



Probe Driver for Visual Plus 3

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IMPORTANT

Eddy Current Inspection

VisualPlus 3 is an eddy current inspection tool to be used in conjunction with visual cylinder inspection. Eddy current inspection IS NOT A SUBSTITUTE for visual inspection by a properly trained inspector. EACH CYLINDER MUST BE VISUALLY INSPECTED BY A PROPERLY TRAINED INSPECTOR AFTER EDDY CURRENT INSPECTION. We recommend our OpticalPlus product to assist in visual cylinder inspection.

Changing Probes

Please note that when utilizing Probe Driver the Visual Plus 3 system cannot detect detachment of the probe from the Probe Driver module. This means that it is possible to change to a different probe without losing calibration. Therefore please observe the following rule:

DO NOT INSPECT ANY CYLINDERS AFTER CHANGING PROBE WITHOUT RE-CALIBRATING VISUAL PLUS 3 FIRST!

Probe Driver for Visual Plus 3

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Limited Liability

The manufacturer, importer, and the dealer cannot be held responsible for accidental damage, including personal injury or any other damage, due to inappropriate usage of the product.

Information in the user manual is written for the current specification of the product.

The manufacturer of Visual Plus 3 system continues to provide additional functions and apply new technology to it. All specifications may be changed without notice to individual users.

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1 Introduction

Probe Driver for Visual Plus 3 is an accessory that allows you to drive the probe in and out of the cylinder utilizing the supplied screwdriver at speeds up to 150RPM. This capability increases the inspection speed and decreases fatigue associated with manual probe turning.

1.1 Unpacking Your Probe Driver

As you unpack your new Probe Driver unit, please check to be sure that the following items are included:

- Probe Driver module
- Screwdriver unit converted to AC power operation
- Flexible Shaft Adapter
- User Manual
- One or more Probe Driver compatible probes (if this is an upgrade from an existing Visual Plus 3 installation the probes will have to be sent in to service to be converted to Probe Driver configuration).

1.2 A Few Suggestions

Before you begin to use your Probe Driver unit, please take a few minutes to:

- Double check that you Visual Plus 3 unit serial number is 1000 or greater. The Visual Plus 3 serial number is located on the bottom of Visual Plus 3 acquisition module, the number should be in format Axxxxxx, where xxxxxx is the serial number.
- Write down the Probe Driver serial number (located on the cable side of the module - circled on the picture below) on your sales receipt. File your sales receipt for future reference.



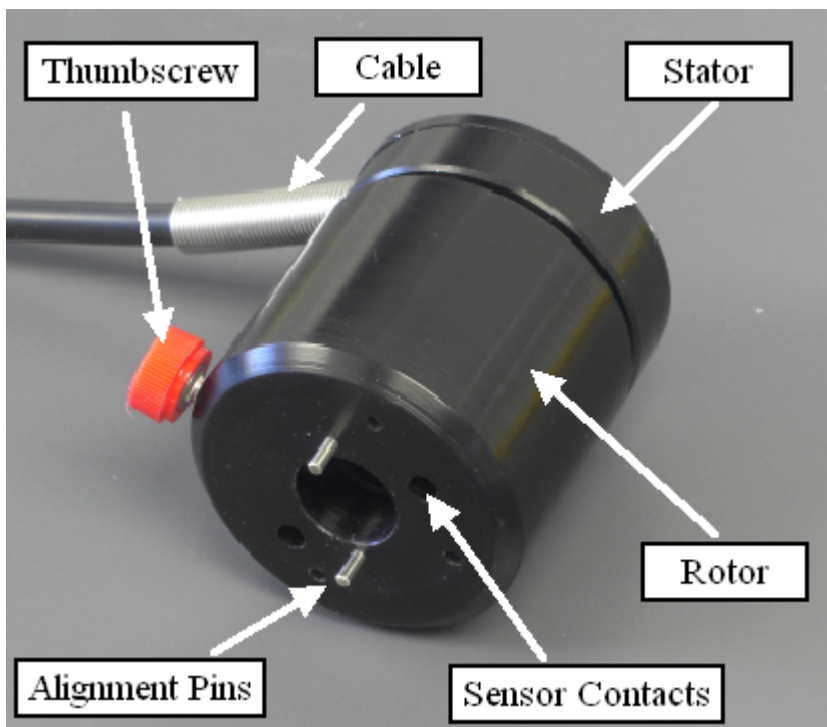
1.3 Probe Driver Module

The Probe Driver module consists of a rotor and a stator. The rotor plugs into a probe and will rotate with it. The stator holds a strain relieved cable that connects to the Visual Plus 3 unit. The electrical connection between the rotor and the stator is transmitted through a slip ring embedded in the rotor.

The rotor has two alignment pins on its end. The alignment pins will line up with holes on the top of the probe when the red thumbscrew is lined up with alignment notch on the top of the probe. See [page 9](#) for more information on connecting probe and Probe Driver. There are also two holes with gold colored contacts at the bottom that are used to make electrical connection to the sensor inside of the probe. The spring pins in the probe and those holes will also line up when the red thumbscrew is lined up with the alignment notch on the probe.

The red thumbscrew on the rotor is used both for alignment during probe connection and for retaining the probe inside of the Probe Driver. Loosen this screw before removing or installing a probe. After the probe has been connected to the Probe Driver tighten the thumbscrew.

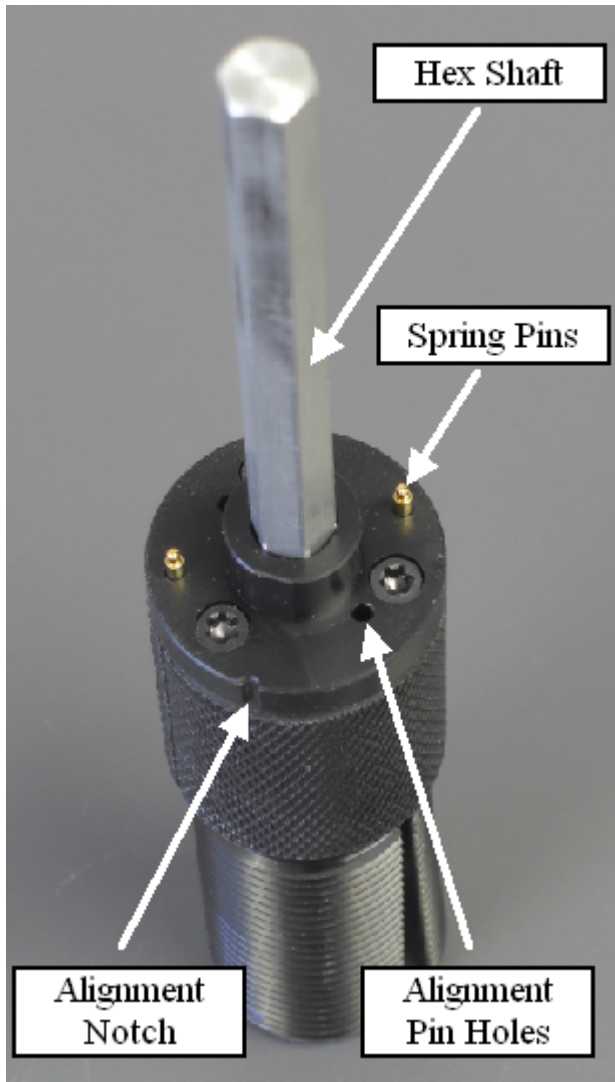
The probe is normally a tight fit in the Probe Driver bore. Double check alignment between probe and Probe Driver before pushing them against each other.



1.4 Probe Driver Probe

The Probe Driver probe is different from the standard Visual Plus 3 probe. The top of the probe contains a hex shaft that can be driven with the supplied screwdriver (through a flexible shaft), a pair of sensor spring pins that mate with sensor contacts on the Probe Driver, and a pair of alignment pin holes that mate with alignment pins on the Probe Driver. The electrical connection between the probe and the Probe Driver module is transmitted through the spring pins, it is therefore essential that both the spring pins and the contacts on the Probe Driver remain free of dirt and corrosion. The spring pins should also slide freely in their cylinders.

The top of the Probe Driver probe also contains an alignment notch that should be lined up with the red thumbscrew on the Probe Driver before making final connection.



2 Using the Probe Driver

The Probe Driver is used similarly to the standard Visual Plus 3 system with some differences noted in sections below. To assemble the Probe Driver follow the steps below (also see picture below):

1. Connect the needed probe to the Probe Driver module.
2. Connect the Probe Driver module cable to the Visual Plus 3 unit.
3. Insert the supplied flexible shaft into the probe hex shaft protruding from the Probe Driver module.
4. Plug the supplied screwdriver into an electrical outlet.
5. Insert the driver end of the screwdriver into the flexible shaft.

The Probe Driver is now ready for calibration and inspection.



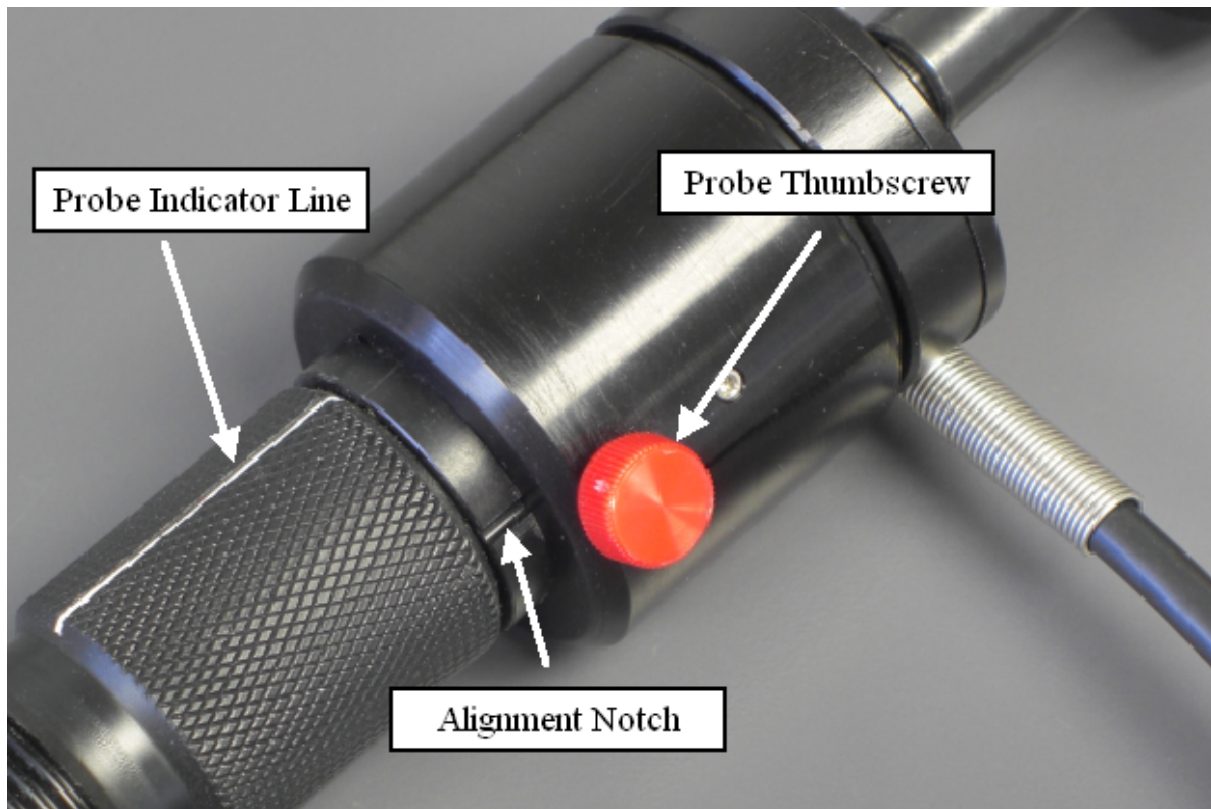
2.1 Attaching/Changing Probes

Please note that when utilizing Probe Driver the Visual Plus 3 system cannot detect detachment of the probe from the Probe Driver module. This means that it is possible to change to a different probe without losing calibration. Therefore please observe the following rule:

DO NOT INSPECT ANY CYLINDERS AFTER CHANGING PROBE WITHOUT RE-CALIBRATING VISUAL PLUS 3 FIRST!

When changing to a different probe size please follow those steps (if there is no probe attached to the Probe Driver skip items 1 and 3):

1. Remove the flex shaft and the screwdriver from the probe.
2. Loosen the probe thumbscrew.
3. Pull the probe out of the Probe Driver. Please note that probes normally fit snugly into the Probe Driver so it might require some effort, please double check that the probe thumbscrew is loose.
4. Insert the new probe into the Probe Driver. Please note that the alignment notch on the probe top should be lined up with the probe thumbscrew before pushing the probe and Probe Driver together. This will ensure that the pins in probe and Probe Driver go into the appropriate openings. The probe indicator line **SHOULD NOT** be used for aligning Probe Driver to the probe, the probe alignment notch is the only one that matters for mating of those two pieces. The fit of those two components is normally very snug so it might require some effort. Please double check that the thumbscrew is loose and that everything is lined up.
5. Tighten the probe thumbscrew to capture the probe in the Probe Driver.
6. **VERY IMPORTANT!** Calibrate Visual Plus 3 system before performing any inspections. The calibration is not lost during probe change like it is with the standard probes.



2.2 Calibrating

Please follow normal calibration procedures described in the Visual Plus 3 manual with the following modifications:

- Instead of holding the calibration standard on the desk we recommend holding it with your left hand while keeping your left hand on the table for support. During calibration do not allow the calibration standard to rotate in your hand.
- When making transition from the first screen of the Calibration Wizard to the second screen, first put the screwdriver on the desk, then click Next, then carefully pick up the screwdriver with your right hand without bumping it and press the screwdriver button to turn the probe counter clockwise. Make sure that probe makes at least one full revolution. Carefully place the screwdriver back on the desk and click Next.
- When you are recording calibration data please make sure that you are not pushing the probe sideways, the idea is to let the probe follow the calibration standard thread without putting any axial or radial pressure. This will keep the probe in contact with the calibration standard and will prevent any false spikes on the calibration.



2.3 Inspecting

Please follow normal inspection procedures described in the Visual Plus 3 manual with the following modifications:

- When threading the probe into the cylinder keep the screwdriver gripped lightly in your hand to allow it to slip in case the cylinder is not threaded all the way through and the probe halts turning before you release the forward button on the screwdriver.
- When you are recording inspection data please make sure that you are not pushing the probe sideways, the idea is to let the probe follow the cylinder thread without putting any axial or radial pressure. This will keep the probe in contact with the cylinder and will prevent any false spikes on the recorded data.



2.4 Care & Maintenance

Probe Driver for Visual Plus 3 probe is a sensitive electronic device and requires following care:

1. It is extremely important to prevent damage to spring pins on the probe. If those pins get

bent, stuck or corroded the probe will not calibrate. If either of the pins is bent please send it in for service. If the top of either pin is corroded you can use a Scotch Bright pad or a piece of fine sand paper to remove the corrosion. If the pins don't move up and down smoothly or don't spring back easily try to use compressed air to get particles stuck in pin barrels out.

2. The probe body is made out of acetal plastic (metal cannot be used in an eddy current probe) which wears slightly each time it is threaded into a cylinder. Rough dirty thread on a cylinder will wear the probe more than nice clean threads. We recommend thoroughly cleaning cylinder threads before performing inspections.
3. As probe wears it will feel loose when it is threaded into cylinders. You may see sharp spikes on calibration and inspection graphs. The eddy current sensor is sensitive to distance from the thread surface to the sensor, when the probe is loose the sensor is not held firmly against the thread surface and the spikes result. To compensate for this please use a hex key to increase tension on the flap by rotating tension adjustment hollow set screw clockwise. If the probe becomes too tight, loosen the tension by rotating screw counter clockwise.

2.5 Available Sizes

Probe Type	Thread Size	Description	Tension Adjustment Screw Hex Key Size
#1	0.75-14NPSM	Scuba	5/32"
#2	0.75-16UNF	Medical/Industrial Gas	1/8"
#3	1.125-12UNF	Beverage/Medical/Industrial Gas/Fire Extinguisher	5/32"
#4	0.875-14UNF	Life Support/Fire	5/32"
#5	0.625-18UNF	Paintball/Spare Air	5/64"
#6	0.75-14NGT	Industrial Gas	5/32"
M18	M18 x 1.5		1/8"
M25	M25 x 2.0		5/32"
M30			
25E			