

TO  
500°C

3Bz



Applications  
Brochure

## ALTERNATING CURRENT FIELD MEASUREMENT FOR HIGH TEMPERATURE INSPECTIONS

Eddyfi Technologies' cutting-edge Alternating Current Field Measurement probe ensures reliable detection and sizing of cracks in carbon steel and stainless-steel components operating at high temperatures up to 500°C (932°F).

### ENHANCING INSPECTION CAPABILITIES AT HIGH TEMPERATURES

Inspection of hot components often result in process disruptions necessitating either component cooling or reliance on conventional methods that are typically limited to a maximum of 300°C (572°F). With its wide coverage and low cleaning requirements, Alternating Current Field Measurement (ACFM®) has proven to be an effective and non-intrusive technology for inspecting welds, whether they are ferromagnetic or non-ferromagnetic, while they are in service. The ACFM high temperature probe is specifically designed to detect and measure crack sizes in a single pass, even when the inspected component runs at temperatures reaching up to 500°C (932°F).

### INNOVATIVE DESIGN

The probe comes pre-loaded with factory calibrations tailored for high-temperature inspections, eliminating the need for on-site calibration on heated reference samples. Following a measurement of the inspected part temperature, the appropriate calibration can be selected in the probe setup parameters, ensuring practical, efficient inspections and accurate crack sizing at all temperatures ranging from 0°C (32°F) to 500°C (932°F).

### FEATURES AND BENEFITS

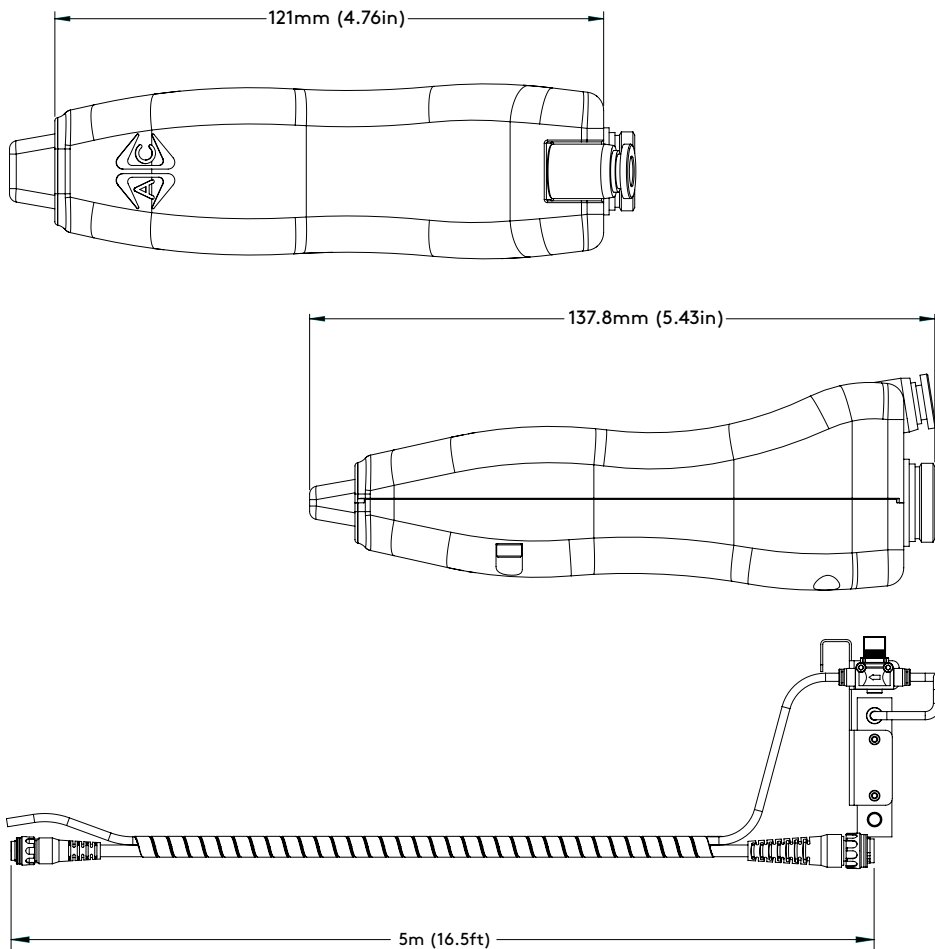
- Calibrated setups stored in the probe, eliminating the need for repeated calibration on heated reference standards
- Heat resistant probe body equipped with an integrated air-cooling system to prolonged acquisition time
- Overheating warning LED for real-time visual alerts
- 3Bz crack sizing technology for precise crack length and depth information in a single pass
- Ergonomic design adapted to heat protection equipment

## SPECIFICATIONS

### GENERAL

Compatible instruments	Amigo2
Range	Sensu 2
Sensor configuration	Mini ACFM sensor, 3Bz sizing technology
Nose configurations	Straight, active temperature sensing and red LED feedback for overheating internals
Frequency	5 kHz probe for ferromagnetic weld inspections, 50 kHz probe for non-ferromagnetic weld inspections
Coverage	15mm (0.6in)
Required cable	SENSU-2-HT-CBL-5M
Maximum component temperature	500°C (932°F)
Typical scan times at 500°C (932°F)	Scan time: ~12s, Duty cycle: ~50%

Requires external air supply to 1/8 NPT or BSP pipe thread fittings



**Figure 2:** The high temperature cable is equipped with an air supply system that easily connects to a portable compressed air source or plant air source through standard 1/8 NPT or BSP pipe thread fittings. It attaches to the Amigo™ 2 and features a convenient on/off air valve, airflow dial, and gauge.

The solution integrates state-of-the-art 3Bz sizing technology. Through the integration of two additional BZ sensors and a specialized software algorithm, an accurate estimation of crack length and depth can be achieved through signal analysis, eliminating the need for markings, or a mechanical encoder. This approach empowers informed decision-making regarding asset integrity and enables optimized repairs, even in the most demanding environments.

### STREAMLINED WORKFLOW FOR RELIABLE OPERATION

The probe is equipped with an air-cooling device and proactive warnings to preserve the integrity of the probe at elevated temperatures while maintaining high productivity. The innovative design includes a probe nose that illuminates in vibrant red when probe cooling is required. This visual cue enables easy monitoring and ensures safe operation during high-temperature inspections.

Loading the calibration corresponding to the target temperature, connecting the air feed, and initiating the scan is all that's required. The air-cooling system efficiently refreshes the internal components of the probe. If the probe internals require cooling, the warning system's LED lights up, prompting the user to pause scanning for a cool down period and once the warning LED turns off, the probe is ready for continued operation.

### UNLOCKING KEY APPLICATIONS

Industrial welders can now save time on welding interpass inspection, eliminating the need for extensive cooling processes.

Critical operations such as hot tapping running pipes and inspections of hot vessels or piping systems are now possible without process modifications or shutdowns.

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