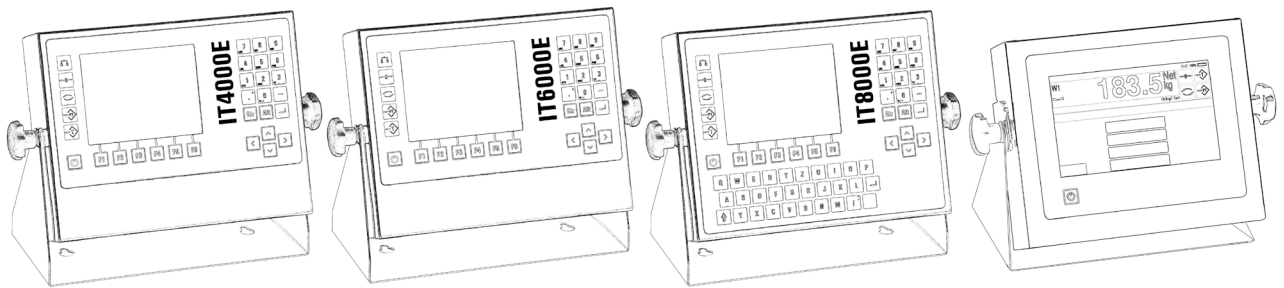


Installation Instructions

WLX



WLAN Connection For **IT4000E, IT6000E(T) And IT8000E(T)** Weighing Terminal

November 2016

ST.2309.1590

Rev. 5

Installation Instructions WLX Module

Date: November 24, 2016

File: WLX_IAE.DOC

Program Version: as of firmware 'V4_I6_20161121.1'

Published By:

© SysTec Systemtechnik und Industrieautomation GmbH, Bergheim, Germany

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, mechanical, photocopying, recording, or otherwise, without the prior written permission of SysTec GmbH.

Terms and product names mentioned in this publication are trademarks, registered trademarks or service marks of their respective owners. Use of a term should not be regarded as affecting the validity of any trademark, registered trademark or service mark.

Please Note:

While every precaution has been taken in the preparation of this manual, SysTec GmbH assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein. The publisher is grateful for any information and/or advice that may contribute to correct errors or omissions in following editions.

Contents

1 Introduction	7
2 Hardware Index	7
3 Connection	8
3.1 Mainboard ITx000E(T)	8
3.2 Connection Of WLAN Antenna	9
4 Start-Up And Configuration	10
4.1 General	10
4.2 Initial Start-Up.....	11
4.3 General Settings Of WLAN Module (Service)	11
4.4 Setting Of WLAN Parameters (Configuration)	13
4.5 Enquire Connection Status and Network Information (Information)	18
4.6 Restart WLX Module (Restart)	19
4.7 Update Config.....	19
4.8 Reset WLX Module To Factory Defaults (Factory Reset)	20
4.9 Restore Settings To Weighing Terminal	21
4.10 Status LEDs On WLX Board	22

1 Introduction

IT4000E/IT6000E(T)/IT8000E(T) are universal industrial weighing terminals for weighing, data capture and batching applications. The WLAN module WLX is intended for the connection of a weighing terminal of this series to a WLAN network.

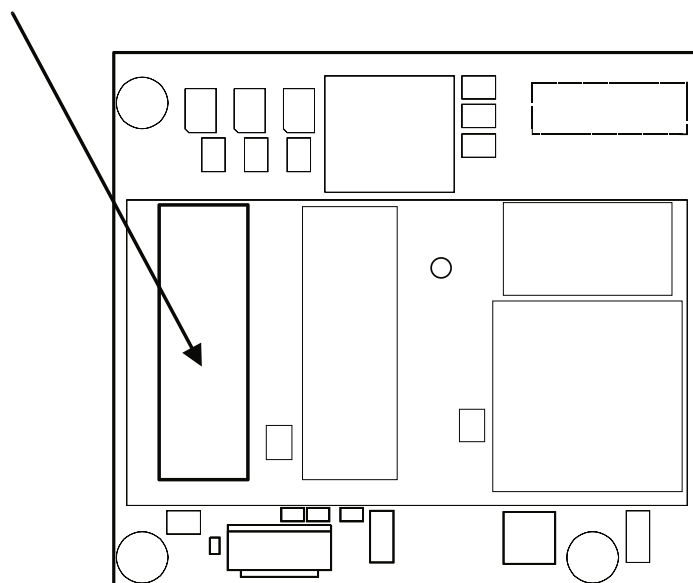
This documentation is valid in conjunction with the respective Technical Manual:

- **IT4000E,** No. ST.2309.1193
- **IT4000E Ex2/22,** No. ST.2309.1597
- **IT6000E,** No. ST.2309.1204
- **IT6000ET,** No. ST.2309.1476
- **IT6000E Ex2/22,** No. ST.2309.1601
- **IT8000E,** No. ST.2309.1188
- **IT8000ET,** No. ST.2309.1472
- **IT8000E Ex2/22,** No. ST.2309.1605

It is essential to follow the safety instructions in the Technical Manual of the respective weighing terminal. This applies in particular to installations in hazardous area.

2 Hardware Index

Plate with hardware index



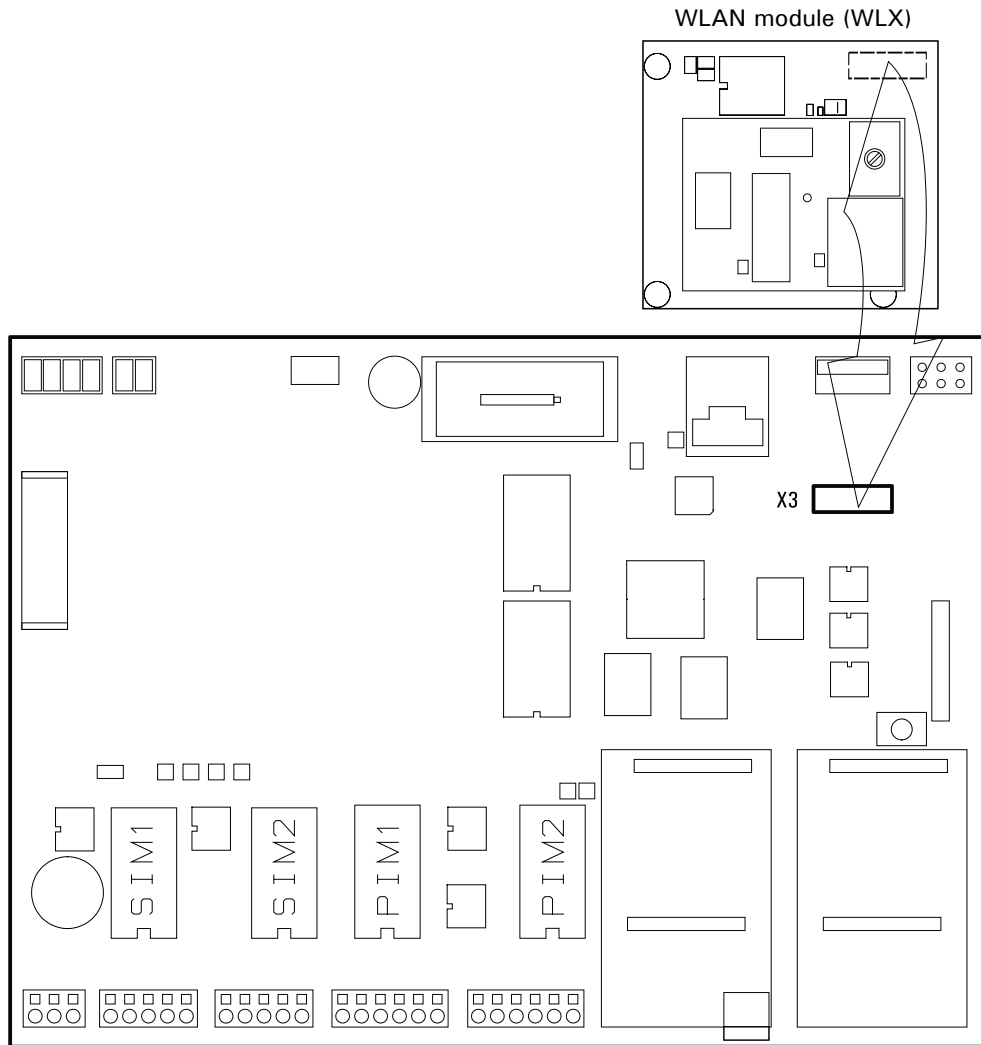
The plate wears the hardware index printed after the type designation 'ST.2300.0520.'. If this mark is missing, the index is less than 004.

From index 004, the firmware version 'V4_I6_20161121.1' or newer must be installed on the weighing terminal. To find out the firmware version, refer to the Technical Manual of the weighing terminal.

The differences between operational steps from index 004 and until (including) index 003 are marked in this manual.

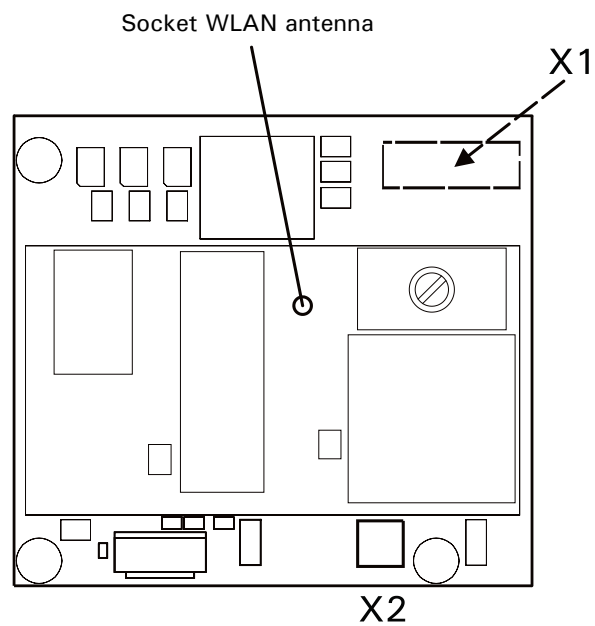
3 Connection

3.1 Mainboard ITx000E(T)



Space for the installation of the WLAN module WLX is reserved on the mainboard of the ITx000E(T) weighing terminal underneath the RJ45 socket for the LAN cable. It consists of three hexagonal threaded bolts and a 12-pin socket.

3.2 Connection Of WLAN Antenna



Note: Use of WLAN module and Ethernet connection (LAN) is NOT possible at the same time.

4 Start-Up And Configuration

4.1 General

For the settings required for the start-up / configuration refer to Service Mode of weighing terminal under section 'WLAN'.

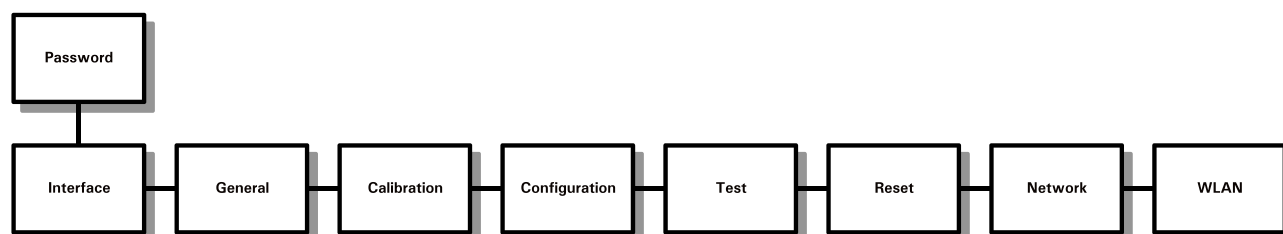
Call up Service Mode and enter Service Mode password.

ID: 81154926 / V3.01

Ident-No. of operating system and version of W&M approved software are shown briefly.

Password: ????

Entry of password (4 characters)



Selection in Service Mode:

Service: Interface



Service: WLAN



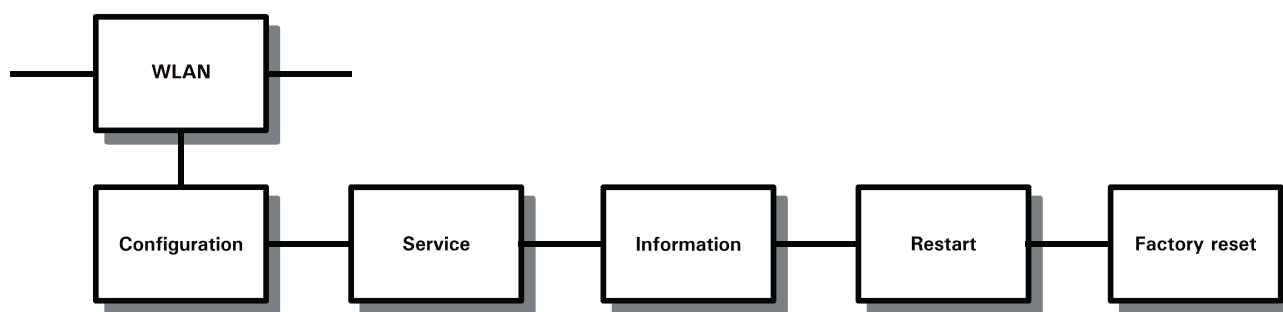
After calling up the Service Mode group 'WLAN' the operating systems attempts to identify the WLX module and to read its settings. This may take a couple of seconds:

Identifying chip ...

Until index 003:

Reading configuration

After that the program branches to the configuration menu of the WLX module.



4.2 Initial Start-Up

For the initial start-up it is recommended to reset the WLX module to factory defaults (see 'Resetting WLX module to factory defaults').

After that call up menu item 'Configuration' to enter the WLAN parameters (see 'Setting of WLAN parameters').

4.3 General Settings Of WLAN Module (Service)

Call up subgroup 'Service' of Service Mode group 'WLAN':

IP: 10.0.10.175

Display / entry of IP address for the internal net connection between terminal and WLX module.

Note: The weighing terminal does not support DHCP and requires a static (permanent) IP address.

Mask: 255.255.0.0

Display / Entry of subnet mask.

Gate: 0.0.0.0

Display / entry of IP address of gateway. If a gateway is not required enter '0.0.0.0'.

Note: For reasons of simplicity, address, net mask and gateway are copied from the 'Network' settings of the weighing terminal and displayed here. However, if required they also may be changed here. This makes it unnecessary to switch between the menus 'Network' and 'WLAN'.

W.IP: 10.0.10.176

Entry of IP address for the WLAN module:

The WLAN module needs its own IP address. This must not be identical to the IP address assigned above and must belong to the same network.

Note: The weighing terminal does not support DHCP and requires a static (permanent) IP address.

Area: European union

Following the requirements of the ETSI standardization institute, only a limited total band width is available with minor deviations for the individual countries with respect to frequencies and transmitting power:

United States

European Union

Japan

Worldwide (other countries)

Band: Dual

Choice of frequency band. Options:

2.4 GHz only 2.4 GHz frequency band

5 GHz only 5 GHz frequency band

Dual 2.4 and 5 GHz band.

Store Changes: Y

With Y(es) settings are stored and the WLAN module performs a reset.

After entry of 'Y(es)' the parameters are saved and the WLAN module is started anew.

Note:

- The gateway must be located in the same network as weighing terminal and WLX module. I.e. the IP address of the gateway must suit the IP address of weighing terminal and WLX module.
- If the IP address of the WLAN module does not match the address range of the weighing terminal, the error message 'WiPort Unreachable' is shown. This message can be acknowledged with Enter/Ok. Thereafter the IP address of the weighing terminal and/or the WLAN module can be corrected.

4.4 Setting Of WLAN Parameters (Configuration)

For connection settings of the WLX module call up subgroup 'Configuration' from the 'WLAN' group of the Service Mode.

SSID: XXXXXXXXXXXXXXXX	Name of network that is to be connected.
Type: Ad Hoc	← → Choose Ad Hoc (point to point) or Infrastructure.

4.4.1 Ad-Hoc Connection With Another Network Node (Point To Point)

Channel 1	Select communication channel (standard = 11)
Security: WEP	Encryption method, options: WEP or None

WEP chosen:

Authentif. Open	Select authentication method to be used: Open or Shared. The Open System Authentication is the standard authentication. The WEP key is at the same time used for authentication: Each client with correct WEP key has access to the network. The Shared Key Authentication is the supposedly more secure version. The authentication takes place via Challenge-Response authentication with a secret key.
Key Size 104	Length of applied key: 104 (WEP128 104 bit key) or 40 (WEP64 40 bit key)
Key Type Hex	Preset for the entry of the key: Hex Hexadecimal entry of key as code Passphrase Alphanumeric entry of key as text

Entry mode 'Hex' chosen:

Hex key: E3085A2C_	Entry of key as 26-digit (104 bit) or as 10-digit (40 bit) hexadecimal number.
--------------------	--

Entry mode 'Passphrase' chosen:

Passphrase:

Entry of key as text.

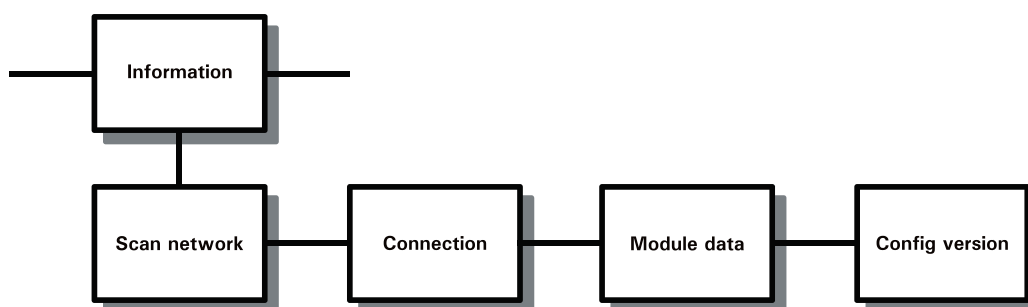
Store Changes:

With Y(es) the entries are stored and the WLAN module automatically performs a reset.

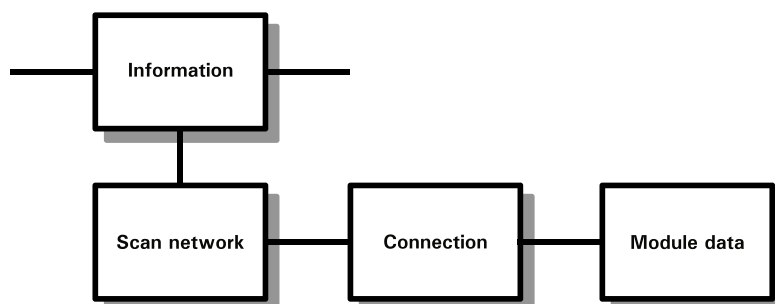
4.4.2 Connection With An Infrastructure Network (Simplified)

Enquire connection status and network information.

Until index 003:



From index 004:



'Scan network' returns the available networks and their parameters.

After pressing the Enter-key a message asks whether a connection to the network is to be established.

A successful connection is indicated with 'Success'.

4.4.3 Connection To Infrastructure Network

Security: WEP

Select encryption method, options:
WEP, WPA, WPA2 and None.

Encryption method WEP chosen:

Authentif. Open

Select authentication method to be used:
Open or Shared.

The **Open** System Authentication is the standard authentication. The WEP key is at the same time used for authentication: Each client with correct WEP key has access to the network.

The **Shared** Key Authentication is the supposedly more secure version. The authentication takes place via Challenge-Response authentication with a secret key.

Encryption method 'WPA' or 'WPA2' chosen:

Authentif. PSK

Select authentication method PSK or IEEE 802.1x.

For Pre-Shared Key **PSK** the same key must be configured on both sides of the connection (ITx000E and Access Point).

For IEEE **802.1x** the WLAN module communicates with a RADIUS authentication server, that is part of the network. The RADIUS server compares the ITx000E logon credentials with an internal database.

Encryption method IEEE 802.1x chosen:

Protocol: LEAP

Select protocol for the authentication of the WLAN client, options:

LEAP Lightweight Extensible Authentication Protocol. A derivative of the CISCO original.

EAP-TLS Extensible Authentication Protocol - Transport Layer Security.

PEAP Protected Extensible Authentication Protocol.

Protocol EAP-TLS chosen:

Opt: EAP-MSCHAPV2

Select inner authentication method, options: EAP-MSCHAPV2, MSCHAPV2, MSCHAP, CHAP, PAP and EAP-MD5

User:

User name for the WLAN access when IEEE 802.1x authentication is used.

Pass:

Pertaining password

Encryption: WEP

Select encryption type. The type must match one of those provided by the access point.

CCMP Uses AES as basis and is the strongest encryption option.

TKIP Uses WEP as the basis, but adds extra checks and variations for added protection.

WEP Based on RC4.

Key Type Hex

Preset for the entry of the key:

Hex Hexadecimal entry of key as code

Passphrase Alphanumeric entry of key as text

Entry mode 'Hex' chosen:

WPAx Key: E3085A2C_

Entry of key as hexadecimal number.

Entry mode 'Passphrase' chosen:

Passphrase:

Entry of key as text.

Authentication method IEEE 802.1x chosen:

Validate Cer disable

Validation of certificate

Enable The WLAN module will attempt to validate the certificate received from the RADIUS server.

Disable No validation

Cred:

Name of client

Store Changes:	Y
----------------	---

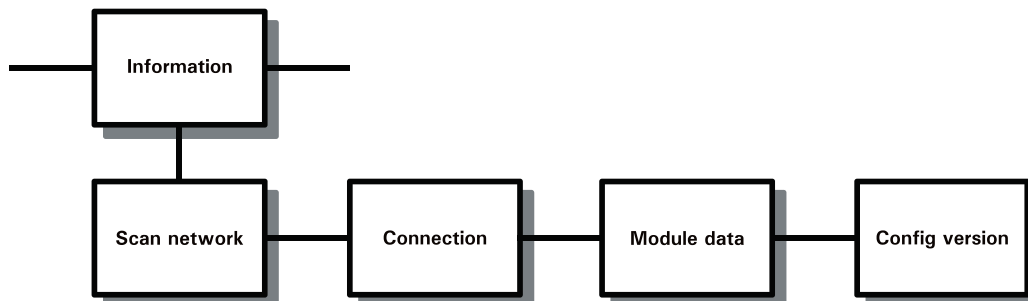
With Y(es) the entries are stored and the WLAN module automatically performs a reset.

After successful configuration the WLAN module is in bridge mode, i.e. the weighing terminal is now accessible in the WLAN via its IP address.

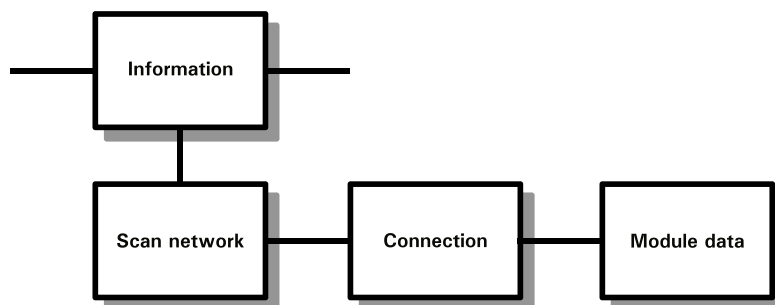
4.5 Enquire Connection Status and Network Information (Information)

The function 'Information' provides details about the module's connection status, available networks, firmware version and version of configuration file.

Until index 003:



From index 004:



Scan network: The available networks are scanned and their parameters shown.

Connection: The parameters of the network connected with the module are shown.

Module data: Name and firmware version of the module are shown.

Until index 003:

Config version: The version of the module's configuration file is shown, if a difference between module and ITx000 is detected, both versions are shown.

4.6 Restart WLX Module (Restart)

With the function 'Restart' the WLAN module can be started anew. No settings are deleted.

Restart Module	Y
----------------	---

 Y Restart WLAN module.

4.7 Update Config

Until index 003:

If -after a firmware update- the version of the configuration file of WLX is higher than that of the weighing terminal, there is the option to update it to the most recent state. Only in this case the message 'Update config' appears in the configuration menu, in addition the message 'config obsolete !' is shown.

Update config	Y
---------------	---

 Y Update configuration file.


4.8 Reset WLX Module To Factory Defaults (Factory Reset)

The function 'Factory reset' is used to reset the WLAN module. The WLAN module can then be configured anew. Before the reset is performed, the IP addresses of the ITx000 and the module are displayed and can be corrected, if applicable. The addresses must belong to the same IP range.

Until index 003:

! ATTENTION

- When a reset is performed, all settings are lost.

From index 004:

Save local data? Y

Y: Temporarily store settings 'Service' and 'Configuration' on WLX.
See chapter 'Restore Settings To Weighing Terminal'

N: Reset all settings to default.

IP 10.0.10.175

Display / enter IP address of host (weighing terminal) for the internal network connection between terminal and WLX module.

Note: The weighing terminal does not support DHCP and requires a static (permanent) IP address.

Mask 255.255.0.0

Display / entry of subnet mask

W.IP 10.0.10.176

Entry of IP address for the WLAN module:
The WLAN module needs its own IP address. This must not be identical to the IP address assigned above and must belong to the same network.

Note: The weighing terminal does not support DHCP and requires a static (permanent) IP address.

Factory defaults Y

Y Reset WLAN module to factory defaults.

4.9 Restore Settings To Weighing Terminal

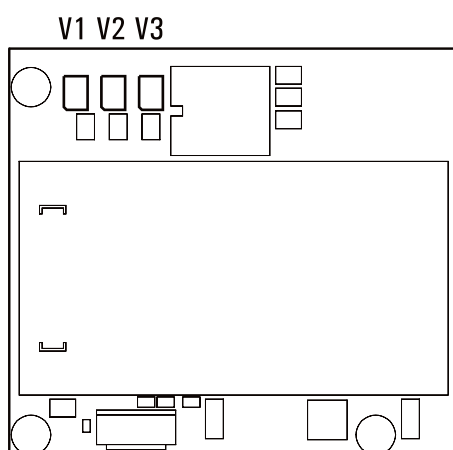
From index 004:

If the setting of the WLX have been saved temporarily in 'Save local data? Y', they must be transferred back from the WLX to the weighing terminal.

At the end of the menus 'Service' and 'Configuration', select 'Store Changes = Y'.

IP: 10.0.10.175	First entry in menu 'Service'
...	
Store Changes: Y	Transfer data to weighing terminal.
SSID: XXXXXXXXXXXXXXXX	First entry in menu 'Configuration'.
...	
Store Changes: Y	Transfer data to weighing terminal.

4.10 Status LEDs On WLX Board



LED	Name	State	Function
V1	WLAN: LINK	On	WLAN switched on
		Off	WLAN switched off
V2	LAN: ACT	On	LAN active
		Off	LAN not active
V5	STATUS: WIP	On	LAN connection
		Off	No LAN connection