

UWEC – Underwater Eddy Current Tester

Sensima’s UWEC TESTER is the perfect tool for reliable underwater eddy current inspection, with diver or mounted on ROVs. The equipment complies with eddy current inspection standards, in particular weld inspections as required by the BS 1711:2000, BS EN ISO 17643:2015 and the ISO 15548_1.

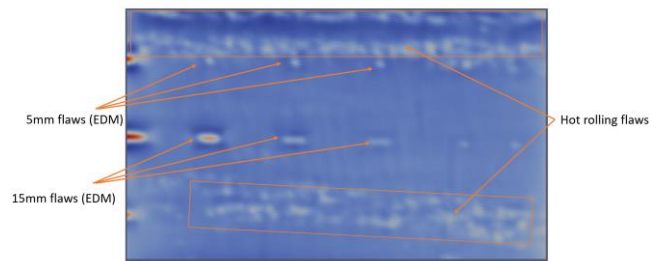
- 1. Reliable signals:** the eddy current signals are digitalized and processed next to the probe, therefore, robust, digital signals can be transmitted to the surface using well-proven cables such as that present in the tether of the ROV.
- 2. Plus probe and absolute measurement, all in the same probe:** cross axis wound coils offer a good material variation cancelation while absolute coils provide the lift-off, for instance to assess the cleaning. Combination of signals offer a similar representation to that of ACFM®.
- 3. No compromise on wear:** the probes are covered with a changeable protection so that the probe itself does not wear down during inspection.
- 4. Diver and ROV:** The same system can be used for manual inspection and ROV integration, both onshore and underwater. Sensima provides free support for the integration.

A 316L steel casing and SubConn® connectors ensure the robustness required for UW applications. UWEC’s testers have demonstrated outstanding durability at the occasion of many NDT projects, on offshore O&G and windmills hydro power infrastructures. Being the most compact EC tester in its category, it is much valued by divers and ROV pilots for its minimal impact on underwater maneuverability.

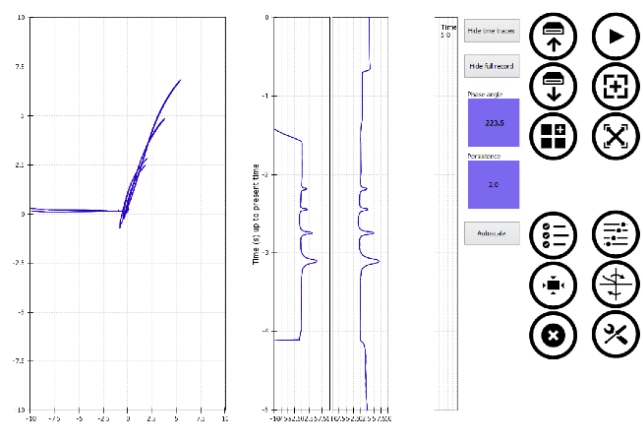
Intuitive and practical acquisition software is provided with the tester. All the common features in conventional testers interface are provided in an easy-to-use panel configuration optimized for tactile devices. Testing settings can be saved and retrieved easily and reporting can be done instantaneously. Simultaneous display of the eddy current signals and video feed enables the ROV pilot (or the diver) and the inspector located on the surface to efficiently collaborate.



The most compact underwater EC tester:
Tester, 3 probes (10-20-40mm), and surface unit



C-scan results with 20mm weld probe
Stainless steel enclosure with a maximum operating depth of 1000m or 3200 ft.



All functions at your fingertips:
All advanced functions are available in one click or tap. Traces can be displayed or hidden. Report can be generated in word or HTML format. Completely configurable signal processing chain and alarms. Phase angle and gains (horizontal and vertical) can be altered on each channel individually.



Features Highlights

- Plug-and-play: connect to USB/RS422 and start measuring (other communication protocols available on demand)
- Both direct impedance and reflection measurements
- Multifrequency (time multiplexed)
- Field proven robustness
- Enables the inspection of UW welds according to BS 1711:2000/BS EN ISO 17643:2015
- Working distance up to 1'000 m

Customization

- Observation or working class ROV integration
- Mini-ROV
- Scanners, automated system
- UW monitoring

UPEView Acquisition Software

The software provides touch access to all the instrument and filter settings, but it can be used on a normal PC as well (Windows 8 or later). You benefit from all the modern features of windows, such as remote access for troubleshooting and speech recognition.

No dongle: The UPEView software can be installed on any PC in your company to perform remote data processing and assessment.

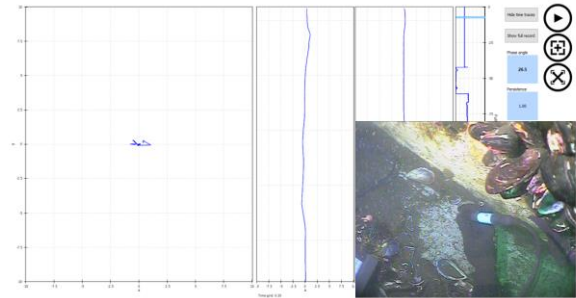
Presets: Store all instrument and filter settings for all your inspection tasks and recall them simply by tapping on a windows tile.

Reporting: Generate a Microsoft Word and/or HTML report next to your saved data. The report contains all the data processing settings.

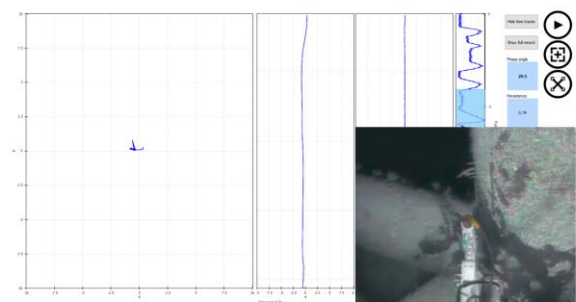
Applications

- UWILD inspections (jackup rigs, etc..)
- Disambiguation of indications detected by visual inspection
- Complement to the inspection techniques you already use (wall thickness measurements, FMD, visual, cathodic protection)
- Reduce the cleaning requirement
- Our system can be operated by NDT level II Eddy current inspectors with valid certificates.

Diver inspection recording and streaming

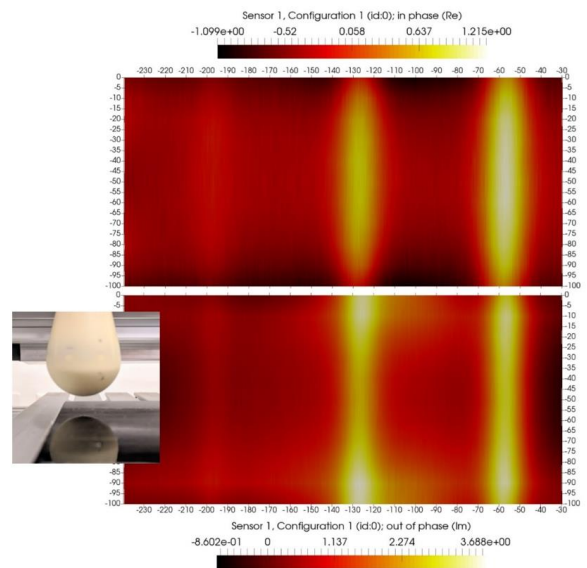


ROV inspection recording and streaming



Report generation:

A word and/or html report is generated each time the data is saved.



Detectability with lift off.

Our 40mm probe can be operated with a significant lift off while keeping excellent detection capabilities. This enables a reduced cleaning of the surface, therefore saving operation time and costs.



Type of instrument	General purpose eddy current instrument
Power supply	5 V USB powered, 100 mA typ. current draw
Safety	CE, FCC Part 15B, RoHS,
Technology	Signal proc.: Analogue preamplification and demodulation Digital outputs and filtering Settings: Manual, remote controlled, stored, preset Outputs: Digital components outputs, optional TTL alarms Single frequency, multifrequency (time multiplexed)
Physical presentation	Weight: 90g (3.2 oz.) Size: 45 x 60 x 18 mm ³ (1.8 x 2.4 x 0.7 in ³) Connectors: USB mini A socket, SubConn® Circular 7pins
Environmental effects	Warm-up time: 0s for typical use 200s for full precision Ingress protection: IEC 60529 CODE IP67 Operating temp.: -40 °C to 60 °C EMC compatibility: Compliant with CE, FCC Part 15B
Generator unit	Single frequency, multifrequency (time multiplexed) Frequency range: 20 kHz to 10 MHz 1 Hz to 10 MHz with reduced data rate Current mode: 1-10 mA, up to 9 V p-p > 10000 Ω source impedance Voltage mode: 9 V p-p, 90 mA maximum 50 Ω impedance
Input Stage	Input impedance: 100 kΩ Max. input voltage: 5V
Balance	Hardware balancing before the vector amplifier Software balancing after A/D conversion
HF amplification	Gain setting range: 2 - 20, 2.9 dB steps Bandwidth: 10 MHz Linear input range: 1.0 V
Demodulation	Bandwidth: 10 MHz Wave shape: square
Vector amplification	Gain setting range: 1 – 100, 2.7 dB steps
LF filtering	Digital filters
Phase setting	Range: 0 – 360° Step size: 0.05°
Digitized outputs	Data protocol: USB 2.0 full speed and/or long range Bluetooth
Digitization	Digitization technique: Sigma-delta Sampling rate: 375 Hz to 3 kHz A/D resolution: 14 to 16 bits Stage: After vector amplification and balancing



UW EC Probe

UWEC Tester

Diver's monitor

