

Rayleigh Wave EMAT ERG1635-S or ERD1635-S

Contact Us



Product Features

- ▶ No couplants or surface preparation
- ▶ Generates and detects surface waves for surface and near-surface inspection, including defect detection
- ▶ Spatial wavelength of 16mm, custom options available
- ▶ Robust design to withstand industrial environments



Generates and detects ultrasonic Rayleigh waves, which travel along the material's surface, making it ideal for identifying near-surface flaws. This EMAT operates based on the Lorentz force principle, using both Lorentz and magnetostrictive effects to maximize wave generation and detection efficiency.

ERG1635-S and ERD1635-S are optimised for a frequency of approximately 188 kHz on steel, can detect surface-breaking and near-surface defects. With the added advantage of customisable wavelength and high-temperature options, the Rayleigh wave EMAT offers an adaptable solution for challenging inspection environments where precision and non-contact capabilities are essential.



Applications



Designed for diverse NDT applications across a range of industrial settings, including: oil and gas, railway, power generation and manufacturing. Sensitivity to surface and near-surface flaws makes it ideal for early detection of structural irregularities, helping ensure the safety and longevity of critical infrastructure.

- Surface-breaking cracks (e.g. SCC)
- Surface corrosion
- Rail track inspection (e.g. RCF)
- Inspection in challenging-to-access areas

Feature	Description
Probe Configuration	Pitch-Catch (generator or detector). Can also operate in Pulse-Echo mode.
EMAT Working Principle	Lorentz force mechanism Magnetostrictive effect (if sample is magnetostrictive)
Ultrasonic Wave Type	Rayleigh surface waves
Excitation Frequency	Optimised for spatial wavelength 16 mm (approx. 188 kHz on thin steel). A wide range of other wavelengths (including custom builds) are available, please enquire.
Working Voltage:	800 - 1000 V
Dimensions	55mm length x 45mm diameter, width with BNC socket 60mm
Weight	0.6kg
Mounting	3 x M5 threaded mounting holes on top of EMAT
Magnet Type	Single Neodymium Iron Boride (NIB) magnet; working field normal to sample.
Front Wear Face	Metal as standard, can be customised
Connector	BNC socket (50Ω)
Operating Temperature	0 - 80°C
Recommended Electronics (Driver and Amplifier)	Sonemat's Toneburst Pulsar-Receiver TBPR1000, HPP2000 High Power Pulsar, Sonemat SAA1000 standalone Amplifier ; or RITEC's RPR4000 High power Pulsar-Receiver - contact us

[Contact Us](#)