects with Industry 4.0 systems

Cost Savings: Lower maintenance costs and prevent failures

CEROSENS for Continuous Erosion Monitoring in Pipe lines

Certification: IP66: IEC 60529 - 2 RoHS: EU 2015/863 - RoHS 3

Sinusoidal Vibration Test IEC 60068-2-6:2007

CEROSENS offers real-time thickness monitoring of ceramic liners, specifically designed for mineral processing and material handling industries. CEROSENS revolutionizes liner monitoring, empowering industries to optimize operations, improve reliability, and embrace advanced technologies.

Awards & Achievements

राष्ट्रीय पुरस्कार
Rashtriya Puraskar
Winner

vedanta
transforming elements
VEDANTA LIMITED
Vedanta Spark 2023 recognition as a Promising Start-Up for Operational Excellence

nasscom Emerge 50 Awards 2023
NASSCOM Deep Tech Emerge 50 Awards 2023 in the Sustainability category

NASSCOM
Center of Excellence-IoT & AI
A MeitY Initiative with Govt. of Karnataka, Haryana, Gujarat & AP
Runner up
on SMCC Challenge - 2021


AEGIS GRAHAM BELL AWARDS
Winner
Low cost innovation category

Qualcomm
Finalist of Qualcomm Design in India Challenge - 2021

StartupTN
Winner
of TANSEED 2.0

Certifications

Quality Control Certification

UASL
QUALITY MANAGEMENT
007

CE

Technology / Accelerator Support

FORGE
Innovation & Ventures

IIM KOZHIKODE
LIVE
LABORATORY FOR INNOVATION VENTURING AND ENTREPRENEURSHIP

IITM
INCUBATION CELL

Shell E4
Energizing and Enabling Energy Entrepreneurs

NASSCOM
Center of Excellence-IoT & AI
A MeitY Initiative with Govt. of Karnataka, Haryana, Gujarat & AP

Qualcomm

Testimonials

SKF Group Company

"XYMA's groundbreaking technology promises to revolutionize multipoint and multi-parameter measurements, offering precision, versatility, and sustainability in one remarkable package. Excited for a long-term partnership with this innovative team!"

-CEO at Vesta Si Sweden AB, an SKF Group Company

Schneider Electric

"The sensor has truly transformed our paint manufacturing process, ensuring real-time monitoring, improved accuracy, enhanced output quality, and helped us derive data-driven decisions. We are positive about the prospect of continuing further integration of the sensors into more OEM units"

-Senior Principal Technical Expert, Schneider Electric

Reliance Industries

"RIL deployed XYMA Analytics' innovative high-temperature sensing solution, at our Refinery Off-Gas Cracker (ROGC) furnace, for measurement of tube metal temperature of the furnace tubes in the radiation section.

Designed to withstand extreme environments up to 1100°C, these sensors have operated flawlessly for over 90 days, providing continuous real-time monitoring without any manual intervention. XYMA µTMapS has provided visibility into furnace tube skin temperatures-data that was previously not measurable. Beyond temperature measurement, the solution offers detailed thermal profiling and early event detection, helping us to proactively manage furnace tube health and optimize energy efficiency. This technology is a new innovative solution to industry for high temperature processes monitoring. The reliability and performance of the sensors is satisfactory.

We are confident that this technology holds immense potential for broader applications across critical assets within refinery and petrochemical operations, driving enhanced safety, reliability and operational efficiency."

-Reliance Industries

Our Clients

DRDO · SRF · Indian Institute of Technology Madras · SAINT-GOBAIN · GMR

Our Successful Deployments

Aluminium

Vedanta Limited · Emirates Global Aluminium · Hindalco Industries Ltd

Oil & Gas

Bharat Petroleum Corporation Ltd (BPCL) · Cairn India · Indian Oil (IOCL)

Other Industrial Client

SKF · VGuard · SRF Limited · Tata Steel Ltd · Lam Research · Jindal Steel & Power · Electric Power Research Institute, Inc. (EPRI)

Contact Us

XYMA Analytics Pvt. Ltd.

B4-01, 4th Floor, Phase II, B-Block, IITM Research Park, Kanagam Road, Taramani, Chennai - Tamil Nadu, India - 600 113.

info@xyma.in · 044 40054441 · www.xyma.in