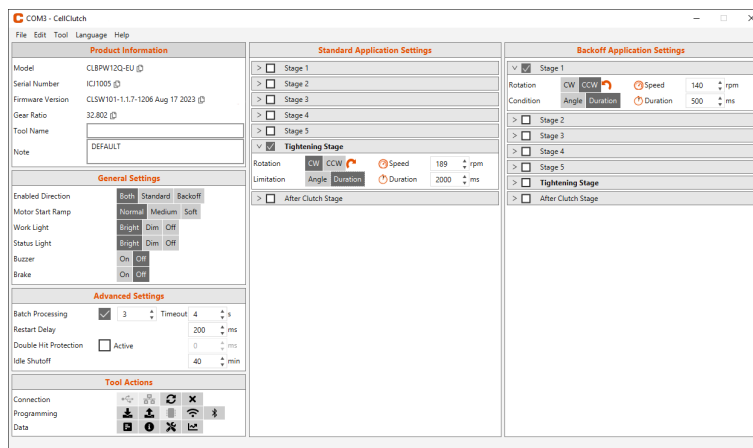




CLPC100

CLBA & CLBP



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About this Document

This document is intended for qualified employees responsible for installation and maintenance (administrators, maintenance technician, service, operator).

It contains information

- for safe and appropriate handling of the product.
- on function.
- for programming the software: CLPC100-1.3

The original language of this document is German.

Other Documents

Number	Document
P2547BA	Instruction Manual – CLBA & CLBP Cordless EC Tool
P2600KA	Quick Installation Guide – CellClutch CLBA & CLBP

Symbols in the Text

<i>italic</i>	Menu options (e.g., Diagnostics) input fields, check boxes, radio buttons or dropdown menus.
>	Indicates selection of a menu option from a menu, e.g., <i>File > Print</i> .
<...>	Specifies switches, pushbuttons or the keys of an external keyboard, e.g., <F5>.
<i>Courier</i>	Indicates Filenames and paths, e.g., <i>setup.exe</i> .
•	Indicates lists, level 1.
–	Indicates lists, level 2.
a) b)	Indicates options.
➤	Indicates results.
1. (...) 2. (...)	Indicates action steps.
▶	Indicates single action steps.

2 Product Description

The *CLPC100* PC software is used to parameterize tools of the CellClutch series. Tool settings can be made, tightening sequences can be parameterized, results can be saved, and a firmware update can be performed.

2.1 System Layout

The communication between the controller and the tool is possible via WLAN or Bluetooth. The tool can communicate with a mPro200GC-AP or mPro400GCD controller. The model name of WLAN or Bluetooth enabled tools has a "W" in the 5th position of the name and ends with a country abbreviation.

2.2 WLAN communication

The system layout described is based on communication via WLAN. The access point is integrated in the mPro200GC-AP controller. The tools can communicate according to the following standard:

Tool	Standard
CLBA & CLBP	WLAN Dual band: 2,4 GHz/5 GHz Standard IEEE 802.11 a/b/g/n

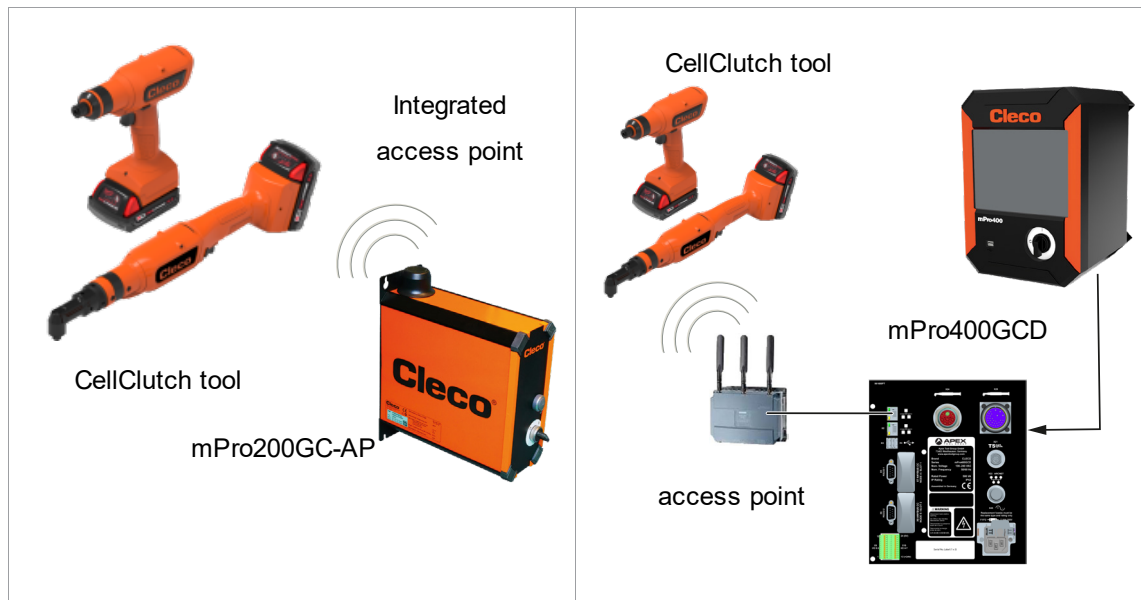


Fig. 2-1: System layout with mPro200GC-AP

Fig. 2-2: System layout with mPro400GCD

2.2.1 Tool Data

Feature	Data												
Standard	IEEE 802.11a/b/g/n												
Safety	<table border="0"> <tr> <td>WEP-64 HEX</td> <td>EAP-PEAP TKIP</td> </tr> <tr> <td>WEP-64 ASCII</td> <td>EAP-PEAP AES</td> </tr> <tr> <td>WEP-128 HEX</td> <td>EAP-TLS TKIP</td> </tr> <tr> <td>WEP-128 ASCII</td> <td>EAP-TLS AES</td> </tr> <tr> <td>WPA/WPA2-PSK TKIP</td> <td>Ciso LEAP TKIP</td> </tr> <tr> <td>WPA/WPA2-PSK AES</td> <td>Ciso LEAP AES</td> </tr> </table>	WEP-64 HEX	EAP-PEAP TKIP	WEP-64 ASCII	EAP-PEAP AES	WEP-128 HEX	EAP-TLS TKIP	WEP-128 ASCII	EAP-TLS AES	WPA/WPA2-PSK TKIP	Ciso LEAP TKIP	WPA/WPA2-PSK AES	Ciso LEAP AES
WEP-64 HEX	EAP-PEAP TKIP												
WEP-64 ASCII	EAP-PEAP AES												
WEP-128 HEX	EAP-TLS TKIP												
WEP-128 ASCII	EAP-TLS AES												
WPA/WPA2-PSK TKIP	Ciso LEAP TKIP												
WPA/WPA2-PSK AES	Ciso LEAP AES												
Range	Typically, up to 50 m												
Channels	1 – 13 (2.400 – 2.500 GHz) 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 149, 153, 157, 161, 165 (5,180 – 5,825 GHz)												
Transmission power	≤ 20 dBm												
Sensitivity	-95 dBm (typ. @ 1 Mbps, 2.4 GHz) -86 dBm (typ. @ 1 Mbps, 2.4 GHz) -90 dBm (typ. @ 6 Mbps, 2.4 GHz) -90 dBm (typ. @ 6 Mbps, 5 GHz) -72 dBm (typ. @ 48 Mbps, 5 GHz)												
Modulation	CCK/DSSS/OFDM												

2.2.2 Country-specific channel settings

The tools work in the license-free 2.4 GHz/5 GHz ISM band.

Band	Channel	Frequency in GHz	World	Europe	USA/Canada	China
			World	EU	FCC	CN
2.4 GHz IEEE802.11b/g	1	2.412	x	x	x	x
	2	2.417	x	x	x	x
	3	2.422	x	x	x	x
	4	2.427	x	x	x	x
	5	2.432	x	x	x	x
	6	2.437	x	x	x	x
	7	2.442	x	x	x	x
	8	2.447	x	x	x	x
	9	2.452	x	x	x	x
	10	2.457	x	x	x	x
	11	2.462	x	x	x	x
	12	2.467	–	x	–	x
	13	2.472	–	x	–	x

Band	Channel	Frequency in GHz	World	Europe	USA/Canada	China
			World	EU	FCC	CN
5 GHz IEEE802.11a U-NII-1	36	5.180	x	x	x	x
	40	5.200	x	x	x	x
	44	5.220	x	x	x	x
	48	5.240	x	x	x	x
5 GHz IEEE802.11a U-NII-2	52	5.260	-	x	x	x
	56	5.280	-	x	x	x
	60	5.300	-	x	x	x
	64	5.320	-	x	x	x
5 GHz IEEE802.11a U-NII-2 ext	100	5.500	-	x	x	-
	104	5.520	-	x	x	-
	108	5.540	-	x	x	-
	112	5.560	-	x	x	-
	116	5.580	-	x	x	-
	120	5.600	-	x	-	-
	124	5.620	-	x	-	-
	128	5.640	-	x	-	-
	132	5.660	-	x	x	-
	136	5.680	-	x	x	-
140	5.700	-	x	x	-	
5 GHz U-NII-3	149	5.745	-	o	x	x
	153	5.765	-	o	x	x
	157	5.785	-	o	x	x
	161	5.805	-	o	x	x
	165	5.825	-	o	x	x

Legend

- x: Approved and available
- : Not permissible, blocking necessary
- o: Permissible with limited power

2.2.3 Cell planning for access point

Each channel operates with a frequency range of 22 MHz. To avoid overlapping the frequency ranges, the channels must be chosen so that they do not overlap. In other words, a maximum of 3 independent channels (e.g., 1, 6 and 11) are available in the 2.4 GHz frequency band.

The 5 GHz frequency band provides up to 21 independent channels.

To minimize interference between different radio cells that share the same RF channel, it is advisable to physically separate them. Note that for multistory buildings, it is necessary to consider both higher and lower floors.

The following overview shows the basic channel assignment.

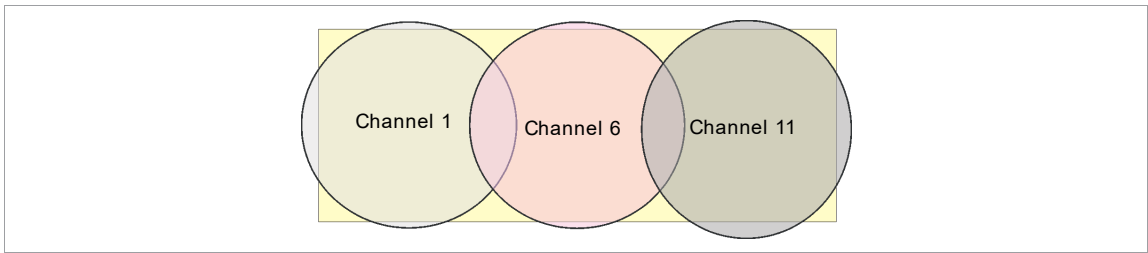


Fig. 2-3: Idealized radio cells, the rectangle symbolize the application areas of the tools

The physical circumference of a radio cell depends primarily on the access point used, the antennas and the type of construction in the surrounding area. The limit of a radio cell is reached when the signal-to-noise ratio (SNR) falls below 15 dB. If the ratio falls below this value, a new radio cell should be started. The typical circumference of a radio cell in a building is up to 50 m.

For the tool to be able to connect to different access points automatically (roaming), the SSID and encryption must be set identically at the corresponding access points.



If wide-area coverage with controlled emission from multiple access points is required, corresponding planning and evaluation must be carried out for the specific case.

Example installation 5 GHz

- Several overlapping radio cells are possible, even if only one free channel is used.
- Up to 200 tools are then possible within the radio range with a limited volume of data.
- The range of the radio cells is limited by the minimal transmission power.

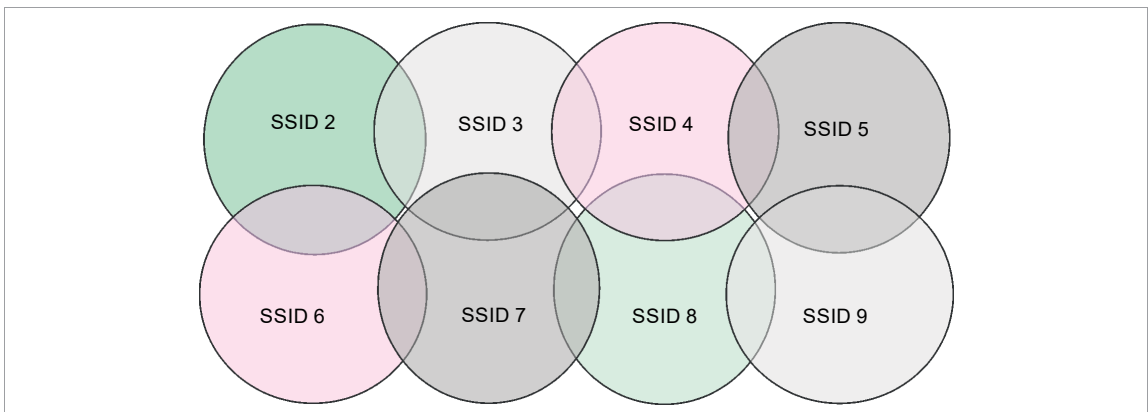


Fig. 2-4: Idealized radio cells = Range of use of the tools, channel 60

2.3 Bluetooth communication

Tool	Standard
CLBA & CLBP	Bluetooth 4.2

3 Initial operation

3.1 Requirements

- Laptop/PC with:
 - Operating system: Windows 10, 64 Bit
 - Screen resolution: 1280 x 768 or higher
- CLPC100 PC software
- Micro-B USB cable

3.2 Installation

Installing the software

1. Download the *Installer X.Y.Z* software package from the following website:
<https://software.apextoolgroup.com/current-software-packages/cellclutch/>
2. Start the *CellClutch-X.Y.Z.exe* installation file and follow the installation instructions.



Windows does not recognize the manufacturer of the software, so a Windows virus message appears. To start the installation, press *More information* and *Run anyway*.

3.3 Connecting Tool

Connect the tool to the laptop/PC via USB

1. Connect the tool to the laptop/PC via a Micro-B USB cable.



Fig. 3-1: Remove battery

Fig. 3-2: Connect Micro-B USB cable

2. Determine the serial port (COM port) of the tool in the device manager of the laptop/PC.

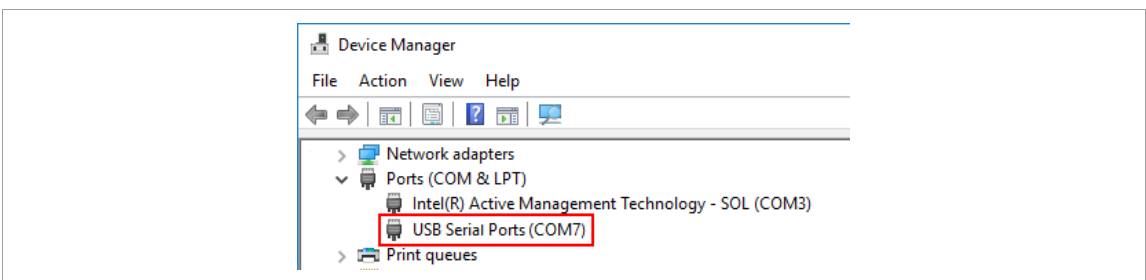


Fig. 3-3: Device Manager

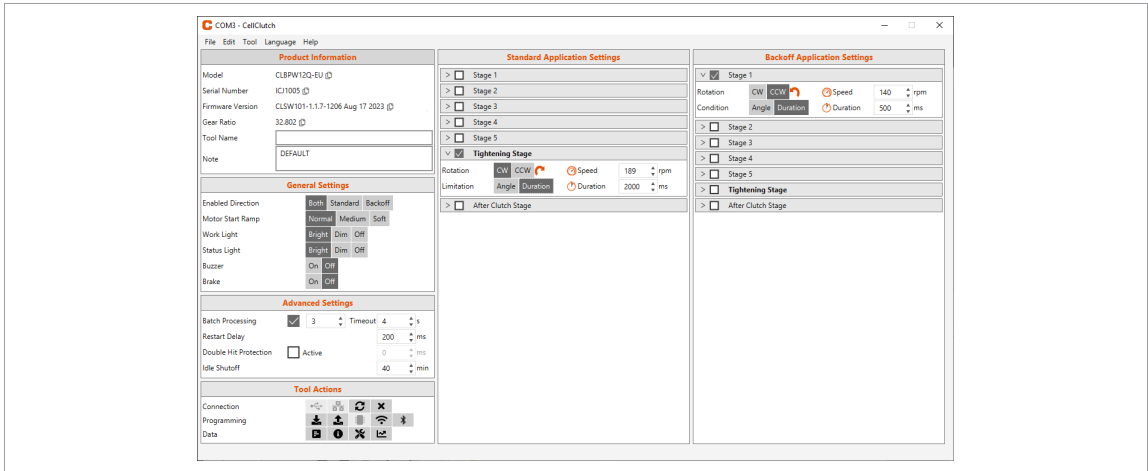

3. Start the *CLPC100* PC software.

Fig. 3-4: PC software

4. Select under *Tool Actions*  the COM port in the drop-down menu. Details see *chapter 4.2.4 Tool Actions, page 15*.
5. Confirm the input with <OK>.

4 Operation

4.1 General Functions

4.1.1 Switching On The Tool

► To switch on the tool, press the start trigger.

4.1.2 Switching Off Tool

If no action is performed on the tool for three minutes, it switches to the idle state.

4.2 Menus and Functions

The user interface of the PC software is divided into three columns. The left-hand column is used for general settings and actions. The other two columns are used for programming application settings.

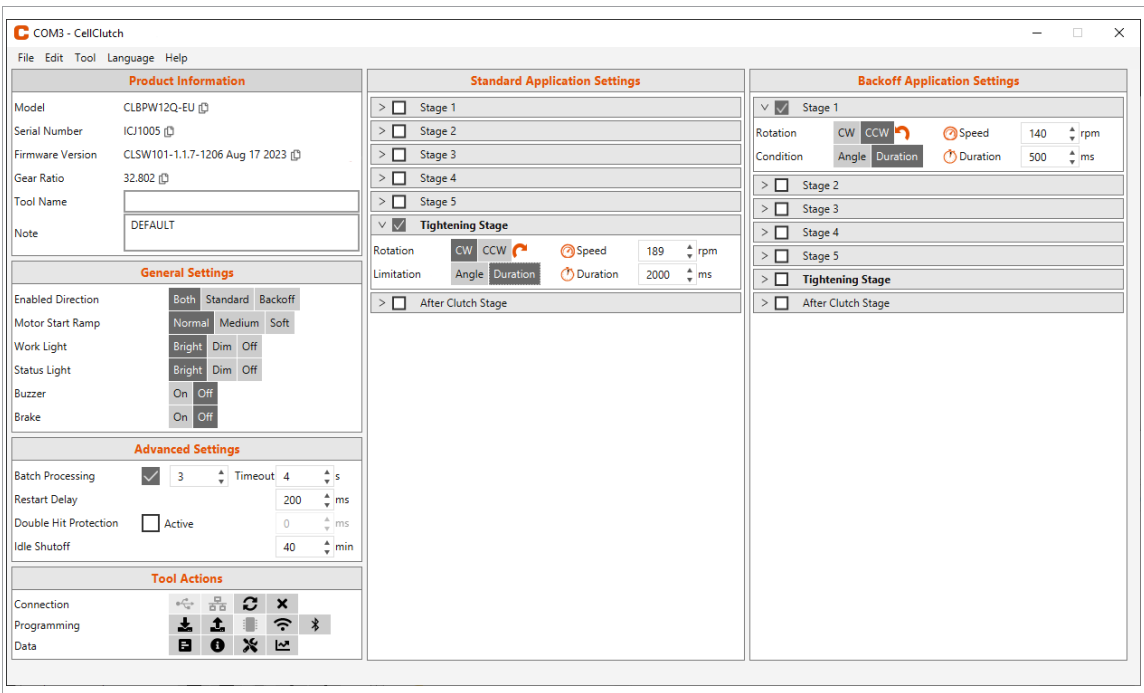


Fig. 4-1: User interface with exemplary settings

The individual areas of the user interface are described below.

4.2.1 Product Information

The *Product Information* area displays information about the tool.

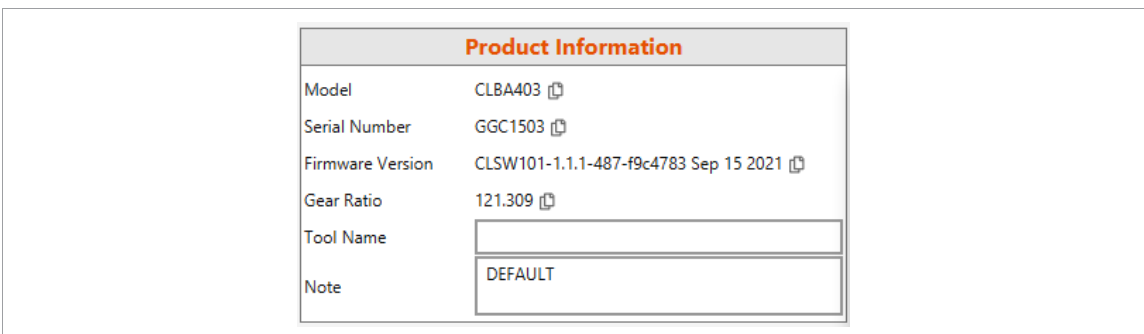


Fig. 4-2: Product Information

Parameter	Description
Model	Display of the tool type. If no tool is connected, <i>Not connected</i> is displayed.
Serial Number	Display of the serial number of the tool. If no tool is connected, <i>Not connected</i> is displayed.
Firmware Version	Display of the software version of the tool. If no tool is connected, <i>Not connected</i> is displayed.
Gear Ratio	Display of the gear ratio of the tool. The value is configured in the tool and cannot be changed. If no tool is connected, <i>Not connected</i> is displayed.
Tool Name	Input field for a custom name that is assigned to the tool. The input is limited to 32 bytes. Since special characters occupy up to four bytes, the used bytes are calculated during input. For this reason, the maximum character length may differ. A maximum of between 8 and 32 characters is possible.
Note	Additional notes can be entered in the input field, which will be saved on the tool. The input is limited to 212 bytes. Since special characters occupy up to four bytes, the used bytes are calculated during input. For this reason, the maximum character length may differ. A maximum of between 53 and 212 characters is possible.

4.2.2 General Settings

Settings for the behavior of the tool during a rundown can be made in the *General Settings*.

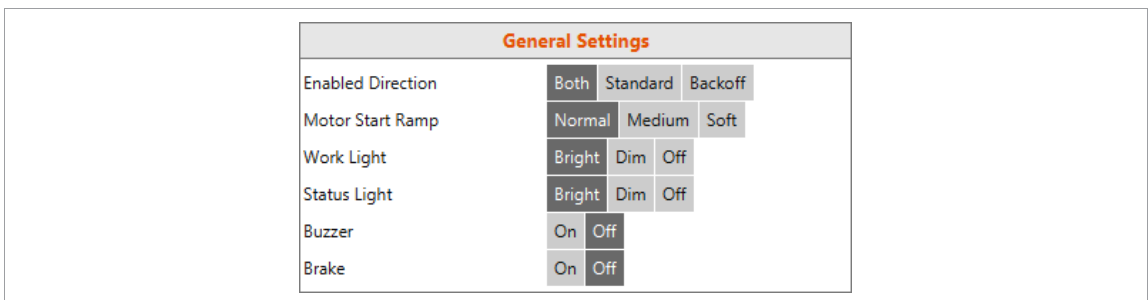


Fig. 4-3: General Settings – View of the default settings




Parameter	Description
Enabled Direction	Setting which program is used. <ul style="list-style-type: none"> Both: Standard and backoff mode are activated. Standard: The <i>Standard Application Settings</i> are activated. The reverse switch on the tool has to be set to the right. If the reverse switch is set to left, the tool is locked. Reverse: Only the <i>Backoff Application Settings</i> are activated. The reverse switch on the tool has to be set to the left. If the reverse switch is set to right, the tool is locked.
Motor Start Ramp	Setting in which time the motor reaches the parameterized speed. Time for maximum speed: <ul style="list-style-type: none"> Normal: The maximum speed is reached after 200 ms. Medium: The maximum speed is reached after 0.5 s. Soft: The maximum speed is reached after 1 s. The parameterized speed is reached earlier in percentage.
Work Light	Setting for the brightness of the work light. <ul style="list-style-type: none"> Bright: The work light is bright. Dim: The work light is dim. Off: The work light is off.

Parameter	Description
Status Light	Setting for the brightness of the status light. <ul style="list-style-type: none"> Bright: The status light is bright. Dim: The status light is dim. Off: The status light is off.
Buzzer	If the option is selected, the buzzer gives an acoustic signal to indicate the status.
Brake	Setting of the motor behavior. <ul style="list-style-type: none"> On: As soon as the start trigger is released, the motor brakes immediately. Off: As soon as the start trigger is released, the motor brakes slowly until it comes to a standstill.






Status Indication

The color and duration of the LED display indicate the status of the rundown and the tool.

Status light	Work Light	Sound	Meaning
—	—	—	Direction switch: Forward Direction switch: Between forward and backward ➤ Start trigger is locked and cannot be depressed
—	Ⓜ Until the end of the event + 10 s	—	Start trigger is pressed
ⓐ — ⓐ Until the end of the event	—	—	Direction switch: Reverse
ⓐ 15 s	—	—	Result after fastening cycle OK
Ⓡ 15 s	—	🎵	Result after fastening cycle OK
Ⓡ 1 s	—	🎵	Restart Delay
Ⓡ 1 s	—	🎵	Double Hit Protection
ⓐ ⓑ — 15 s	—	🎵 — 🎵 Until the end of the event	Batch OK (overall tightening result)
Ⓡ ⓑ — 15 s	—	🎵 — 🎵	Batch NOK (overall tightening result)
Ⓡ — Ⓡ — Until the end of the event	—	🎵 — 🎵	Tool overheating
Ⓡ — ⓑ — ⓐ — Until the end of the event	—	—	Maintenance alarm
Ⓡ ⓑ — Until the end of the event	—	—	Battery low status
ⓑ — ⓑ — Until connected	—	—	Search WLAN/Bluetooth

Status light	Work Light	Sound	Meaning
 3 s	—	—	Connected with WLAN/Bluetooth
 Until the end of the event	—	 Until the end of the event	General error

Legend

Symbol	Explanation
	Green LED lights up
	Blue LED lights up
	Red LED lights up
	White LED lights up
	Buzzer sound is heard
—	Break

4.2.3 Advanced Settings

Settings for the behavior of the clutch can be made in the *Advanced Settings*.

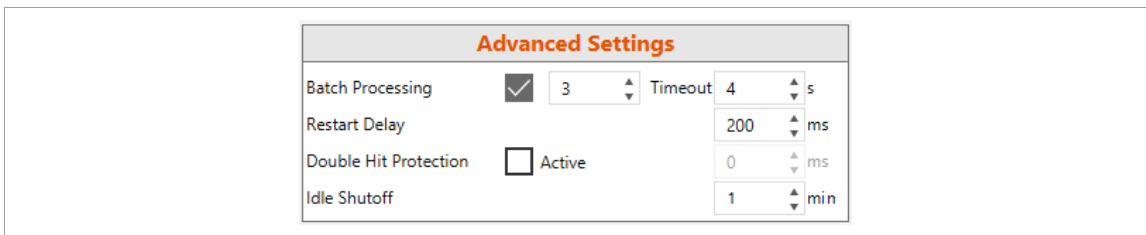


Fig. 4-4: Advanced Settings

Parameter	Description	Range of values
Batch Processing	If the check box is activated, multiple rundowns can be evaluated together. The number indicates how many rundowns belong to one batch.	0 – 100
Timeout	The timeout specifies the total time of the batch processing. It starts with the first rundown. If not all rundowns of a batch can be finished within the timeout, the batch processing is aborted and the result is NOK. If 0 s are configured, the timeout is deactivated.	0 s – 32,000 s
Restart Delay	The restart delay is a time in milliseconds and is active in the following cases: <ul style="list-style-type: none"> Between the release of the clutch and the start of a new rundown Between the abort of a rundown due to a SA error and the start of a new rundown. This prevents an accidental triggering of the start switch from initiating an unintended rundown with an invalid result.	0 ms – 32,000 ms
Double Hit Protection	If the Double Hit Protection is activated, a time in milliseconds can be defined. If the clutch is triggered again within this time, a NOK error is generated. In this way, screws are detected that are already tightened.	0 ms – 32,000 ms

Parameter	Description	Range of values
Idle Shutoff	Time in minutes where the tool shuts down if no action is performed.	
	For WLAN-capable tools, the value range can be set.	1 min – 180 min
	For tools without WLAN function, a default value is set.	15 min



If no gear ratio is programmed, no data can be saved on the tool. In this case, a warning message is displayed after connection and the tool must be sent to a *Sales & Service Center*, see reverse.

4.2.4 Tool Actions

In the *Tool Actions* area, a connection can be established, and data exchanged between the PC software and the tool.

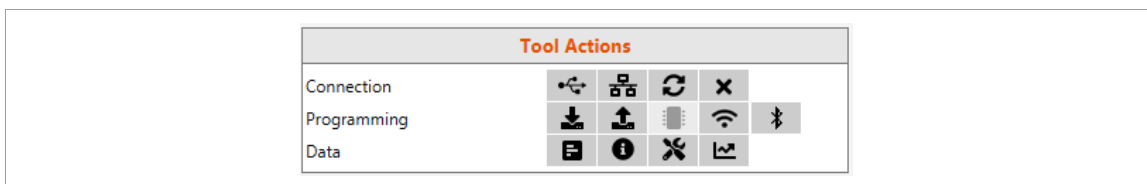








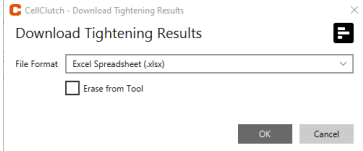

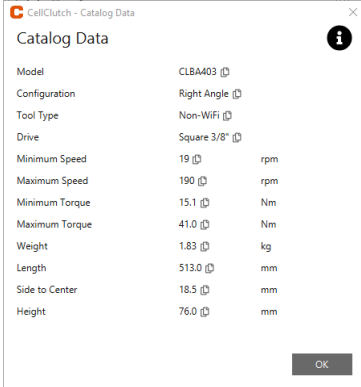

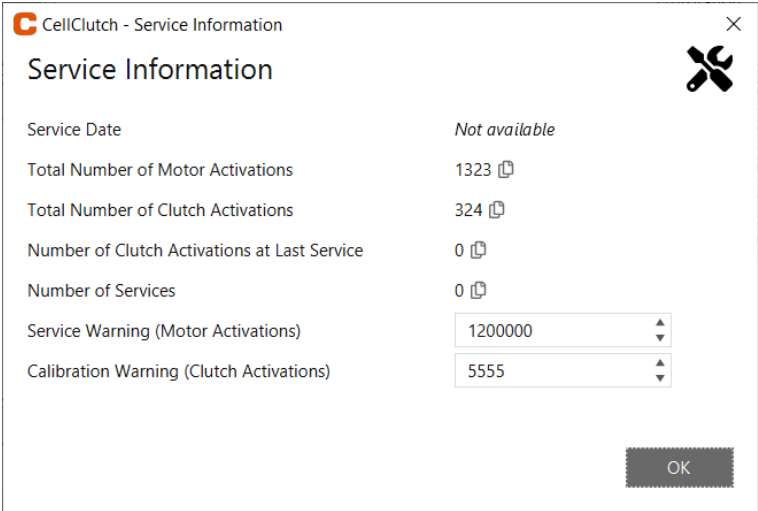



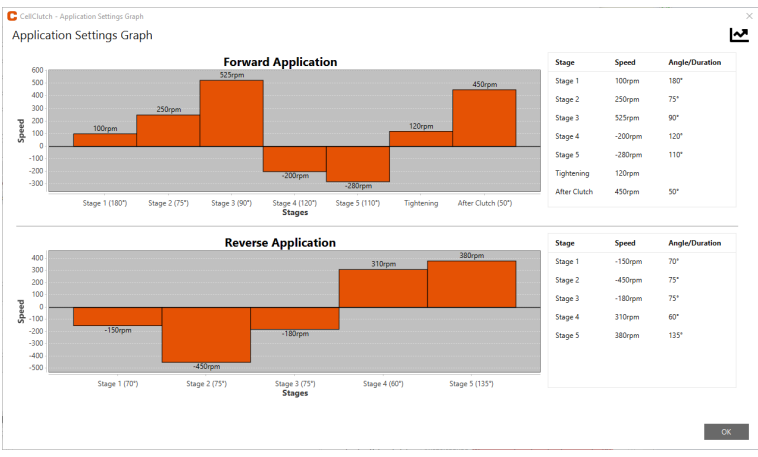
Fig. 4-5: Tool Actions

Button	Description
	<p>Establish a connection between the PC software and the tool via a serial interface.</p> <div data-bbox="810 1084 1177 1267" data-label="Image"> </div> <p>Fig. 4-6: Serial Port Connection</p> <ul style="list-style-type: none"> • Port: All connected tools of the CellClutch series are displayed in the drop-down menu. Select the COM port of the tool. • Read Settings: If the check box is activated, the settings off the tool are automatically displayed in the user interface after a connection has been established. If the check box is deactivated, the current settings of the user interface is retained.
	<p>Settings for a TCP network connection to a tool.</p> <div data-bbox="810 1581 1177 1765" data-label="Image"> </div> <p>Fig. 4-7: Connection with network interface</p> <ul style="list-style-type: none"> • TCP address: Enter the IP address and port. If no port is entered, port 4001 is used by default. • Read Settings: If the check box is activated, the settings off the tool are automatically displayed in the user interface after a connection has been established. If the check box is deactivated, the current settings of the user interface is retained.

Button	Description
	Re-establishes the current connection to the tool. If there is currently no connection, the last existing connection is re-established. This is recommended if problems have occurred during communication with the tool.
	Tool is disconnected.
	Reads the settings out from the connected tool and displayed in the PC software.
	Writes the settings of the user interface to the connected tool.
	Firmware update <i>see chapter 4.6 Performing A Firmware Update, page 25.</i>
	Settings for the WLAN configuration of the tool, <i>see chapter 4.3 Configuring RF settings, page 21.</i>
	Settings for the Bluetooth configuration of the tool, <i>see chapter 4.4 Configuring Bluetooth settings, page 23.</i>

Button	Description																		
	<p>Download tightening results from the tool. The tightening results are saved as a *.tsv, *.csv or *.xlsx file. Select a file format, press <OK> and select a location.</p> <p>If the <i>Erase from Tool</i> check box is selected, the rundown results will be deleted from the tool as soon as the file is downloaded. After downloading the file, a dialog for checking the data is displayed.</p> <div data-bbox="561 472 1441 645" style="border: 1px solid black; padding: 5px; margin: 10px 0;">  </div> <p><i>Fig. 4-8: Download Tightening Results</i></p> <p>The file contains a table with the following columns:</p> <table border="1" data-bbox="561 757 1441 1671"> <thead> <tr> <th>Column</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Rundown Counter</td> <td>Consecutive number of the rundowns. No number is displayed if an internal error has occurred without a rundown.</td> </tr> <tr> <td>Max Speed [rpm]</td> <td>Maximum speed at the drive during rundown. When the tool accelerates to the configured speed, an overshoot can occur. Because of this, the maximum speed may exceed the configured speed. If the tightening process was done in counterclockwise rotation, the speed is negative.</td> </tr> <tr> <td>OK/NOK</td> <td>The following entries are possible: <ul style="list-style-type: none"> OK: The result of a single rundown is okay. NOK: The result of a single rundown is not okay. No entry is displayed if an internal error has occurred without a rundown. </td> </tr> <tr> <td>Error Code</td> <td>Indication of the occurred error, <i>see chapter 5.1 Error codes, page 26.</i></td> </tr> <tr> <td>Error Description</td> <td>Error messages, <i>see chapter 5.1 Error codes, page 26.</i></td> </tr> <tr> <td>Batch Status</td> <td>The following entries are possible: <ul style="list-style-type: none"> Batch OK: The total result of the <i>Batch Processing</i> is okay. Batch NOK: The total result of the <i>Batch Processing</i> is not okay. Batch Timeout: The <i>Batch Processing</i> was aborted because the timeout expired. </td> </tr> <tr> <td>Batch Counter</td> <td>Number of the single rundown of a batch.</td> </tr> <tr> <td>Batch Size</td> <td>Number of rundowns belonging to a batch.</td> </tr> </tbody> </table>	Column	Description	Rundown Counter	Consecutive number of the rundowns. No number is displayed if an internal error has occurred without a rundown.	Max Speed [rpm]	Maximum speed at the drive during rundown. When the tool accelerates to the configured speed, an overshoot can occur. Because of this, the maximum speed may exceed the configured speed. If the tightening process was done in counterclockwise rotation, the speed is negative.	OK/NOK	The following entries are possible: <ul style="list-style-type: none"> OK: The result of a single rundown is okay. NOK: The result of a single rundown is not okay. No entry is displayed if an internal error has occurred without a rundown. 	Error Code	Indication of the occurred error, <i>see chapter 5.1 Error codes, page 26.</i>	Error Description	Error messages, <i>see chapter 5.1 Error codes, page 26.</i>	Batch Status	The following entries are possible: <ul style="list-style-type: none"> Batch OK: The total result of the <i>Batch Processing</i> is okay. Batch NOK: The total result of the <i>Batch Processing</i> is not okay. Batch Timeout: The <i>Batch Processing</i> was aborted because the timeout expired. 	Batch Counter	Number of the single rundown of a batch.	Batch Size	Number of rundowns belonging to a batch.
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OK/NOK	The following entries are possible: <ul style="list-style-type: none"> OK: The result of a single rundown is okay. NOK: The result of a single rundown is not okay. No entry is displayed if an internal error has occurred without a rundown. 																		
Error Code	Indication of the occurred error, <i>see chapter 5.1 Error codes, page 26.</i>																		
Error Description	Error messages, <i>see chapter 5.1 Error codes, page 26.</i>																		
Batch Status	The following entries are possible: <ul style="list-style-type: none"> Batch OK: The total result of the <i>Batch Processing</i> is okay. Batch NOK: The total result of the <i>Batch Processing</i> is not okay. Batch Timeout: The <i>Batch Processing</i> was aborted because the timeout expired. 																		
Batch Counter	Number of the single rundown of a batch.																		
Batch Size	Number of rundowns belonging to a batch.																		

Button	Description																								
	<p>Display of the technical data of the tool.</p> <div data-bbox="560 324 1437 734" style="border: 1px solid gray; padding: 5px;">  <p>CellClutch - Catalog Data</p> <p>Catalog Data</p> <table border="0"> <tr><td>Model</td><td>CLBA403</td></tr> <tr><td>Configuration</td><td>Right Angle</td></tr> <tr><td>Tool Type</td><td>Non-Wifi</td></tr> <tr><td>Drive</td><td>Square 3/8"</td></tr> <tr><td>Minimum Speed</td><td>19 rpm</td></tr> <tr><td>Maximum Speed</td><td>190 rpm</td></tr> <tr><td>Minimum Torque</td><td>15.1 Nm</td></tr> <tr><td>Maximum Torque</td><td>41.0 Nm</td></tr> <tr><td>Weight</td><td>1.83 kg</td></tr> <tr><td>Length</td><td>513.0 mm</td></tr> <tr><td>Side to Center</td><td>18.5 mm</td></tr> <tr><td>Height</td><td>76.0 mm</td></tr> </table> <p>OK</p> </div> <p><i>Fig. 4-9: Catalog Data</i></p>	Model	CLBA403	Configuration	Right Angle	Tool Type	Non-Wifi	Drive	Square 3/8"	Minimum Speed	19 rpm	Maximum Speed	190 rpm	Minimum Torque	15.1 Nm	Maximum Torque	41.0 Nm	Weight	1.83 kg	Length	513.0 mm	Side to Center	18.5 mm	Height	76.0 mm
Model	CLBA403																								
Configuration	Right Angle																								
Tool Type	Non-Wifi																								
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Maximum Torque	41.0 Nm																								
Weight	1.83 kg																								
Length	513.0 mm																								
Side to Center	18.5 mm																								
Height	76.0 mm																								
	<p>Display of the service information of the tool.</p> <ul style="list-style-type: none"> • Service Date: Date of the last service. • Total Number of Motor Activations: The number increases as soon as the start trigger is pressed. • Total Number of Clutch Activations: The number increases as soon as the clutch is released. • Number of Clutch Activations at Last Service: Number of rundowns at the last service. • Number of Services: Number of times the tool has been serviced. • Service Warning (Tightening Count): Number of rundowns after which the service note for the next service should be displayed. Value range: 0 – 1,25 Million • Calibration Warning (Clutch Activations): Number of rundowns after which the warning message for the next calibration of the clutch should be displayed. Value range: 0 – 250 000. <div data-bbox="560 1272 1437 1805" style="border: 1px solid gray; padding: 5px;">  <p>CellClutch - Service Information</p> <p>Service Information</p> <table border="0"> <tr><td>Service Date</td><td>Not available</td></tr> <tr><td>Total Number of Motor Activations</td><td>1323</td></tr> <tr><td>Total Number of Clutch Activations</td><td>324</td></tr> <tr><td>Number of Clutch Activations at Last Service</td><td>0</td></tr> <tr><td>Number of Services</td><td>0</td></tr> <tr><td>Service Warning (Motor Activations)</td><td>1200000</td></tr> <tr><td>Calibration Warning (Clutch Activations)</td><td>5555</td></tr> </table> <p>OK</p> </div> <p><i>Fig. 4-10: Service Information</i></p>	Service Date	Not available	Total Number of Motor Activations	1323	Total Number of Clutch Activations	324	Number of Clutch Activations at Last Service	0	Number of Services	0	Service Warning (Motor Activations)	1200000	Calibration Warning (Clutch Activations)	5555										
Service Date	Not available																								
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Number of Clutch Activations at Last Service	0																								
Number of Services	0																								
Service Warning (Motor Activations)	1200000																								
Calibration Warning (Clutch Activations)	5555																								

Button	Description
	<p>Graphic display of the tightening stages parameterized in the Forward and Reverse Application Settings. The bars represent the speed per step. The steps and condition are shown below the bars. All parameters are listed in the table next to the graphic.</p> <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;">  </div> <p style="text-align: center;"><i>Fig. 4-11: Application Settings Graph</i></p>

4.2.5 Application Settings

Up to seven stages can be programmed in the *Standard Application Settings* and *Backoff Application Settings* for a tightening sequence.



Reducing the speed can result in a reduction of the maximum torque.

▼
 Stage 1

Rotation

Speed

rpm

Condition

Duration

ms

Fig. 4-12: Example Stage 1

The pre-tightening stages 1 to 5

Stages 1 to 5 are used to pre-tighten the screw. They can be activated as required. If the clutch is already released in one of the pre-tightening stages, the rundown is aborted and evaluated with NOK.

In the *Backoff Application Settings*, stage 1 is activated by default but can be deactivated. The result of the steps is only evaluated and entered into the archive if the *Tightening Stage* is activated.

Parameter	Description	Value range
Stage	The check box offers the possibility to activate or deactivate the stages individually. If a stage is deactivated, the setting options are hidden.	Active/Inactive
Rotation	Set the tool rotation of the step.	CW/CCW
Speed	Set the speed of the stage. The adjustable range depends on the tool configuration.	See catalog data.
Condition	Depending on the setting, the angle or duration is monitored. <ul style="list-style-type: none"> With angle monitoring, the reached angle is sent. The angle is not monitored during time-control. As a result, the angle "0" is sent to the controller. 	Angle/Duration

Parameter	Description	Value range
Angle/Duration	Depending on the selected <i>Condition</i> , a value for the angle or the time duration can be set. If the configured value is reached, the stage is finished and the next stage is started.	Angle: 30° – 65,535° Duration: 50 ms – 32,000 ms

Tightening Stage

The *Tightening Stage* triggers the clutch and is always set in the *Standard Application Settings*. Shut-off in the tightening stage takes place when the clutch is released. If the parameterized angle or time is reached before the clutch is released, the rundown is aborted and evaluated with NOK.

Parameter	Description	Value range
Tightening Stage	In the <i>Standard Application Settings</i> , the Tightening Stage is always activated.	Active
Rotation	Set the tool rotation of the step.	CW/CCW
Speed	Set the speed of the stage. The adjustable range depends on the tool configuration.	See catalog data.
Limitation	Possibility of setting the shut-off condition. Depending on the setting, the angle or the time duration is monitored. In both cases the reached angle is sent.	Angle/Duration
Angle/Duration	Depending on the selected <i>Limitation</i> , a value for the angle or the time duration can be set. If the clutch is not released within this value, the rundown is aborted.	Angle: 30° – 65,535° Duration: 50 ms – 32,000 ms



In the time-controlled fastening sequence, the angle is also monitored in the tightening stage. If the angle exceeds 65 535°, the rundown is aborted and evaluated with NOK. In this case, the parameterization must be split into two stages (pre-tightening and tightening stage).

After Clutch Stage

In the case that the tool is jammed, the *After Clutch Stage* option can be used to remove the tool from the screw. The stage is completed when the parameterized angle, the parameterized time has been reached or the start trigger is released. This also applies if the clutch was released earlier.

Parameter	Description	Value range
Stage	The check box offers the possibility to activate or deactivate the stages individually. If a stage is deactivated, the setting options are hidden.	Active/Inactive
Rotation	Set the tool rotation of the step.	CW/CCW
Speed	Set the speed of the stage. The adjustable range depends on the tool configuration.	See catalog data.
Condition	Depending on the setting, the angle or duration is monitored. <ul style="list-style-type: none"> With angle monitoring, the reached angle is sent. The angle is not monitored during time-control. As a result, the angle "0" is sent to the controller. 	Angle/Duration
Angle/Duration	Depending on the selected <i>Condition</i> , a value for the angle or the time duration can be set. . The stage is completed when the configured value is reached or the start trigger is released.	Angle: 30° – 65,535° Duration: 50 ms – 32,000 ms

4.2.6 Menu Bar

Additional information can be displayed, and settings can be made in the menu bar.

Menu	Description
File	<ul style="list-style-type: none"> • Open...: Opens a *.ccl file. The settings parameterized in this file are displayed in the user interface. • Save as...: Save the parameterized settings in a *.ccl file. • Preferences: <ul style="list-style-type: none"> - Automatically connect on startup: If the check box is activated, an attempt is made to establish a connection to the last connected tool when the software is started. - Read settings after automatic connect: If the check box is activated, an attempt is made to read out the data after the tool has connected automatically. - Unit System: Select the unit in which the catalog data is displayed. • Exit: Close the software.
Edit	<ul style="list-style-type: none"> • Undo: A previously made change is undone. • Redo: A previously undone change is restored.
Tool	The menu contains the same functions as the <i>Tool Actions</i> area, see <i>chapter 4.2.4 Tool Actions, page 15</i> .
Language	<p>Language selection of the user interface. When the software is started, the language set in the operating system of the PC/laptop is displayed. If the language of the operating system is not supported by the software, English is displayed.</p> <p>The software supports the following languages:</p> <ul style="list-style-type: none"> • English • German • Chinese • Czech • Spanish • French • Hungarian • Italian • Dutch • Polish • Romanian • Slovak • Slovenian
Help	<ul style="list-style-type: none"> • Open Log Directory...: Opens the directory where all log files are stored. If the software is open, log files are saved regularly. These contain log messages that are used to analyze possible errors. Up to ten log files are saved. The oldest file is always overwritten. The file <i>cellclutch.latest.log</i> contains current messages. • Open Latest Log File: Opens the last saved log file. • Open Source Licenses: Overview of all open source licenses used in the software. • About: Display of additional information about the software.

4.3 Configuring RF settings

The Bluetooth settings on the tool are configured via the CLPC100 PC software. This function is only possible with Bluetooth-compatible CellClutch tools. The Model name of Bluetooth-capable tools has a "W" in the 5th position of the name and ends with a country abbreviation:

- EU: Europe
- NA: North America
- CN: China
- 00: Rest of the world

Example:

Tool model without WLAN	Tool model with WLAN
CLBP04Q	CLBPW04Q-EU



If the WLAN connection to the controller is interrupted, up to 1023 offline results can be stored on the tool. As soon as the connection is re-established, the results are transmitted to the controller. If the number of possible memory locations is exceeded, the oldest results are overwritten. Errors that generate an entry (e.g. batch timeout) also occupy a memory location.

Configure WLAN settings and write them to the tool

1. Connect the tool to the Laptop/PC via a Micro-B USB cable.
 - The connected tool is displayed in the header and in the *Product Information* area.
2. To open the WLAN Settings, press . This function is only active when a WLAN capable tool is connected.

If WLAN settings are already stored on the tool, the data (except Network Key and Password) is automatically loaded and displayed when the dialog is opened.
3. Make the following settings:

Fig. 4-13: WLAN settings

Parameter	Description
MAC Address	Display of the MAC address.
SSID	Enter SSID. SSID must be identical to the access point.
Hostname	Optionally, a hostname can be entered.
DHCP	The IP address is automatically assigned.
IPv4 Address	Enter the IP address.
IPv4 Mask	Enter the subnet mask.
IPv4 Gateway	Enter the IP address of the gateway.
Transport	Select the TCP protocol.
IP Conflict Detection	If the check box is selected, duplicate IP addresses are detected.
Security	Select security. <i>Security</i> must be identical to the access point.
Network Key	Enter the network key. The network key must be identical to the access point.
User	Enter a username.
Password	Enter a password.
Regulatory Domain	Specifies country-specific channel settings. This setting is stored in the tool.

Parameter	Description
WLAN Standard	Select the WLAN mode: <ul style="list-style-type: none"> • Select 802.11a/b/g/n if a frequency band of 2.4 GHz or 5 GHz is used. • Select 802.11a if a frequency band of 5 GHz is used. • Select 802.11b/g/n if a frequency band of 2.4 GHz is used. • Select SRD if UNII-3 channels are used.
Channel Mode	There are two setting options: <ul style="list-style-type: none"> • <i>Auto</i>: The corresponding channel is automatically searched for. • <i>Manual</i>: The channels are unlocked and can be selected manually. Assign the channel that was selected in WLAN configuration.
Frequency Band	Select a frequency band.
2.4 GHz Channels	Select channels. These options depend on the <i>Regulatory Domain, WLAN Standard and Channel Mode</i> .
UNII-1 Channels	
UNII-2 Channels	
UNII-2 Ext Channels	
UNII-3 Channels	
Transmission power	Set transmission power.
Roaming Aggressiveness	Setting option, from which signal strength the tool connects with another access point.
Certificate	Select a *.p12 certificate file. This is required for EAP-TLS encryption. As soon as the settings are written to the tool, the certificate file on the tool is replaced. If no certificate file is selected, the existing file on the tool remains.
Certificate Password	If the certificate file is protected, enter the password.

4. Click <Write>.
 - The WLAN settings are written to the tool. As soon as the data is transmitted, a Windows message is displayed on the laptop/PC.

4.4 Configuring Bluetooth settings

The Bluetooth settings on the tool are configured via the CLPC100 PC software. This function is only possible with Bluetooth-compatible CellClutch tools in conjunction with a controller of the mPro200GC(-AP) series. The Model name of Bluetooth-capable tools has a "W" in the 5th position of the name and ends with a country abbreviation.

Configure Bluetooth settings and write them to the tool

1. Connect the tool to the Laptop/PC via a Micro-B USB cable.
 - The connected tool is displayed in the header and in the *Product Information* area.
2. Configure Bluetooth settings and write them to the tool . This function is only active when a WLAN capable tool is connected.
3. To start the scanning process, press .
4. Make the following settings:

Fig. 4-14: WLAN settings


Parameter	Description
MAC Address	The MAC address of the tool is displayed.
Device	Select the controller to connect the tool to. All available devices are displayed in the drop-down menu after the scanning process. To restart the scanning process, press .
IPv4 Address	Select the IP address of the tool. The controller communicates with the tool via this IP address. In the last block, numbers between 101 and 107 can be assigned as a static address.

5. Click <Write>.
 - The WLAN settings are written to the tool.

4.5 Changing Settings

Changing settings and writing to the tool

1. Connect the tool to the laptop/PC via a Micro-B USB cable.
 - The connected tool is displayed in the header and in the *Product Information* area.
2. Make settings in the PC software.
 - Changed settings are marked with an orange asterisk.
 - Die ausgewählten Optionen sind dunkelgrau dargestellt. Unselected options are light gray.

3. To write the settings to the tool, select  under *Tool Actions*.
 - The transfer to the tool was successful as soon as the progress bar shows 100% and all process steps have a green check mark.

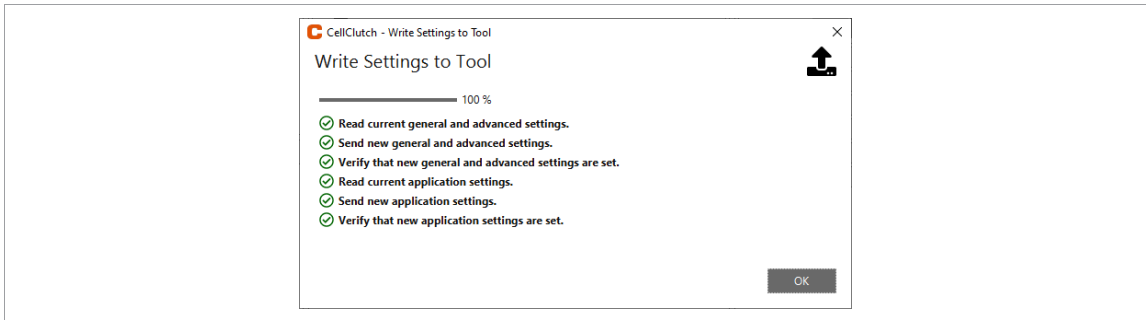



Fig. 4-15: Data transmission was successful

4.6 Performing A Firmware Update

The firmware is included in the installation package *Installer X.Y.Z* of the PC software.

Performing a firmware update on the tool

1. Press and hold the start trigger on the tool and connect it to the laptop/PC via a Micro-B USB cable.
 - The tool is then in update mode.
2. Start the *CellClutch* PC software and press .
 - The firmware update is finished when the progress bar has reached 100%.
3. To program the tool again after the firmware update, disconnect and reconnect the Micro-B USB cable without pressing the start button.

5 Troubleshooting

5.1 Error codes

The code indicates the shut-off cause in the result file. The error messages are displayed in the PC software.

Code	Error message	Possible cause	Measure		
1	Clutch activated in stage 1 of forward program.	The rundown is not okay. <ul style="list-style-type: none"> • Thread is defective. • Screw was placed crooked. • Clutch is defective. 	<ul style="list-style-type: none"> ▶ Check rundown and repeat if necessary. ▶ Check tool. 		
2	Clutch activated in stage 2 of forward program.				
3	Clutch activated in stage 3 of forward program.				
4	Clutch activated in stage 4 of forward program.				
5	Clutch activated in stage 5 of forward program.				
7	Clutch activated in after clutch stage of forward program.				
8	Clutch activated in stage 1 of reverse program.				
9	Clutch activated in stage 2 of reverse program.				
10	Clutch activated in stage 3 of reverse program.				
11	Clutch activated in stage 4 of reverse program.				
12	Clutch activated in stage 5 of reverse program.				
14	Clutch activated in after clutch stage of reverse program.				
34	The parameterized maximum time for a batch has been exceeded.			<ul style="list-style-type: none"> • Time was parameterized too short. • The parameterized number of rundowns was not reached. 	<ul style="list-style-type: none"> ▶ Parameterize realistic time. ▶ Check parameterization of the Linking.
100	Error during initialization of the hardware or the parameter.			Internal error.	▶ Contact a <i>Sales & Service Center</i> .
101	Checksum of the parameter in RAM or EEPROM is invalid.	Internal error.	▶ Contact a <i>Sales & Service Center</i> .		
102	The stack has overflowed.	Internal error.	▶ Contact a <i>Sales & Service Center</i> .		
103	The software has reached an unexpected condition.	Internal error.	▶ Contact a <i>Sales & Service Center</i> .		
104	A general calculation error has occurred.	Internal error.	▶ Contact a <i>Sales & Service Center</i> .		
105	The type coding of the hardware is unknown.	Internal error.	▶ Contact a <i>Sales & Service Center</i> .		
150	An overrun in the receive buffer has occurred.	Communication is disrupted. When communicating with the tool, the data was sent too fast and cannot be processed.	▶ Check USB port.		

Code	Error message	Possible cause	Measure
200	Power stage temperature too high (>75°C).	Tool temperature is too high.	▶ Allow the tool to cool down. The current run-down can be terminated, but a new one cannot be started.
201	Power stage temperature too low (<-10°C).	Tool temperature is too low.	▶ Warm the tool up. The current rundown can be terminated, but a new one cannot be started.
202	Power stage temperature critically high (>70°C).	Tool temperature is too high.	▶ Allow the tool to cool down. The current run-down can be terminated, but a new one cannot be started.
210	Motor temperature too high (above parametrized level, default 90°C).	Tool temperature is too high.	▶ Allow the tool to cool down. The current run-down can be terminated, but a new one cannot be started.
211	Motor temperature too low (below parametrized level, default -10°C).	Tool temperature is too low.	▶ Warm the tool up. The current rundown can be terminated, but a new one cannot be started.
212	Motor temperature critically high (10°C below error level).	Tool temperature is too high.	▶ Allow the tool to cool down. The current run-down can be terminated, but a new one cannot be started.
250	I ² t of servo is at 100% (current is limited to nominal current).	The cycle rate of the rundown is too high.	▶ Make a longer break between rundowns.
252	I ² t of servo is at 80%.	The cycle rate of the rundown is too high.	▶ Make a longer break between rundowns.
260	I ² t of motor is at 100% (current is limited to nominal current)	The cycle rate of the rundown is too high.	▶ Make a longer break between rundowns.
262	I ² t of motor is at 80%.	The cycle rate of the rundown is too high.	▶ Make a longer break between rundowns.
332	Undervoltage, Overtemperature, Logic Fault (Hall sensors).	Motor is defective. Encoder is defective.	▶ Send the tool to a <i>Sales & Service Center</i> for repair.
350	Battery overvoltage (>25V).	Battery is defective.	▶ Change battery.
351	Battery undervoltage (below parametrized level, default 13.5V).	Battery is not fully charged.	▶ Use a fully charged battery.
352	Warning battery undervoltage (below parametrized level, default 13.5V).	Battery is not fully charged.	▶ Use a fully charged battery.
360	Short circuit error.	Motor is defective. Short circuit in the cable between two phases or between phase and shield. Insulation of the motor phase connections. Servo is defective.	▶ Send the tool to a <i>Sales & Service Center</i> for repair.
361	Current offset error.	Error in the calibration of the current measurement.	▶ Send the tool to a <i>Sales & Service Center</i> for repair.

Code	Error message	Possible cause	Measure
410	The motor did not stop within the expected time.	Motor is defective.	▶ Send the tool to a <i>Sales & Service Center</i> for repair.
		Encoder is defective.	
490	The parameterized current overload was reached.	Tool is incorrectly dimensioned.	▶ Send the tool to a <i>Sales & Service Center</i> for repair.
491	Motor speed has dropped from 4000rpm to below 3500rpm.	Battery pack is not fully charged.	▶ Charge/change battery pack.
580	A running rundown was aborted by the controller.	Enable signal is missing.	▶ Check system cable.
590	Start trigger has been released.	Rundown was aborted because the start signal was deactivated: <ul style="list-style-type: none"> • Operator has slipped off the start switch. • Termination by PLC. 	▶ Keep start switch pressed until the end of the rundown. ▶ Check PLC.
600	Another run started within a short time.	The start trigger was pressed again too quickly.	▶ Increase the interval between rundowns. ▶ At <i>Restart Delay</i> reduce the minimum time between rundowns.
610	Time too short until clutch activates.	A tightened screw is tightened again.	▶ Check the rundown.
		The torque for tightening a screw was exceeded too early.	▶ Check the rundown.
		The parameterized time for double hit protection is too long.	▶ At <i>Double Hit Protection</i> , reduce the minimum time for the clutch to release again.
620	The parameterized maximum angle for the tightening stage has been exceeded.	The angle is too large.	▶ Check material. ▶ Check parameterization.
621	The parameterized maximum time for the tightening stage has been exceeded.	<ul style="list-style-type: none"> • Parameterization does not match the joint. • Modified material properties. 	▶ Check workpiece and screw. ▶ Check parameterization.
65534	Unknown error.	Unknown error in the firmware.	▶ Update firmware.


5.2

Tool

Problem	Possible cause	Measure
Tool does not start.	No speed programmed.	▶ Program speed for all active stages.
	Tool temperature is too high.	▶ Cool down the tool.
	Battery voltage is too low.	▶ Change battery.
Tool not recognized.	Software is incorrect.	▶ Check <i>CLPC100</i> laptop/PC software.
	Connection to laptop/PC is not available.	▶ Check USB cable. ▶ Check PC driver.
	Tool is defective.	▶ Change tool.

Problem	Possible cause	Measure
Tool starts in tightening direction, but not in counterclockwise rotation.	No speed programmed for counterclockwise rotation.	<ul style="list-style-type: none"> ▶ Program the counterclockwise rotation: In the <i>CLPC100</i> PC software, set the <i>Rotation</i> to <i>Reverse</i> in the <i>Forward and Reverse Application Settings</i> and parameterize the <i>Speed</i>. <hr/> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px; text-align: center; width: 20px; height: 20px; line-height: 20px;">i</div> <p>If <i>Forward</i> is selected for <i>Enabled Direction</i>, the counterclockwise rotation of the reverse switch has no function.</p> </div> <hr/>
Tool does not start with counterclockwise rotation activated.	With counterclockwise rotation, parameter for Speed is 0 rpm.	<ul style="list-style-type: none"> ▶ Program the speed for counterclockwise rotation: In the <i>CLPC100</i> PC software, set the <i>Speed</i> and <i>Rotation</i> in the <i>Forward and Reverse Application Settings</i>.
Tool shuts off prematurely.	Operator releases start trigger before the controller stops the tool.	<ul style="list-style-type: none"> ▶ Make sure that the operator keeps the start trigger pressed throughout the entire sequence.
	The fastening time exceeds the standard time of 10 seconds.	<ul style="list-style-type: none"> ▶ Increase the fastening time.
	Tool exceeds the angle setpoint.	<ul style="list-style-type: none"> ▶ Check the fastening sequence to ensure that the torque shutoff value and/or angle setpoint are correct. Adjust as necessary. ▶ Check whether the fastening joint has changed significantly.
Tool does not change speed.	Speed is the same in all stages.	<ul style="list-style-type: none"> ▶ Make sure that the speed in the stages is correct.
Status/work light is disabled.	Disabled by parameter setting.	<ul style="list-style-type: none"> ▶ Parameterize the work light: In the <i>CLPC100</i> PC software, select <i>Bright</i> or <i>Dim</i> for <i>Work Light</i>. ▶ Parameterize the status light: In the <i>CLPC100</i> PC software, select <i>Bright</i> or <i>Dim</i> for <i>Status Light</i>.
No-load speed not reached.	Battery voltage is too low.	<ul style="list-style-type: none"> ▶ Use a fully charged battery.
Expected number of test run-downs is not achieved with one charge of the battery.	Battery is not fully charged.	<ul style="list-style-type: none"> ▶ Use a fully charged battery.
	High torque is needed during a fastening sequence, e.g. for coated fastenings.	If a high torque is needed for a longer period, e.g. for several turns, the number of run-downs that can be achieved with one battery charge will be significantly reduced.
	Battery is at end of life.	After 800 charging cycles, the capacity is reduced to approx. 60%. <ul style="list-style-type: none"> ▶ Use new battery.
Status light flashes, see <i>chapter Status Indication</i> , page 13.	Encoder is defective.	<ul style="list-style-type: none"> ▶ Press start switch. If the status light continues to flash, send the tool to a <i>Sales & Service Center</i> for repair.
	Tool temperature is too high.	<ul style="list-style-type: none"> ▶ Allow the tool to cool down. The current run-down can be terminated, but a new one cannot be started.
	Battery voltage is too low.	<ul style="list-style-type: none"> ▶ Change battery.
	Warning that the next maintenance is due.	<ul style="list-style-type: none"> ▶ Send the tool to a <i>Sales & Service Center</i> for maintenance.

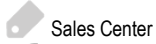
Software

Problem	Possible cause	Measure
Firmware Update does not start. The message <i>0 Device(s) found. Plug your DFU Device!</i> is displayed.	Tool is not in Firmware Update mode.	▶ Disconnect tool from USB port and hold the start trigger while reconnecting it.
Although the tool is connected via USB, the PC software does not offer to connect to it.	USB drivers are not installed.	▶ Run the installation file again and select the USB driver installation.
	Tool is in the update mode.	▶ Disconnect tool from USB port and do not hold the start trigger while reconnecting it.
Connection to tool lost when connected via USB.	Invalid response from tool.	1. Disconnect the USB connection and reconnect the tool. 2. Press  .
	Data packets lost.	▶ Change the USB cable.
Tool settings cannot be written to tool.	At least one speed value of a stage is out of range.	▶ Check speed values.
	Gear ratio is not set on tool.	▶ Send the tool to a <i>Sales & Service Center</i> , see reverse.
Tool settings cannot be read from tool.	Gear ratio is not set on tool.	▶ Send the tool to a <i>Sales & Service Center</i> , see reverse.
In the <i>Product Information</i> area, <i>Not available</i> is displayed.	No model number is stored on the tool.	▶ Send the tool to a <i>Sales & Service Center</i> , see reverse.
	No serial number is stored on the tool.	

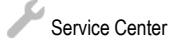
POWER TOOLS SALES & SERVICE CENTERS

Please note that all locations may not service all products.

Contact the nearest Cleco® Sales & Service Center for the appropriate facility to handle your service requirements.



Sales Center



Service Center

NORTH AMERICA | SOUTH AMERICA

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