



Barcode Reader Installation and Setup Manual
(For Installation-Ready Instruments)

Tissue-Tek[®] Glas[™] g2 Glass Coverslipper

6499	Glas g2-JC2, 230VAC
6500	Glas g2-A1, 115VAC
6501	Glas g2-J0, 100VAC
6502	Glas g2-E2, 230VAC

Sakura Seiki Co., Ltd.
Sakura Finetek Japan Co., Ltd.
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1. Introduction

This manual applies to the Tissue-Tek® Glas™ g2 Glass Coverslipper that does have the barcode reading capabilities as an option. The manual provides explanations in regards to how to install the Microscan Co. Barcode Reader (Quadrus MINI Velocity) into the instrument and to configure the barcode reader (to be referred as the reader from here on) to read barcodes. The instrument has a lot of moving components and sections where parts are spaced close together. Therefore, high assembly accuracy is required. It is required to effectively use this manual along with the service manual and to fully understand the instrument prior to installing the reader.

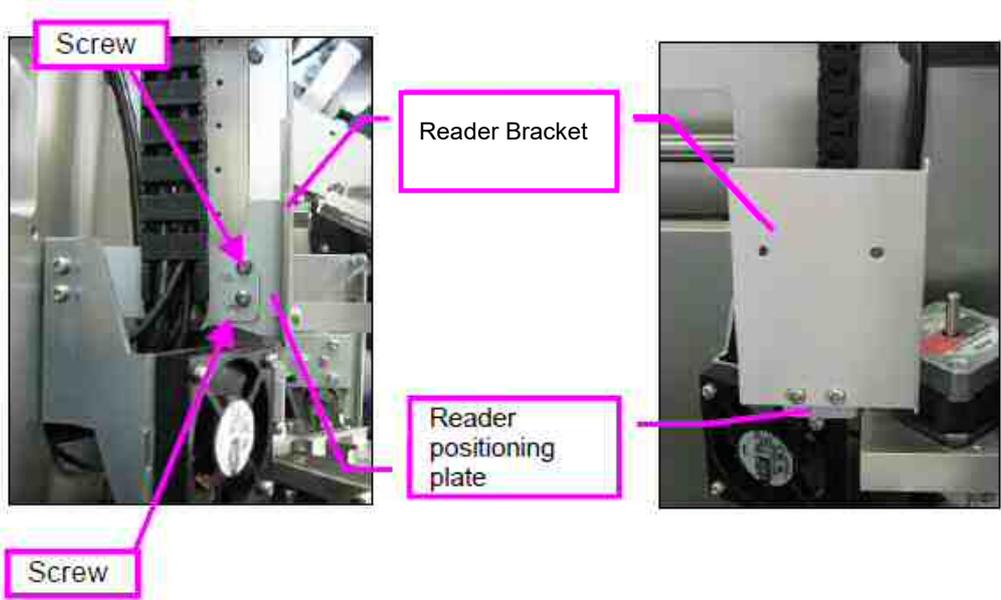
Precautions:

- The USB cable that will be used to connect the barcode reader and a PC to the instrument is to be supplied by a distributor.
- The installation is to be performed by a sales personnel or service technician, who has received service training for the Tissue-Tek® Glas™ g2.
- For safety reasons, remove the power cable from a power outlet when commencing work, unless you are configuring the settings for the reader.
- Do not look directly into the LED light of the reader.
- When using a glass slide or cover glass, use caution and avoid injury from broken glass.
- Xylene is used as a penetrating agent. Because xylene is known to be harmful to the human body, it is recommended to wear protective masks, gloves, etc.
- Some photographs and illustrations in the manual slightly differ from actual objects.

(2) Installation of the barcode reader

- 1. Remove two screws (indicated by arrows) to remove the reader positioning plate together with the reader bracket.

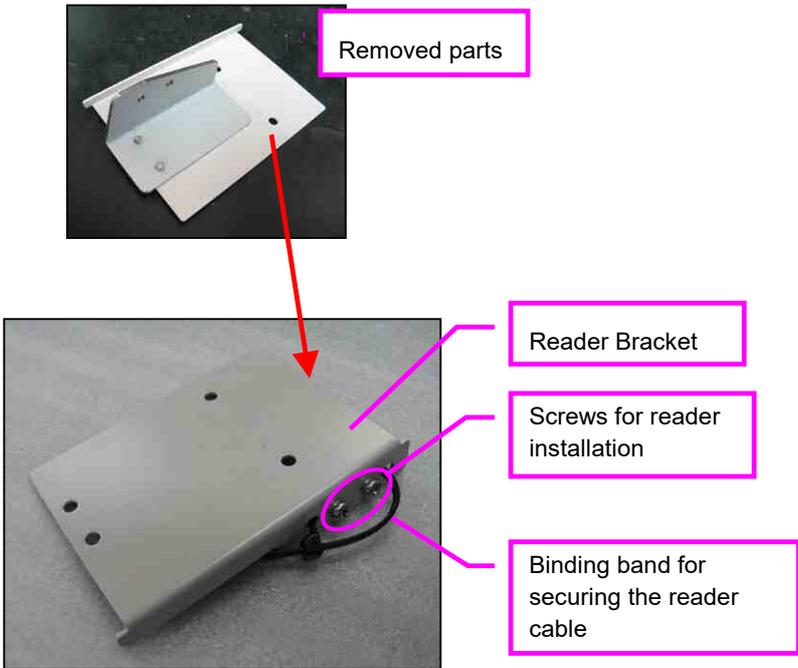
Screw: Sems A, M3x6, 2 pcs.



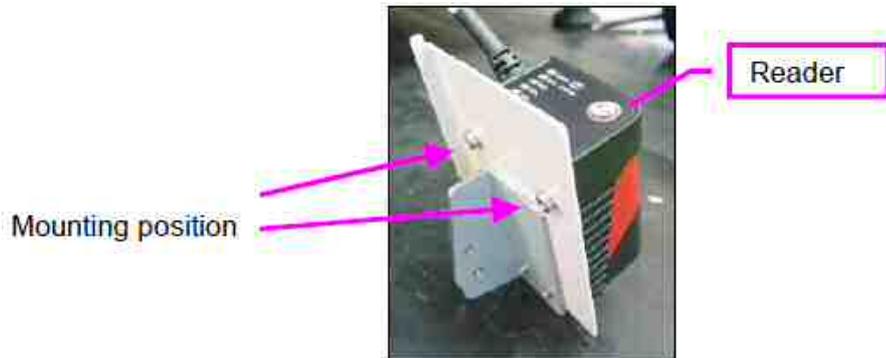
- 2. Remove the two mounting screws and one binding band that are attached to the reader bracket.

Screw: Sems A, M3x6, 2 pcs.

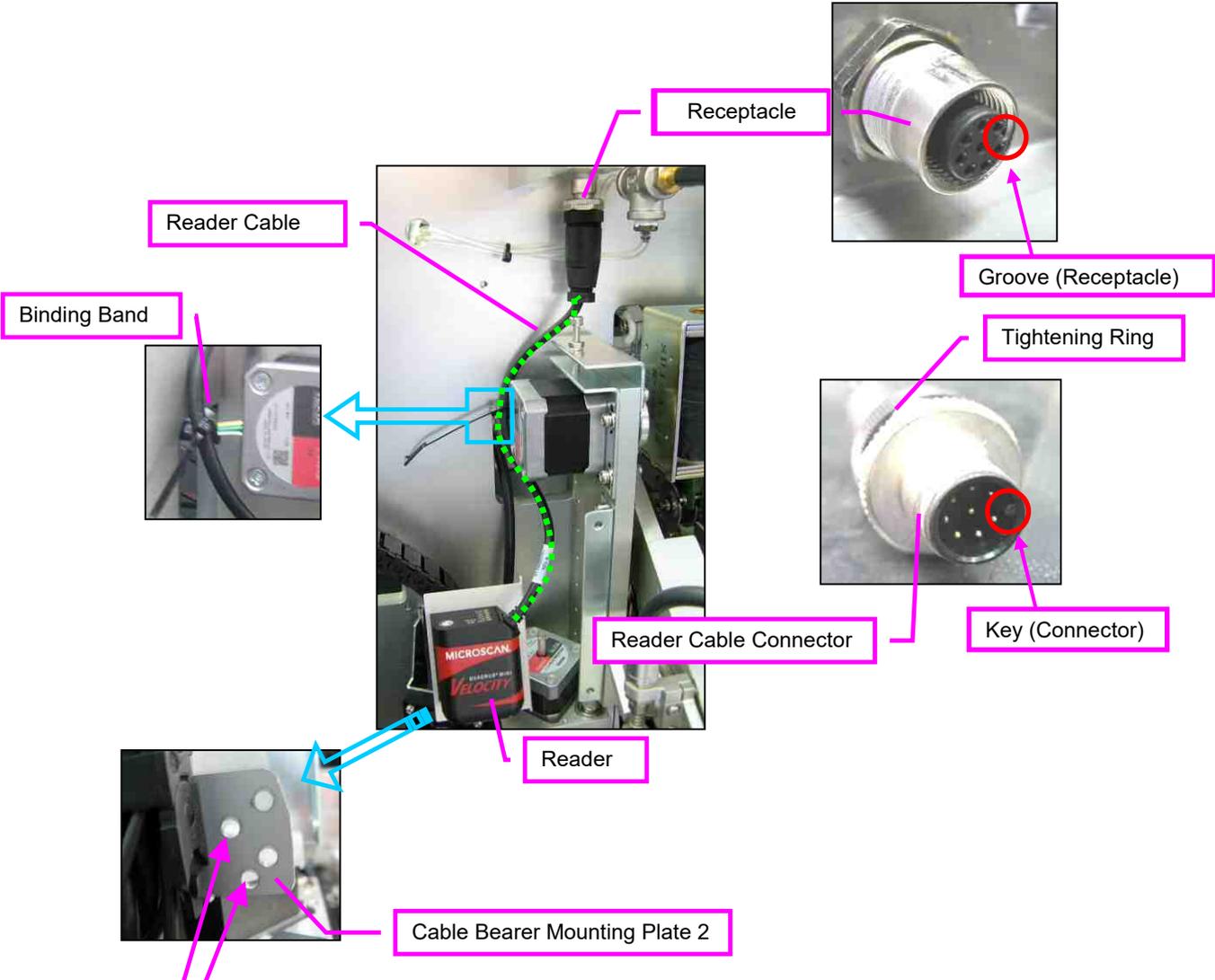
* The binding band is detachable.



3. Install the barcode reader to the reader bracket, using the two screws removed in step 2.
Screw torque: 0.6 N·m



4. Connect the reader cable connector to the receptacle.
 - * Align the key of the male connector from the reader cable with the groove of the female receptacle and connect them together (see photos on the next page). Tighten the connector by turning the tightening ring of the connector.
5. Install the reader positioning plate (along with the attached reader and reader bracket) to the cable bearer mounting plate 2. Install the reader positioning plate in the reverse order from which it was removed in step 1 so that the reader cable will curve as shown on the next page. Note that the reader positioning plate is mounted to a different location from where it was originally mounted. Install the two mounting screws into the screw holes on the cable bearer mounting plate 2 indicated on the next page.
6. Use the binding band, removed in step 2, to fasten the reader cable and the CG rotation motor cable together. Cut the excess length of the binding band using nippers.
 - * Make sure there is no contact between the reader cable and the stepping motor.
 - * Move the rack retrieval mechanism by hand in the X and Z axis directions (width and height directions of the instrument) to check that the cable does not interfere with the mechanism.
 - * Fit the interior panel (left front) onto the instrument to verify that it does not interfere with the reader.



Mounting position (* Install screws into two arrow-indicated screw holes on the left side.)

(3) Setup of barcode reader

* The reader mounting angle may need to be adjusted. Make adjustment with the interior panel (left front) not attached to the instrument.

1. Install the barcode reader setup software “EPS” in the PC.
Install the “ESP” downloaded from Microscan’s company website to the PC that is to be connected to the instrument.
2. Connecting the instrument and the PC
 - a. Connect one end of the USB cable, supplied by a distributor, into the USB port located on the back of the instrument and the other end of the cable into the USB port on the PC.
 - b. Start up the PC.
 - c. When the instrument is turned ON, the PC will automatically recognize the barcode reader.
 - * Power to the instrument is to be turned ON last. If the USB cable is connected to the PC when the instrument is already ON, the reader is not automatically recognized by the PC. Redo the procedure if you make a mistake in the order in which you start up the instrument.
 - d. Start up the “ESP”. When the following screen is displayed, select “Quadrus MINI Velocity” and click “OK”.



- e. When the following screen is displayed, click “Yes”.



- f. When you select “USB” as a connection protocol, the “Select Device” field will be displayed. Click “Connect” to establish the connection. If the “Select Device” field is not displayed, the barcode reader has not been recognized. Turn off the instrument, verify that the USB cable is properly connected and then turn on the instrument again.

* Displayed in the “Select Device” field is the number specific to each barcode reader.

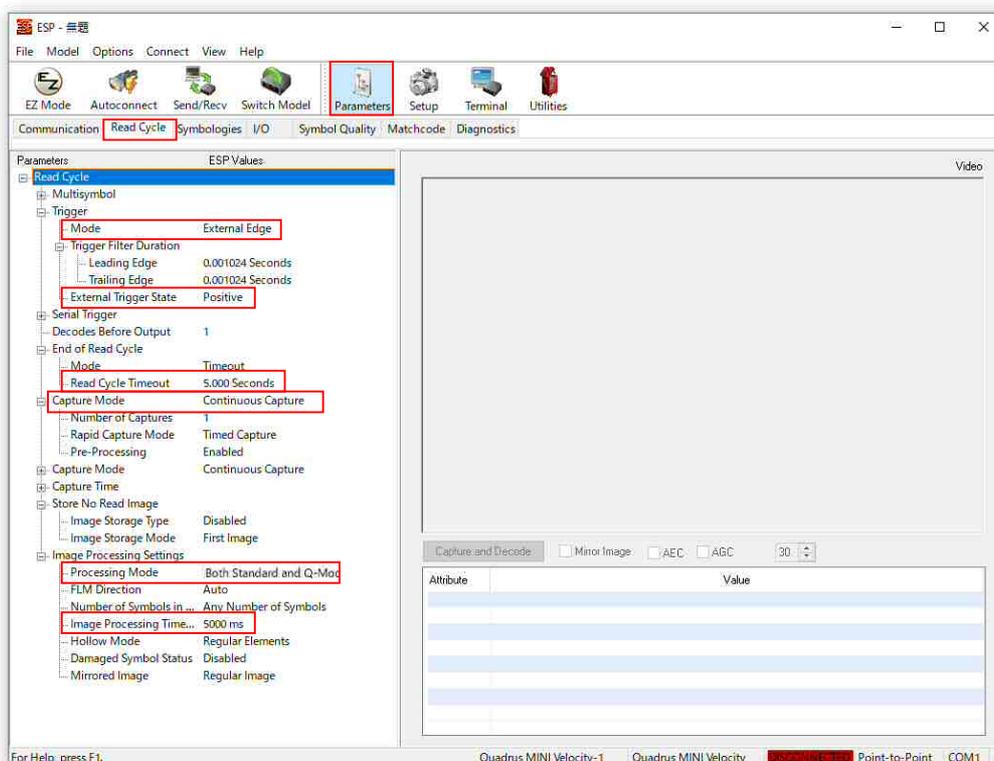


3. Initialization

- Click on [App Mode] → [Send/Recv] → [Default all ESP Settings] in order. The value of each ESP system setting will be initialized.
- Click on [Send/Recv] → [Save to Reader] → [Send and save] in order. The initialization of the ESP and reader is complete.

4. Setting the read cycle

- a. Click on [Parameters] → [Read Cycle].
- b. When the following screen is displayed, check the parameters indicated below and modify as needed to match with the reading conditions of the Glas g2. Select and pull down each setting item to configure the settings as listed below.



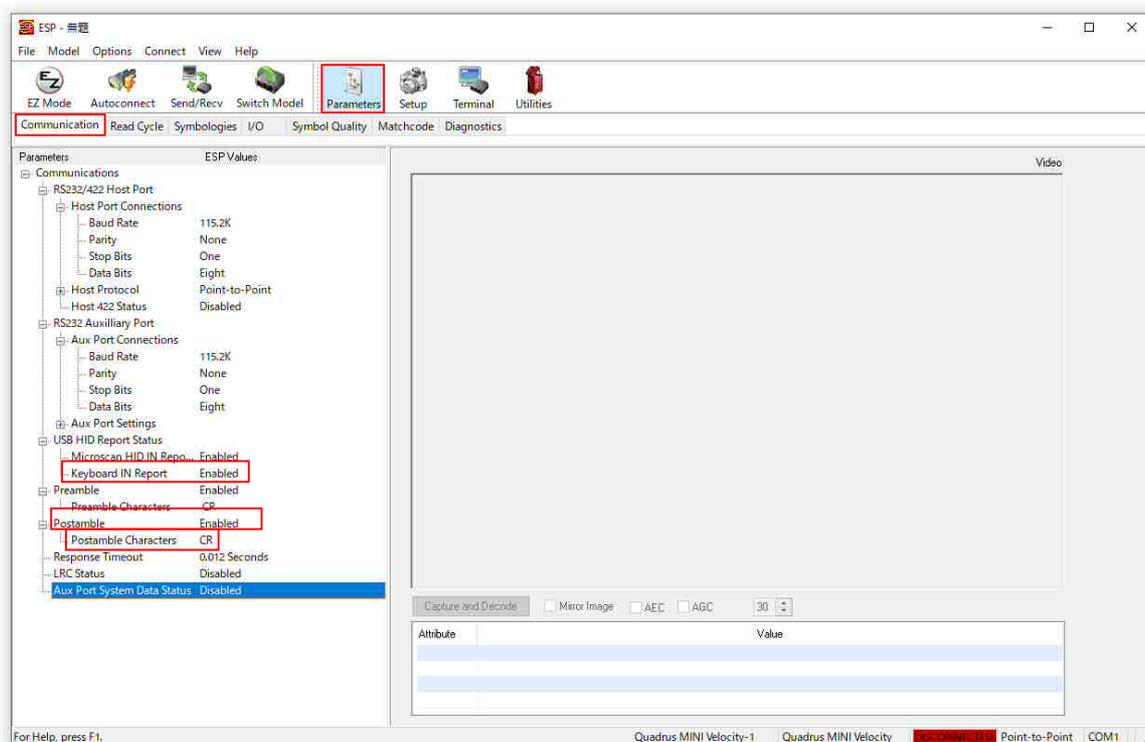
Parameters and set values to be configured:

Parameters	ESP Values
Trigger • Mode	External Edge
Trigger • External Trigger State	Positive
End of Read Cycle • Read Cycle Timeout	5.000 Seconds
Image Processing Settings • Processing Mode	Both Standard and Q-Mode
Image Processing Settings • Image Processing Timeout	Both Standard and Q-Mode
Image Processing Timeout	5000ms (this represents 5 seconds)

* Note that the unit used in the Read Cycle Timeout is in seconds, while those used in the Image Processing Timeout are in milliseconds. However, the default value of the Read Cycle Timeout is displayed as “2.000Second”. Be careful, as double-clicking the input box will change the value to “2.000”.

- c. Then, click on [Send/Recv] → [Save to Reader] → [Send and save]. The reader LED will start to flash. Once the data is stored in the reader, the blinking LED on the reader will turn off.

5. Setting the display of scanned data
 - a. Click on [Parameters] → [Communications].
 - b. When the following screen is displayed, check the parameters indicated below and modify as needed to match with the reading conditions of the Glas g2. Select and pull down each setting item to configure the settings as listed below.



Parameters and set values to be configured:

Parameters	ESP Values
USB HID Report Status • Keyboard IN Report	Enabled
Postamble	Enabled

These settings are for displaying scanned barcode data in applications such as Excel or Notepad (Keyboard Interface)

Parameters	ESP Values
Postamble • Postamble Character	CR

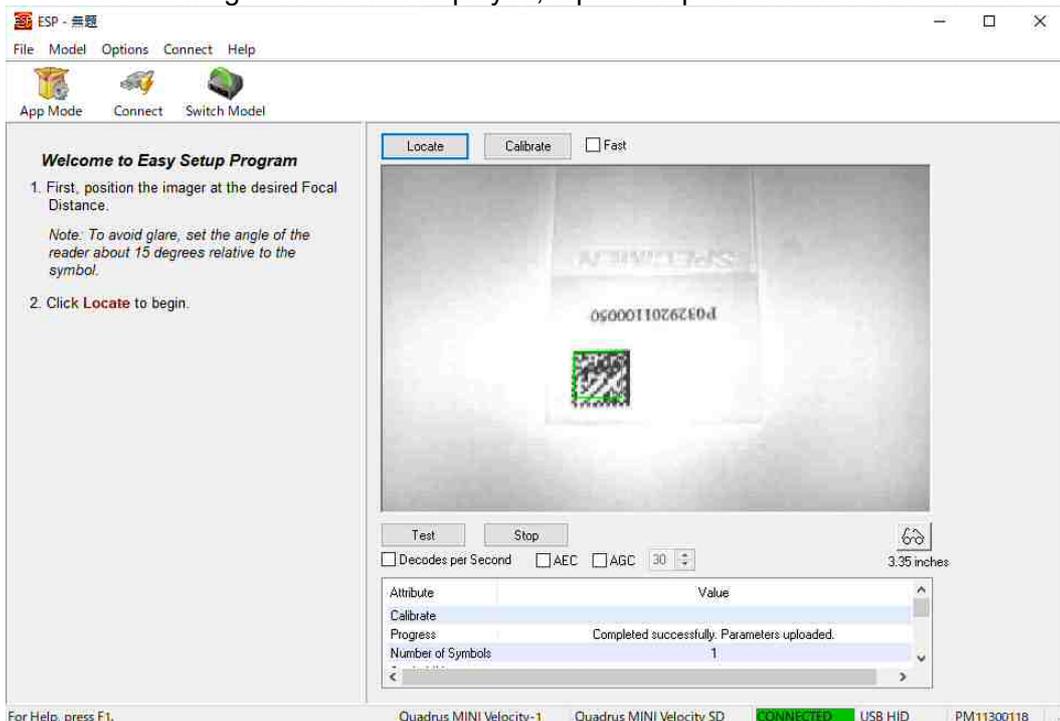
This setting is for starting a new line and inputting data in Excel, etc. without semicolons.

- c. Then, click on [Send/Recv] → [Save to Reader] → [Send and save].

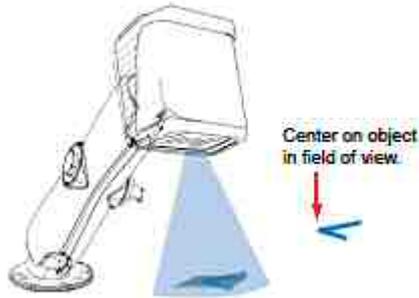
6. Validation and calibration of the barcode reader

- a. Start the Glas g2 in service mode.
- b. Go to the Barcode Reader screen from the main menu screen. Enable the reader to “Use” (For details, refer to 7-1-13 in the service manual).
Select the following items in order; “1. Setting mode” → “13. Barcode reader”.
- c. From the main menu screen, go to the “Adjust reader” screen.
Select the following items in order; “4. Motion check” → “2. Various motions” → “8. Adjust reader”.
- d. Using the reader adjustment function (for details refer to 7-4-2-8 in the service manual), transfer the slide glass that is used for calibration to the read position. In this adjustment, the following slides should be used. If customer is using multiple types of symbologies, select the one that represents the most commonly used symbology.
 - For customers which the barcode location can be specified to one position:
Use a slide with a barcode printed in the predetermined location. The barcode sample is to use the same type and size as the one used by the customer.
 - For customers which the barcode location cannot be specified to one location:
Use a slide with a barcode printed in the center of the frosted area. The barcode sample is to use the same type and size as the one used by the customer.
- * If there are multiple barcodes printed on a single glass slide, refer to the barcode reader user’s manual and configure the read cycle so that multiple barcodes can be read.
- e. Click on [EZ Mode]. And then click on [Locate]. A blue LED light will be projected from the reader and the PC screen will display the barcode area of the glass slide as shown below.

* If the following screen is not displayed, repeat Step “e.” because the calibration failed.



- f. Confirm that the “V” pattern of the blue LED light (the pattern indicated by the red arrow in the illustration below) is roughly around the center of the frosted area of the slide. Click on [Calibrate]. The calibration will commence and the message “Calibrated successfully” will be displayed after a successful calibration. The calibration operation is complete at this stage. Click [Close].



- ※ In the barcode reader user's manual, it states that the “V” pattern from the blue LED light is to be directed at the center of the barcode. However, in this system setup, the LED light is to be adjusted so that it is to be centered on the frosted area of the slide. Adjustments can be made provided that the LED light is directed closer towards the barcode.

Image of the blue LED light pattern as it would appear

- ※ If the “V” pattern from the LED light is not near the center of the frosted area of the slide, perform the following procedure.
- Conduct calibration and a read confirmation with the current mounting position of the reader. If the scan is successful, an adjustment to the mounting position is not required.
 - If the scan is unsuccessful, adjust the mounting position of the reader within the extent possible and move the “V” pattern as close as possible to the center of the frosted area. However, this method does not apply if the “V” pattern from the LED light diverges away from the barcode symbol by adjusting the mounting position.
 - ※ Adjustment method: Adjust by loosening the two screws that affix the reader positioning plate to the cable bearer mounting plate (2). Refer to Step 5 in (2) Installation of the barcode reader for details.

To check if the reads are successful, run [Utility] from the ESP. It is desirable to have a read rate equal to or faster than 10 decodes/sec and a read accuracy between 90% and 100%.

- g. Click on [App Mode] → [Send/Recv] → [Save to Reader] → [Send and save].
- h. Click on [File] from the toolbar and save the file using a simple file name (ex: ESP-Glas). The next time you start the ESP, click on this file.
- i. Next, place a barcode-printed glass slide used by the customer to the barcode reading position. And then click on [Terminal] from the ESP.
- j. Press the right arrow key [>] on the instrument to initiate the barcode read. If the barcode read is successful, the contents of the barcode will be displayed on the terminal screen. If the read is not successful, a “NOREAD” message will be displayed.
- k. When the barcode is successfully read, click on [Utility] from the ESP. Verify that the read rate is equal to or faster than 10 decodes/sec and the read accuracy is between 90% and 100%.

- ※ If a problem occurs such as that the calibration failed or that the calibration is all right but the read is not successful, refer to the barcode reader user's manual to cope with the problem. It is desirable that the read rate and accuracy are as indicated above, but this does not apply if the barcode on customer's slide is successfully read in "9. Reading confirmation in exhibition mode".

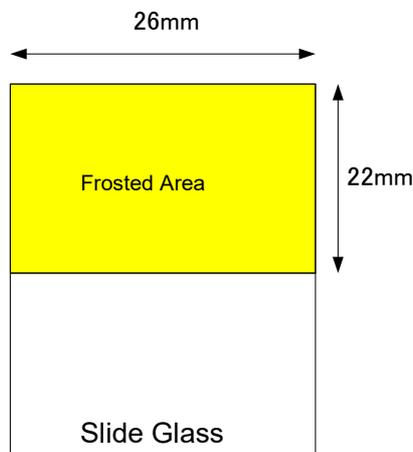
7. Configuring the different types of Barcode Symbologies

Barcode symbologies used during calibration will automatically become read-enabled. Therefore, when dealing with only one type of barcode symbology, you will not be required to configure the symbology setting. When using multiply symbologies, go to [App Mode] → [Parameters] → [Symbologies] to enable the appropriate symbologies. Then click on [Send/Recv] → [Save to Reader] → [Send and save].

- * Enable only the symbologies that are used, as the more symbologies are enabled the lower the read performance rate may become.
- * The types of barcode symbologies that can be read
 - Linear (1D) barcodes
Code39, Code128/EAN128, BC412, Interleaved 2of 5, Code93, Codabar, UPC/EAN, Postal Symbologies, GS1 DataBar (RSS)
 - 2D barcodes
Data Matrix (ECC0-200), Aztec Code, QR Code, Micro QR Code, PDF417, Micro PDF417
 - Composite symbols
The combination of 1-D Barcodes [EAN-128, UPC-A, EAN-13, EAN-8, UPC-E, GS1 DataBar (RSS)] and 2-D Barcodes (PDF417, MicroPDF417)

8. Barcode positioning and print quality

The effective range of the barcode read is 26mm in the horizontal direction of the glass slide and 22mm in the vertical direction from the end surface of the frosted area. The barcode is to be of good quality print with no smudges. In addition, the barcode color and background color are to be in high contrast to each other (for example, a black barcode on a white background). If the frosted area is only a little transparent, even when a barcode is directly printed there, the barcode will not be read.



9. Reading confirmation in exhibition mode

Prepare about 20 barcode-printed glass slides using the type of glass slides that the customer is using or the equivalent to it. Start the instrument in service mode. Select the exhibition mode. Select [Terminal] from the ESP. Confirm that the barcodes are successfully read on all slides during the coverslipping operation. If there are any slides that cannot be successfully read, refer to the barcode reader user's manual for assistance.

※ Configuration of the waiting time

If a read failure occurs during the operation in exhibition mode, try changing the following setting. Start the instrument in service mode. From the main menu select "1. setting mode" and, from the setup menu, select "13. barcode reader" to display following screen. Increase the "wait time".

<Barcode reader>
 1.use
 2.wait time: 0.1s
 [ENTER] to save

However, since the recommended value of 0.1 second is determined from the processing speed, coverslipping quality and the barcode reading performance, you should change the setting only if the reading performance is improved. If the wait time is increased for no reason, it will slow the processing speed, reduce the amount of solvent that sticks to the slides, and lead to lower coverslipping quality. If the coverslipping quality decreases, take the slide retrieval speed, coverslipping speed, mounting medium dispense volume, etc., into consideration so that optimal coverslipping can be performed.

Precaution for use of the ESP

Be sure to save changes to the reader anytime you make changes using the ESP. For instance, if you perform the calibration without saving the changes to the reader after you have made changes to the settings, the settings prior to the calibration will automatically be read from the barcode reader and override the setting changes made.

(4) Installation of outer and inner panels

Install the following panels to the instrument in the reverse order in which they were removed. Refer to the paragraphs below in the Glas g2 service manual for how to install.

- Interior panel, Left Front Paragraph 6-5-13-1
- Interior Panel, Right Front Paragraph 6-5-13-2
- Left side panel Paragraph 6-5-20-1

(5) Final confirmation during normal operation

Lastly, operate the instrument in the normal operation mode and conduct function verifications along with barcode read verifications. Use glass slides used in exhibition mode and select [Terminal] from the ESP.

END