valentin
DRUCKSYSTEME

OPTION WLAN

Operating Manual

Quality . Tradition . Innovation

Due to the constant further development of our devices discrepancies between manual and device can occur.
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Trademarks

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1 General Information

1.1 Technical Data

Physical/Datalink protocols	IEEE 802 11a, b, g, h, j
Transmission speed	1 … 54 MBit/s
Possible data transmission speed	12 kB/s
Network/Transport protocols	ARP; ICMP; DHCP; IP; TCP
Print protocol	TCP/IP direct print (Raw TCP/IP, Port9100)

1.2 Specific WLAN information

In addition to the indication about IP address, netmask and Gateway for the function of WLAN the following information is needed.

SSID Service Set Identifier

SSID (Service Set Identifier) is the identification of a wireless network that is based on IEEE 802.11.

Each wireless LAS possesses a configurable, so called SSID to identify the wireless network, i.e. the name of the network is indicated.

The SSID character string can be long up to 32 characters. This is configured in the base station of a wireless LAN and adjusted to all clients that should have access.

Encryption

Depending on configuration of a wireless network an encryption must be indicated.

Popular methods are WEP64, WEP128 and WPA-PSK.

Wired Equivalent Privacy (WEP) is the former standard encryption algorithm for WLAN. It should regulate both, the access to the net and guarantee the privacy and integrity of data. WEP is supported by the most devices, however is not considered as safe.

WPA-PSK is the current and safe encryption method in wireless networks.

Each participant of a wireless network must be configured with the same method and have to be indicated the same password.

This password consists for WEP64 of 10, for WEP128 of 26 and for WPA-PSK of 64 hex characters (figures from 0 to 9 and letters from A to F) or a passphrase which consists of 8 to 63 characters.

2 WLAN Connection to Printer

Before the WLAN configuration can be started the printer must be connected with an already available interface to the PC.

The printer can be connected either by a serial, parallel or Ethernet (not Pica II) interface.

It is recommended to use a bi-directional interface (serial or Ethernet) to verify the correct acceptance of parameters.

2.1 ConfigTool

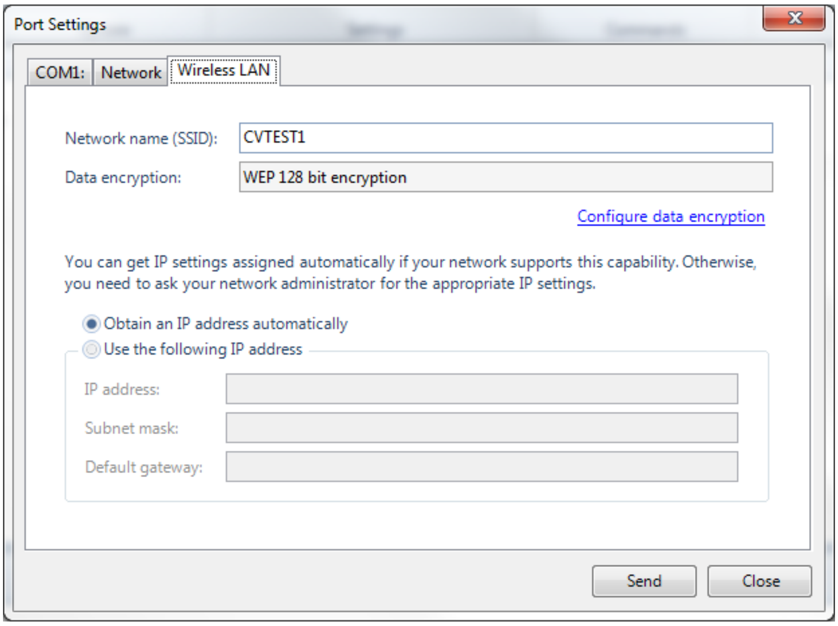
Start ConfigTool and search for the printer that is to be configured with WLAN or enter its name manually.

Click either the **Search** or **Add** button.

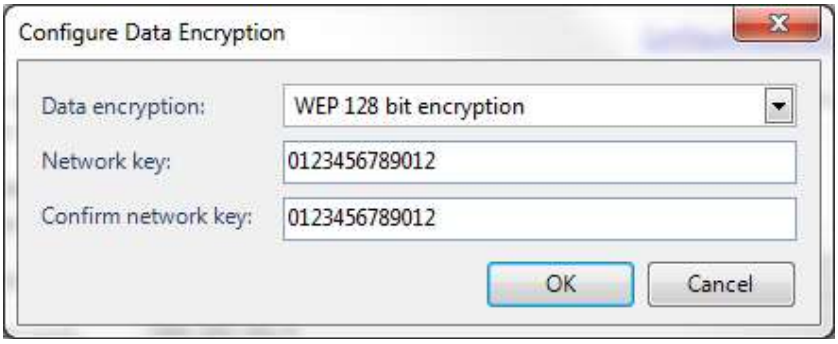
In order to configure the WLAN parameters, the status of the installed printer must be **'Ready'**.

Click the **Port Settings** button to start with the configuration of WLAN parameters.

Select the **Wireless LAN** tab and enter the **Network name (SSID)**. Example: CVTEST1.



Click the **Configure data encryption** command to select the desired data encryption and to enter the necessary **Network key**. Confirm your entries with **OK**.



Click the **Send** button to transfer the settings to the printer.

After the transmission of connection parameters the printer is reinitialised. After approx. 20 s the printer is again ready to use.

In ConfigTool click the **Add** button to add a new printer.

Enter the **IP Address** and **Device Name** of the printer which you want to connect with WLAN and activate the check box **WLAN printer**.

The configuration of the printer is finished after this procedure.

NOTICE!

If no data transfer is possible despite an existing connection the cause can be a wrong password, wrong encryption type or a too weak radio signal.

2.2 Printer Function Menu (not Pica II)

Switch on the label printer and the display shows the main menu.

Press the key **F** to access the function menu.

Press the key ⇀ until the menu *WLAN* is displayed.

Press the key ● to select the menu.

Status
active

Indication of the current WLAN hardware status.

no hardware:	WLAN option not found or wrong speed is set.
active:	WLAN option is ready for operation. No signal found, i.e. the settings must be checked.
connected:	WLAN option is connected and the signal power is indicated in percent.

Press the key ⇀ to move to the next menu item.

NOTICE!

In status *No hardware*, the menu Highspeed is shown directly.

IP address
192.168. 0. 10

Current IP address
The IP address is the address in the computer network which is based on the internet protocol (IP).

Press the key ⇀ to move to the next menu item.

Netmask
255.255.255. 0

Current netmask
A netmask is as long as the IP address to which it is applied, i.e. 32 bits. All bits of the network part are set to 1; all bits of the device part indicate value 0.

Press the key ⇀ to move to the next menu item.

Gateway
192.168. 0. 1

Current active IP address of gateway
A Gateway permits the communication beyond the borders of subnet which is specified with the netmask.

Press the key ⇀ to move to the next menu item.

DHCP
On

DHCP (Dynamic Host Configuration Protocol)
Setting the DHCP by which the automatic integration of a new computer in an existing network is possible without its manual configuration.

Further WLAN specific settings (SSID, encoding) are to be set by parameter sets.

Press the key to move to the next menu item.

More WLAN specific settings (SSID, encryption) are shown. These can only be adjusted by parameter sets.

Press the key to move to the next menu item.

Highspeed
On

Highspeed data connection
Adjusting the speed with which data is transferred to the WLAN hardware (Off: 115.200 Baud; On: 921.600 Baud).
After changing the speed, the printer is started anew.

2.3 Set Parameters (interface)

In order to establish a connection with a radio net the following parameters must be set via a printer interface (serial, parallel) before start-up:

IP Settings

- Dynamic with DHCP
- Static with indication of IP address, netmask and gateways

WLAN Settings

- SSID
- Encryption

To configure the printer by the printer protocol, a special file must be sent to the device via a functional connection. This file contains parameter sets to specify the settings.

Configuration with Parameter Sets

NOTICE!

After transferring the parameter sets once, the settings are saved permanently.

The below specified parameter sets may not be sent by the WLAN interface. In order to configure the WLAN option another port (serial, parallel or Ethernet) must be used.

Example 1

Network without encryption and IP configuration via printer menu

//Indication of network identification
(soh)FCWS--rYOURSSID(etb)
//Encoding off
(soh)FCWE--r0(etb)

Example 2

Network with WEP64 encoding and DHCP

//DHCP actice
(soh)FCWD--r1(etb)
//Indication of network identification
(soh)FCWS--rYOURSSID(etb)
//WEP64 encryption (10 characters)
(soh)FCWV--r3031323334(etb)
//Encryption of WEP64
(soh)FCWE--r1(etb)

Example 3

Network with PSK WPA/WPA2) encoding and a static IP allocation

```
//Deactivate DHCP
(soh)FCWD--r0(etb)
//IP address
(soh)FCWI--r192.168.1.10(etb)
//Netmask address
(soh)FCWM--r255.255.255.0(etb)
//Gateway address
(soh)FCWG--r192.168.1.1(etb)
//Indication of network identification
(soh)FCWS--rYOURSSID(etb)
//PSK-passphrase
(soh)FCWV--rYOURPSKKEY(etb)
//Encoding of PSK
(soh)FCWE--r3(etb)
```

NOTICE!

An example for a WLAN configuration file can be downloaded under the address
`http://...../downloads/tools/wlan.cfg`.
With a suitable text editor (Microsoft® Editor), this file can be adapted to the individual circumstances. As the file contains not printable control signs it is impossible to use word processing programs such as Microsoft® Word or Notepad.

If no interface should be accessible, the configuration can be transferred by means of a memory card to the printer. For this purpose, the file 'wlan.cfg' with the appropriate parameter sets must be available in the main directory of the memory card. After starting up the printer, the file must be executed via the memory card menu.

wlan.cfg

This file contains the real configuration and consists of parameter sets. The contents can be taken from the example specified above.

Parameter Sets

Set IP address (e.g. 192.168.1.21)

SOH	F	C	W	I	-	-	r	x	ETB

x = 192.168.1.21

Enquire IP address

SOH	F	C	W	I	-	-	w	p	p	p	p	p	p	p	p	ETB

Answer

SOH	A	1	9	2	.	1	6	8	.	1	.	2	1	ETB

Set netmask (e.g. 255.255.255.0)

SOH	F	C	W	M	-	-	r	x	ETB

x = 255.255.255.0

Enquire netmask

SOH	F	C	W	M	-	-	w	p	p	p	p	p	p	p	p	ETB

Answer

SOH	A	2	5	5	.	2	5	5	.	2	5	5	.	0	ETB

Set gateway address (e.g. 192.168.1.2)

SOH	F	C	W	G	-	-	r	x	ETB

x = 192.168.1.2

Enquire gateway address

SOH	F	C	W	G	-	-	w	p	p	p	p	p	p	p	p	ETB

Answer

SOH	A	1	9	2	.	1	6	8	.	1	.	2	ETB

Set DHCP support

SOH	F	C	W	D	-	-	r	x	ETB

x: 0 = Off
x: 1 = On

Enquire DHCP support

SOH	F	C	W	D	-	-	w	p	p	p	p	p	p	p	p	ETB

Answer

SOH	A	x	-	-	-	-	-	-	-	p	p	p	p	p	p	p	p	ETB

Set SSID (Service Set Identifier) identification (e.g. TESTWLAN)

SOH	F	C	W	S	-	-	r	x	ETB

x = TESTWLAN

Enquire SSID identification

SOH	F	C	W	S	-	-	w	p	p	p	p	p	p	p	p	ETB

Answert

SOH	A	T	E	S	T	W	L	A	N	;	ETB

Set WEP64 encryption

SOH	F	C	W	V	-	-	r	x	ETB

x = Hex string, 10 characters

Set WEP128 encryption

SOH	F	C	W	W	-	-	r	x	ETB

x = Hex string, 26 characters

Example: `(SOH)FCWV--r12345ABCDE(ETB)`

Set PSK enryption

SOH	F	C	W	K	-	-	r	x	ETB

x = Hex string, exact 64 characters or character string (numbers, letters and special characters) with a length up to 63 characters

Example 1: (SOH)FCWK—r0123456789ABCDEF0123456789ABCDEF0123456789ABCDEF0123456789ABCDEF(ETB)

Example 2: (SOH)FCWK--rThisIsAPSKPassphrase(ETB)

Set encryption type

SOH	F	C	W	E	-	-	r	x	ETB

x: 0 = Off
x: 1 = WEP64
x: 2 = WEP128
x: 3 = PSK

Enquire encryption type

SOH	F	C	W	E	-	-	w	p	p	p	p	p	p	p	p	ETB

Answer

SOH	A	x	;	ETB

Accept settings

SOH	F	C	W	X	-	-	r	ETB

Set high speed data connection

SOH	F	C	W	H	-	-	r	x	ETB

This setting is specified at the printer and if an active connection to the WLAN module exists, in the WLAN module, too. Subsequently the printer is again started.

x: 0 = Normal speed (115200 baud, no handshake)
x: 1 = High speed (921600 baud (adjustable), RTS/CTS handshake)

Enquire high speed data connection

SOH	F	C	W	H	-	-	w	p	p	p	p	p	p	p	p	ETB

Answer

SOH	A	x	p	p	p	p	p	p	p	p	ETB

Set high speed baud rate

SOH	F	C	W	B	-	-	r	b	ETB

This setting is specified at the printer and if an active connection to the WLAN module exists, in the WLAN module, too. Subsequently the printer is again started.

b = Baud rate (115200, 230400, 460800, 921600)

Enquire high speed baud rate

SOH	F	C	W	B	-	-	w	p	p	p	p	p	p	p	p	ETB

Answer

SOH	A	b	p	p	p	p	p	p	p	p	ETB

3 Restrictions

The WLAN module communicates with the printer by an internal serial interface. From this result the following restrictions in the function:

- Depending on the radio network configuration it can last up to approx. 50 seconds until the printer is booked in the network.
- A printer update cannot be executed by the WLAN module.
  For this another interface must be used.
- The printer may not be in the WLAN menu if data are expected by the WLAN interface.
- The parameter sets for configuration of WLAN module may not be sent via the WLAN connection.

4 Error Correction

In order to test if really a connection to the printer exists; the 'ping' command can be used. In the command line/MS DOS command prompt, with the following request it can be checked if the printer answers with the IP address 192.168.0.21:

ping 192.168.0.21

In case everything is correct the printer should answer with the following message:

Answer from 192.168.0.21: Bytes=32 time<10ms TTL=30

In case of an error, timeouts will be received:

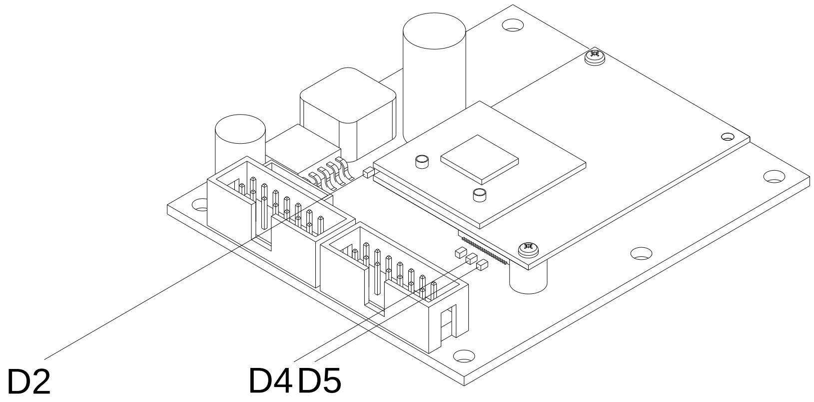
Timeout of request.

For the examination if a connection to the printer exists, a status print can be released. Additionally to the parameters set in the printer the WLAN settings are also indicated.

In case of an error the following possibilities can be checked:

Is the WLAN connection active?

- Check the LED (see illustration).



D2 = Current supply
D4 = LED shine if WLAN is active
D5 = Radio module ready for operation

The printer does not answer to a 'Ping'.

- Make sure that the network parameters, SSID, encryption type, password, IP address, network mask and gateway are correctly configured. Contact your system administrator.
- Examine if a connection to WLAN exists and the signal power is sufficient. The list of connected devices can be queried at the Access Point. Contact your network administrator.
- DHCP: Examine if a valid IP address was assigned to the printer. The IP address can be taken e.g. from the status print.

The 'Ping' command is also answered also in case of a switched off printer.

- There is an address conflict! The set IP address is already used by another network participant!

The printer is correctly connected with WLAN but printing not possible.

- Examine the correct setting of start/end sign as well as the selection of printer type.

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