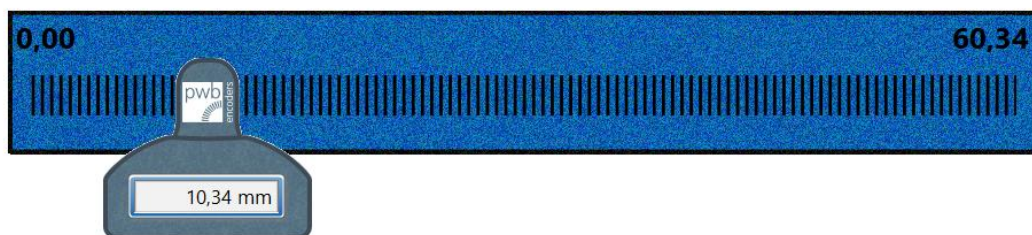
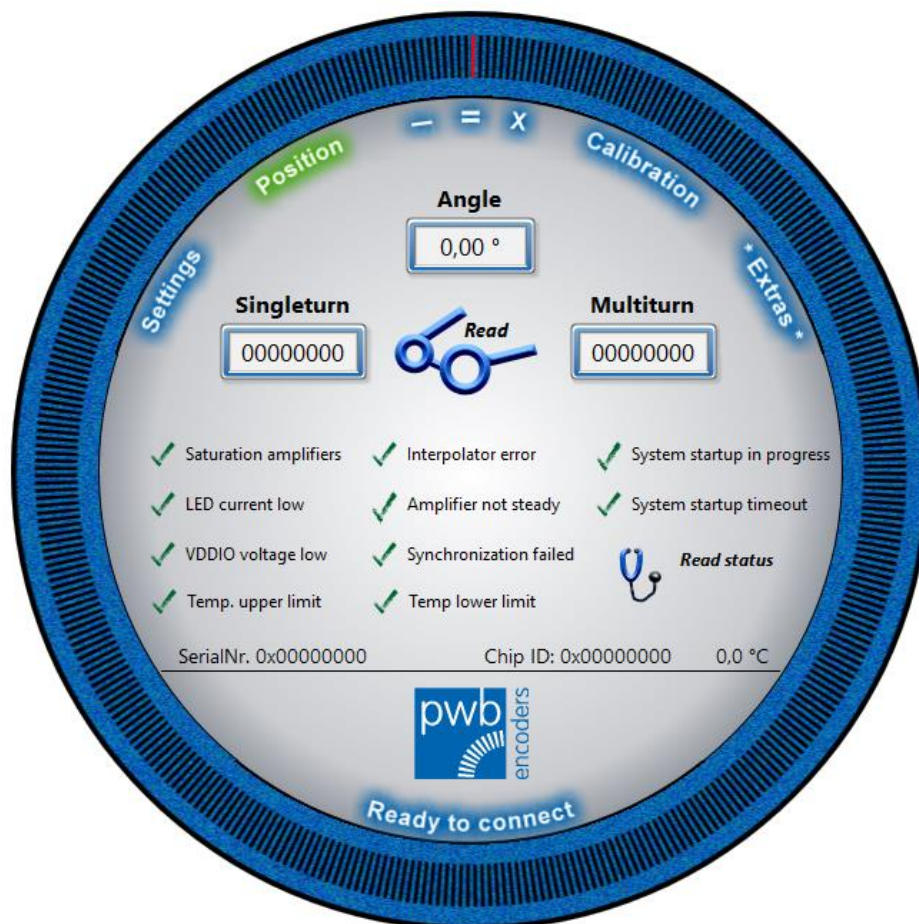


Software Documentation for ABG Viewer



For commissioning and calibration of ABG encoders

PWB encoders GmbH
Am Goldberg 2
D-99817 Eisenach
Germany

Phone: +49 3691 72580-0
Fax: +49 3691 72580-29

info@pwb-encoders.com
www.pwb-encoders.com

1. Foreword

Thank you for choosing a product from PWB Encoders.

Our miniature encoders, encoder wheels, encoder strips and custom motor/encoder modules are used in the millions in many industries and application areas.

PWB Encoders has been very customer-oriented right from the start, which is the basis for our world-wide growth. Our Marketing acts as an interface between our customers, R&D, Sales and Production, enabling the presentation of ideas for many innovations.

This user guide describes how to use the ABG Viewer software. This software serves to recalibrate encoders in place after they have been installed. This ensures faultless operation as well as the best possible operational reliability.

For calibration, you need the encoder itself, a type PWBxC programming box (see Figure 1), and a corresponding USB Type A to USB Mini B or Micro B connecting cable.

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3. Getting Started

3.1. Software/encoder matrix

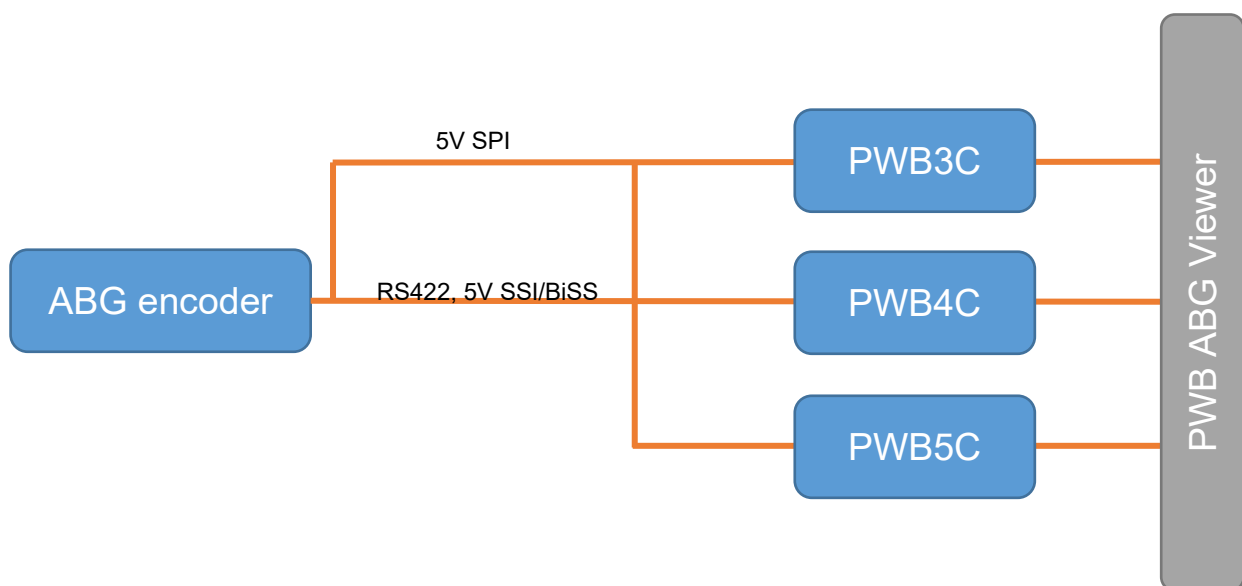


Figure 1 Software/encoder matrix

3.2. Downloading the software

ABG Viewer requires the LabView runtime engine, 2020 SP1 version. The software can be downloaded either with or without the runtime engine.

The download is available on our website under Products/Encoders rotative/Optical/ABG Head
Or for ABG linear: Products/Encoders linear/Optical/ABG Head

<https://www.pwb-encoders.com/>

3.3. System requirements

- Operating system: Microsoft Windows 10 or 11
- CPU with 2 GHz clock and 32-bit (x86) or 64-bit (x64) architecture
- 2 GB RAM
- 800 MB free space on hard disk
- A free USB 2.0 port

3.4. Installing the software

To install the software, open the compressed zip file downloaded from the PWB website and extract it in any desired folder:

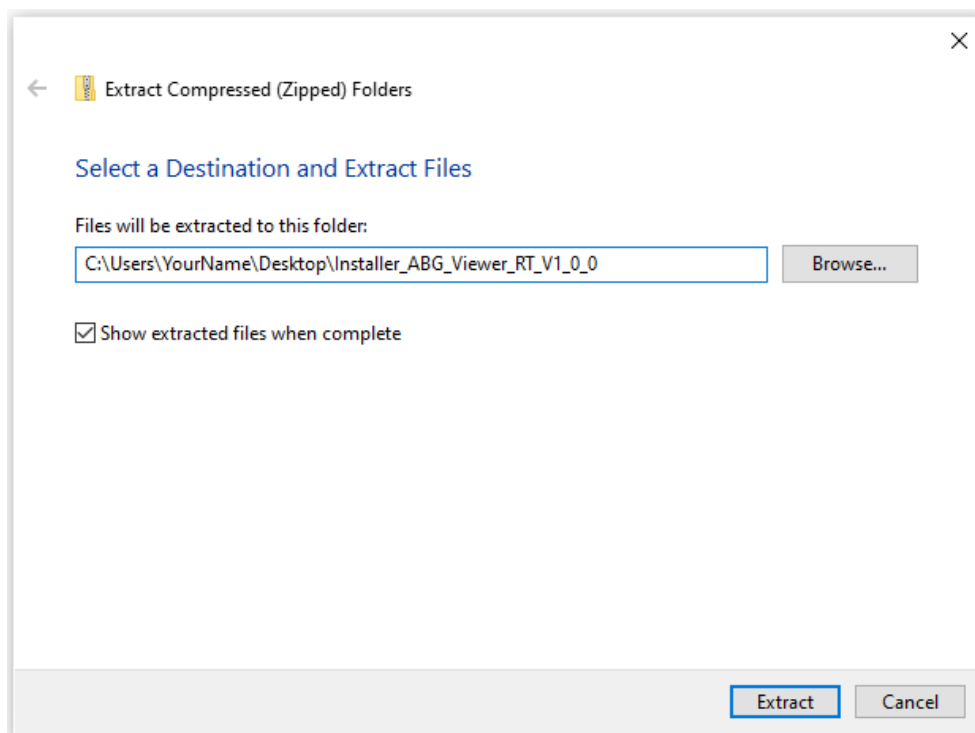


Figure 2 Extracting the zip file

Next, open the selected target folder in Windows Explorer (File Explorer) and run the setup.exe file located in the subfolder.

Follow the instructions illustrated below to perform the installation.

Software Documentation

ABG Viewer

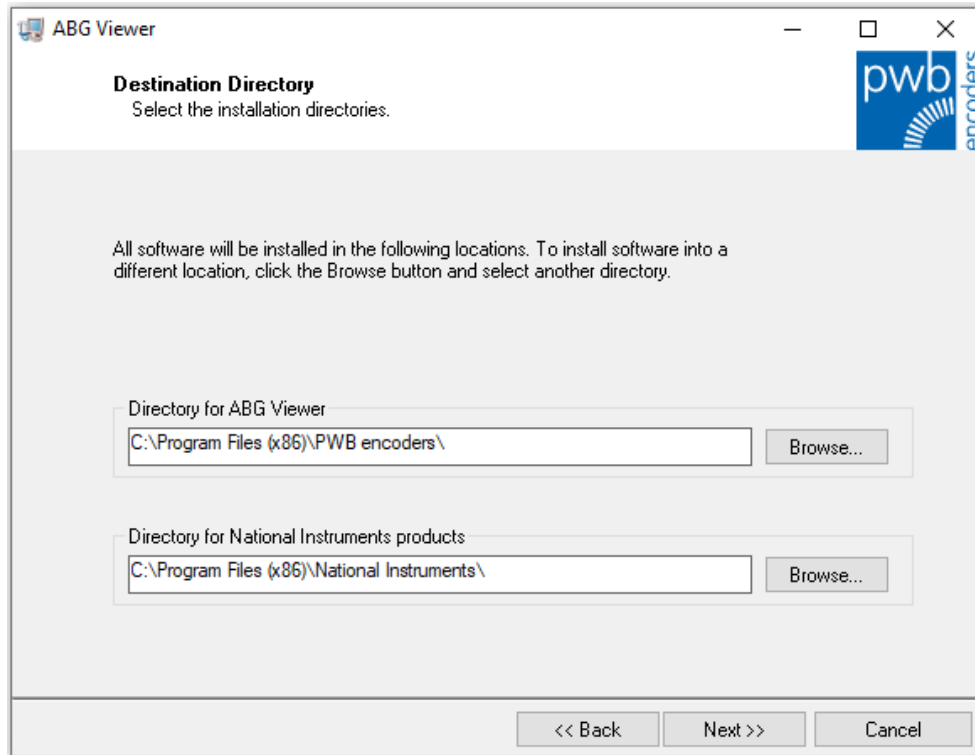


Figure 3 Selecting the target directory

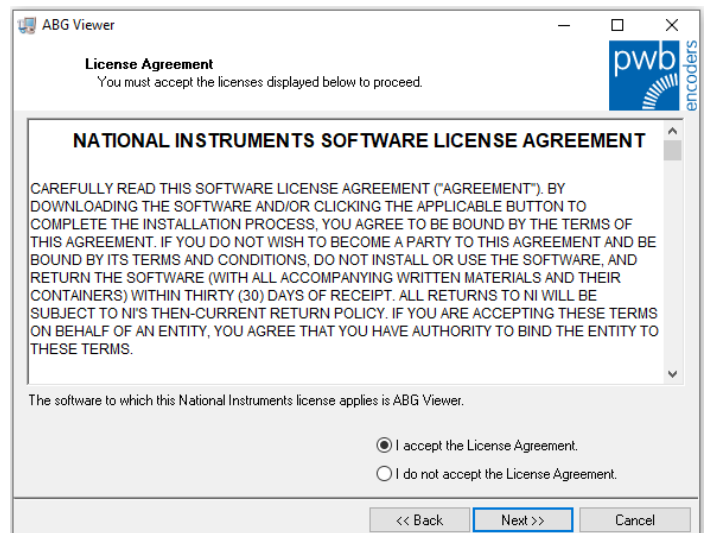
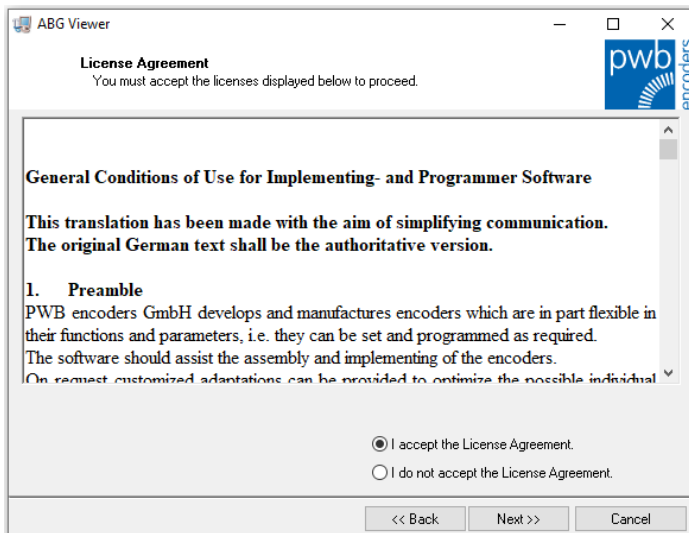


Figure 4 Accepting the licence conditions

Software Documentation

ABG Viewer

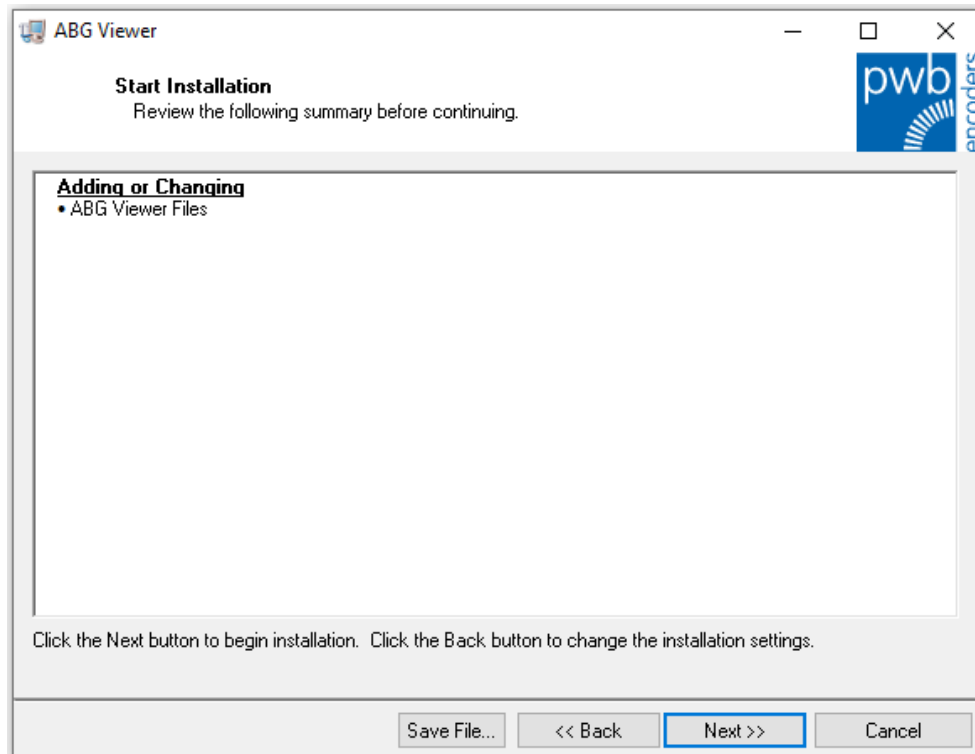


Figure 5 Installation summary

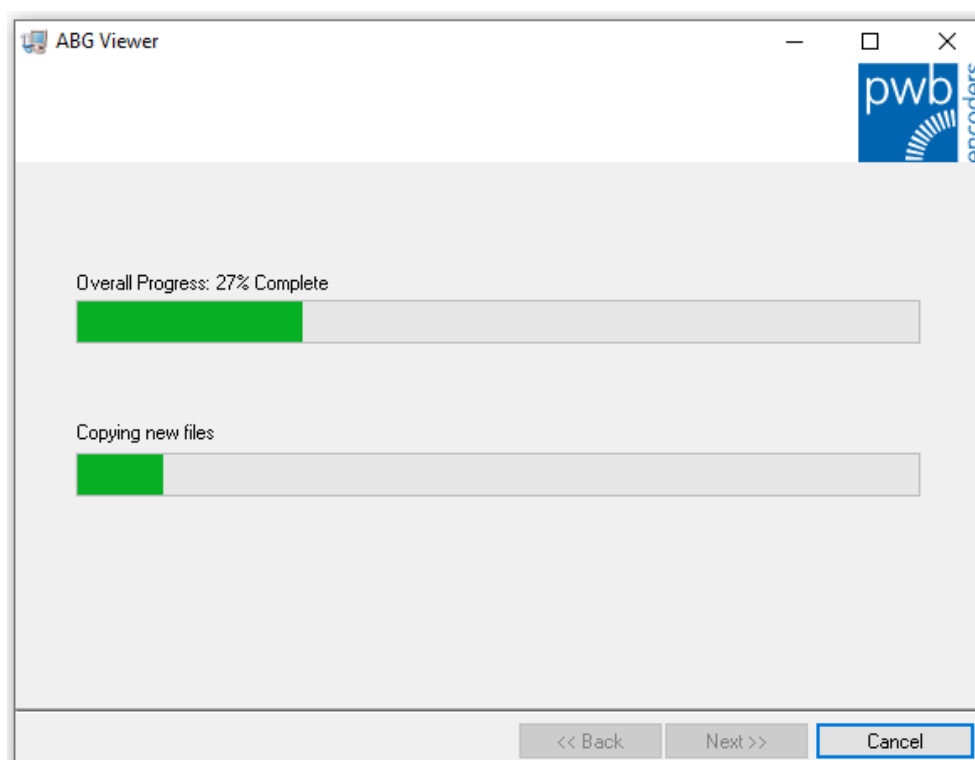


Figure 6 Installation progress

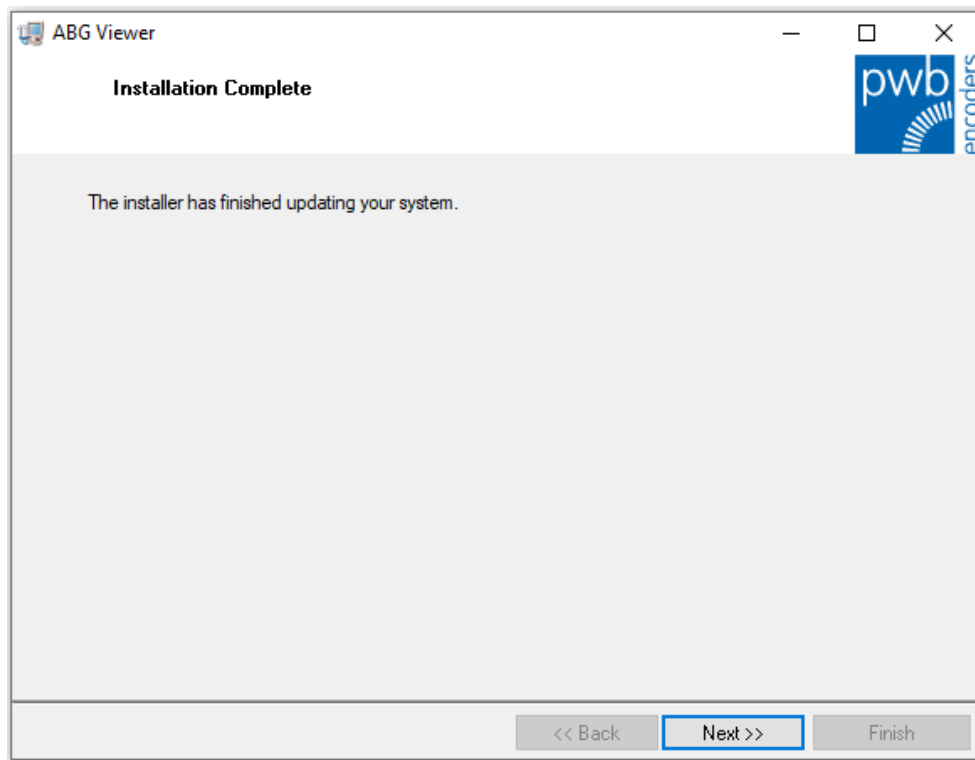


Figure 7 Installation complete

3.4.1. Driver installation (optional)

If the necessary USB drivers are not already installed on your system, you should install them now. You can cancel the installation of any of the drivers at any time by clicking on the Cancel button. Cancelling a driver installation has no effect on the installation of the ABG Viewer program. You will be asked to install drivers for the various programming boxes in the following order:

- PWB3C
- PWB4C
- PWB5C

If for example you only intend to use the PWB5C programming box, you should cancel the installation of the first two drivers and allow the installation of the third driver to complete. The same procedure applies to the other two drivers. You can also install all three drivers if you wish.

For driver installation, follow the instructions on the screen for the appropriate driver.

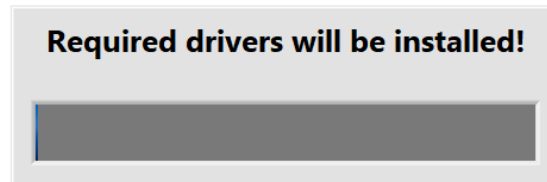


Figure 8 Driver installation progress

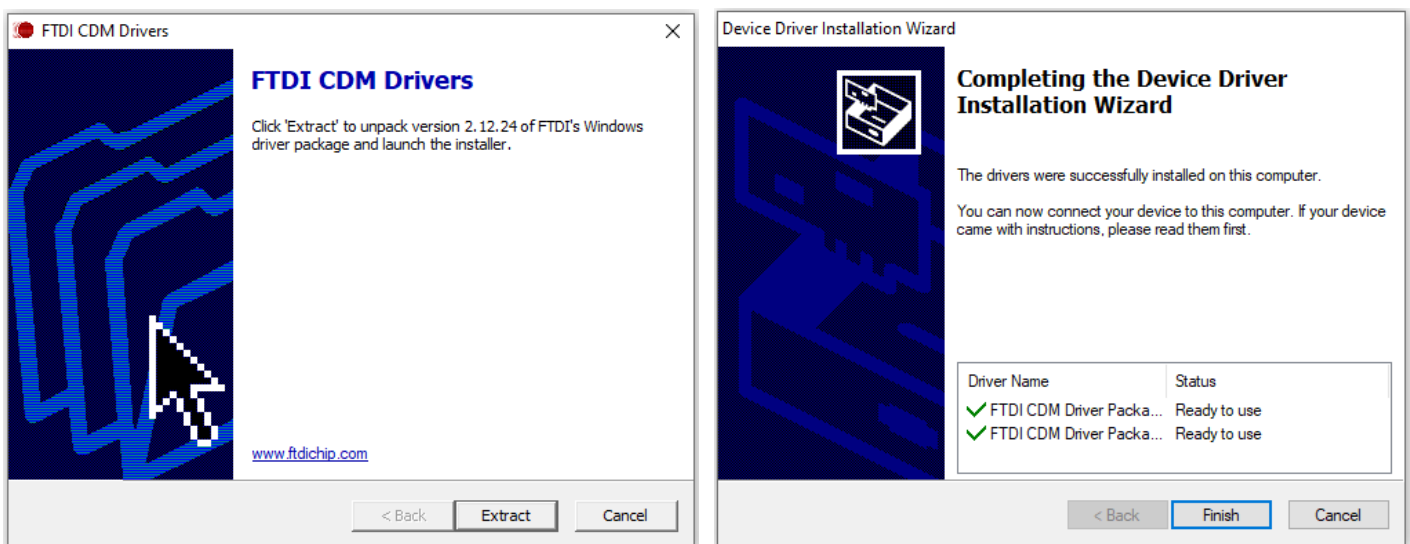


Figure 9 Driver installation for PWB3C

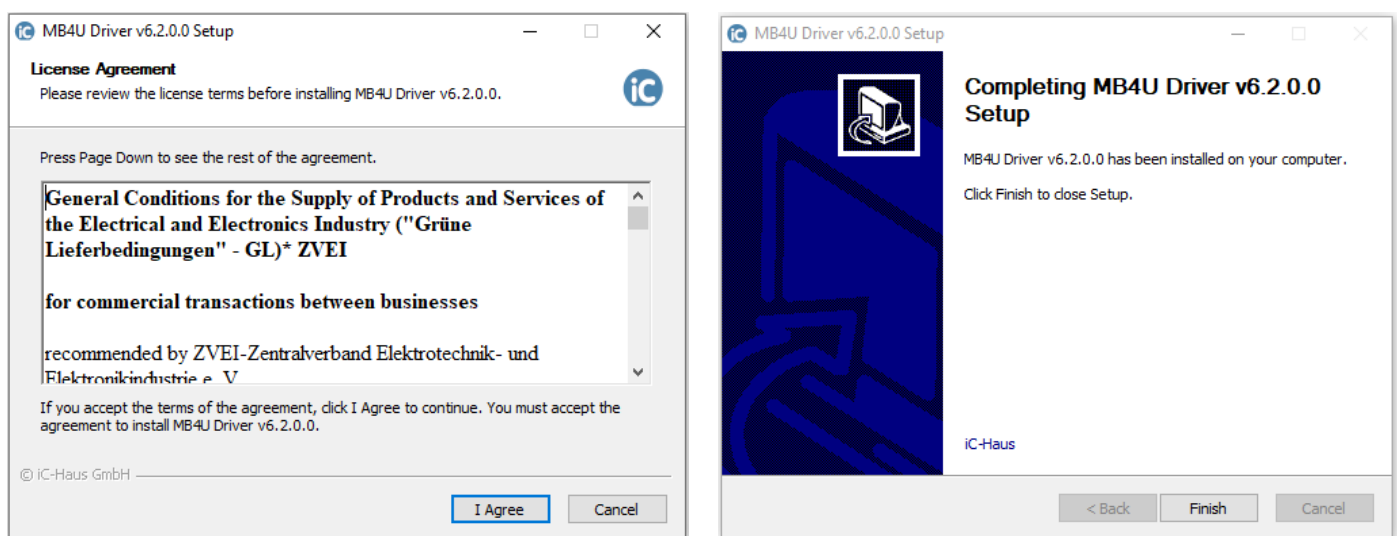


Figure 10 Driver installation for PWB4C.

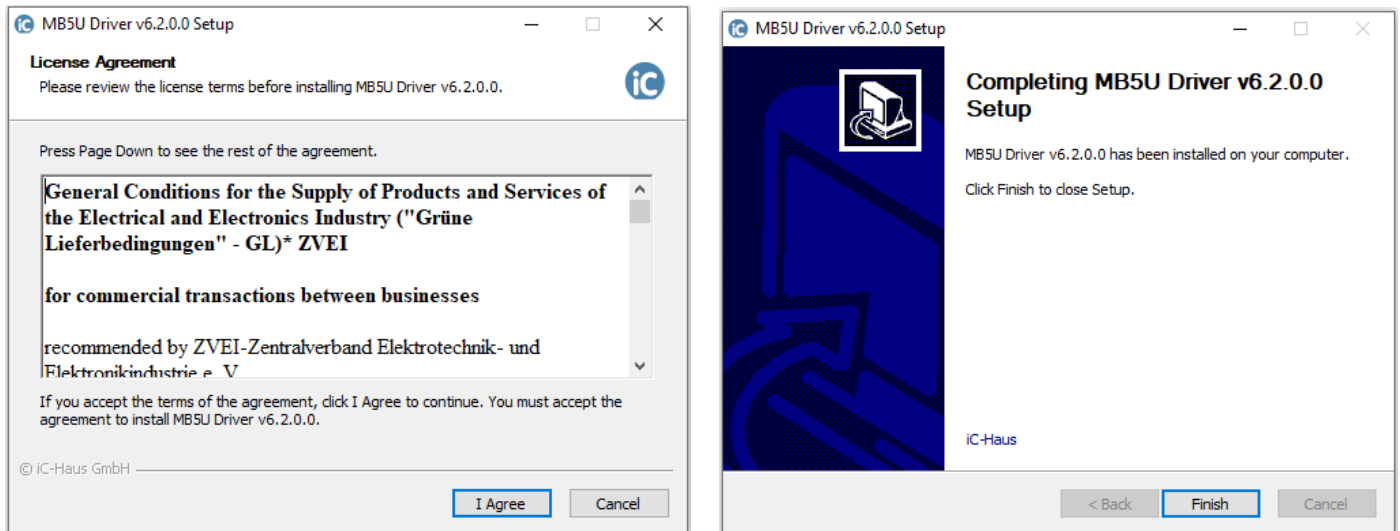


Figure 11 Driver installation for PWB5C.

3.5. Connecting the encoder to the PC

Connect the encoder to the programming box, and then connect the programming box to your PC. To ensure trouble-free operation, you should use a high-quality USB cable with a maximum length of 2 m. If the distance to your encoder is relatively long, you can extend the encoder cable to a maximum of 10 m. See the current encoder data sheet for the signal assignments to the cable leads and connector terminals.



Figure 12 PWB4C programming box

4. Using the Software

4.1. Starting the program

To start the program, use the desktop shortcut created during software installation or select the program in the Windows Start menu.



A loading screen with an indication of the start-up process is displayed while the program is starting up.



Figure 13

4.2. Main window

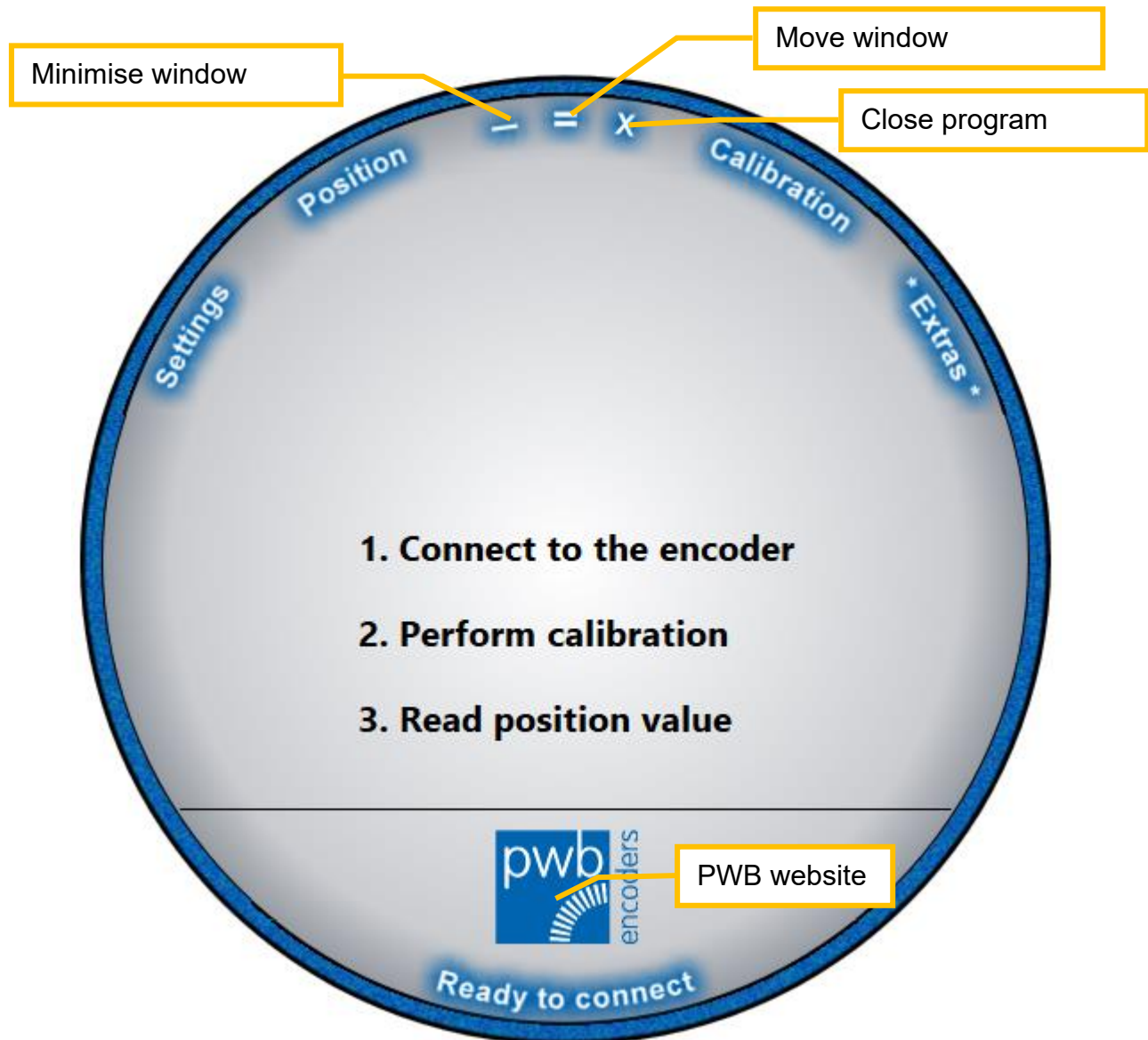


Figure 14 Main window

As shown in Figure 14, the main window has a circular shape with three buttons at the top for the usual functions of a Windows title bar: Minimise, Move, and Close.

The Settings, Position/Status, Calibration and Extras buttons show or hide the corresponding controls and indicators.

4.3. Establishing a connection to the encoder



Figure 15 Ready to connect

To set up a connection to the encoder, the encoder must be connected to the PC through a programming box as described in Section 3.5. If you use a separate power supply for the encoder, make sure the grounds are connected together. Otherwise, the encoder and/or the programming box can be damaged.

Once all the required conditions have been met and the program is running, you can establish a connection to the encoder. To do so, click on the Connect button. It will turn green when the connection has been established. If the connection cannot be established, an error message will appear with a description of the error.

To break the connection, you must again click on the Connect button.

If the connection has been successfully established, the appearance of the user interface changes to match the connected encoder. For rotative systems, an encoder wheel appears and shows the current angular position. If you are using a linear system, a ruler appears below the main window and shows the current position.

Note: If you are using a PBC3C adapter, the interface must be selected manually under Settings. Otherwise, errors will occur.

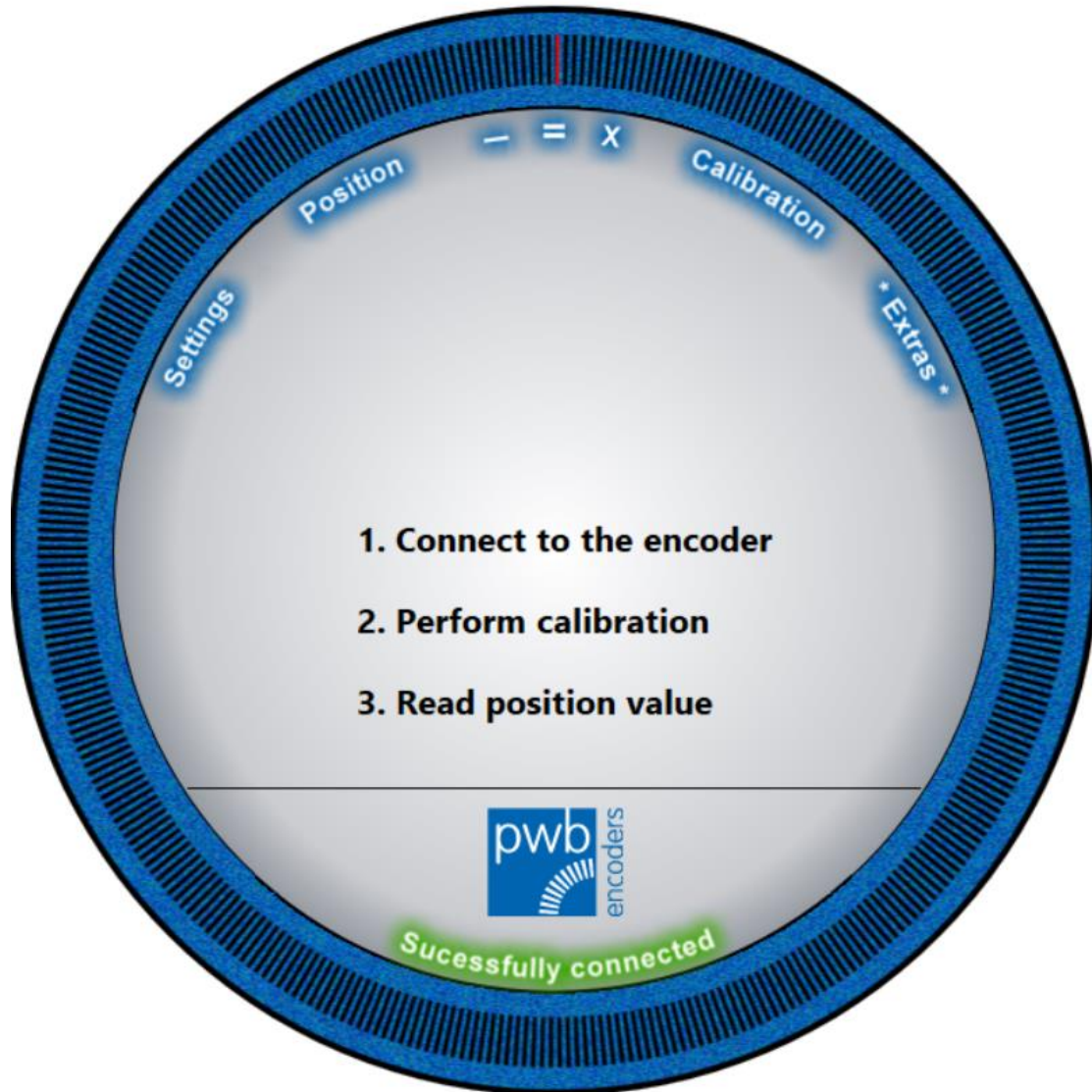


Figure 16 ABG rotative successfully connected

Software Documentation

ABG Viewer

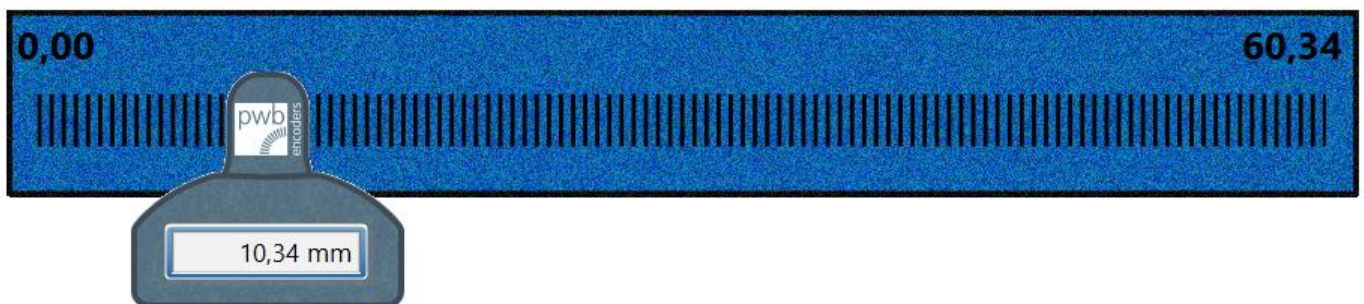


Figure 17 ABG linear successfully connected

4.4. Control screens and areas

4.4.1. Settings

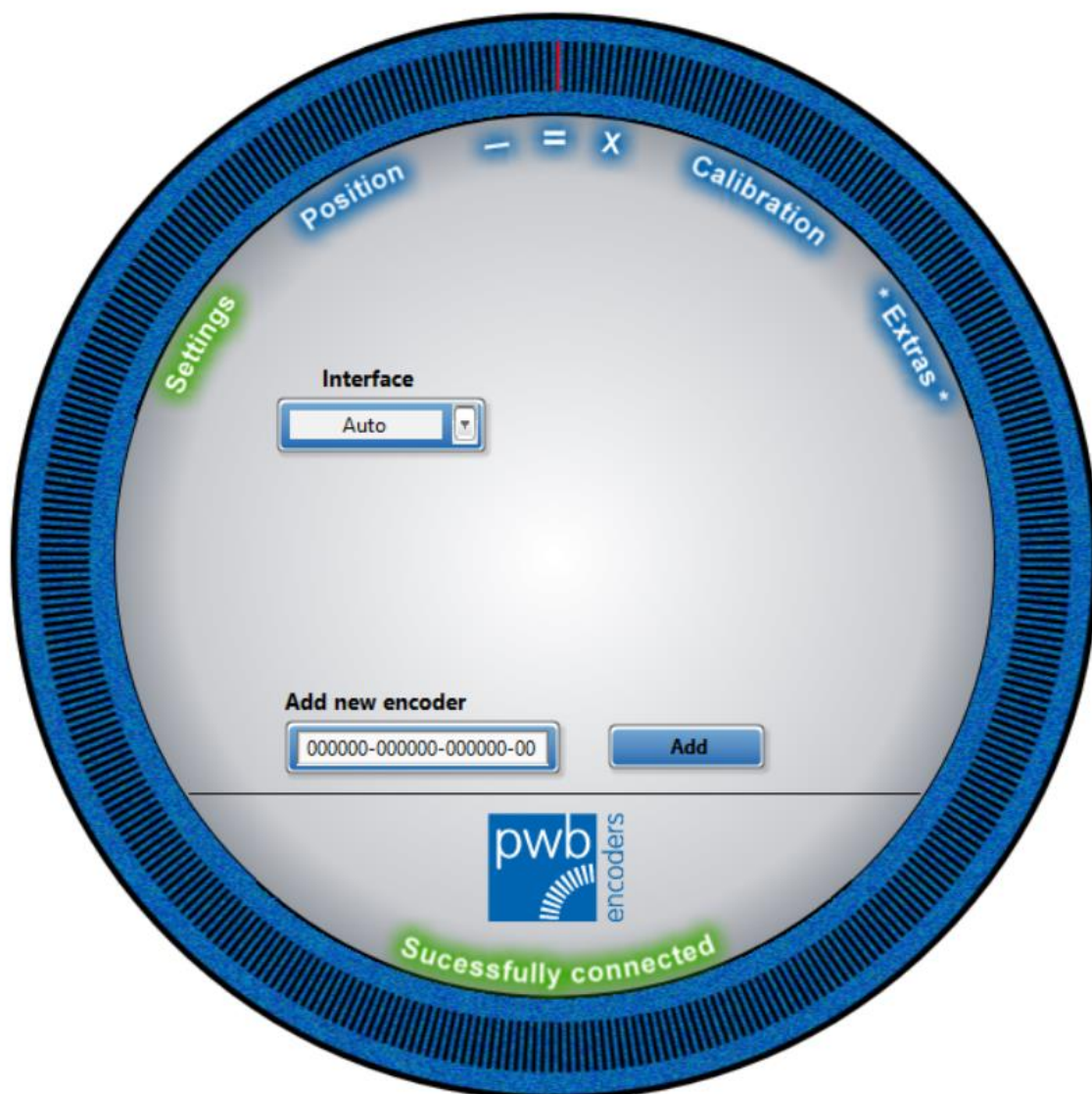


Figure 18 Settings area

Pressing the Settings button takes you to the settings. There you can select the interface and/or the programming box if necessary.

New encoders can be added using the Add button and a unique code. This is required for the 'mechanical adjustment' function.

4.4.2. Position/Status for rotative systems

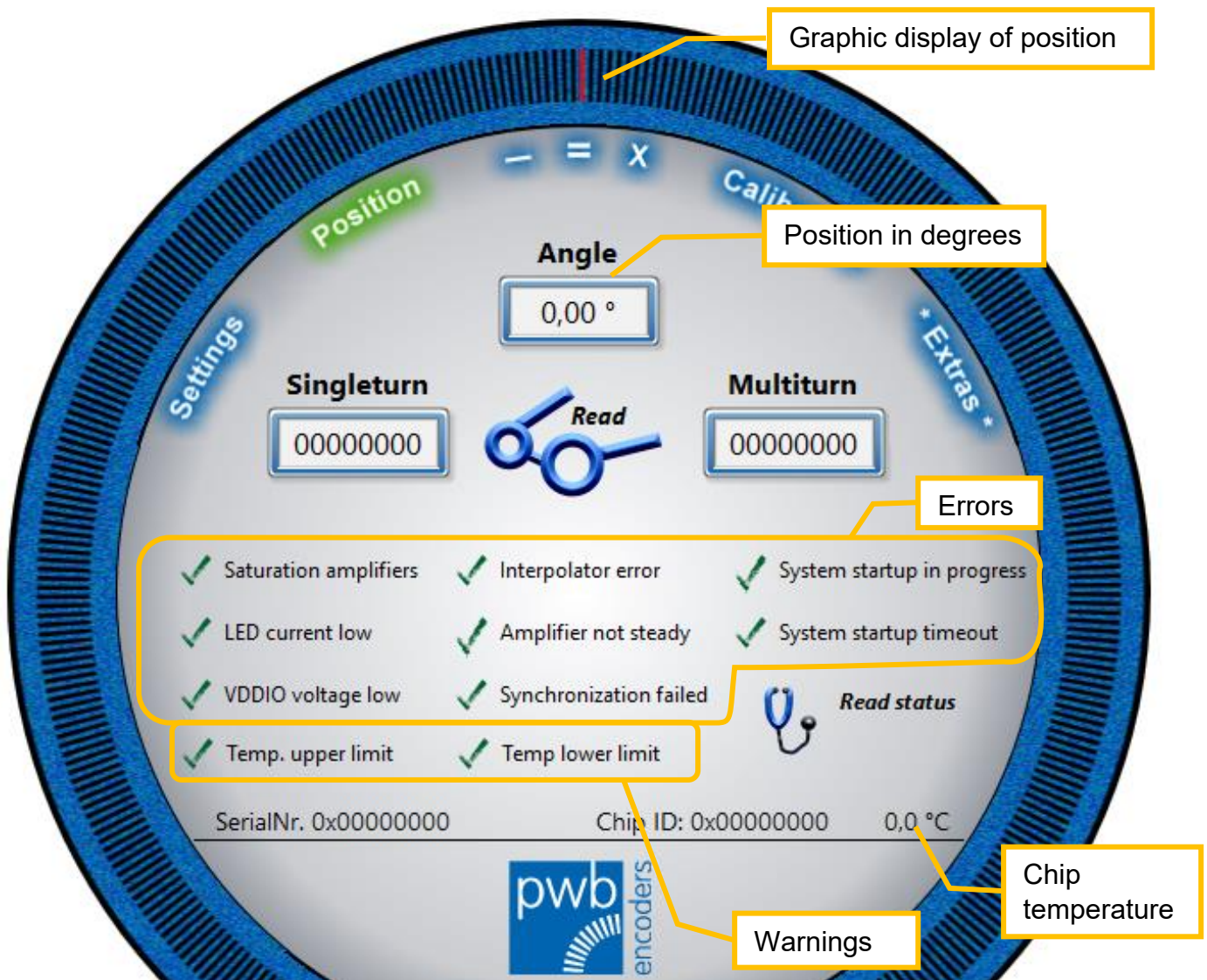


Figure 19 Position/Status area

Pressing the Position/Status button takes you to the Position/Status area. In this area you can read the current position value as well as other information about the encoder. To start the readout of the position, you must click on the following left symbol. For the encoder status, you must click on the following right symbol. If the status is not actively read out, the errors and warnings are greyed out.



4.4.3. Position/Status for linear systems

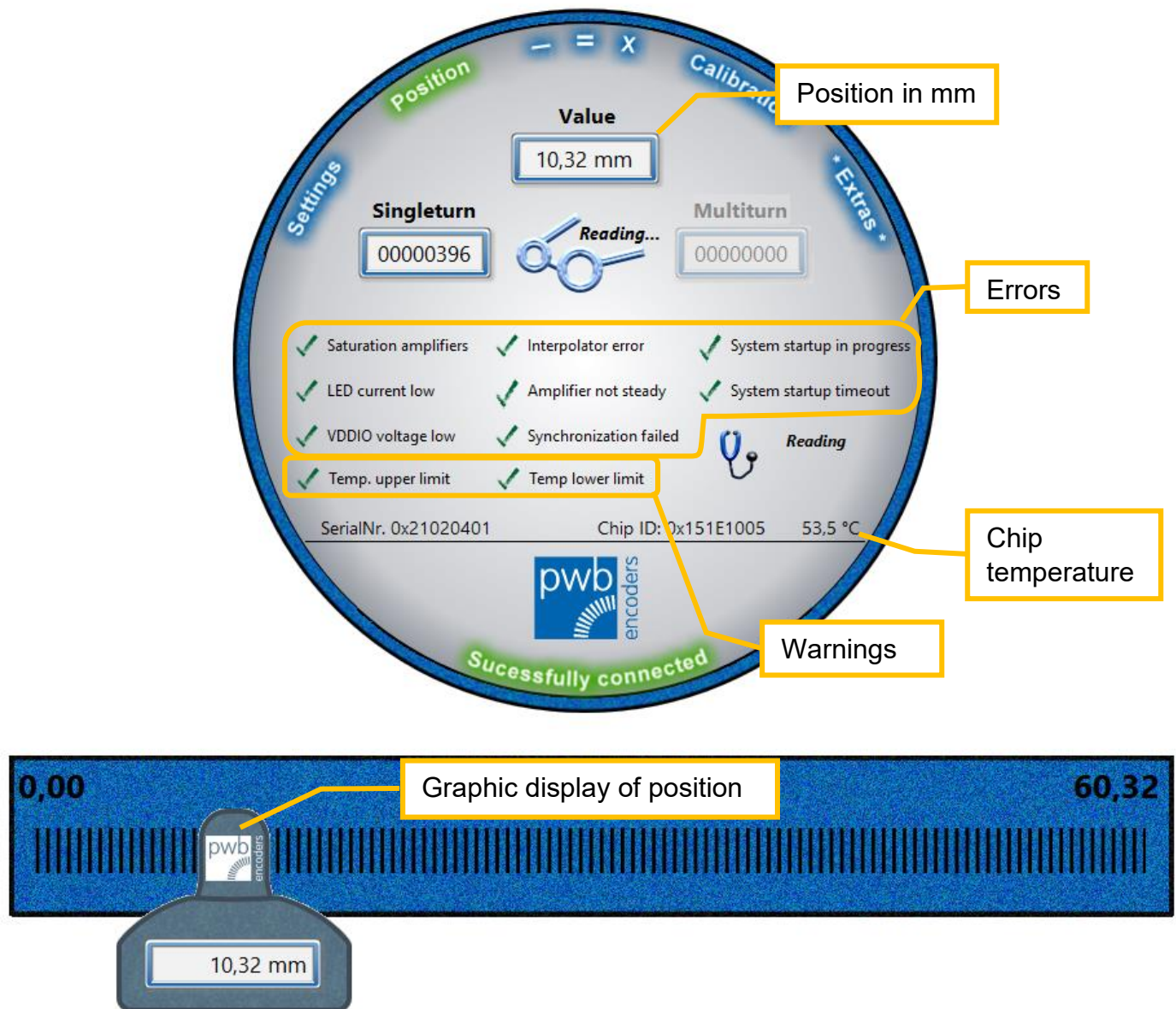


Figure 20 Position/Status area

Pressing the Position/Status button takes you to the Position/Status area. In this area you can read the current position value as well as other information about the encoder. To start the readout of the position, you must click on the following left symbol. For the encoder status, you must click on the following right symbol. If the status is not actively read out, the errors and warnings are greyed out.



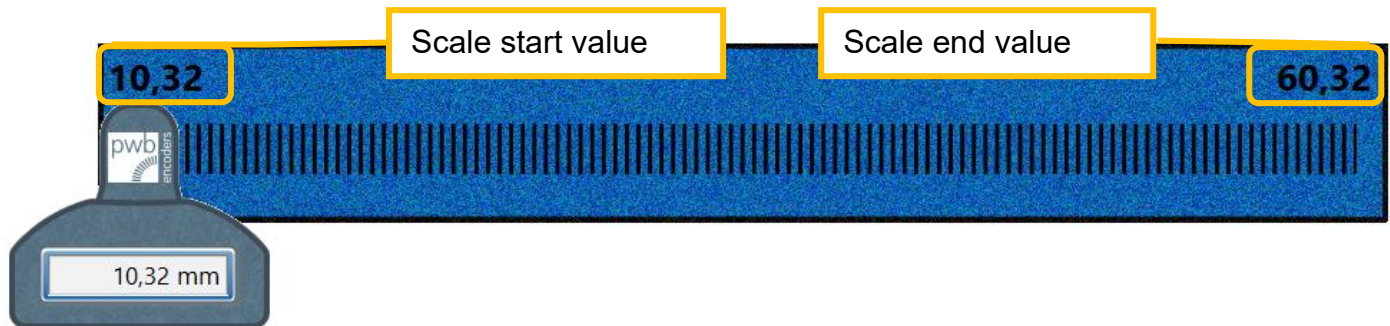


Figure 21 Adjusting the scale

If you click the start value or end value of the ruler, it will be set to the current value. This way you can customize the scale of the software ruler.

If you move the mouse pointer to the edge of the ruler, it changes to an orange arrow, and then you can change the length of the ruler by dragging with the left mouse button. This works in both directions.

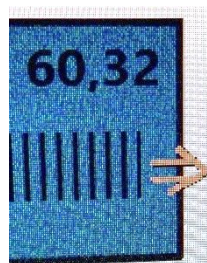


Figure 22 Adjusting the ruler length

4.4.4. Calibration

Pressing the Calibrate button takes you to the Calibration area. There you can calibrate the encoder system. For more detailed information about calibration, see *Section 5, Calibrating the Encoder*.

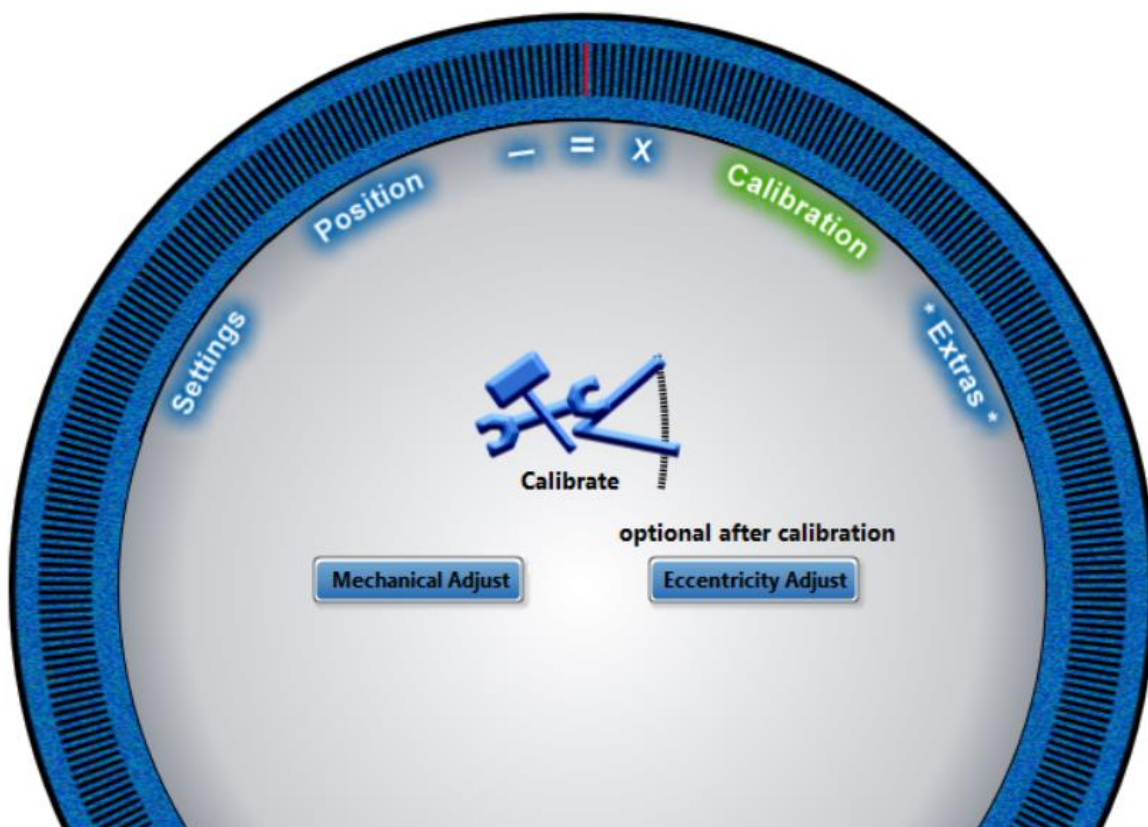


Figure 23 Calibration area

4.4.5. Extras

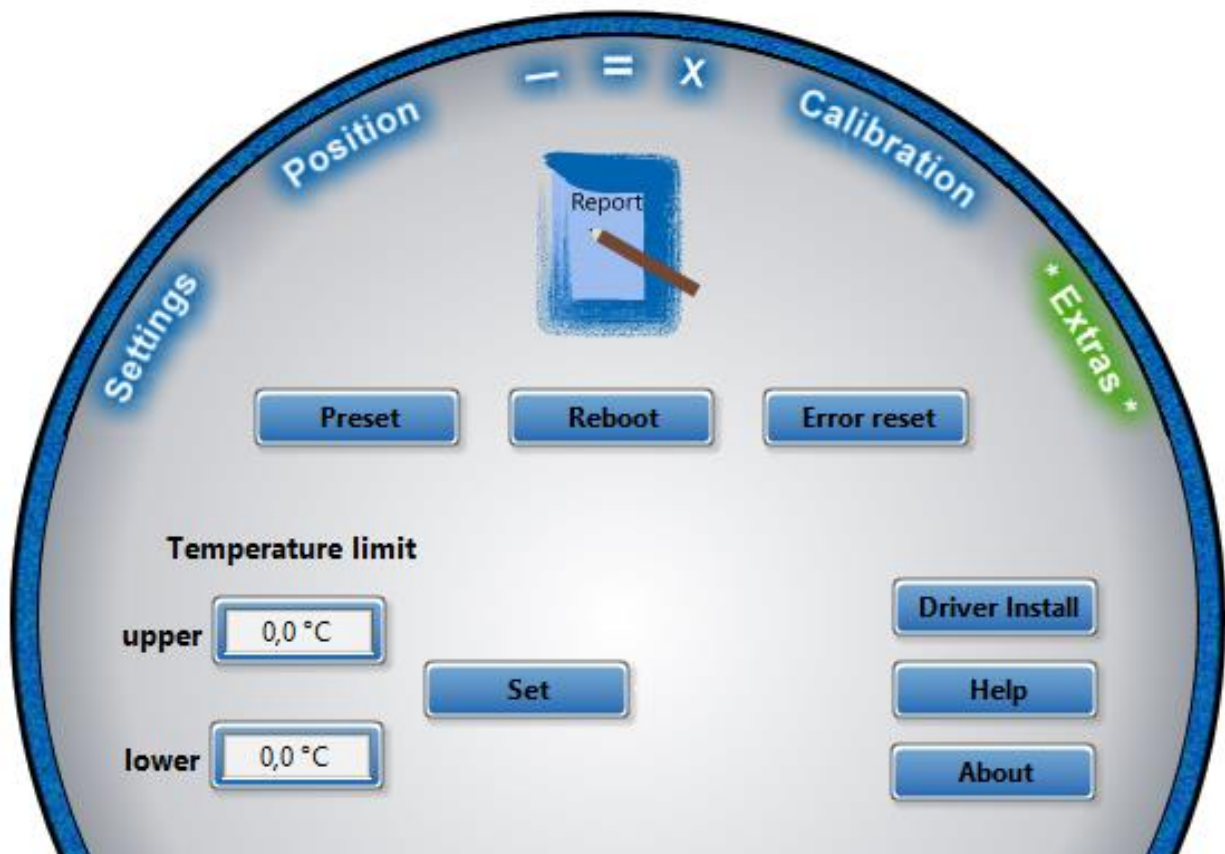


Figure 24 Extras area

Pressing the Extras button takes you to the Extras area. Additional functions are located in this area.

- The Report function generates a report that can be sent to PWB Encoders for error analysis.
- Encoder commands:
 - **Preset** sets the current encoder position as the new zero point.
 - **Reboot** performs a restart of the encoder system.
 - **Error Reset** clears all errors of the encoder system. ("Synchronization failed" only by Reboot)
 - **Driver Install** starts the installation of the included drivers.
 - **Help** opens this user guide document (PDF viewer required).
 - **About** shows information about the software.
- Temperature limits
 - The lower and upper temperature limits can be used to configure the warnings described in Section 4.4.2.

5. Calibrating the Encoder

5.1. Calibration required

Once the encoder is successfully connected, you can navigate to the necessary controls and indicators by clicking on the Calibration button. Figure 17 shows the user interface referred to in the following instructions.



Figure 25 Calibration

Calibration is necessary for optimum operation and is strongly recommended. Position errors may occur without calibration. To start the calibration process, simply click on the following symbol: A minimum speed is required for successful calibration of the encoder.

The recommended values are:

- Rotary 90 RPM
- Linear 7.68 cm/s



The familiar status window shown in Figure 13 is displayed during the calibration process. If any problem occurs during the calibration process, a detailed error message will be issued with a description of the problem and possible remedies. If the calibration is successful, the message shown in the following figure is issued:



Figure 26 Successful calibration message

5.2. Optional Eccentricity

After successful calibration, the optional compensation of the eccentricity can be started via the "eccentricity Adjust" button. **(Only useful and possible for rotary systems)**

The recording of data and calculation of compensation values can take a long time and is directly dependent on the speed.

The expected time at speed:

- 50s at 300 RPM
- 25s at 600 RPM
- 15s at 1000 RPM

5.3. Mechanical Adjustment

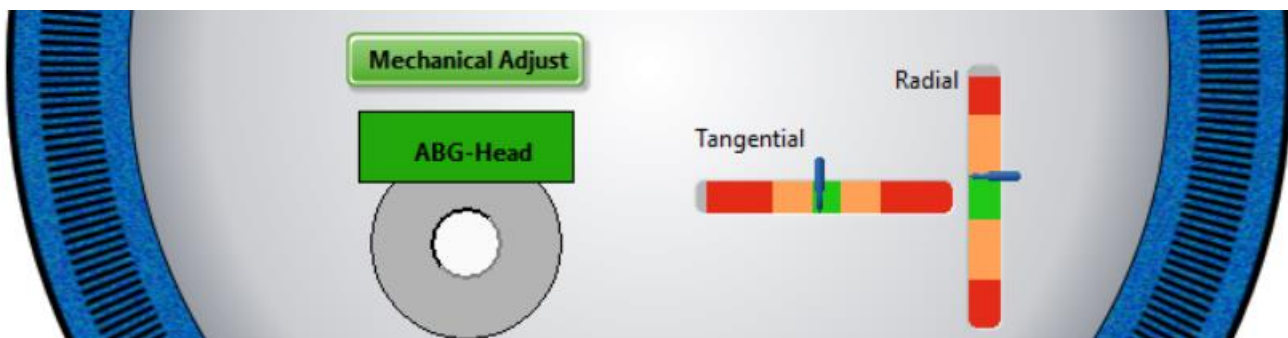


Figure 277 mechanical Adjustment

The mechanical adjustment mode can be started by clicking on the button. The mode can only be ended by clicking the button again.

In active mode, additional display elements are shown to indicate how well the mechanical setup has been completed.

Notes:

- While the mode is active, no further operation of the software is possible.
- Mechanical adjustment is only possible with rotary systems.
- For this function, it is necessary that the software knows all the important parameters of the encoder system. If this is not the case, a message appears asking you to contact technical support. There you will receive a start code, which can be entered under Settings and makes all the important parameters known to the software.

6. Contacting Customer Service

We are always ready to help you if you have any questions or need support.

PWB encoders GmbH
Am Goldberg 2
D-99817 Eisenach
Germany
Phone: +49 3691 72580-0
Fax: +49 3691 72580-29
Email: info@pwb-encoders.com

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