

Baces3D Digitizing / BacesSCAN scanning System

Baces System

Installation Guide

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1. Overview

This manual provides you the information to use the Baces3D System . Read this guide to install correctly the Baces3D arm and BacesSCAN scanner.

Required Environment

The following minimum computer environment is required to operate the Baces3D system:

For the arm

- *Intel Pentium IV processor or equivalent with a minimum frequency of 2 GHz*
- *Microsoft Windows 98, Second Edition (98SE), Windows 2000 or Windows XP*
- *512 MB RAM*
- *10 Gb free space on the hard disk*
- *SVGA color monitor with a minimum resolution of 1280x1024*
- *Mouse or other pointing device*
- *USB or DB9 COM serial communication port*
- *CD-ROM drive*

For the scanner

- *10 Mbits / 100 Mbits Ethernet network board installed and configured correctly, and dedicated to the BacesSCAN sensor*
- *USB or DB25 LPT port to install the protection dongle*

2. Starting with Baces3D System

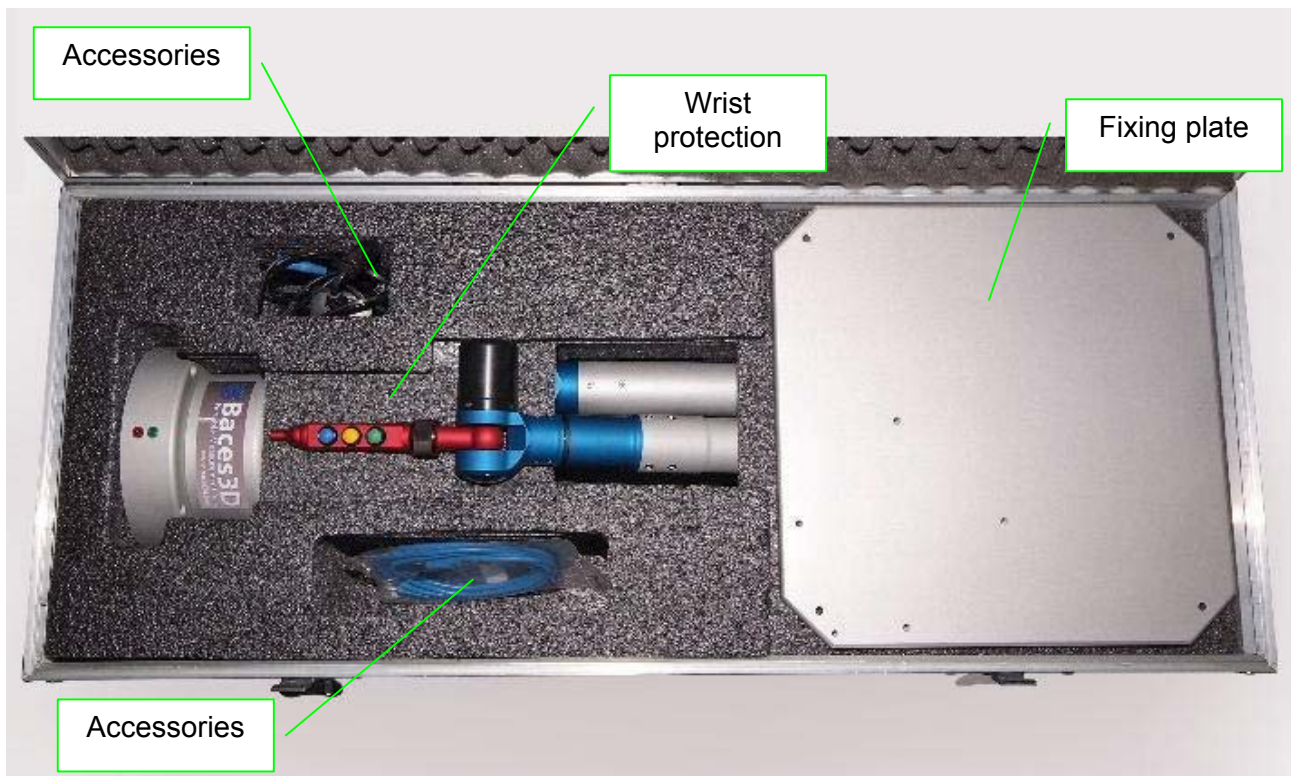
Unpacking the system



The Baces3D arm is a precision equipment, and must be handled with care. Unpack the system according to the instructions of the chapter **Assembly the System**.

Open the package. Included with your Baces3D arm you will find the following components:

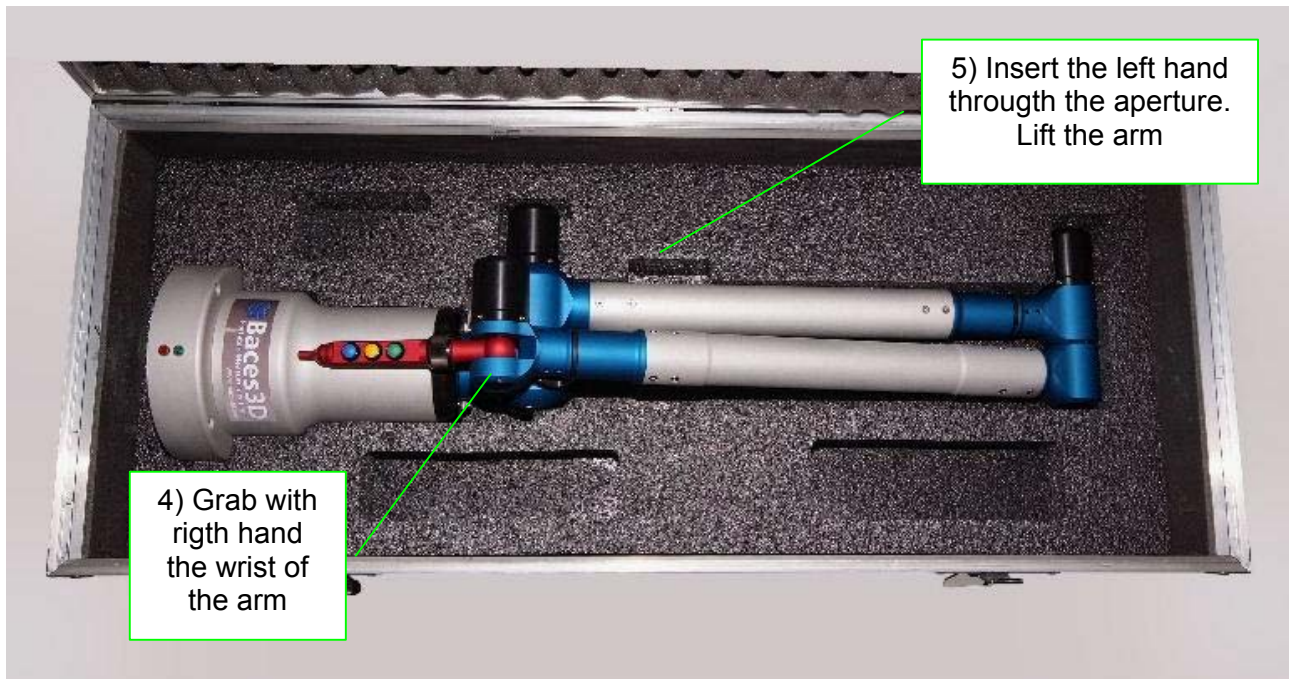
- Baces3D digitizing arm
- 4mm ruby stylus
- Power supply unit
- USB / Serial cable
- 4 screws and hexagonal key
- Fixing plate
- Baces3D Installation CD



Save the packing materials. These can be used in case of transport or reparation.

Assembly the System

1. Remove the fixing plate and place it on the work plane
2. Take off the accessories of the Baces3D arm
3. Remove the top protection, positioning the arm wrist on the base support
4. Grab with the right hand the wrist of the arm
5. Insert your left hand through the aperture (as shown) and grab the arm tube
6. Lift out the arm from the package



7. Put the arm on the fixing plate, positioning the wrist on the rest position
8. Turn the 4 screws in
9. Insert the stylus (standard 4mm spherical stylus with M4 thread) on the probe and screw it



The stylus replacement can cause some errors in the measure. See the Baces System User Guide to understand the correct procedure to re-calibrate the stylus.

Moving the arm

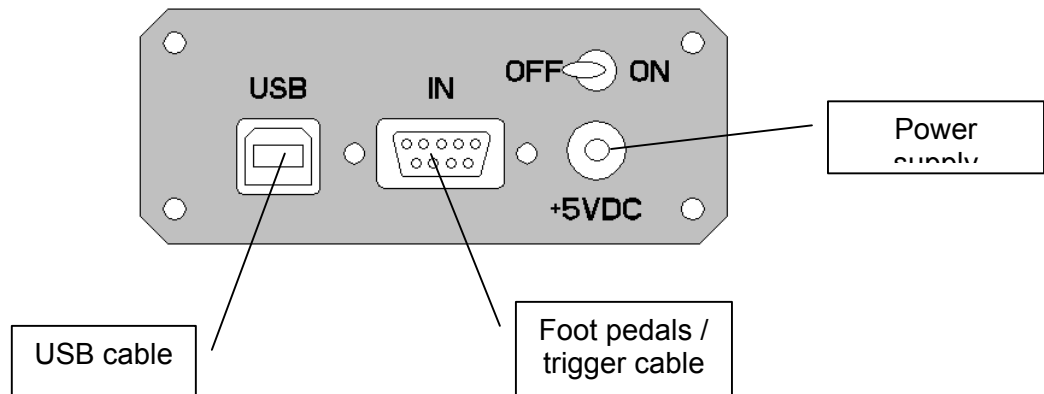
To move the arm around the office or the work-shop, put the arm in the rest position, remove the 4 screws of the arm. Displacing the arm and move the fixing plate. Fix the arm in the new position.



If the BacesSCAN sensor is on the arm, disconnect the scanner and remove it from the arm.

Electrical connections

1. Connect the USB/COM cable from USB port to host computer
2. Connect the power supply from +5VDC port to power outlet
3. Connect the foot pedals to IN port (if included)



Installing the Baces3D software



The setup for Baces3D arm copy on your hard-disk the Baces3D arm files:

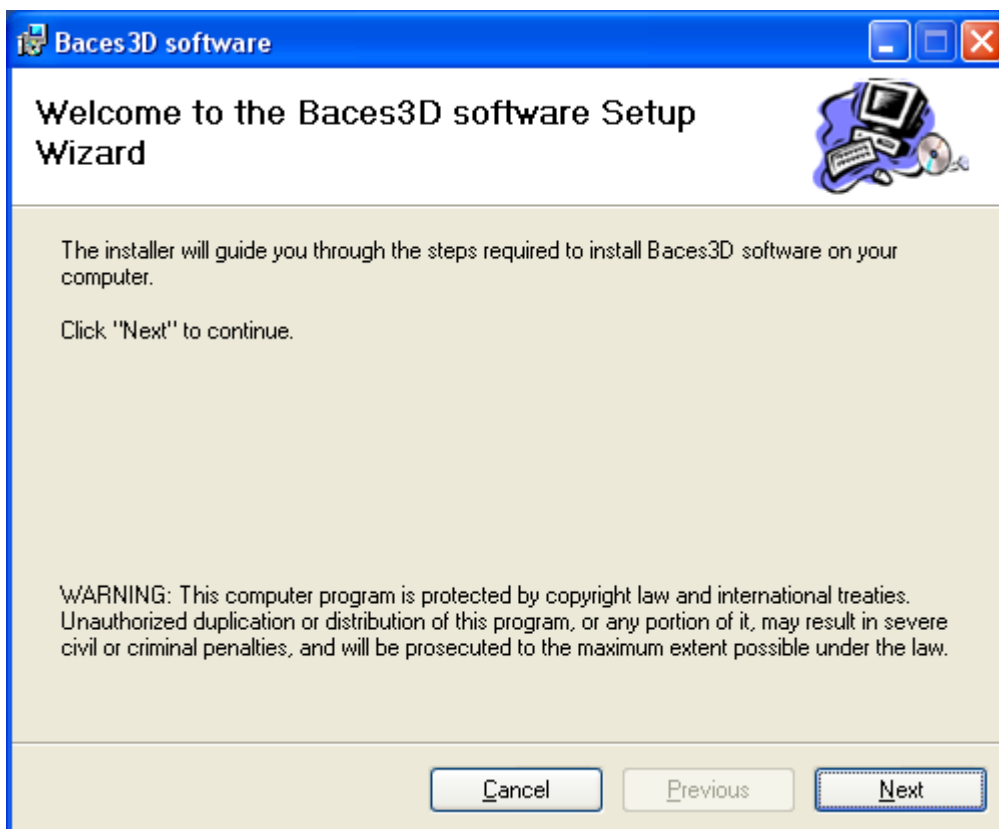
- BacesUSB drivers
- Baces.dll library files
- BacesWIZARD utility
- Baces3D calibration files

By default the directory selected by installation to copy the files is \Program files\Baces3D\

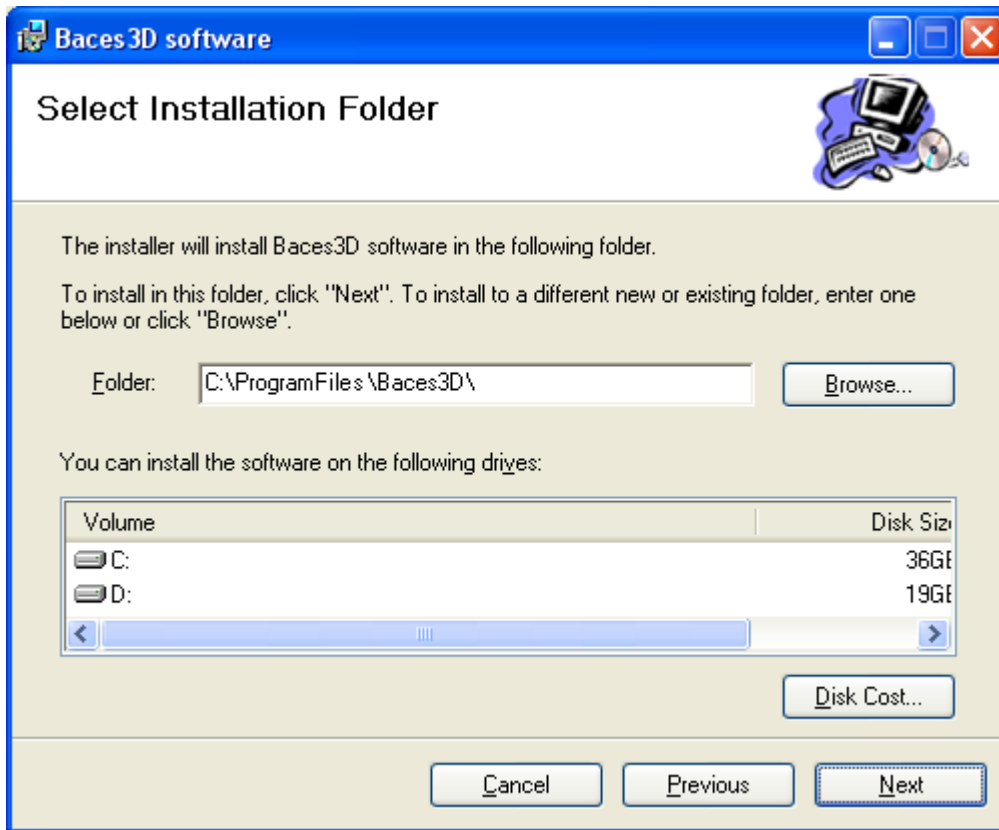


INSTALL THE BACES 3D SOFTWARE BEFORE CONNECTING THE ARM.

Software installation starts when you run the «Baces3D install.exe» program available in the root directory of installation CD.



Click Next button.



Change, if necessary, the default installation directory. Click the Next button until the installation is completed.

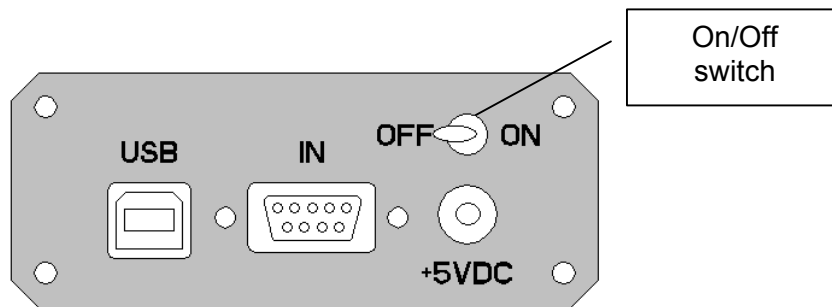


Each arm has its own calibration ".tab" file.

If not automatically copied, move the calibration files of the arm from CD to Baces3D installation directory.

Turn on the arm

Plug the arm USB cable to the host PC.
Switch on the arm.



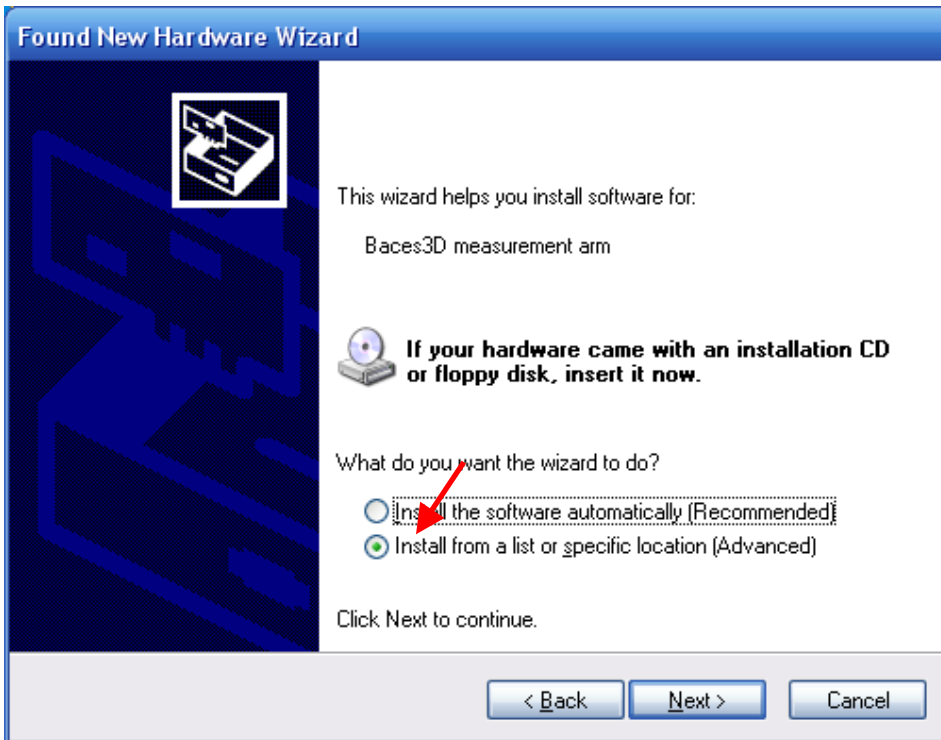
The red LED on the base must be turned on. The green LED starts blinking.

USBdrivers Wizard

After the arm is turned on, the initial Hardware Wizard dialog appears.



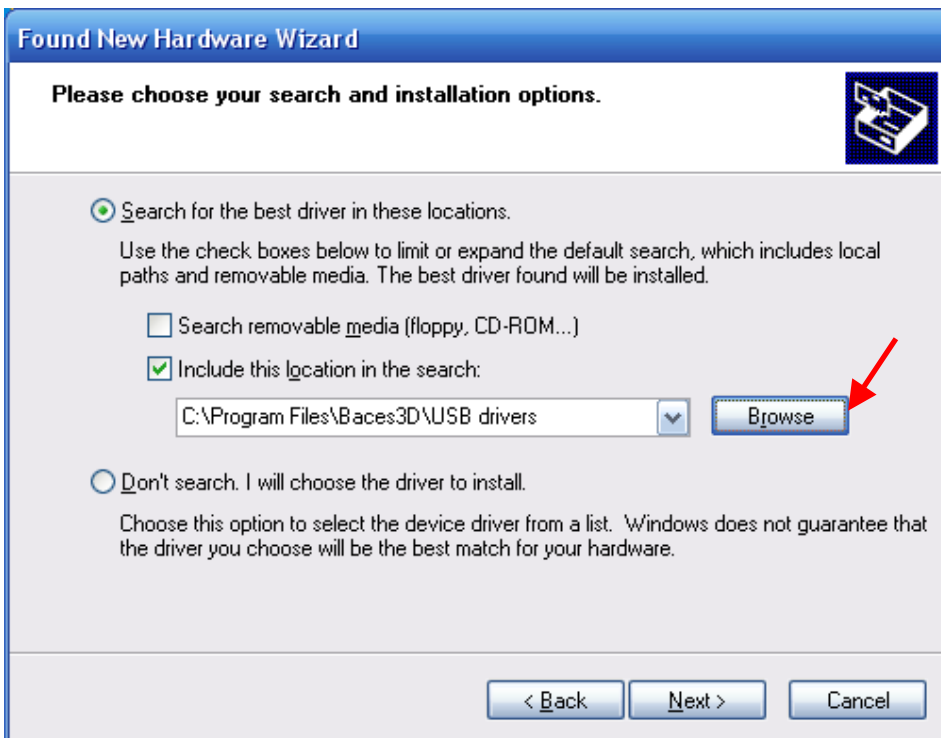
Select the “No, not this time” option. Click Next.



Select the “Install from a list or specific location” option. Click Next.

2. At the “Search and Installation Options” dialog, select the “Include this location...” option. Click the Browse button to open the Windows Browse for Folder dialog. Browse to the directory C:\Program files\Baces3D\USB drivers\.

Click OK to accept the path, then click Next at the originary dialog.

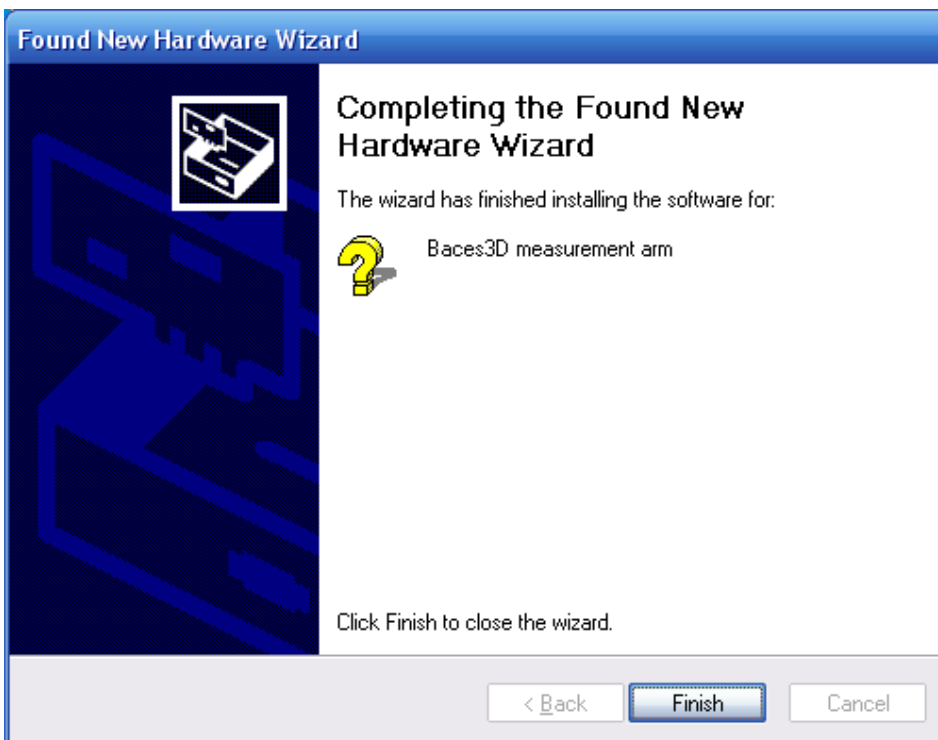


3. At the Windows Logo testing dialog click “Continue Anyway” button.



The system will copy and install the driver files, and indicate when the process is finished. Click Next.

The final dialog will indicate that the driver has been successfully installed. Click Finish.



It will not be necessary to restart the system.

3. Starting with the BacesSCAN System

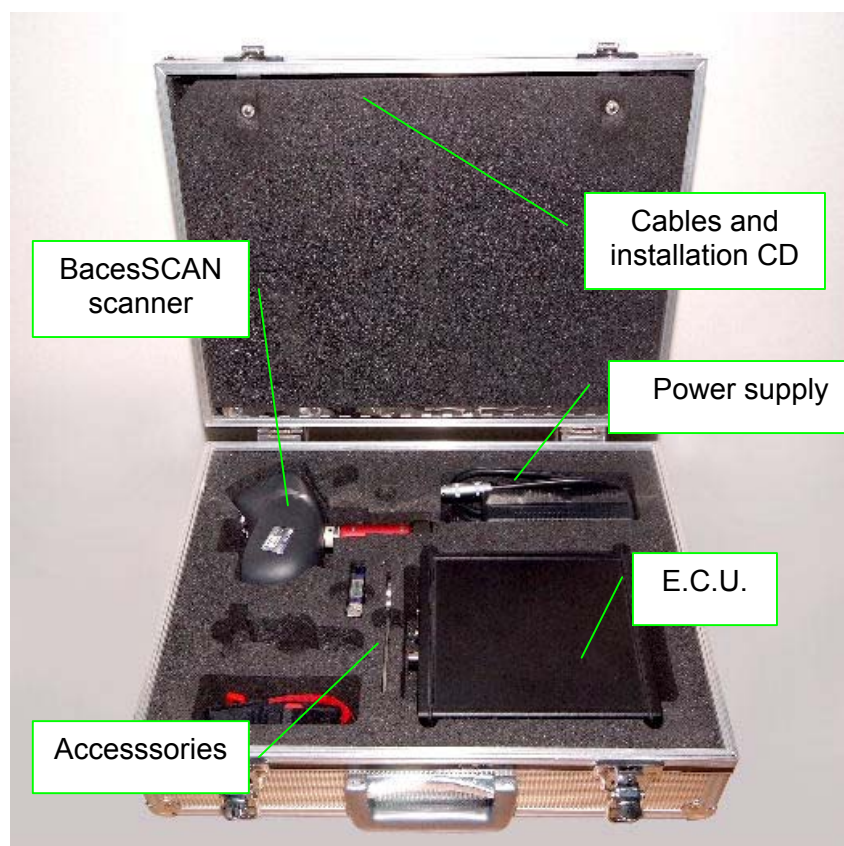
Unpacking the system



The BacesSCAN scanner is a precision equipment, and must be handle with care. Unpack the system according to the instructions of the chapter **Assembly the System**.

Open the box. Included with your BacesSCAN scanner you will find the following components:

- BacesSCAN scanner
- E.C.U. (Electronic Control Unit)
- Power supply unit
- Scanner cable
- Ethernet cable
- Trigger cable
- Positioning sphere
- 2 keys set for the fixing of the scanner
- 4 strip for sensor cable fixing
- Software dongle
- BacesSoftware installation CD



Save the packing materials. These can be used in case of transport or reparation.

Assembly the System

Once fixed the arm on its fixing plate, put the wrist of the arm on work plane. Remove the 3 buttons probe if installed, unscrewing the flange in counterclockwise direction.

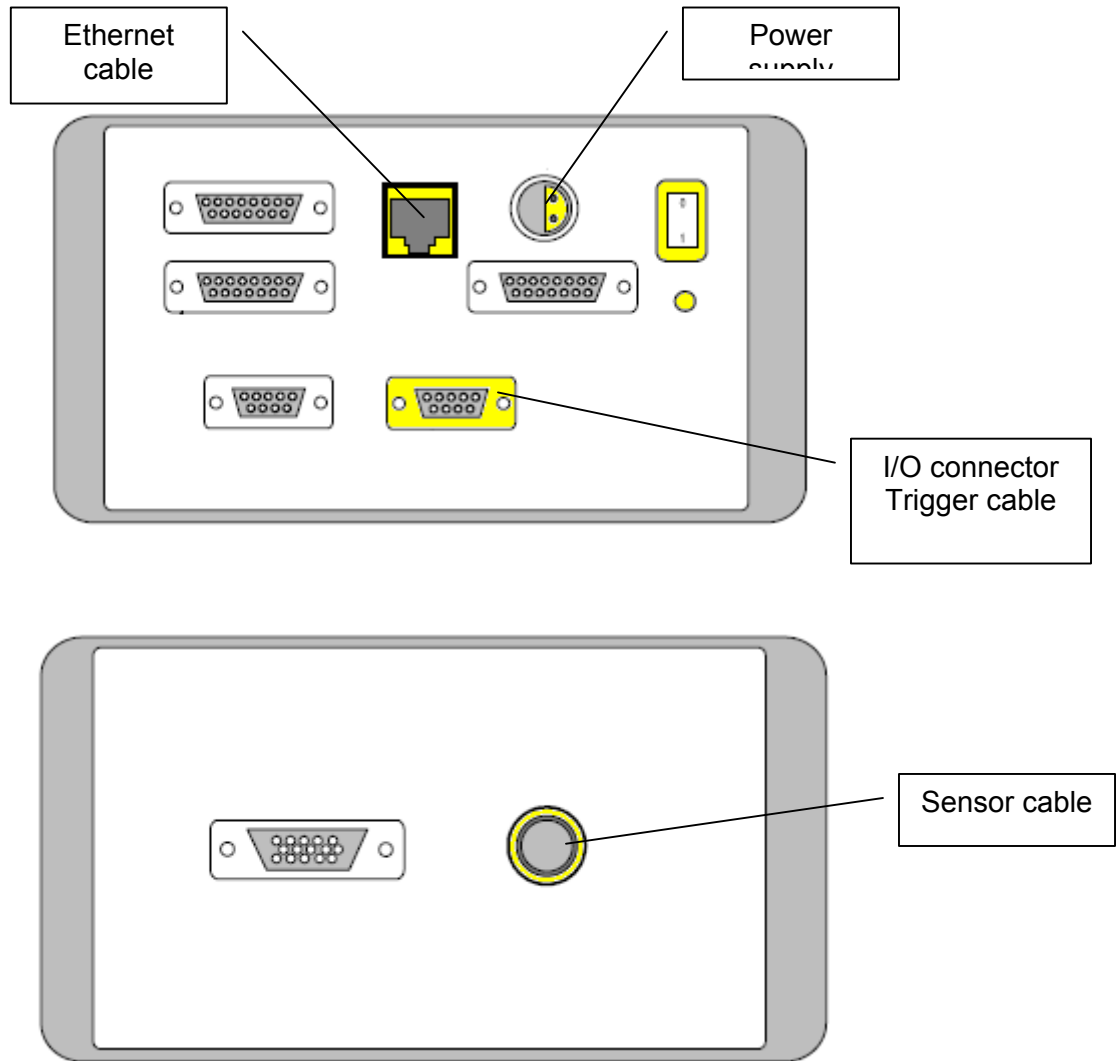


To install the scanner on the arm:

1. Align the reference hole of the probe with the setting pin of the arm wrist
2. Install the BacesSCAN, screwing the flange in clockwise direction.

Electrical connections

1. Connect the Ethernet cable between the network board of host computer and the E.C.U.
2. Connect the BacesSCAN scanner to the E.C.U. using the scanner cable, fixing the cable on arm segment with strips.
3. Connect the I/O trigger cable between the E.C.U I/O connector and the IN port of the arm.
4. Connect the power-supply cable.



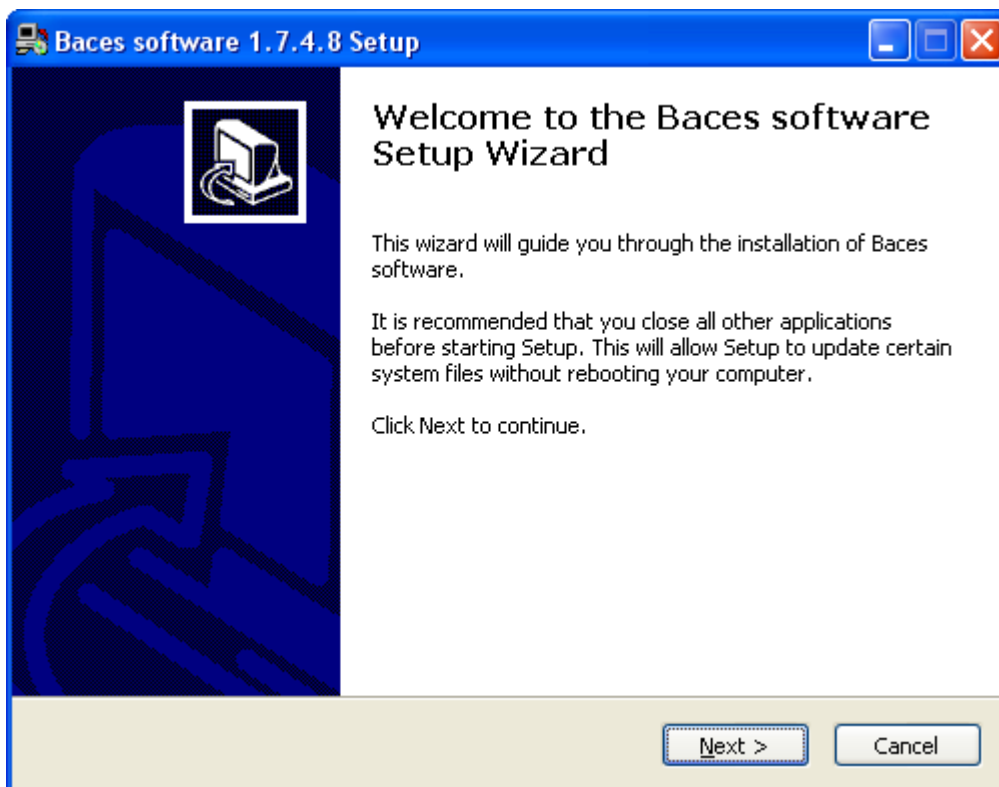
The trigger cable has the same connector for both the sides. Please check the labels on the connectors to plug them correctly.

Installing the BacesSCAN software



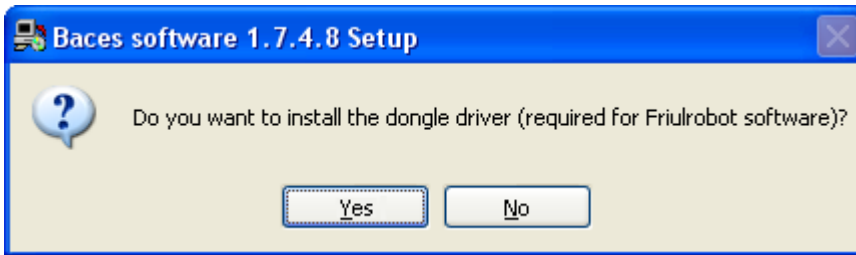
BacesSCAN is provided with an installation program.

Software installation starts when you execute the «Setup.exe» program available in the root or in the 'BacesSoftware x.x.x.x' directory of installation CD.



Installing the dongle drivers

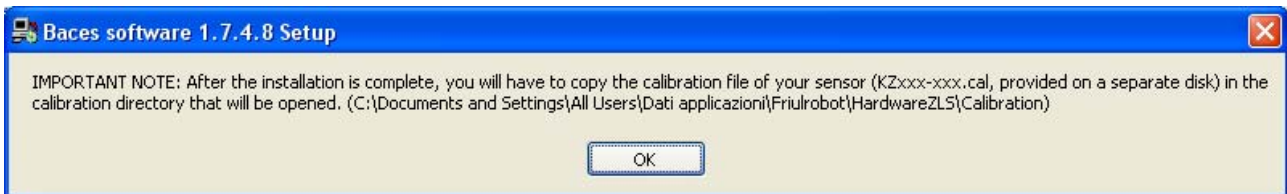
The setup program ask for the drives installation of the software dongle.



Click yes to install the drivers.

Calibration files

During the installation is required to copy the BacesSCAN calibration files.
Click OK in the following dialog.



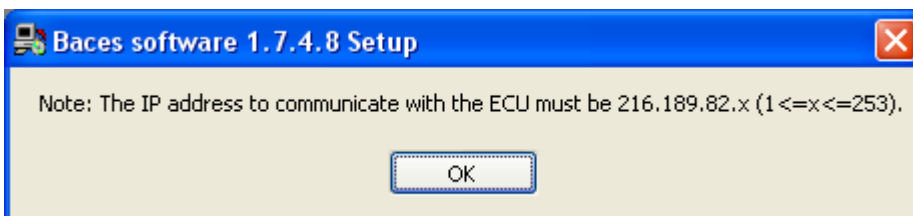
and copy the calibration file from 'Calibration sensor' directory of the installation CD to:

'C:\Documents and Settings\All Users\Application Data\FriulROBOT\HardwareZLS\Calibration'
directory of your haddisk.

Note: The Setup program automatically open the destination directory.

Configuration of the Network board

During the installation the following message appear:



The BacesSCAN can be used only with a correct IP address.

To config the network board:

1. Click on «Start» / «Settings» / «Control Panel».
2. Open the «Network» section.
3. Right click on LAN connection and select «Properties».
4. Select TCP/IP protocol Properties.

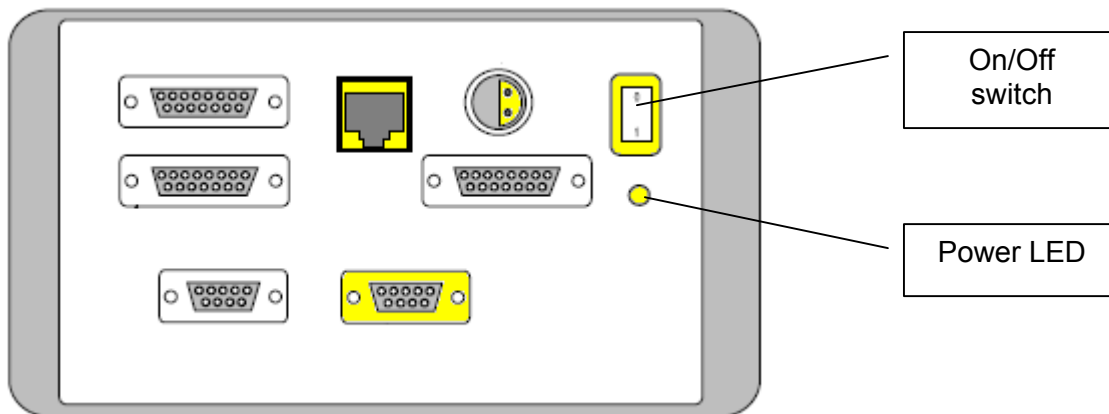
Type the standard IP number: 216.189.82.10

Type the Subnet Mask number: 255.255.255.0

Turn on the scanner

Insert the protection dongle in the host PC.

Switch on the scanner. The power LED on the E.C.U. will turn on.



4. Software configuration

Baces3D and BacesSCAN use some specific configuration / library files that are included on the installation CD.

Baces3D calibration file
BacesSCAN calibration file
Baces dll library

Examples:

M039_M100_CZDET_41.tab	Baces3D calibration file
KZ50_105.cal	BacesSCAN calibration file
Baces.dll	Baces dll library

These files are installed with the standard Baces3D installation software. In some cases the user has to manually copy the files from CD in specific directories.



Is very important to select in the related software parameters dialog the right calibration files for Baces3D arm and BacesSCAN scanner. (.tab and .cal files)

For BacesWIZARD (Baces3D arm) and BacesSoftware (BacesSCAN scanner) configuration, see the **Baces System User Guide**.

For other softwares, see the related manuals.

5. Maintenance

Transport and Storage Precautions

Every component of the Baces System should always be transported in its storage case, itself protected by appropriate packaging.

The system must be stored in a dry dust-free area at an ambient temperature between 0 °C and 70 °C (32 °F to 158 °F).

Maintenance and Servicing

For the arm

Baces3D arm has been manufactured to not require maintenance. For a correct use:

- Protect the arm from physical shock
- Never force the mechanical limits
- To clean the arm, use a slightly damp cloth. Not use liquid cleaners or abrasive cloth

For the scanner

BacesSCAN scanner has been manufactured to not require maintenance. Sensor acceptance to dust and finger prints is very high. For a correct use:

- Clean the optics, use soft cloth N° 558-795 in RadioSpares catalog
- If necessary add a few of 90% alcohol

Not clean frequently the optics.

6. Safety information

For the arm

Electromagnetic compatibility

The Baces3D arm has been built in Conformity to Electromagnetic compatibility standards. Based on the tests carried out it must be used exclusively in compliance with manufacturer's specifications. Any tampering or improper use will cancel the user's right to use it. To comply with the imposed limits the user must abide by the following rules:

IMPORTANT NOTE: Use only the power supply unit supplied with the kit. If the power supply unit must be replaced, contact the dealer.

Damage caused by dropping the arm

Dropping the arm, i.e. an impact with the measurement surface or with other objects, not only will damage the structure and the instrument transducers but might also generate a mechanical calibration defect. In this case, the arm must be recalibrated by FriulROBOT S.r.l..

Electric risk

No electric risks are involved in using the Baces3D measuring arm because of its low-voltage power supply and because of the double insulation of the power-supply transformer.

Possible damage to the user

For his movement parts, the Baces3D measuring arm must be managed with attention. It might cause slight injuries if it is held close to the joints in certain positions. Since it is a manually controlled instrument, the magnitude of such injuries is directly proportional to the care with which all the required operating movements are carried out.

For the scanner

Laser Safety Precautions

The BacesSCAN sensors are class IIIA laser equipment according to the classification of the C.D.R.H. (Center for Devices and Radiological Health) which governs the use of lasers in the USA, and according to the NF EN 60825-1 European standard.

The laser used emits a red, luminous plane with a wavelength of 670 nanometers and a maximum output power of 4 mW. This laser emission does not cause damage to the skin but it can harm the eyes in case of direct and prolonged exposure to the beam.



Do not look directly into the laser beam or via a reflecting surface.