

Eddyfi Technologies
Beyond current

Technical
Specifications

SONYKS

Inspect Beyond Reach

Sonyks™ is a major leap in guided wave equipment. Eddyfi Technologies has redefined guided wave ultrasonic testing with the Sonyks setting new benchmarks for data quality, versatility, ease of use, and deployment.

INSPECT MORE. WITH MINIMAL ACCESS.

Sonyks enables inspectors to assess inaccessible pipelines and plate structures from a single access point, providing a clear picture of the asset condition over a large area. This helps identify corrosion and other integrity threats quickly while reducing inspection time, access requirements, and operational disruption. Combining industry-leading data quality, rapid deployment, and onboard analysis, Sonyks delivers the confidence to make inspection decisions in the field.

PIPELINE INSPECTION

Designed for long-range screening of pipes and pipelines.

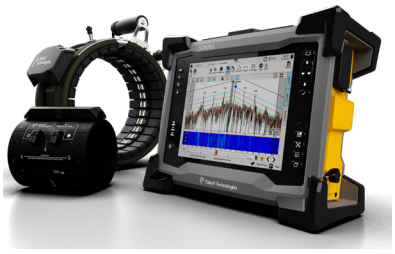
- Long-range screening of pipelines
- Corrosion Under Insultation (CUI)
- Road crossings
- Buried sections
- Stainless steel pipes

PLATE INSPECTION WITH GUIDED WAVE PHASED ARRAY

- Screen large plate and shell structures.
- Tank floors
- In-service from the chime plate
- Plate structures
- Areas beneath insulation
- Buried or concrete covered sections

One platform. Multiple applications.

From pipeline to plate inspection, Sonyks provides the flexibility to address a wider range of asset integrity challenges.



ONE PLATFORM. MULTIPLE GUIDED WAVE SOLUTIONS.

SONYKS SYSTEM



Figure 1: Annotated breakdown of Sonyks instrument.

PIPELINE COLLARS

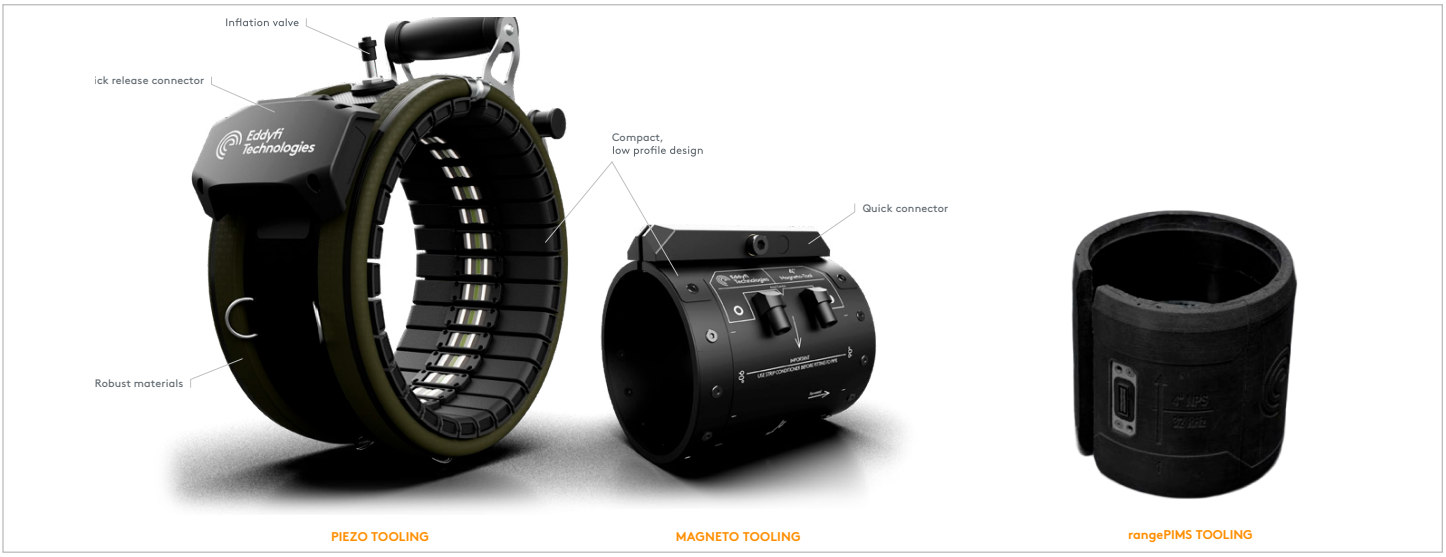


Figure 2: Annotated breakdown of Sonyks Piezo and Mageto tool.

GUIDED WAVE PHASED ARRAY (GWPA™) SYSTEM



Figure 3: Annotated breakdown of FBS GWPA™ softwre and transducer

PIPELINE INSPECTION

FASTER INSPECTIONS. MORE LOCATIONS

Sonyks is designed to help inspection teams get more done in less time. A project-based workflow simplifies setup, while portable hardware and multi-location reporting reduce the time spent at each inspection point. The result is a faster inspection process with fewer delays between locations.

INSPECT MORE

Screen long sections of pipeline from a single collar location. Sonyks enables medium and long range guided wave inspections, helping operators assess more pipe in less time and identify integrity threats before they become costly failures.



Figure 4: Sonyks instrument with the Piezo tool on site.

REACH FURTHER

Inspect difficult-to-access pipeline sections, including road crossings, buried sections, river crossings, insulated pipe, and areas beneath supports. Reduce the need for excavation, scaffolding, and extensive access preparation.

ACCELERATE INFORMED DECISION-MAKING

Broadband and Full Matrix Capture (FMC) acquisition collect comprehensive inspection data in a single scan. Combined with onboard analysis and rapid reporting tools, inspectors can quickly review results and determine next steps while still in the field.

DEPLOY WITH CONFIDENCE

Industry-leading signal-to-noise ratio (SNR) helps identify smaller indications at greater distances with improved clarity. Sonyks also supports legacy and third-party transducer rings, helping customers maximise the value of their existing equipment.



Figure 5: Sonyks instrument with the Magneto collar on site.

BENEFITS

- Inspect longer distances with industry-leading signal quality
- Capture multiple frequencies in a single acquisition
- Streamline inspection setup, analysis, and reporting
- Expand inspection capabilities with medium and long-range solutions
- Support pipe diameters from 1.5 in. (48 mm) to 72 in. (1800 mm)
- Integrated pump for simpler, faster deployment



Figure 6: Guided wave 8in (219.1mm) pipe inspection with Sonyks Piezo tool.

PLATE INSPECTION WITH GWPA™

FINDING PREVIOUSLY HIDDEN FLAWS.

GWPA combines guided wave ultrasound with phased array beam steering to screen large plate and shell structures from a single probe location. By extending guided wave inspection beyond pipelines, GWPA makes it possible to assess difficult-to-access areas without extensive surface preparation or direct access to the inspection area.

INSPECT MORE

Guided waves extend 10 ft (3 m) or more beyond the probe location, enabling inspection of areas beneath coatings, insulation, soil, and concrete. The technology can be used on assets that are difficult, costly, or impractical to access using conventional inspection methods.



Figure 7: GWPA deployment on a tank floor

SCREEN LARGE AREAS QUICKLY

A single scan can screen up to 150 ft² (14 m²) in seconds, helping inspectors rapidly identify areas requiring further evaluation. Rather than raster scanning every inch of a structure, GWPA™ helps focus follow-up inspections where they are needed most.

SIMPLIFY INSPECTION AND INTERPRETATION

Drawing overlays and automated composite imaging help correlate inspection data directly to the asset. Multiple scans can be combined into a single image, making large-area inspection results easier to visualize and interpret.

ADAPT TO CHALLENGING ENVIRONMENTS

The low-frequency shear horizontal (SH_0) guided waves used by GWPA™ are unaffected by liquids in contact with the structure and can be deployed manually or robotically for inaccessible, elevated, or in-service applications.

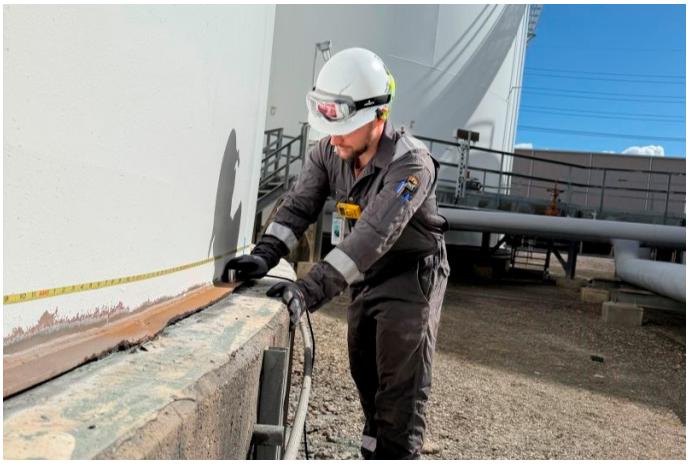


Figure 8: Critical zone inspection from the chime plate

BENEFITS

- Inspect inaccessible, coated, insulated, and buried plate sections
- Screen large plate and shell areas from a single probe location
- Suitable for flat and curved plates up to 1 in. (25 mm) thick
- Applicable to carbon steel, stainless steel, aluminum, and other metallic alloys
- Detect near-side and far-side flaws
- Reliable performance when liquids are in contact with the structure
- Simplified setup and analysis using non-dispersive guided waves
- Drawing overlay for asset correlation
- Composite imaging for easier reporting
- Manual or robotic deployment options available

PERMANENT MONITORING WITH RANGEPIMS

PIPELINE INTEGRITY OVER TIME

rangePIMS™ is a permanently installed guided wave monitoring solution that enables regular asset condition assessment without direct access to the pipe surface. Operating with magnetostrictive technology and powered by Sonyks, rangePIMS helps operators monitor difficult-to-access pipelines while reducing inspection costs and improving confidence in integrity management programs.

INSPECT WITHOUT REPEATED PIPE ACCESS

Once installed, rangePIMS enables frequent inspections from an easily accessible connection point, particularly valuable for:

- Road crossings
- Insulated lines
- Buried pipelines
- Elevated pipework
- Difficult-to-access assets

No repeated excavation or pipe preparation is required.



Figure 9: 8in (219.1mm) rangePIMS installation with Sonyks.

INCREASE INSPECTION FREQUENCY

Because the tooling remains permanently installed, inspections can be performed as often as required, enabling inspectors to detect changes earlier than would normally be possible.

CAPTURE MULTIPLE FREQUENCIES IN A SINGLE ACQUISITION

Sonyks combines a broadband acquisition with a Full Matrix Capture (FMC) so that all required data is in a single acquisition. Inspectors can review results immediately, perform additional analysis when needed, and leave the site knowing they have captured everything required.

TAILOR PERFORMANCE TO THE APPLICATION

The three frequency options to balance range and sensitivity are:

FREQUENCY OPTIONS	
32 kHz	• Maximum inspection distance • For use in buried highly attenuative pipelines
64 kHz	• Balanced range and resolution • General-purpose monitoring frequency
128 kHz	• Highest sensitivity and resolution • Suitable for short-range monitoring and crack detection applications



Figure 10: 32 in (812.8 mm) rangePIMS installation on Ductile iron pipe.

SUPPORT INTEGRITY MANAGEMENT PROGRAMS

Regular monitoring helps operators:

- Detect corrosion, erosion, and radial cracking
- Reduce inspection variability
- Prioritize maintenance activities based on inspection findings

KEY BENEFITS

- Permanently installed guided wave monitoring solution
- Monitor pipelines without repeated access requirements
- Increase inspection frequency cost-effectively
- Detect corrosion, erosion, and certain crack-like defects
- Three frequency options for range or sensitivity optimization
- Fast data collection in less than one minute
- Onboard analysis powered by Sonyks
- Fully recordable, traceable, and auditable inspections
- Ideal where access costs exceed inspection costs

SPECIFICATIONS - SONYKS

INSTRUMENT

Dimensions (W × H × D)		355 × 288 × 127mm (14.0 × 11.3 × 5.0in)
Weight (with 1 × battery)		7.2kg (15.9lb)
Power Requirements		100–240 VAC, 50–60 Hz
Power Supply		Direct VAC or onboard batteries
Batteries	Type	10.8 V Li-ion, rechargeable, DOT compliant
	Typical Life	6–8 hours
Video Output		HDMI
Number of Channels Transmit		40
Transmitter Frequency Range		5–260 kHz
Standard Output Voltage		200V, peak to peak
Number of Channels Receive		40
Receiving Gain Range		Up to 100 dB
Maximum Sample Range		365 m: longitudinal in pulse-echo or 200 m: torsional in pulse-echo
Maximum Number of Averages		128
Data Collection		Full Matrix Capture and Broadband
Focussing Options		C-scan imaging, Time delay focussing
Display		• 26.4cm (10.4in) • Non reflective (AR coating) • Anti-fingerprint (oleophobic coating) • 3mm (1/8in), chemically strengthened glass cover • Optically bonded LCD and touchscreen • Passive backlight enhancement
Software Options		Sonyks GO (Instrument) Sonyks PRO (Optional Laptop Control)
Laptop Connectivity		Optional connection through Wi-Fi or Gigabit Ethernet
Storage		200 GB, SSD
Cooling		Sealed and internal fan
Onboard Pump		60 Psi maximum pressure
Onboard Collar Pressure Monitoring		Yes
GPS		Accurate positionning to 2.5m (8.2ft)
Instrument Transduction Compatibility		Magneto-strictive and Piezo transducer compatibility
Supported Rings		Sonyks Piezo and Magneto tools, Teletest and other commercial PZT rings

INSTRUMENT (SUITE)

Probe Recognition and Setup	Automatic with Sonyks tooling including ring type, size, serial number, pipe and angular orientation
Maximum Sample Range	125 ms
Automated Self-check	Onboard capacitance testing

ENVIRONMENTAL

IP Rating	Designed for IP65
Operating Temperature	0–40°C (32–104°F)
Operating Humidity	95%, non-condensing
Compliance	ASME, EN 61010-1, CE, WEEE, FCC Part 15B, ICES-003, AS/NZS CISPR 22, RoHS

TOOL AND MODULE TYPES COMPATIBLE

Piezo Tooling – Transduction Method	Piezo-electric transducers (PZT)
Piezo Tooling – Frequency Range	20–80 kHz broadband collection
Piezo Tooling – Pipe Size Range	6–36in (168.3-914mm) single collar 26-72in (660–1828mm) dual collar setup
Piezo Tooling – Sensors	Automatic collar recognition, pipe size, orientation and angular position
Piezo Tooling – Max. Surface Temp.	180°C (356°F)
Magneto Tooling – Transduction Method	Segmented Magnetostrictive Sensors (SMS)
Magneto Tooling – Frequency Range	32 kHz – Test range 22–42 kHz 64 kHz – Test range 54–74 kHz 128 kHz – Test range 118–138 kHz
Magneto Tooling – Rods Size Range	15.88, 19.05 and 25.4 mm (5/8, ¾ and 1 inch)
Magneto Tooling – Pipe Size Range	NPS - 1.5, 2, 2.5, 3, 3.5, 4, 5, 6 and 8 in (48.3, 60.3, 73, 88.9, 101.6, 114.3, 141.3, 168.3 and 219.1mm) Custom sizes also available.
Magneto Tooling – Maximum Surface Temperature	80°C (176°F) 120°C (248°F) short term
Teletest Tooling – Transduction Method	Piezo-electric transducer (PZT)
Teletest Tooling – Pipe-size	168.3–610 mm (6–24 in) single collar 660–1321 mm (26–52 in) dual collar setup 1372–1981 mm (54–78 in) treble collar setup
Teletest Tooling – Frequency Range	20–80 kHz depending on spacing and wave mode
Teletest Tooling – Maximum Surface Temparature	High Temperature (HT) 240°C (464°F)
Teletest Module – Wavemode Compatibility	Multimode 3 ring torsional – 30mm (1.2in) 3 ring torsional – 45mm (1.8in)

SPECIFICATIONS - RANGEPIMS

TOOL

Transduction Method	Segmented Magnetostrictive Sensors (SMS)
Wavemode	Torsional
Frequency Options	32kHz (LRUT: High attenuation) 64kHz (LRUT: Ideal trade-off) 128kHz (MRUT)
Number of Channels	16
Nominal Pipe Size	3" to 48" (DN 80 to 1200)
Pipe Thickness	3 mm to 30 mm (0.118" to 2")
Maximum Sample Range	200 m: torsional in pulse-echo
Temperature sensor	Yes
Focusing Options	C-Scan imaging, Synthetic focusing
Attachment	Epoxy
Radial Clearance	25 mm (1")
Sensor Axial Length	150mm (6")
Tool Installation Time	30 minutes per 12" tool once pipe is accessible
Data Collection Time	Less than 1 minute
Data Storage	Instrument or OneDrive
Data Collection Methodology	Full Matrix Capture

INSTRUMENT

Data collection Instrument	Sonyks guided wave instrument
Data Collection Software	Sonyks Go 1.3 or higher

ENVIRONMENTAL

Maximum Surface Temperature	-40°C to 90°C (-40°F to 194°F)
Operating Humidity	95%, non-condensing for installation
After Installation	Water resistant to 50m

TOOL CHARACTERISTICS

Pipe-sizes	Single collar – 2-12" Two-part collar – 14 -24" Four-part collar – 24-48"
Frequency Range	32 kHz – Test range 22–42 kHz 64 kHz – Test range 54–74 kHz 128 kHz – Test range 118–138 kHz
Sensitivities	32kHz - 5% CSA and less 64kHz - 5% CSA and less 128kHz - 1% CSA and less
Expected Test Range	32kHz - 100m and less 64kHz - 50m and less 128kHz - 12m and less
Dead Zone	32kHz ± 0.5m 64kHz ± 0.4m 128kHz ± 0.3m

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