

# MAG-ic Probe

Electronic Thickness Gauge



## Disclaimer:

**WARNING!!** This device uses extremely strong RARE EARTH NEODYMIUM magnets. These magnets can cause injury if misused. Keep away from children. **DO NOT OPEN or USE** if you have a pacemaker or other medical condition that may be affected by magnetic fields. The strong magnetic fields can erase computer hard drives, magnetic access and credit cards, Use at your own RISK.

MAG-ic Tech or its owners neither assumes nor accepts any liability for damages resulting from the handling or use of this equipment. With your purchase, the buyer agrees that he/she is responsible for all damages and injuries caused by the use of this product, which include personal injuries, property damages and any other damage whatsoever. The buyer must agree with the terms before using the product.

### **Thank you for purchasing the MAG-ic Probe.**

MAG-ic probe is an electronic thickness gauge primarily designed to measure large or irregular shaped materials where a conventional measuring caliper cannot work.

The primary design purpose is for measuring wooden plates used in making musical instruments or measuring the thickness of the top, back and sides of assembled instruments of all sizes and types. However, any non-ferromagnetic material may be measured. Magnetic materials cannot be measured as they influence the magnetic field giving incorrect readings.

The unit has been carefully calibrated to the specific probe and magnet balls supplied with it, so please do not use magnets from any other application.

No other calibration is required or needed as the unit performs a self calibration on each startup. (See "a Word about magnets and sensors").

## **A word about Magnetics**

This device uses magnets and magnetic sensors to measure thicknesses of non-ferrous materials. This technique is very effective in that magnetic fields penetrate most materials without deformation or attenuation.

Understanding the influences and effects of magnetic fields will assist you in getting the most out of the MAG-ic probe.

Magnetic fields are strong at the magnet surface but deteriorate quickly with distance in a non-linear manner, making their use for measurement very difficult. Magnetic fields are not stable and are especially affected by temperature changes. Additionally current sensor technology is also susceptible to temperature variations. Temperature variations in your workplace may cause the readings to drift over time. If the temperature has changed or ventilation has changed, please perform a calibration procedure.

Magnetic field lines are extremely close together and the position of the sensor related to the magnet is critical. Resolution will decrease as the distance increases. Erroneous measurements are usually due to mis-alignment. A HOLD button is included so that the minimum reading in a certain location can be found. Keep in mind that as you drag the ball underneath your surface, FRICTION may cause it not to center when you stop to measure, using the HOLD feature and tilting the probe will eliminate any doubt.

The MAG-ic probe is supplied with 2 sphere magnets, a 1/2" and a 3/8" sphere or 1/4" and 3/8". The larger ball is obviously stronger and will produce the best resolution and should be the first choice for use, However, the smaller magnet may be used if the access prohibits the use of the bigger ball.

**IMPORTANT !** - Do not turn the unit on without first attaching a ball. Also do not move the magnet during the first 4 seconds as this is the calibration step.

**\*\*\*\*\*ALWAYS USE THE LARGER BALL IF POSSIBLE\*\*\*\*\***

## Operating Instructions



All MAG-ic Probe units now feature USB connection and the ability to use the MAG-ic Probe Software to record measurements to your PC.  
MAG-ic Probe **Lite** ONLY connects to PC and is powered from the USB  
Regular V3 MAG-ic probe units are battery powered and feature an internal LCD display.  
**IMPORTANT!!** - MAG-ic Probe V3 units have been calibrated according to battery operation. Although they can be powered by USB (Power Switch OFF) there may be small inaccuracies in measurements if powered by USB only. It is advisable to always ensure Power Switch is **ON** after USB has been connected.

**CALIBRATION** - MAG-ic probe is designed to compensate for temperature changes and other variances by self-calibrating during the first 8 seconds after start-up. Should you feel your measurements are inconsistent, a re-calibration may be performed at any time by following the below directions.

- **ALWAYS** connect Probe to unit BEFORE any other action. Make sure probe is fully inserted into probe socket.
- Attach the desired magnet ball to the probe, hold it in a vertical position with magnet facing up.

### CALIBRATION - Stand-Alone use V3 (No USB Connection)

- Turn on the Red power switch and watch the LCD display. The unit will auto-detect the size of magnet attached and will display either 1/2" 1/4" , or 3/8" magnet detected.
- After 4 seconds, the display will prompt you to remove the ball from the probe. Immediately remove the ball and keep it at least 12 inches from the probe. The unit is calculating both the zero and infinity positions.
- After another 4 seconds the calibration is complete. The display will read "**Range**" which indicates the ball is out of range. MAG-ic Probe is ready and calibrated. Attaching the ball magnet on the probe should now display a 0 mil reading



### MAG-ic Probe Software

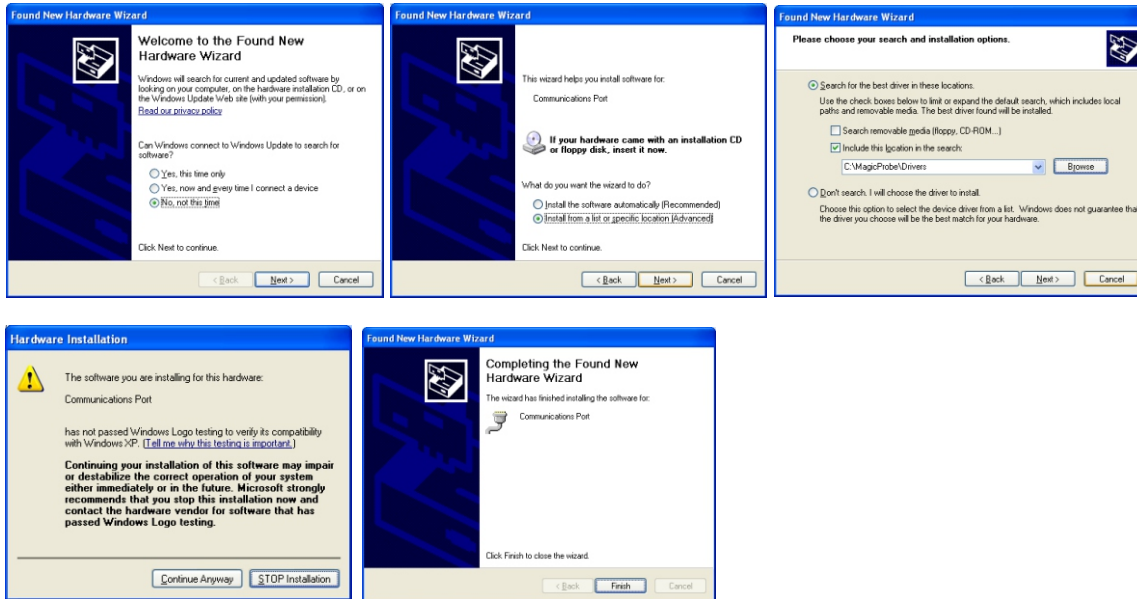
MAG-ic Probe software may be downloaded from [www.magicprobe.net](http://www.magicprobe.net) by creating an account and navigating to the MAG-ic Probe Software tab. Save the file to a folder on your PC and then double-click the file to extract it. It should create a folder called "MagicProbe" on your PC with all the required folders.

Navigate to this folder and run the MAG-ic Probe.exe file to launch the software.

## USB Connection USE - With MAG-ic Probe Software

Connect the USB cable from unit to PC. Although MAG-ic Probe unit will turn ON, ignore the calibration messages for now. When prompted by Windows to install drivers automatically, Choose "Not at this time" and click "Next".

Choose *Install from a specific location* and browse to the location you installed the MAG-ic Probe Software. The drivers are located in the **Drivers** folder



Windows may report a message that driver is not signed, continue anyway. Windows will install the communications port driver. This should appear under COM Ports in your Device Manager. Push Red power button to battery power the unit.

## Bluetooth Use.

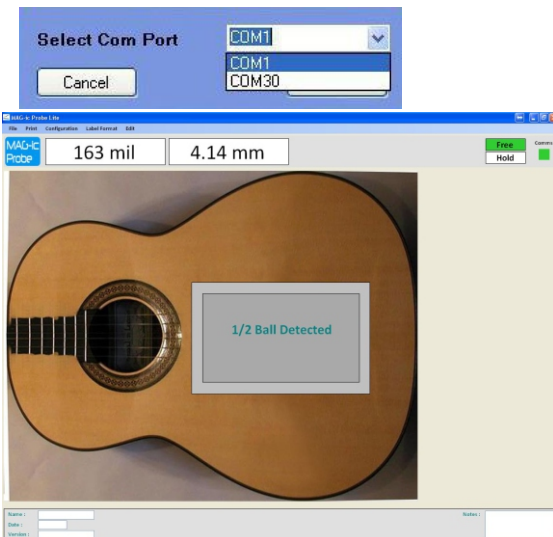
For Bluetooth equipped units, please consult the Bluetooth Manual for installation.

## MAG-ic Probe Lite

Connect USB as above and continue from here

Start MAG-ic Probe Software on PC.

Click **Configuration/Serial Port** and select the correct port. It will normally be a higher number port.



If the connection is successful, the small red square in the top-right corner should flash green to indicate communications. Moving the ball will also cause the values to change in the measurement panels.

- The unit will immediately run the **CALIBRATION** mode.
- An on-screen message will display the size of ball detected.
- Wait 4 seconds until message displays "**Remove Ball**"
- Remove the ball immediately from probe at least 6 inches away.
- Message will display "**RANGE**". Unit is now calibrated and ready to measure.
- Placing the ball back on the probe should eliminate the RANGE" message and display reading should be 0mil.
- If you missed the steps or delayed too long - you can re-calibrate at any time by selecting **Configuration - Calibrate probe. (Not Bluetooth)**
- It is important to remove the ball immediately when prompted to ensure the best possible calibration for the highest accuracy

**Important!!** - When using a V3 unit and connected to USB port, always ensure unit has been calibrated with the RED Power Switch On and the switch should remain ON during measurements. If battery is exhausted and no battery is available, the unit may be USB powered and calibrated but may not be as accurate.

## MAG-ic Probe Software.

Port Selection & Re-calibration

Delete last entry here

Current Measurement Can be read here or on the device display

Free Reading And Hold Mode  
Either push the Hold button on the device. Hit the spacebar or click this icon to toggle the Hold mode

Communications icon  
This icon will flash when USB or Bluetooth is connected

Click on the picture at the same location you are measuring to transfer the reading to the picture

Type Name, Date and Notes here

- Use **FILE - Upload New Image** to upload a JPG image of your choice.
- Use **File - Save** to save the image to a specific location.
- When performing measurements, the current measurement is displayed. to use the HOLD feature hit the **SPACEBAR**, or click the **HOLD icon** or use the **white button** on the control unit. This will prevent the current reading from increasing, only smaller measurements will update the display.
- Use your **mouse to click** on the picture at the same location you are measuring to transfer the measurement to the picture.
- **Label Format** allows you to change the Font, size and color.
- Use the **Edit - Undo** feature to delete the last entry sequentially.
- Use the **Print** menu to print your completed document.



### Usage Tips

MAG-ic Probe is capable of measuring 1mil differences with the 1/2" ball. It should make sense that the probe should be as square as possible to the surface. If the probe is slightly tilted, the probe center is lifted further from the sphere introducing false measures. Use the HOLD button as needed to confirm the lowest reading.

The sphere will ride over most common braces and ridges, just be sure to keep the probe attached to the surface and proceed slowly across the braces.

Should the ball separate and drop into the cavity, tilt the instrument to roll the ball to a corner and use the probe to collect the ball.

REMEMBER to turn the unit OFF before changing balls or perform a re-calibration through the software after changing.

MAG-ic Probe is optimized to measure thicknesses within the range of normal Lutherie (0 - 10mm). Although the bigger ball will measure up to 15mm the resolution is much lower at these thicknesses. A special BASS probe is available for use at thicker measurements.

ALWAYS remember to turn the RED POWER SWITCH OFF when not in use. The LCD Backlight will drain a battery in about 10 hours.

### Battery Replacement



MAG-ic Probe uses a 9v Pp3 battery located on the back of the unit. Press down in the top-center of the back cover to release the battery cover. The backlit LCD display is the major source of battery drain so ensure you turn the Red Power Switch OFF when not in use.

### Specifications

Measuring range (Large Sphere)	1 - 600mil (0-15mm)
(Small Sphere)	(0-10mm High Resolution) 0 - 300 mil (7.5mm)
Resolution	1mil (decreasing after 10mm)
Battery Voltage	9V DC PP 3 Battery
Power Consumption	60mA

### Contact Info

We welcome any feedback and suggestions. If you have any problems with your device please contact us.

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