

# PosiTector® **PC**

**Powder Checker**  
Coating Thickness Gage



v. 2.0



**DeFelsko®**  
The Measure of Quality

# Table of Contents

Introduction .....	1
Kit Contents .....	1
Quick Start .....	2
Probes .....	3
Measurement Notes .....	4
How to Measure .....	5
Menu Operation .....	7
Verification of Accuracy .....	8
Zero .....	8
Calibration and Adjustment .....	9
Adjustment Techniques .....	9
Cal Settings Menu .....	10
1 Point Adjust .....	10
2 Point Adjust .....	10
Setup Menu .....	12
Reset .....	12
Gage Info .....	13
Statistics .....	14
Memory Management .....	15
Annotate .....	16
Display .....	17
Summaries .....	18
Screen Capture .....	18
Accessing Stored Measurement Data .....	18
PosiSoft Desktop Manager (PDM) .....	19
PosiSoft.net .....	19
PosiSoft 3.0 .....	20
PosiSoft Mobile .....	20

Connect Menu .....	21
Sync Now .....	21
Auto Sync .....	21
USB Drive .....	22
Bluetooth .....	24
Bluetooth Wireless Printer .....	24
WiFi .....	25
Powder Probes .....	26
List .....	26
Change Order .....	26
Add New .....	26
Probe Off .....	26
Connect .....	26
Updates .....	27
Probe RESET .....	27
Temperature .....	28
PosiTector Body Power Supply/Battery Indicator...	28
Change Probe Batteries .....	28
Additional Accessories .....	29
Technical Data .....	31
Returning For Service .....	32
Warranty .....	32

## Introduction

The **PosiTector PC Powder Checker** is a hand-held, non-contact Coating Thickness Gage that uses an airborne high frequency ultrasound to analyze coating powder applied to rigid substrates to calculate and display a predicted cured thickness.

The Gage consists of an Advanced body and a **Powder Checker (PC)** probe that communicate with each other via wireless technology. They must stay within 10 meters (30 feet) of each other while measuring. A rubber holster with belt loop allows the PosiTector body to stay with the operator while measuring.

### PosiTector PC Contents

- PosiTector body (*Advanced*)
- PosiTector probe (PC)
- PC Probe Connector Cover
- Probe zeroing fixture
- Replacement screen
- Protective lens shield
- Carabineer
- Wrist strap
- Protective rubber holster with belt clip
- 3 AAA alkaline batteries (gage body)
- 3 AA alkaline batteries (probe)
- Quick Guide instruction manual
- Instructional video
- Hard shell carrying case
- USB Cable
- PosiSoft.net account
- Two (2) year warranty on Body and Probe

## Quick Start

### 1. **POWER-UP** both units (probe first).

a) *Power-up probe* by pressing the  button.

b) *Power-up PosiTector body* by pressing the center  navigation button.

A beep and the letters “PC” will display on the upper left corner of the PosiTector LCD. This indicates both units are ready to measure.

### 2. **ZERO** the probe (pg 8)

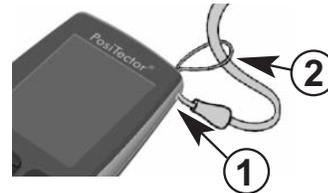
### 3. **ADJUST** to the specific powder if necessary (pg 10)

### 4. **MEASURE** the applied powder (pg 5)

**NOTE:** To preserve battery life, the PosiTector body and *PC* probe power down after approximately 5 minutes of no activity. All settings are retained.

## Wrist Strap

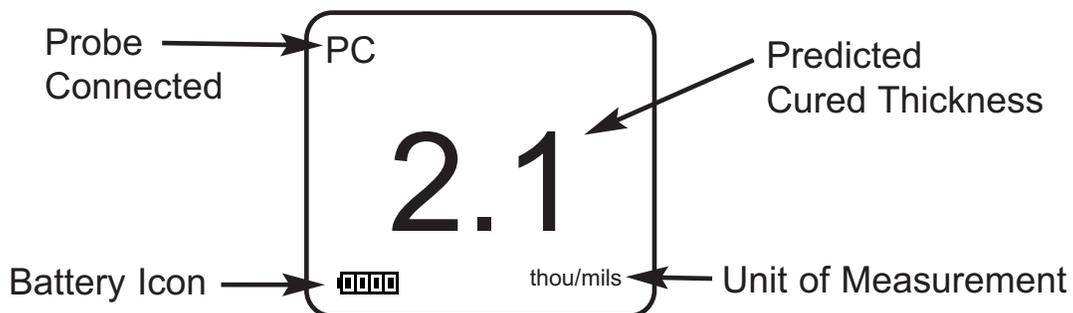
We recommend attaching and wearing the supplied wrist straps for both the PosiTector body and *PC* probe.



## Protective Lens Shield

The LCD is covered with a thin plastic film for protection against fingerprints and other marks during shipment. This film, while usually removed before using the Gage, can be left in place to protect against paint overspray or debris. Replacements can be purchased.

## Typical Display



## PosiTector Body



## Probes

The **PosiTector** body accepts a number of probe types including magnetic, eddy current and ultrasonic coating thickness, surface profile, environmental and ultrasonic wall thickness probes.

For the latest information on probe interchangeability, see [www.defelsko.com/probes](http://www.defelsko.com/probes)



*PosiTector bodies accept all 6000, 200, DPM, UTG, SPG and RTR probes*

### **Wireless Powder Checker probes:**

The **PosiTector PC** wireless probe connects to all Advanced PosiTector bodies. See *Powder Probes* (pg 26) for connection details.



### **Physically connected PosiTector probes:**

To disconnect a probe from a PosiTector body, slide the plastic probe connector horizontally (in the direction of the arrow) away from the PosiTector body. Reverse these steps to attach a new probe.

The **PosiTector** automatically determines what type of probe is attached and does a self-check.



**NOTE:** During power-up a physically connected probe is recognized when a *PC* probe is not available (powered-off).

To reconnect to a *PC* wireless probe (after power-up), select **Connect**, within the **Connect > Powder Probes** menu. (pg 26)

The PosiTector body will automatically connect to an active wireless *PC* probe during power-up. *PC* probe must be turned on.

## **Maintenance**

The screen at the measuring end of the *PC* probe can be unscrewed for cleaning. Accumulated powder should be carefully removed from the screen by no more than 0.2 MPa (20 - 30 psi) of compressed air. Do not blow air directly into the probe. Replacement screens are available.

## **Measurement Notes**

If a thickness result does not appear after 5 seconds, release the measurement button and try again. Wait 1 to 2 seconds between readings.

Small, erratically swinging parts may present measurement challenges. Steady the part whenever possible. If erroneous readings continually result, change the measurement strategy by rotating the probe, altering its alignment to the part, or by measuring a different location on the part.

For best results use **Statistics** mode (pg 14) to generate averages. The average of a series of measurements is often a more meaningful prediction of cured thickness than a single reading.

## How to Measure

Power-up both units. Bring the probe to within 5 cm (2 inches) of the coating powder.

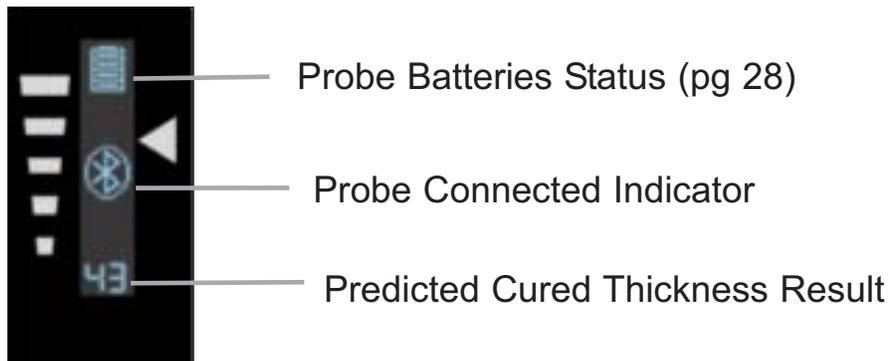
Press and hold the  button. Bring the probe closer to the powder. While watching the probe display, align the Distance Paddle with the Distance Target Bar. (pg 5)

While the probe button is depressed, probe distance and angle should be varied slightly keeping:

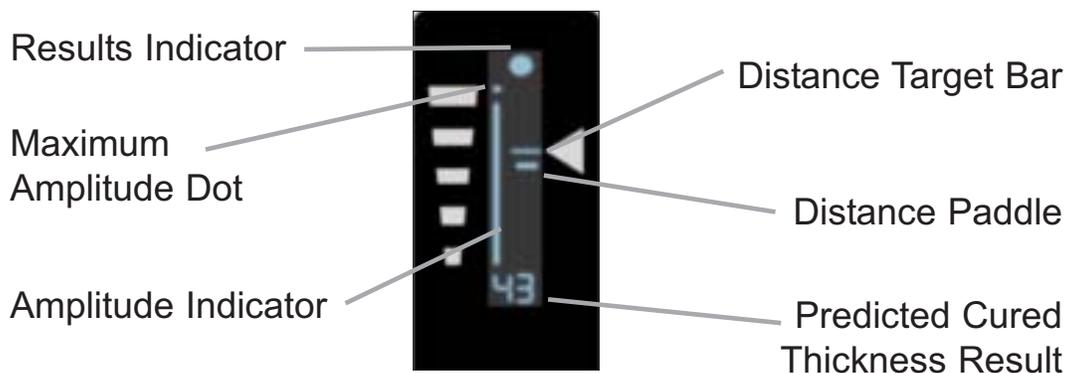
- (a) the Distance Paddle close to the Distance Target Bar
- (b) the Amplitude Indicator at maximum height (pg 5)

Release the  button when you hear a double BEEP or see a thickness measurement on either display.

### Probe Display: ( button not pressed)



### Probe Display: ( button pressed)



**Wireless Indicator:** The  symbol indicates the PosiTector body and wireless probe are communicating properly.

**Results Indicator:** When the probe is in the proper position and good samples are being taken, a solid blue dot blinks on the probe display, the PosiTector body displays a flashing green dot and emits a high beep. When samples are inconclusive, an "X" blinks on the probe display, the PosiTector body displays a flashing red dot and emits a low beep.

**Distance Paddle:** Graphically represents the distance to the target. It rises and falls to indicate distance from the probe tip to the surface of the powder.

**Distance Target Bar:** The optimum distance for measurement is 18 mm (3/4 inch) between the tip of the probe and the surface of the applied powder. During measurement, keep the Distance Paddle close to the Distance Target Bar.

**Amplitude Indicator:** Strength of the ultrasonic echo. A high position indicates good probe orientation relative to perpendicular. The bar will generally reach higher positions when measuring thin powder and when the probe is at a 90-degree angle to the powder surface.

**Maximum Amplitude Dot:** Marks the highest position the Amplitude Indicator reached during the current measurement attempt.

**Predicted Cured Thickness Result:** When a valid measurement is calculated, the PosiTector body BEEPS twice and the predicted cured measurement result is displayed on both the *PC* probe and PosiTector body. Continuing to hold the probe button will result in additional samples being collected.

There are 4 types of displayed measurement results:

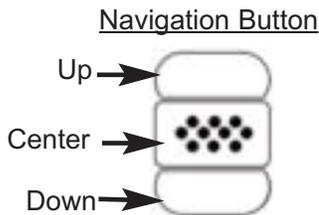
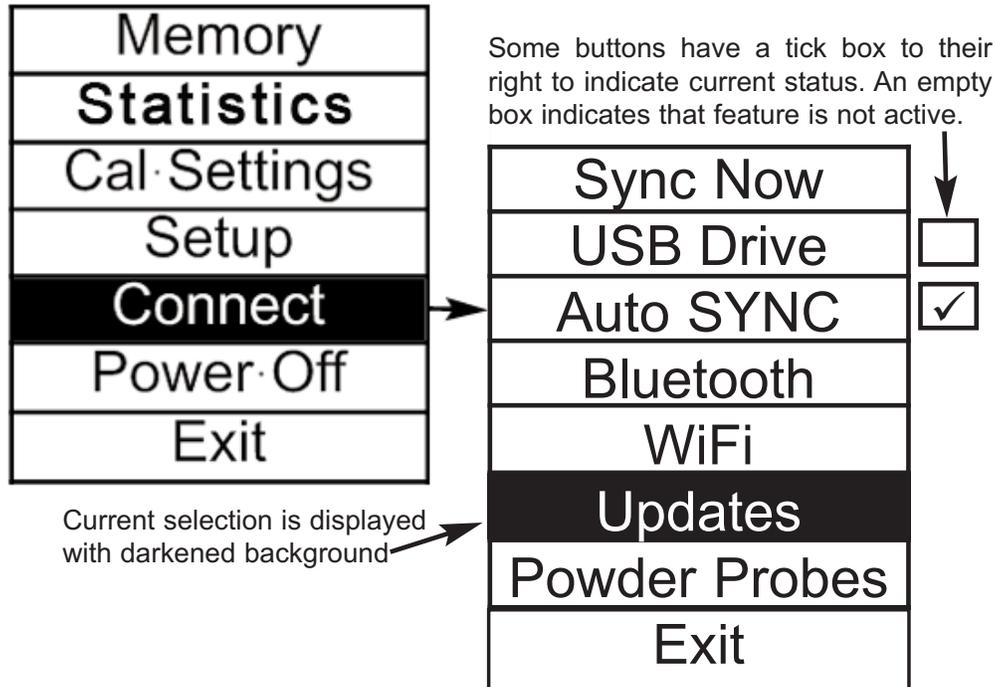
**43** Predicted thickness result.

- 0** The collected samples have resulted in a good reading, but the resultant predicted cured thickness is less than the minimum range.
- ++** The collected samples have resulted in a good reading, but the resultant predicted cured thickness is greater than the maximum range.
- An indeterminate or invalid reading.

# Menu Operation

Gage functions are menu controlled. To access the Menu, power-up the *PC Probe* and *PosiTector* body, then press the center navigation button. 

Below is a sample menu for a **PosiTector PC**:



To navigate, use the **Up** and **Down** buttons to scroll and  to **SELECT**.

Select **Exit** to exit from any menu.

## NOTES:

The center  button is purposely recessed to help eliminate unintentional power-up.

When no probe is attached, a limited menu will be displayed. Connect probe for full menu.

## Verification of Accuracy

Before first use on a new powder and periodically thereafter, the user should perform an accuracy check. This ensures the gage measures properly by comparing predicted thickness values with actual cured thickness values.

1. **Zero** the probe (pg 8).
2. Spray powder onto a flat, smooth metal sample.
3. Measure the uncured powder with the **PosiTector PC**.
4. Cure the powder.
5. Measure cured thickness with a magnetic or eddy current coating thickness gage such as the **PosiTector 6000**.
6. Compare results.

A successful verification requires that the average of a series of measurements by both instruments be within their combined tolerances. If not, adjust the **PosiTector PC** using one of the methods described on page 9.

For best accuracy, perform a **Zero** at the beginning of every shift to compensate for temperature and humidity changes. It is also required after a **Reset** (pg 12).

### Zero

Place the measuring end of the *PC* probe into the Powder Probe Fixture.



Select **Zero** from the Gage menu.

**NOTE:** The Zero process can take up to 30 seconds.

### **Factory Calibration Symbol**

This symbol indicates the instrument is measuring with factory calibration settings. It appears whenever a **Reset** (pg 12) is performed or whenever a new calibration setting (pg 11) is created. It disappears whenever a calibration adjustment is made (pg 10) or when a user calibration is loaded from cal memory (pg 11). A probe **Zero** (pg 8) does not change the status of the symbol.

## Calibration and Adjustment

The **PosiTector PC** probe is factory calibrated and performs an automatic self-check each time it calculates a measurement. For many powder measurement applications no further adjustment is necessary. Simply **Zero** at the beginning of each shift, then measure.

Sometimes gage measurement calculations can be influenced by the composition of the coating powder. A calibration adjustment improves accuracy in these circumstances.

Adjustment, or Calibration Adjustment, is the act of aligning the gage's predictions to match those of a known cured sample.

Begin by performing a *Verification of Accuracy* (pg 8) to determine if there is a need for an adjustment. If the average of several thickness results is outside the combined tolerances of the two measuring instruments (**PosiTector PC** and dry film thickness instrument) then two adjustment techniques are available to correct the variance (see *Adjustment Techniques*, pg 9).

User adjustments are stored in the current Cal setting. It may be desirable to open a new Cal setting first (see *Cal Memory*, pg 11).

### Adjustment Techniques

To ensure the gage is working properly, the user should periodically perform an accuracy check by comparing predicted thickness values with actual cured thickness values (pg 8).

If the average of a series of measurements by both instruments (**PosiTector PC** and dry film thickness instrument) is not within combined tolerances, the **PosiTector PC** can be adjusted using one of two methods...

1. **1 Pt Adjust** - The first and most common choice.
2. **2 Pt Adjust** - If a 1 Pt Adjust does not improve accuracy.

See *Cal Settings* menu, pg 10 for more details.

## Cal Settings Menu

### 1 Pt Adjust

1. Spray approximately 75 microns (3 mils) of powder onto a flat, smooth metal sample.
2. Select **1 Pt Adjust** then select **Measure**.
3. Take at least 3 uncured powder measurements with the **PosiTector PC**. Results will be stored in the gage.
4. Select **OK**.
5. Cure the powder.  
**NOTE:** Gage may be powered off. It will retain the cal measurements during a power cycle.
6. Measure cured thickness with a magnetic or eddy current coating thickness gage. Record the results.
7. Select **1 Pt Adjust** then select **Adjust**.
8. Adjust the displayed reading average lower (-) or higher (+) to match the cured thickness value. Select **OK**.

### 2 Pt Adjust

1. Spray powder onto 2 flat, smooth metal samples. Place approximately 40 microns (1.5 mils) on one and 75 microns (3 mils) on the other.
2. Select **2 Pt Adjust** then select **Measure**.
3. Take at least 3 uncured powder measurements on the thin powder panel with the **PosiTector PC**. Results will be stored in the gage. Select **OK**.
4. Take at least 3 uncured powder measurements on the thick powder panel with the **PosiTector PC**. Results will be stored in the gage. Select **OK**.
5. Cure the powder on both panels.  
**NOTE:** Gage may be powered off. It will retain the cal measurements during a power cycle.
6. Measure cured thickness on both panels with a magnetic or eddy current coating thickness gage. Record the results.
7. Select **2 Pt Adjust** then select **Adjust**.
8. Adjust the displayed 1st point reading average lower (-) or higher (+) to match the cured thickness values. Select **OK**.
9. Adjust the displayed 2nd point reading average lower (-) or higher (+) to match the cured thickness values. Select **OK**.

## Cal Memory

When measuring a specific part with a specific powder, it is often convenient to be able to store any unique calibration adjustments made for that application. Then, if you return to that part, the corresponding Cal setting can be conveniently and quickly restored.

A “cal setting” is any calibration adjustment. The **PosiTector PC** always displays the current calibration setting (ex. **Cal 3**) in the upper right corner of the display.

The setting called **Cal 1** has unique features. It can be adjusted but never deleted, and is always made active with factory settings after a **Reset** (pg 12).

## New

Creates a new calibration setting using the next available number (Maximum of 10). By default, these new Cal settings are initially created with the Gage’s factory settings. This is indicated with the  icon which appears at the bottom of the display. A warning message will prevent the creation of a new **Cal Memory** if a *batch* is open and has readings. Delete the batch first (pg 16).

## Open

Loads an existing cal setting. Use the **Up** or **Down** buttons to scroll until the desired setting appears, then press . A warning message will prevent the opening of a stored Cal setting if a *batch* is open and has readings. Create a new batch first or open a batch containing no readings (pg 15).

## Delete

Removes a cal setting completely from the list. That Cal number can be reused later with the New command. A setting cannot be deleted if readings have been stored into a *batch* using that calibration setting. Delete all readings in that batch first (pg 16). Although **Cal 1** cannot be deleted, the **Delete** function will return it to factory settings.

## View

View stored Calibration Settings.

**Cal Lock**

When selected, the  icon will appear and all calibration settings are “locked” to prevent further user adjustments. Uncheck to make further adjustments.

**Cal Reset**

Clears the calibration adjustments for the open Cal setting. The factory calibration  icon will appear on the display.

## Setup Menu

**Reset**

**Reset** (soft reset) restores factory settings and returns the Gage to a known condition. The following occurs:

- All batches, stored measurements, images, and batch names are erased.
- Menu settings are returned to the following:

<b>Memory</b> = OFF	<b>Bluetooth</b> = OFF	<b>Cal Lock</b> = OFF
<b>Statistics</b> = OFF	<b>WiFi</b> = OFF	<b>Display</b> = None

Perform a more thorough **Hard Reset** by powering down the Gage, waiting several seconds, then simultaneously holding both the center  and **(+)** buttons until the **Reset** symbol  appears. This returns the Gage to a known, “out-of-the-box” condition.

It performs the same function as a menu **Reset** with the addition of:

- All calibration adjustments and Cal Memory are cleared and returned to the Gage’s factory calibration settings.
- Bluetooth Pairing info is cleared.
- Menu settings are returned to the following:

<b>Units</b> = microns	<b>White on Black</b> = OFF	<b>Backlight</b> = Normal
<b>Flip Display</b> = Normal	<b>Language</b> = English	<b>USB Drive</b> = ON
<b>Auto Sync</b> = OFF	<b>Battery Type</b> = Alkaline	

**NOTES:**

- A probe **Zero** (pg 8) must be performed after a **Reset**.
- Date, Time and stored WiFi settings are not affected by either **Reset**.

### **Gage Info**

Displays the model number & serial number, probe type & 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 PosiSoft.net account.

### **Flip Display**

This option causes the display to read upside down allowing for alternate positioning techniques.

### **White on Black**

Inverts the LCD display to white on a black background to provide better readability in some surroundings.

### **Backlight**

Selects display brightness (Sun, Normal or Night). All settings will dim slightly after a period of no activity to conserve battery life. Press the **Down** button to brighten the display.

### **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 a value. The Gage's date and time can also be viewed in **Gage Info** (pg 13).

### **Units**

Converts the display from inch to metric or vice versa. Stored measurements in memory are not converted.

Switching units will turn off Statistics view and closes Memory.

### **Language**

Converts displayed and printed words to the selected language.

## Battery Type *(PosiTector body only)*

Selects the type of batteries used in the PosiTector body from a choice of “Alkaline”, “Lithium” or “NiMH” (Nickel-metal hydride rechargeable). If NiMH is selected, the PosiTector will trickle charge the batteries while connected via USB to a PC or optional AC charger. The battery state indicator icon  is calibrated for the selected battery type. No damage will occur if the wrong battery type is selected.

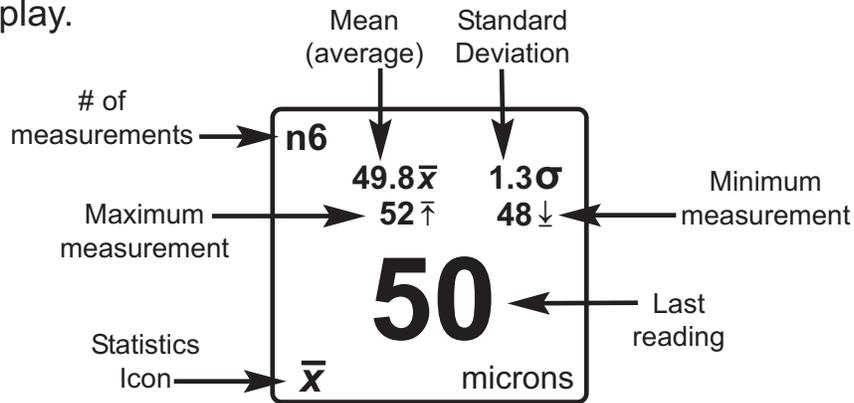
**NOTE:** DeFelsko recommends the use of *eneloop* (NiMH) rechargeable batteries.

## Statistics Mode

### Statistics



When selected, a  $\bar{x}$  icon and statistical summary will appear on the display.



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

### Clear

Clears all on-screen **Statistics**.

## Memory Management

The **PosiTector PC** has internal memory storage for recording measurement data. Stored measurements can be reviewed on-screen or accessed via computers, tablets and smart phones. Measurements are date and time-stamped.

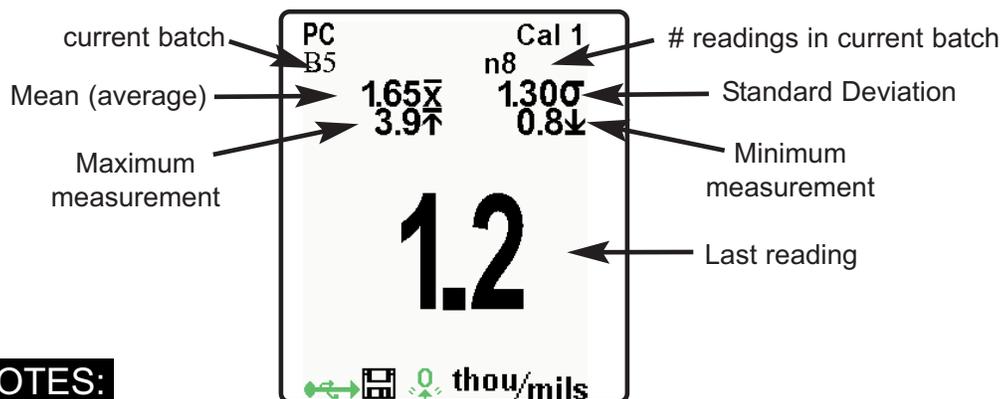
Memory stores 100,000 readings in up to 1,000 batches. "New Batch" closes any currently opened batch and creates a new batch name using the lowest available number. The  icon appears. New batch names are date stamped when created.



### New Batch

Closes any currently opened batch and creates a new batch name using the lowest available number. For example, if only **Batch 1** and **Batch 3** exist, then **Batch 2** would be created and made the current batch. The  icon appears and basic statistics are displayed. Each measurement will be displayed and stored into this new batch. On screen statistics are immediately updated with each measurement. New batches are date stamped when they are created. Each reading is also data/time stamped.

**Shortcut:** When a batch is open, press (+) to create a new batch



### NOTES:

- Remove the last reading from the current open batch by pressing (-).
- If memory is ON, continuous measurements can be taken and stored in memory.

## Open

Selects a previously created batch name to open and make current. If it contains measurements, onscreen statistics will immediately reflect values calculated from this batch.

## Close

Stops the recording process, closes the current batch, and removes batch information from the display.

## Delete

Removes a batch completely from memory. The name is deleted and all measurements are erased.

## View

Scroll using the **Up** or **Down** buttons through information, statistical summary, and a list of each reading in the currently opened batch. Press  to exit.

## Annotate

Create meaningful batch names and enter notes directly on the Gage using a familiar onscreen *QWERTY* keyboard. Use the Gage's navigation and **(-)(+)** buttons to enter annotations.

Annotations can be synchronized with PosiSoft.net and are included in all PosiSoft reports (see **Accessing Stored Measurement Data**, pg 18).

**NOTE:** Annotations can also be created using PosiSoft.net (pg 19) or PosiSoft Mobile (pg 20).



## Print

Sends a statistical summary and individual measurements to the optional Bluetooth wireless printer (see pg 24).

**NOTE:** To cancel printing, press and hold the **(-)** and **(+)** buttons simultaneously.

## Display

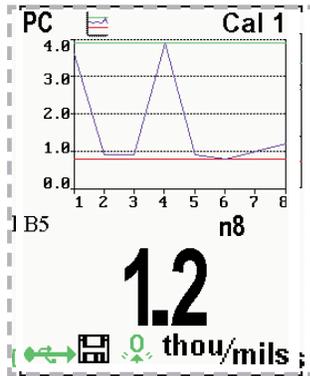
(appears only if a batch is currently open)

The following user selectable display options are available:

 **Chart:** A real-time chart of batch readings

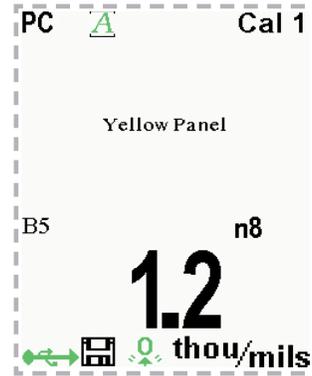
**x-y Chart** for

Single Layer Application

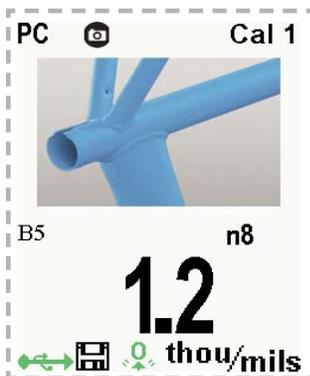


 **Notes:** Instructions, descriptions or notes

(see **Annotate**, pg 16)



 **Image:** Batch image



**None:** Default screen shows statistics

**Shortcut:** When a batch is open, press **Up** to scroll through the above display options.

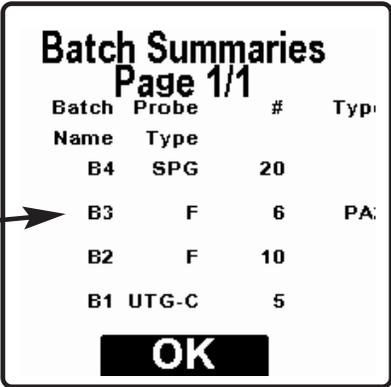
## NOTES:

- PosiSoft.net (pg 19) and PosiSoft Mobile (pg 20) are used to insert an **Image** and **Notes** into a batch.
- Remove the last reading from the current open batch by pressing (-).
- Calibration adjustments cannot be made if any measurements were taken with that setting and stored into a batch.
- Each batch can contain a maximum of 10,000 readings.

## Summaries

Displays a summary of all stored batches including the name, probe type, number of readings and type.

In the following example, Batch 3 (B3) indicates an “F” 6000 coating thickness probe was used to record a total of “6” readings in “PA2” mode.

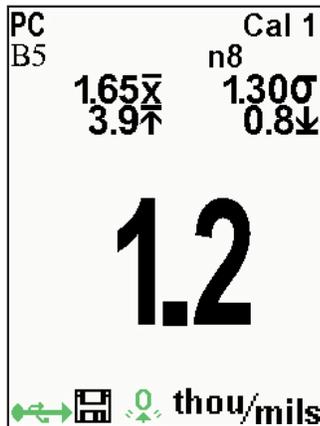


Batch Name	Probe Type	#	Type
B4	SPG	20	
B3	F	6	PA2
B2	F	10	
B1	UTG-C	5	

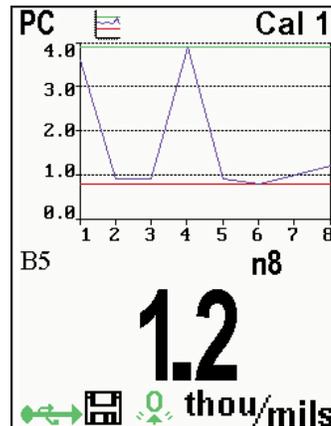
OK

## Screen Capture

Press both (-)(+) buttons at any time to capture and save an image copy of the current display. The last 10 screen captures are stored in memory and can be accessed when connected to a computer (see *PosiSoft USB Drive* pg 22).



Sample  
Screen  
Captures



## Accessing Stored Measurements Data

PosiSoft solutions for viewing, analyzing and reporting data:

**PosiSoft USB Drive** - connect the **PosiTector** to a PC/Mac using the supplied USB cable to access and print stored readings, graphs, photos, notes and screen captures. No software or internet connection required. *USB Drive* (pg 22) must be selected.

**PosiSoft.net** - a free web-based application offering secure centralized storage of **PosiTector** readings. Access your data from any web connected device. Go to: [www.PosiSoft.net](http://www.PosiSoft.net)

**PosiSoft 3.0** - Desktop Software for downloading, viewing and printing your measurement data.

**PosiSoft Mobile** (*Advanced models only*) - access readings, graphs, capture photos and update annotations through WiFi enabled devices, such as tablets, smart phones and computers.

## **PosiSoft Desktop Manager (PDM):**

A small Windows based application which allows automatic two-way communication (synchronization) between the Gage and *PosiSoft.net* (internet connection required). When installed, **PDM** runs as a start-up application and resides in the Windows notification area (system tray) of a PC. **PDM** is available as a free download within your PosiSoft.net account or at [www.defelsko.com/downloads](http://www.defelsko.com/downloads)

Register your Gage on PosiSoft.net to take full advantage of your Gage's capabilities. See [www.PosiSoft.net](http://www.PosiSoft.net)

**NOTE:** PDM is not required for **WiFi** enabled gages (pg 25).

## **PosiSoft.net:**

To enhance the operation of your Gage, all **PosiTector** users have access to the features provided by *PosiSoft.net*. It is a web-based application offering secure centralized management of readings.

After (1) a user account has been created, (2) a Gage has been registered, and (3) the *PosiSoft Desktop Manager* is downloaded and installed onto a Windows PC (not required for WiFi connected gages), synchronization of measurement data can be performed either manually or automatically whenever the **PosiTector** is connected to a web enabled PC (USB cable or Bluetooth wireless technology) or WiFi network. Gage measurements stored in memory are uploaded; images and batch notes are synchronized.

Uploaded data can be manipulated using a standard internet web browser from any location in the world - job site or head office. Reports and graphs with annotations and corporate logo can be generated. Data can be exported to XML or CSV (comma delimited) text files.

Measurement data can be shared with authorized users via a secure login from any computer and most web enabled devices including smart phones.

**NOTE:** A *PosiSoft.net* account is not required to **Update** (pg 27) your **PosiTector**. Simply download and install *PosiSoft Desktop Manager* at [www.defelsko.com/downloads](http://www.defelsko.com/downloads)

## PosiSoft 3.0:

Desktop Software that can be installed onto your Windows PC and allows the user to download, view, print and analyze their measurement data.

Reports and graphs with annotations and corporate logo can be generated. Data can be exported to XML or CSV (comma delimited) text files.

**NOTE:** *PosiSoft Software* is available for use with DeFelsko's complete line of electronic instruments and is available for download at [www.defelsko.com/posisoft](http://www.defelsko.com/posisoft)

## PosiSoft Mobile:

Is a Gage-based software application featured in all **PosiTector** Advanced instruments (serial numbers 730,000+).

PosiSoft Mobile allows users to:



- browse stored measurement data including notes, images, statistics and charts
- update batch names/notes using your mobile device's keyboard
- insert images directly into Gage batches using your mobile device's camera or image library
- remotely view the live display of a working **PosiTector** & more

PosiSoft Mobile can be accessed from any WiFi enabled device using a standard web browser.

Ideal for use with devices such as Windows Phone/Mobile, Blackberry (RIM), Android, Apple iOS and more.

In addition to browser based access, PosiSoft Mobile Managers are available for Apple iOS and Android users.

See [www.defelsko.com/wifi/wifi\\_mobile](http://www.defelsko.com/wifi/wifi_mobile)



## Connect Menu

**Synchronizing** (Sync) is the process whereby **PosiTector** stored measurement data uploads to *PosiSoft.net* while images and batch notes are downloaded to the Gage. This transfer occurs when the Gage is connected via USB, Bluetooth or directly through your WiFi router/hotspot via WiFi. It can be triggered either manually (USB, Bluetooth or WiFi) or automatically (USB only).

### **Sync Now**

When selected, the Gage immediately synchronizes stored measurement data via USB, Bluetooth or WiFi to *PosiSoft.net* (*PosiSoft Desktop Manager* (pg 19) and an internet connection are required when using USB or Bluetooth.)

Multiple gages can be synchronized simultaneously when connected using multiple connections (for example two gages connected via USB and one gage connected via WiFi or Bluetooth).

### **Auto SYNC**



Allows the Gage to automatically synchronize stored measurements with *PosiSoft.net* when initially connected to the internet via a PC running *PosiSoft Desktop Manager* (pg 19) or a local WiFi network.

Additional measurements added to memory while connected are synchronized only when the USB cable is disconnected, then reconnected or when the **Sync Now** option is selected.

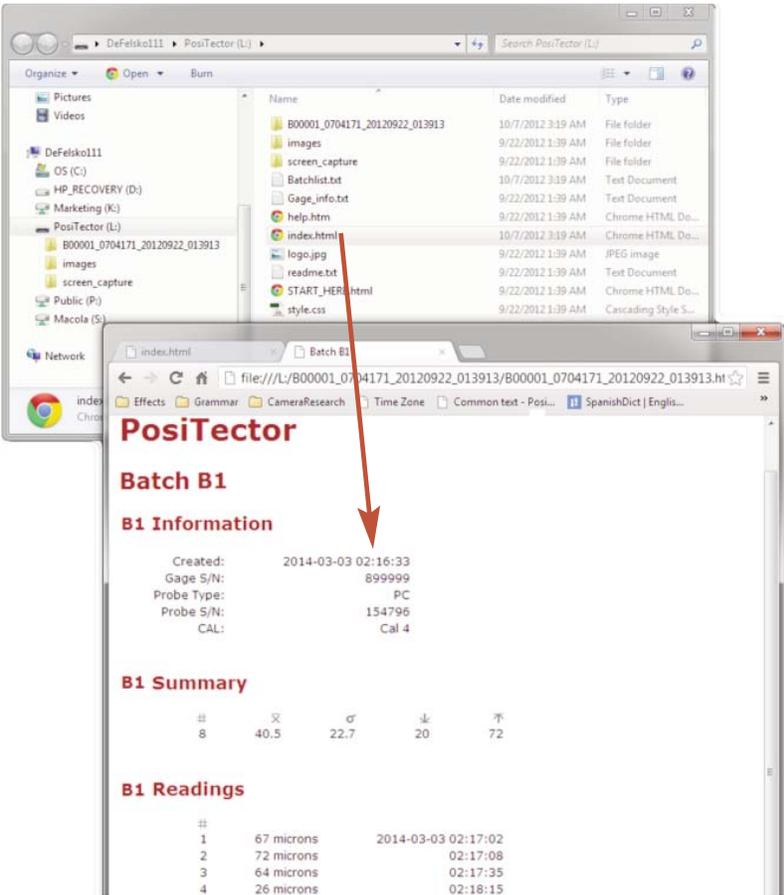
**USB Drive**

Universal Serial Bus (USB) is a specification for communication between devices and a host controller (usually a personal computer). USB has effectively replaced a variety of interfaces such as serial and parallel ports.

The **PosiTensor** uses a USB mass storage device class which provides a simple interface to retrieve data in a manner similar to USB flash drives, cameras or digital audio players.

When checked, any computer can view readings stored in memory by navigating a virtual drive labeled “PosiTensor” using the included USB cable.

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 PC/Mac web browsers or file explorers.

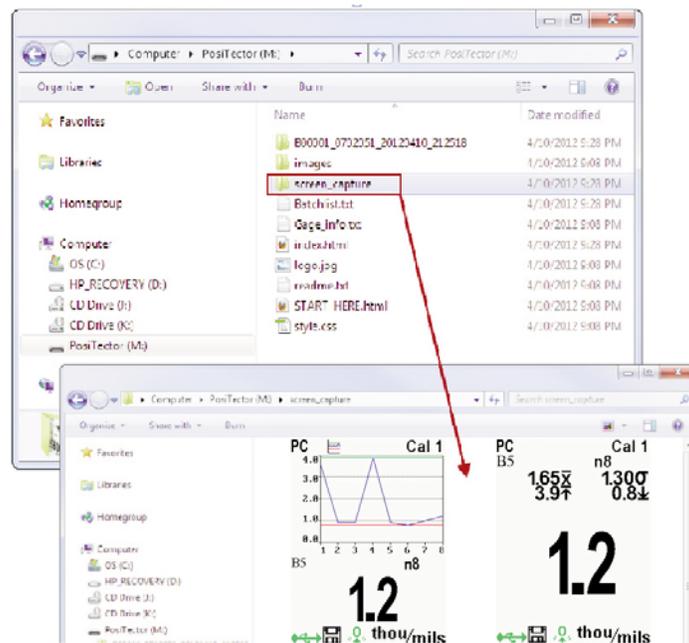


When your **PosiTector** is first connected to your Windows PC via a USB cable, an enumeration process is started that installs device drivers without re-booting your computer. You may see several pop-up windows in the taskbar at the bottom right of your screen. Wait for the entire process to be completed before proceeding.

**NOTE:** When connected, power is supplied through the USB cable. The batteries are not used and the body will not automatically power down. If rechargeable (NiMH) batteries are installed, the Gage will trickle charge the batteries.

### Retrieving stored screen captures

The last 10 screen captures (pg 18) stored in memory can be accessed by navigating to the “screen\_capture” directory within the “PosiTector” virtual drive.



## Bluetooth



**PosiTector** Advanced models have Bluetooth functionality to:

- **Communicate** with the *PosiSoft Desktop Manager (PDM)* in lieu of a USB cable.
- **Stream** individual readings to a computer or Bluetooth wireless printer as they are taken.
- **Print** to the optional battery powered Bluetooth wireless printer.

**On:** Turns Bluetooth functionality **On**. When selected, the  icon will appear on the display. To deactivate Bluetooth, select **Off**.

**Pairing:** The Gage and receiving device must be paired before stored or streamed readings can be transmitted. For pairing instructions, see [www.defelsko.com/bluetooth](http://www.defelsko.com/bluetooth)

**Info:** Lists information about your current Bluetooth connection, including the currently paired device and MAC address.

**Stream:** When checked, the Gage will stream readings to the paired Bluetooth Device as they are taken. Readings can be streamed as they are taken to the optional Bluetooth wireless printer (pg 24) or third-party computer software.

### Bluetooth Wireless Printer

**PosiTector** Advanced models can output to the optional battery powered Bluetooth wireless printer one of two ways:



- Stream individual readings as they are taken.
- Print stored batch readings and summaries.

Begin by entering the **Connect>Bluetooth** menu. Turn Bluetooth ON and “Pair” the **PosiTector** to the printer. See: [www.defelsko.com/bluetooth](http://www.defelsko.com/bluetooth)

**Streaming:** In the **Connect>Bluetooth** menu, select the “Stream” tick box. All readings will now be simultaneously displayed on the LCD and sent to the printer.

**Printing:** In the Memory menu, select “Print”.

## WiFi



Allows wireless communication with devices such as tablets, smart phones and computers connected to your local wireless network or portable mobile hot spot. See [www.defelsko.com/WiFi](http://www.defelsko.com/WiFi)

**On/Off:** Turns WiFi functionality **On**. When selected, the  icon will appear on the display. To deactivate WiFi, select **Off**.

**Networks:** The Gage will allow the user to add a new network and will automatically check for available local networks. Available networks detected by the Gage are listed on the screen along with any networks that the Gage has previously been connected to that are not currently within connection range.

**Information:** Gage displays information about the local WiFi network connection including...

- SSID: the network's name
- State: displays if the Gage is connected to the network or not
- IP Address: the network's IP Address. Users can enter this number into a web-browser of any WiFi enabled device that is connected to the same network in order to view the Gage's synced batches through **PosiSoft Mobile** (pg 20).

**Setup:** Allows user to setup a WiFi connection

- IP Settings: enter the IP information as follows... IP Type (DHCP or Static), IP Address, Gateway, Netmask, DNS1, DNS2.
- Server Enable: enables a connection between the network and the Gage.
- Gage Name: enter a name for the Gage (up to 14 Characters).
- WiFi Reset: erases all WiFi settings.

## **Powder Probes**

Displays menu options that enable the PosiTector body to communicate with wireless PosiTector *PC* probes.

### **List**

Displays all previously connected *PC* probes.

### **Change Order**

Select which *PC* probe the PosiTector body will connect to first during power-up.

### **Add New**

Allows PosiTector body to pair with a wireless *PC* probe for the first time.

1. When selected, the PosiTector body will display, "Ensure probe is turned on and in reset state before continuing!" (see ***Probe RESET*** pg 27)
2. Select **Next**. The PosiTector body will search for available *PC* probes.
3. Select the *PC* Probe to connect. *PC* Probes are displayed by their serial numbers.

### **Probe Off**

Disconnects *PC* probe from PosiTector body and causes the *PC* probe to power off. If a physically connected probe is attached, the PosiTector will automatically recognize it.

### **Connect**

Allows PosiTector body to connect to or switch between wireless *PC* probes and physically connected probes. *PC* probe must be turned on.

## Updates

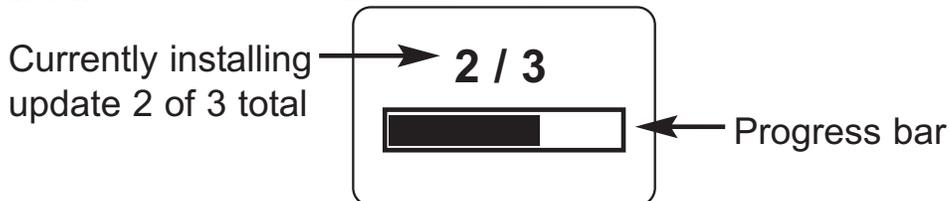
Determines if a software update is available for your Gage. If an update is available, a prompt will appear allowing the user to choose to perform the update at this time or not.

To perform an update the Gage must be connected to an internet connected PC with *PosiSoft Desktop Manager* (pg 19), or **WiFi** network (pg 25).

**NOTE:** Ensure that stored measurements are backed up to a PC or *PosiSoft.net*.

**WARNING:** The Gage may perform a **Hard Reset** (pg 12) after completion of the update and ALL readings in memory would be erased.

Updates - Sample Screen



 **DO NOT** unplug the Gage during the update operation.

## Probe RESET

Allows a wireless *PC* probe to be un-paired (RESET) from a PosiTector body. This allows the *PC* probe to be paired with another PosiTector Advanced body.

1. Turn on *PC* probe.
2. Press and HOLD the check button for exactly 3 seconds and then release.
3. Probe will display "0.1".
4. Repeat step 2, three more times until probe reads "0.4".

The *PC* probe can now be paired to any PosiTector Advanced body (see **Add New** pg 26).

## Temperature

Operating Range: +32° to +120°F (0 to +50°C)

The **PosiTector PC** compensates automatically for temperature. Allow a few minutes for the probe to reach ambient temperature before measuring.

Discard the first measurement taken in a notably different temperature condition. When measuring surfaces much hotter or colder than ambient, lift the probe at least 6 inches (15cm) and allow 1 second off the surface between measurements.

## PosiTector Body Power Supply / Battery Indicator

**Power Source:** 3 AAA alkaline, Lithium or optional Nickel-metal hydride (NiMH) rechargeable batteries. For best battery indicator results, ensure the appropriate **Battery Type** is selected in the **Setup>Battery Type** menu (pg 14).

The battery indicator  displays a full bar with fresh alkaline or fully charged batteries installed. As the batteries weaken, the bar will be reduced. When the battery symbol is low  the Gage can still be used, but the batteries should be changed or recharged at the earliest opportunity. The Gage will turn off automatically when batteries are very low, preceded by a Low Battery Warning on the display.

 To retain all user settings and stored memory readings, only replace the batteries after the Gage has powered-down.

Battery performance decreases at low temperatures.

## Changing Probe Batteries

Use only “AA alkaline batteries” (3) in the probe. Nickel-cadmium and nickel-metal hydride rechargeable batteries will work but the probe battery state indicator icon may appear to have weak batteries . The gage will turn off automatically when batteries are very low, preceded by a low battery warning on the display. If batteries are very low the gage may startup but then turn off quickly.



## Additional Accessories

### Rechargeable Battery Pack - 4 AAA eneloop batteries

The **PosiTector** body can operate on rechargeable batteries and DeFelsko recommends the use of *eneloop* (NiMH) rechargeables. *eneloop* batteries combine the advantages of regular rechargeable batteries and disposable (Alkaline) batteries. They discharge very slowly and can be stored for long periods without having self discharge concerns. Eneloop batteries come pre-charged and ready to use immediately. See: [www.eneloop.info](http://www.eneloop.info)

### AC Power Cable Kit

An optional AC Power Cable Kit is available for continuous operation or battery charging through the **PosiTector's** built-in USB port (as shown on pg 2). This kit supplies several alternate power solutions for your battery-operated **PosiTector**. They allow the gage to operate continuously without the need for batteries.

Use the cable alone to connect a **PosiTector** to your PC's built-in USB port that acts as a continuous power source. Or connect the cable to the included power adaptor which plugs into any AC wall electrical outlet, 110 or 220V.

A selection of electrical plugs is included which are capable of dealing with most country's outlets. The USB cable provided can also be used for **Accessing Stored Measurement Data** (pg 18).

### USB Cable

A USB Cable is provided with every **PosiTector**. The USB cable can also be used for **Accessing Stored Measurement Data** (pg 18) via the PosiTector USB Port or to connect to a PC's built-in USB port to act as a continuous power source. Replacement USB cables are available.

### Bluetooth Printer

This lightweight printer receives data from all **PosiTector** gages via Bluetooth wireless technology. It is battery-operated and prints readings and statistical summaries.

### Protective Lens Shield

One lens shield is included with every **PosiTector** instrument. Additional package of five (5) thin plastic lens shields are available and ideal for protecting the **PosiTector** display from paint and overspray.

## PosiTector Probes

PosiTector **6000** - Magnetic & Eddy Current Coating Thickness probes

- measure coatings on ferrous and non-ferrous metal substrates.

PosiTector **200** - Ultrasonic Coating Thickness probes

- measure coatings on wood, concrete, plastics and more

PosiTector **SPG** - Surface Profile probes

- measure and records peak to valley surface profile height

PosiTector **RTR** - Replica Tape Reader probes

- measure and records peak to valley surface profile height using replica tape (Testex™ Press-O-Film™ Replica Tape™)

PosiTector **DPM** - Dew Point Meter probes

- measure and records climatic conditions

PosiTector **UTG** - Ultrasonic Wall Thickness probes

- measures wall thickness of steel, plastic and more

## Technical Data

**Measuring Range:**

20-110 microns

0.8-4.3 mils

**Body Size:**

137 x 61 x 28 mm

5.4 x 2.4 x 1.1 in.

**Accuracy:**

± 5 microns

± 0.2 mil

**Probe Size:**

222 x Ø50 mm

8.75 x Ø2.0 in.

**Resolution:**

1 micron

0.05 mils

**Body Weight:** (without batteries)

140 g

4.9 oz

**Measurement Time:**

2-5 seconds

**Probe Weight:** (without batteries)

272 g

9.6 oz

**Measurement Distance****to Powder:**

18 mm

0.75 inch

**Temperature Range:**

+32° to +120°F

0 to +50°C

**Measurement Area:**

2 mm

0.08 inch

**Conforms to:**

ASTM D7378

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## Returning for Service

Before returning the Gage for service...

1. Install new or newly recharged batteries in the proper alignment as shown within battery compartment (pg 28).
2. Examine the probe screen for dirt or damage (pg 4).
3. Perform a **Hard Reset** (pg 12) and a **Zero** (pg 8).

If you must return the Gage for service, describe the problem fully and include measurement results, if any. Be sure to also include the probe, your company name, company contact, telephone number and fax number or email address.

Website: [www.defelsko.com/support](http://www.defelsko.com/support)

## 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 its website: [www.defelsko.com/terms](http://www.defelsko.com/terms)



*The Measure of Quality*

[www.defelsko.com](http://www.defelsko.com)

© DeFelsko Corporation USA 2014  
All Rights Reserved

This manual is copyrighted with all rights reserved and may not be reproduced or transmitted, in whole or part, by any means, without written permission from DeFelsko Corporation.

DeFelsko, PosiTector and PosiSoft are trademarks of DeFelsko Corporation registered in the U.S. and in other countries. Other brand or product names are trademarks or registered trademarks of their respective holders.

Every effort has been made to ensure that the information in this manual is accurate. DeFelsko is not responsible for printing or clerical errors.