



SENSOR[®]
NETWORKS, INC

Inspection, Testing & Asset-Integrity Solutions

SENSOR NETWORKS, INC.

COMPANY OVERVIEW for
(Company Name)

Month, 00 2023



SMARTER SOLUTIONS FOR YOUR COMPLEX ASSET-INTEGRITY CHALLENGES

SENSORNETWORKSINC.COM

SNI PRESENTATION AGENDA

PART ONE



COMPANY OVERVIEW

PART TWO



ULTRASONIC TRANSDUCERS (UT)

PART THREE



INSTALLED SENSORS (IS)

PART FOUR



REMOTE VISUAL INSPECTION (RVI)

CLOSE



COMMENTS & QUESTIONS



COMPANY PROFILE



OUR VISION

Developing technology that makes the world a better and safer place.



OUR MISSION

To provide tools and technologies that enable customers to inspect and monitor safety-critical components with increased productivity and confidence.



OFFICES

HQ: State College, Pennsylvania

Sales Offices: Houston, Hong Kong, Osaka, & Koln



FOUNDED

October 1st, 2014



EMPLOYEES

95 Team members



May 25th, 2023

JOINED FORCES WITH EDDYFI TECHNOLOGIES

GLOBAL REACH

750 Employees | 13 Offices

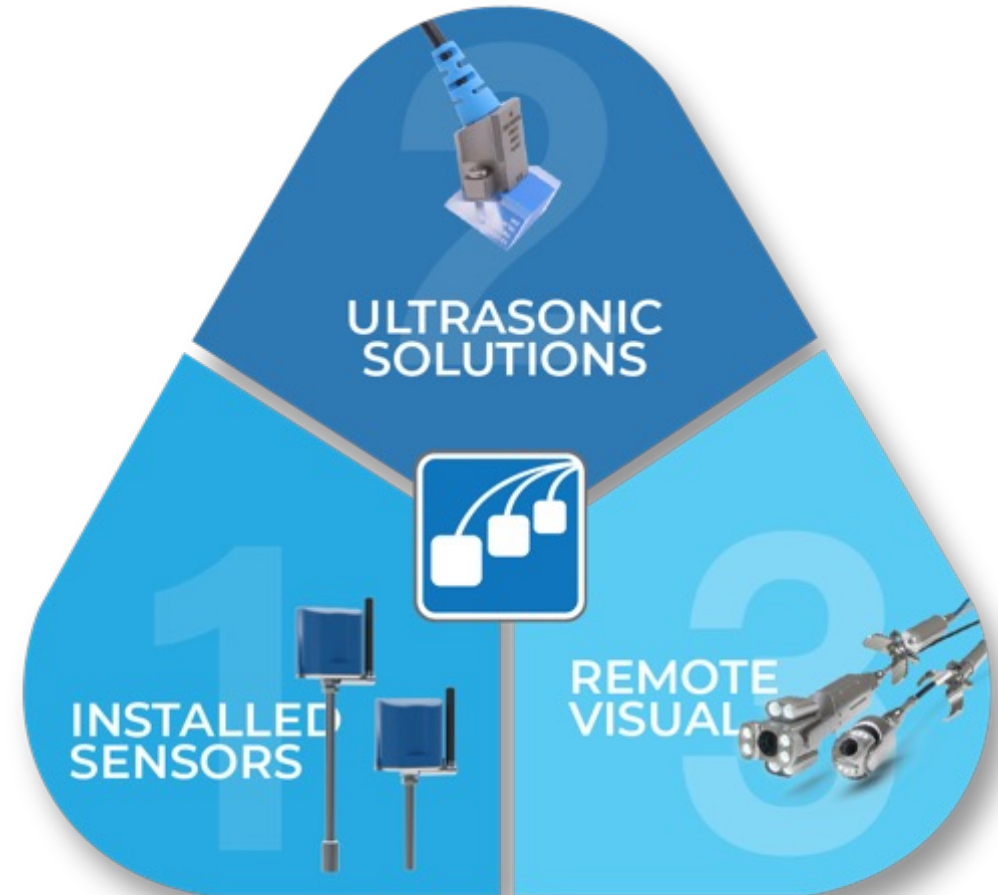
KEY CUSTOMERS



SMARTER SOLUTIONS FOR YOUR COMPLEX ASSET-INTEGRITY CHALLENGES.



**THREE PRODUCT LINES.
HUNDREDS OF PRODUCTS.
THOUSANDS OF APPLICATIONS.**



5 SEGMENTS

- Aerospace
- Power Generation
- Oil & Gas
- Metals & Mining
- Transportation

5 APPLICATIONS

- Welds
- Corrosion
- Rotating Equipment
- Composites
- Metals: Plate, Pipe, Bar, and Tube

FIELD & FACTORY



HISTORY OF SNI

FEB 2014

IDEA WAS FORMED



MAY 2015

CELLULAR PRODUCT DSI CONCEIVED



MARCH 2017

RVI BUSINESS ACQUIRED



APRIL 2019

MOVED OFFICE TO STATE COLLEGE, PA
HEADCOUNT - 60



MAY 2023

ACQUIRED BY EDDYFI TECHNOLOGIES
COMBINED HEADCOUNT - 750



OCT 2014

COMPANY FOUNDED AS SENSOR NETWORKS, INC
HEADCOUNT - 3



JULY 2016

UT TRANSDUCER BUSINESS STARTED
HEADCOUNT - 10



JUNE 2017

PAUT TRANSDUCER OFFERING
HEADCOUNT - 20

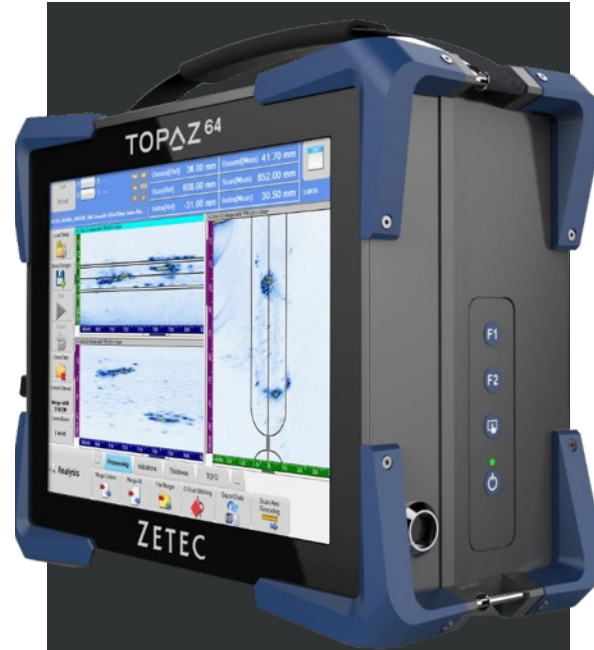


OCTOBER 2021

microPIMS Intrinsicly Safe
HEADCOUNT - 85



3
technologies
20+
key products



25,000+
systems in
operation

750
employees

Customers in
110+
countries

HUMAN SCALE
TECHNOLOGY
COMPANY
**WITH
PROVEN
TRACK
RECORD**



HUMAN SCALE TECHNOLOGY COMPANY WITH GLOBAL FOOTPRINT

Americas

— Quebec City, Canada

Snoqualmie, USA

State College, USA

Houston, USA

Nanaimo, Canada

Europe

Paris, France

Swansea, UK

Cambridge, UK

MEA

Dubai, UAE

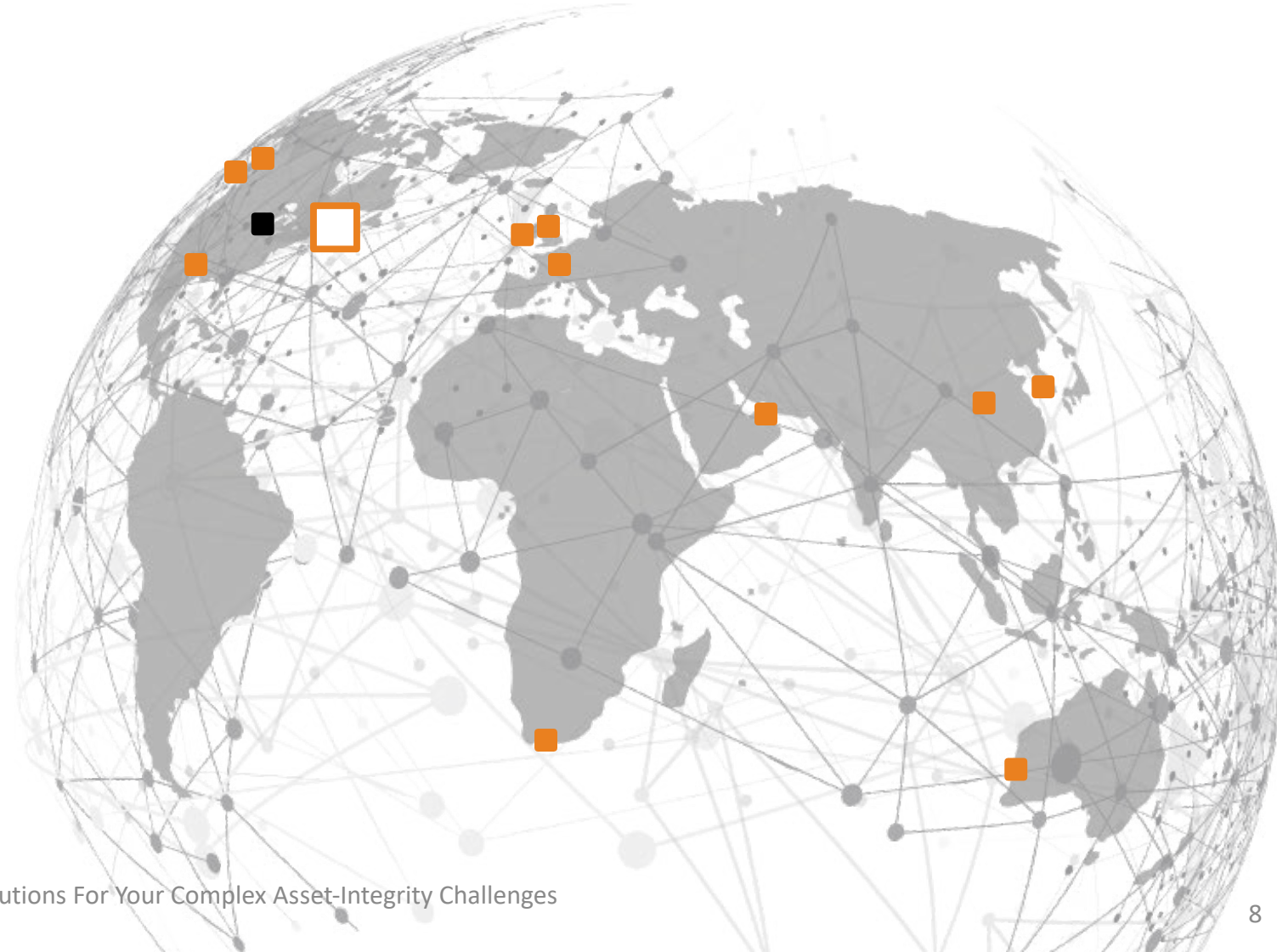
Cape Town, South Africa

APAC

Chengdu, China

Daejeon, South Korea

Perth, Australia



EVER-EXPANDING PRODUCT PORTFOLIO



EM / Electromagnetic

ECT, ECA, RFT, RFA, NFT, NFA,
MFL, MFLA, IRIS, PEC, PECA,
ACFM

EVER-EXPANDING PRODUCT PORTFOLIO



PAUT / Phased Array Ultrasonic Testing

TFM, PCI, PWI, GWT, LRUT
UT/PAUT Probes
Installed Sensors

EVER-EXPANDING PRODUCT PORTFOLIO



Robotics

NDT Robotics

OnSpec Robotics

RVI & FOSAR

PART TWO: ULTRASONIC TRANSDUCERS (UT)

CONVENTIONAL AND PHASED-ARRAY TRANSDUCERS
FOR ANY APPLICATION

STANDARD TRANSDUCERS • CUSTOMIZED TRANSDUCERS • APPLICATIONS ENGINEERING

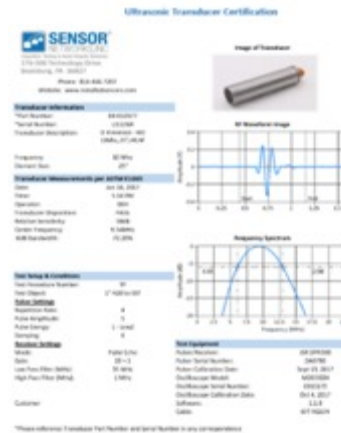
“The Transducer Can Enable or Optimize the UT Application”



STANDARD TRANSDUCERS

ARRAY

- Linear & Matrix
- Annular, Daisy, and Circular
- Flat & Curved
- Any Connector



EACH TRANSDUCER COMES WITH CERTIFICATION DOCUMENTS AND SPECS SHEET

CONVENTIONAL

- Utilizing state-of-the-art piezo-composite elements
- Wide variety of styles, sizes, and frequencies
- ASTM, EN certifications
- Single, Dual, Immersion, Contact



HIGH-TEMPERATURE TRANSDUCERS For UT-Gaging & Flaw Detection

Linear Arrays

- Versatile arrays that optimize a wide range of temp applications including weld inspection, tube and pipe inspection, rails, pressure vessels, and more
- 5 MHz: 16 or 32 elements with 2.5-meter (8.2 ft.) cables with IPEX connectors



Time-of-Flight Diffraction

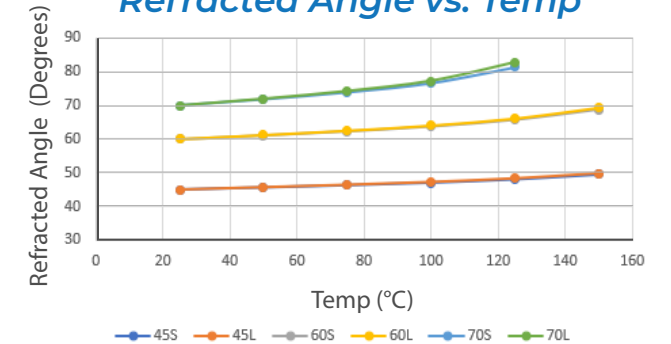
- Designed for temperatures up to 200°C (392°F)
- Requires highly-damped, broadband transducers and wedges that generate refracted longitudinal (L) waves.



Mid-Temp Wedges | Peek

0 °C – 150 °C (32 °F -302 °F)

Refracted Angle vs. Temp



Dual Linear Arrays

- Optimized for corrosion and erosion inspection at temperatures up to 200°C (392°F)
- Larger beam coverage - 32 transmit and 32 receive elements



SensorScan® DHT-400 Series

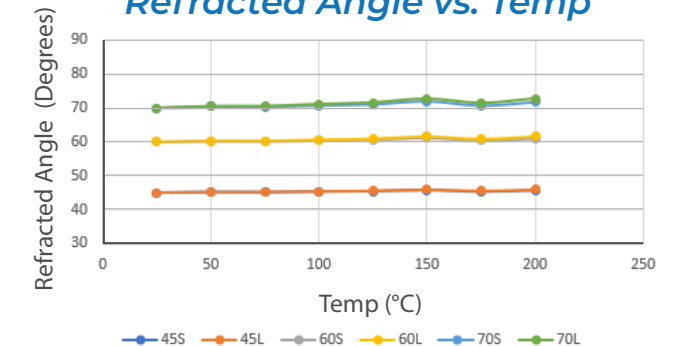
- General-purpose sensors for measuring the remaining wall thickness on rough metal surfaces
- Can be used intermittently (50% duty cycle) over a wide temperature range from -17.8 to 500°C (0 to 932°F) and continuously from -17.8 to 204°C (0 to 400°F)



High-Temp Wedges | Celazole U-60

0 °C – 200 °C (32 °F -392 °F)

Refracted Angle vs. Temp





AEROSPACE • NUCLEAR • OIL & GAS

ENGINEERED FOR YOUR SPECIFIC APPLICATION



SENSORSCAN[®]
Wedges

Precision Design & Fabrication | Superior Performance | Fast Delivery

ANATOMY OF A PRECISION-ENGINEERED UT WEDGE

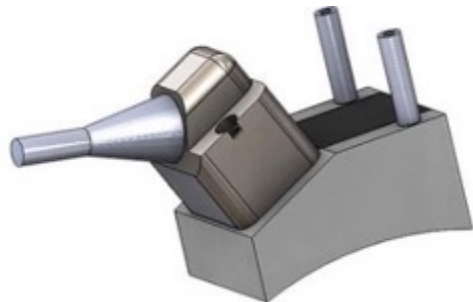
WEDGES, REFRACTION, AND SNELL'S LAW

SENSOR[®]
NETWORKS, INC.
Inspection, Testing & Asset-Integrity Solutions

- In-Situ
- Aircraft Engines
- Phased Array
- O.D. Transducers
- Pulse-echo Arrays
- ASME Section XI
- Compound-radius Wedges
- Ultra-high-temp Delay Line
- SensorScan[®] QS
- Small-diameter (< 0.25" / 6mm) ID Bore Probes
- 2 MHz PAUT Dual

VERTICAL INTEGRATION

Using industry-preferred simulation, design and manufacturing tools, SNI is vertically integrated to optimize delivery.



CIVA

Acoustic-beam modeling and delay-law calculation for conventional and phased arrays

Acoustics · Fixturing · Instrument Setup

APPLICATION DEVELOPMENT

SolidWorks TO CAM AND 5-AXIS CNC

- Parametric 3D CAD
- Mechanical Properties Modeling

- Proprietary Composite Design
- Dicing Saw, Backgrinder

CERAMIC SHOP

MACHINE SHOP

- CAD/CAM
- 5-Axis CNC Mill, CNC Lathe

PART THREE: INSTALLED SENSORS (IS)

NON-INTRUSIVE UT CORROSION & EROSION MONITORING **MEETS THE INTERNET OF THINGS**

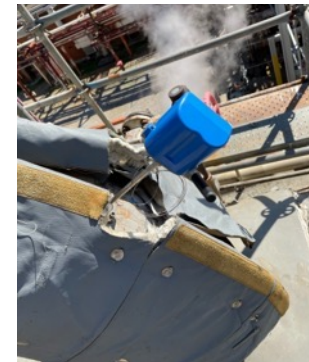
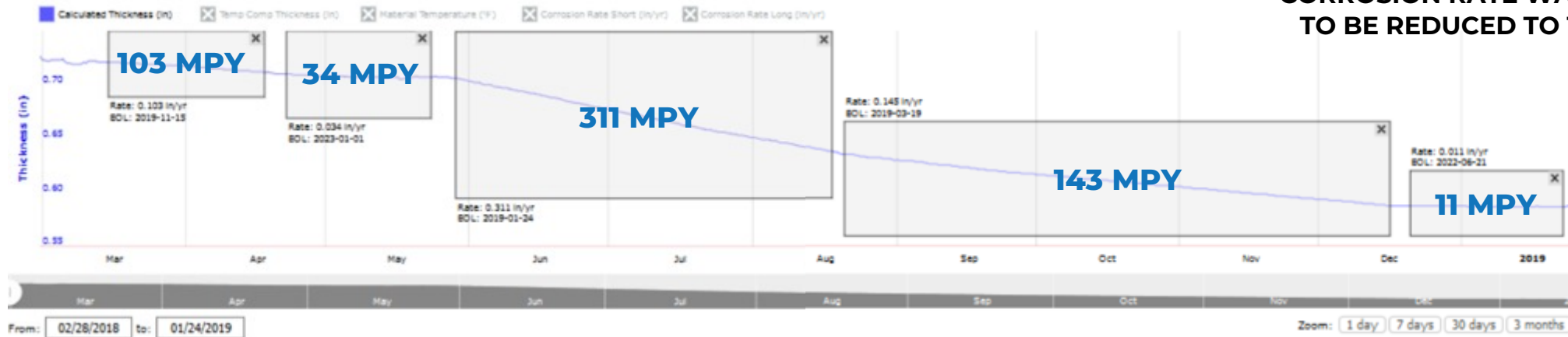
... seamlessly translate remote ultrasonic thickness measurements into on-stream corrosion rates & asset-integrity data used for real time infrastructure life extension, safety & retirement protection ...



**CORROSION RATE
STARTS AT 103 MPY**

**CORROSION RATE
INCREASES TO 311 MPY**

**CORROSION RATE WAS ABLE
TO BE REDUCED TO 11 MPY**



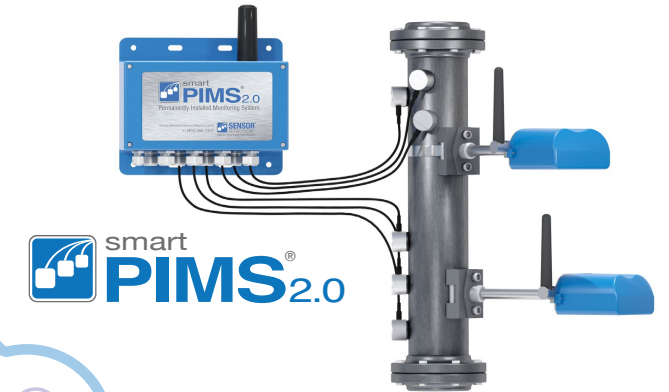
MPY = Mils / Year
MIL = 0.001" (0.025 MM)

BROAD PRODUCT LINE:

- Single Point / Multi-Point
- Cloud solution
- Optional on-premise solution
- Multiple protocols
 - Cellular 3G/4G/5G
 - LoRaWAN®
 - wiHART (2021)
 - ISA100 (202X)
- 7 Issued Patents

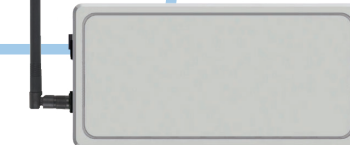
Remote Asset-Integrity Monitoring: Measure It, Manage It.

 **web PIMS™**



 **smart PIMS® 2.0**

 **mat PIMS®**



 **micro PIMS®**
Intrinsically Safe



SENSORS: Two models

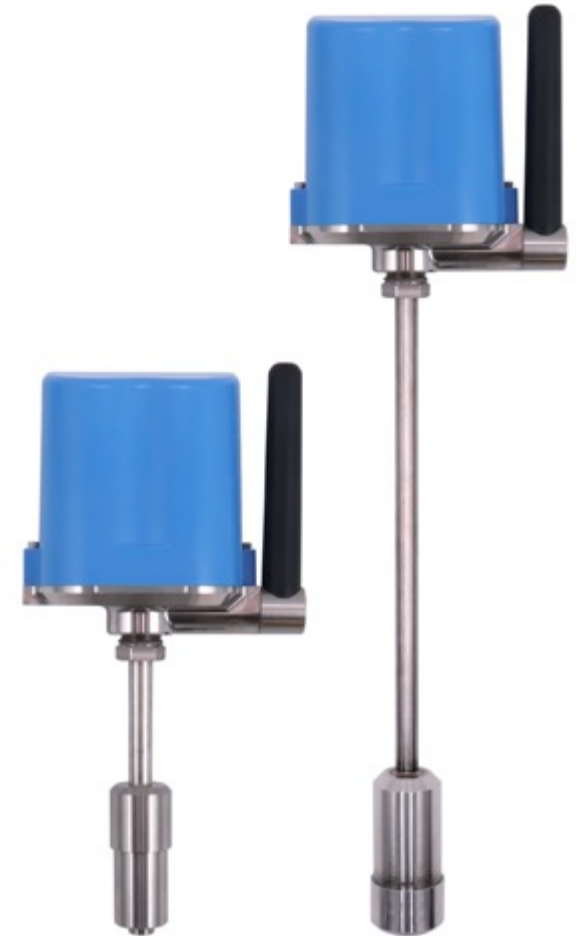
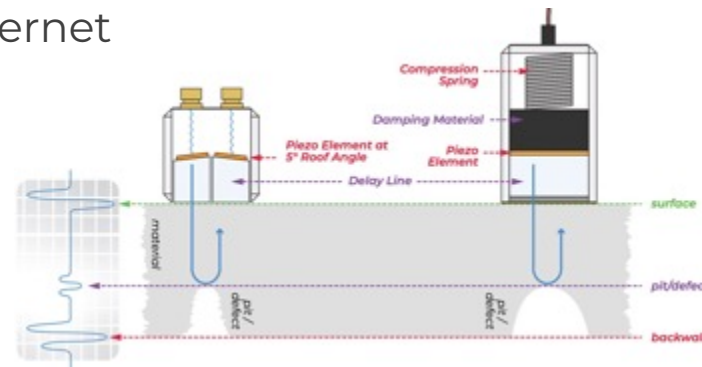
- Conventional Ultrasonic thickness measurement technology
- Over-the-air Wireless Sensor Communication
- Temp sensor for temperature-compensated measurements
- 2 D-Cell lithium battery | 15 years at one reading/day

LoRa Gateway | LoRaWAN Network

- Long-range bi-directional communication
- Star topology | Point to point – Sensor to gateway
- >1 mile (1.6Km) range | 5,000+ Sensors
- Back-end connectivity: Cellular | Ethernet

Data Management

- webPIMS
- Cloud | AWS
- On-Premise/In-the-fence Server



THOUSANDS OF SENSORS

HUNDREDS OF SYSTEMS INSTALLED WORLDWIDE



PARTIAL LIST:

ExxonMobil Chemicals • Dow Chemical • Suncor • Chevron • Formosa
CountryMark Refining • Invista • Accenture • PES • PBF • Calumet
Dominion • Alyeska • EPRI • Irving Oil • Philips 66 • Husky • Valero
Shell Oil • KOCH • Duke Energy • LM Wind (GE), Ambatovy,
Seplat Energy, ExxonMobil Production GmbH

PART FOUR: REMOTE VISUAL INSPECTION (RVI)

REMOTE VISUAL INSPECTION

INSPECTION CAMERAS • RETRIEVAL & SAMPLING TOOLS



INSPECTION CAMERAS

HI-DEF PTZx

A PAN-TILT-ZOOM-LIGHTS,
HIGH RESOLUTION COLOR VIDEO
INSPECTION SYSTEM

EFFICIENTLY INSPECT:

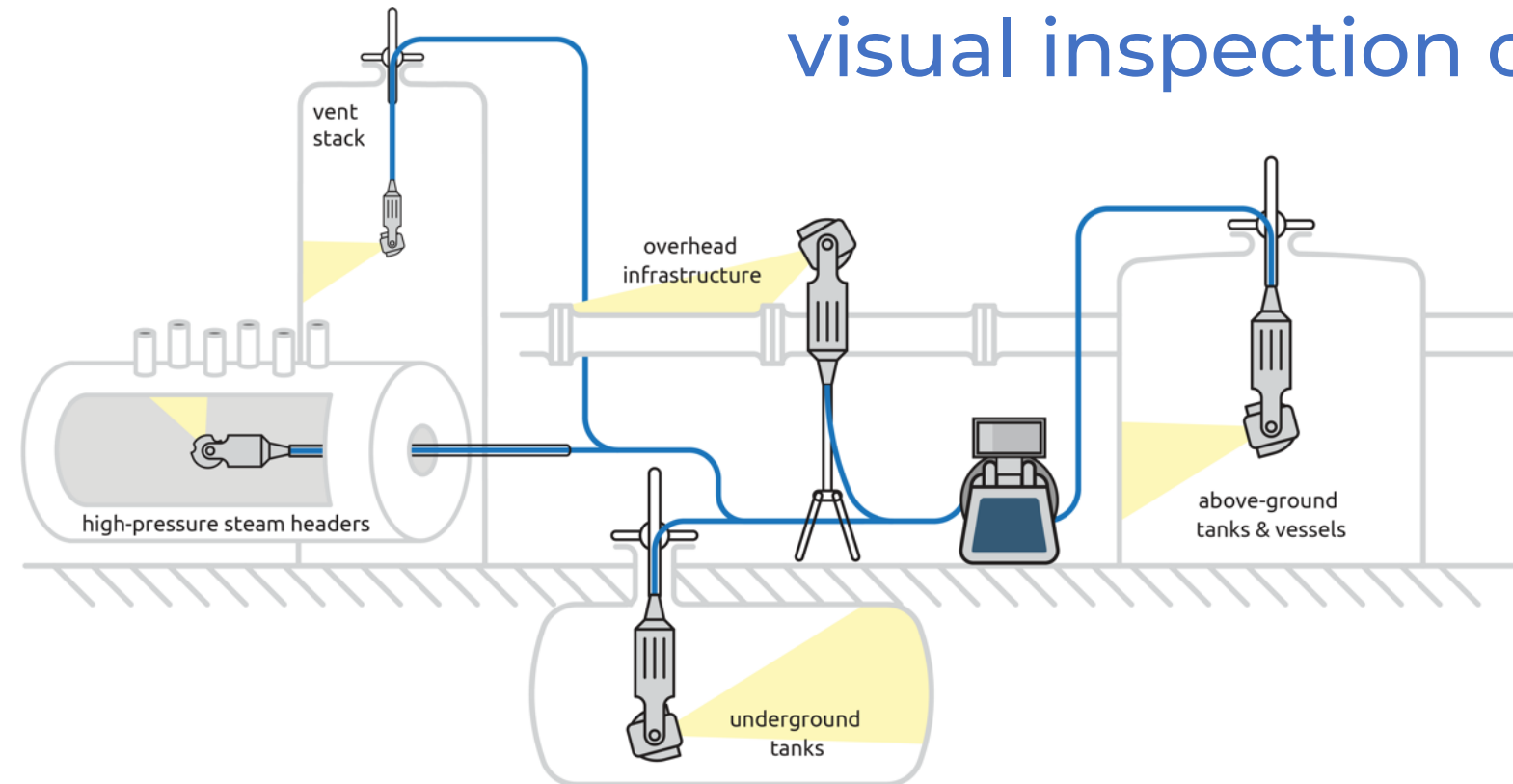
- Tanks
- Vessels
- Drums
- Piping Systems
- Confined Spaces



**PORTABLE.
INDUSTRIAL.
WATERPROOF.
RUGGED.
INTUITIVE.
FIELD HARDENED.**



Hi-Def PTZx is ideally suited for remote visual inspection of tanks and vessels:



- Nuclear & Chemical Plants
- Pharma & Rail
- DoE Nuclear Waste Facilities
- HP Steam Drums: Fossil Plants
- O&G Refining catalyst vessels

FOSAR

COMPLETE RETRIEVAL TOOL KITS



- BUILT-IN HI-DEF VIDEO & LED LIGHTS ON THE JAWS2.0
- VARIETY OF END-EFFECTORS SUCH AS ALLIGATORS, MAGNETS, SNARES & GRIPPERS.
- RUGGED, POLISHED STAINLESS-STEEL CONSTRUCTION
- SUBMERSIBLE & PORTABLE
- IDEAL FOR HAZARDOUS ENVIRONMENTS AND CONFINED SPACES

JAWS 2.0
Hi-Def Video Retrieval Tool



RGT



SENSOR[®]
NETWORKS, INC

Inspection, Testing & Asset-Integrity Solutions

THANK YOU!

REV DATE 7.13.23



SMARTER SOLUTIONS FOR YOUR COMPLEX ASSET-INTEGRITY CHALLENGES

SENSORNETWORKSINC.COM