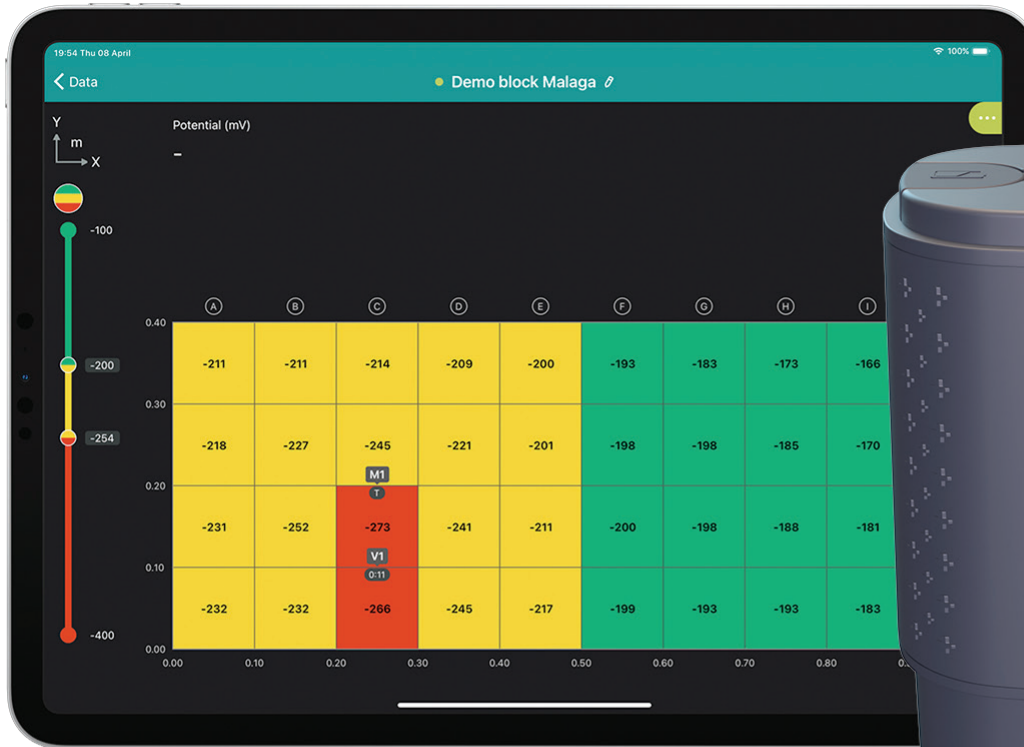


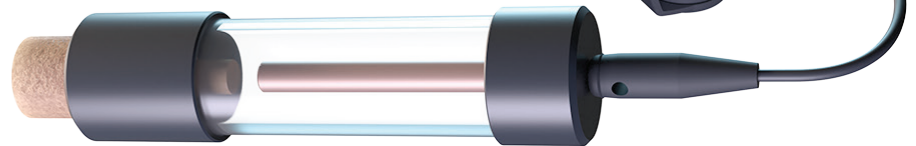


# HUMBOLDT

## HC-2873A— Profometer PM8500 Corrosion



HC-2873A  
(shown with iPad (not included))



Building upon the versatility, reliability and accuracy of the original Profometer Corrosion, the newly, redesigned PM8500 Profometer Corrosion has made a significant leap in providing major gains in ease-of-use, productivity, ergonomics and enhanced on-site data. The new HC-2873A Profometer Corrosion's new design now utilizes an iOS app, which is used with an Apple iPad, supplied by the user, for all control functions.

The PM8500 sensor is wirelessly connected to an iPad via low-power Bluetooth, which runs the downloadable Profometer app. Given mobile data connectivity (Wi-Fi or mobile network), the Profometer (pm) app automatically and safely stores all measurements on the Screening Eagle Workspace, where you can log in to see the data from any internet-connected device.

The universal, ergonomic iPad harness and sensor holder make it extremely easy and comfortable to perform scanning tasks. The iPad mounts to the harness, and is positioned at the operator's stomach area, making it easy to view and operate while not interfering with any operations.

The Profometer comes with a Rod electrode for spot scans, which allows you to scan small areas, such as columns, beams and footings. The Profometer can also be fitted with optional Wheel Electrodes. These come in single- and four-wheel models:

### Single-wheel Electrode—

This electrode provides flexible and fast line and area scans. It's designed for use on medium-sized horizontal, vertical and overhead areas, such as walls and ceilings or difficult to access spots.

### The Single-wheel Electrode features:

- Uses Copper (Cu/CuSO<sub>4</sub>) solution.
- Stable wheel, which provides smooth operation during a scan.
- Sensor holder, which provides an alternative mounting location to the belt/harness mounting.
- Minimal cabling, which reduces errors due to lose or damaged cables.
- High-precision encoder minimizes errors providing more accurate and consistent results.
- Robust telescopic rod, which provides rigid and steady operation, ensuring constant, even pressure of the wheel against the surface, ensuring fast and reliable measurements.
- Capable of scanning areas at a rate of 450m<sup>2</sup> per hour.

### Four-wheel Electrode—

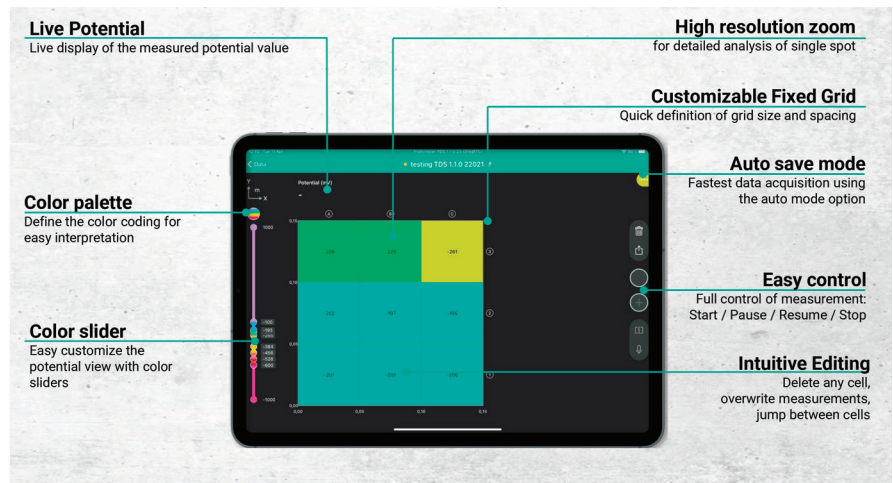
This electrode provides flexible and fast line and area scans It's designed for use on large-sized horizontal, areas, such as bridge decks and similar areas.

### The Four-wheel Electrode features:

- Uses Copper (Cu/CuSO<sub>4</sub>) solution.
- Adjustable wheel spacing (from 150 to 250mm), which allows wheel placement optimization for scanning speed or resolution.
- Sensor holder, which provides an alternative mounting location to the belt/harness mounting.
- Minimal cabling, which reduces errors due to lose or damaged cables.
- High-precision encoder minimizes errors providing more accurate and consistent results.
- Robust telescopic rod, which provides rigid and steady operation, ensuring constant, even pressure of the wheel against the surface, ensuring fast and reliable measurements.
- Capable of scanning areas at a rate of 1800m<sup>2</sup> per hour.

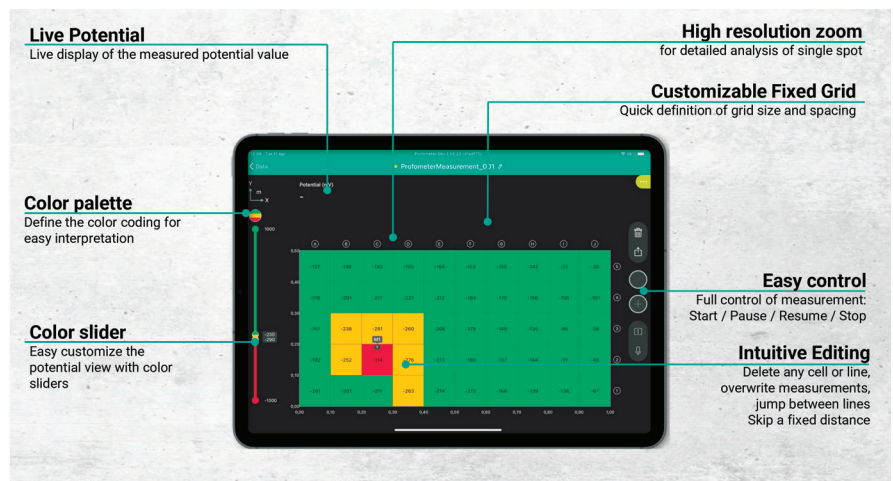
### Spot Scan with Rod Electrode

- Spot scan using the Rod Electrode
- Scanning small concrete elements: columns, walls, beams, etc
- Highly customizable grid definition
- Huge versatility during measurement using the controls and edit buttons
- Quicker data acquisition using the auto save mode



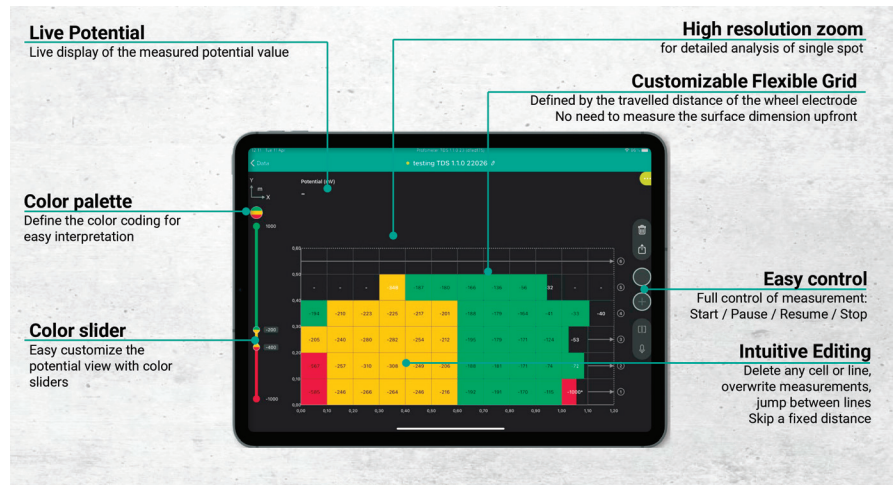
### Area Scan with Fixed Grid Wheel Electrode

- Area scan using the Wheel Electrode
- Fastest scanning of big concrete elements: slabs, walls, roofs, decks...
- Fixed customizable grid for when the surface dimension is known
- Huge versatility during measurement using the controls and edit buttons
- Measure areas with obstacles using the Skip distance feature



## Area Scan with Flexible Grid Wheel Electrode

- Area scan using the Wheel Electrode
- Fastest scanning of big concrete elements: slabs, walls, roofs, decks...
- Flexible measurement on the go for when the surface dimension is irregular or unknown
- Huge versatility during measurement using the controls and edit buttons
- Measure areas with obstacles using the Skip distance feature



## Potential Map

The potential map provides an area mapping of the measured potential values. The cells where no potential value was measured are displayed in black. Zoom and scroll to any desired location, change the color palette and the potential thresholds to enhance the readability and highlight the desired details. Text notes can be added to any cells.

## Statistical View

Distribution and cumulative distribution are shown in the same view. On the horizontal axis, the potential values are displayed; the vertical bars show the percentage of the respective potential values measured and stored.

In the upper part, the median, standard deviation, minimum and maximum values are shown, together with the number of measurements. If the surface under test has both actively corroding as well as passive rebar, then the two states exhibit two distinct partially overlapping distributions, with the corroding areas centered on a more negative potential.

The cumulative distribution graph is used to determine the active and the passive potential thresholds that will affect the Chipping Graph, discriminating actively corroding areas from passive areas where no corrosion is to be expected.

If the surface under test has both actively corroding, as well as passive rebar, then the curve will typically exhibit a central region with a lower gradient (flatter). The two points where the gradient changes can be marked on the screen by dragging the two vertical cursors.

The red cursor will define the maximum (most positive) potential value expected of the active distribution. Active corrosion is to be expected in the region of the left hand (more negative) straight section.

The green cursor will define the minimum (most negative) potential of the passive distribution.

## Potential Map



## Statistical View



## Chipping Graph

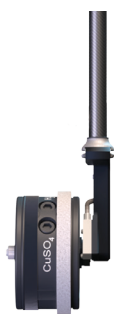
## Chipping Graph

The Chipping Graph View provides an area mapping of the measured potential values with a fixed green/yellow/red color palette referring to the thresholds set in the Cumulative Distribution View.

An immediate overview is then provided discriminating the actively corroding areas (red) from the passive areas (green) and the uncertain regions (yellow).

# HC-2873A— Profometer PM8500 Corrosion

Instrument Tech Specs	
Technology	Half-cell Potential
Measured Quantity	Corrosion potential in millivolts [mV]
Connection	Wireless - Bluetooth
Depth	First rebar layer
Voltage Meas. Range	-3000mV to +3000mV
Resolution	1.0mV
Input Impedance	100M Ohm
Sampling Rate	900Hz
Encoder Accuracy	+/- 0.5 mm / 0.02" + 0.78% of measured length Resolution: 3.3 mm / 0.13" (128 steps / rotation)
Max Scanning Speed	Normal conditions: 0.5 m/s - 1.7 ft <sup>2</sup> Max recommended: 2m/s - 6.6 ft <sup>2</sup>
Max Area Scan	100m x 100m - 328' x 328'
Dimensions (in / mm)	
Sensor Unit	5 x 2.3 x 2.2" (127 x 59 x 56mm) w/o holder 5 x 3.9 x 2.8" (127 x 98 x 72mm) w/ holder
Rod Electrode	D=1.4" (36mm) x 6.1" (155mm) with protection-cap
One wheel electrode:	7.6 x 5.4 x 5" (194 x 138 x 127mm) w/o telescopic rod 78.7 x 5.4 x 5" (2000 x 138 x 127mm) w/ extended telescopic rod 27.6 x 5.4 x 5" (700 x 138 x 127mm) w/ pulled-in telescopic rod
Four wheel electrode:	32.6 x 13.8 x 5.5" (830 x 350 x 140mm) without telescopic rod // 84.6 x 32.6 x 5.5" (2150 x 830 x 140mm) with extended telescopic rod // 32.8 x 32.6 x 5.5" (840 x 830 x 140mm) / with pulled in telescopic rod
Weight (lb. / g)	
Sensor Unit	150g / 0.33 lbs. without holder; 220g / 0.49 lbs.
Rod electrode:	120g / 0.26 lbs. without cable / without copper sulfate, without Sensor Unit



HC-2873A.3—  
Single-Wheel Electrode



HC-2873A.4—  
Four-Wheel Electrode

Profometer Corrosion App	
Display Unit	Compatible Apple iPad (iOS 11.0 and higher) <b>Measurement Modes:</b> <ul style="list-style-type: none"> <li>• Basic Mode</li> <li>• Expert Mode</li> <li>• Spot Scan (rod electrode)</li> <li>• Line Scan (wheel electrode)</li> <li>• Area Scan (wheel electrode)</li> <li>• Fixed Grid (rod electrode)</li> <li>• Flexible and Variable Grid (Wheel electrodes)</li> <li>• Auto save mode (rod electrode)</li> <li>• Grid set up (Origin of coordinates; Grid size; Cell size; Direction of measurement; Pattern of measurement)</li> <li>• Delete and overwriting information (Cells; Lines; Whole scan)</li> <li>• Skipping data (Cells; Lines; Fixed distance)</li> <li>• Pause and resume</li> <li>• Stop and start</li> </ul>
Review Modes	<ul style="list-style-type: none"> <li>• Potential View for displaying a heat map with the potential values</li> <li>• Statistic View - distribution and cumulative graph</li> <li>• Chipping graph view for displaying the corroded areas based on the analysis</li> </ul>
Advanced Features	<ul style="list-style-type: none"> <li>• Support for copper, silver, mercury and SCE calomel electrodes</li> <li>• Temperature correction</li> <li>• Zoom in and out</li> </ul>
Calibration Features	<ul style="list-style-type: none"> <li>• Calibration of length</li> </ul>
On-site annotations	<ul style="list-style-type: none"> <li>• Markers - comments and voice notes</li> <li>• Photos</li> <li>• Geolocation</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>• Cloud connectivity</li> <li>• Workspace integration</li> <li>• Share via URL</li> <li>• Automatic Logbook</li> <li>• Raw data export</li> <li>• Instant report generation</li> </ul>
Export formats	<ul style="list-style-type: none"> <li>• JPG (Screenshot)</li> <li>• PNG</li> <li>• CSV</li> <li>• HTML</li> </ul>
Display Unit Specs*:	<ul style="list-style-type: none"> <li>• Latest Apple® iPad recommended (iPad with iOS 11.0 and higher)</li> <li>• Screen size: From 7.9" to 12.9"</li> <li>• Resolution: Up to 2732-by-2048</li> <li>• Memory: Up to 2TB</li> <li>• Weight: Down to 301 g / 10.6 oz</li> <li>• Camera: Up to 12MP Wide and 10MP UltraWide</li> <li>• Optional: USB-C, 5G, Face ID</li> </ul>
Display Unit Sensors*:	<ul style="list-style-type: none"> <li>• LiDAR Scanner (optional)</li> <li>• Three-axis gyro</li> <li>• Accelerometer</li> <li>• Ambient light sensor</li> <li>• Barometer</li> <li>• Built-in GPS/GNSS</li> </ul>

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