

## How to Determine if PG1000 Hardware Updates are Required Before Installing REACTION Software Version 8.0+

PG Inspection Technologies has sold 1000+ PG1000 systems since 1996. Many PG1000 systems are operating on older versions of the Euro-Tech PG1000 software that are no longer supported.

Software and hardware upgrades fix bugs, enhance existing software features, and add new features that benefit users.

This guide will help explain what hardware is necessary to successfully install the latest version of the PG1000 REACTION software and to operate the PG1000 system most efficiently.

### UPGRADE vs REBUILD

Replacing a few components in the field is considered an UPGRADE. However, an upgrade or installing the latest version of the REACTION software does not guarantee accuracy of the PG1000 system.

PG1000 systems will also periodically require a full REBUILD. Rebuilds are strongly suggested every 7-10 years. During the rebuild process the granite base is typically replaced and the mechanical items (bearings, lead screws, backlash nuts, etc.) are checked/repared and/or replaced. The X and Y Axis linear scales are cleaned and calibrated or replaced. Older camera, microscope and encoders are replaced with the most recent models. The system is then rebuilt, calibrated and will be as accurate and repeatable as a new system.

UPGRADES can often be performed in the field and can improve the performance of the system and delay the necessity of a full rebuild.

REBUILDS must be performed by PG Inspection Technologies and require 2-4 weeks of downtime. Rental PG1000 systems are available when downtime is not an option.

### PG1000 RECALIBRATION NOTES

PG Inspection Technologies recommends recalibrating the PG1000 systems once every two years for light use, annually for regular use and as often as monthly or quarterly for heavy or multishift use.

We recommend calibrating the unit after any upgrades are completed to ensure the accuracy of the system.

PG Inspection Technologies includes a full calibration for any work completed by PG Inspection Technologies. Calibration reticles are available for purchase and for rental.

### CAMERA NOTES

- HD Cameras
  - Camera models supported by REACTION 8.0+ software: 3140 / 2240 / 1640
  - Camera models no longer supported by REACTION 8.0+ software: 2210 / 1540 / 1480 / 1210
- 4K Cameras
  - Camera models supported by REACTION 8.0+ software: 3580

### **Important Note:**

*This document is to be used as a guide only. There may be exceptions to this guide. This is especially true for older PG1000 systems that have received partial upgrades or systems that have already been rebuilt since they were originally purchased.*

*Please contact PG Inspection Technologies to discuss your specific system and requirements.*

## STEP 1: What Software Version Do You Have Now?

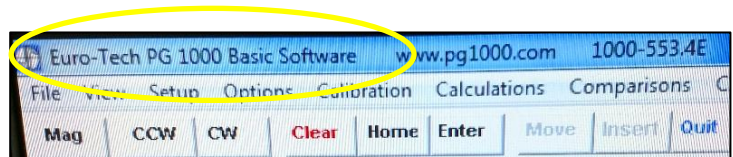
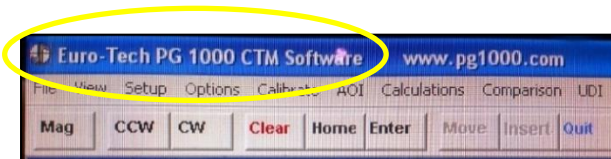
The software version you are operating on will be shown on the top left-hand corner of the screen when the software is open.

There have been three major software versions since 1996 with many updates released in-between each major software version. Two of the three versions are no longer supported. If you are using unsupported software and have an issue it is unlikely that we will be able to help should you have a problem. We strongly suggest that our customers regularly update their hardware and software to minimize the potential for downtime.

**Note:** *Unsupported/older software versions also do not always allow for system calibrations which are necessary to ensure accuracy.*

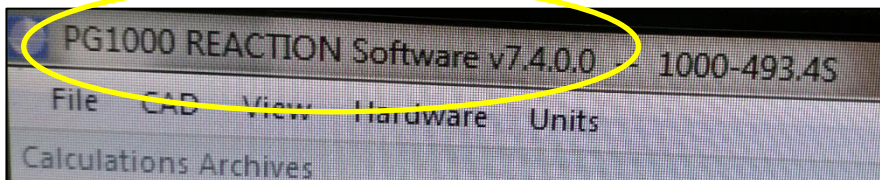
### CTM Software (also known as Version 6.5 or PG1000 Basic Software)

- **Support ended in 2016. Must upgrade to avoid potential problems.**
- Supplied and supported from 1996 to September 2012 (s/n 1 – 550 est.)



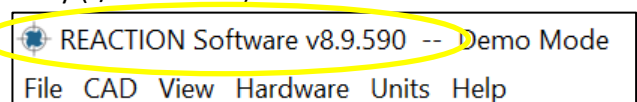
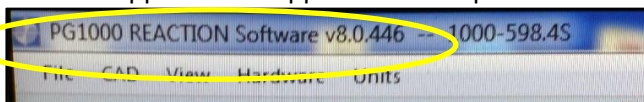
### REACTION Software v7.0 – 7.9

- **Support ended in 2019. Must upgrade to avoid potential problems.**
- Higher performance PC's were supplied with this software to support live image calculations
- Often if you have this version software it is possible to upgrade to REACTION 8.0 however you do likely have some outdated hardware that may affect performance of the PG1000 system/software
- Supplied and supported from September 2012 to April of 2016 (s/n 550 – 725 est.)



### REACTION Software v8.0 – 8.9

- Supplied and supported from April 2016 through today (s/n 750+ est.)



### REACTION Software v9.0 - Coming in the Summer/Fall of 2020

- This major new release will include updated instructions, demo videos for each calculation as well as instructions/videos for all features which will greatly enhance the user experience.

## STEP 2: Is a New Computer/PC Necessary?

Today's PG1000 REACTION software requires a high-performance PC to run properly. Older versions of our software captured images and applied single calculations to the images whereas today's software is taking hundreds of calculations per second on live images. This requires a significant amount of computing power.

Computer details can be found under System Information or by right clicking on My Computer or This PC and selecting properties.

**Note:** We standardized on 4K systems in 2016. If you have a 4K system, your PC is **OK** and you can upgrade to the latest version of the REACTION software.

### Systems with a HD camera (systems purchased prior to 2016)

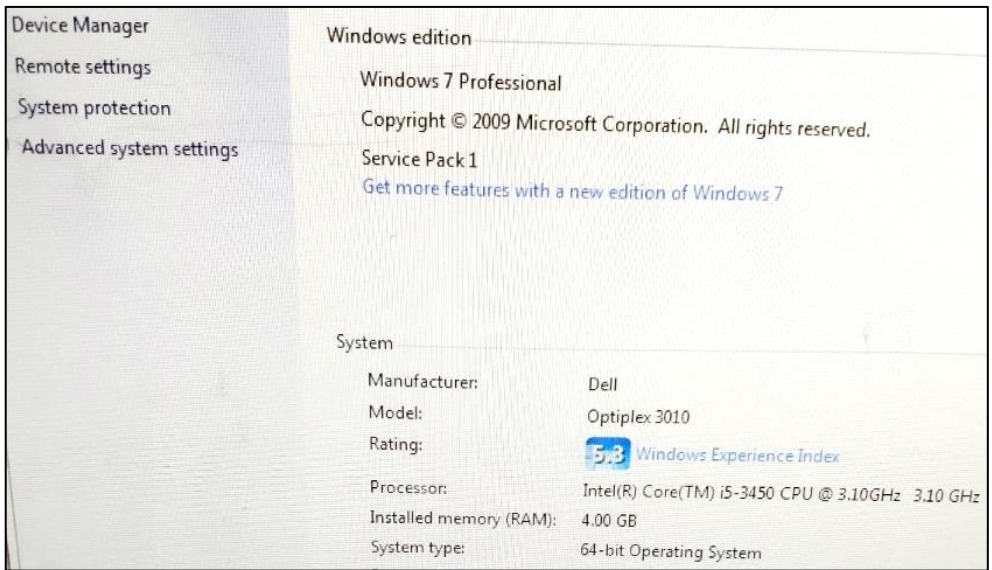
- Operating System
  - **32 bit – must replace PC**
  - **64 bit - OK**
- Processor
  - **i3 – must replace PC**
  - **i5 – upgrade suggested, performance issues (i.e. lagging) may occur**
  - **i7 – OK**
- RAM
  - **2GB – must replace PC**
  - **4GB – upgrade suggested, performance issues (i.e. lagging) may occur**
  - **8GB – OK**
- Windows
  - **Windows 8/Vista/XP – must upgrade to Windows 10**
  - **Windows 7 - upgrade to Windows 10 highly suggested**
  - **Windows 10 – OK**
- Graphics Card
  - Required for 4K systems/cameras only

### Computer/PC Examples:

System	
Manufacturer:	Dell
Model:	Optiplex 390
Rating:	<b>5.0</b> Windows Experience Index
Processor:	Intel(R) Core(TM) i3-2120 CPU @ 3.30GHz 3.30 GHz
Installed memory (RAM):	3.00 GB
System type:	32-bit Operating System
Pen and Touch:	No Pen or Touch Input is available for this Display

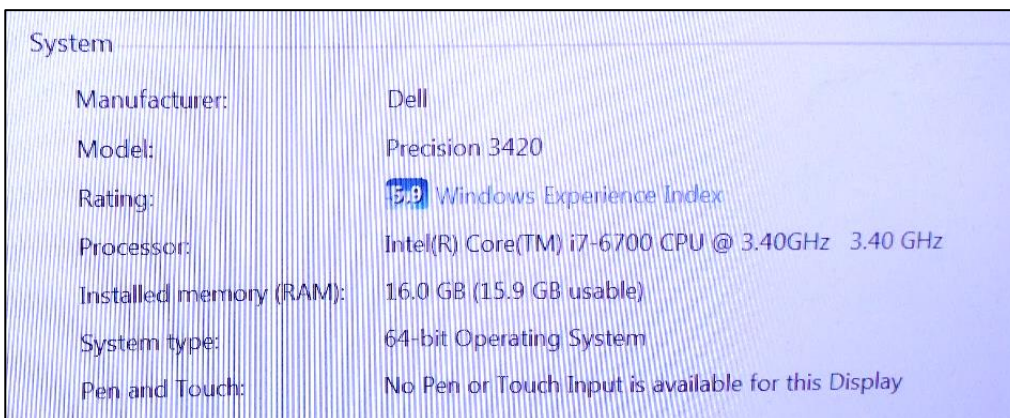
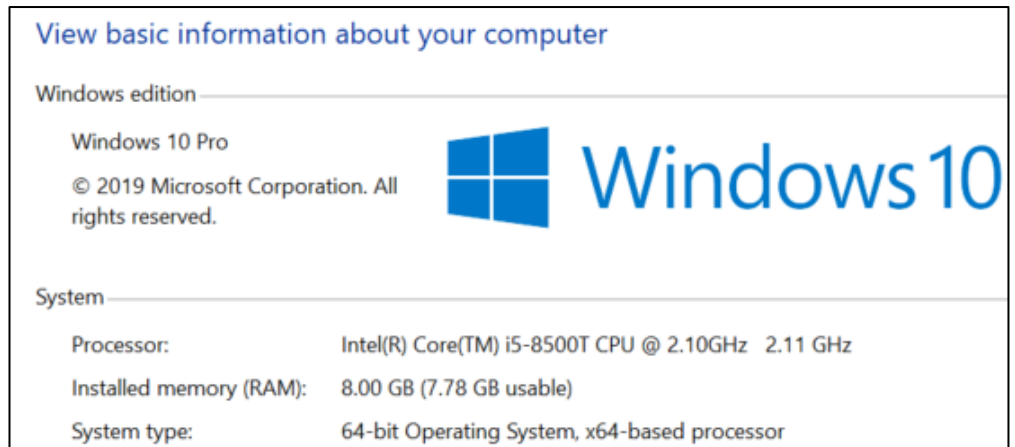
*This computer will need to be replaced. The current REACTION software will not run on 32-bit operating systems.*

**Computer/PC Examples (cont.):**



*This computer may work however there may be performance issues (image lag) due to the older i5 processor and only having 4GB of RAM. Ideally the user would upgrade to an i7 processor, 8-16GB of RAM and Windows 10Pro.*

*This computer should work. It has a newer i5 processor and 8GB of RAM as well as Windows 10.*



*This computer is OK and upgrading to the current REACTION software will not be a problem.*

### STEP 3: Is an Encoder Interface Box & Scale Upgrade Required?

The encoder interface transfers data between the hardware (X & Y scales, magnification, focus, base block/tool holder rotation encoders) and the PC/software.

Each updated version of the encoder interface box enhanced the performance of the PG1000 system and eliminated problems/bugs from previous versions.

**Having the latest encoder interface (PGEB-64L) is highly recommended for ALL PG systems.**

The current PGEB-64L encoder interface is the first to have a dedicated power supply. Previous versions were powered from the USB ports on the PC. As PC's physically got smaller, their internal power supplies got smaller. We found at times the encoder box would not receive adequate power from newer PC's leading to the software crashing. Our latest encoder interface box includes a dedicated power supply to ensure there is no possibility of power disruptions.

- **US Digital Box** (white or black box not attached to PG unit – long cables)
  - Supplied from: 1996 – 2011 (s/n 1 – 475 est.)
  - If you have this original encoder interface box then much of the hardware on your PG1000 system is obsolete (camera, microscope, encoders, etc.) and therefore not supported by our current software.
  - **PG1000 systems with this encoder interface box will require a full rebuild before the REACTION software can be installed.**



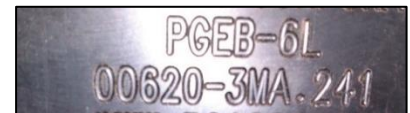
- **PGEB-5** (black box mounted to column of PG unit)
  - Supplied in: 2011 (s/n 475 – 525 est.)
  - If you have this original encoder interface box then some of the hardware on your PG1000 system is obsolete (camera, microscope, encoders, etc.) and therefore not supported by our current software.
  - **PG1000 systems with this encoder interface box will require a full rebuild before the REACTION software can be installed.**

- **PGEB-6** (black box mounted to column of PG unit)
  - Supplied from: 2012-2013 (s/n 525 – 625 est.)
  - **Upgrade to PGEB-64L box required**



- **If you have Fagor X & Y Axis scales**
  - **Jumpers or new cable kit required:** Qty.2 00670-3P or Qty.2 000670-5P
- **If you have RSF X & Y Axis scales**
  - **New Fagor scales are required** and unit will need to be recalibrated after the scales are installed: Qty.1 00632-6P and Qty.1 00632-4P or 00632-5P

- **PGEB-6L, 6M or 6ML** (black box mounted to column of PG unit)
  - Supplied from: 2014-2017 (s/n 625 – 800 est.)
  - **Upgrade to PGEB-64L box recommended**, may improve system performance, and decrease the likelihood of system crashes



- **PGEB-64L and power supply** (black box mounted to column of PG unit)
  - Supplied from: 2018 through today (s/n 800+ est.)
  - This version allows the user to power optional lighting accessories from the encoder box and to control the light settings from the software.
  - **Current version - OK**

## PC/Encoder Upgrade Information

Part No.	UPGRADE / REPLACEMENT PARTS
REBUILD	Contact PG Inspection Technologies at <a href="mailto:sales@pg1000.com">sales@pg1000.com</a> with PG1000 serial number for detailed quotation.
1000-PGEB6-4M	PGEB-64L Encoder Interface Box (includes 00657-7P power supply) <i>Estimated time to install: 5-15 minutes</i>
Qty.2 0067-3P	28" Fagor scale replacement cables with installation kit. <i>Estimated time to install: 30-60 minutes</i>
Qty.2 00670-5P	5P = 3" Fagor scale jumper/adapter cables <i>Estimated time to install: 5 minutes</i>
Qty.1 00632-4P & Qty.1 00632-6P	New Fagor scales for X & Y Axis. For PG1000-200 style systems. Includes reader heads, cable assemblies and installation kit.
00632-5P & 00632-6P	New Fagor scales for X & Y Axis. For PG1000-400 style systems. Includes reader heads, cable assemblies and installation kit.
00087-5P	New high-performance PC with REACTION Software and pg0 datafile preloaded
00087-4P	New 22" HD Monitor

**Contact PG Inspection Technologies for a quotation:**

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