PosiTector® 6000

Coating Thickness Gage

On-Gage Help Reference

Ayuda en el Medidor | On-Gerät-Hilfe | Aide sur l'instrumentation

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Introduction

This Reference is a compilation of the On-Gage Help that is available on your PosiTector gage. To view these help items on the gage, enter the gage menu and touch the ⓘ icon or press the ⊕ button with the desired menu item selected.

For an overview of the use and operation of your instrument, refer to its included Instruction Manual or download a digital PDF at www.defelsko.com/manuals.

Update your gage to ensure your PosiTector includes these latest help references. Instructions are available at www.defelsko.com/updates.

Contents

Memory

The PosiTector 6000 Standard has internal memory storage for recording measurement data. Stored measurements can be reviewed on-screen or downloaded to a computer. Measurements are date and time-stamped. Store up to 1000 readings (per probe) into a single batch.

The memory icon appears and basic statistics are displayed when the Gage is set to store measurement data.

NOTE:

Remove the last reading by pressing (-).

View

Use the Up or Down buttons to scroll through information, statistical summary, and a list of each reading in the currently opened batch. Press the center navigation button to exit.

Off

Turns memory off and stops recording (stored readings remain in memory)

On

Turns memory on and begins recording measurements.

Clear

Removes all stored readings from memory.

Statistics
Menu option for configuring Statistics and HiLo Alarm modes.

Statistics
Statistics mode continually displays/updates average, standard deviation, min/max thickness and number of readings while measuring.

When selected, the statistics icon and statistical summary will appear on the display.

Ignore the last measurement by pressing the (-) button. Press (+) to clear statistics.

Clear
Clears all on-screen Statistics and HiLo tabulations.

HiLo Alarm
Allows the Gage to visibly and audibly alert the user when measurements exceed user-specified limits.

When HiLo Alarm is selected, the current Lo setting is displayed. Adjust using the (-) or (+) buttons. Alternatively, measure a coating with a thickness close to the required value and make final adjustments with the (-)(+) buttons. Select Next to accept this value. The current Hi setting is now displayed. Repeat to adjust the Hi setting.

Each measurement will be compared to the defined Hi and Lo limits. The Gage beeps if results are within those limits. A single low tone will sound if the reading is below the Lo limit, and a high tone if it is above the Hi limit. Press (+) to clear HiLo readings.

The Statistics icon will appear on the display.

Calibration Settings

Calibration, Verification and Adjustment

The PosiTector 6000 non-destructively measures the thickness of coatings on metals. Three steps ensure best accuracy:

1. Calibration: typically performed by the manufacturer. All probes include a Certificate of Calibration.

2. Verification of Accuracy: typically performed by the user on known reference standards such as the included plastic shims or optional coated thickness standards.

3. Adjustment: Adjustment, or Calibration Adjustment is the act of aligning the Gage's thickness readings to match that of a known sample in order to improve the effectiveness of the Gage on a specific surface or in a specific portion of its measurement range. 1-point or 2-point Cal adjustments are possible.

Probes are factory calibrated and perform an automatic self-check each time a measurement is taken. For many applications no further adjustment is necessary after a Reset. Just check ZERO on the uncoated substrate, then measure. However, sometimes readings can be influenced by changes in substrate, such as shape, composition, and surface roughness. That is why Cal adjustments are made possible. The factory calibration symbol disappears whenever a Cal adjustment is made to the Gage.

Where a Cal adjustment method has not been specified, use a Zero or 1-point method first. If measuring the included shims on your surface reveals inaccuracies, use the 2-point method. Factory Cal settings can be restored at any time by performing a Reset, creating a NEW Cal setting, or by DELETING the adjustments made to the Cal 1 calibration setting. The factory calibration symbol appears on the display whenever factory Cal settings are in use.

For FN gages, calibration adjustments are made independently to the F or N modes, and are stored together within a particular Cal.

1pt Adjustment

When measuring coating thickness over a rough substrate, it is preferable to adjust the Gage to a know thickness, such as a shim, rather than adjusting it to zero.

Press (+) to select the number of readings to be used to obtain an average, typically 3 to 10 readings. The greater the variation between readings, the more readings should be taken to obtain an average.

Repeatedly measure the known thickness reference. The Gage will wait 2 seconds between readings to allow the user to correctly position the probe on the surface. After the last measurement the Gage will calculate and display the reading which represents the average of all the measurements taken. If the expected reading is not obtained (within tolerance) lift the probe from the surface and adjust the reading down (-) or up (+) to the expected thickness and press the center button.

Zero

A Zero Calibration Adjustment should be performed when the gage does not read 0 within the tolerance of the probe being used on the uncoated part.

When measuring on smooth substrates, a single Zero (X=1) is sufficient. When measuring on a rough or curved surface a preferred method is to take several readings on the uncoated part and average the result.

Press (+) to select the number of readings to be used to obtain an average, typically 3 to 10 readings. The greater the variation between readings, the more readings should be taken to obtain an average.

Repeatedly measure the uncoated part. The Gage will wait 2 seconds after placing the probe on the surface to allow the user to correctly position the probe on the surface. After the last measurement the Gage will calculate a Zero which represents the average of all the Zero readings taken.

N 1pt Adjustment

(PosiTector 6000 FNDS only)
For rough zinc surfaces (i.e. zinc spray metallizing), it may be desirable to adjust the Gage to a known thickness, such as a shim placed over the zinc, rather than adjusting it to zero. This ensures the Gage measures the thickness of paint over the metallizing peaks.

Press (+) to select the number of readings to be used to obtain an average, typically 3 to 10 readings. The greater the variation between readings, the more readings should be taken to obtain an average.

Repeatedly measure the known thickness reference on the unpainted galvanized part. The Gage will wait two seconds between readings to allow the user to correctly position the probe on the surface. After the last measurement, the Gage will calculate and display the reading which represents the average of all the measurements taken. If the expected reading is not obtained (within tolerance), lift the probe from the surface and adjust the reading down (-) or up (+) to the expected thickness and press the center button.

NOTE:
The known thickness should be similar to the expected paint thickness.

Zero Offset

The Zero Offset adjustment is useful when measuring coating thickness over rough or blasted substrates without access to the uncoated representative substrate.
Predefined Zero Offset values can be selected according to the blast profile height (as determined by ISO 8503-1) in accordance with ISO 19840. Alternatively, a custom Zero Offset can be entered.

Fine 10 um (0.40 mils)
Medium 25 um (1.00 mils)
Coarse 40 um (1.55 mils)
Custom Adjust with (-)(+)

The Zero Offset value is subtracted from each reading.

Cal Reset

Resets all user calibration adjustments and restores factory calibration for the connected probe.

F Zero

(PosiTector 6000 FNDS only)
Measure the uncoated steel substrate (if available). If the average of several F readings is not within tolerance of 0, perform an F Zero adjustment.

Press (+) to select the number of readings to be used to obtain an average, typically 3 to 10 readings. The greater the variation between readings, the more zero readings should be taken to obtain an average.

Repeatedly measure the uncoated steel part. The Gage will wait two seconds after placing the probe on the surface to allow the user to correctly position the probe. After the last measurement, the Gage will calculate a Zero which represents the average of all the F Zero readings taken.

2pt Adjustment

Provides greater accuracy within a limited, defined range, and is the preferred method for very unusual substrate materials, shapes or conditions.

Press (+) to select the number of readings to be used to obtain an average, typically 3 to 10 readings. The greater the variation between readings, the more readings should be taken to obtain an average.

Repeatedly measure the first known thickness reference. The Gage will wait 2 seconds between readings to allow the user to correctly position the probe on the surface. After the last measurement the Gage will calculate and display a thickness value which represents the average of all the readings taken using the factory calibration settings.

Lift the probe from the surface and adjust the displayed reading down (-) or up (+) to the known thickness value of the first thickness reference. Press the center button to accept this value.

Repeat these steps for the second thickness reference.

Cal Lock

When enabled (default), the Calibration Lock icon will appear on the display. This prevents an adjustment from being performed inadvertently if the (-) or (+) buttons are pressed.

Zn Zero

(PosiTector 6000 FNDS only)
Measure the unpainted zinc surface (if available). If the average of several N readings is not within tolerance of 0, perform an Zn Zero adjustment.

Press (+) to select the number of readings to be used to obtain an average, typically 3 to 10 readings. The greater the variation between readings, the more readings should be taken to obtain an average.

Repeatedly measure the unpainted galvanized part. The Gage will wait two seconds after placing the probe on the surface to allow the user to correctly position the probe.

After the last measurement, the Gage will calculate a Zero which represents the average of all the Zn Zero readings taken.

N Lock

(Combination FN Probes only)Select N Lock (Non-Ferrous Lock) when operating regularly on non-ferrous substrates. The N Lock icon will appear and the probe will only use the eddy current principle to shorten measurement time and extend battery life.

N Lock is useful when measuring coatings on plated steel, or partially magnetic substrates:

Plated Steel: Normally the probe measures the combined thickness of the coating and plating over the steel using the magnetic principle. In N Lock mode, the gage measures only the thickness of the coating over the non-ferrous plating.

Partially magnetic substrates; i.e. clear-coat on gold over nickel-plated brass: In N-Lock mode, the gage ignores any magnetism in the substrate and uses the eddy current method to accurately measure the coating thickness.

CAUTION:

With N Lock engaged it is possible to obtain a reading when measuring non-conductive coatings on steel (ferrous). This is not recommended.

Setup
Set configuration options for the Gage.

Set Clock
All measurements are date and time stamped (24 hour format) when stored into memory. It is therefore important to keep both the date and time current using this menu option. Use the Up and Down buttons to scroll, and the (-) and (+) buttons to adjust value. The Gage's date and time can also be viewed in Gage Info and on top of the main menu.

Fast
Increases measurement speed. Useful for quick inspection or when measuring large areas with thick coatings where proper probe positioning is not critical. Swift up/down probe movement is required. Reduced accuracy may be noted.

NOTE:
For FN probe models, the N mode is disabled in Fast Mode.

Reset
Restores factory settings and returns the Gage to a known condition. The following occurs:

All batches, stored measurements, batch names and screen captures are erased.

Calibration adjustments and Cal Memory are cleared and returned to the Gage's factory settings. The factory calibration icon will appear on the display.

Menu settings are returned to the following:

Memory = OFF
Hi Res = OFF
Statistics Mode = OFF
HiLo Alarm = OFF
Scan Mode = OFF
Auto Dim = ON
Cal Lock = ON
Bluetooth & Stream = OFF
BLE Keyboard = OFF
WiFi & Access Point = OFF

USB Keyboard & Stream = OFF
Display = None
N Lock = OFF

Perform a more thorough Hard Reset by powering down the Gage, waiting several seconds, then simultaneously holding both the center navigation and (+) buttons until the Reset symbol appears. This returns the instrument to a known, out-of-the-box condition. It performs the same function as a menu Reset with the addition of:

Bluetooth Pairing info is cleared. Menu settings are returned to the following status:

Units = Microns
Touch = ON
Flip Lock = OFF
Auto Sync .net = ON
Fast Mode = OFF
Sound = Medium
Language = English
Backlight = Normal
Battery Type = Alkaline
Bluetooth Smart = OFF
USB Drive = ON

NOTE:
Keep the Gage away from metal during a Reset. Date, Time and WiFi are not affected by either Reset.

Units
Converts the displayed readings from inch to metric or vice versa. Stored measurements in memory are not converted. Switching units will turn off Statistics, HiLo Alarm and closes the current batch.

Battery Type
Selects the type of batteries used in the Gage from a choice of Alkaline, Lithium or NiMH (nickel-metal hydride rechargeable). The battery state indicator symbol is calibrated for the selected battery type. No damage will occur if the battery type used in the Gage does not match the selected battery type.

Sound
Adjusts the volume of built-in speaker (Off, Low, Medium, High).

Touch
Allows the touch screen functionality to be disabled. All gage functions can also be controlled using the navigation buttons.

Backlight
Selects display brightness (Sun, Normal or Night). If Auto Dim is enabled (default), the display dim slightly after a period of no activity to conserve battery life. Press the Down button to brighten the display.

Flip Lock
Disables the Auto Rotate feature by locking the display in its current orientation.

Language
Converts displayed and printed words to the selected language.

Gage Info
Displays the model number and serial number, probe type and serial number, PosiSoft.net registration key, the amount of remaining memory for storage of readings, date and time, and software packages.

For security purposes, the registration key is required to add the Gage to your free PosiSoft.net account.

Hi Res
Increases the displayed Gage resolution as follows:

Range	Resolution Range
0.00-99.00 mils	0.01 mil
100.0-999.9 mils	0.1 mil
0.0-999.9 um	0.1 um
over 1000 um	1.0 um

NOTE:
Gage accuracy is not affected.

Duplex Mode

(PosiTector 6000 FNDS probes only)
Duplex coating systems use a combination of two corrosion protection systems –typically paint or powder coating over galvanized steel (hot-dip, electro or zinc spray metallizing). The resultant corrosion protection is superior to either protection system used independently.

In Duplex mode, the Gage utilizes both magnetic (ferrous) and eddy current (nonferrous) principles simultaneously to calculate and display the individual paint and zinc layer thicknesses. The magnetic principle is used to measure the combined paint/zinc thickness over the ferrous substrate and the eddy current principle is used to measure the paint thickness over the non-ferrous zinc coating. The zinc thickness is calculated by subtracting the paint thickness from the combined paint/zinc thickness measurement.

When enabled (default), the Gage will display two measurement values. To disable, uncheck Duplex within the Setup Menu. Alternatively, when Memory is OFF, press the Up button to toggle Duplex On/Off.

When disabled, the Gage will operate like a conventional combination ferrous/nonferrous instrument (similar to the PosiTector 6000 FNS probe). Ideal for measuring non-magnetic coatings over steel and non-conductive coatings over non-ferrous metal substrates.

For additional information visit http://www.defelsko.com/duplex

Connect
Configure communication and connection options for the Gage.

USB
Connect the Gage to a PC/Mac using the supplied USB-C cable. View and print readings and graphs with universal web browsers/file explorers or using PosiSoft Desktop.

NOTE:
While connected, power is supplied through the included USB-C cable. The batteries are not used and the body will not automatically power down.

Sync.net Now
When selected, the Gage immediately synchronizes stored measurement data to PosiSoft.net (USB connection required to a computer running PosiSoft Desktop).

Alternatively, select Auto Sync.net from within the USB connect menu to automatically synchronize upon connection to a PC. Additional measurements added to memory while connected are synchronized only when the USB cable is disconnected and reconnected, or when the Sync.net Now option is selected.

NOTE:
PosiSoft Desktop is required when using USB connections to synchronize measurements with PosiSoft.net.

USB Drive
When USB Drive is enabled, the PosiTector is recognized as a USB mass storage device which provides a simple interface to retrieve stored data in a manner similar to USB flash drives and digital cameras. USB Drive is also required to import stored measurements into PosiSoft Desktop. Once connected, any computer can view measurements stored in memory by navigating a virtual drive labeled PosiTector using the supplied USB-C cable.

NOTE:
While connected, power is supplied through the included USB-C cable. The batteries are not used and the body will not automatically power down.

JSON Files
When enabled (default), JSON schema files will be available in PosiSoft USB drive. Files can be parsed in to databases and custom software applications.

NOTE:
Disabling this option may reduce the time required for the computer to recognize the PosiTector when first connected via USB.

HTML Report
When enabled (default), a formatted HTML report is viewed by selecting the index.html or START_HERE.html file found in the root directory. Optionally, text (.txt) files located in each batch folder provide access to measurement values. Stored readings and graphs can be viewed or copied using universal web browsers or file explorers.

NOTE:
Disabling this option may reduce the time required for the computer to recognize the PosiTector when first connected via USB.

Auto Sync .net
When enabled, measurements will automatically synchronize with PosiSoft.net when connected to a computer running PosiSoft Desktop. Additional measurements added to memory while connected are synchronized only when the USB cable is disconnected and reconnected, or when the Sync.net Now option is selected.

NOTE:
PosiSoft Desktop is required when using USB connections to synchronize measurements with PosiSoft.net.

Updates
Determines if a software update is available for your Gage.

To perform an update the Gage must be connected to an internet connected computer running PosiSoft Desktop.

See www.defelsko.com/update

WARNING:
The Gage will perform a Hard Reset after an update. All stored measurements will be erased from memory.

Help

When a Menu option is highlighted, the (i) icon indicates on-gage help is available. Press (+) or touch the (i) icon to display the help. Update your gage to ensure that you have the latest on-gage help information.

A formatted PDF containing all on-gage help items is available at www.defelsko.com/help.

Menu Operation

To access the Menu, power-up the gage, then press the center navigation button. Either the keypad or touch screen can be used to navigate the menu. If desired, touch screen functionality can be disabled within the Setup > Touch menu.

Select a menu option by touching it, or use the Up and Down buttons to highlight the desired option and press the center navigation button to select it.

On menus longer than one page, the current page number is displayed below the menu name. Navigate between pages using the Up button when the first menu item is selected, or Down button when the last menu item is selected. If using touch, navigate between pages by touching the left or right arrow, or by swiping up or down.

Press the (-) button or swipe right to return to a previous screen. Select Exit to close the Menu.

A menu option with a > indicates that a sub-menu exists for the Menu option. Select the option to display its sub menu.

Screen Capture

Press both (-) and (+) buttons simultaneously to save an image of the current display. The last 100 screen captures are stored in memory and can be accessed when connected to a computer via PosiSoft USB Drive.

Power Off

To conserve battery life, the gage will automatically go to sleep after 5 minutes of inactivity and enter Sleep Mode. While in Sleep Mode the gage powers up significantly faster— convenient when moving between parts or locations. The gage will completely power off after 4 hours of inactivity. Alternatively, select Power Off from the main menu. All settings are retained.

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Limited Warranty, Sole Remedy, and Limited Liability

DeFelsko's sole warranty, remedy, and liability are the express limited warranty, remedy, and limited liability that are set forth on it's website: www.defelsko.com/terms

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