Cleco®
Production Tools

Quick Installation Guide
P2545KA-EN
2022-12 | REV C

CellTek™

CTBA & CTBP

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)
P2372JH	Installation Instruction – S168688 LiveWire Utilities
P2403HW	Hardware Description – mPro200GC(-AP)
P2543BA	Instruction Manual – CTBA & CTBP
P2544PM	Programming Manual – S169263 CTBA & CTBP
	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.
To communicate with the controller, the tools must be in the mPro mode.

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
CTBA & CTBP	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	
Safety	WEP-64 HEX WEP-64 ASCII WEP-128 HEX WEP-128 ASCII WPA/WPA2-PSK TKIP WPA/WPA2-PSK AES WPA3-SAE[1] WPA3-PEAP[1] WPA3-TLS[1] 802.1x LEAP-TLS WEP-64 802.1x LEAP-TLS WEP-128	802.1x LEAP-TLS TKIP 802.1x LEAP-TLS AES 802.1x EAP-TLS WEP-64 802.1x EAP-TLS WEP-128 802.1x EAP-TLS TKIP 802.1x EAP-TLS AES Ciso LEAP WEP-64 Ciso LEAP WEP-128 Ciso LEAP TKIP Ciso LEAP AES
Range	Typically, up to 100 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	

[1] Applies only to CellTek tools with hardware version 2

Feature	Data
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)
Bluetooth Data Rates Supported	1, 2, 3 Mbps
Bluetooth Modulation	GFSK@ 1 Mbps Pi/4-DQPSK@ 2 Mbps 8-DPSK@ 3 Mbps

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 World	Europe CE	USA/ Canada FCC
2.4 GHz IEEE802.11b/g	1	2.412	x	x	x
	2	2.417	x	x	x
	3	2.422	x	x	x
	4	2.427	x	x	x
	5	2.432	x	x	x
	6	2.437	x	x	x
	7	2.442	x	x	x
	8	2.447	x	x	x
	9	2.452	x	x	x
	10	2.457	x	x	x
	11	2.462	x	x	x
	12	2.467	–	x	–
	13	2.472	–	x	–
5 GHz IEEE802.11a U-NII-1	36	5.180	x	x	x
	40	5.200	x	x	x
	44	5.220	x	x	x
	48	5.240	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	–

Band	Channel	Frequency in GHz	World World	Europe CE	USA/ Canada FCC
	124	5.620	–	x	–
	128	5.640	–	x	–
	132	5.660	–	x	–
	136	5.680	–	x	x
	140	5.700	–	x	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.

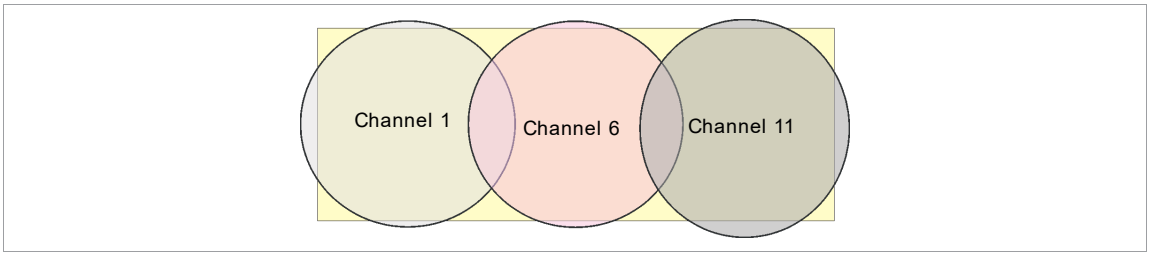

Fig. 2-3: Idealized radio cells, the rectangle symbolize the application areas of the tools

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.

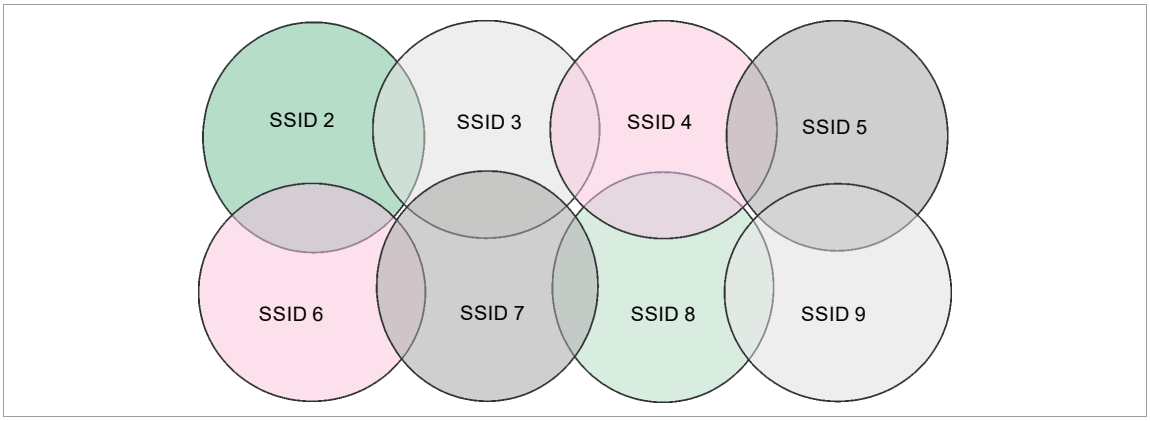

Fig. 2-4: Idealized radio cells = Range of use of the tools, channel 60

2.2 Bluetooth communication

Tool	Standard
CTBA & CTBP	Bluetooth 4.2

3 Before Initial Operation

3.1 Requirements

To set up the controller, the following items are required:

- Laptop/PC
- Ethernet cable
- Software *S168691 mProRemote Professional*
- Software *S168688 LiveWire Utilities*
- Monitor with VGA connector, keyboard and mouse (optional)
- Micro-B USB cable

3.2 Install Software

1. Download the *mProRemote Professional* and *LiveWire Utilities* Software from the following website: *http://software.apextoolgroup.com/current-software-packages/pc-software/*
2. Install the *mProRemote Professional* software on the PC, see Document *S168691 mProRemote Professional*.
3. Install the *S168688 LiveWire Utilities* on the PC, see Document *P2372JH*.
4. Install the tool driver.
5. Set network settings from laptop/PC to i. e. 192.168.100.201 (if mPro200GC-AP is used).

3.3 Install driver

To be able to configure the tool via the PC software, the tool driver must be installed.

Install tool driver

1. Download the tool driver *cellcore-celltek-usb-driver.zip* from the following website and unpack it: *https://software.apextoolgroup.com/current-software-packages/celltek/*
2. Connect the tool to the PC via a Micro-B USB cable.
   ➢ The tool switches on automatically.
3. Open the device manager on the laptop/PC.

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.

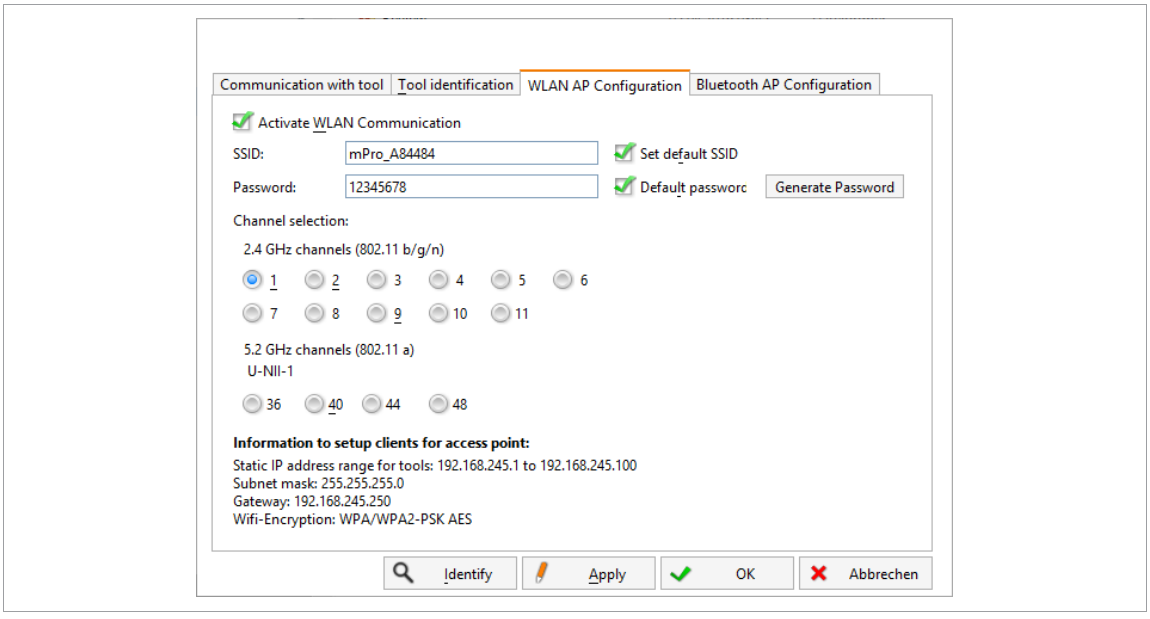

Fig. 4-1: WLAN AP Configuration tab

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.
For Bluetooth communication *see chapter 4.3 Configuring Bluetooth settings, page 14*.

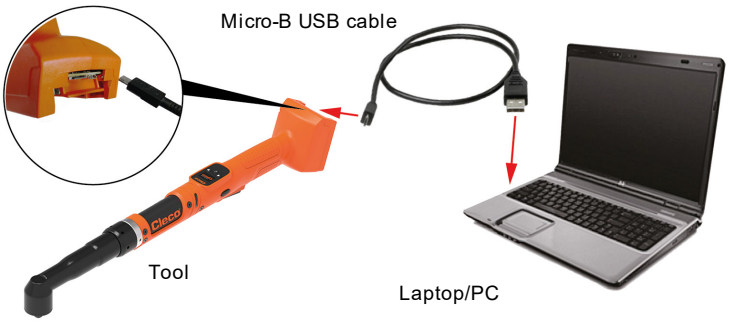

Fig. 4-2: LiveWire Utilities

Configuring tool RF settings

1. Connect the tool to the PC via a Micro-B USB cable.
   - ➢ The tool switches on automatically.
   - ➢ The following screen is displayed on the tool:

Fig. 4-3: Display when the tool is connected to a PC

2. Determine the serial interface (COM port) for the driver in the device manager for the PC.

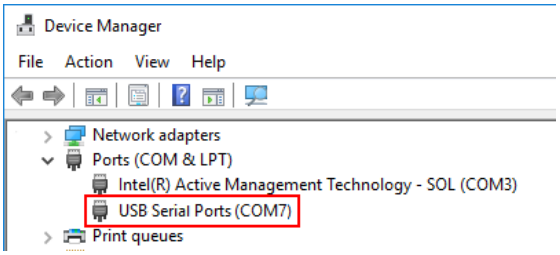

Fig. 4-4: Device manager

3. Starting the `Cordless RF Configuration` under `Apex Tool Group`.

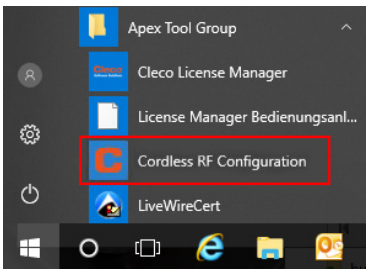

Fig. 4-5: Starting the Cordless RF Configuration program

4. For an *IRDA Connection*, select the serial interface (COM port) for the driver.
5. Select <Identify> to read out the specific data of the WLAN module.

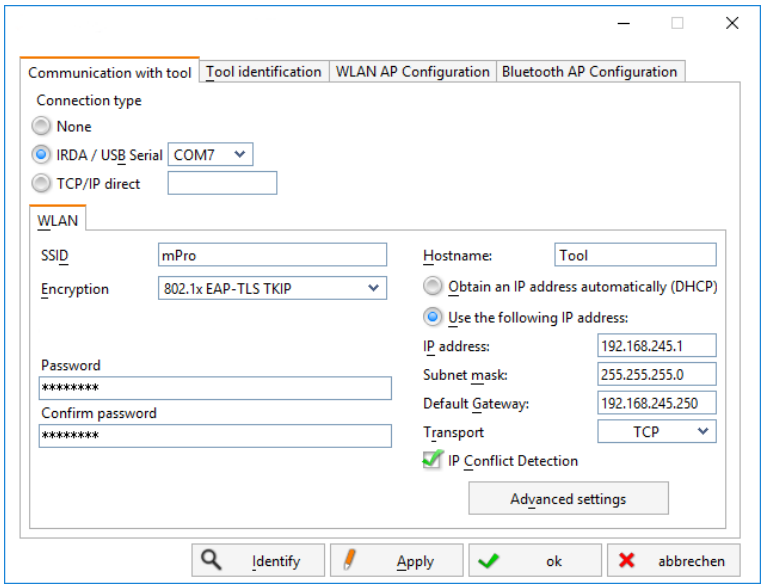

Fig. 4-6: Communication with tool tab

Parameter	Description
SSID	Enter SSID. SSID must be identical to the access point.
Encryption	Select *WPA/WPA2-PSK TKIP* or *WPA/WPA2-PSK AES*. *Encryption* must be identical with access point.
Network key	Enter the network key. The network key must be identical to the access point.
Confirm network key	Confirm network key.
Hostname	Optionally, a hostname can be entered.
Obtain an IP address automatically (DHCP)	Do not select this option. IP address is assigned automatically.
Use the following IP address	Enter IP address manually with the following parameters.
IP address	Enter the IP address. Using the mPro200GC-AP, the first three blocks of the IP address are permanently assigned and may not be changed: 192.168.245.xxx In the last block, numbers between 1 and 49 can be assigned as a static address.
Subnet mask	Enter the subnet mask. For the mPro200GC-AP, the default value is: 255.255.255.0
Default Gateway	IP address that is assigned by the access point. For the mPro200GC-AP, the default value is: 192.168.245.250
Transport	Select TCP.
IP conflict Detection	– Setting not programmed –

6. To set the radio channel, select <Advanced settings>.
   ➢ The *WLAN Advanced settings* window opens.

Parameter	Description
Wireless mode	Select WLAN mode: • Select 802.11b/g/n if a frequency band of 2.4 GHz is used. • Select 802.11a if a frequency band of 5 GHz is used.
5.2 GHz radio band (802.11a)	Select a frequency band. This setting is only possible if the 5 GHz frequency band has been selected.

Parameter	Description
Wireless channel	There are two setting options: • *Auto* The corresponding channel is automatically searched for. • The channels are unlocked and can be selected manually.
<Scan channels>	Scan radio channel. The button is not active if a channel is selected at *Wireless channel*. This function is not required when using the mPro200GC-AP, since only one channel can be selected.
Transmit power	Set transmission power.
Roaming Aggressiveness	Setting option, from which signal strength the tool connects with another access point. Select *Low* because the mPro200GC-AP has an integrated access point in the controller..
<OK>	Exit the input window, the settings are saved.
<Cancel>	Exit input window, the settings are not saved.

7. Confirm settings with <OK>.
8. Press <Apply>.
   ➢ Settings are written onto the tool.
9. Confirm the following message with <Yes>:
   Toolserial: xxxxxxx
   Builddate: xx.xx.xx
   Configure Tool?
10. Confirm the following message with <OK>:
    Configuration done!
11. Installing the tool on the controller.

4.3 Configuring Bluetooth settings

Perform the following steps only when Bluetooth communication is to be established. A Bluetooth connection is only possible with mPro200GC-AP. For WLAN communication *see chapter 2.1 WLAN communication, page 5*.

Configuring Bluetooth Settings

1. Switch on the tool.
2. Using `mProRemote Professional` to access the controller and select *Navigator* > *Utility* > *System Settings* > *Cordless Tools*.
3. Open the *Bluetooth AP Configuration* tab.
4. Select the *Activate Bluetooth Communication* check box.
5. Press <Start pairing...>.
6. Activate Bluetooth on the tool: Select > > .
7. Use the tool to scan for Bluetooth devices: Select > .
8. Select the desired controller and confirm with the button.
   ➢ When the Bluetooth connection is established, the field is highlighted in green.
9. Set the node number: Select > .
10. Installing the tool on the controller.

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

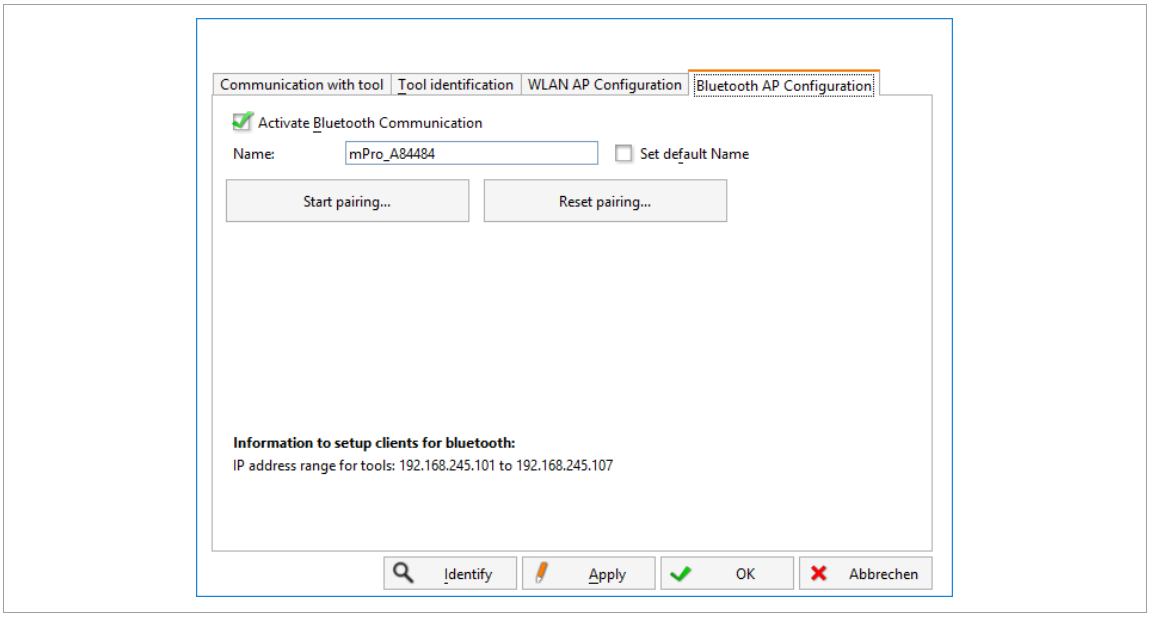

Fig. 4-7: Bluetooth AP Configuration tab

In the *Bluetooth AP Configuration* tab are the following adjustment possibilities:

Parameter	Description
Activate Bluetooth Communication	If the checkbox is activated, bluetooth is enabled on the controller. ➢ The WLAN function is deactivated. If WLAN was previously activated, the message **WLAN will be disabled** appears.
Name	Enter the name by which the control is displayed on the tool.
Set default Name	the checkbox *Set default Name* activated, a default value is assigned for the name.
Start pairing...	Press to visualize the controller for a bluetooth connection to the tool. ➢ The following message indicates if the operation was successful.
Reset pairing...	Press to disconnect the bluetooth connection between the controller and the tool. ➢ The following message indicates if the operation was successful.
Information to setup clients for bluetooth	Information about possible IP addresses for tools. To establish a bluetooth connection, the IP address of the tool must be within the specified range.
<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.

4.4 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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