

# PosiTector<sup>®</sup> *SPG*

## *Surface Profile Gage*

Quick Guide v. 1.1



**DeFelsko<sup>®</sup>**

## Introduction

The **PosiTector Surface Profile Gage (SPG)** is a hand-held electronic instrument that measures the peak-to-valley height of the surface profile of abrasive blast cleaned surfaces. It consists of a body (Standard or Advanced) and probe.

This Quick Guide summarizes the basic functions of the instrument. Download the full instruction manual at:

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

## Quick Start

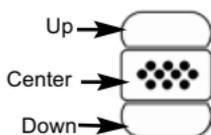
The **PosiTector SPG** powers-up when the center navigation button  is pressed. To preserve battery life, the instrument powers down after approximately 5 minutes of no activity. All settings are retained.

1. Remove the protective rubber cap from probe.
2. Power-up Gage by pressing the center navigation  button.
3. Place the glass plate onto a stable, flat surface. Take several measurements. If the average is greater than  $\pm 5 \mu\text{m}$  (0.2 mil), Zero the instrument (see pg. 4).
4. Place the probe FLAT on the surface to be measured such that the tip of the probe reaches into the bottom of a profile valley. HOLD STEADY. The Gage will BEEP twice and display the measurement.
5. Lift the probe from the surface between measurements.

## Menu Operation

Gage functions are menu controlled. To access the Menu, power-up the gage, then press the center navigation button.

Navigation Button



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

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

**NOTE:** The center  button is purposely recessed to help eliminate unintentional powering-up of the gage.

## Probe

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



When powered-up, the **PosiTector** automatically determines which type of probe is attached and does a self-check.

**NOTE:** The supplied probe tip has a 60° angle to comply with most test standards including ASTM D 4417 B. An optional 30° angle tip with replacement tool is available for special applications or to comply with Australian Standard AS 3894.5.

Additionally, the **PosiTector** accepts a number of probe types including magnetic and eddy current 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)

## Calibration

Instrument calibration is typically done by the manufacturer or qualified lab. All probes include a Certificate of Calibration.

## Verification of Accuracy

Instrument accuracy is verified using the included metal shim and glass zero plate. Ensure that the glass plate and shim are clean and dirt free before use.

Place the plate onto a stable, flat surface. Take several measurements. If the average is greater than  $\pm 5 \mu\text{m}$  (0.2 mil), zero the instrument (see below).

Next, place the metal shim over the glass plate and measure ensuring the probe needle touches the glass plate in the area between the shim's "legs". The average of several measurements should be within the combined tolerances of both the gage and the shim.

If not, see Returning for Service (pg. 9). Metric example: gage tolerance is  $\pm 5\%$  or  $\pm 5 \mu\text{m}$  whichever is greater. The  $76 \mu\text{m}$  shim tolerance is  $\pm 5 \mu\text{m}$ . So the average of several measurements should be between 66 and 86 microns. Inch example: gage tolerance is  $\pm 5\%$  or  $\pm 0.2$  mils whichever is greater. The 3 mil shim tolerance is  $\pm 0.2$  mils. So the average of several measurements should be between 2.6 and 3.4 mils.

## Zero Menu

**Zero**

The **PosiTector SPG** has only one adjustment point at zero. The zero point can be set using one of two methods. Both methods are found under the Zero menu option.

### Glass Plate Zero

Setting the Gage to zero on the glass plate is the preferred zero adjustment method:

1. Select **Zero** from the menu.
2. Press the (+) button to select the number of readings to be used to obtain an average, typically 3.
3. Repeatedly measure the glass plate. After the last measurement, the gage will calculate a Zero which represents the average of all the Zero readings taken.

### Factory Zero

If a glass plate or suitable smooth, hard surface is not available, the factory zero setting can be restored:

1. Select **Zero** from the menu.
2. Press the down button to select "**Reset**" and press the center navigation button.  The factory calibration icon  will appear on the LCD.

**NOTE:** The factory zero setting may not always be precise, particularly after a probe tip exchange. For best accuracy, the gage should be zeroed on the included glass plate.

## Setup Menu

### Reset

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

- All batches, stored measurements, images, and batch names are erased.
- The zero adjustment is returned to the factory setting. Since this may not always be a precise zero, the gage should be checked on the glass plate.
- Menu settings are returned to the following:

**Memory** = OFF

**Hi Lo Alarm** = OFF

**Statistics Mode** = OFF

**Bluetooth** = OFF

Perform a more thorough **Hard Reset** by powering down the instrument, waiting several seconds, then simultaneously holding both the center  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 addition of:

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

**Units** = microns

**Language** = English

**Flip Display** = Normal

**Battery Type** = Alkaline

**Auto Sync** = OFF

**Backlight** = Normal

**White on Black** = OFF

**Bluetooth Streaming** = OFF

**USB Drive** = ON

**NOTES:** Date, Time and WiFi are not affected by either **Reset**.

### Battery Type

Selects the type of batteries used in the Gage from a choice of “Alkaline”, “Lithium” or “NiMH” (Nickel-metal hydride rechargeable). If NiMH is selected, the Gage 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 Menu

**Statistics**   $\bar{x}$

A statistical summary will appear on the display. Remove the last measurement by pressing the (-) button. Press (+) to clear statistics.

$\bar{x}$  - Average

$\sigma$  - Standard Deviation

$\uparrow$  - Maximum Value

$\downarrow$  - Minimum Value

**HiLo Alarm**  

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

## Memory Management

The **PosiTector SPG** 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.

**Standard models** store up to 250 readings in one batch.

**Advanced models** store 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 they are created.



## **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. 7).

**NOTE:** *This Quick Guide summarizes the basic functions of the Gage. Download the full instruction manual at: [www.defelsko.com/manuals](http://www.defelsko.com/manuals)*

**SmartBatch™**



This menu option sets-up the **PosiTector SPG** to comply with various standards and test methods published by organizations including ASTM, SSPC, ISO, IMO, US Navy, SANS and AS.

For instructions on how to use the Smart Batch™ feature, see [www.defelsko.com/smartbatch](http://www.defelsko.com/smartbatch)

## 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** must be selected. (see pg. 8)

**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 Software** - 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.

## Connect Menu

### Sync Now

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

### Auto SYNC



Allows the Gage to automatically synchronize with *PosiSoft.net* when initially connected to the internet via a PC running *PosiSoft Desktop Manager* 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



The Gage 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.

**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.

### Bluetooth

(Advanced models only)



Allows individual readings to be sent to a computer, printer or compatible device as they are taken using Bluetooth wireless technology. See [www.defelsko.com/bluetooth](http://www.defelsko.com/bluetooth)

### WiFi

(Advanced models only)



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)

### Updates

Determines if a software update is available for your Gage. See [www.defelsko.com/update](http://www.defelsko.com/update)

**WARNING:** The Gage may perform a **Hard Reset** after an update (see pg. 5)

## 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.
2. Examine the probe tip for dirt or damage. The probe tip should move up and down freely. The metal plate surrounding the probe tip should be smooth and free from burrs and foreign material.
3. Perform a **Hard Reset**. (pg. 5)
4. Place the metal shim over the glass plate and attempt a measurement.

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 2012  
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 and PosiTector 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.