



# **B-ACS 60/120**

## **Barcode Reader Vertical Installation Guide**

**Version 002**



The information in this manual may be altered without notice.

BRUKER BIOSPIN accepts no responsibility for actions taken as a result of use of this manual. BRUKER BIOSPIN accepts no liability for any mistakes contained in the manual, leading to coincidental damage, whether during installation or operation of the instrument. Unauthorized reproduction of manual contents, without written permission from the publishers, or translation into another language, either in full or in part, is forbidden.

This manual was written by

Volker Reiss

© May 29, 2006: Bruker Biospin GmbH

Rheinstetten, Germany

P/N: Z31713  
DWG-Nr.: 1421002

# Contents

	<b>Contents .....</b>	<b>3</b>
<b>1</b>	<b>Introduction .....</b>	<b>5</b>
1.1	Introduction .....	5
1.2	Requirements .....	6
1.3	Contact for Additional Technical Assistance .....	6
<b>2</b>	<b>Mounting Instructions .....</b>	<b>7</b>
2.1	Introduction .....	7
2.2	Mounting the Barcode Reader Vertical .....	7
<b>3</b>	<b>Adjustment Procedures .....</b>	<b>13</b>
3.1	Introduction .....	13
3.2	Adjusting the Threshold of the Barcode Collar Detecting Reflective Sensors .....	13
3.3	Checking the Barcode Collar Detecting Reflective Sensor ..	14
3.4	Adjusting the Barcode Readers .....	14
	Preparation .....	14
	Making the Adjustments .....	15
3.5	Final Steps .....	16
<b>4</b>	<b>Upgrading Firmware .....</b>	<b>17</b>
4.1	Introduction .....	17
4.2	Installing the Firmware .....	17
	<b>Figures .....</b>	<b>19</b>
	<b>Tables .....</b>	<b>21</b>

**Contents**

# Introduction

# 1

## Introduction

## 1.1

This document contains instructions for mounting and adjusting the B-ACS 60/120 Barcode Reader Vertical.



Figure 1.1. The B-ACS Barcode Reader Vertical

### **Requirements**

**1.2**

1. The new B-ACS 60/120 Barcode Reader Vertical will only work with Sample Changer's that have the new electronics (P/N HZ08368 or H9804).
2. Firmware version BACS\_VS20040128\_B14.HEX (or newer) for the B-ACS electronics must be installed. Please check the firmware version using the command <VM>. If necessary, refer to **"Upgrading Firmware" on page 17** for details on downloading the firmware if required.
3. Barcode collar sets (100 pieces) can be ordered using part number H10113. Please specify the number range you want to have encoded on the collars. You must ensure that each individual number is used only once.

### **Contact for Additional Technical Assistance**

**1.3**

For further technical assistance on the B-ACS Barcode Reader Vertical unit, 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: [samplechanger@bruker.de](mailto:samplechanger@bruker.de)  
Internet: [www.bruker.de](http://www.bruker.de)

# Mounting Instructions

# 2

## Introduction

## 2.1

The B-ACS Barcode Reader Vertical is available as a kit and can be ordered using the following part numbers:

- H9781 B-ACS 60 Barcode Reader Option Vertical
- H10112 B-ACS 120 Barcode Reader Option Vertical

The kits consist of a barcode reader mounted on a bracket (holder), the B-ACS Vertical Barcode Detection Board and the necessary cables needed to connect the reader(s) to the board.

- H10113 Set Barcode Collar Vertical Barcode (100 pieces - please specify number range).

## Mounting the Barcode Reader Vertical

## 2.2

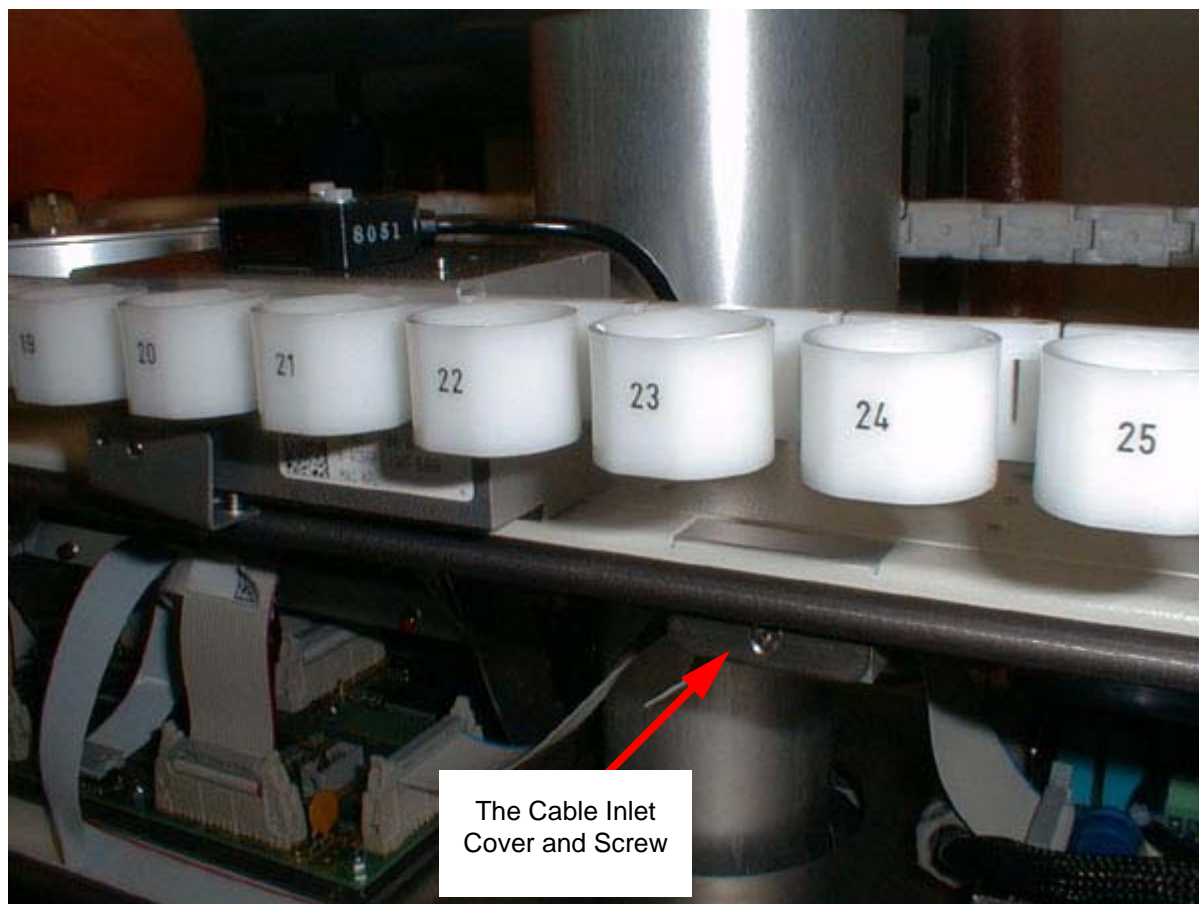
1. Remove all samples from the carousel.
2. Ensure that the power for the sample changer is off by pressing the emergency stop button.



Figure 2.1. Emergency Stop Button

## Mounting Instructions

3. Open the front panel of the sample changer.
4. Remove the rear panel of the sample changer.
5. Remove the cable inlet cover by removing the screw shown in ***Figure 2.2.***



*Figure 2.2. Removing the Cable Inlet Cover*

6. Insert the cables from the barcode reader assembly through the opening at the top of the cabinet provided for this purpose.
7. Mount the Barcode Reader Vertical assembly to the top of the column assembly as shown in the following picture. Fasten the reader to the cabinet using the four Allen screws provided in the kit.



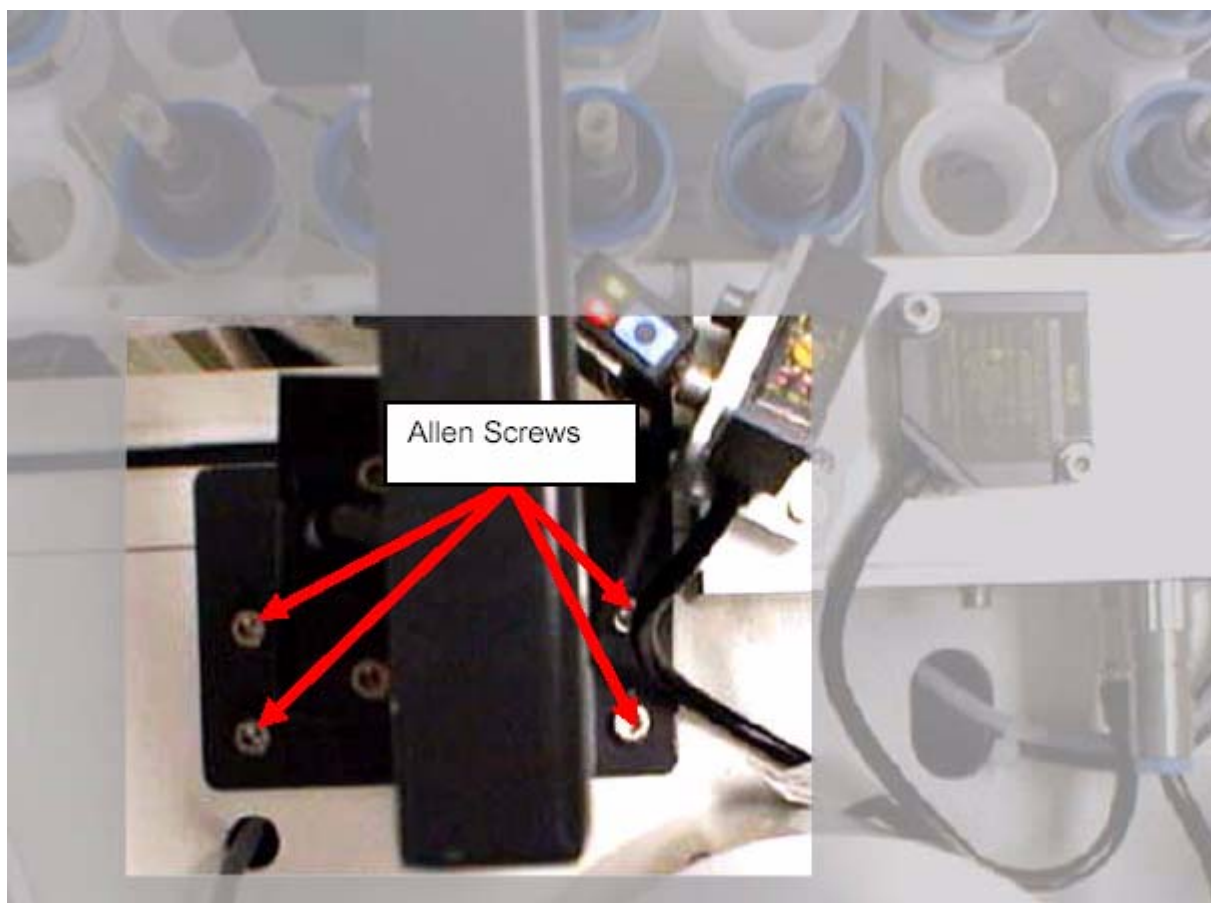
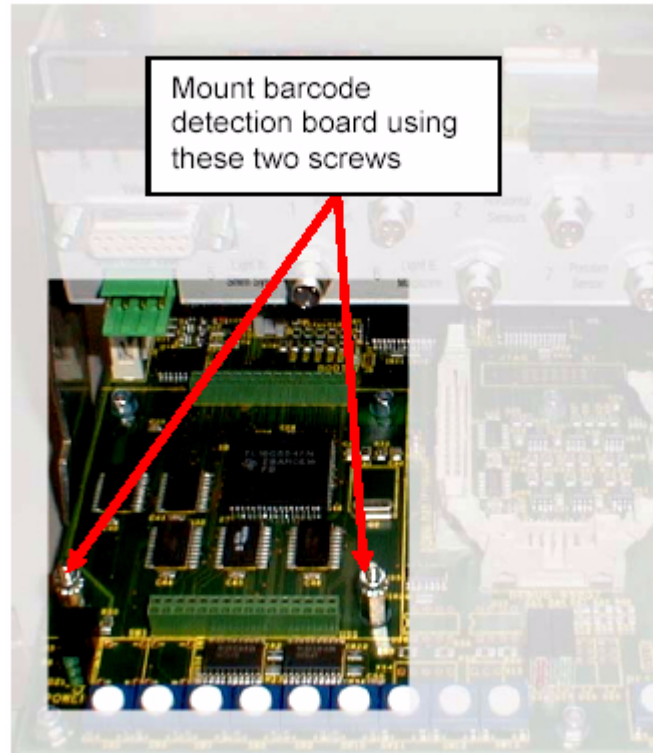


Figure 2.3. Securing the Barcode Reader Assembly

## Mounting Instructions

- Place the B-ACS Axial Barcode Detection Board on the top of the control board in the B-ACS Electronic Housing. The board is held in place with two nuts as indicated in the following figure:



*Figure 2.4. Securing the B-ACS Axial Barcode Detection Board*

9. Connect the 8-pin and RJ45 cables from the barcode reader and the reflective light sensors to the M60 plugs on the B-ACS Axial Barcode Detection Board. If you are using the B-ACS 120, connect the M120 plugs as well. The cables and board are clearly marked to avoid confusion.

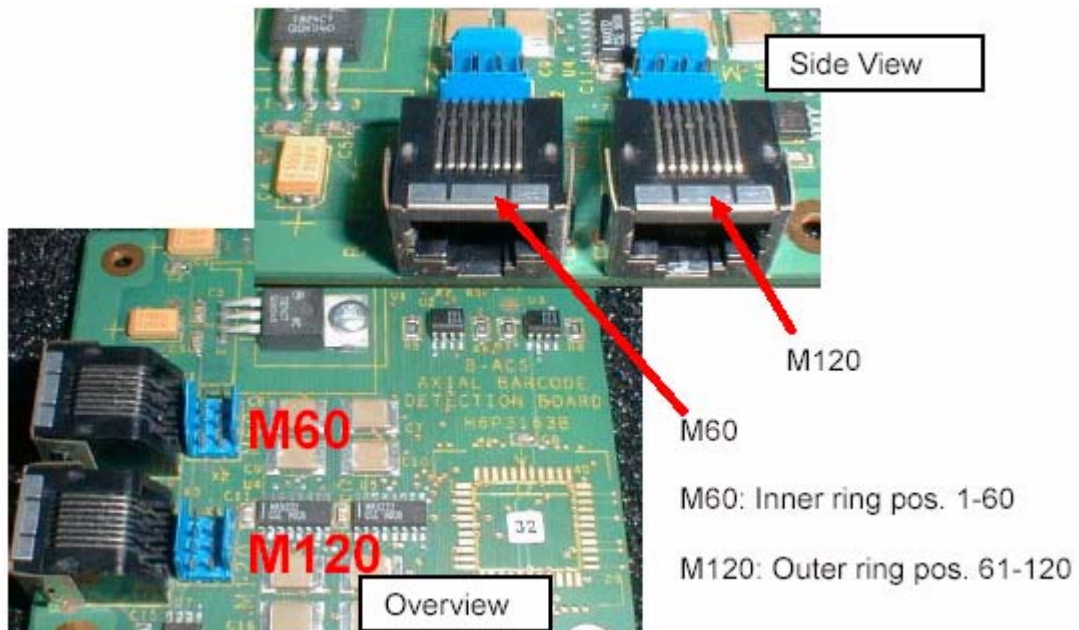


Figure 2.5. B-ACS Axial Barcode Detection Board Connections

10. Close the front and rear panels of the sample changer cabinet and turn on the sample changer. Wait for the initialization to finish before continuing with the adjustment (see **"Adjustment Procedures" on page 13**).

**Mounting Instructions**

# Adjustment Procedures

# 3

## Introduction

3.1

The power will need to be on for the following procedures.

## Adjusting the Threshold of the Barcode Collar Detecting Reflective Sensors 3.2

On the side of the barcode reader unit are two reflex sensors. The green LED on top of the reflex sensor remains on and indicates that the unit is operational. Before the barcode reader unit can be used the threshold value must be set:

- Place a sample with a barcode collar on the carriage in the read position and push the "Set" button on top of the reflex sensor once. The display will blink with the current value of reflective light and the text "SET".
- Remove the sample from the carriage and push the "Set" button a second time.
- The threshold value will then blink 3 times. The sensor will then display the value of the currently reflected light intensity. When the sensor is operating correctly the orange LED will light when a sample is present, and will be off when no sample is present.

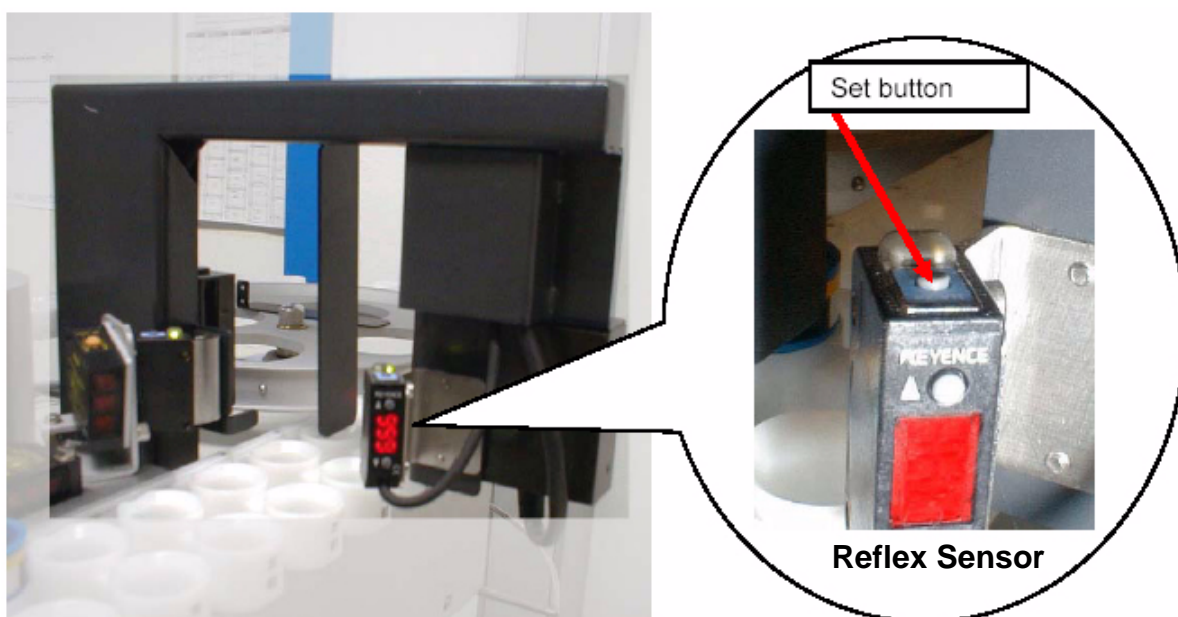


Figure 3.1. The „Set“ Button on the Top of Reflex Sensor

- Perform this step on both the inner and outer reflex sensors if using a B-ACS 120 Sample Changer.

### **Checking the Barcode Collar Detecting Reflective Sensor**

**3.3**

1. Establish a serial communication path to the sample changer as explained in the B-ACS Troubleshooting Manual (P/N /31723).
2. With a sample in the carrousel in the read position (e.g. position 23), send the command **<SB [Read Pos]>**, e.g. **<SB 23>**. The answer should be **S1** for position 23.
3. With no sample present the answer should be **S0**.
4. With a B-ACS 120 you should also place a sample in the outer ring of the carrousel and send the appropriate command, e.g. **<SB 83>**.

### **Adjusting the Barcode Readers**

**3.4**

#### **Preparation**

**3.4.1**

1. Placing the Sample Changer in Diagnostic Mode:

Using the Hyperterminal or RS Test program enter the sequence:

Press **Escape**, the point key (.) and **Return**.

This will place the B-ACS in the diagnostic mode. The sample changer display should show "SAMPLECHANGER DIAGNOSTIC MODE !!". This text is also transmitted and displayed in the terminal program that you are using.

2. Send the command **<BD 6>**. The answer should be **<EXECUTED>**.
3. Send the command **<BD 4>**. The answer should also be **<EXECUTED>**.
4. Enter **BT** and press **Return**.

This will begin the Barcode Test (BT) mode.



Note: To abort the BT at any time, press the **Continue (CONT)** key on the front panel of the sample changer.



Once you have entered the BT mode the sample changer display should show "TEST CHANNEL A", which is used for testing the B-ACS 60 and the inner belt of the carriage on the B-ACS 120.

Place a sample with a barcode collar in the inner belt of the carriage.

When the barcode reader is adjusted correctly, the barcode reader red illumination light will flash shortly and the good read indicator will turn green. The barcode information value will appear in the display at the front panel of the sample changer.

When the angle of the barcode reader is not correct, light may be reflected from the reader, thus the sample barcode cannot be read. In this case the red front illumination light of the reader will stay on for approximately 1 second, then turn off and the good read indicator light will turn red. No barcode information will be shown in the B-ACS display.

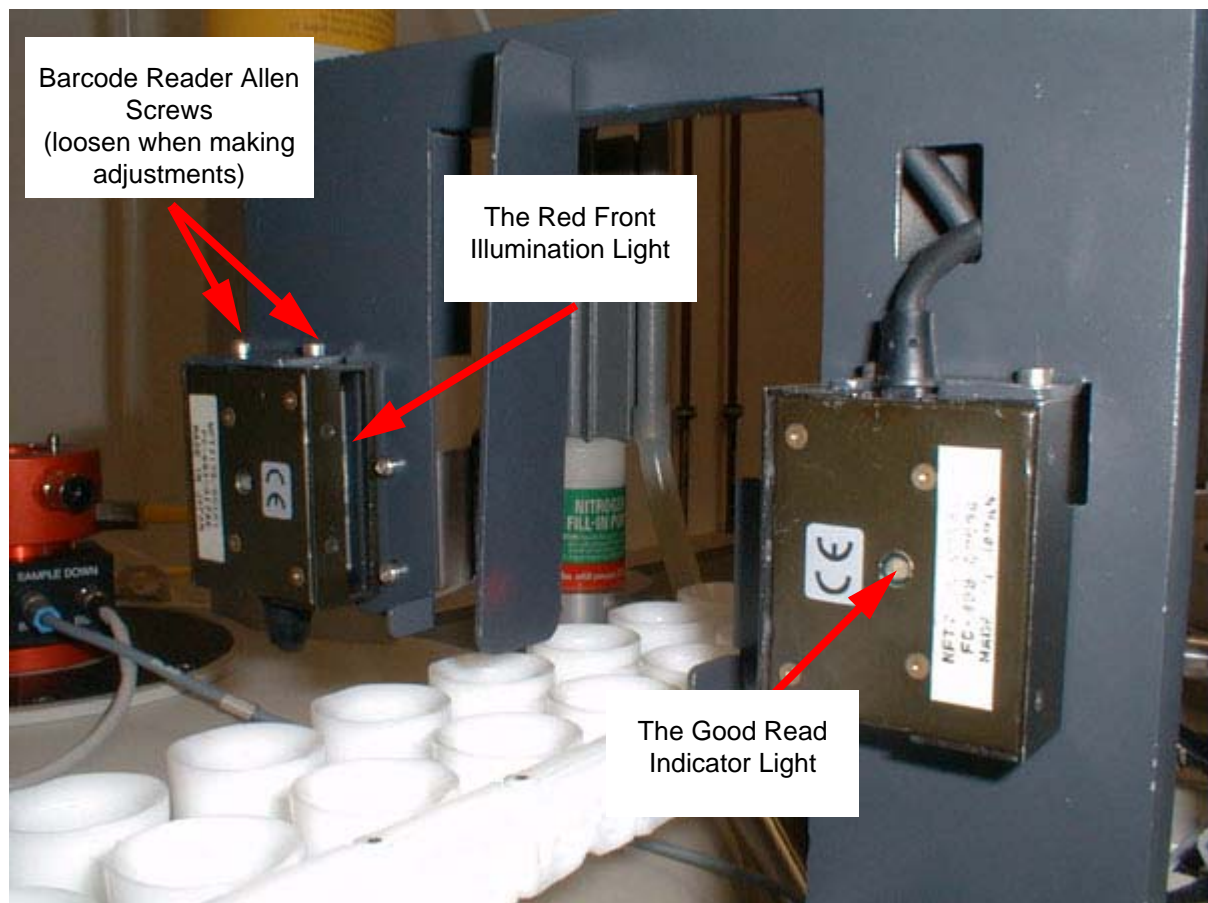


Figure 3.2. The Barcode Reader Red Front Illumination Light

## Adjustment Procedures

If the sample barcode can not be read then the barcode reader will need to be adjusted:

- Loosen the two barcode reader Allen screws slightly, which fix the barcode reader to the mounting mechanics (see **Figure 3.2**).
- Very slowly rotate the barcode reader so the light is not directly reflected on the sample barcode. The light will start blinking and a value will appear in the display of the front panel of the sample changer when you have moved the reader into the correct position.
- Carefully tighten the Allen screws holding the barcode reader.
- Make sure the light is still blinking and the value is still visible in the display of the front panel of the Sample Changer. Repeat the above steps if necessary.
- If you have a B-ACS 120 push the arrow key on the sample changer display until "TEST CHANNEL B" appears. Repeat the instructions above using a sample in the outer belt of the carriage and adjusting the outer barcode reader.

### **Final Steps**

**3.5**

---

Once the barcode reader adjustment has been completed press the **Continue (CONT)** button to exit the diagnostic mode.

Close the Hyperterminal or RS Test program and press the sample changer **Reset**.



# Upgrading Firmware

# 4

## **Introduction**

**4.1**

Information required to download the newest firmware version for the B-ACS electronics from the FTP-Server:

Firmware and Download Instructions Directory:

**<ftp://ftp.bruker.de/pub/nmr/AUTOMATION/BACS/FIRMWARE/>**

Firmware File: BACS\_VS20040128\_B14.HEX (or newer)

Download Instructions: Firmware\_Download\_English.pdf

Download program (SBS Terminal) directory & file:

**<ftp://ftp.bruker.de/pub/nmr/AUTOMATION/SBSTERMINAL/SBSTerminal.exe>**

## **Installing the Firmware**

**4.2**

For information on installing the newest Firmware please refer to the Adobe Acrobat (PDF) document **Firmware\_Download\_English.pdf** that is located in the Firmware and Download Instructions Directory listed above.



# Figures

<b>1 Introduction</b>	<b>5</b>
Figure 1.1. The B-ACS Barcode Reader Vertical .....	5
<b>2 Mounting Instructions</b>	<b>7</b>
Figure 2.1. Emergency Stop Button .....	7
Figure 2.2. Removing the Cable Inlet Cover .....	8
Figure 2.3. Securing the Barcode Reader Assembly .....	9
Figure 2.4. Securing the B-ACS Axial Barcode Detection Board .....	10
Figure 2.5. B-ACS Axial Barcode Detection Board Connections .....	11
<b>3 Adjustment Procedures</b>	<b>13</b>
Figure 3.1. The „Set“ Button on the Top of Reflex Sensor .....	13
Figure 3.2. The Barcode Reader Red Front Illumination Light .....	15
<b>4 Upgrading Firmware</b>	<b>17</b>



# ***Tables***

<b>1</b>	<b><i>Introduction</i></b>	<b>5</b>
<b>2</b>	<b><i>Mounting Instructions</i></b>	<b>7</b>
<b>3</b>	<b><i>Adjustment Procedures</i></b>	<b>13</b>
<b>4</b>	<b><i>Upgrading Firmware</i></b>	<b>17</b>

# Tables



## Notes: