Installation Manual P2260JH 2019-05



WLAN data transmission

Cordless EC tool



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About this document

The original language of this document is German.

This document:

- provides information about using and setting the components up in the manner intended.
- uses two concepts as examples to describe the system setup and fundamental installation of the components needed to operate cordless EC tools in conjunction with a Cleco Production Tools nutrunner control.
- is not sufficient for planning complex network infrastructures.
- does not contain detailed information about the components. Detailed information can be found in the manuals concerned.

Other documents

Number	Designation
P1890E	Instruction Manual for cordless EC tool 17BPB
P2291BA	Instruction Manual for cordless EC tool 47BPB
P2390BA	Instruction Manual for cordless EC tool CCBA, CCBP
P2398PM	Programming Manual for cordless EC tool CCBA, CCBP
P2403HW	Hardware description for controller mPro200GC(-AP)
P2402K	Quick reference guide WLAN data transmission CellCore installation
P2309HW	Hardware description for controller mPro400GCD-M
P2300HW	Hardware description for controller mPro400GCD-P
P2280SW	Programming Manual for controller mPro400GCD-()
P2372JH	Installation Guide LiveWire Utilities S168688

Symbols in the text

Italic	Identifies menu options (e.g. diagnostics), input fields, control boxes, options fields or dropdown menus.
>	Denotes the selection of a menu option from a menu, e.g. <i>File > Print</i> .
<>	Denotes switches, pushbuttons or the buttons of an external keyboard, e.g. <f5>.</f5>
Courier	Denotes filenames and paths, e.g. setup.exe.
•	Denotes lists, Level 1.
-	Denotes lists, Level 2.
a) b)	Denotes options.
\rightarrow	Denotes results.
1. () 2. ()	Denotes a sequence of handling steps.
	Denotes an individual handling step.



Project planning

System layout

The system layout described is based on communication via WLAN dual band: 2.4 GHz / 5 GHz.

Up to 16 cordless EC tools can be controlled. However, the number of tools can vary according to the software installed.



Fig. 2-1: System layout

Concept 1 – Local network Installation of controller + access point

See 5.1 Stand-alone system layout, Page 12 See 5.2 System layout with switch, Page 13

Concept 2 – Existing network

The tools are integrated into an existing network. the infrastructure of the individual customer plants is also used. It is possible that conditions vary between the individual plants. See 8 Installation – Existing network, Page 29



3 EN

3 Components

3.1 Cordless EC tool

Series 17BP(...), 47BAY(...)

Features	Data		
Standard	IEEE 802.11a/b/g/n IEEE 802.11d/e/i/h/r/w		
Safety	 WPA, WPA2 TKIP, AES/CCMP hardware accelerator LEAP, PEAP^a, EAP-TTLS 		
Range	Up to 50 m (typical @ 2.4 GHz) Up to 30 m (typical @ 5 GHz)		
Channels ^b	 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:	18 dBm EIRP (radiated)		
Sensitivity	-95 dBm (typical @ EIRP 2.4 GHz) -90 dBm (typical @ EIRP 5 GHz)		
Modulation	DSSS/OFDM		
Standards	Europe (RED) US (FCC/CFR 47 part 15) Canada (IC RSS) Japan (MIC) Taiwan (NCC)	China (SRRC) China (SRRC) South Korea (KCC) Australia (ACMA) New Zealand; Brazil (Anatel) South Africa (ICASA)	

a.) PEAP (without client certificates)

b.) Presuming approved by IEEE 802.11d

Series CCBP(...), CCBA(...)(...)

Features	Data
Standard	IEEE 802.11a/b/g/n
Safety	WEP 64/128 encryption
	WPA/WPA2 TKIP/AES
	• 802.1× LEAP, PEAP ^a
Range	up to 50 m
Channels ^b	• 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	20 dBm
power:	
Sensitivity	95 dBm (typical @ 1 Mbps DSSS, 2.4 GHz)
	• 66.3 dBm (typical @ 40 MHz MCS7 MM 4K)
	• 92.5 dBm (typical @ 6 Mbps OFDM, 5 GHz)
	• 69.3 dBm (typical @ 40 MHz MCS7 MM 4K, 5 GHz)
Modulation	CCK/DSSS/OFDM

a.) PEAP (without client certificates)

b.) Presuming approved by IEEE 802.11d



Country-specific channel settings – LiveWire Memory Chip (LMC)

The tools operate in a license-free 2.4 GHz / 5 ISM range. The tools can be equipped with different LMCs: World, CE, FCC.

If the channel selection is restricted by the IEEE 802.11d standard, this channel selection will take priority over the LMC settings! The IEEE 802.11d standard is used for all radio modules with FW >6.0.0.

in GHz LMC: World LMC: CE LMC: FCC 2.4 GHz IEEE802.11b/g 1 2.412 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 6 2.437 x x x x 7 2.442 x x x x 9 2.452 x x x x 10 2.452 x x x x 11 2.462 x x x x 12 2.467 - x - -	Band	Channel	Frequency	World	Europe	USA/Canada
2.4 GHz IEEE802.11b/g 1 2.412 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 2.432 x x x x 7 2.432 x x x x 6 2.437 x x x x 7 2.442 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 - -			in GHz	LMC: World	LMC: CE	LMC: FCC
IEEE802.11b/g 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 6 2.437 x x x 7 2.442 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 -	2.4 GHz	1	2.412	х	х	х
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	IEEE802.11b/g	2	2.417	х	х	х
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$		3	2.422	х	х	х
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		4	2.427	х	х	х
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$		5	2.432	х	x	x
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$		6	2.437	х	х	х
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$		7	2.442	х	х	х
9 2.452 x x x 10 2.457 x x x 11 2.462 x x x 12 2.467 - x -		8	2.447	х	х	х
10 2.457 x x x 11 2.462 x x x 12 2.467 - x -		9	2.452	х	х	х
11 2.462 x x x 12 2.467 - x -		10	2.457	х	х	x
12 2.467 – x –		11	2.462	х	х	х
		12	2.467	-	х	_
13 2.472 – x –		13	2.472	_	х	_
5 GHz 36 5.180 x x x	5 GHz	36	5.180	х	х	x
IEEE802.11a 40 5.200 x x x	IEEE802.11a	40	5.200	х	х	х
U-NII-1 44 5.220 x x x	U-NII-1	44	5.220	х	х	х
48 5.240 x x x		48	5.240	х	х	x
5 GHz 52 5.260 – x x	5 GHz	52	5.260	-	х	x
IEEE802.11a 56 5.280 - x x	IEEE802.11a	56	5.280	-	х	х
0-NII-2 60 5.300 – x x	U-NII-2	60	5.300	-	х	x
64 5.320 – x x		64	5.320	-	х	x
5 GHz 100 5.500 – x x	5 GHz	100	5.500	_	х	x
IEEE802.11a 104 5.520 – x x	IEEE802.11a	104	5.520	-	х	х
U-NII-2 ext 108 5.540 – x x	U-NII-2 ext	108	5.540	-	х	x
112 5.560 – x x		112	5.560	-	х	x
116 5.580 – x x		116	5.580	-	х	х
120 5.600 – x –		120	5.600	-	х	_
124 5.620 – x –		124	5.620	-	х	-
128 5.640 – x –		128	5.640	-	х	_
132 5.660 – x x		132	5.660	-	х	x
136 5.680 – x x		136	5.680	-	х	x
140 5.700 – x x		140	5.700	-	х	x
Outdoor channels 149 5.745 - - x	Outdoor channels	149	5.745	-	-	x
U-NII-3 153 5.765 – – x	U-NII-3	153	5.765	-	-	x
157 5.785 – – x		157	5.785	-	-	x
161 5.805 – – x		161	5.805	-	-	x
165 5.825 x		165	5.825	-	-	Х

Key

х	Approved and available
-	Not permissible, blocking necessary



3.2 Controller

Order no.	Designation
mPro400GCD-P()	Primary hybrid controller
mPro400GCD-PD()	Primary digital controller
mPro400GCD-M	Master controller
mPro200GC mPro200GC-G	Controller

3.3 Access point

A standard access point satisfying the standard IEEE 802.11a/b/g/h/n can be used. The following access points can be ordered from Apex Tool Group:

Туре	Siemens SCALANCE W788-1 M12	Phoenix FL WLAN 1100	
Order No.	961506PT	962070PT	
Approval	EU	EU	
Items delivered	 Two detachable aerials ANT795-4MC Terminator 150 ohms Apex Tool Group Default parameters Accessories, see Table: Accesso- ries for Siemens SCALANCE W788- 1 M12 	 Ethernet patch cable, CAT5 Retaining angle Adapter M25/M32 Accessories, see Table: Accessories for Phoenix FL WLAN 1100 	
Dimensions (without aerials)	175 mm × 200 mm × 79 mm	62.8 mm × 36.5 mm × 113.2 mm	
Operating temperature	-20 to +60 °C	0 to +60 °C	
Humidity	≤95%, non-condensing	≤5% to 95%, non-condensing	
Network voltage range	19.2–28.8 V DC 36–57 DC (PoE)	9 V DC-32 V DC (PELV/SELV)	
Certificates	FCC Part 15, UL 60950-1, EN, CE	DIN EN 60950	
Standards	IEEE 802.11a/b/g/h/n IEEE 802.3af/at	IEEE 802.11a/b/g/n	
Frequency range	2.412 GHz – 2.472 GHz (EU) 5.18 GHz – 5.700 (EU)	2.400 GHz – 2.4836 GHz 5.150 GHz – 5.7256 GHz	
Safety	WPA WPA2 AES TKIP WPA/WPA2 (radius)	802.11i WPA PSK WPA2 AES TKIP MAC filter	



Accessories for Siemens SCALANCE W788-1 M12

	Product	Order No.	Description
	Access point	961642PT	Without aerials Without terminator
	Aerial	961643PT	
red	Terminator	961644PT	
Items delive	Network cable, M12 connector	S981511	Length: 2 m
	Cable, Access point power supply	S133463-020	Length: 2 m
Optional	C plug (configuration plug)	961507PT	Removable disk on which the project planning and configuration data are automatically saved. Allows a defective assembly to be exchanged more easily. Better "mean time to repair".

Accessories for Phoenix FL WLAN 1100

	Product	Order No.	Description
	Access point	962071PT	
	Network cable	See Chapter 3.4, Page 10	Network: controller, access point, ethernet switch
	Cable,	962073PT	Length: 2 m
þ	Access point power supply		
vere	Retaining angle	962074PT	
deli	Access point adapter	962075PT	M25/M32
ms	Multiple seal insert for M25	962072PT	2 × 5 mm
lte	Cable gland	S964918	M25 × 1.5



Both Cleco Production Tools access points have EU certification. Ask the manufacturer about use in other regions.

3.4 Ethernet patch cable, CAT5 (Phoenix access point)

Order no.	Lengt h	Order no.	Lengt h
S965412	2 m	S965416	26 m
S961365	4 m	S965417	34 m
S961568	5 m	543445-7	2.1 m
S965413	10 m	543445-25	7.6 m
S965414	14 m	543445-50	15.2 m
S965415	22 m	543445-100	30.4 m

Maximum length = 100 m.

The cables comply with the UTP/STP Category 5 (EIA 568B, Cat 5) standards or better.

3.5 Ethernet switch

A standard ethernet switch can be used. Commissioning takes place according to the instruction manual provided by the manufacturer. No installation settings have to be configured on the Ethernet switch. If an ethernet switch with PoE (Power over Ethernet) is used, no additional power supply is necessary.



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 (1, 6 and 11) are available in the 2.4 GHz frequency band.

In theory, up to 21 independent channels are available for the 5 GHz frequency band depending on the LiveWire memory chip used.

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. 4-1: Idealized radio cells

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, concept 1

- 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. 4-2: Idealized radio cells = Range of use of the tools



Concept 1 – Local network

5.1 Stand-alone system layout

- Access point can be directly connected to the controller.
- The network settings of the access point and controller can be selected as desired.
- The tool's WLAN settings are parameterized via the infrared interface.
- The access point is parameterized via a service PC.



Fig. 5-1: Stand-alone system layout

Item	Component ^a
1	Controller
2	Access point
3	Network cable
4	Access point power supply cable
5	Tool deposit with infrared interface
6	Cordless EC tool
7	Service PC, access point parameterization
8	Ethernet TCP/IP

a.) For detailed description, see 3 Components, page 7



System layout with switch

- A switch is required for an installation with several controls.
- The network settings of the access point and controller can be selected as desired.
- The tool's WLAN settings are parameterized via the infrared interface.
- The access point is parameterized via a service PC.



Fig. 5-2: System layout with switch

ltem	Component ^a
1	Controller
2	Access point
3	Network cable
4	Ethernet switch
5	Tool deposit with infrared interface
6	Cordless EC tool
7	Service PC: access point parameterization
8	PoE mains power supply

a.) For detailed description, see 3 Components, page 7



Installation – Local network



It is essential that national, state and local regulations and standards be followed.



Caution

Risk of injury due to electric shock.

Direct contact with mains voltage can cause injury due to electric shock.

Before exchanging components or supplementary equipment, isolate the power supply.

The following inputs are needed for the installation described below (example here Apex Tool Group standard settings):

Local network

Device	Static IP address, e.g.	SSID	Subnet mask
Tool	192.168.0.1	LiveWire001	
Controller	192.168.0.110		255 255 255 0
Access point	192.168.0.50	LiveWire001	200.200.200.0
Service PC	192.168.0.55		

Local network with switch

Device	Static IP address, e.g.	SSID	Subnet mask
Tool 1	192.168.0.1	LiveWire001	
Tool 2	192.168.0.2	LiveWire001	
Controller 1	192.168.0.110		
Controller 2	192.168.0.111		255.255.255.0
Access point 1	192.168.0.51	LiveWire001	
Access point 2	192.168.0.52	LiveWire001	
Service PC	192.168.0.55		

6.1 Setting up access point

The operating range of the wireless transmission can vary considerably depending on the installation location of the access point. Note the following points when positioning:

- · Position the access point in the center of the tool being used.
- Avoid any walls or corners of buildings between the access point and the tool. You will have the best
 range if there is a clear line of sight between the access point and tool. If this cannot be realized, the
 wall or ceiling should be penetrated at as acute an angle as possible to enable the signal to go directly
 through the wall or ceiling.
- Maintain a minimum clearance of 3 m to 6 m from devices that generate high-frequency interference, such as microwaves.
- 1. Connect the access point to the service PX with an ethernet cable.
- 2. Connect the access point to the power supply.
- 3. Access point booting. Note indicator LEDs.



Settings on service PC

 Select Control panel > Network and Sharing Center > LAN Connection > Properties > Network > Network Card > Properties.

Eigenschaften von LAN-Verbindung S3 Netzwerk Freigabe
Verbindung herstellen über:
Broadcom NetXtreme 57xx-Gigabit-Controller
Konfigurieren
Diese Verbindung verwendet folgende Elemente:
✓ Client für Microsoft-Netzwerke ✓ QoS-Paketplaner ✓ QoS-Paketplaner ✓ Datei- und Druckerfreigabe für Microsoft-Netzwerke ✓ → SIMATIC Industrial Ethemet (ISO) ✓ → PROFINET IO RT-Protocol V2.0 ✓ → Internetrorokoll Version 6 (ICP/IPv6) ✓ → Internetprotokoll Version 4 (TCP/IPv4)
Installieren Deinstallieren Eigenschaften Beschreibung TCP/IP, das Standardprotokoll für WAN-Netzwerke, das den Datenaustausch über verschiedene, miteinander verbundene Netzwerke emöglicht.
OK Abbrechen

2. Define IP address *192.168.0.XXX*. For *XXX*, DO NOT select *50* (IP address of access point).

Suggestion:

- IP address 192.168.0.55
- Select subnet mask 255.255.255.0.

igenschaften von Internetprotokoll Ve	ersion 4 (TCP/IPv4)
Allgemein	
IP-Einstellungen können automatisch zu Netzwerk diese Funktion unterstützt. V den Netzwerkadministrator, um die gee beziehen.	ugewiesen werden, wenn das Venden Sie sich andernfalls an igneten IP-Einstellungen zu
 IP-Adresse automatisch beziehen 	
Folgende IP-Adresse verwenden:	
IP-Adresse:	192.168.0.55
Subnetzmaske:	255.255.255.0
Standardgateway:	· · ·
DNS-Serveradresse automatisch b	peziehen
Folgende DNS-Serveradressen ve	rwenden:
Bevorzugter DNS-Server:	
Alternativer DNS-Server:	
Einstellungen beim Beenden über	prüfen
	Erweitert
	OK Abbrechen

How to set up the different access points is described below. Please continue with the relevant chapter:

- 6.1.1 Setting up Siemens SCALANCE W788-1 access point (pre-configured), page 15
- 6.1.2 Setting up Phoenix FL WLAN 1100 access point, page 19
- 6.1.3 Setting up Siemens access point with unknown IP address, page 22. If an access point is to be recommissioned after a factory reset or with an unknown configuration.

6.1.1 Setting up Siemens SCALANCE W788-1 access point (pre-configured)

Please refer to the description in the scope of and the online help.



Minimum parameter setting

Parameter	Value	Comments
Country code	Country (e.g. Germany)	Select country in which the access point is in use.
IP address	Example: 192.168.0.50	 The IP addresses for the access point, the controller and all tools must be in the same subnet. a) Either use the Apex Tool Group standard settings (IP 192.168.0.50) or enter an unassigned address. b) For your own local networks, use the intended IP range 192.168.XXX.XXX.
Frequency band	2.4 GHz or 5 GHz	Depending on the network structure, select a 2.4 GHz or a 5 GHz network.
SSID	LiveWire001	Choose the network name so that it can be unambiguously assigned. Note upper and lower case.
Channel	1–13 or 36– 140	Auto is not recommended. Please refer to 6 Installation – Local network, page 14 for the assignment of channels. Not regional regulations when choosing the channel!
Security		Various security systems are available for use.Choose a system according to your own requirements.
Admin pass- word		 The Apex Tool Group default password for logging in to the access point is: 123456. Change this password to protect the access point against unauthorized access.

Setting individual parameters

3. Enter login:

Name: admin
 Password: 123456

- 1. First refer to Settings on service PC, page 15.
- Select the address http:// 192.168.0.50 in the browser of the service PC.
 - $\rightarrow\,$ The login mask for the access point opens.





6.

- 4. Start the Basic Wizard.
- 5. Select the individual menus with <Next>.



Select country in which the access point is in use: *Country > Country code*.



Welcome admin	Basic Wizard: Country Settings								
Logout									
₩izards	System	Country	IP	Management Interfaces	Antenna	Radio	AP		
Basic Wizard			From	m the list below, please sel	ect the cou	intry in v	vhich		
► Information			mandatory for operation complying with the approvals. the device is used can lead to legal prosecution.						
▶System	Cour	ntry Code:	Ge	rmany					
►Interfaces			Her	e, you can enter any name	for this de	vice pro	viding		
▶Layer 2			don the	nain name. By providing a u name is transmitted and sh	unique nam nown on the	ie you c e inform	an ide ation		
(=) 🚺 http	://192.16	8.0.50/							

 Define the IP address: Enter IP > IP address / Subnet mask.

It may be necessary to change the IP address to guarantee communications between the controller and the tool:

- The IP addresses for the access point, controller, tool ands service PC must be in the same subnet.
- Each IP address may only be assigned once.

SIEMENS



 Define frequency band: Select Radio > Frequency band / WLAN mode.

SIEMENS

192.168.0.50/SCALANCE W788-1

Welcome admin	Basio	c Wiza	rd: F	Radio Se	ttings					
Logout										
Wizards	System	Countr	y IP	Manageme	ent Interf	faces	Antenna	Radio	AP	S
Basic Wizard	Sele	ct the ch	eck b	ox to enable	the requ	uired W	LAN inter	face. So	ecify	th
►Information	disa depe redu	ble the 'E ending o	Dynan n the o ansmi	nic Frequenc country in wh	y Selecti hich the c	ion (DF device i	S)' functions deploye the 'Tx Po	on and '(d. To co wer Che	Dutdo ontrol	Dor th
▶System										
Interfaces	Rad	lio I	Enable	ed Radio	Mode	Freque	ncy Band	W	ANI	Mo
Naver 2	WL/	AN 1	V	AP	\langle	2.4 GI		- 80	12.11	ッ

Installation - Local network



9. Define channel and SSID: Select *AP* > *Channel/SSID*.

Auto is not recommended. To select the channel, please refer to 5 Concept 1 – Local network, page 12.

10. Choose the network name so that it can be unambiguously assigned. Note upper and lower case.



SIEMENS

10000000000000000000000000000000000000	102						-		
Welcome admin	Basic	Wizaro	d: \$	Security Settings					
Logout									
-Mizardo	System	Country	IP	Management Interfaces	Antenna	Radio	AP	Security	D
Basic Wizard									
P Dusic Mizuru	To m trans	hake the ne	etwo a fro	ork secure, authentication om eavesdropping. Selecti	and encryp	tion are	used SK' fn	to verify a the list	a con t reo
► Information	pass	word to ca	atch	mistyped characters. Othe	er settings	require a	dditio	onal config	gura
121.0	duvis	saule to se	eu	. Obeli system, as this rep	resents nu	secunity	ala		F/M-F
▶System	also	compatibil	lity v	with certain legacy systems	s. With WP	A2-PSK	you o	can achie	ve a
▶ System	also will <u>c</u> simp	compatibil live you th	lity v e hig the c	with certain legacy systems ghest level of security but default values and enter th	s. With WP requires ex e passwor	A2-PSK tra netw	you o ork in iieve	can achie nfrastructu a reasona	ve a ure. I able
 System Interfaces 	also will <u>c</u> simp pass	compatibil live you th ly accept f words, as	lity v e hig the c you	with certain legacy systems ghest level of security but default values and enter th will need to configure the	s. With WP requires ex e passwor other devi	A2-PSK tra netw ds to ach ces in the	you o ork in ieve e san	can achie nfrastructu a reasona ne way.	ve a ure. I able
▶System ▶Interfaces ▶Layer 2	also will <u>c</u> simp pass	compatibil give you th ly accept t words, as	lity v e hij the c you	with certain legacy systems ghest level of security but default values and enter th will need to configure the	a. With WP requires ex e passwor other devi	A2-PSK tra netw ds to ach ces in the	you o ork in ieve e san	can achie nfrastructu a reasona ne way.	ve a ure. I able
 > System > Interfaces > Layer 2 > Security 	also will <u>c</u> simp pass	compatibil give you th ly accept t words, as	lity v e hij the c you	with certain legacy systems ghest level of security but default values and enter th will need to configure the Authentication Type	a. With WP requires ex e passwor other devir Cip	A2-PSK tra netw ds to ach ces in the	you (ork in ieve e san	can achier nfrastructu a reasona ne way. WPA	ve a ure. I able A(2) I
System Interfaces Layer 2 Security	also will <u>c</u> simp pass	compatibil give you the ly accept to words, as face	lity v e hig the c you 21.1	with certain legacy systems ghest level of security but default values and enter the will need to configure the Authentication Type WPA2-PSK	s. With WP requires ex e passwor other devi Cip Cip	A2-PSK tra netw ds to ach ces in the oher	you (ork in ieve e san	can achie frastructu a reasona ne way. WPA	ve a Jre. I able
	also will <u>c</u> simp pass	compatibil give you the ly accept to words, as face	lity v e hij the o you 21.1	with certain legacy systems ghest level of security but default values and enter th will need to configure the Authentication Type WPA2-PSK	s. With WP requires ex e passwor other devi other devi Cit	A2-PSK tra netw ds to ach ces in the oher ES	you (ork in ieve e san	can achie nfrastructu a reasona ne way. WPA	ve a ure. I able A(2) I
	also will <u>c</u> simp pass	compatibil pive you the ly accept to words, as face AN 1 / VAF	lity v e hij the c you 21.1	with certain legacy systems ghest level of security but default values and enter th will need to configure the Authentication Type WPA2-PSK	s. With WP requires exp e passwor other devi other devi Cip T	A2-PSK tra netw ds to ach ces in the oher S	you (ork in ieve e san	can achie nfrastructu a reasona ne way. WPA	ve a ure. I able

13. Select Summary.

Security settings:

11. Select Security.

tings:

requirements on the network.

14. Save the changes with <Set Value> and end the *Basic Wizard*.

Adjust the security settings according to the

12. Use the Apex Tool Group standard set-

Pass phrase: 0736381254

Authentication type: WPA2-PSK AES

SIEMENS

192.168.0.50/SCALANCE W788-1 I

Welcome admin	Basic V	Vizar	d: Sun	mary of Set	tings			
Logout								
	System C	ountry	IP Mar	agement Interfa	ces Antenna	Radio	AP	Secu
✓Wizards								
Basic Wizard		De	vice Moo	e: Access Point				
►Information			Count	ry: Germany				
		Sys	tem Nam	e: sysName Not S	Bet			
▶System	IP As	signme	nt Metho	d: Static				
N Interfaces		1	P Addres	s: 192.168.0.50				
Fintenaces		Su	bnet Mas	k: 255.255.255.0				
▶Layer 2		Defaul	t Gatewa	ly: 0.0.0.0				
▶Security	Interface	e WLAN	I1 VAP1	1: Enabled				
▶iFeatures		W	AN Mod	le: 802.11n (2.4 G	Hz), 20 dBm 1	Tx Powe	r i	
			Chann	el: Auto (operative), HT Channe	Width:	20	
			Antenna	1: Type ANT795-	4MC, Gain 3 c	IBi, Addi	tional	Atten
			Antenna	2: Type ANT795-	4MC, Gain 3 d	IBi, Addi	tional	Atten
			Antenna	3: Type Not used	(Connect 50 (Ohm Ter	minat	tion), (
			SSI	D: LiveWire001				
			Securi	ty: WPA2-PSK + A	AES Cipher			
				Click the 'Set '	Values' butto	n to app	ly th	e chai
	Pre	vious		Abort Se	t Values			



15. Define Admin password:

Change the login password to present unauthorized access to the access point.

- Username: admin
- New password: ...

(Apex Tool Group standard password: *123456*)

SIEMENS	192.168.0.50/SCALANCE W788	-
Welcome admin	Local Passwords	
Wizards Information System Interfaces Layer 2 Socurity	Current Admin Password: Username: admin New Password: Password Confirmation: Bet Values Refresh	

http://192.168.0.50/

1

After changing the IP address and the admin password, enter the new values for subsequent logins.

6.1.2 Setting up Phoenix FL WLAN 1100 access point

Please refer to the description in the scope of and the online help.

Minimum parameter setting

Parameter	Value	Comments
Country code	Country (e.g. Ger- many)	 Select country in which the access point is in use.
IP address	Example: 192.168.0.50	 The IP addresses for the access point, controller, tool ands service PC must be in the same subnet. a) Either use the Apex Tool Group standard settings (IP 192.168.0.50) or enter an unassigned address. b) For your own local networks, use the intended IP range 192.168.XXX.XXX.
Frequency band	2.4 GHz or 5 GHz	Depending on the network structure, select a 2.4 GHz or a 5 GHz network.
SSID	LiveWire001	Choose the network name so that it can be unambiguously assigned. Note upper and lower case.
Channel	1–13 or 36–140	<i>Auto</i> is not recommended. Please refer to 6 Installation – Local network, page 14 for the assignment of channels. Not regional regulations when choosing the channel!
Security		Various security systems are available for use.Choose a system according to your own requirements.
Admin pass- word		 The Apex Tool Group default password for logging in to the access point is: 12345678. Change this password to protect the access point against unauthorized access.



Setting the IP address with IP Assign

- 1. Download the program IPAssign (see Phoenix Download Center)
- 2. Start the program IPAssign.
- 3. Press <Continue>.
- 4. Activate Show only Phoenix Contact devices to search the network for the MAC address of the access point.

- 5. Select the MAC address of the access point (printed on cover).
- 6. Confirm selection with <Continue>.

7. Overwrite the IP address assigned by the plant with your own. Apex Tool Group standard settings: 192.168.0.50

8. Confirm the new IP address with <Continue>. \rightarrow The IP address is accepted.

Phoenix Contact - IP Assignment Tool 1.	.1.3 ×
And A	
	PCONTACT
	IP Assignment Wizard
	This wizard will take you through
	assigning an IP address to a
	The steps include:
	Listen for requests and select the MAC address of the device to be
	assigned an IP address
	Enter the IP address information
A	Assign the IP address to the device
	1 5 6 9 9
	Zurick Weiter Abbrechen
Phoenix Contact - IP Assignment Tool 1.1	.3 ×
IP Address Request Listener	
Please select a MAC address.	
The list box below displays all MAC addresses f	from which we have received a BOOTP request.
MAC Address Count Last Request	Time
00.80.4511.81.82 3 09:54:24	
If you do not see the MAC address of the device	se you are looking for, try cycling power to that
device.	so you allo rostalig tar, ay oyoung portor to allar
Show only Phoenix Contact devices	
	< Zurück Weiter > Abbrechen
Phoenix Contact - IP Assignment Tool 1.1	.3 ×
Phoenix Contact - IP Assignment Tool 1.1 Set IP Addrese	.3 ×
Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use.	з ×
Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use.	.3 ×
Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. The DOM IP address to use.	3 ×
Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Plane applic the IP address to be used I	.3 ×
Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used by	.3 ×
Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used b Selected MAC address	.3 × (P) [192.168.0.1 oelow. 00:a0.45f1.81.82
Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used b Selected MAC address IP address	.3 × [192.168.0.1 relow. 192.168.0 0 - 50
Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used b Selected MAC address IP address Subnet mask	.3 × 192.168.0.1 pelow. 00::0:45f1:81:82 192.2:168.0.50 255.255.255.0
Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used b Selected MAC address IP address Subnet mask Default optewar	.3 × [192.168.0.1 elow. 192.168.0.50 192.168.0.50 255.255.255.0 0.0.0.0.0
Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used b Selected MAC address IP address Subnet mask Default gateway	3 × 192.168.0.1 relow. 00:a0:45f1:81.82 192.168.0 0.50 255.255.255.0 0.0.0.0 0.0
Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used b Selected MAC address IP address Subnet mask Default gateway	.3 × 192.168.0.1 velow. 192.168.0.0 50 192.168.0 50 255.255.255.0 0.0.0.0.0 192.168
Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used the Selected MAC address IP address Subnet mask. Default gateway Once you have entered a valid IP address	3 × 192.168.0.1 selow. 00:a0:45f1:81:82 192.5.255.255.0 0.0.0.0 . dick Next.
Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used to Selected MAC address IP address Ubnet mask Default gateway Once you have entered a valid IP address	.3 × 192.168.0.1 below. 00:a0.45f1.81.82 192.2.168.0.50 255.255.255.0 0.0.0.0.0 . click Next.
Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used b Selected MAC address IP address Subnet mask Default gateway Once you have entered a valid IP address	.3 × 192.168.0.1 elow. 00.a0.45f1.81.82 192.168.0.50 255.255.255.0 0.00000 .click Next.
Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used b Selected MAC address IP address Subnet mask Default gateway Once you have entered a valid IP address	.3 × 192.168.0.1 elow. 192.168.0.1 192.168.0.50 255.255.255.0 0.00.00.0 .click Next. < <u>∠Juïuck Weter></u> Abbrechen
Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Plesse specify an IP address to use. This PC's IP address Please specify the IP address to be used b Selected MAC address IP address Subnet mask Default gateway Once you have entered a valid IP address	.3 × 192.168.0.1 relow. 192.168.0.1 192.168.0.50 192.55.255.255.0 0.0.0.0.0 . click Next. < <u> ∠urick Weter></u> Abbrechen
 Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used be Selected MAC address IP address Subnet mask Default gateway Once you have entered a valid IP address Phoenix Contact - IP Assignment Tool 1.1 	.3 × 192.168.0.1 relow. 192.168.0 0 . 50 192.168.0 0 . 50 192.168.0 0 . 50 192.168.0 0 . 0 255.255.255.0 0 0 . 0 . 0 . 0 . click Next.
 Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used be Selected MAC address IP address Subnet mask. Default gateway Once you have entered a valid IP address Once you have entered a valid IP address Phoenix Contact - IP Assignment Tool 1.1 Assign IP Address. 	.3 × 192.168.0.1 velow. 192.168.0.50 192.168.0.50 255.255.255.0 0.0.0.0.0 . click Next. < <u>Zurück Weter></u> Abbrechen .3 ×
 Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used to Selected MAC address IP address Subnet maak. Default gateway Once you have entered a valid IP address Phoenix Contact - IP Assignment Tool 1.1 Assign IP Address Attempting to assign IP address. 	.3 × 192.168.0.1 elow. 00::0:45f1:81:82 255.255.0 0.0.0.0 . click Next.
 Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used b Selected MAC address IP address Subnet mask Default gateway Once you have entered a valid IP address Phoenix Contact - IP Assignment Tool 1.1 Assign IP Address Attempting to assign IP address. 	.3 × 192.168.0.1 elow. 192.168.0.1 255.255.255.0 0.0.0.0.0 .click Next. < <u>Zurück Weter></u> Abbrechen .3 ×
 Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used to Selected MAC address IP address Subnet mask Default gateway Once you have entered a valid IP address Phoenix Contact - IP Assignment Tool 1.1 Assign IP Address Attempting to assign IP address. The wizard is attempting to assign the specified 	.3 × 192.168.0.1 elow. 192.168.0.1 192.168.0.50 255.255.255.0 0.0.0.0.0 click Next.
 Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used to Selected MAC address IP address Subnet mask Default gateway Once you have entered a valid IP address Phoenix Contact - IP Assignment Tool 1.1 Assign IP Address Attempting to assign IP address. The wizard is attempting to assign the specified [Attempting to assign MAC address 	.3 × 192.168.0.1 relow. 192.168.0.1 192.168.0.50 255.255.255.0 0.0.0.0.0 . click Next. < <u><zunick weter=""></zunick></u> Abbrechen .3 × IIP address. Exposed Time 5
 Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used by Selected MAC address IP address Subnet mask Default gateway Once you have entered a valid IP address Once you have entered a valid IP address Phoenix Contact - IP Assignment Tool 1.1 Assign IP Address Attempting to assign IP address. The wizard is attempting to assign MAC address: 00:a0:45:f1.81:82 	.3 × 192.168.0.1 relow. 00.00.45f1.81.82 192.168.0.50 255.255.255.0 0.0.0.0.0 . click Next. .4 Uruck Weter> Abbrechen .3 × (geoords)
 Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used by Selected MAC address IP address Subnet mask Default gateway Once you have entered a valid IP address Once you have entered a valid IP address Phoenix Contact - IP Assignment Tool 1.1 Assign IP Address Attempting to assign IP address. The wizard is attempting to assign the specified autor of 4.511:81:82 Ithe following: 	.3 × 192.168.0.1 elow. 192.168.0.1 elow. 192.168.0.50 255.255.0 0.0.0.0 . click Next.
 Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used b Selected MAC address IP address Subnet mask Default gateway Once you have entered a valid IP address Once you have entered a valid IP address Phoenix Contact - IP Assignment Tool 1.1 Assign IP Address Attempting to assign IP address. The wizard is attempting to assign the specified 00:a0:45:f1:81:82 the following: IP address: 192:188.0.55 	.3 × 192.168.0.1 elow. 192.168.0.1 elow. 192.168.0.50 255.255.0 0.0.0.0.0 . click Next.
 Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used b Selected MAC address IP address Subnet mask Default gateway Once you have entered a valid IP address Once you have entered a valid IP address Phoenix Contact - IP Assignment Tool 1.1 Assign IP Address Attempting to assign IP address. The wizard is attempting to assign the specified Attempting to assign MAC address: 00:a0:45:11:81:82 the following: IP address: 192:168.0.50 Subnet mask: 255:255:255.0 Default gateway: 00:0 	.3 × 152.168.0.1 elow. 152.168.0.1 elow. 192.168 0 50 255.255.255 0 0 . 0 . 0 0 0 . dick Next. ∠Zurück Wester> Abbrechen
 Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used to Selected MAC address IP address Subnet mask Default gateway Once you have entered a valid IP address Phoenix Contact - IP Assignment Tool 1.1 Assign IP Address Attempting to assign IP address. The wizard is attempting to assign the specified Attempting to assign MAC address: 00:a0:45:11:81:82 the following: IP address: 192:168:0.50 Subnet mask: 255:255:250.0 Default gateway: 0.0.0 	.3 × 192.168.0.1 elow. 192.168.0.1 192.168.0.50 255.255.255.0 0.0.0.0.0 clock Next. .4 Abbrechen .3 × (Zurück Weter> Abbrechen .3 × .1 Abbrechen .3 × .1 Bassed Time [second]: [second]
 Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used to Selected MAC address IP address Subnet mask Default gateway Once you have entered a valid IP address Once you have entered a valid IP address Phoenix Contact - IP Assignment Tool 1.1 Assign IP Address Attempting to assign IP address. The wizard is attempting to assign the specified Attempting to assign MAC address: 00:a0:45:f1:81:82 the following: IP address: 192:168:0.50 Subnet mask: 255:25:5.0 Default gateway: 0.0.0 Once your device has received ts IP address. 	A 192.168.0.1 below 192.168.0.1 192.168.0.1 192.168.0.50 255.255.255.0 0.0.0.0.0 clock Next. Abbrechen Abbr
 Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used to Selected MAC address IP address Subnet mask Default gateway Once you have entered a valid IP address Assign IP Address Atempting to assign IP address. The wizard is attempting to assign IP address: 00.a0:45:f1:81:82 The difference: IP address: IP address: 	A A A A A A A A A A
 Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used b Selected MAC address IP address Subnet mask Default gateway Once you have entered a valid IP address Once you have entered a valid IP address Phoenix Contact - IP Assignment Tool 1.1 Assign IP Address Attempting to assign IP address. The wizard is attempting to assign the specified 0:a0:45:f1:81:82 The wizard is attempting to assign the specified Subnet mask: 255:255:255.0 Default gateway: 0.0.0 Once your device has received its IP address. 	A A A A A A A A A A
 Phoenix Contact - IP Assignment Tool 1.1 Set IP Address Please specify an IP address to use. This PC's IP address Please specify the IP address to be used b Selected MAC address IP address Subnet mask Default gateway Once you have entered a valid IP address Once you have entered a valid IP address Assign IP Address Attempting to assign IP address. The wizard is attempting to assign the specified the following: IP address: 192.168.0.50 Subnet mask: 255.255.255.05 Default gateway: 0.0.0 Once your device has received its IP address. 	.3 × 192.168.0.1 elow. 192.168.0.1 elow. 192.168.0.50 255.255.0 0.0.0.00 . click Next. Abbrechen Abbrechen Abbre

Installation - Local network



6

The change of IP address was successful, the following dialog appears:

The IP address is only temporarily stored in the access point. The IP address still has to be permanently stored in the access point.

😰 Phoenix Contact - IP Assigr	nment Tool 1.1.3	×
	Congratulations The wizard has assigned the IP address to the device.	
	Successfully assigned MAC address: 00:a0:45:f1:81:82 the following: IP address: 192.168.0.50 Subnet mask: 255.255.255.0 Default gateway: 0.0.0.0	
	Click Finish to exit, or click Back to assign another IP address.	
	< Zurück [Fertig stellen]	

Setting the access point via the integrated web interface

The configuration can be accessed via the integrated web interface using the IP address set above.

a 192.168.0.50

→ C

CONTACT

FL WLAN 110

PHENIX

FL WLAN 1100

Help & Do Device St

9 192.168.0.50 → C

4

× +

192 168 0 50

Login

× +

192,168.0.50

FL WLAN 1100

FL WLAN 1100

vord: (?) Pass

Connected Clier

STATI

IP Address (?) 192.168.0.5

Network Mask (?) 255.255.255.0

Default Gateway (?) 0.0.0.0 ment VLAN (?) 1 ration (?) DHCP S

- 1. Start a web browser with the URL: Apex Tool Group standard settings: http:// 192.168.0.50
- 2. Log in:
 - User name: admin
 - Password: private
- 3. Select Configuration > Network and enter the following data:
 - IP Address Assignment: STATIC
 - IP Address: 192.168.0.50
 - Network Mask: 255.255.255.0
- 4. Confirm entry with <Apply&Save>.
- 5. Select Configuration > WLAN Setting and enter the following data:
 - Country (regulatory domain): Germany
 - Activate WLAN Interface: Enable
 - Outdoor mode: Not Enable
 - WLAN band: 5 Ghz (802.11 a/n)
 - Channel: Channel will be assigned
- 6. Confirm entry with <Apply&Save>.
- 7. Select Configuration > WLAN Interface and enter the following data:
 - Operation Mode: Access Point
 - Network SSID: Enter the network SSID
 - Security mode: WPA2 PSK AES
 - Passkey: Enter the password
- 8. Confirm entry with <Apply&Save>.

× + 192.168.0.50 → C ① Nicht sicher | 192,168,0.50 ted Clie **PHENIX** CONTACT FL WLAN 1100 WLAN Setting ulatory domain) (2) tivate WLAN interface (?) 🗹 Enable Outdoor mode (?) 🗐 Enable FL WLAN 1100 WLAN band (?) 5GHz (802 11 a/n) Channel (?) 153 Output power (?) 17dBm WLAN Setting (802.11n) (?) @ 20MHz × + FL WLAN Connected Client CONTACT WLAN In ing FL WLAN 1100 ty mode (?) WPA2_PSK_AES • Passkey (?) 12345678 Quick S System Network

The settings made can be checked with a WLAN channel scanner, e.g. NetSpot.



6.1.3 Setting up Siemens access point with unknown IP address

- Install DHCP (Dynamic Host Configuration Protocol) software to assign an IP address, e.g. *Tftpd32* (freeware).
- 2. Start program Tftpd32.

🚸 Tftpd32 by Ph. Joun	in		_		x
Current Directory C:\Us Server interfaces 10.12	ers\F0M96.ATG		। न	Bro Sho	wse w Dir
Tftp Server Tftp Client	DHCP server Sys	log server Log	viewer		
peer	file	start time pr	ogress		byte
					•
About	Setting	s		Help	
(

GLOBAL | TFTP DHCP | SYSLOG |

IP pool starting address 192.168.0.60

Ping address before assignation
 Bind DHCP to this address

10

0.0.0.0

0

Default

192.168.0.55

255.255.255.0

10.122.86.22

Help

Cancel

DHCP Pool definition

WINS/DNS Server

Size of pool

Default router

Domain Name Additional Option

DHCP Options

ΟK

Persistant leases

Boot File

Mask

- 3. Make the following settings
 - IP pool starting address: 192.168.0.XXX For XXX DO NOT select 50. Suggestion: 192.168.0.60
 - Size of pool: 10
 - *Default router*: 192.168.0.XXX, where XXX represents the number of the service PC (in the example 55)
 - Mask: 255.255.255.0

Define IP address

- Deactivate any additional network cards (e.g. WLAN cards on the service PC).
- 5. Close program *Tftpd32*.
- 6. Switch off access point power supply.
- Connect the access point to the service PC with a LAN cable.
- 8. Start program Tftpd32.
- 9. Click on DHCP server.
- 10. Switch on access point power supply.
 - → The IP address assigned by the program *Tftpd32* is displayed in the window.

The IP address should be entered under the setting *IP pool starting address* (in the example 192.168.0.60).

NTftpd32 by Ph. Jouni	n		
Current Directory C:\Use	ers\F0M96.ATG	•	Browse
Server interfaces 192.16	8.0.55	-	Show Dir
Tftp Server Tftp Client	DHCP server Syslog serv	er Log viewer	
allocated at IP	MAC	renew at	
04/30 15:52:29 192.1	168.0.60 00:1B:1B:BC):3B 04/3015	52:29
About	Settings		Help



- Select the address http:// 192.168.0.60 in the browser of the service PC.
 - → The login mask for the access point opens.



12. Enter login:

- Name: admin
- Password: admin

SIEMENS

← → II http://192.168.0.60/

Local Passwords

Set Values Refresh

Current Admin Password: •••••

Password Confirmation:

Username: admin 💌 New Password:

SIEMENS



ク - 図 ♂ × III SCALANCE W788-1 M12 W.

You will be prompted to change the password after the first login.

- 13. Use the following entries as standard:
 - Current Admin Password: admin
 - Username: admin
 - New Password: 123456
 - Password Confirmation: 123456
- 14. Continue as described in chapter 6.1.1 Setting up Siemens SCALANCE W788-1 access point (pre-configured), page 15.



6.2

Setting up controller



Fig. 6-1: Connections illustrated on the mPro400GCD-P underside

- Connect the network cable to X1 (or X2) Ethernet port and connect the access point to the controller.
- Switch on the access point.

6.2.1 Configuring network settings

Enter IP address for controller (example here at ethernet port 1)

1. Select Navigator > Communication > Network settings.

() 10 100 00 115 Kanagara Tarting Wadayan 1 Tart (~ 1)		~	
Datenübertragung WerkID Netzwerkeinste	ellungen Feldbus		
Hostname: mPro400GCD			
Std. Gateway: 0 0 0 0	Prim. DNS: 0 0	0 0	
DNS Suffix:	Sek. DNS 0 0	0 0	
Ethernetkarte 1 DHCP akivieren: IP Adresse: 192 168 0 110 Subnetzmaske: 255 255 255 0	Ethernetkarte 2 VDHCP akivieren: IP Adresse: 0 0 Subnetzmaske: 0 0	00	
Werkzeuggruppe 1: Ablaufprogramm nicht auso	Navi	? igator 4.18 06:22	

Fig. 6-2: Network settings (existing network)

- 2. Enable DHCP: Remove tick.
- 3. Enter the *IP address and subnet mask* for the controller.
 - $\rightarrow~$ Each IP address must only be assigned once.
 - ightarrow The IP addresses for the access point, controller, tool ands service PC must be in the same subnet.
- 4. Enter the Std. gateway if a gateway is used.
- 5. Select <Navigator> and save the settings with <Accept>.
- 6. The Navigator Menu is displayed.
- 7. Restart the controller.

6.2.2 Configuring tool RF settings

- 1. Connect the tool holder to the serial port XS4 (or XS5) with the infrared interface.
- 2. Switch the tool on and place it in the tool holder.
- 3. Select Navigator > Utilities > System settings > LiveWireICellCore RF configuration.



Communication with to	ol Tool identification	WLAN AP C	Configuration Bluetooth	AP Configuration
Connection type		RF Connec	tion	RF Mode
None		RF off		WLAN 🗸
IRDA / USB Serial C	CON 1 🗸	RF Seria	CON 1 👻	
TCP/IP direct		RF Gate	way IP	
WLAN				
SSID Live	eWire001		Hostname:	
Encryption WF	A/WPA2-PSK AES	~	Obtain an IP addre	ss automatically (DHCP)
			Use the following I	P address:
			IP address:	192.168.0.1
Network key			Subnet mask:	255.255.255.0
******			Default Gateway	
Confirm network key			Default Gateway.	
****			Iransport	TCP 🕈
			IP Conflict Detection	on
			Advance	d settings
			-	-

Fig. 6-3: RF settings (local network)

- 4. *IRDA Connection*: Select port to match the port on the tool holder.
- 5. XS4 = CON 1 (XS5 = CON 2).
- 6. Select <Identify> to read out the specific data of the WLAN module.
- 7. Enter the value for **SSID**.
 - \rightarrow SSID must be identical to the access point.
- 8. Select value for Encryption (see access point Authentication type).
- 9. *Confirm network key*: Enter the network key and confirm by entering it again underneath (see Access point *Pass phrase*).
- 10. Use the following IP address: Enter the value for the IP address, subnet mask and if necessary Default gateway.
- 11. Select <Advanced settings>.
- 12. Select Wireless mode and confirm with <OK>.

WLAN Advanced setting	gs	
<u>W</u> ireless mode		802.11b/g/n
5.2 GHz radio band (802)2.11a)	
U-NI U-N	NI 🔲 U-N	I-2 🔲 U-NI
Wireless channel	Auto 🗸	Scan channel
Transmit power	Highest 💙	
Roaming Aggressiven	Medium 💙	
✓ 0	ок 🗙	Cancel

Fig. 6-4: WLAN advanced settings

- 13. Press <Apply>.
 - \rightarrow Settings are written onto the tool.
- 14. Confirm the following message with <Yes>:
 - Toolserial: xxxxxxx Builddate: xx.xx.xx Configure Tool?
- 15. Confirm the following message with <OK>: Configuration done!

6.2.3 Installing tool

- 1. Select Navigator > Tool setup.
 - We... 1 (Tool 1) is reserved for a corded tool with a Primary controller.
- 2. Mark the next free line by touching it.
- 3. Press on <+ Install> and select the option LiveWire w/WLAN.
- 4. Enter the relevant IP address.







- 5. Press <OK> and save the settings.
- 6. The *Tool list* is displayed.
- 7. Status of tool is now Needs user acceptance.
- 8. Select < Tool settings>.

10.122.67.6: Wkz Einstell. Werkzeug 1 Tool Grp 1		×
Aufnehmer 1 Verschiedenes Wartungszähler		
Model Nummer		47BAYB28AM3
Aufnehmer		936528PT
Max. Drehzahl	[1/min]	532
Maximales Moment	[InLbs]	247.82
Moment-Kalibrierung	[InLbs]	371.73
Winkel-Kalibrierung	[PPD]	2.6727
Seriennummer		691837
Hersteller-Datum		2512
Letzter Service		****
Anzahl Verschraubungen seit letztem Service		4265
Gesamtzyklen		4265
Funk Einst.	Ü	Vernehmen Zurück Hilfe

Fig. 6-6: Tool settings

- 9. Check the *Model number* and *Serial number* and confirm that the tool displayed corresponds to the tool connected.
- 10. Save the settings with <Accept>.
- 11. The Tool list is displayed. Status of tool is now online.
- 12. Select <Navigator>.



6.3 Configuring RF Settings with PC



Fig. 6-7: : LiveWire Utilities

- Download the LiveWire Utilities software at: http://software.apextoolgroup.com/current-software-packages/pc-software/
- 2. Install the software.
- 3. Start the program *LiveWire RF Configuration* under *Apex Tool Group*.



Fig. 6-8: Starting the LiveWire RF Configuration program

4. Make the RF settings as described in 6.2.2 Configuring tool RF settings, page 24.



Concept 2 – Existing network

7.1 System layout

- The tools can be incorporated into an existing network according to standard IEEE 802.11a/b/g/h/n.
- The network settings depend on the existing network.
- The tool's WLAN settings are parameterized via the infrared interface.



Fig. 7-1: System layout – Existing network

ltem	Component ^a
1	Controller
2	Access point IEEE 802.11a/b/g/h/n
3	Cordless EC tool
4	Tool deposit with infrared interface
5	Ethernet TCP/IP

a.) For detailed description, see 3 Components, page 7



8 EN

8 Installation – Existing network



It is essential that national, state and local regulations and standards be followed.



Caution

Risk of injury due to electric shock.

Direct contact with mains voltage can cause injury due to electric shock.

Before exchanging components or supplementary equipment, isolate the power supply.

The following inputs are needed for the installation described below (example specifications):

Existing network, according to existing infrastructure

The settings must be defined by the person responsible for the IT infrastructure (example specifications).

Device	IP address	SSID	Subnet mask	Std. gateway
Tool 1	10.122.77.101	Hall 6	255.255.0.0	10.122.77.1
Tool 2	10.122.77.102	Hall 6	255.255.0.0	10.122.77.1
Controller	10.122.77.110		255.255.0.0	10.122.77.1

8.1 Setting up controller



Fig. 8-1: Connections illustrated on the mPro400GCD-P underside

- Connect the network cable to X1 (or X2) Ethernet port and connect the access point to the controller.
- Switch on the access point.



8.1.1 Configuring network settings

Enter IP address for controller (example here at ethernet port 1)

Select Navigator > Communication > Network settings.

Communications Tool 1 Tool Grp 1 @ 10.122.42.180 Data Transmission Part ID Network settings Host Name: mPro400GCD Def. Gateway: 0 0 0 0 Domain Suffix: Ethernet Card 1 Enable DHCP: IP Address: 192 168 0 110 Subnet Mask: 255 255 255 255	Fieldbus Primary DNS: 0 Secondary DNS 0 Ethernet Card 2 Image: Card 2 Image: Card 2 Image: Card 2	×	
Channel 2: Tool not connected, latest parame	ters may not be used!	Ravigator P 06/17/19 12:39 pm 106/17/19 12:39 pm	

Fig. 8-2: Network settings (existing network)

If required, work with DHCP (IP address is automatically assigned).

- 1. Enable DHCP : Set tick.
- If DHCP is enabled:
- See assigned IP address at Diagnostics > Net/Proc > Network.
- Scroll down to Network statistics.

F	
	C Process data display X
	Process times (49 processes) Network Environment Variables XLLink connections Size of Structures
	udp 8 8 *.63 *.*
	Network settings
	enet8: flog=00FGUP_BENENDEF_RANNING,HLTICHET> ntu '500 address: 80:12:91:377:61:87 unet No.72:82, NB nethaak McHffffeBB broadcast 10.122.83.255 ifconfig: enet1: no media types? enet1: flog=00fGUP_BENEDDEF,RANNIS,HLTICHET> ntu '500 address: 80:12:11:72:46:40 unet 0.8.0,0 methaak KeffBBBBB broadcast 0.255.255.255
	Network statistic
	Name Hu Network Address Ipits Terrs 0, bit 0, bit </td
	Ethernet statistics for device '/spfeB': *** Interface level: if_upoktets: 20259 if_lemrons: 0 if_oworkets: 17991 if_nerrons: 0
	Back Refresh

Fig. 8-3: Network statistics

- 2. Enter the IP address and subnet mask for the controller.
- 3. Each IP address must only be assigned once.
- 4. The IP addresses for the access point, controller, tool ands service PC must be in the same subnet.
- 5. Enter the Std. gateway if a gateway is used.
- 6. Select <Navigator> and save the settings with <Accept>.
- 7. The Navigator menu is displayed.
- 8. Restart the controller.

8.1.2 Configuring tool RF settings

- 1. Connect the tool holder to the serial port XS4 (or XS5) with the infrared interface.
- 2. Switch the tool on and place it in the tool holder.
- 3. Select Navigator > Utilities > System settings > LiveWireICellCore RF configuration.



RF Settings v1.67.0.12767: To	ool serial: EE3344 @ 10.122.67.35		
Communication with tool	Tool identification WLAN AF	Configuration Bluetooth A	P Configuration
Connection type	RF Conn	ection	RF Mode
None	RF of	f	WLAN 🗸
IRDA / USB Serial CC	ON 1 👻 🔘 RF Se	rial CON 1 💙	
TCP/IP direct	🔘 RF Ga	ateway IP	
WLAN			
SSID Halle	e 6	Hostname:	
Encryption WPA	√WPA2-PSK AES ✓	Obtain an IP address	automatically (DHCP)
		Use the following IP a	address:
		IP address:	10.122.77.102
Network key		Subnet mask:	255.255.255.0
Confirm network key		Default Gateway:	
******		Transport	TCP ↔
		V IP Conflict Detection	
		Advanced :	settings
	🔍 Identify 🥖	Apply V OK	X Cancel

Fig. 8-4: RF settings (local network)

- 4. IRDA connection: Select port to match the port on the tool holder.
- 5. XS4 = CON 1 (XS5 = CON 2).
- 6. Select <Identify> to read out the specific data of the WLAN module.
- 7. Enter the value for SSID.
- 8. SSID must be identical to the access point.
- 9. Select value for Encryption (see access point Authentication type).
- 10. Confirm network key: Enter the network key and confirm by entering it again underneath (see access point Pass phrase).
- 11. If required, work with DHCP (IP address is automatically assigned). The DHCP Address must be static (linked to tool MAC address):
- 12. Obtain an IP address automatically (DHCP): >Set tick.
- 13. View assigned IP address in submenu for tool WLAN radio transmission.
- 14. If you are not working with DHCP:
- 15. Use the following IP address: Value for IP address, subnet mask.
- 16. If necessary, enter Default gateway.
- 17. Select <Advanced settings>.
- 18. Select Wireless mode and confirm with <OK>.

WLAN Advanced setting	gs		
<u>W</u> ireless mode		802.11b/g/n	<
5.2 GHz radio band (80)2.11a)		
U-NI U-N	NI 🔲 U-N	II-2 🔲 U-NI	
Wireless <u>c</u> hannel	Auto 💉	Scan channe	els
Transmit power	Highest 💉	·	
Roaming Aggressiven	Medium 💉	·	
 ✓ 	ок	Cancel	

Fig. 8-5: WLAN advanced settings

- 19. Press <Apply>.
- \rightarrow Settings are written onto the tool.
- 20. Confirm the following message with <Yes>:
 - Toolserial: xxxxxxx Builddate: xx.xx.xx
 - Configure Tool?
- 21. Confirm the following message with <OK>: Configuration done!



8.1.3 Installing tool

- 1. Select <Navigator> <Tool Setup>.
- We... 1 (Tool 1) is reserved for a corded tool with a Primary controller.
- 2. Mark the next free line by touching it.
- 3. Press on <+ Install> and select the option *LiveWire w/WLAN*.
- 4. Enter the relevant IP address.

1 Primary Tool 1 Online VF8516 2 3 4 1 3 2 2 1 4 2 2 1 5 1 1 1 5 1 1 1 6 1 1 1 7 1 1 1 8 1 1 1 9 0 2 1 10 0 1 1	We	Тур	Bezeichnu	ng	Status		Serien ^
2 3 4 5 Name Werkzeug 2 6 Type LiveWire w/ WLAN 7 1P Address/HostName* 10.122.77.101 9 0K X Abbrechen 10 11 11	1	Primary	Tool 1	Onli	ie		VF0516
3 2uweisung Werkzeug 2 4 2uweisung Werkzeug 2 5 Name 6 Type 1P Address/HostName* 10.122.77.101 9 V 10 V 11 V	2						
1 Name Werkzeug 2 5 Ippe LiveWire w/ WLAN 7 Ip Address/HostName* 10.122.77.101 8 Image: Constraint of the second of th	3		Zuweisung Werkzeug 2			×	
6 Type LiveWire w/ WLAN 7 IP Address/HostName* 10.122.77.101 9 Image: Constraint of the second	4		ame	Werkzeug	2		
7 IP Address/HostName* 10.122.77.101	6	Т	уре	Live	Vire w/ WLAN	~	
8 0K X Abbrechen	7				10 100 77 101		
9 OK X Abbrechen	8	<u> </u>	Address/Hostina	ame	10.122.77.101		
	9		🖌 0	к .	Abbrechen		
	10		-				
	<	1)		>
		Funk Einst.	Wkz Einstell.	Installieren	Deinstallieren	**	Filfe
Funk Einst. Wkz Einstell. Installieren Deinstallieren Hilfe	Werk	zeuggruppe 1: Wa	rten auf Start Sc	hraubablauf	SA mit Takt 1	17.01.13	0:00

Fig. 8-6: Tool list – Install

- 5. Press <OK> and save the settings.
- 6. The Tool list is displayed.
- 7. Status of tool is now Needs user acceptance.
- 8. Select < Tool settings>.

10.122.67.6: Tool Settings Tool 1 Tool Grp 1		
Transducer 1 Others Maintenance Count	ter	
Model Number		47BAYB28AM3
Transducer		936528PT
Max Speed	[RPM]	532
Max. Torque	[InLbs]	247.82
Torque Calibration	[InLbs]	371.73
Angle Calibration	[PPD]	2.6727
Serial number		691837
Manufacture Date		2512
Last Service Date		****
Cycles since last service		4265
Total cycles		4265
RF Settings Advanced Syste	ço m Bus A	Cccept Back Help

Fig. 8-7: Tool settings

- 9. Check the *Model number* and *Serial number* and confirm that the tool displayed corresponds to the tool connected.
- 10. Save the settings with <Accept>.
- 11. The Tool list is displayed. Status of tool is now online.
- 12. Select <Navigator>.

8.2 Prepare EAP-TLS certificate with LiveWireCert for installation on tool

LiveWireCert converts PEM, PFX and P12 files into EAP (Extensible Authentication Protocol) files. The EAP file contains the certificate and the key in a form that can be uploaded by LiveWire tools.



8.2.1 Installing LiveWireCert

- 1. Download the *LiveWire Utilities* software at: http://software.apextoolgroup.com/current-software-packages/pc-software/
- 2. Install the software.
- 3. Start the LiveWireCert software under Apex Tool Group.

	Apex Tool Group ^
8	Cleco License Manager
(Å)	License Manager Bedienungsanl
	LiveWire RF Configuration
Ф	LiveWireCert
4	o 🗇 🧀 🧾 💁

Fig. 8-8: Starting the LiveWire RF Configuration program

8.2.2 Using LiveWireCert

Menu Help Loaded / dropped files Load Load Generate Log	Menu Help Loaded / dropped files New Load Generate Log	Menu Help Loaded / dropped files New Load Generate Log	Menu Help Loaded / dropped files New Load Generate Log	Menu Help Loaded / dropped files New Load Generate Log	Q LiveWireCert 1.0-37	– 🗆 X
Loaded / dropped files New Load Generate	Menu Help					
Load Generate	Load Generate	Load Generate	Load Generate	Load Generate	Loaded / dropped files	
Load Generate	Load Generate	Load Generate	Load Generate	Load Generate		New
Log	Log	Log	Log	Log		Load
Log		Log	Log	Log		Generate
					Log	

Fig. 8-9: Main screen

Parameter	Explanation
<new></new>	Start new certification conversion
<load></load>	Opens file manager to select certificate and key
<generate></generate>	Converts selected certificate and key for EAP file
Log	Shows information about the conversion of the task

- 1. Select files with <Load> or by way of "drag & drop".
- 2. Select <Generate>. A new EAP file is created.
- 3. Assign the certificate a password, if necessary.
- 4. Close the dialog. The EAP file is saved.

8.2.3 Supported files

- Certificate and key files end with **PEM**, **P12** or **PFX**.
- Keys can be encrypted with either DES (DES-CBC) or 3DES (DES-EDE3-CBC).
- Encrypted keys are within
- ----- BEGIN RSA PRIVATE KEY ----- and ----- END RSA PRIVATE KEY ----Plain text keys are within
- ----- BEGIN PRIVATE KEY ----- and ----- END PRIVATE KEY ---- Certificates are within
- ---- BEGIN CERTIFICATE ----- and ----- END CERTIFICATE -----
- There should only be one certificate and one key in any one PEM file.



9

Troubleshooting

Problem	Possible cause	Measure
No communication between the controller/service PC and access point.	IP address and subnet mask are not in the same range.	 The IP addresses for the access point, controller, tool ands service PC must be in the same subnet. Use the same subnet mask for both. Subnet mask: 255.255.255.0 For the IP address, use the first three identical numbers, e.g.: IP address of controller: 192.168.1.xxx IP address of base station: 192.168.1.xxx
Settings for IP address of access point unknown.	New delivery or earlier set- tings needed for other appli- cation.	 Reset access point to default settings: Press the <reset> button on the back of the (Siemens) access point for at least 10 seconds.</reset> Continue as described in chapter 6.1.3 Setting up Siemens access point with unknown IP address, page 22
The tool can not connect with the access point. Indicator: Signal strength at tool is	Encryption settings are not correct or selected encryp- tion level too high for older WLAN tools.	 Check that encryption settings agree. Please refer to Access point: Security settings Please refer to LiveWire tool: Encryption value
always 0. The tool does not appear in the list of connected clients.	Incorrect WLAN channel	 Select another channel.



Problem	Possible cause	MeasuremPro400GCD (SW S168813)	Measure for mPro400S… (e.g. SW S168841) ^a
WLAN data commun	ication between contro	oller and tool	
No WLAN data com- munication between the controller and the tool.	The IP address of the tool is not cor- rectly entered in the controller.	 On the controller screen <i>Tool setup</i>, check whether the IP address of the tool has been entered in the <i>Type</i> box. Otherwise, mark the line and <edit>.</edit> IP address of tool – see Tool in <i>RF settings</i> submenu. 	 Press < A > on the controller. Select the required tool under Station # > Tool assignment Press < > >. Enter the IP address under Tool address. IP address of tool – see Tool in <i>RF settings</i> submenu.
	Tool not yet parame- terized with the cor- rect WLAN settings.	On the controller screen Navigator > Utilities > Sys- tem settings > LiveWire/ CellCore RF configuration, use the infrared interface to parameterize the tool with the correct WLAN settings.	 On the controller screen Main menu > System pro- gramming > Service > TMA configuration > Communi- cation with tool, select > RF mode WLAN. Parameterize the tool with the correct settings via the infrared interface.
	WLAN settings are different for control- ler and access point.	On the controller screen Navigator > Utilities > Sys- tem settings > LiveWire/ CellCore RF configuration, check whether the tool's WLAN settings agree with the settings of the access point (network name, encryption, network key).	On the controller screen Main menu > System pro- gramming > Service > TMA configuration > Communi- cation with tool, check whether the WLAN settings for the tool agree with the settings for the access point (network name, encryption, network key).
	A filter for MAC addresses is acti- vated at the access point.	 Add the MAC address for the addresses at the access point MAC adress of tool – see Label above the battery On the tool in the <i>RF settings</i> 	tool to the list of approved t. submenu.
	Port 4001 is dis- abled by a firewall.	 Configure the firewall such that can use port 4001. 	at the required IP/MAC addresses
	The wireless chan- nel at the access point is outside the range supported by the tool.	To change the wireless channel right wireless channel with res EU 1–13; World 1–11 (see Ins	el setting at the access point to the spect to country code: stallation Manual P1894E).
	Tool is already assigned to another controller.	 Check whether another contro this tool. In other words, anoth address. 	oller already has a connection to her controller is using the same IP
IP address cannot be pinged.	IP address already exists in network. In this case, the tool will not establish a connection.	 Check the physical connection Check the assigned IP address 	n (RSSI values). ss.



Problem	Possible cause	MeasuremPro400GCD (SW S168813)	Measure for mPro400S… (e.g. SW S168841) ^a
WLAN data commun	ication between contro	oller and tool	
Occasional interrup- tions in WLAN data communication.	Distance between the access point and the tool is too great.	 Check the signal strength at the menu. If necessary, reduce the distant the tool. 	he tool in the <i>RF settings</i> sub- nce between the access point and
	The tool is already assigned to another controller.	 Check whether the tool (IP ad controller. If yes, delete the assignment A tool can only be assigned to one 	ldress) is also assigned to another in the other controller.
	Excessive data traf- fic on WLAN Net- work.	 Reduce data traffic on WLAN network. 1. On the <i>Basic</i> controller screen, increase the <i>trigger torque</i>. 2. On the controller screen Navigator > Advanced > Controller > Trace recording, deactivate the data transmission graphs. 	 Reduce data traffic on WLAN network. 1. On the controller screen Main menu > Process programming > Settings > Fastening stage # > Sequences, increase the Trigger torque. 2. On the controller screen Main menu > System programming > Special functions > MWF, disable the torque graph data transmission.

a.) Software-dependent measure. Discrepancy possible when using Custom Tool Software.



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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.

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Phone: +1 (248) 393-5644
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