Calibration

For accurate thickness measurements, the device needs to be calibrated. The device retains the calibration information and in most cases you don't need to calibrate it again before every use.

Be sure to check and complete the calibration the first time you use the device, or if you have not used it for a long time.

For the highest accuracy, it is advisable to calibrate the device using a substrate that closely resembles the surface to be measured (material, form, size).

For example, when measuring the coating thickness on carbon steel and chrome steel substrates, the calibration will vary insignificantly, but aluminum and zinc substrates will vary greatly. Therefore it is important to calibrate.

The device has separate, independent calibrations:
Zero deviation calibration (one point of reference) and two-point calibration are performed independently (separately) for A, M, Fe, nFe modes, and for P mode with each measurement method (magnetic induction and eddy current). This allows you to set up a one-time calibration for modes A, M, Fe, nFe, for example on carbon steel and aluminum substrates, and for P mode, chrome steel and zinc substrates. To switch between calibrations, simply switch between modes.

Keep a clean environment during calibration, as the slightest bit of dust stuck between plastic and metal base plates may distort the result by 5-10 µm.

Zero deviation calibration (one-point calibration)

When to calibrate:
1. When measuring on a metal substrate without a coating, the device will show a result greater or less than zero (depending on the properties of the metal substrate). After calibration, the device will display zero.

2. In cases where you need to measure deviation from a sample. In these cases, the zero deviation calibration is done on a sample coating and the device will use that coating as a point of reference - "0". The device will display the difference from the sample coating in subsequent measurements.

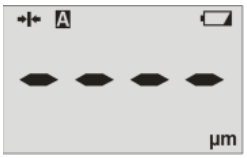
Zero deviation calibration procedure:
For zero deviation calibration, take a measurement of the metal substrate without a coating, or a measurement of sample coating.
When the result is displayed, press and hold the UNIT button for 2 seconds. The display will show "CAL", which indicates a successful calibration.

Verify the result by repeating the measurement.

Removing calibrations

This function will completely remove zero deviation and two-point calibrations for all modes.

This function will restore the device's functionality in case of incorrect calibration, but for accurate measurements it needs to be calibrated again.

To remove calibrations, when the display shows dashes 

, press and hold the UNIT button for 3 seconds. The display will show "-CL-" and a sound signal will be emitted.

The calibrations have been erased.

Two-point calibration

When to calibrate:

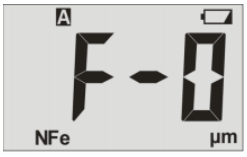
- Before first use;

- If the device has not been used for an extended period;

- Before each measurement for maximum accuracy.

Two-point calibration procedure:

To enter calibration mode, press and hold the MODE button for 2 seconds until the display shows "F-0".

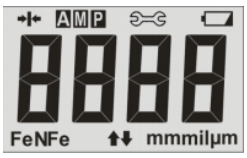
This indicates the zero point calibration. 

Take a measurement on a metal substrate without a coating, for which the device will be calibrated. If necessary, repeat the measurement. To proceed to the next point for calibration, shortly press the PWR button while the measurement result is being displayed. The display will show "F-1", the second point of

calibration. 

Take a measurement on the same metal substrate together with a sample coating of known thickness, for example 700 or 1000 µm. If necessary, repeat the measurement.

While the measurement result is being displayed, shortly press the MODE or UNIT buttons to adjust the displayed thickness of the measured coating, and shortly press the PWR button to save the calibration. The display will show "8888", indicating that the calibration has been successfully saved.



Verify that the calibration is correct by repeating the measurement of the metal substrate with and without the sample coating. If unsuccessful, repeat the calibration.

Six-point calibration

This calibration is available in "P" measurement mode and will be required when measuring coatings on substrates whose properties differ from standard substrates, or for more accurate measurements in a given range.

The new device's calibration is identical to the factory calibration.

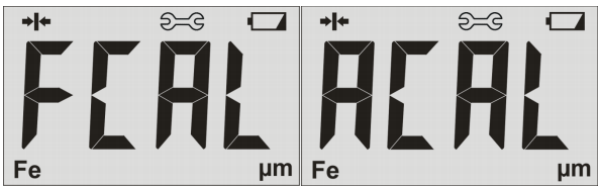
For calibration, a metal base and 5 plates of known thicknesses are required (not included in the set). All calibration points must be evenly distributed throughout the measuring range.

F-0 (point 0) - Base without a coating (zero).
F-1 (point 1) - Plate with a thickness of 80-300µm (3-12 mils).
F-2 (point 2) - Plate with a thickness of 400-800µm (16-31 mils).
F-3 (point 3) - Plate with a thickness of 900-1800µm (36-70 mils).

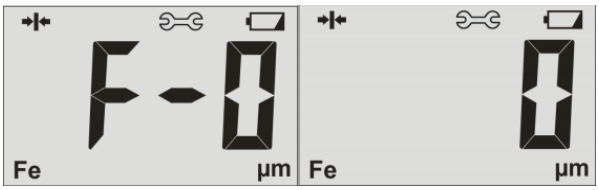
F-4 (point 4) - Plate with a thickness of 1900-2500µm (75-98 mils).
F-5 (point 5) - Plate with a thickness of 2600-3500µm (102-137 mils).

Entering the calibration mode:

Turn off the device, then press and hold the MODE button to enter calibration mode for a ferrous metal substrate (magnetic induction method) or the UNIT button to enter calibration mode for a nonferrous metal substrate (eddy current method), until the display shows "FCAL" or "ACAL" respectively.



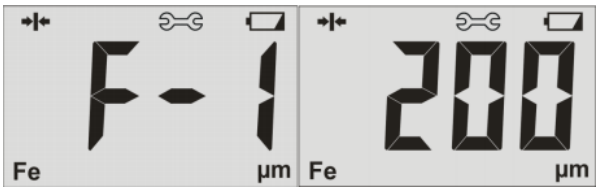
Wait until the display shows "0", indicating zero point calibration. From this moment, calibration can begin.



Calibration process :

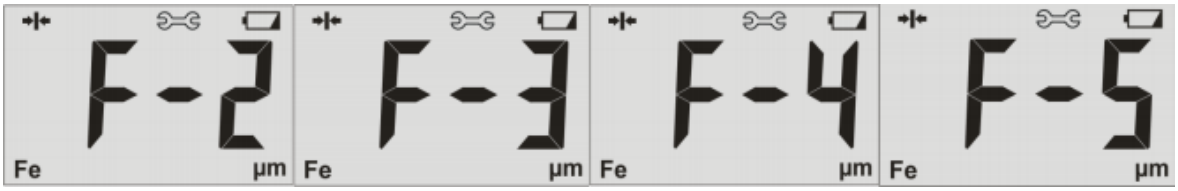
The first point of calibration is "0". Take a measurement of the metal base without a coating, for which the device will be calibrated. If necessary, repeat the measurement.

Shortly press the PWR button to save the result and proceed to the next point of calibration.

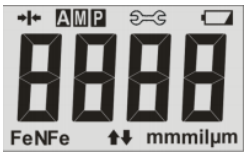


Take a measurement of the metal base together with the calibration plate. If necessary, repeat the measurement.

Use the MODE and UNIT buttons to calibrate the displayed thickness of the measured calibration plate, and shortly press the PWR button to proceed to the next point.



Repeat the procedure for each point of calibration. After saving the last point, the display will show "8888",



and the device will switch to operating mode "P".

Repeat the procedure if necessary, for the second type of metal base.

Please note, if the calibration is done incorrectly on one of the metal base types, the device will be unable to automatically detect the type of substrate material and choose the suitable measurement method. The new device's six-point calibration is identical to the factory calibration. The device is

calibrated at the factory using steel (magnetic induction method of measurement) and aluminum (eddy current measurement method) substrates.

Thank you for your attention! If you haven`t found an answer to your question, ask CARSYS CUSTOMER SERVICE bot again or contact our manager.