Wireless Service Gateway WSG
OpenScape WLAN Phone WL4/WL4 Plus

Installation Guide

A31003-M2000-J109-01-7631

Provide feedback to further optimize this document to edoku@atos.net

As reseller please address further presales related questions to the responsible presales organization at Unify or at your distributor. For specific technical inquiries you may use the support knowledgebase, raise - if a software support contract is in place - a ticket via our partner portal or contact your distributor.

Our Quality and Environmental Management Systems are implemented according to the requirements of the ISO9001 and ISO14001 standards and are certified by an external certification company.

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Contents

Introduction

The Wireless Service Gateway WSG is the hardware platform for Linux based applications such as messaging, alarm handling, administration and device management.

Figure 1: The Wireless Service Gateway WSG

Supply voltage:	100 – 240 V AC ±20%
	12 – 24 V DC -25% / +20%
Current con-sumption:	Max 275 mA at 100 V AC input
	Max 1 A at 12 V DC input
Delivery includes:	Wireless Service Gateway WSG hardware
	The Getting started and Safety document: "Wireless Service Gateway WSG – EMBEDDED LINUX SERVER INCLUDING SAFETY INSTRUC-TIONS"
	Two assembly brackets
	Four screws size 3.5×40 together with four wall plugs
	Four MFT screws size M3×6 for fastening the assembly brackets
	Power cable

Tools etc. required:	Philips screwdriver (Ph No. 2) for the wall screws size 3.5×40
	Torx (T10) for the MFT screws size M3×6
	Screwdriver 0.40 x 2.5 mm for screw connectors on the rear side
	Ethernet cable
	Power supply
	PC with Microsoft Internet Explorer 8.0™ or later

Abbreviations and Glossary

GUI	Graphical User Interface
LON	Local Operating Network
SD-card	a non-volatile Secure Digital memory card

FCC Compliance Statements for Class B Digital Device

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Re-orient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio or television technician for help.

Information to user

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: this device may not cause harmful interference, and this device must accept any interference received, including interference that may cause undesired operation.

Modifications

Changes or modifications to the equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

IC Requirements for Canada

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la Classe B conforme á la norme NMB-003 du Canada.

General Information

Licenses

All Wireless Service Gateway WSG modules must have allready a valid software license. The license number can be found in the application's GUI in the Setup Wizard, on the Configuration page (the first view), on the Advanced Configuration page in System Setup > Common > License.

The MAC Address

The MAC address can be found on a label on the products rear side, in the application's GUI in the Setup Wizard, on the Configuration page (the first view) and on the Advanced Configuration page in Troubleshoot > System Information. It is also found in the Boot Mode GUI under System > Information.

Authentication and Administration

Administration is done via a web browser. The administration pages require a user name and password.

> The default passwords need to be changed to prevent unauthorized access to the administration pages.

Authentication

GUI pages on the Wireless Service Gateway WSG module always have two different user accounts; "admin" and "sysadmin". Some applications also have additional accounts called "user" and "ftpuser".

The **admin** account with the default password "changeme**"**, is used for administration and simple troubleshooting of the module. The admin has permission to change all passwords except the sysadmin password.

The **sysadmin** account with the default password "setmeup", is used for advanced troubleshooting. The sysadmin has access to all administration pages and has permission to change passwords for all users.

The additional account **user** with the default password "password"**,** is found in some Wireless Service Gateway WSG applications. This user is application dependent and the field of application is described in the corresponding application documentation. This user does not have access to the administration pages where passwords normally are changed, but the user can change its own password on the following page; http://xxx.xxx.xxx.xxx/admin/public/user_chpass.shtml. The password can also be changed by the admin and sysadmin.

The additional account **ftpuser** with the default password "changemetoo", is found in some Wireless Service Gateway WSG applications. The user is available in products with an FTP area. This user can change its own password on the following page; http://xxx.xxx.xxx.xxx/admin/public/ftpuser_chpass.shtml.

Administration

The application's **Advanced Configuration** page requires the **admin** account. The page can be reached directly by entering "xxx.xxx.xxx.xxx/admin" in the address bar, where xxx.xxx.xxx.xxx is the modules IP address. For applications having a start page, it can also be reached by pressing the "Configuration" button on the start page and then selecting Other Settings > Advanced Configuration.

All configurations can be set and changed on the **Advanced Configuration** page, such as system setup, changing passwords, etc. This page also contains troubleshooting and detailed configuration, for example Messaging interfaces, i.e. WLAN and Serial interfaces etc.

Description

The Wireless Service Gateway WSG front side has different status indications and is used for maintenance. The LEDs indicates the status of the module and the management port makes it possible to have direct connection to the module. It also has an SD card slot and two USB ports for external temporary devices.

The rear side is used for connecting supply voltage, communication to Ascom systems, external systems, inputs/outputs etc.
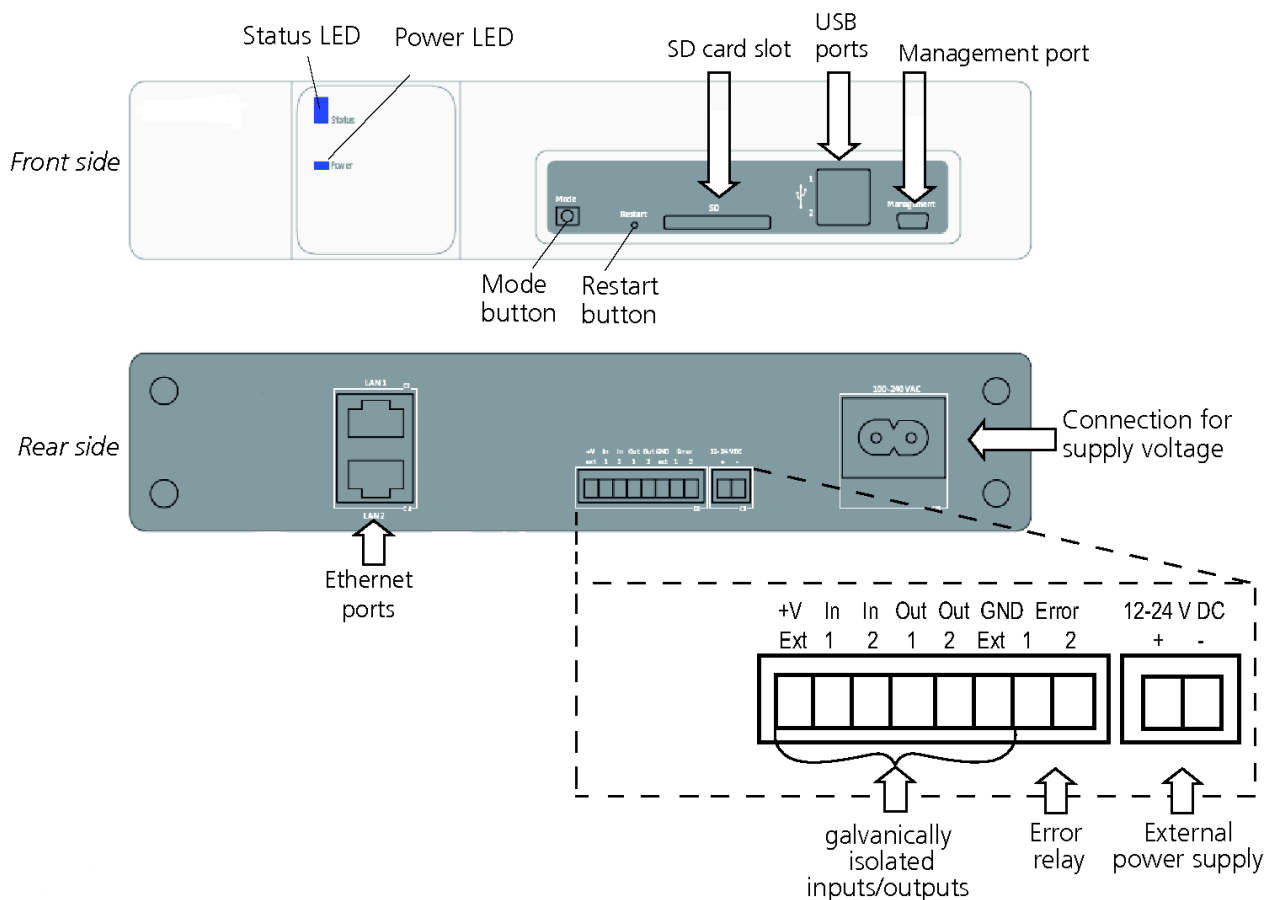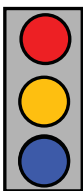
Overview of Connectors, Buttons and LEDs

Figure 2: Connections, Buttons and LEDs

Front side	
Status LED	Indicates the module status, see LED Indications on page 11
Power LED	Indicates the power status, see LED Indications on page 11
	USB port 1
	USB port 2
	for upgrade of the Boot software on the field.

Management	Mini-USB port for device management, see Accessing Wireless Service Gateway WSG on page 22.
Mode button	The Mode button is a momentary push button with a blue LED. Used for placing the module into specific modes by different push patterns.
Restart button	The Restart button is a hole button that requires a paper clip (or similar) to be able to push. Used for performing controlled restart and forced restart, see Restarting the Wireless Service Gateway WSG on page 37.
SD card slot	Currently not used (for future releases)
Rear side	
LAN1	Modular jacks (RJ45) for connection of 10baseT or 100baseT Ethernet TCP/IP network, see Ethernet Ports on page 21.
LAN2	Currently not used (for future releases)
V+ Ext/GND Ext	External 12 V power supply to provide galvanic isolation of the inputs and outputs, see below.
In1/In2 and Out1/Out2	Connects AUX Inputs and AUX Outputs, see Connection of AUX Inputs and AUX Outputs on page 22.
Error	Connector where an error relay output is available, see Error Relay Output on page 21.
12-24 V DC	Connection for external backup battery/power supply, see Supply Voltage on page 19
100-240 V AC	Connection of supply voltage, see Supply Voltage on page 19

LED Indications

The LEDs show different colors to determine type of information and have different flashing frequency for showing the priority

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	Colors	
	Red	Fault indication
	Yellow	Mode indication
	Blue	Normal operation (OK)

Flashing Patterns

Fixed light indicates normal state
Slow flashing light indicates medium attention
Quick flashing light indicates high attention

Status LED

State	Status LED		Mode LED
Status OK	*Blue*	(fixed blue)	
Starting up/ shutting down	*Blue*	(blue quick flashing)	
Feedback *(1 second)*	*Blue*	(blue slow flashing)	
Error/fault	*Red*	(red quick flashing)	
Warning	*Red*	(red slow flashing)	
Boot mode	*Yellow*	(yellow slow flashing)	*Blue* (fixed blue)
Demonstration mode	*Yellow*	(yellow slow flashing)	*Blue* (fixed blue)
Waiting for automatic startup *(1 minute)*	*Yellow*	(yellow quick flashing)	
Troubleshoot mode and during firmware upgrade	*Yellow*	(fixed yellow)	
Mass storage mode			*Blue* (blue flashing)

Secured settings   *Status LED*   *Mode LED*

State	Status LED		Mode LED	
Indicates that manual confirmation is required			*Blue*	(blue quick flashing)
Confirmation is done and setting can be activated	*Yellow*	(fixed yellow)	*Blue*	(fixed blue)

Power   *Power LED*

State	Power LED	
Power OK	*Blue*	(fixed blue)
Closing down caused by low voltage	*Red*	(red quick flashing)
Low voltage*	*Red*	(red slow flashing)

* also used if the Power parameter conflicts
with the actual setup.

Figure 3: LED indications

Operating Modes

Besides normal operation the Wireless Service Gateway WSG can be operated in three other modes, i.e. Boot Mode, Demonstration Mode and Troubleshoot Mode.

Normal Operation

All configuration and settings for the application, maintenance such as backups, software upgrade and troubleshooting, are performed in the application GUI and is described in the separate application documentation. The application GUI is the web user interface for the software application running on Wireless Service Gateway WSG.

Boot Mode

When the application running on Wireless Service Gateway WSG cannot be accessed the module can be set in Boot Mode i.e.the web interface of the module. From this GUI it is possible to install new software, start Troubleshoot Mode, see settings and to reset the module back to factory default settings.[1]

Placing the module in Boot Mode is performed manually by the user but if the module detects several major errors the module can place itself in Boot Mode. Refer to chapter Message Distribution on page 29.

Demonstration Mode

Demonstration Mode makes it possible to run the Wireless Service Gateway WSG for two hours with full or almost full functionality, with or without a valid license. Exact functionality is application dependent. For more information about the functionality during demonstration mode, see the application documentation.

Refer to chapter Run in Demonstration Mode on page 35.

Troubleshoot Mode

Troubleshoot Mode makes it possible to troubleshoot the system and access log files when it is impossible to access and troubleshoot in the application running on Wireless Service Gateway WSG, i.e. in Troubleshoot Mode no application is started.

Troubleshoot Mode is started from the Boot Mode GUI, see Troubleshooting from Boot Mode on page 39.

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[1] Network settings such (IP address, Host name, etc.) will not be changed when resetting back to factory default.

Installation and Configuration

The Wireless Service Gateway WSG can be mounted vertically on a wall or be placed horizontally in a 19" rack. It must be fixed by screws or other fixtures to the wall or rack, and must not be easily movable.

Installation Procedure

1) Mount the device, see Mounting on page 14 below.
2) Connect the supply voltage, see Supply Voltage on page 19.
3) Access the module via the web interface, see Accessing Wireless Service Gateway WSG on page 22.
4) Fill in all required data, see Basic Configuration on page 27.
5) Connect to required equipment, such as Ascom systems, other external equipment, etc. see Connections on page 21.

Mounting

Wireless Service Gateway WSG should be placed in a dry environment with a temperature range of 0 to +40ºC.

Wall Mounting

Four screws size 3,5×40 together with four wall plugs and four screws size M3×6, are delivered with the product. The M3×6 screws are used for attaching the assembly brackets to the module. Use the 3,5×40 screws for walls made of wood. For walls made of concrete and bricks use them together with the wall plugs. For other types of walls use suitable screws and plugs according to wall material.

When mounted on a wall, it is of great importance that the connections are located in a vertical plane to fulfil the fire classification.

1) Fasten the supplied assembly brackets on the bottom side of the module.
2) Use the supplied screws and wall plugs (or other suitable screws and plugs dependent on wall material) and mount the module as shown in the picture below

Connectors →   ← Connectors
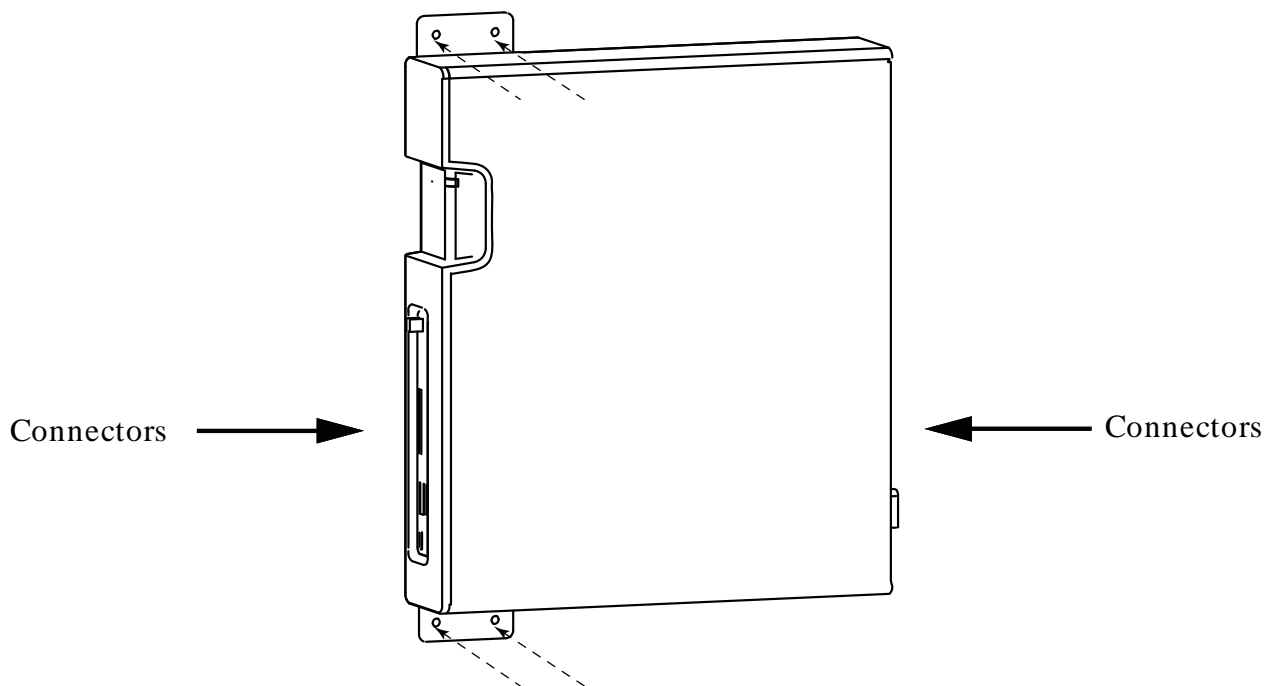
Figure 4: Mounting on a wall

Rack Mounting

The Wireless Service Gateway WSG can be either front mounted or reverse mounted in a 19´´ rack.

Accessories for mounting in a rack (ordered separately)	
Standard 19´´ rack kit:	Small left/right brackets for two front mounted Wireless Service Gateway WSG modules and one big bracket for one front mounted Wireless Service Gateway WSG module.
Reverse 19´´ rack kit:	Small left/right brackets for two reverse mounted Wireless Service Gateway WSG modules and one big bracket for one reverse mounted Wireless Service Gateway WSG module.

Screws for fastening the assembly brackets in the rack are not included in the delivery.

Front mounted single

• Requires the standard 19´´ rack kit

1) Fasten the big assembly bracket on the right side of the module and the small assembly bracket on the left side as shown in the figure below.

Figure 5: Mounting the assembly bracket

2) Fasten the assembly brackets in the rack, see below (screws not included).

Figure 6: Front mounted single in rack

Front mounted double

•   Requires the standard 19´´ rack kit

1) Use the supplied assembly brackets and fasten the two modules together, both on the rear side and on the bottom side, as shown in the two figures below.

Figure 7: Front mounted double
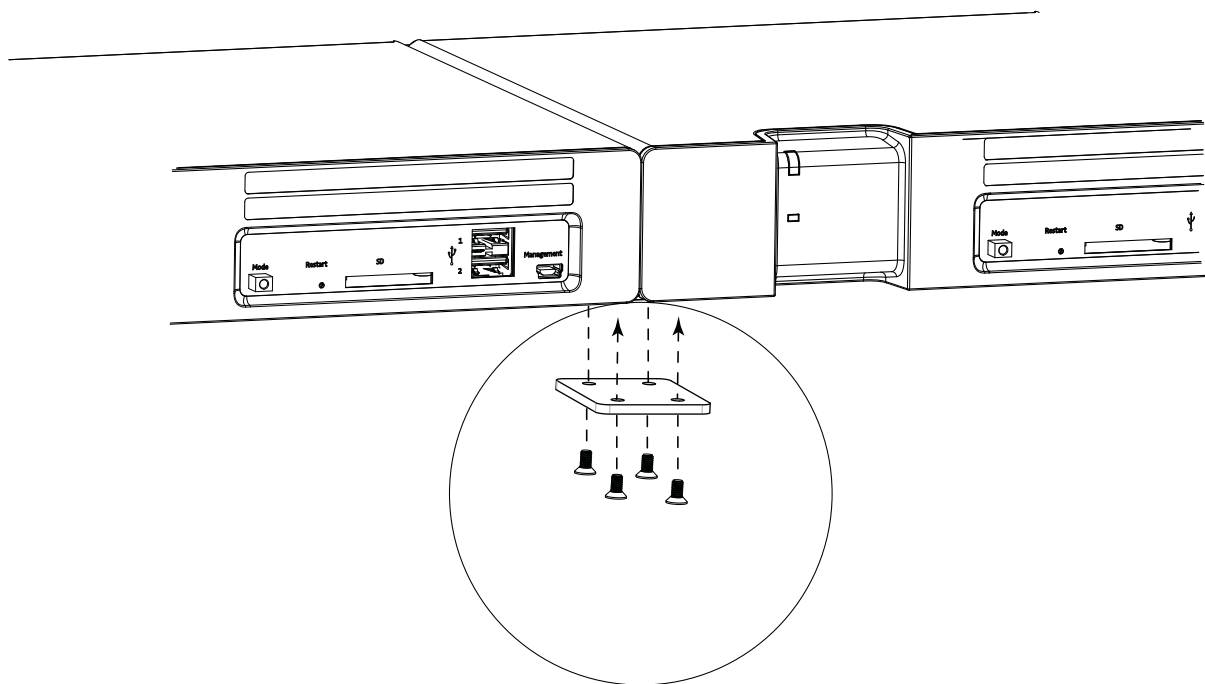
Figure 8: Front mounted double

2) Use the two small standard assembly brackets and fasten one on the right front side and the other on the left front side.

3) Fasten the assembly brackets in the rack, see figure below (screws not included).
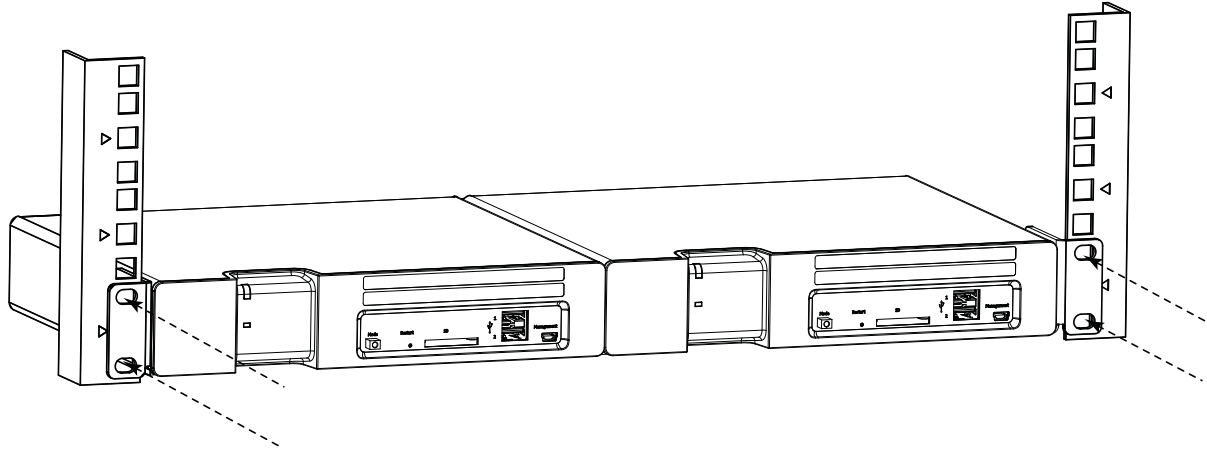
Figure 9: Front mounted double in rack

Rear mounted single

• Requires the reverse 19´´ rack kit

1) Fasten the big assembly bracket on the right side of the module and the small assembly brackets on the left side, as shown in the figure below
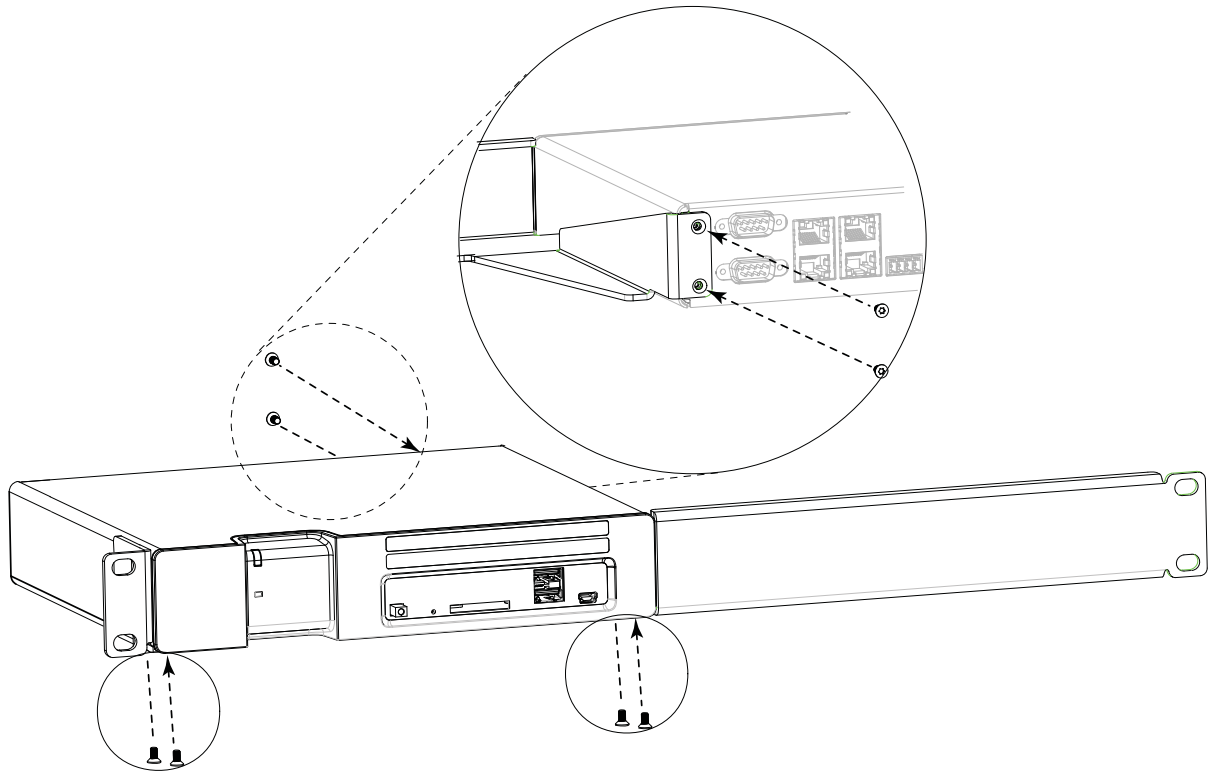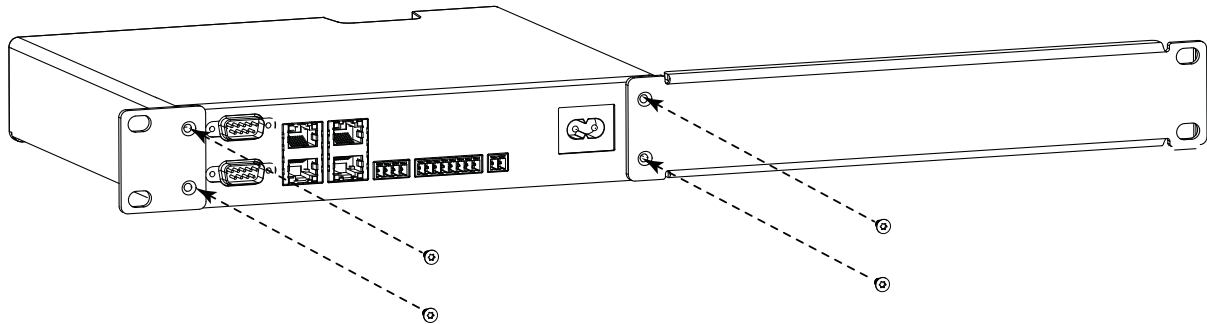
Figure 10: Rear mounted single

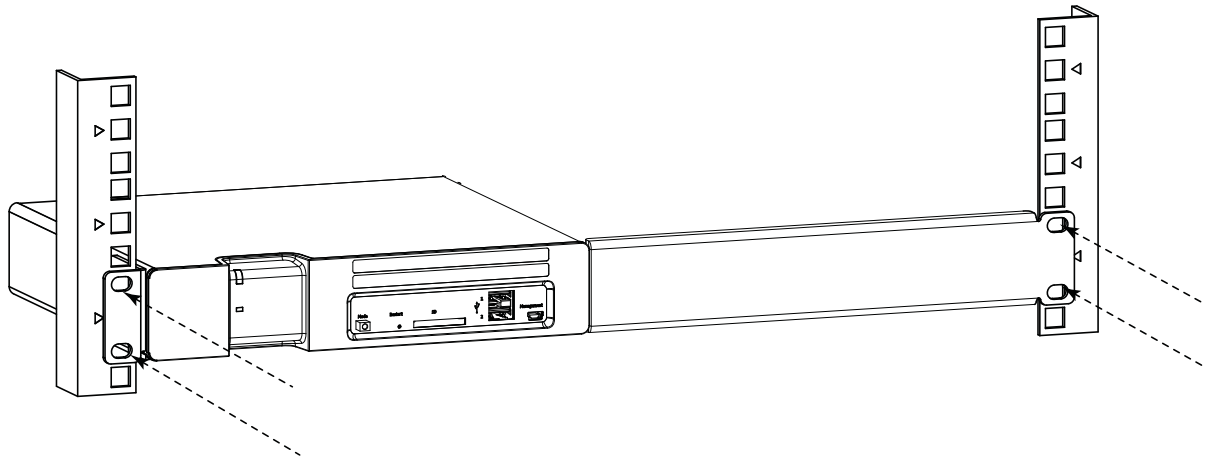**2)** Fasten the assembly brackets in the rack, see below (screws not included).
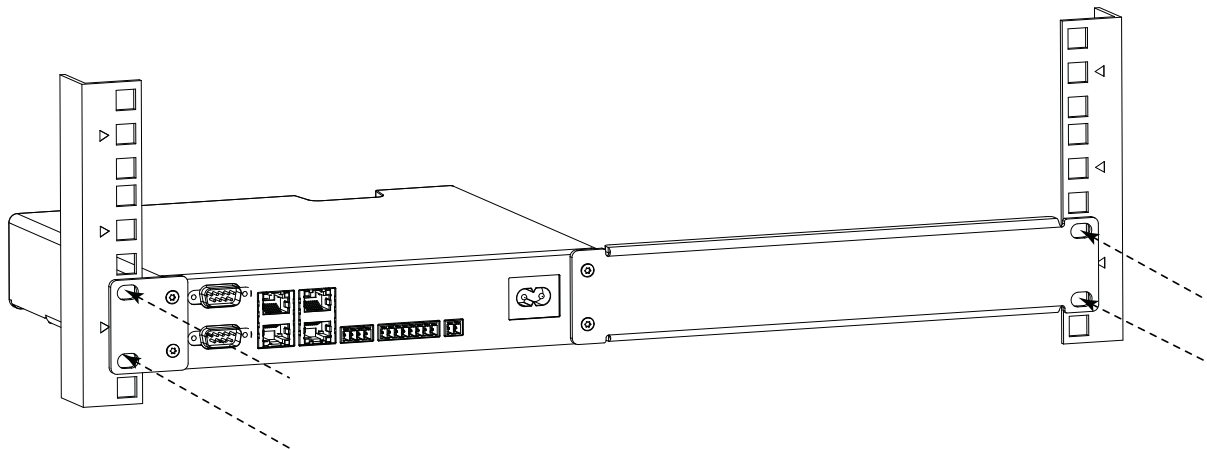
Figure 11: Rear mounted single in rack

Rear mounted double

• Requires the reverse 19´´ rack kit

1) Use the supplied assembly brackets and mount the two modules together, both on the rear side and on the bottom side, see figure below.
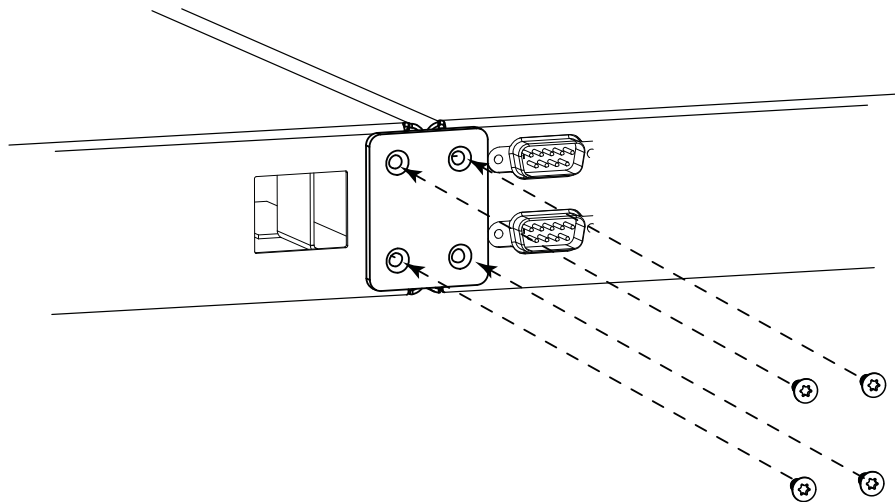
2) Use the two small reverse assembly brackets and fasten one on the right rear side and the other on the left rear side.
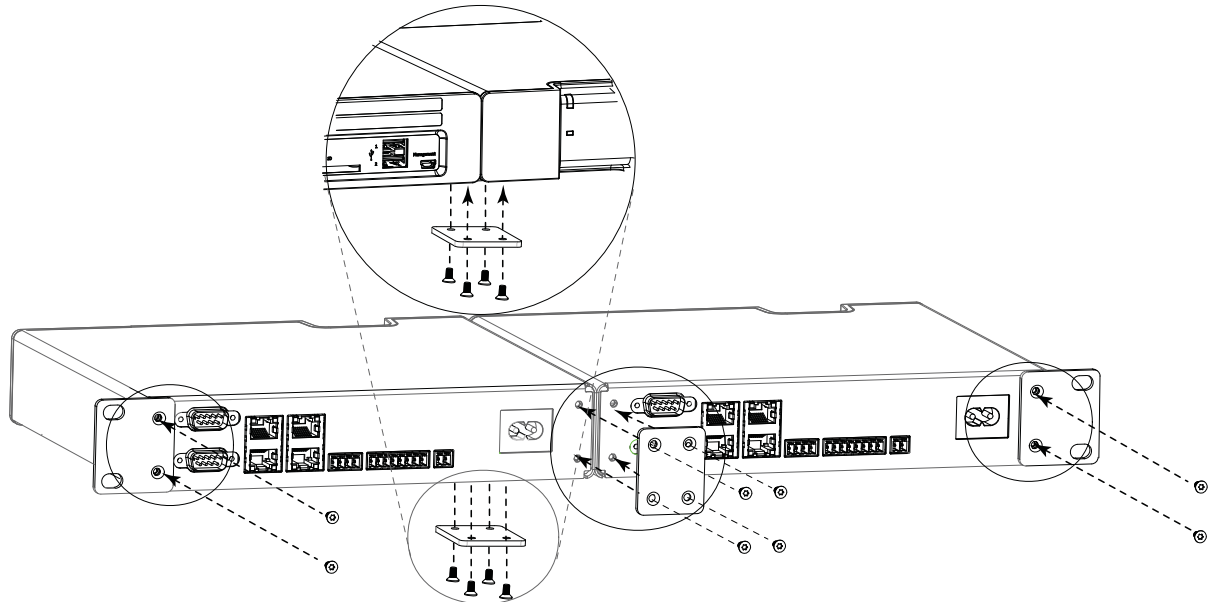
Figure 12: Rear mounted double in rack

3) Fasten the assembly brackets in the rack, see below (screws not included).
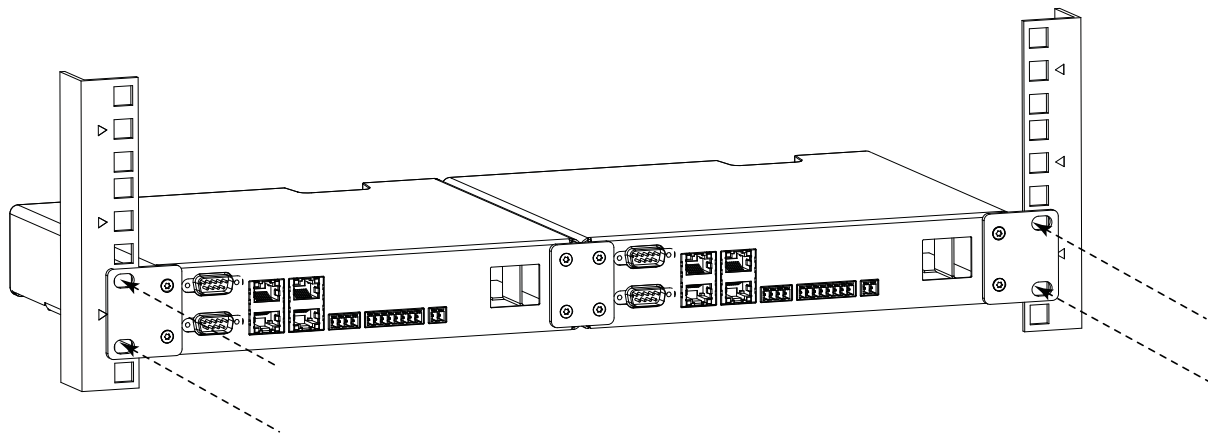
Figure 13: Rear mounted double in rack

Supply Voltage

Wireless Service Gateway WSG can be connected to an external power supply (12-24 V DC battery or power source) as a complement to the primary power supply (100-240 V AC). If the primary power supply fails it switches over to the external power supply automatically, without any negative influence on the running application.

24 hours backup requires a 12V battery with at least 4.8 Ah.

For installation on ships the 12 - 24 V DC input should be used to meet the regulatory requirements for safety and EMC. (To meet the regulatory requirements for EMC alone, the

12 - 24 V DC input should be used on deck, bridge and in special power distribution zones while 100 - 240 V AC input can be used in general power distribution zones).

Primary power supply 100-240 V AC

• Connect supply voltage to the 100-240 V AC jack.

100-240 VAC
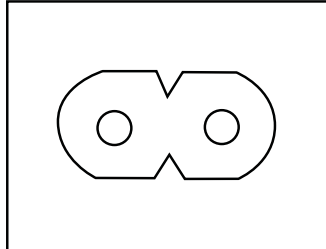
Figure 14: 100 - 240 V AC jack

External power supply 12-24 V DC

• Connect the external power supply to the 12-24 V DC screw connector

12-24 VDC
+   -
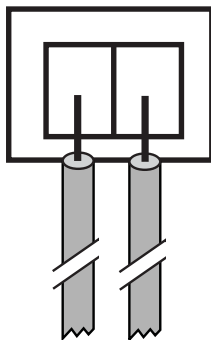
Figure 15: 12 - 24 V DC connection to external power supply

Change Power Supply parameter

Wireless Service Gateway WSG is default configured to use the primary power supply (100-240 V AC). If connected to an external battery, this must be configured from the **Advanced Configuration** page. If the parameter setting conflicts with the actual setup, the Power LED will indicate with slow flashing red light.

1) Select Other Settings > Advanced Configuration in the menu on the **Configuration** page.

2) Select Power supply in the menu on the **Advanced Configuration** page.

Module settings

Power supply connection [?] | Internal PSU only [v] | **Previous**
Internal PSU only | **Factory**
External PSU only
Internal and external PSU
Internal PSU and external battery
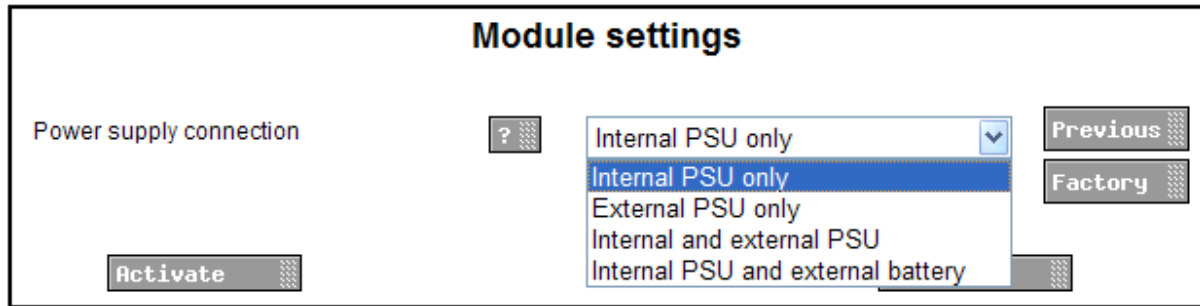
Activate

Figure 16: Power supply parameter

3) Select setting in the drop-down list (Internal PSU only, External PSU only, Internal and external PSU or Internal PSU and external battery).

4) Click "Activate".

Connections

Ethernet Ports

The Wireless Service Gateway WSG has two 10baseT/100baseT Ethernet modular jacks (RJ45) but only the jack marked 1 is currently in use (the jack marked 2 is intended for future releases).

Shielded ethernet cables should be used for installation on trains to meet the regulatory requirements for railway equipment.

Error Relay Output

A relay output is used to indicate Wireless Service Gateway WSG module malfunction and can also be used to indicate other errors. See the application documentation for more information about functionality. Connections are made with twisted pairs to 1 and 2 on screw connector Error.

+V   In   In   Out Out GND Error
Ext   1   2   1   2   Ext   1   2

Error relay output

Figure 17: Error relay

When the Wireless Service Gateway WSG is running the relay is closed, i.e. the error relay output is activated when the relay releases, for example if the power is dropped. At power up or restart the relay is released until the applications are working properly. If the relay is released longer the Wireless Service Gateway WSG is malfunctioning.

Connection of AUX Inputs and AUX Outputs

The application of the inputs and outputs are software dependent
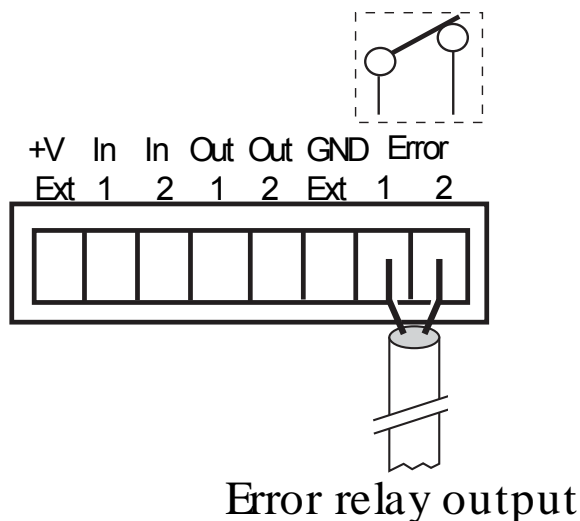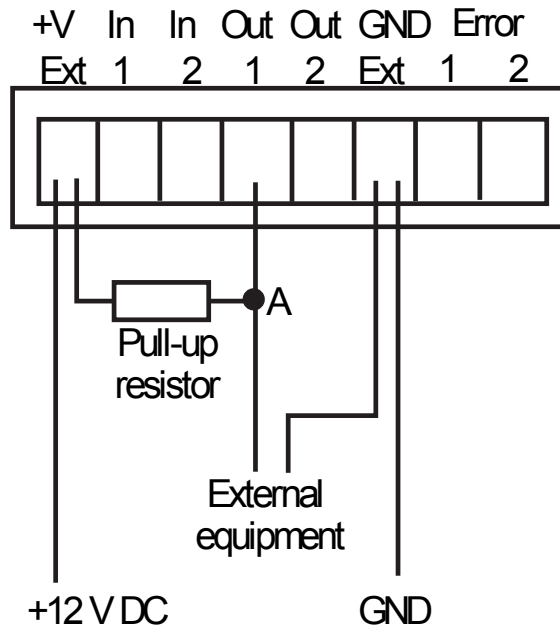

Figure 18: AUX inputs and outputs

Two digital inputs and two digital outputs can be connected. The outputs are of open-collector type and the output signals are dimensioned for 100 mA at max 12 V. A pull-up resistor should be connected to the output as shown in Figure 18 on page 22.

Galvanic isolation of the inputs and outputs is provided by using a separate power supply.

If galvanic isolation is not needed and Wireless Service Gateway WSG is supplied by an external 12 V power source, the supply voltage can be taken from the 12-24 V DC screw connector by connecting +V Ext to "+" and GND Ext to "-".

The inputs In 1 and In 2 are active when they are connected to 12 V. When the output Out 1 is active, the potential in point A in Figure 18 on page 22 will be close to 0 V. The same applies for a similar connection for Out 2.

Accessing Wireless Service Gateway WSG

The Wireless Service Gateway WSG can be accessed either via an IP network or directly via the management port (mini-USB). The web browser Internet Explorer 8.0™ or later is used for accessing the product´s web interface.

Access via the Network

It is recommended that this module always gets the same IP address if it communicates with other equipment, to prevent it from losing contact with the equipment after a restart. Inform the net-

work administrator about the MAC address and ask to reserve a fixed IP address via DHCP for this module.

> If NetBIOS is enabled in the network, the address elise-XXXXXXXX can be used when accessing the module via the network, where XXXXXXXX is the module key number. The module key number can be found on the license certificate or on the label on the back of the module.

> Pre-condition: You have access to the network that Wireless Service Gateway WSG is attached to. If not, go to Section 0.0.1, "Access via the Management port".

1) Connect the module to the LAN.
2) Open the web browser and enter the modules IP address or elise-XXXXXXXX, where XXXXXXXX is the module key number (leading zeros can be excluded). The module key number can be found on the license certificate or on the label on the back of the module.
3) Continue in Basic Configuration on page 27.

Access via the Management port

The management port can be used when Wireless Service Gateway WSG has not got a valid and unique IP address or when the IP address has been changed, i.e. if Wireless Service Gateway WSG has been moved from one network to another. It gives access to the module without having access to the customer's network.
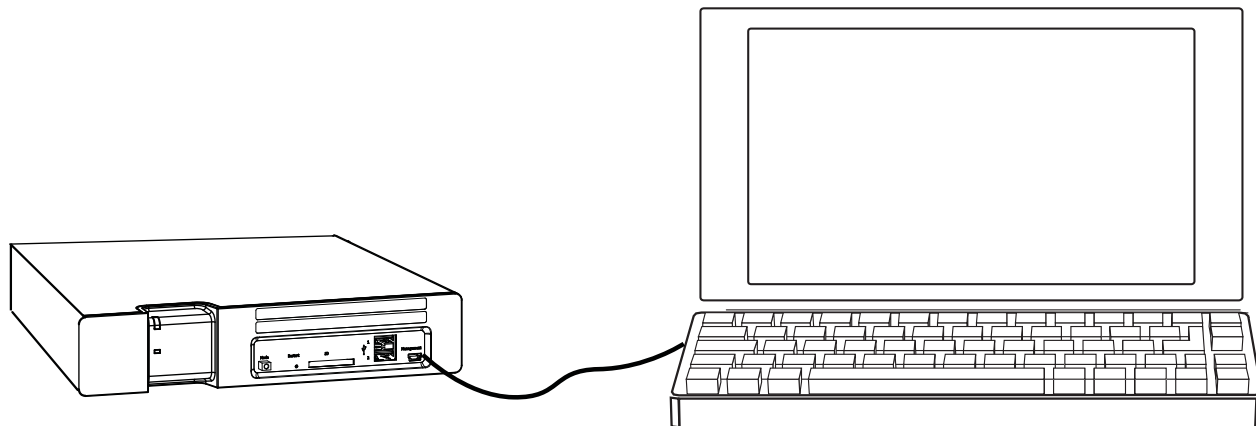
Figure 19: Connection via the Management port

> The reserved IP address for accessing Wireless Service Gateway WSG via the management port is "192.5.36.229".

> A port driver needs to be installed on your PC to get access via the management port. The driver is located on the module.

The default mode for the management port is Network access but Mass storage is used to get the required driver for the module. When set to Mass storage, the module will automatically change to Network access within 10 minutes. By pressing the Mode button twice, the Management port toggles from **Network access** to **Mass storage** and the other way around.

The Mass storage mode is only used when the driver, required for accessing the module via the management port, shall be installed. This is only needed the first time the PC is used for this purpose.

1) Connect a mini-USB type B cable between the USB port on your PC and the management port on the module.

> If the required port driver is not installed on the PC, install it now. The installation differs dependent on the operating system, see eitherInstall the Port Driver on Windows XP/Vista on page 24 below or Install the Port Driver on Windows 7 on page 25.

2) Open a web browser on your PC and enter the IP address "192.5.36.229" in the address field to access the products web interface.

3) Continue in Basic Configuration on page 27.

Install the Port Driver on Windows XP/Vista

> When switching between mass storage mode and network mode, it takes about 30 seconds before the module can be accessed with the 192.5.36.229 address.

1) Connect a mini-USB type B cable between the USB port on your PC and the management port on the module.

The **Found new hardware wizard** opens but at this stage there is no valid port driver so close the wizard and continue to install the driver.

2) Press the Mode button twice to change the mode to **mass storage**.

The module will now turn up as a **mass storage** device on your computer. This is indicated by slow flashing blue light ■ ■ ■ ■ on the Mode button LED.

3) Locate the required "Wireless Service Gateway WSG.inf" driver and save it on your PC.
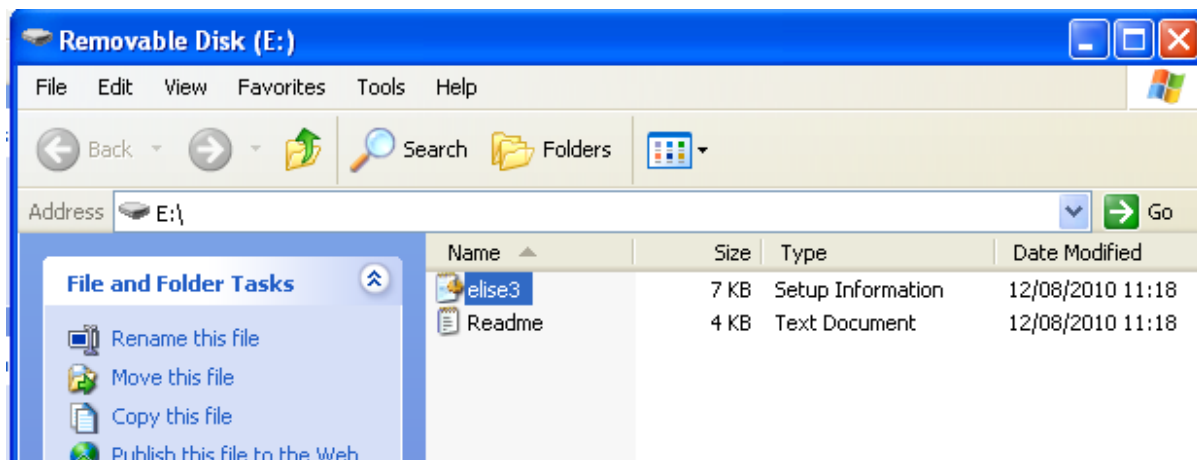
Figure 20: Locate the driver

4) Press the Mode button twice again to change the mode to **network access**[2]. The Found new hardware.... dialogue box opens.

5) Select **No, not this time** and click "Next".

6) Select **Install from a list or specific location (Advanced)** and click "Next".

7) Select **Search for the best driver in these locations.**

8) Select the **Include this location in the search:** check box.

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2 If not pressed within 10 minutes, the module will automatically change to Network access (default mode).

9) Browse to the folder where the port driver is saved.
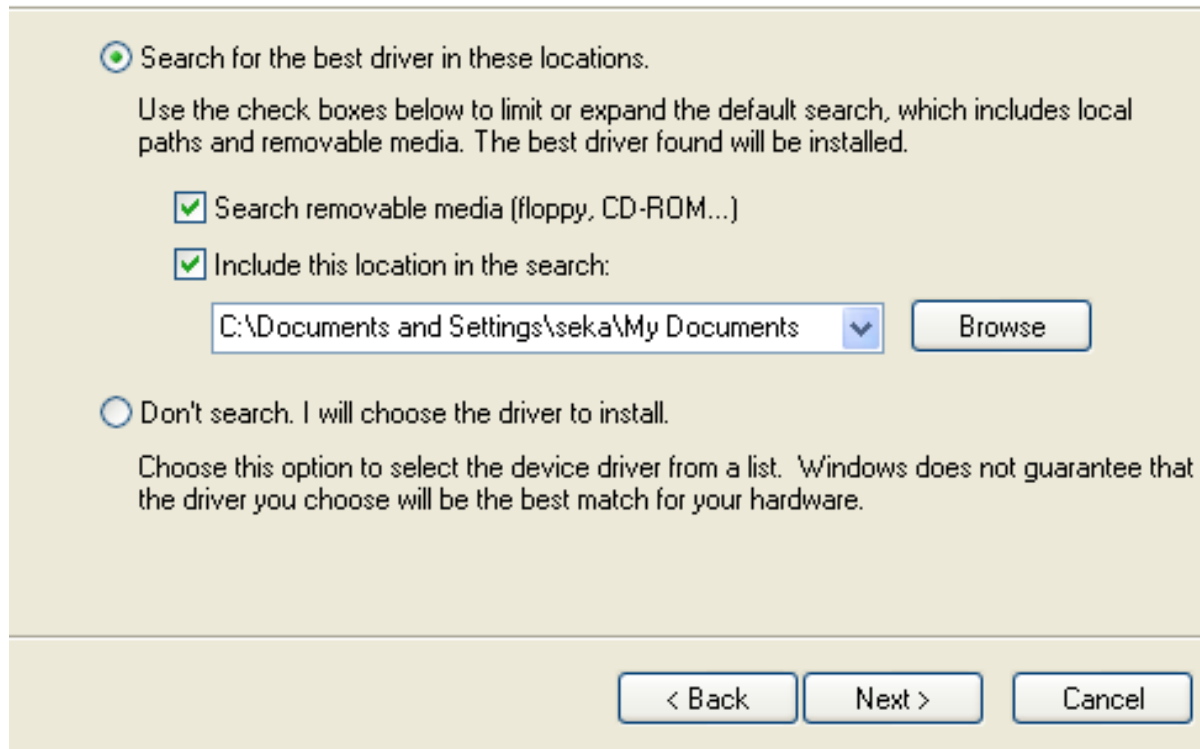
Figure 21: Saving port driver

10) Click "Next". The installation of the port driver begins. If a message opens, saying the software has not passed Windows Logo testing, click "Continue Anyway".

11) Click "Finish". A dialogue box will open and inform you that new hardware is installed.

Install the Port Driver on Windows 7

When switching between mass storage mode and network mode, it takes about 30 seconds before the module can be accessed with the 192.5.36.229 address.

1) Connect a mini-USB type B cable between the USB port on your PC and the management port on the module.

2) Press the Mode button twice to change the mode to **mass storage**.

The module will now turn up as a **mass storage** device on your computer. This is indicated by slow flashing blue light ▮ ▮ ▮ ▮ on the Mode button LED.

3) Locate the required "Wireless Service Gateway WSG.inf" driver and save it on your PC.
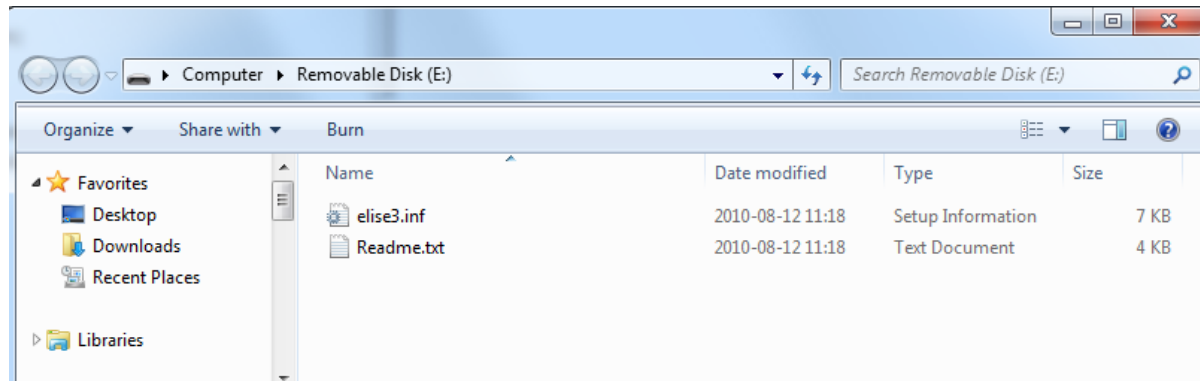

Figure 22: Save driver on PC

4) Press the Mode button twice again to change the mode to **network access**[3].

5) Select Control Panel > Hardware and Sound.

6) Select "Device Manager" under **Devices and Printers.**

Figure 23: RNDIS/Ethernet gadget

7) Right click "RNDIS/Ethernet gadget" and select "Update driver software". A new window opens.

8) Click "Browse my computer for driver software".

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3 If not pressed within 10 minutes the module will automatically change to Network access (default mode).

9) Browse to the folder where the port driver is saved and click "Next". A Windows security window opens.
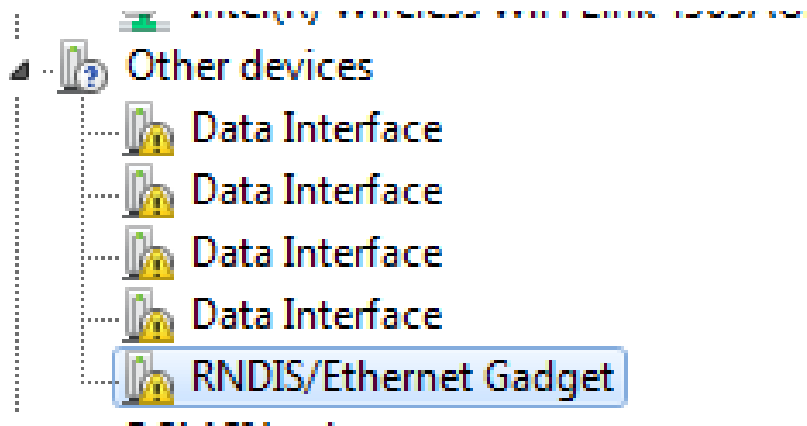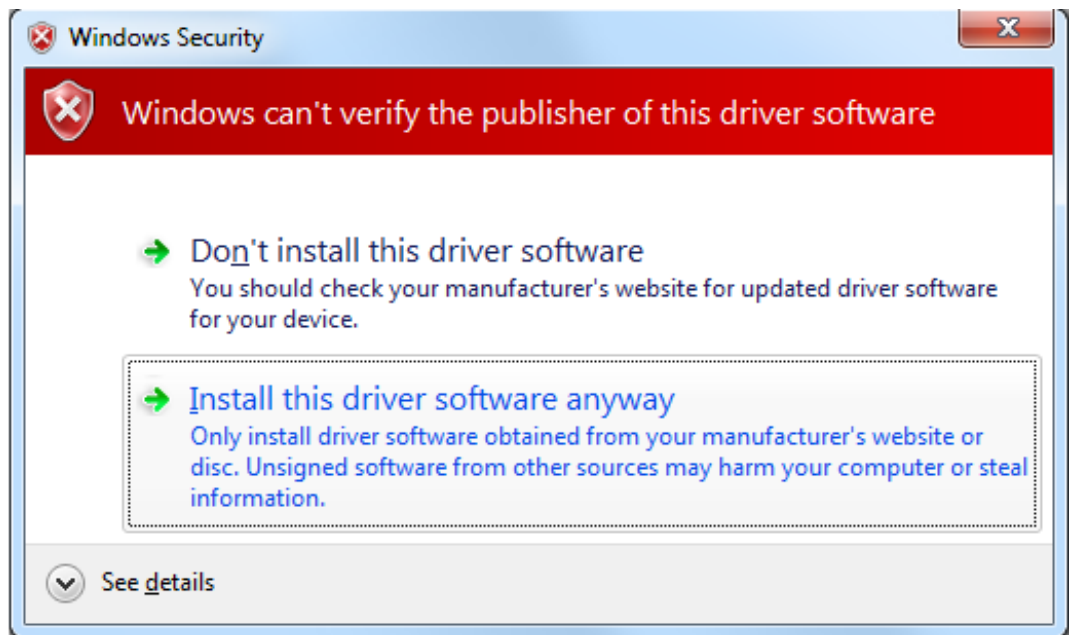

Figure 24: Security window

10) Click "Install this driver software anyway". The installation of the port driver begins.
11) Click "Close" when the installation has finished.

The port driver "Linux USB Ethernet/RNDIS Gadget" is now installed in Control Panel > Hardware and Sound > Devices and Printers > Device manager > Network adapters.
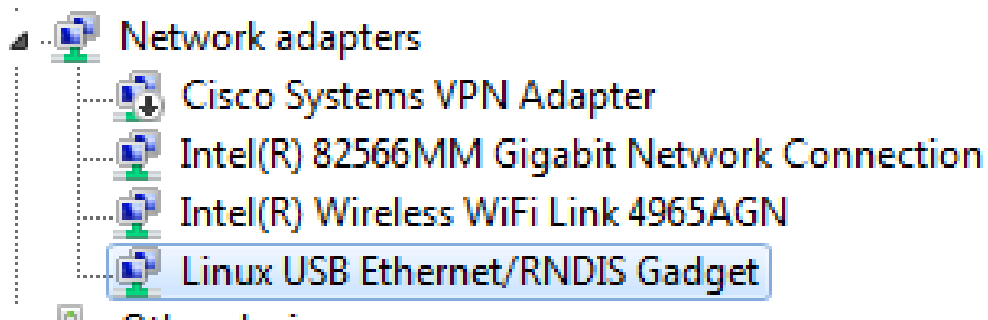
Figure 25: Network adapters

Basic Configuration

Wireless Service Gateway WSG needs to be configured with basic settings. Some products settings can be set in an installation Setup Wizard accessible from the web interface. The Setup Wizard will start automatically the first time the module is accessed from the web browser and every time until the configuration has been saved. Follow the wizard and fill in the required data (IP address, NTP server, license etc.). After it has been saved the wizard can always be opened from the start page. Other settings are set from the application's configuration pages and are described in the application's Installation and Operation Manual.

For products not having a Setup Wizard, all settings are set from the products **Advanced Configuration** page, see

Setup via the Setup Wizard

1) Access the module either via the network or via the management port, see Accessing Wireless Service Gateway WSG on page 22.

2) Enter user name "admin" and the password "changeme".

3) Complete the Setup Wizard.

4) (If the module's network IP address has not been assigned by an DHCP server, it must be set manually in the wizard).

5) Select "Restart immediately" when the setup wizard has finished.

The module will restart with the new configuration.

Setup from the Advanced Configuration Page

1) Access the module either via the network or via the management port, see Accessing Wireless Service Gateway WSG on page 22.

2) Enter user name "admin" and the password "changeme".

3) Click "System Setup" and navigate to "Network". Set the network parameters.

4) Use the online help if any problems occur.

5) Click "License" and enter the license number.

6) Set the time, see Clock Synchronization and Time Settings on page 29.

7) Change the default passwords for all users. If the passwords are not changed, anyone with knowledge of the default passwords can access the module and change any parameter.

8) Restart Wireless Service Gateway WSG. Select "Reboot" in the menu and click the "Reboot" button.

9) When Wireless Service Gateway WSG has been restarted, enter the URL xxx.xxx.xxx.xxx/admin in your browser (xxx.xxx.xxx.xxx is the IP address that was given to Wireless Service Gateway WSG during network setup) to see that it has started up correctly.

Change Secured Settings

To be able to activate some security settings it is required that someone physically confirms the changes on the module. This is a security feature due to the remote access (LAN or VPN) ability on the Wireless Service Gateway WSG module. An Wireless Service Gateway WSG module is often locked in some kind of secured area that only approved users have access to (such as the server room).

• When clicking the "Activate" button for a secured setting the web user interface will prompt the user to confirm the secured change by pressing the Mode button on the module. The module's Mode button LED indicates that a confirmation is needed with a quick flashing blue light.

Mode LED

Figure 26: Configuration is required

Push the Mode button. The Mode button LED stops flashing and indicates that confirmation has been done with fixed yellow light on the status LED and fixed blue light on the mode button.

Status LED   *Mode LED*

Figure 27: Confirmation done, security settings can be saved

1) Click the "Activate" button to save the secured setting.

The possibility to save secured settings is open for 10 minutes after the Mode button has been pressed or until the user manually exits the mode by clicking the Mode button once more.

Clock Synchronization and Time Settings

The clock in different Wireless Service Gateway WSG modules can be set from the web browser. To be able to synchronize the clocks in different Wireless Service Gateway WSG modules a time server has to be used. Depending on software application and license, an Wireless Service Gateway WSG can be used as time server. An external time server supporting the Network Time Protocol (NTP) can also be used. Normally the Wireless Service Gateway WSG used as time server synchronizes with an external time server and then all other Wireless Service Gateway WSG modules use that Wireless Service Gateway WSG as the time server.

To select time source do as follows:

1) Open the administration pages of the Wireless Service Gateway WSG by entering "xxx.xxx.xxx.xxx/admin" in the address field in the web browser.
2) Select "Settings" in the left menu.
3) Select time source; Web browser, A-bus or Time server.

Not all system's Central Unit can provide the time.

Independent of time source the Wireless Service Gateway WSG can handle different time zones and adjust the clock according to daylight saving time.

The date and time format controls the appearance of date and time in log views and application specific pages. The administration pages that are common to all Wireless Service Gateway WSG will display date and time in the following format: YYYY-MM-DD, HH:MM:SS (for example 2000-01-31 13:30:00). This format for date and time will also be used in exported log files.

Setting time in other carrier systems is done similarly. If several carrier systems are available, the time will be sent at the same time to all systems.

Time Synchronization

It can take a few seconds to synchronize the date and time during start up or if the IP address to the time server has been changed.

When the time is changed in the time server, it can take up to 30 minutes to synchronize the time, depending on how the modules are set up and how they are connected together.

Message Distribution

In the administration pages, there are distribution lists that are used to distribute incoming information. The internal distribution is automatically set, but external distribution of incoming data has to be configured separately.

Distribution of "Status Logs" and "Activity Logs" are configured separately.

The addressing is described in the examples below:

Addressing another Wireless Service Gateway WSG on the LAN

The addressing includes the IP address that the data should be distributed to and also which service on that address that should take care of it. How a product is addressed is described in the documentation for each product.

- Addressing of another Wireless Service Gateway WSG module

  xxx.xxx.xxx.xxx/Service

  First the IP address of the module is defined. After the "/", the application service that should take care of the data is specified.

  Below is an example that describes how to distribute data from an Wireless Service Gateway WSG software application to an Alarm Management Server.
- Addressing of an Alarm Management Server

  xxx.xxx.xxx.xxx/EventHandler

  First the Alarm Management Server IP address is defined. After the "/", the application service EventHandler is specified.

  Working in Boot Mode

  If no application is running on Wireless Service Gateway WSG or if the application cannot be started, the Boot Mode can be used for installing new software, see settings, performing factory reset, troubleshooting and also starting up in normal operation again. If the module detects several major errors (for example restart loop), the module can set itself in Boot Mode.

Working in Boot Mode

If no application is running on Wireless Service Gateway WSG or if the application cannot be started, the Boot Mode can be used for installing new software, see settings, performing factory reset, troubleshooting and also starting up in normal operation again. If the module detects several major errors (for example restart loop), the module can set itself in Boot Mode.

Set the Module in Boot Mode

The description below starts with a controlled restart. The whole operation will take approximately 5 minutes.

1) Press the Restart button and release it within 4 seconds (use a paper clip or similar).

   The status LED will first indicate shutting down with quick flashing blue light ▮▮▮▮▮ and then "waiting" with flashing yellow light ❙❙   ❙❙   ❙❙.

2) Wait for one minute until the status LED indicates starting up with quick flashing blue light ▮▮▮▮▮, then press the Mode button.

   The Mode button LED will lit and show fixed blue light ▬▬▬▬.

3) Then wait until the status LED changes to quick flashing yellow light ▮▮▮▮▮, which indicates that the module has started in Boot Mode (after approximately one minute).

4) Open the web browser and enter the modules IP address.

If this operation does not work, pressing the mode button after an initiated forced restart can be used as a last resource, see

System Information

Under System > Information the reason for why the module is in Boot Mode, the module key number, MAC address, Boot software version, etc. are shown.
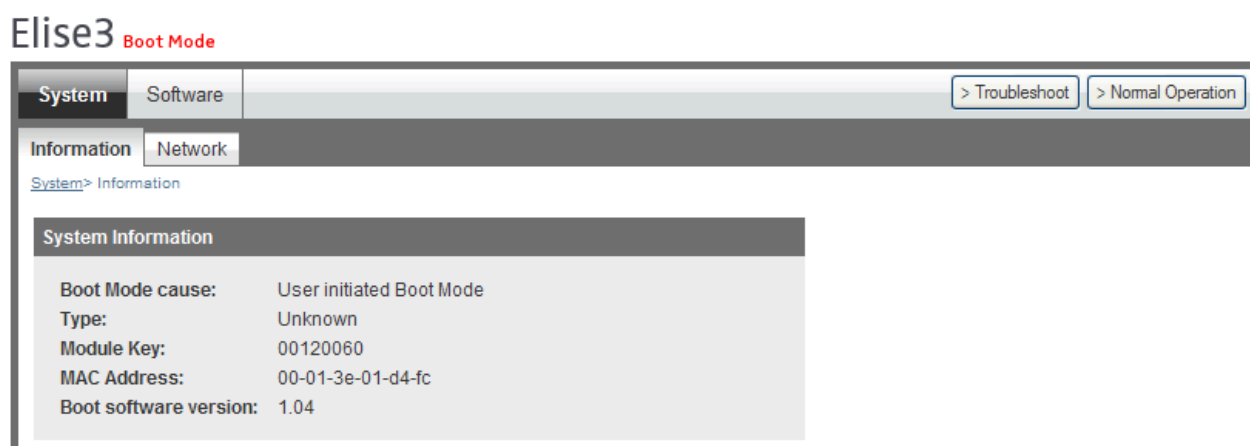

Figure 28: System information in Boot Mode

Network Settings

Under System > Network the network settings are shown. All network settings can be edited in this view if DHCP is disabled, but only the Host name if DHCP is enabled.

Figure 29: System network settings in Boot Mode

Software Information

Under Software > Information the installed software name, version and installation date are shown. If two versions have been installed, information about both versions and also which version that was last used by the module is shown. The format of the installation date is dependent on the PC's language settings.

Figure 30: Software information in Boot Mode

Install Software in Boot Mode

Installing new software is normally done from the application's web interface, refer to the application documentation. But if the application's web interface cannot be reached it is possible to put Wireless Service Gateway WSG in Boot Mode, access the modules web interface and install new software from there.

> It is not recommended to use the module's Management port when installing software.

Two software versions can be installed on the module. One software version is active and the other inactive in normal operation.

Figure 31: Software installation in Boot Mode

1) Put the module in Boot Mode, see Set the Module in Boot Mode on page 31.

2) Select Software > Install software.

3) Click the "Browse..." button and locate the software (.pkg) file to install.

4) Select where to save the software. If two versions of the software already have been installed on the module choose which software to replace.

5) Select if the module shall be restarted after the installation or not.

6) If "Restart after installation" is selected, choose if the last used settings or the factory default settings shall be applied on the new software.

If you choose "Do not restart", you can later, when returning to normal operation, choose and apply settings to software that is installed but not yet started.

> If current parameters cannot be used, i.e. if software of another type has been installed, factory default parameters will always be used.

7) Click the "Install Software" button.

8) If "Do not restart" is selected a dialogue box is shown. Click "OK".

Return to Normal Operation

1) Click the **Normal Operation** button in the Boot Mode GUI's upper right corner. The **Normal Operation** dialogue box opens.

2) Select which software to start and click "OK".

3) Select which settings to use for the software and click "OK".

The module will restart and return to normal operation.

Run in Demonstration Mode

The Demonstration Mode can be set when the module is running in normal operation, either via the application's web interface or manually by using the Mode button.

Using the Mode button:

1) Press and hold the Mode button for 10 seconds. Demonstration Mode is indicated by the Status LED with slow flashing yellow light ▮ ▮ ▮ ▮ and by the Mode button LED with fixed blue light ▬▬▬▬▬.

The module will automatically return to the previous license and parameters (without restart) after 2 hours.

Exiting before the 2 hours have passed, is done from the application's web interface, refer to the application documentation. Restarting the Demonstration Mode after exiting, can be done from the application's web interface after a delay of 10 minutes, but an immediate restart can be done by using the Mode button.

Maintenance

Software Management

Installation of Software

Normally the installation of software is done from the application's web interface but it can also be done in Boot Mode, see Install Software in Boot Mode on page 33.

Create a Backup of the Software Settings

Normally the backup is done from the application's web interface but it can also be done in Boot Mode.

1) Put the module in Boot Mode, see Set the Module in Boot Mode on page 31.
2) Select Software > Install software.
3) Click the "Backup" button.
4) All settings for last run software will be saved.
5) Click "Save" in the File Download window.
6) Select where to save the file and click "Save" again.

Field Upgrade of the Boot Software

By using a USB memory stick with a Boot software (autoupdate.bin), the module can be upgraded on the field.

1) Insert the USB memory stick in the upper USB connector marked 1.
2) Perform a controlled restart via the Restart button, by pressing the button and releasing it within 4 seconds.

   The Status LED indicates shutting down with quick flashing blue light ▮ ▮ ▮ ▮. Before starting up again, the Status LED will indicate "waiting" for one minute with flashing yellow light ▎▎ ▎▎ ▎▎.

3) When the Status LED indicates starting up with quick flashing blue light ▮ ▮ ▮ ▮, press the Mode button within 3 seconds.

   The Mode button should indicate by showing fixed blue light ▬▬▬▬.

   The module now detects the memory stick and begins the upgrade process which is indicated by the Status LED with fixed yellow light ▬▬▬. The upgrading process takes 7-8 minutes.

   After the upgrade process has finished, the module will continue and start up the last used application software. The complete operation can take up to 10 minutes.

   To verify a successful upgrade, you can put the USB stick back in your PC and open the file autoupdate.log. In the end of that file, you should then see the text "Upgrade finished successfully".

⯈⯈⯈ If the USB memory stick contains faulty Boot software, the module will start up in Boot Mode.

Restarting the Wireless Service Gateway WSG

Controlled Restart via the Restart Button

When a controlled restart is performed via the Restart button, all ongoing jobs on the module ends in a controlled way and everything is logged. When the module has shut down the user can unplug the power cable or wait one minute for the module to automatically start up again. During startup, there is a delay for three seconds where the user is able to interact with the module and change to Boot Mode.

- Use a paper clip or similar and press the Restart button and release it within 4 seconds. The Status LED indicates shutting down with quick flashing blue light ▮ ▮ ▮ ▮ ▮. Before starting up again, the Status LED will indicate "waiting" for one minute with yellow light ▯▯ ▯▯ ▯▯. Here the power cable can be detached.

  If the power cable is not detached the module starts up automatically after one minute. The Status LED indicates starting up with quick flashing blue light ▮ ▮ ▮ ▮ ▮.

  Another form of a controlled restart can be performed via the GUI, but then the module will immediately start up again without the one minute delay and will not give you enough time to unplug the power cable.

Forced Restart

Forced restart is used as a last resort when the module does not respond at all.

> When a Forced restart is performed, ongoing jobs are not finished (as in a controlled restart).

The module detects that a forced restart has been made and a voltage restart is performed. During startup, there is a delay for three seconds where the user is able to interact with the module to change to Boot Mode.

- Use a paper clip or similar and press the Restart button for at least 5 seconds.

  The power LED will turn off for a short time (3 seconds) and when it turns on again the Status LED indicates starting up with quick flashing blue light ▮ ▮ ▮ ▮ ▮.

Reset Back to Factory Default Settings

Resetting the module's application software back to factory default settings can be done from the application's web interface on the Configuration page under Software. Either by switching software or reinstalling software and selecting factory default settings.

Factory default settings can also be chosen from the Boot Mode's web interface when new software is installed or when returning to Normal Operation from Boot Mode, see Install Software in Boot Mode on page 33.

> Network settings (IP address, Host name, etc.) will not be changed.

Troubleshooting Guide

Troubleshooting is normally done by accessing the application's web interface to see logs, statistics etc. But if for some reason the application's web interface cannot be reached, it is possible to get access to the information by placing the module in Troubleshoot mode. See Troubleshooting from Boot Mode on page 39.

Fault	Probable cause	Action or comment
•Several functions of the software application on Wireless Service Gateway WSG does not start.	– There is not a valid license – The module has been running for more than two hours in Demonstration mode.	Check if the functions starts in Demonstration mode, if it does enter a valid license and restart the module.
•The module has put itself in Boot Mode.	No software is installed or the installed software is malfunctioning.	Install new software
• A LED shows slow or quick flashing red light		See LED Indications on page 11
• The module cannot be accessed via the management port.	– The required port driver is not installed on the PC or for the USB port you have connected to (or not correctly installed).	Note: the installation differs between Windows XP/Vista and Windows 7. Follow the instructions in chapter Access via the Management port on page 23.
	– The PC has not been given enough time to obtain an IP address from the DHCP server.	When switching between mass storage mode and network mode, it takes about 30 seconds before an IP address is obtained from the DHCP server.
• The installation of the USB port driver has been successful, but you still cannot connect to your Wireless Service Gateway WSG via the USB network.		Try the following. Open the Command Prompt and type: route DELETE 192.5.36.229 arp -d 192.5.36.229
• An external battery is connected but the Power LED shows slow flashing red light and in System status (under System Information in Troubleshoot Mode) the "Charge external supply" shows "off" even if the external battery voltage is shown in "External power supply".	Wireless Service Gateway WSG does not charge the external battery.	The Wireless Service Gateway WSG module does not charge the external battery if the battery voltage is below 8.0 V or if the internal power supply voltage is less than 13.8 V.

> For faults in the application running on the module, refer to the applicable Installation and Operation Manual.

Troubleshooting from Boot Mode

Via the **Troubleshoot** button in the Boot Mode GUI, you get access to the application's web interface (no applications are running) and will be able to see logs and other information. When troubleshooting, it is always a good idea to examine the log files, since they provide additional information that may prove useful. When reporting an error to your supplier, always include the appropriate log file.

1) Enter Boot Mode, see
2) Click the **Troubleshoot** button.
3) Click "OK" in the Troubleshoot dialogue window.

Troubleshoot

The module will restart in Troubleshoot Mode.
Do you want to continue?

OK   Cancel

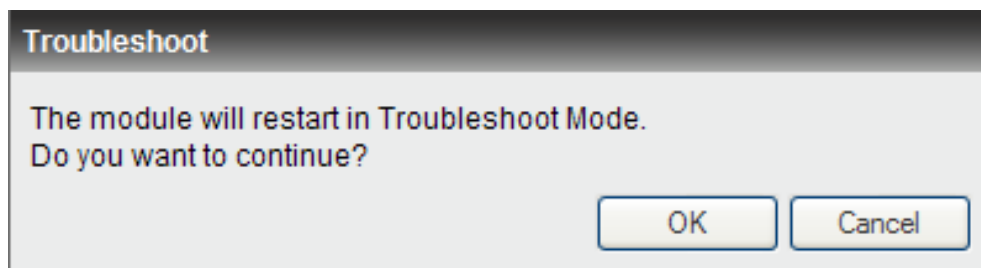**Figure 32: Troubleshoot window**

Status

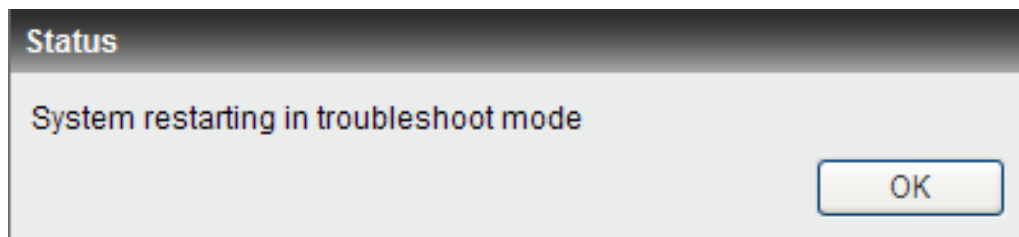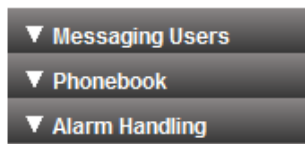System restarting in troubleshoot mode

OK

Figure 33: Troubleshoot window

The system will restart in troubleshoot mode within approximately 5 minutes. The browser refreshes to the application's GUI automatically.

4) Access the application's Configuration page.

▼ Messaging Users
▼ Phonebook
▼ Alarm Handling

Information

Status	Troubleshoot mode
Number of Active Faults	2

Figure 34: Application's Configuration page

5) Select Other Settings > Advanced Configuration. You will now be able to perform troubleshoot actions and view system information, logs etc.