Cleco®
Production Tools

Quick Installation Guide
P2600KA-EN
REV B | 2023-07

CellClutch™

CLBA & CLBP

Data Transmission

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Content

1 About this Document

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

- for save, appropriate installation and handling. This document is not sufficient for planning complex network infrastructures.
- about system structure.

The original language of this document is German.

1.1 Other Documents

Number	Document
P2260JH	Installation Manual – WLAN Data Transmission
P2280PM	Programming Manual – S168813 mPro400GC(D) & mPro200GC(-AP)
P2547BA	Instruction Manual – CLBA & CLBP Cordless EC Tool
P2570PM	Programming Manual – S168715 CLBA & CLBP & CLBS
	S168691 mProRemote Professional

1.2 Symbols in the Text

italic	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., *File* > *Print*.
<...>	Specifies switches, pushbuttons or the keys of an external keyboard, e.g., <F5>.
`Courier`	Indicates Filenames and paths, e.g., `setup.exe`.
•	Indicates lists, level 1.
–	Indicates lists, level 2.
a) b)	Indicates options.
➢	Indicates results.
1. (...) 2. (...)	Indicates action steps.
►	Indicates single action steps.

2 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.

2.1 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

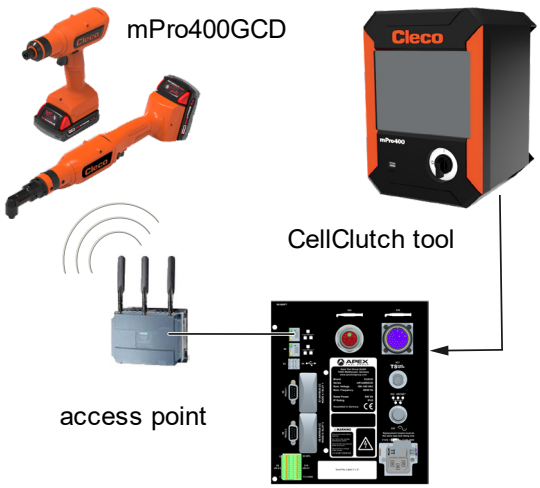

Fig. 2-2: System layout with mPro400GCD

2.1.1 Tool Data

Feature	Data	
Standard	IEEE 802.11a/b/g/n	
Security	WEP-64 HEX WEP-64 ASCII WEP-128 HEX WEP-128 ASCII WPA/WPA2-PSK TKIP WPA/WPA2-PSK AES	EAP-PEAP TKIP EAP-PEAP AES EAP-TLS TKIP EAP-TLS AES Ciso LEAP TKIP Ciso LEAP AES
Range	Typically, up to 50 m	
Channels	1 – 13 (2,412 – 2,472 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 DSSS, 2.4 GHz) -66,3 dBm (typ. @ 40 MHz MCS7 MM 4K) -92.5 dBm (typ. @ 6 Mbps OFDM, 5 GHz) -69,3 dBm (typ. @ 40 MHz MCS7 MM 4K, 5 GHz)	
Modulation	CCK/DSSS/OFDM	
802.11ac/n Spatial Streams	2 (2×2 MIMO)	

2.1.2 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	–	–
	13	2.472	–	x	–	–
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	–
	56	5.280	–	x	x	–
	60	5.300	–	x	x	–
	64	5.320	–	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	–

Band	Channel	Frequency in GHz	World	Europe	USA/ Canada	China
			World	EU	FCC	CN
5 GHz U-NII-3	149	5.745	–	o	x	–
	153	5.765	–	o	x	–
	157	5.785	–	o	x	–
	161	5.805	–	o	x	–
	165	5.825	–	o	x	–

Legend

x: Approved and available
-: Not permissible, blocking necessary
o: Permissible with limited power to 20 dBm (SRD)

2.1.3 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.

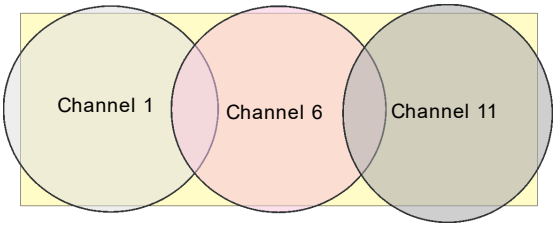

Fig. 2-3: Idealized radio cells, the rectangle symbolize the application areas of the tools

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.

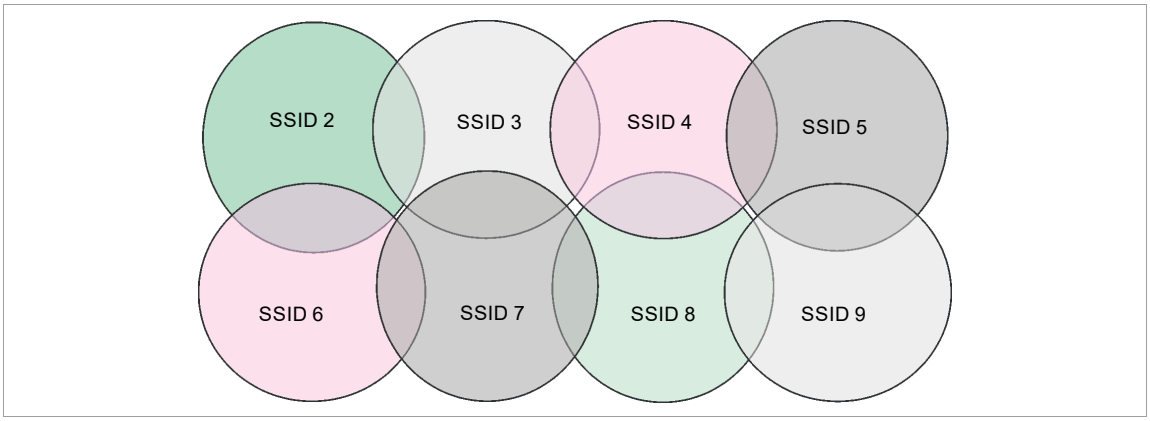

Fig. 2-4: Idealized radio cells = Range of use of the tools, channel 60

3 Before Initial Operation

3.1 Requirements

- Laptop/PC with:
  - Operating system: Windows 10, 64 Bit
  - Screen resolution: 1280 x 768 or higher
- Software *CLPC100*
- Software *S168691 mProRemote Professional*
- Monitor with VGA connector, keyboard and mouse (optional)
- Micro-B USB cable

3.2 Install Software

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.
3. Set network settings from laptop/PC to i. e. 192.168.100.201 (if mPro200GC-AP is used).

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*.

4 Initial operation

The CellClutch tool and the tightening sequence are configured with the CLPC100 software.

4.1 Configuring the access point

4.1.1 mPro200GC-AP

In the factory setting, the IP address and the subnet mask of the controller are specified with a default value (Ethernet 1):

Parameter	Default value
IP address	192.168.100.200
Subnet mask	255.255.255.0

Note

IP address conflict

The 200 Series controllers have a factory default IP address of 192.168.100.200. If multiple controllers are connected to the same network without changing the original IP address, an IP conflict occurs.

► Assign a new, unique IP address to each controller.

Configuring the access point

1. Connect laptop/PC directly to the controller via an Ethernet cable.
2. Start `mProRemote Professional` on the Laptop/PC.
3. Enter the IP address 192.168.100.200 in the *Remote Control* tab in the *Target* input field.
4. Press *Remote (TCP/IP)*.
   - ➢ A connection to the controller is established.
   - ➢ The user interface of the controller opens on the laptop/PC.
5. Select *Navigator* > *Utility* > *System Settings* > *Cordless Tools*.
6. Open the *WLAN AP Configuration*.
7. Carry out the desired settings for the configuration of the access point.
8. Press <Apply> to save the changes.

This tab is only displayed for the series mPro200GC(-AP) controller.

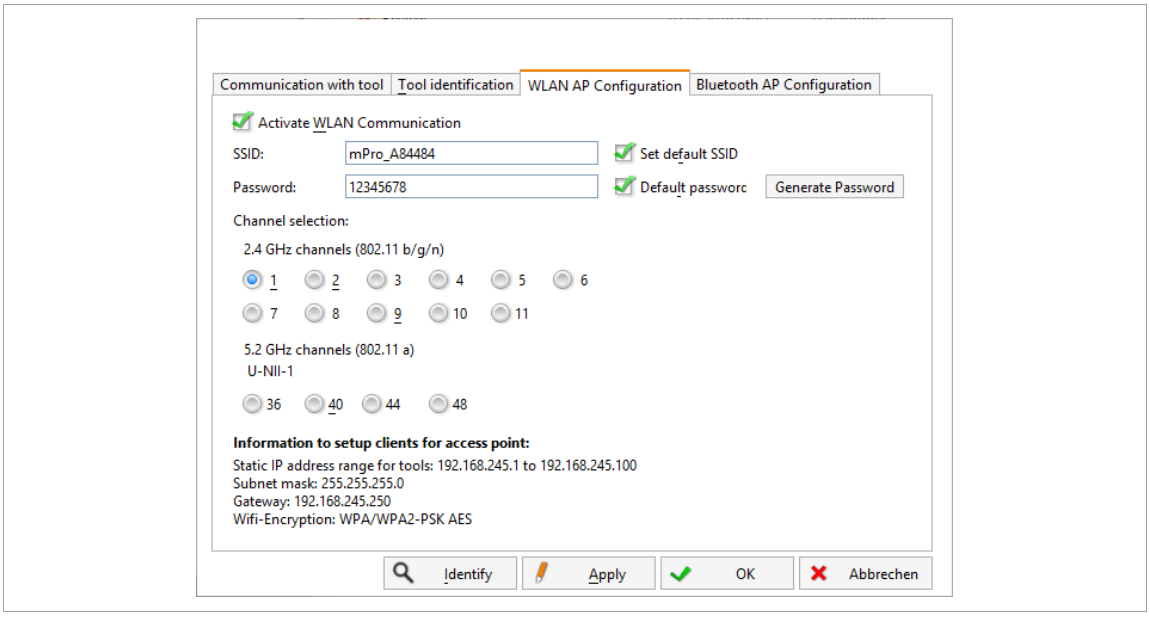

Fig. 4-1: WLAN AP Configuration tab

Parameter	Description
Activate WLAN Communication	If the checkbox is activated, WLAN is enabled on the controller. ➢ The bluetooth function is deactivated.
SSID	Enter the SSID for the WLAN name (access point) to which a connection is to be established.
Set default SSID	If the *Set default SSID* checkbox is activated, then a default value for the SSID is assigned.
Password	Enter the password for the access point. The default password is visible. As soon as a new password is assigned, asterisks * are displayed instead of numbers.
<Generate Password>	Press <Generate Password> to generate any eight-digit password.
Default Password	If the *Default Password* checkbox is activated, then the default password is displayed.
Channel bands	Select the frequency band. Only one channel can be selected. The following may be selected: • 2.4 GHz • 5.2 GHz
2.4 GHz channels (802.11 b/g/n)	Select channel. Only one channel can be selected. Only active if the 2.4 GHz frequency band has been selected.
5.2 GHz channels (802.11 a)	Select channel. Only one channel can be selected. Only active if the 5.2 GHz frequency band has been selected.
Information to setup clients for access point	Access point information: • Range of IP addresses for tools • Subnet mask • Gateway • WLAN encryption
<Identify>	Update the view of the WLAN settings.
<Apply>	Save the settings.
<OK>	Exit software, the settings are saved.
<Cancel>	Exit software, the settings are not saved.

For all other settings, default values are assigned, which cannot be changed.

If the PC cannot establish a connection to the controller, then the settings can be made via a monitor connected to the controller.

Make settings via monitor

1. Connect a monitor via a VGA connection, as well as a keyboard and a mouse, to the controller.
   ➢ The software user interface for the controller appears on the screen.
2. *Navigator> Utility > System Settings > Cordless Tools* wählen.
3. Open the *WLAN AP Configuration*.
4. Carry out the desired settings for the configuration of the access point.
5. Press <Apply> to save the changes.

4.1.2 mPro400GCD

To configure an access point to work with a mPro400GCD, see document `P2260JH`.

4.2 Configuring RF settings

The tool RF settings can be configured with a laptop/PC. Perform the following steps only when WLAN communication is to be established.

Connect the tool to the laptop/PC via USB

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

Fig. 4-2: Remove battery

Fig. 4-3: Connect Micro-B USB cable

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

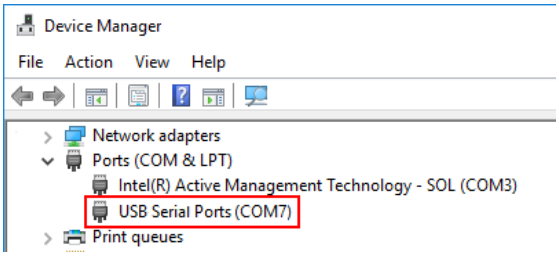

Fig. 4-4: Device Manager

3. Start the `CLPC100` PC software.

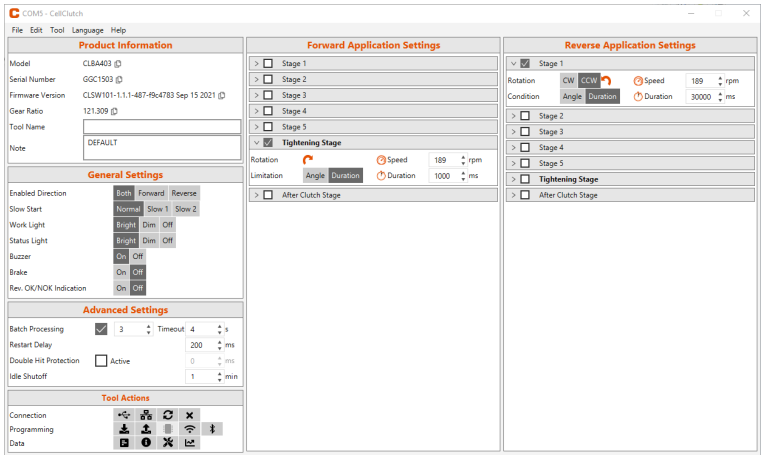

Fig. 4-5: PC software

4. Select under *Tool Actions* the COM port in the drop-down menu. For details see P2570PM.
5. Confirm the input with <OK>.

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

Example:

Tool model without WLAN	Tool model with WLAN
CLBP04Q	CLBP**W**04Q-**EU**

Following endings exist:

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

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. 4-6: WLAN settings

Parameter	Description
SSID	Enter SSID. SSID must be identical to the access point.
Hostname	Optionally, a hostname can be entered. If the hostname is empty *Livewire* is displayed.
DHCP	The IP address is automatically assigned. If a mPro200GC(-AP) is used, do not select this option.
IPv4 Address	Enter the IP address. In the last block, numbers between 1 and 49 can be assigned as a static address.
IPv4 Mask	Enter the subnet mask.
IPv4 Gateway	IP address that is assigned by the access point.
Transport	Select a protocol. If a mPro200GC(-AP) is used, select TCP.
IP Conflict Detection	If the check box is selected, duplicate IP addresses are detected.

Parameter	Description
Security	Select security. *Security* 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.
WLAN Standard	Select the WLAN mode: • 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: • *Auto* The corresponding channel is automatically searched for. • The channels are unlocked and can be selected manually.
Frequency Band	Select a frequency band.
2.4 GHz Channels	Select channels. These options depend on the *Regulatory Domain*, *WLAN Standard* and *Channel Mode*.
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.

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.

4.3 Installing the Tool

Up to ten tools can be connected to one controller via WLAN.
Up to seven tools can be connected to one controller via Bluetooth.

1. Select *Navigator> Tool Setup* on the user interface of the controller.
2. Press <Install> to add a tool to the tool list.
3. Carry out the following settings:

Parameter	Description
Group Name	► Select Tool Group.
Name	► Select Tool Group.
Type	► Select *Cordless Tools*. ► Select *CellClutch*.
IP address / hostname	► Enter the IP address that has been assigned to the tool using the `LiveWire Utilities` software.

4. Press <OK> and save the settings.
   ➢ The Tool List is displayed.
   ➢ Status of tool is now *Needs User Acceptance.*.
5. Select <Tool Settings>.
6. Check the *Model Number* and *Serial Number* and confirm that the tool displayed corresponds to the tool connected.
7. Save the settings with <Accept>.

➢ The Tool List is displayed. Status of tool is now *Online*.

8. To save the settings, select <Navigator>.
9. For additional programming for tightening (e.g., PG), see document *P2280PM*.

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