



Gilson

**Barcode Reader
Installation Manual**

Version 005



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Introduction

1

Introduction

1.1

This manual will guide you through the installation of the barcode reader for the Gilson Liquid Handler.

The installation process consists of three steps:

1. Changing the height of the Gilson Z-tower.
2. Mounting the barcode reader on the Gilson Liquid Handler.
3. Defining the barcode reader in the software.

These steps will be explained in the upcoming chapters.



Note: Refer to the manual [Barcodes for BRUKER Automation \(P/N Z31588\)](#) for more information on the definition of the barcode labels.

Disclaimer

1.2

The unit should only be used for reading barcodes on racks & well plates in the Gilson Liquid Handler. Use of the unit for any purpose other than that for which it is intended is taken only at the users own risk and invalidates any and all manufacturer warranties.

Service or maintenance work on the unit must be carried out by qualified personnel.

Only those persons trained in the operation of the Gilson Liquid Handler should operate the unit.

Read this manual before operating the unit. Pay particular attention to any safety related information.



Always stop the software and turn the power off on the Gilson Liquid Handler before doing any adjustments or modifications. The Gilson utilizes a very sharp and powerful needle to inject samples which may move unexpectedly. This is particularly dangerous when using any hazardous substances.

There are two types of information notices used in this manual. These notices highlight important information or warn the user of a potentially dangerous situation. The following notices will have the same level of importance throughout this manual.



Note: Indicates important information or helpful hints



***WARNING:** Indicates the possibility of severe personal injury, loss of life or equipment damage if the instructions are not followed.*

Contact for Additional Technical Assistance

1.5

For further technical assistance on the Gilson barcode reader, please do not hesitate to contact your nearest BRUKER dealer or contact us directly at:

BRUKER BioSpin GMBH
am Silberstreifen
D-76287 Rheinstetten
Germany

Phone: + 49 721 5161 0
FAX: + 49 721 5171 01
E-mail: bestnmr@bruker.de
Internet: www.bruker-biospin.de/nmr

Adjusting the Z-Tower Height

2

General

2.1

Before the barcode reader can be used with the Gilson Liquid Handler's robot arm, the working height of the Z-tower must be adjusted.

Hardware

2.2

The barcode reader set contains two black anodized (i.e. has a black eloxation layer) adjustment cylinders (one with a height of 127 mm, one with a height of 175 mm), which aid you in mounting the Z-tower at the correct height. The 175 mm adjustment cylinder is used for the adjustment when cooling racks are used. In either case the appropriate value must be set up in the Gilson Control Software.



Be sure that you have the correct adjustment cylinder (black anodized). The original gray cylinder has a height of only 124 mm and this may cause problems when reading barcodes!

The first step in modifying the working height of the Z-tower is to turn the power off and remove all the racks from the Gilson Liquid Handler's bed. Move the robot arms to the center of the bed as shown in ***"The Gilson Liquid Handler" on page 10.***

To achieve the 127 mm (or 175 mm when using a cooling rack) height, loosen the screw on the back of the Z-tower and pull the Z-tower upwards slightly. Place the **black anodized** adjustment cylinder between the bottom of the Z-tower and the floor of the Liquid Handler's bed. Lower the Z-tower until it sits on top of the adjustment cylinder. The scale should then show the value 127 mm (or 175 mm when using a cooling rack). Tighten the screw and remove the **black anodized** adjustment cylinder.

Adjusting the Z-Tower Height

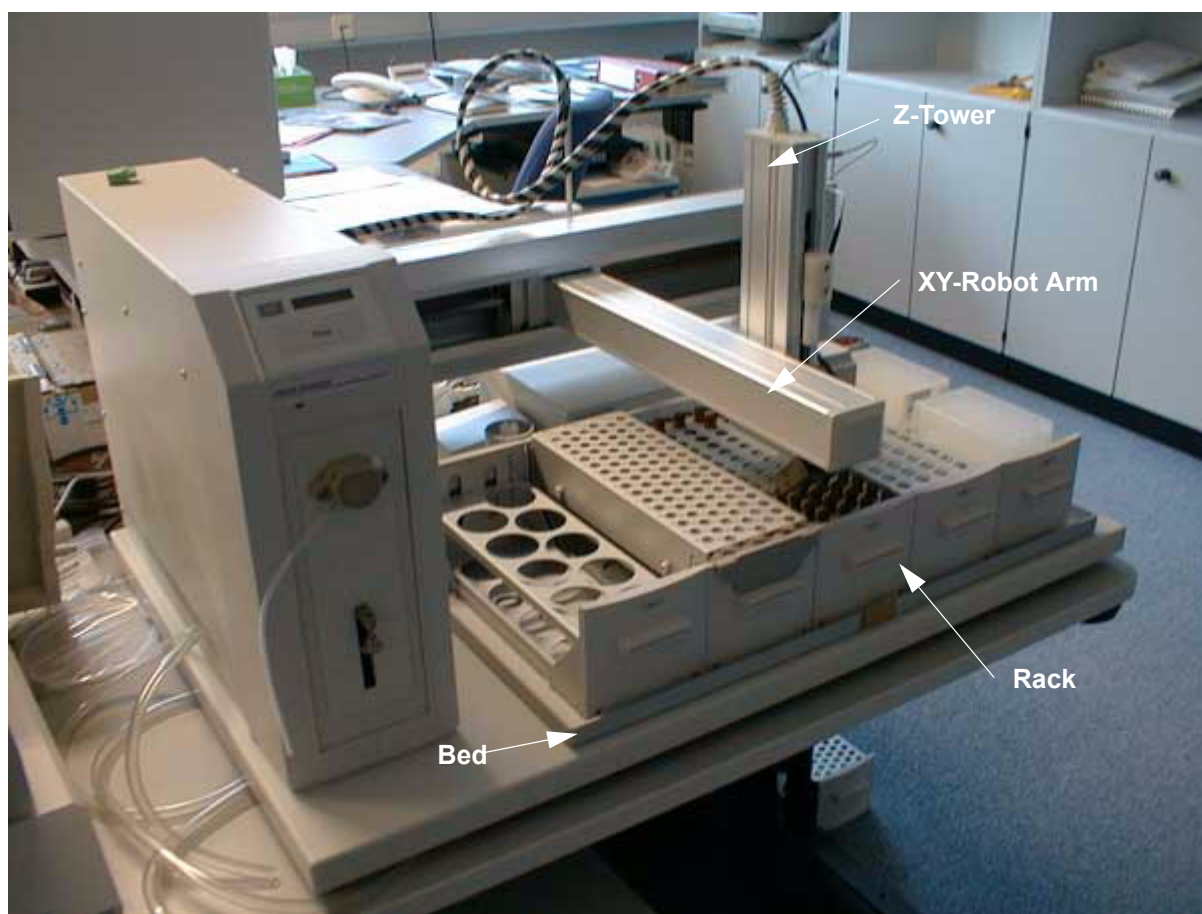


Figure 2.1. The Gilson Liquid Handler

Software

2.3

The new height must also be entered in the Gilson Liquid Handler control software. Refer to **"Software" on page 15** to set up this value.

Mounting the Barcode Reader

3

Mounting the Barcode Reader on the Liquid Handler

3.1

1. Mount the barcode reader on the barcode reader bracket using the 2 M3x8 hexagon screws, as shown below:

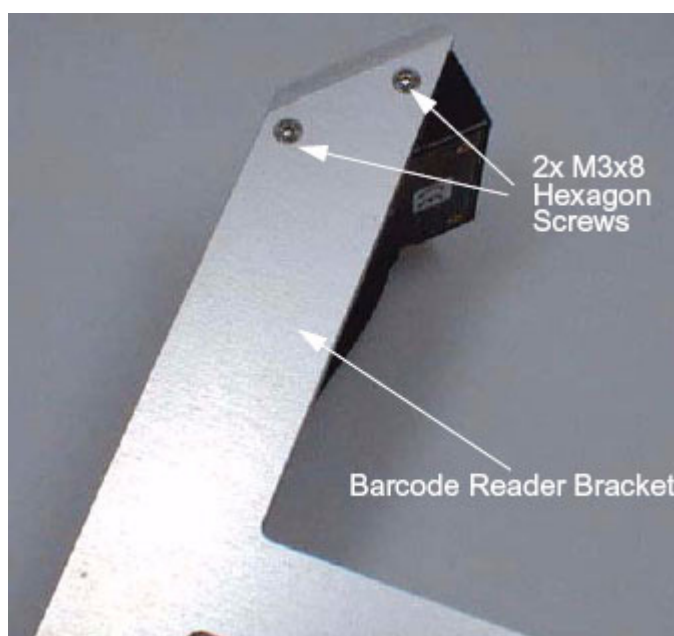


Figure 3.1. Mounting the Barcode Reader to the Bracket

2. Mount the barcode reader bracket on the Z-tower of the Gilson Liquid Handler using the two M3x10 cylinder screws. Ensure that you mount the bracket just under the top plate of the Z-tower cover. There should not be a gap between the Z-tower cover and the bracket (as shown in [Figure 3.2.](#)).

Mounting the Barcode Reader

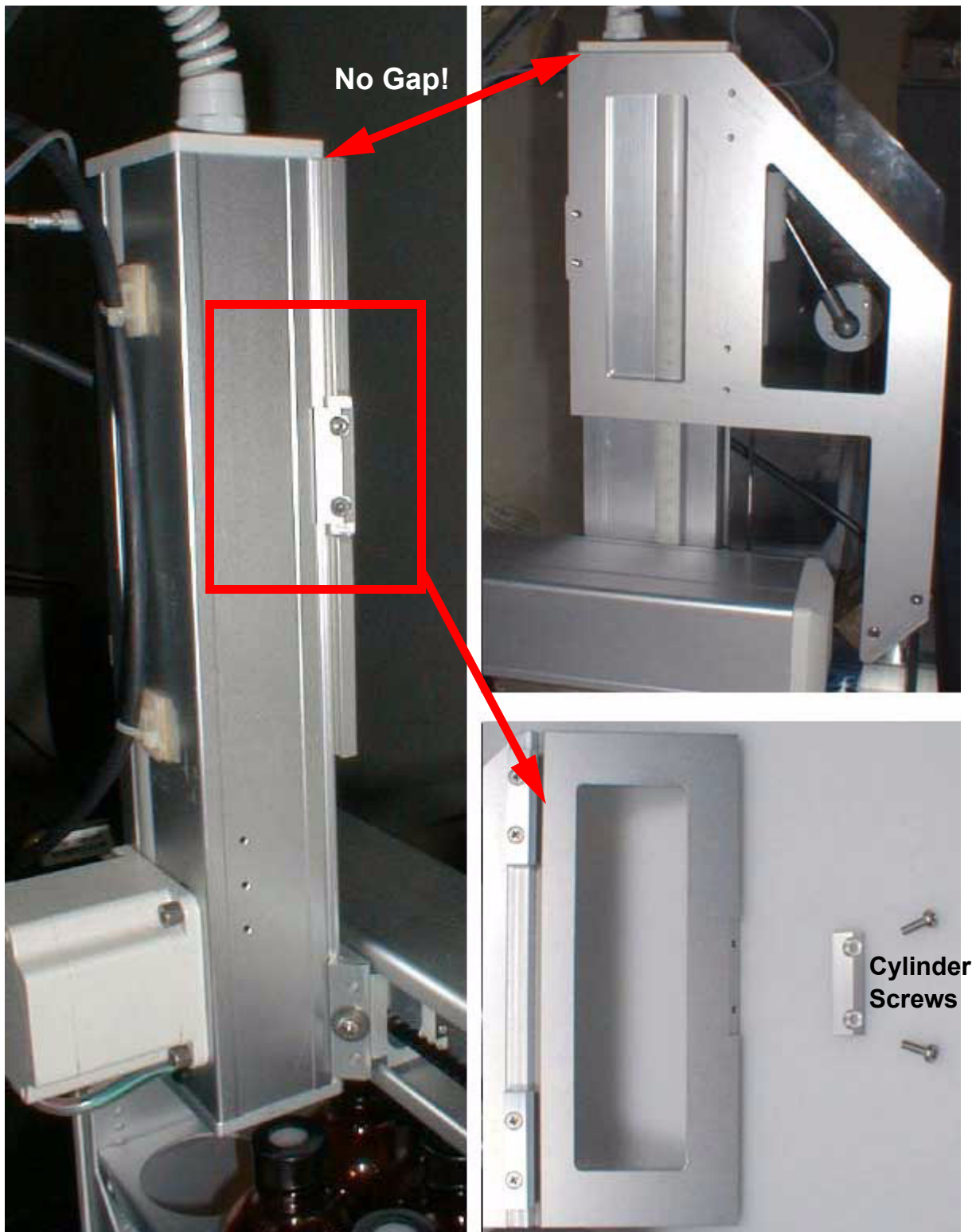


Figure 3.2. Mounting the Barcode Reader Bracket

3. Affix the two adhesive fasteners to the Z-tower arm as shown in **Figure 3.3.** and fasten the barcode reader cable to them using the two plastic strips.

Mounting the Barcode Reader on the Liquid Handler

The lower cable socket should be placed about 20 mm above the motor and the upper socket about 20 mm below the upper end of the Z-tower.

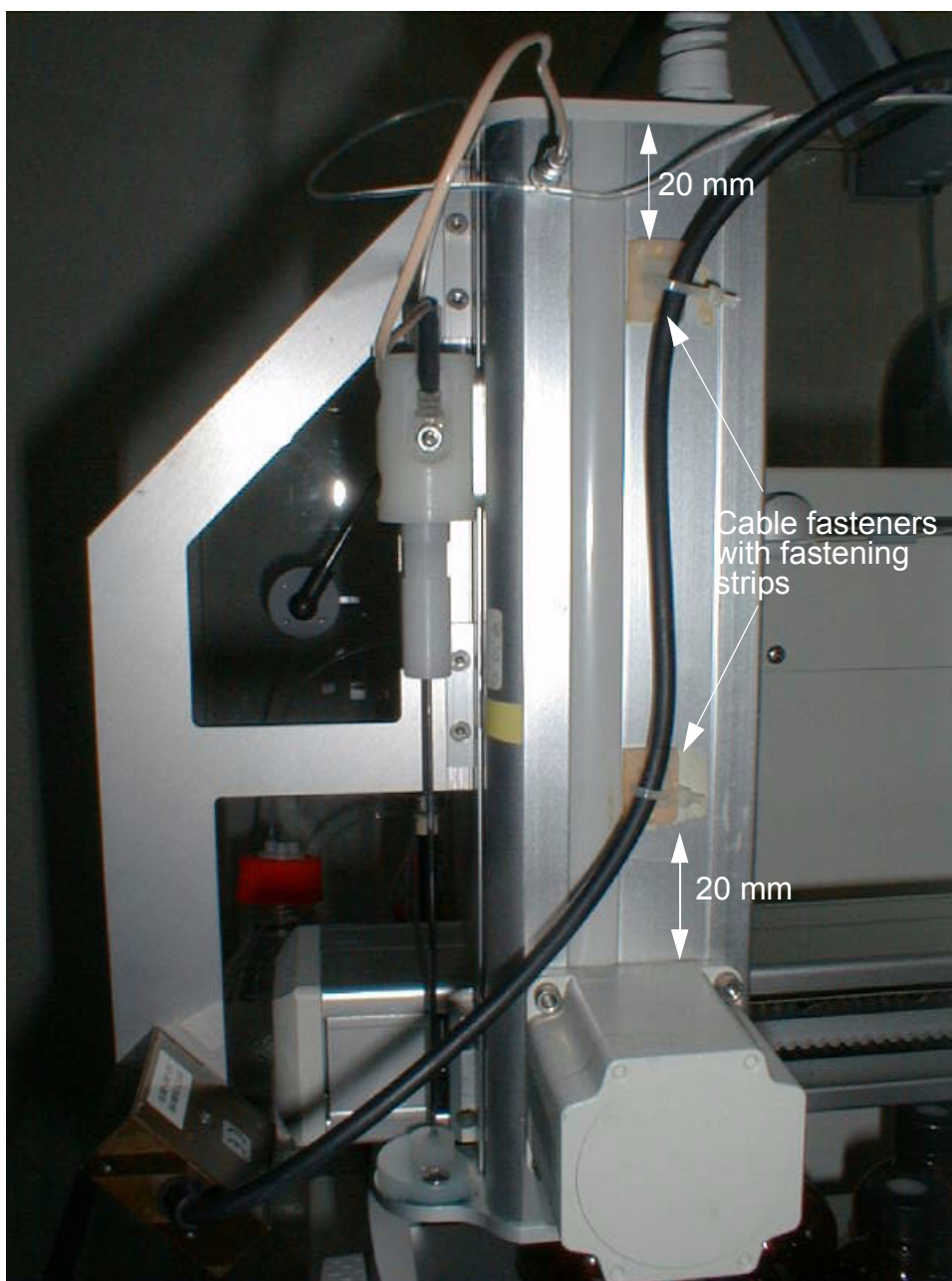


Figure 3.3. Securing the Barcode Cable

4. Affix the barcode reader cable to the Gilson Control Unit cable using the spiral hose (see figure 3.4).

Mounting the Barcode Reader

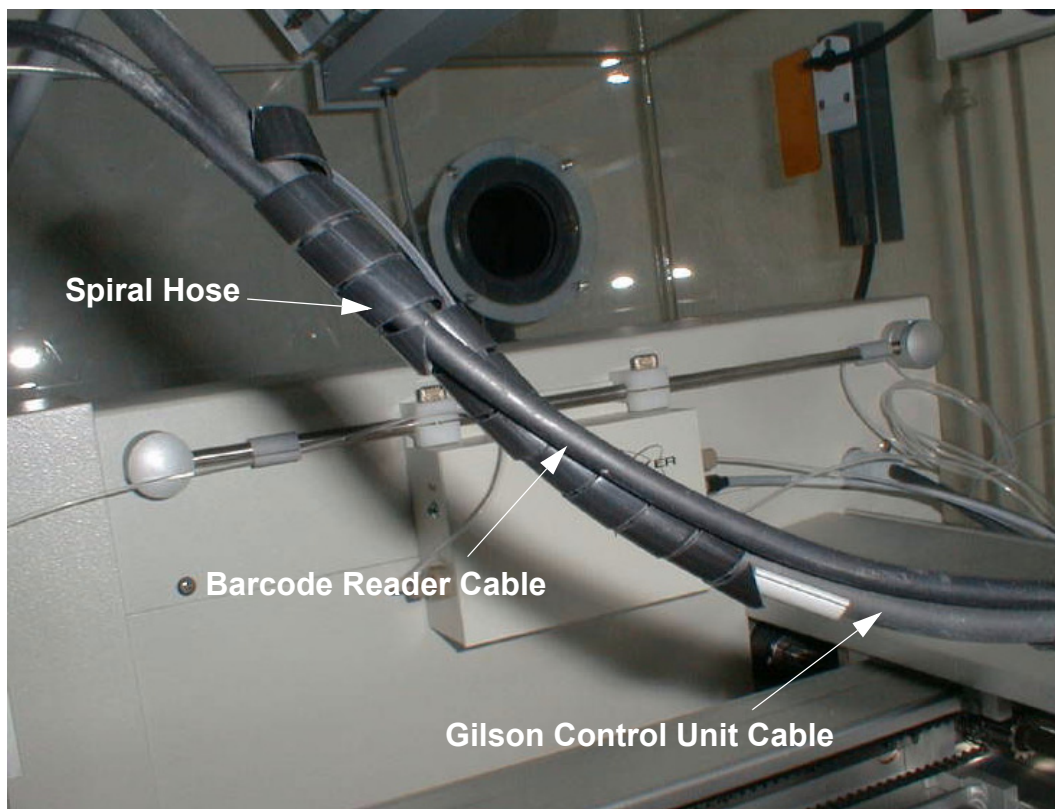


Figure 3.4. Securing the Barcode Reader Cable to the Control Unit Cable

Connecting the Power Supply

3.2

Connect the power supply unit to the barcode reader plug (5 mm stereo connector) and the power supply unit to a free mains outlet.

Connecting the Serial Cable

3.3

To send the reader information to the control unit, connect one end of the 10 meter serial cable to the barcode reader plug and the other end to a free serial port (e.g. TTY09) on the CCU of the spectrometer.

Software

4

BEST Software Setup

4.1

When using the BEST software the barcode reader must be first setup in the TopSpin software before use. The procedure for doing this is described in this section.

Setup Preparation

4.1.1

Start the BEST-NMR Administration Toolbox by using one of the following possibilities:

1. Type **bestadm** in the TopSpin command line and press enter.

or:

2. Type in **iconnmr** in the TopSpin command line.

Select 'Configuration' in the window that appears.

Click on 'Master Switches' in the window that appears (left side).

Click on 'Enable BEST-NMR', followed by 'BEST Administration Tool [bestadm]' .

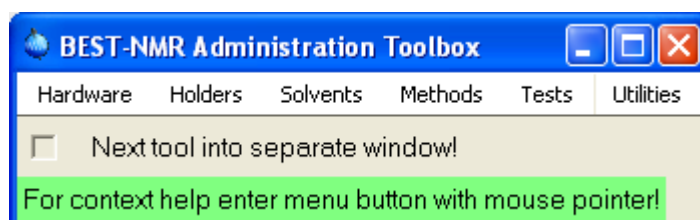


Figure 4.1. BEST-NMR Administration Toolbox

Select the menu item „Hardware“ in the BEST-NMR Administration Toolbox. The following window will open:

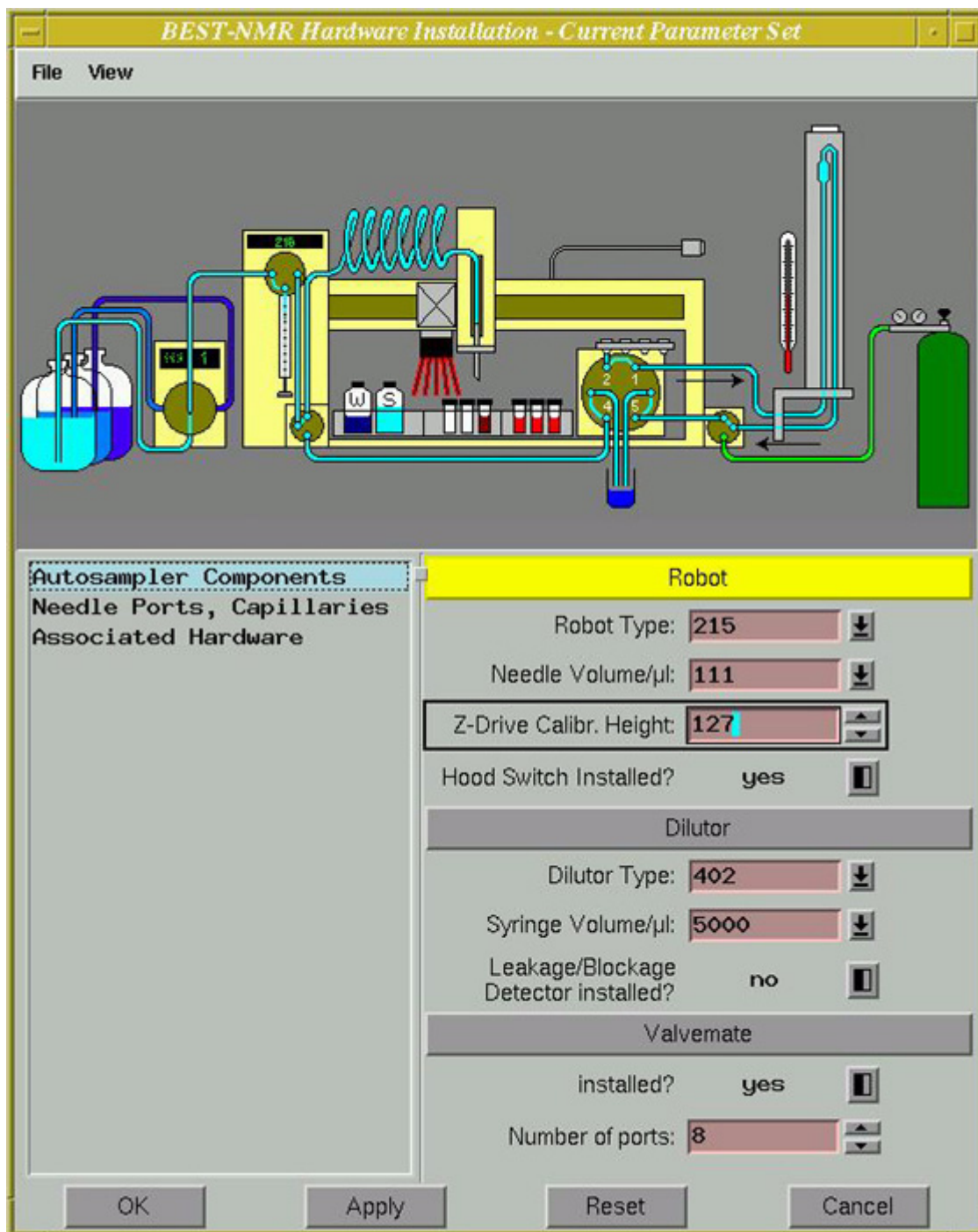


Figure 4.2. BEST-NMR Hardware Installation

Enter the **Z-Drive Calibration Height**: up to 127 mm, or up to 175 mm when cooling racks are used.

Select **Associated Hardware** from the left panel and set the barcode scanner (reader) parameters in the right panel as follows (refer to **Figure 4.3**):

- „Installed?“ **yes**
- „Connected to“ refers to the spectrometer’s CCU serial port, where the barcode reader is connected to, e.g. **tty09**. Select the appropriate serial port.

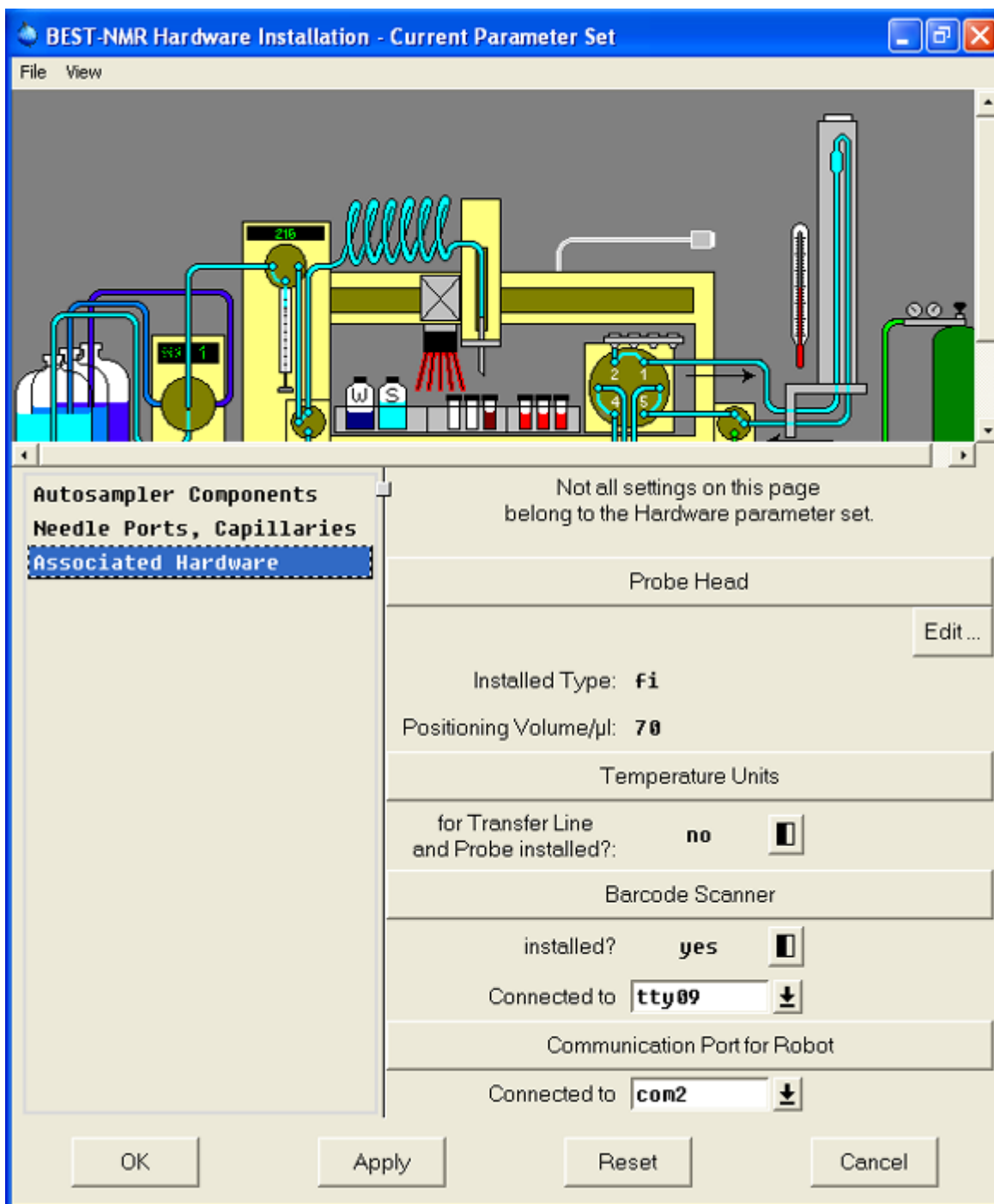


Figure 4.3. BEST-NMR Associated Hardware Installation

Press **Apply** and then **OK**. The barcode reader should now be recognized by the software.

Programming the Barcode Reader

4.1.4

The barcode reader must be programmed once after the first installation to ensure that it reads all the barcodes correctly. This step will calibrate the scanner's position. The system will search different positions to find the optimal position for barcode reading. This position is then saved in the file SCANNER.SRC. The calibration takes about 5-10 minutes.

Click on the menu item **Tests** in the BEST-NMR Administration Toolbox (see [Figure 4.1](#)). The following window will then open:

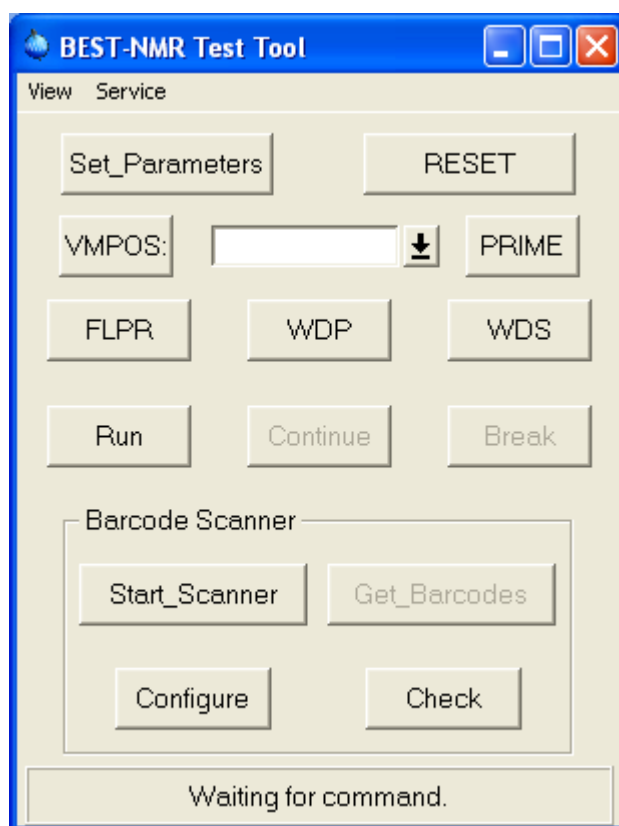


Figure 4.4. BEST-NMR Test Tool

Select the button **Configure** on the bottom left panel to program the barcode reader. The following window will appear:

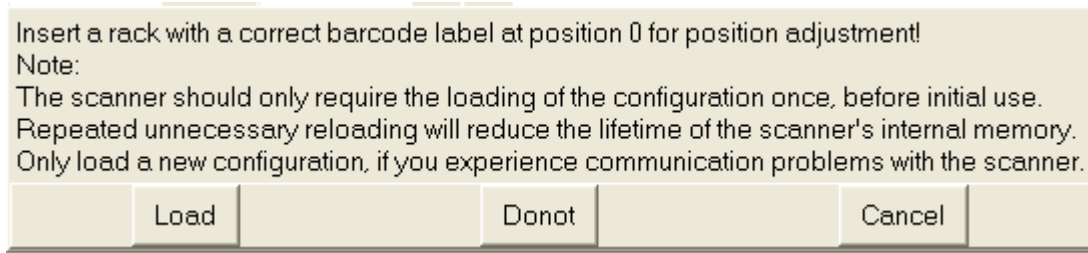


Figure 4.5. Configuration Instructions

Click 'Load' only when initializing the barcode reader for the first time. If reconfiguring after a TopSpin software update, click on 'Donot'.

PrepGilsonST Software Setup

4.2

When using PrepGilsonST the barcode reader must be first setup in the PrepGilsonST software before use. The procedure for doing this is described in the next section.

Setting the Z-Tower Height

4.2.1

Start the PrepGilsonST program.

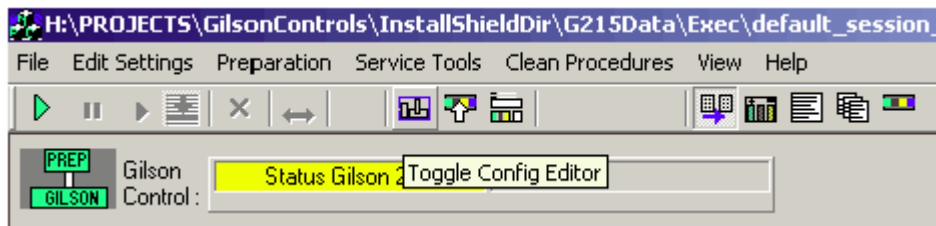


Figure 4.6. Starting the PrepGilsonST Program



Open the Configuration View by pressing the Toolbar button.

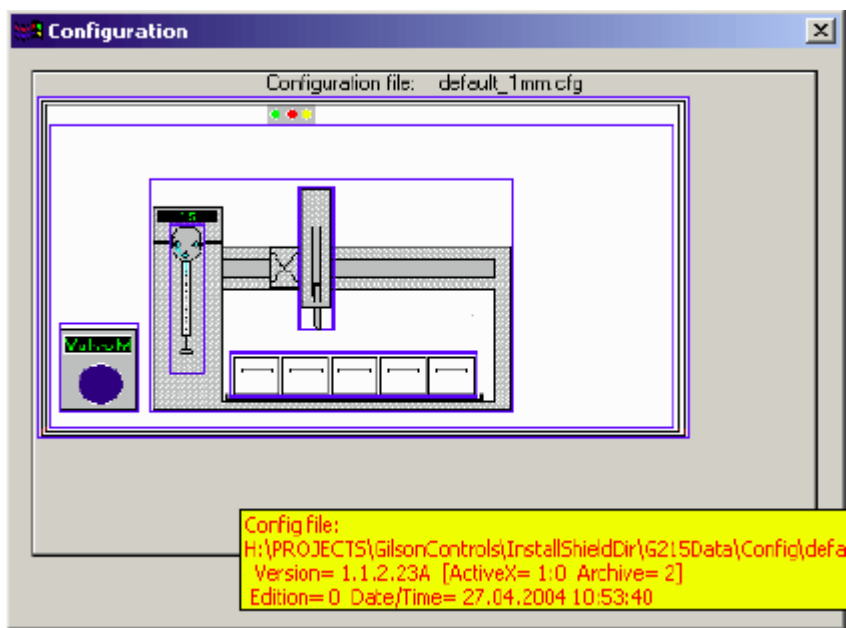


Figure 4.7. The PrepGilsonST Configuration View

Each of the different configuration sections are displayed inside a blue frame. Move the mouse cursor over the objects inside the blue frame to show tips on the configuration.

Click on the yellow area shown in the following illustration to open the **Z-Tower (needle) Configuration** window:

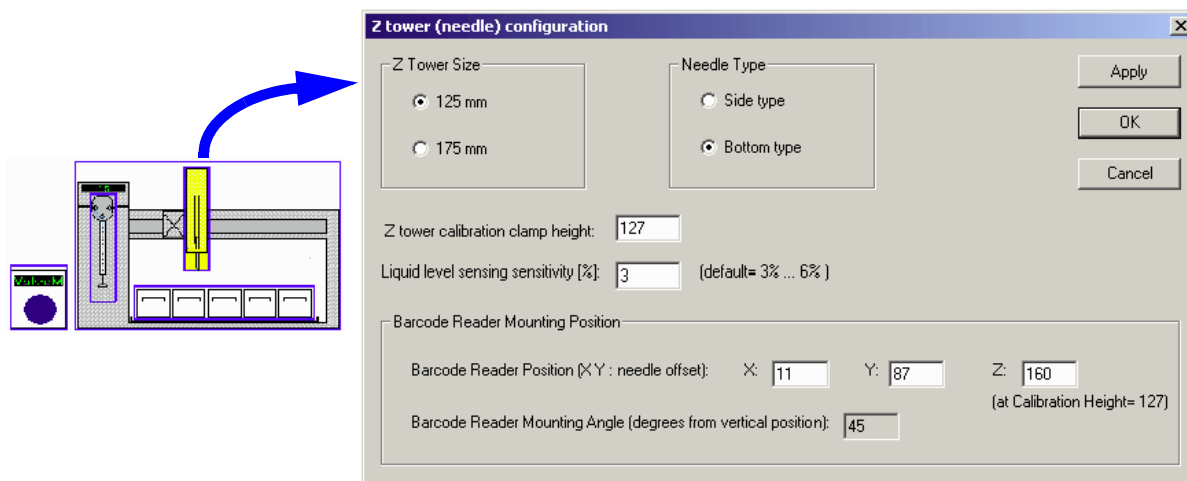


Figure 4.8. Z-Tower (needle) Configuration

- The **Z Tower Size** should be set to 125 mm.
- The **Z Tower calibration clamp height** should be set to 127 mm (when using lower racks) or 175 mm (when using cooling racks/heightener for lower racks).

Defining the Barcode Reader

4.2.2

Start the PrepGilsonST program and open the Configuration View as described in the previous section.

Click on the yellow area shown in the following illustration to open the **Base Configuration** window:

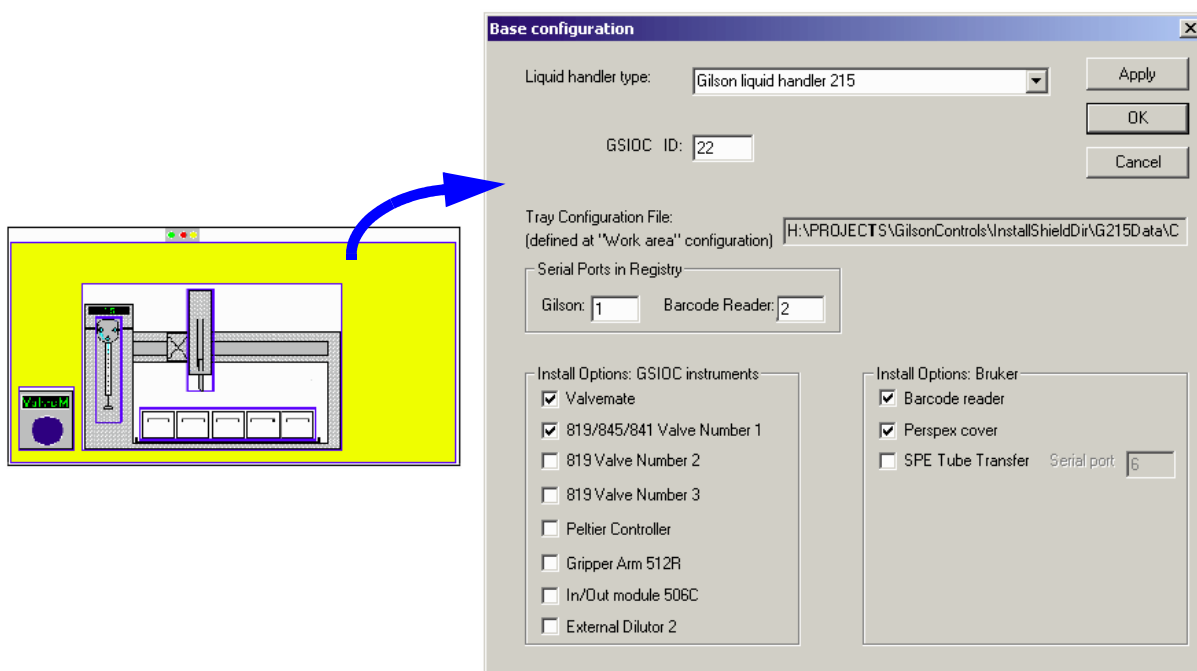


Figure 4.9. The Base Configuration Window

- The 'Barcode reader' option under **Install Options: Bruker** should be checked.
- The RS232 serial port settings should be set in the **Serial Ports in Registry** area based on your individual serial port configuration.

Using the Barcode Reader within PrepGilsonST

4.2.3

There are no programming requirements necessary in order to use the barcode reader.



The barcode reader will be used automatically after the automation is started using the Start Automation button.

Normally the barcode reader is already setup and requires no further adjustments. However if you are having problems with the barcode reader or suspect that the reader is not functioning correctly you can check and adjust the barcode reader as outlined in this section.

To check and adjust (program) the barcode reader open the program **EditGilsonSteps** and right click with your mouse on the Gilson 215 control in the context „Execution of Test Procedure“.

This will open the following submenu:

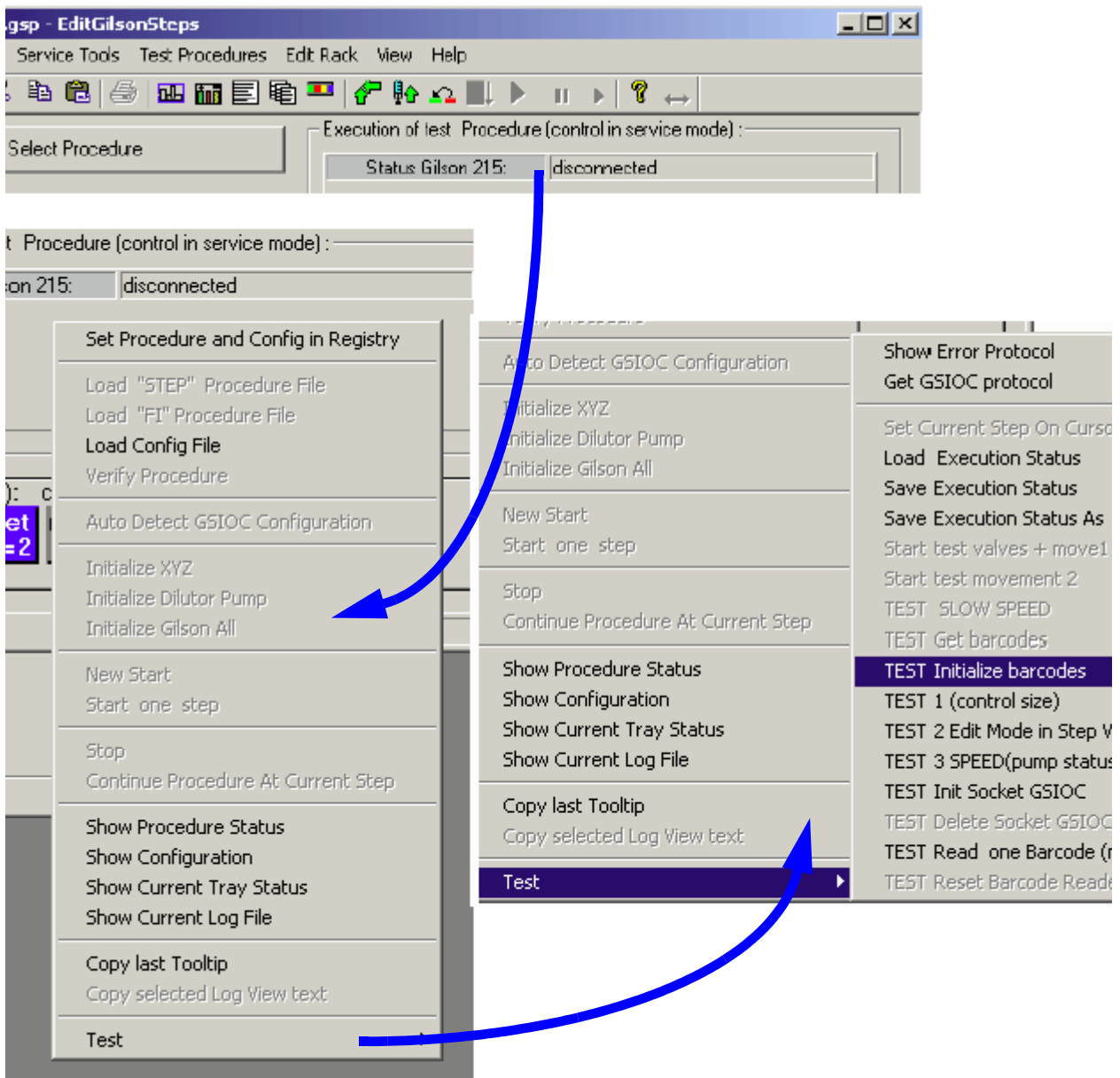
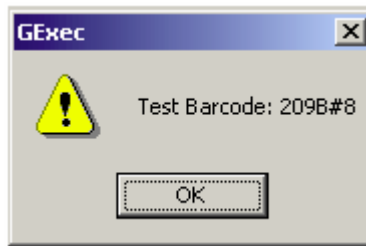


Figure 4.10. EditGilsonSteps: Submenu Test

- Select the submenu **TEST Initialize barcodes** before reading a barcode for the first time.
- Select the submenu **TEST Read one Barcode (max. 10 sec.)**.
 - The red light on the reader will switch „ON“ and the barcode will be read for a maximum of 10 seconds.
 - When reading the barcode, the green LED on the barcode reader will be „ON“ and the result of the reading will be displayed in a popup window as shown below (the red light of the reader will switch „OFF“).



The terminal program (...\\Barcode Reader\\Terminal.exe) can also be used to check and to program the barcode reader:

When the barcode reader is connected to serial port 1, open the predefined terminal program „GilBarc1.trm“. Otherwise, when the barcode reader connected to serial port 2 open the terminal program „GilBarc2.trm“.

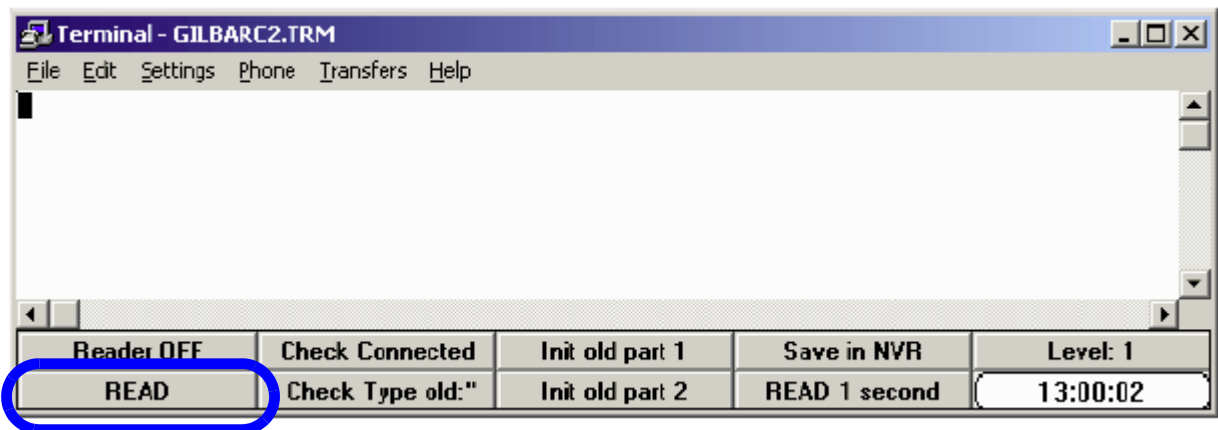


Figure 4.11. The Terminal Program

The function keys at the bottom of the program window can be used to perform the various program tasks. For example, press **READ** to check the barcode reading. After a correct reading the barcode information will be written in the text field as shown in **Figure 4.12**.

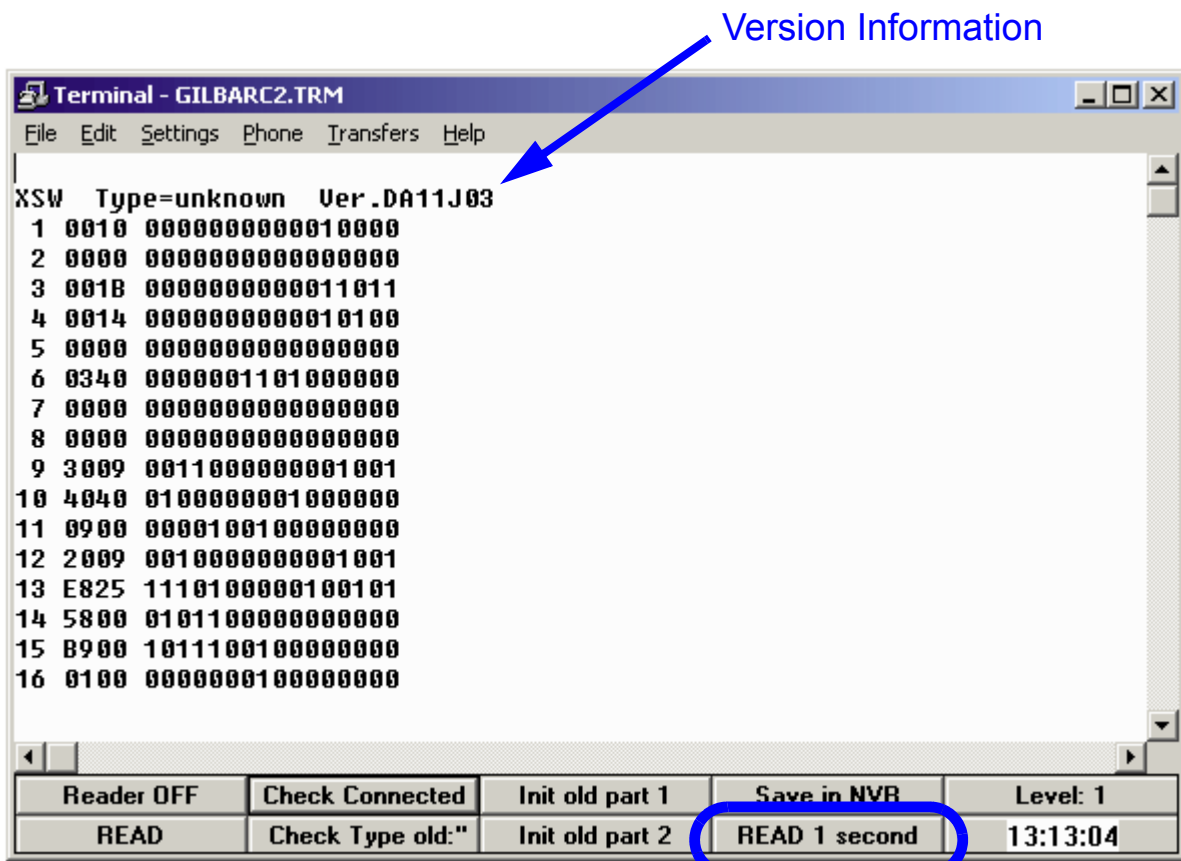


Figure 4.12. The Terminal Program Text Field

When using the function key **READ 1 second** either the correct barcode information or a 'BR' (bad read) will be displayed in the text field after 1 second.

If the barcode reader is not working correctly you can check the version and settings by pressing the **Check Connected** button. This will display this information in the text field.



For service personnel only: The version information (see [Figure 4.12.](#)) is used for service recommendations. With old barcodes (until DA04) or new barcodes (from DA05), different initialization strings should be sent.

When using the HyStar software with barcode reader support, the barcode reader must be first setup in the HyStar software before use. The procedure for doing this is described in the next section.

Start the HyStar program and open the Hardware Setup window.

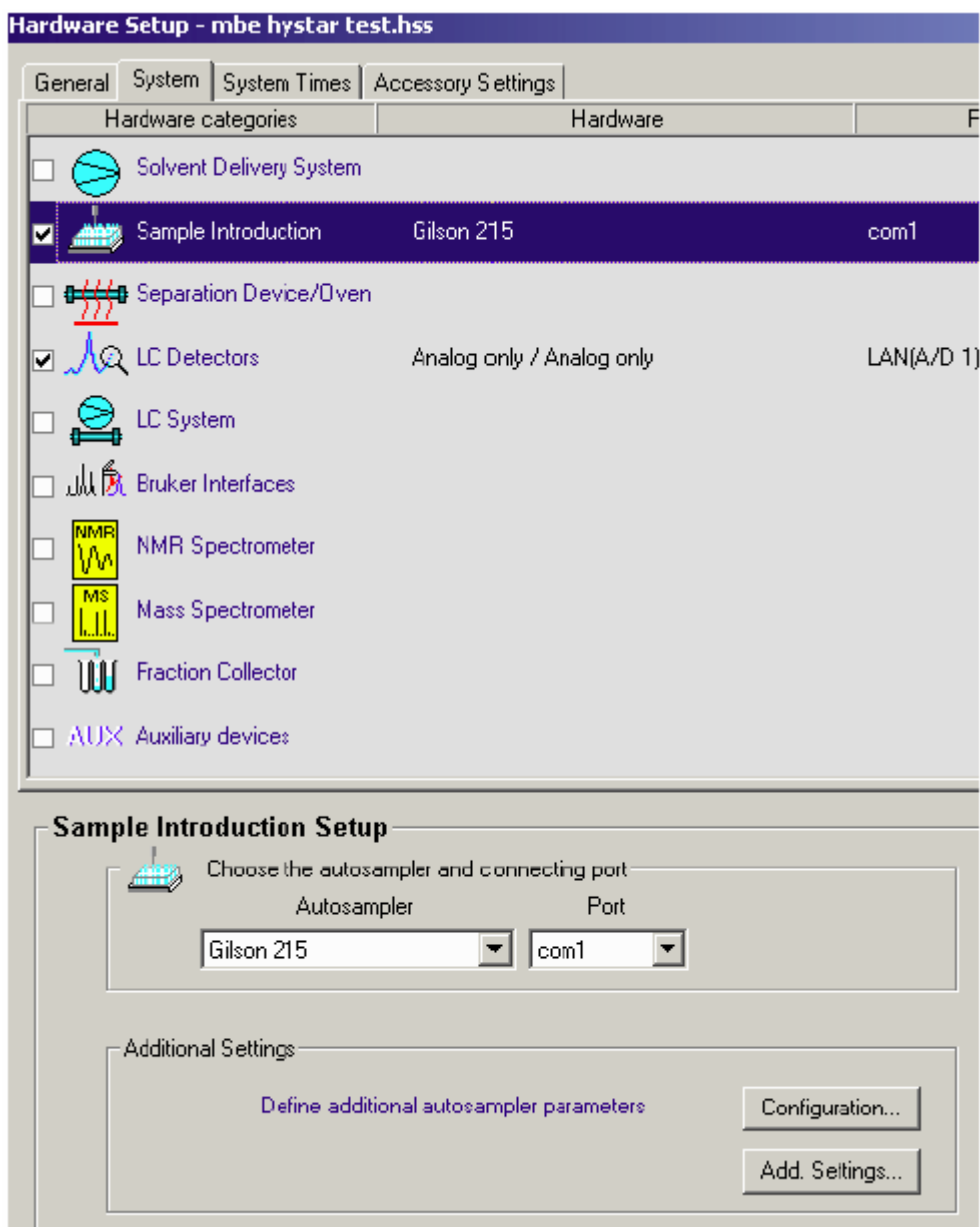


Figure 4.13. The HyStar Hardware Setup Window

Press the **Configuration** button to open the Configuration View, and set the configuration data as described in the **"PrepGilsonST Software Setup"**.

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Notes: