

CONNECT / CONNECT-II / CONNECT-CONTROL Router / Remote Access / IP-Switch / Protocol Converter / TimeServer / Unified

user manual

V1.16

English



User manual compatible with firmware / software V1.14 or higher!

Content

1 General.....	6
1.1 About the manual.....	6
2 System requirements.....	7
2.1 Hardware.....	7
2.2 Software.....	7
3 Connections.....	9
3.1 DIN-rail mounting.....	9
3.2 DIN-rail mounting with LTE.....	10
3.3 Table-case.....	11
3.4 Table-case with LTE.....	12
4 Commissioning.....	13
4.1 Access the device.....	13
4.1.1 device CONNECT / CONNECT-II.....	13
4.1.2 device CONNECT-CONTROL.....	15
4.1.3 device RUT955 from Teltonika.....	15
4.2 Configuration of the device.....	17
4.2.1 option Remote Access.....	18
4.2.1.1 basic configuration.....	18
4.2.1.2 internet configuration.....	18
4.2.1.3 peripheral configuration.....	21
4.2.1.4 partner configuration.....	24
4.2.2 option Router.....	25
4.2.2.1 basic configuration.....	25
4.2.2.2 WAN configuration.....	26
4.2.2.3 LAN configuration.....	27
4.2.3 option IP-Switch.....	28
4.2.3.1 basic configuration.....	28
4.2.3.2 internet configuration.....	29
4.2.3.3 peripheral configuration.....	30

4.2.4 option Protocol Converter.....	32
4.2.4.1 basic configuration.....	32
4.2.4.2 internet configuration.....	32
4.2.4.3 peripheral configuration.....	34
4.3 Usage of the device.....	35
4.3.1 option Remote Access.....	35
4.3.2 option Router.....	36
4.3.2.1 overview of possible applications.....	37
4.3.3 option IP-Switch.....	38
4.3.3.1 example configuration.....	39
4.3.4 option Protocol Converter.....	43
4.3.5 option TimeServer.....	43
4.3.6 option Unified.....	44
5 Control elements.....	45
5.1 status LEDs.....	45
5.1.1 device CONNECT / CONNECT-II.....	45
5.1.2 device CONNECT-CONTROL.....	45
5.2 buttons.....	46
5.2.1 device CONNECT / CONNECT-II.....	46
5.2.2 device CONNECT-CONTROL.....	47
5.3 web server.....	47
5.3.1 page structure.....	48
5.3.2 access protection.....	49
5.3.3 page overview.....	50
5.3.3.1 state.....	51
5.3.3.2 device list.....	52
5.3.3.3 IP translation.....	54
5.3.3.4 IP firewall.....	54
5.3.3.5 couplings.....	55
5.3.3.6 addresses.....	56
5.3.3.7 DHCP leases.....	57

5.3.3.8 partner addresses.....	58
5.3.4 page stations.....	58
5.3.4.1 list with stations.....	59
5.3.4.2 settings of a station.....	60
5.3.4.3 diagnosis of a station.....	62
5.3.5 page connections.....	63
5.3.5.1 state.....	64
5.3.5.2 configuration.....	64
5.3.6 page status.....	65
5.3.7 page configuration.....	66
5.3.7.1 system.....	66
5.3.7.2 access protection.....	67
5.3.7.3 general.....	67
5.3.7.4 device.....	68
5.3.7.5 date and time.....	69
5.3.7.6 interfaces.....	70
5.3.7.7 LTE settings.....	74
5.3.7.8 proxy settings.....	75
5.3.7.9 LAN-A / LAN settings.....	76
5.3.7.10 LAN-B / WAN settings.....	78
5.3.7.11 WLAN settings.....	79
5.3.7.12 WLAN 5GHz settings.....	86
5.3.7.13 USB-LAN settings.....	92
5.3.7.14 Bridge settings.....	93
5.3.8 page firmware / software update.....	96
6 Application notes.....	98
6.1 Access to participant via TIA portal.....	98
7 Technical data.....	100
7.1 CONNECT.....	100
7.2 CONNECT-LTE.....	100
7.3 CONNECT-II.....	101

7.4 CONNECT-II-LTE..... 101
7.5 CONNECT-CONTROL..... 102
8 Approvals..... 103

1 General

1.1 About the manual

This manual describes the devices from the **C O N N E C T** family, simply named device within in the following pages.

The devices CONNECT and CONNECT-II are available in a standard version as well as a variant with an integrated LTE modem. The devices CONNECT are furthermore available in a desktop and DIN rail case in both versions. The range of functions of the devices depends on the installed options, which can also be combined. In delivery state, the devices are available with the options Router, Remote Access, IP-Switch, Protocol Converter, TimeServer and Unified. A description of the options can be found within the section “4.3 Usage of the device”.

The device CONNECT-CONTROL contains all functions of the option Remote Access and also has GPS and integrated digital and analog IO ports, which can be used for small controlling and reporting tasks.

This documentation can be downloaded on the web page of the product via downloads → documentation.

The manual is aimed to the following user groups:

- planners
- operators
- commissioning staff
- service and maintenance staff

Before you use this device, you should read the manual.

If you have questions and / or problems you can contact the technical support from your dealer.

2 System requirements

2.1 Hardware

Before you can start to use the device, you have to supply power to it. The CONNECT and CONNECT-II device can either be powered via the small Phoenix connector with 24V DC or via the Mini-USB socket (only for CONNECT devices in standard version). The CONNECT-CONTROL gets powered via the included plug-in power supply.

Be sure that the WLAN and if applicable the LTE and GPS antenna(s) are screwed on the SMA connectors of your device and the device is connected to your router, PC and peripheral devices via LAN cables according your configuration. When using the LTE modem please make also sure that the SIM card is plugged into the provided slot.

Depending on your configuration the device can be accessed via one of the LAN interfaces, the WLAN interface and / or the USB-LAN interface (optionally via an adapter, but not for CONNECT-LTE and CONNECT-CONTROL devices).

2.2 Software

If you want to access the web server of the device to check the status or make changes on the configuration you only need an internet browser (e. g. Microsoft Internet Explorer, Mozilla Firefox or Google Chrome). The using of the device is independent of your operating system and browser from your computer, tablet or mobile phone.

Important:

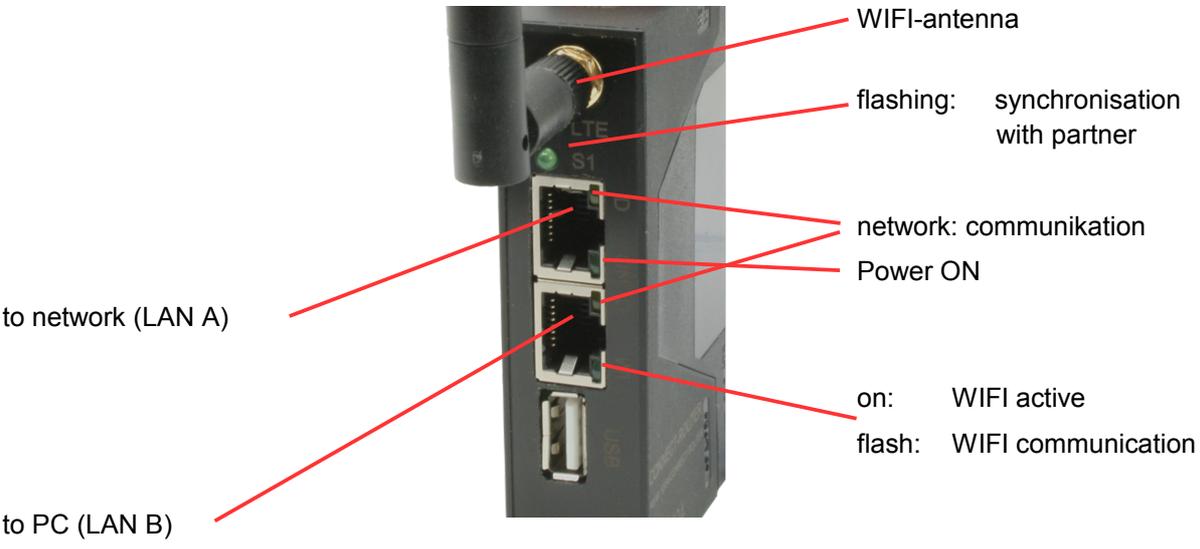
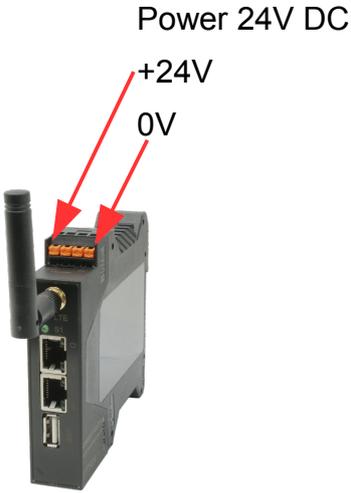
For viewing the website correctly you should check that JavaScript is enabled in your browser.

Hint:

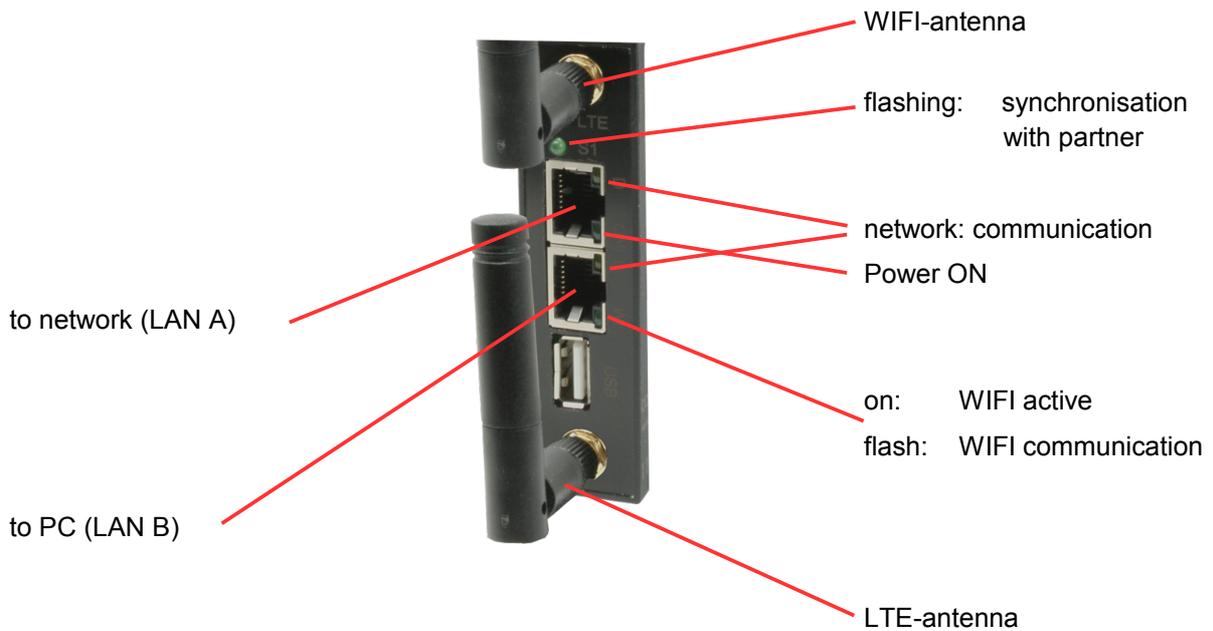
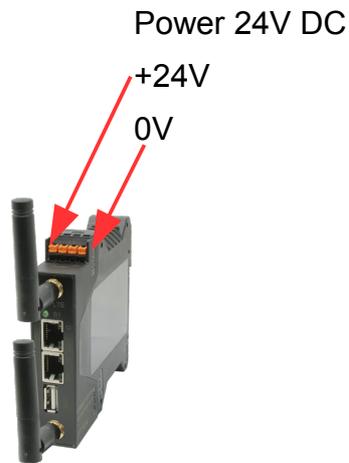
When the device configuration is done, an access to the web page is needed for maintenance only, because the device works on its own. Please note, that when using the connection type CONNECT every time the device boots a communication with the internet have to be done from the PC who is connected with the CONNECT device, thus the device can detect the internet parameters.

3 Connections

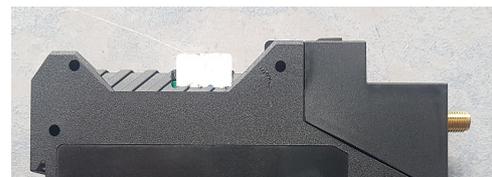
3.1 DIN-rail mounting



3.2 DIN-rail mounting with LTE



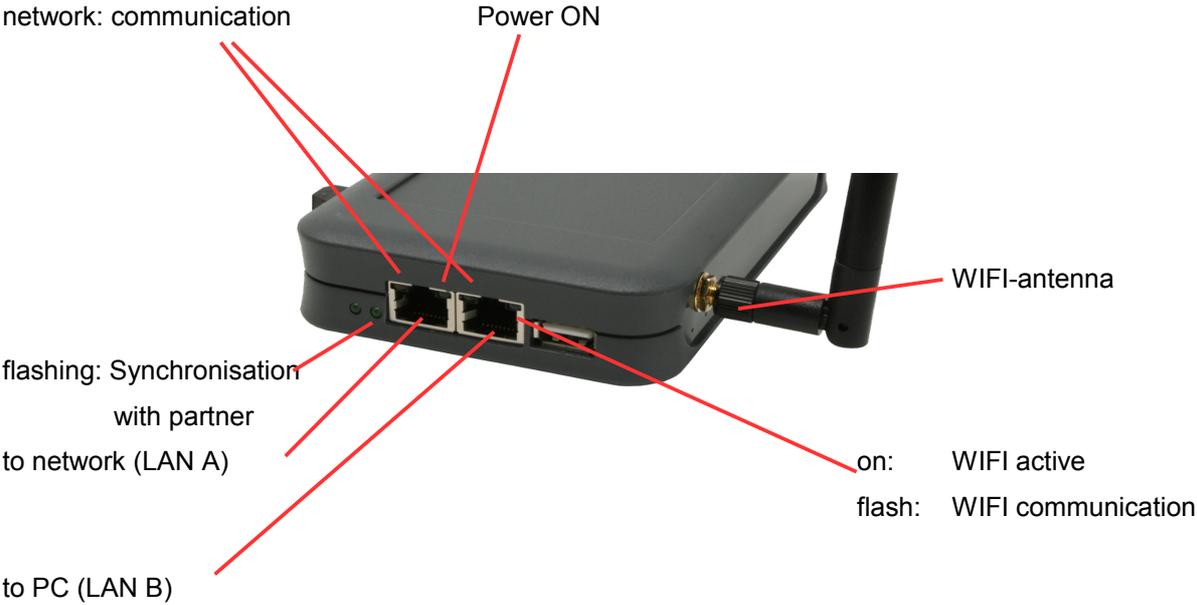
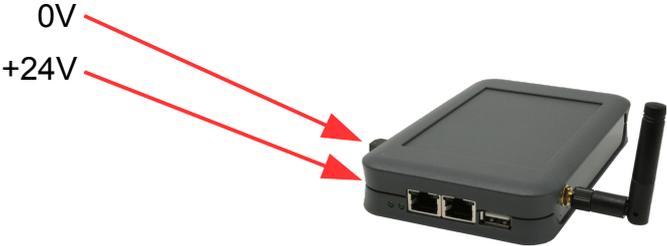
SIM-card-insert:



Insert the SIM card with the contact side facing down (slanted corner at the front right) into the slot until it clicks. Pressing again releases the card and it can be pulled out.

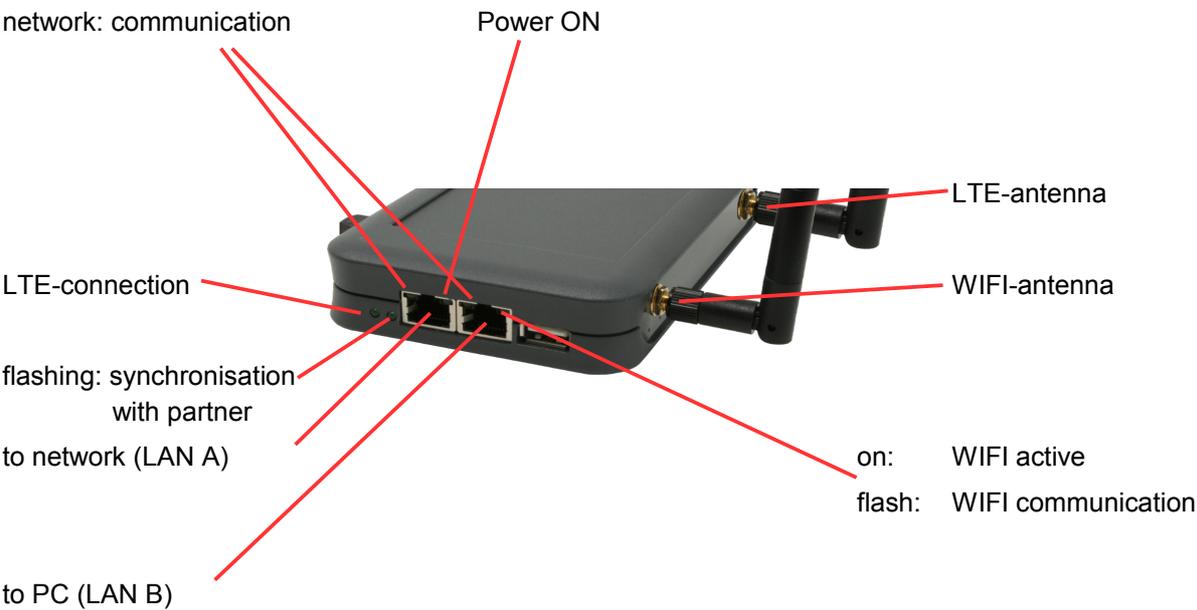
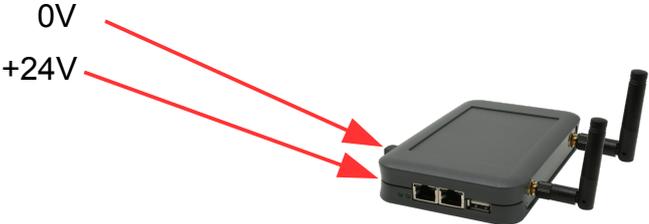
3.3 Table-case

Power 24V DC



3.4 Table-case with LTE

Power 24V DC



SIM-card-insert:



Insert the SIM card with the contact side facing down (slanted corner at the front right) into the slot until it clicks. Pressing again releases the card and it can be pulled out.

4 Commissioning

Before you can start with the usage of the CONNECT device you have to access its web page and configure a few basic settings.

Please make sure that all requirements who are listed within the chapter “System requirements” are met. Afterwards you can start with accessing the device.

4.1 Access the device

Before you can start to configure and later use your the device you have to access it first. For this you have different connection variants which differs depending on your device type. These variants are described in more detail on the next pages.

Important:

This chapter describers the factory defaults of the device. Via the web interface you can configure the single interfaces individually, so an access to the web interface is also possible via another interface.

As soon as the device is in a configured state, you can access the web page of the device with the keyword “connect” via the PC and peripheral interface (when used).

For this access you will have to enter the keyword “connect” instead of the IP address into the address line from your browser. This access is even possible if your computer is within another subnet as your CONNECT device or the interface of the CONNECT device hasn't any IP address yet.

4.1.1 device CONNECT / CONNECT-II

The access to the device CONNECT / CONNECT-II is normally done via the WLAN interface.

First please check if WLAN is enabled on your laptop or tablet. In the next step you can search for networks who are within the range. On the list with WLAN networks you should see a network named “CONNECT

WiFi". This network isn't protected with a password and so you can easily connect to it.

The CONNECT devices are configured that a DHCP server is running on the WLAN interface. If your laptop or tablet is set up that it requests an IP address via DHCP automatically no further action is required. Otherwise you have to enable DHCP on your laptop or tablet or alternatively assign an address between 192.168.1.2 and 192.168.1.254 to your device manually.

As soon as you are connected with the CONNECT and your laptop or tablet has a valid IP address, you can open a web browser. There you then have to enter the IP address 192.168.1.1 into the address line. Now you should see the commissioning page of the device and can start with the parameterization.

As an alternative path to WLAN you can also access the device via a cable connection. Therefore you have to connect your computer with the LAN-A jack of your CONNECT device.

The device has the IP address 192.168.2.1 on this interface. When you want to access the device, you have to assign any IP address between 192.168.2.2 and 192.168.2.254 to your PC manually. The automatic assignment of addresses via DHCP, as it is the case for the WLAN interface, is disabled for this interface because of security reasons.

When your PC has a valid IP address you now can open a web browser and enter the IP address 192.168.2.1 into the address line. Afterwards you should see the commissioning page from the device.

Hint:

If you have the "Ethernet over USB" adapter you can also use the adapter to access CONNECT devices in the standard version or to access CONNECT-II-LTE devices. The device has the IP address 192.168.0.1 on this interface and offers IP addresses to other devices, as it is the case for the WLAN interface. Instead of using DHCP you can also assign your computer an IP address from the range 192.168.0.2 to 192.168.0.254 manually.

4.1.2 device CONNECT-CONTROL

For CONNECT-CONTROL devices the 3 LAN ports as well as the WLAN network which is offered from the device are a common interface.

When you want to access your device via WLAN you first have to make sure that the WLAN interface of your laptop or tablet is enabled. Then you should open the list with available WLAN networks. There you should now see a WLAN network with the SSID "RUT955_****". The exact SSID as well as the needed password can be found on the labeling on the bottom of the device.

If you want to access the device through one of the LAN ports, you only have to connect your computer and the device with a cable.

As soon as you are connected with the device via WLAN or LAN you have to check and maybe adjust your IP configuration. The CONNECT-CONTROL devices are configured that a DHCP server is running on the this interface. If your device, which should be connected with the CONNECT-CONTROL device, is set up that it requests an IP address via DHCP automatically no further action is required. Otherwise you have to enable DHCP on your device or alternatively assign an address between 192.168.1.2 and 192.168.1.254 manually.

When you have a valid IP address you can now access the integrated web server of your device. For this you have to open a web browser and enter the IP address 192.168.1.1 into the address line. Now you should see the page for the commissioning of the device.

4.1.3 device RUT955 from Teltonika

The CONNECT-CONTROL device has the same hardware as the RUT955 from Teltonika Networks. If you have acquired a RUT955 device separately, then you can load the CONNECT software into the device after a chargeable registration. Afterwards your RUT955 device has the same functionality as a directly acquired CONNECT-CONTROL device.

Before you can start to load the software into the device, you have to connect your computer with the device and open the web interface. The access path depends on the already done configuration. If your device has the factory defaults, please read the short instruction from Teltonika.

When you have opened the web interface of your device and have logged into it, then you can now navigate to the menu entry "System" →

“Firmware” and check the firmware version. The device firmware have to be any version between 00.06.07.0 and 00.06.07.7. If your device has an older or even a newer firmware you have to upgrade or downgrade to version 00.06.07.7. The firmware file (.bin file) can be found within the ZIP archive together with the software packet which can be downloaded within the download section from the product page of the CONNECT-CONTROL device.

As soon as your device has the correct firmware version you can now install the software package. For this you have to navigate to the menu entry “System” → “Package Manager” and click on the tab “Upload”. On this page you now upload the software package (.ipk file) from the ZIP archive. The warning hint that this software package is not certified from Teltonika have to be confirmed.

When the installation process has completed you can now open the web interface of the CONNECT device via the menu entry “Services” → “CONNECT”. There you should now see the commissioning page of the device.

4.2 Configuration of the device

☰ menu

commissioning

Before you can start to use the device you will have to set up some basic settings. Afterwards your device will be immediately ready for the communication.
On the page "configuration" you can change these as well as some further settings at any time.

basic configuration

In the first step you have to specify some information about your device. The name and the password are optional.

device name:

device number: 

device password: 

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If you use the device for the first time you will see the commissioning page when accessing the web interface. This page leads you through the most important settings in four steps.

With the help of the buttons "back" and "next" you can navigate between the single steps. On the last step the button "save" will be displayed instead of the "next" button. Only as soon as you have clicked on the "save" button all configurations will be submitted. Afterwards your device is configured completely and functioning.

Hint:

The commissioning page will be shown on the first use of the device only. If you want to do the commissioning process again, you will have to set your device back to factory defaults.

For CONNECT-CONTROL devices some of the IP and WLAN settings may be prefilled with the current configuration.

4.2.1 option Remote Access

4.2.1.1 basic configuration

basic configuration

In the first step you have to specify some information about your device. The name and the password are optional.

device name:
device number:
device password: 

In the first step of the commissioning process you have to specify the parameters of your device for the networking within your CONNECT cloud. The device number thereby is used as an unique identification of the device and can only be used once. Optionally you can also configure a name, which is used for an easier identification, and a password, which is needed when you want to establish a connection to the device.

Hint:

If you don't configure a password for your device, all other devices from your cloud can connect with the device without the need of a password.

4.2.1.2 internet configuration

internet configuration

Next you have to configure how your device should establish a connection to the internet. Depending on the selected connection type different parameters are needed.

connection type: CONNECT
 GATEWAY
 LTE
router interface:
PC interface:

If you have specified the general device parameters next you have to select how the device should establish a connection with the internet. Therefore you can choose between the following connection types:

- **CONNECT:** The CONNECT device have to be connected between the router for the internet access and a PC with the permission for internet access. The device then detects the parameter from the PC and uses them. Please make ensure that the PC has IPv4 parameters (IP address, subnet mask, gateway address), because otherwise no connection to the internet is possible.
- **GATEWAY:** The CONNECT device have to be connected to the router for the internet access. The device has its own IP address which is used for the internet connection.
- **LTE:** The CONNECT device establishes a connection with the internet via the integrated LTE modem (for CONNECT devices with integrated LTE modem only).

Depending on the selected connection type you then have to specify with the settings router interface and PC interface the interface of the device where the gateway or proxy server and PC is connected to.

IP settings

IP configuration: DHCP
 manually

IP address:

subnet mask:

internet access: gateway
 proxy server

gateway address:

If you have selected the connection type GATEWAY a field for the manual IP configuration will be shown. In the first step you have to choose if the IP settings should be retrieved automatically from a DHCP server or if the parameters gets specified manually. If you want or have to do the configuration manually you will have to enter an IP address and maybe subnet mask for the device. Next you can choose how the device is connected with the internet:

- **gateway:** The device communicates directly via a router / gateway with the internet. Therefore you have to specify the IP address of the gateway.

- **proxy server:** The device communicates via a proxy server with the internet. For this access type you have to specify the IP address and port of the proxy server. If the proxy server requires an authentication you can additionally enter the user name and password.

WLAN settings

search:

SSID:

security type:

channel:

When you are using the connection type CONNECT or GATEWAY and have selected the WLAN interface as router interface another block with WLAN settings will be shown. Here you can specify the WLAN network where the CONNECT device should connect to. For this you can use the fields SSID, security type, channel and some other fields for the log in to the WLAN network depending on the selected security type. If you aren't sure about the WLAN settings you can also execute a search for all available WLAN networks by clicking on the button "search". After a few seconds a list with networks will be displayed. If you want to connect to one of the networks you can click on the corresponding entry. Thereby all fields expect the log in details will be filled in automatically.

LTE settings

PIN code:

access point (APN):

user name:

password:

If you have selected the connection type LTE a small block will be shown within the current window. There you have to specify the PIN code for your SIM card (if needed) as well as the name of the access point (APN) from your provider. The access point on CONNECT and CONNECT-II devices is prefilled with "internet" which works on a variety of providers.

For CONNECT-CONTROL devices this info gets detected automatically. Additionally you can also specify a user name and password. But this parameters are only needed if the entered access point needs an authentication on the provider.

4.2.1.3 peripheral configuration

peripheral configuration

Here you can select the interface and configure the addresses for the devices (e. g. from a PLC) who can communicate with the devices or the PC from the partner device. When using the connection type CONNECT this step is optional.

interface:

In the next step the configuration of the peripheral interface have to be done. The peripheral interface is the network interface where the devices who should communicate with the help of the CONNECT device with the devices who are connected to another CONNECT device. If you have selected the connection type CONNECT the selection of a peripheral interface is optional.

Important:

If you are using the connection type CONNECT, the PC will always be able to communicate with the devices on the partner device. This is independent from the peripheral configuration.

IP settings

IP configuration: DHCP
 manually

DHCP server: enable

IP address:

subnet mask:

If you have selected a peripheral interface a block with IP settings will appear. There you can specify the IP address and maybe the subnet mask for the device. This parameters are needed so the CONNECT device can communicate with the connected peripheral devices. If the

peripheral interface is connected with a network which also has a DHCP server, the device can also retrieve the needed settings from a server. If you want or have to configure the IP config manually and enable the setting “DHCP server”, peripheral devices who are connected to the CONNECT device doesn't have to be configured manually rather they can retrieve their IP configuration from the CONNECT. Independent of the activation of the DHCP server setting devices can always be configured manually.

WLAN settings

search:	<input type="button" value="start search"/>
mode:	<input type="button" value="Access Point (AP) v"/>
SSID:	<input type="text" value="CONNECT WiFi"/>
security type:	<input type="button" value="open v"/>
channel:	<input type="button" value="auto channel v"/>

When you have selected the WLAN interface as peripheral interface another block with WLAN settings will be shown. Here you first have to specify via the mode if the device should offer an own network as Access Point or connect as client to an existing network. Afterwards the fields SSID, security type, channel and some other fields for the log in to the WLAN network depending on the selected security type can be filled in. If you aren't sure about the WLAN settings you can also execute a search for all available WLAN networks by clicking on the button “search”. A click on one of the search entries will then fill in all fields except the log in details automatically.

Hint:

If you have selected the same interface for the peripheral interface and router interface the block with IP and WLAN settings will not appear.

When your device has the option IP-Switch the group “IP-SWITCH” will be shown next. There you have to specify if the function for translating IP addresses should be used. Afterwards you can specify if a network bridge should be used between the router and peripheral interface.

IP-SWITCH

function: enable

network bridge: enable

IP translations: + <>

IP firewall: +

When this setting is enabled all packets, where no IP translation can occur or is configured, between the router and peripheral interface will be exchanged without any modification. If the setting is disabled both networks are isolated from each other and only packets who are processed by the option are getting forwarded.

In the line “IP translations” you can now configure the translations. Therefore you have to enter the two addresses into the text fields and then click on the + symbol. The first address is the real IP address of the device. The second address specifies the translated address of the device. If you want to add further translations you can repeat this step. When you want to delete an existing entry you will have to click on the — symbol.

In the following line “IP firewall” you will be able to specify which devices from the peripheral interface can communicate via the router interface with the devices on the router network and the network or internet behind additionally. In the text field you have to enter the real IP address of the device and the click on the + symbol. An already created entry can be deleted with the symbol —.

Important:

The peripheral and router interface have to differ when using this option. If some of the entered IP addresses should be able to communicate with the network devices of the partner device too, you will have to enter the translated address into the list on the next block too.

devices

IP addresses: +

IP address ranges: + -

Additionally to the block with IP settings a block with the label “devices” will be shown as soon as a peripheral interface is selected. There you can specify single IP addresses as well as IP address ranges for the peripheral devices who are allowed to communicate via the CONNECT device with the network devices from the connected partner device. If you want to add a new address or address range to the list you have to fill in the last line of the corresponding list and click on the + symbol afterwards. This process can be repeated as often as needed. If you want to remove an existing entry from one of the lists again you have to click on the – symbol.

Hint:

The devices who automatically gets the IP configuration from the CONNECT device doesn't need to be specified here manually.

4.2.1.4 partner configuration

partner configuration

In the last step you can specify to which of your other devices the current device should establish a connection automatically. A connection can also be established if necessary via the page "overview".

connection: establish autoamntically

number:

password: 

On the last commissioning step you can specify if the device should automatically establish a connection with another device from your CONNECT cloud. If you want to use this function you have to enable the setting “connection”. Now you can enter the number and, if needed, the password of the device, to which a connection should be established. The automatically connection establishment is either useful for the office device, when a connection is needed directly, or when using the devices for a dedicated connection.

When the option IP-Switch is available on your device as well as enabled and the connection type is set to CONNECT or GATEWAY, the setting “remote access” will be shown, which allows you to disable the connection to other devices completely. This may be desired when the device should be used for translating IP addresses only, without the need of any remote maintenance function.

Important:

Only enable the automatically connection establishment on one of your two devices (in most cases on the office device). Otherwise it may be nearly impossible to manually connect to another device.

4.2.2 option Router

4.2.2.1 basic configuration

basic configuration

In the first step you have to specify how you want to use your device. Specifying the name is optional.

device name:

operation mode: Bridge
 Router

In the first step of the commissioning process you can specify a name for your device and select the operation mode:

- **Bridge:** The CONNECT device connects multiple interface to a shared network. All participants connected to the device are in the same subnet.
- **Router:** The CONNECT device routes between the network of the WAN interface and the network of one more LAN interface(s). Each network has it's own subnet.

4.2.2.2 WAN configuration

WAN configuration

Next you have to configure how your device should be connected with the internet / WAN.

WAN interface: LAN-A ▾

If you have selected the operation mode Router, the next step is to configure the WAN interface. Therefore in the first step you have to select which interface should be used for the WAN. If on the other hand you have selected Bridge as the operation mode this step is skipped automatically.

IP settings

IP configuration: DHCP
 manually

IP address:

subnet mask:

gateway address:

Below the selection list of the WAN interface a block for the configuration of the IP parameters is shown. In the first step you have to choose if the IP settings should be retrieved automatically from a DHCP server or if the parameters gets specified manually. If you want or have to do the configuration manually you will have to enter an IP address and maybe subnet mask for the device as well as IP address of the gateway.

WLAN settings

search:

SSID:

security type: open ▾

channel: auto channel ▾

If you have selected the WLAN interface as WAN interface another block with WLAN settings will be shown. Here you can specify the WLAN network where the CONNECT device should connect to. For this you can use the fields SSID, security type, channel and some other fields for the

log in to the WLAN network depending on the selected security type. If you aren't sure about the WLAN settings you can also execute a search for all available WLAN networks by clicking on the button "search". After a few seconds a list with networks will be displayed. If you want to connect to one of the networks you can click on the corresponding entry. Thereby all fields expect the log in details will be filled in automatically.

4.2.2.3 LAN configuration

LAN configuration

In the last step you have to configure how your device should be connected with the local network.

interfaces: LAN-A
 LAN-B
 WLAN

In the last step of the commissioning process you have to specify which interfaces should be connected to a shared network as bridge and should represent the local network (LAN). Depending on your need you can select one or more interfaces.

IP settings

IP configuration: DHCP
 manually

DHCP server: enable

IP address:

subnet mask:

Below the selection list of the LAN interfaces a block for the configuration of the IP parameters is shown. There you can specify the IP address and maybe the subnet mask for the device. If the peripheral interface is connected with a network which also has a DHCP server, the device can also retrieve the needed settings from a server. If you want or have to configure the IP config manually and enable the setting "DHCP server", devices who are connected to the CONNECT device doesn't have to be configured manually rather they can retrieve their IP configuration from the CONNECT. Independent of the activation of the DHCP server setting devices can always be configured manually.

WLAN settings

search:

mode:

SSID:

security type:

channel:

When you have selected the WLAN interface as one of the LAN interfaces another block with WLAN settings will be shown. Here you first have to specify via the mode if the device should offer an own network as Access Point or connect as client to an existing network. Afterwards the fields SSID, security type, channel and some other fields for the log in to the WLAN network depending on the selected security type can be filled in. If you aren't sure about the WLAN settings you can also execute a search for all available WLAN networks by clicking on the button "search". A click on one of the search entries will then fill in all fields expect the log in details automatically.

Hint:

If you have selected the operation mode Router the interface selected for the WAN interface can not be selected for the LAN interface anymore.

4.2.3 option IP-Switch

4.2.3.1 basic configuration

basic configuration

In the first step you have the possibility to specify a name for your device.

device name:

In the first step of the commissioning process you can specify a name for your device. This is optional and used for an easier identification only.

4.2.3.2 internet configuration

internet configuration

Next you have to configure how your device should be connected with the corporate network, from which the devices are accessed.

router interface: LAN-A ▾

In the next step you have to configure the router interface. The router interface is the interface from which you later want to access the devices connected to the peripheral interface via the translated IP address.

IP settings

IP configuration: DHCP
 manually

IP address:

subnet mask:

gateway address:

Below the selection list of the router interface a block for the configuration of the IP parameters is shown. In the first step you have to choose if the IP settings should be retrieved automatically from a DHCP server or if the parameters gets specified manually. If you want or have to do the configuration manually you will have to enter an IP address and maybe subnet mask for the device by yourself.

WLAN settings

search:

SSID:

security type: open ▾

channel: auto channel ▾

If you have selected the WLAN interface as router interface another block with WLAN settings will be shown. Here you can specify the WLAN network where the CONNECT device should connect to. For this you can use the fields SSID, security type, channel and some other fields for the log in to the WLAN network depending on the selected security type. If

you aren't sure about the WLAN settings you can also execute a search for all available WLAN networks by clicking on the button “search”. After a few seconds a list with networks will be displayed. If you want to connect to one of the networks you can click on the corresponding entry. Thereby all fields expect the log in details will be filled in automatically.

4.2.3.3 peripheral configuration

peripheral configuration

In the last step you can select the interface and configure the addresses for the devices (e. g. from a PLC) who should be reachable from the router interface.

interface:

In the last step you have to configure the peripheral interface.

IP settings

IP configuration: DHCP
 manually

DHCP server: enable

IP address:

subnet mask:

Below the selection list of the peripheral interface a block for the configuration of the IP parameters is shown. There you can specify the IP address and maybe the subnet mask for the device. If the peripheral interface is connected with a network which also has a DHCP server, the device can also retrieve the needed settings from a server. If you want or have to configure the IP config manually and enable the setting “DHCP server”, devices who are connected to the CONNECT device doesn't have to be configured manually rather they can retrieve their IP configuration from the CONNECT. Independent of the activation of the DHCP server setting devices can always be configured manually.

Hint:

Please note that devices who automatically got a IP configuration via DHCP from the CONNECT aren't reachable from the router interface by default. The entry for the IP translation always have to be done manually.

WLAN settings

search:

mode:

SSID:

security type:

channel:

When you have selected the WLAN interface as the peripheral interface another block with WLAN settings will be shown. Here you first have to specify via the mode if the device should offer an own network as Access Point or connect as client to an existing network. Afterwards the fields SSID, security type, channel and some other fields for the log in to the WLAN network depending on the selected security type can be filled in. If you aren't sure about the WLAN settings you can also execute a search for all available WLAN networks by clicking on the button "search". A click on one of the search entries will then fill in all fields except the log in details automatically.

IP-SWITCH

network bridge: enable

IP translations: <>

IP firewall:

As last block the group "IP-SWITCH" will be shown. There you have to specify if a network bridge should be used between the router and peripheral interface. When this setting is enabled all packets, where no IP translation can occur or is configured, between the router and peripheral interface will be exchanged without any modification. If the setting is disabled both networks are isolated from each other and only packets who are processed by the option are getting forwarded.

In the line "IP translations" you can now configure the translations. Therefore you have to enter the two addresses into the text fields and then click on the + symbol. The first address is the real IP address of the device. The second address specifies the translated address of the device. If you want to add further translations you can repeat this step.

When you want to delete an existing entry you will have to click on the — symbol.

In the following line “IP firewall” you will be able to specify which devices from the peripheral interface can communicate via the router interface with the devices on the router network and the network or internet behind additionally. In the text field you have to enter the real IP address of the device and the click on the + symbol. An already created entry can be deleted with the symbol —.

Important:

The peripheral and router interface have to differ.

4.2.4 option Protocol Converter

4.2.4.1 basic configuration

basic configuration

In the first step you have the possibility to specify a name for your device.

device name:

In the first step of the commissioning process you can specify a name for your device. This is optional and used for an easier identification only.

4.2.4.2 internet configuration

internet configuration

Next you have to configure how your device should be connected with the corporate network, from which the access is made via the S7 protocol.

router interface:

In the next step you have to configure the router interface. The router interface is the interface which is connected to the corporate network and from which you later want to access the H1 participants via the S7 protocol.

IP settings

IP configuration: DHCP
 manually

IP address:

subnet mask:

gateway address:

Below the selection list of the router interface a block for the configuration of the IP parameters is shown. In the first step you have to choose if the IP settings should be retrieved automatically from a DHCP server or if the parameters gets specified manually. If you want or have to do the configuration manually you will have to enter an IP address and maybe subnet mask for the device by yourself.

WLAN settings

search:

SSID:

security type: ▼

channel: ▼

If you have selected the WLAN interface as router interface another block with WLAN settings will be shown. Here you can specify the WLAN network where the CONNECT device should connect to. For this you can use the fields SSID, security type, channel and some other fields for the log in to the WLAN network depending on the selected security type. If you aren't sure about the WLAN settings you can also execute a search for all available WLAN networks by clicking on the button "search". After a few seconds a list with networks will be displayed. If you want to connect to one of the networks you can click on the corresponding entry. Thereby all fields expect the log in details will be filled in automatically.

4.2.4.3 peripheral configuration

peripheral configuration

In the last step you have to configure how your device should be connected with the plant network, where the H1 participants are connected to.

interface: LAN-B ▾

In the last step you have to configure the peripheral interface. This is the interface which is connected with the plant network and where the H1 participants are connected to.

IP settings

IP configuration: DHCP
 manually

DHCP server: enable

IP address:

subnet mask:

Below the selection list of the peripheral interface a block for the configuration of the IP parameters is shown. There you can specify the IP address and maybe the subnet mask for the device. If the peripheral interface is connected with a network which also has a DHCP server, the device can also retrieve the needed settings from a server. If you want or have to configure the IP config manually and enable the setting “DHCP server”, devices who are connected to the CONNECT device doesn't have to be configured manually rather they can retrieve their IP configuration from the CONNECT. Independent of the activation of the DHCP server setting devices can always be configured manually.

WLAN settings

search:

mode: Access Point (AP) ▾

SSID: CONNECT WiFi

security type: open ▾

channel: auto channel ▾

When you have selected the WLAN interface as the peripheral interface another block with WLAN settings will be shown. Here you first have to specify via the mode if the device should offer an own network as Access Point or connect as client to an existing network. Afterwards the fields SSID, security type, channel and some other fields for the log in to the WLAN network depending on the selected security type can be filled in. If you aren't sure about the WLAN settings you can also execute a search for all available WLAN networks by clicking on the button "search". A click on one of the search entries will then fill in all fields except the log in details automatically.

Hint:

If you have selected the same interface for the peripheral interface and router interface the block with IP and WLAN settings will not appear.

Important:

After the commissioning process is completed, you will be redirected to the start page of the device. There you'll have to click on the "couplings" button to configure the protocol translations. The description for this can be found under "5.3.3.5 couplings".

4.3 Usage of the device

If you have completed and saved the configuration, your device now submits the settings. Please make sure that the device is connected according to your configuration. After a few seconds the device will be reachable over one of the configured interfaces again.

4.3.1 option Remote Access

With the option Remote Access and another CONNECT device or the CONNECT software you can access the network participants connected to the device and communicate with them via the internet.

As soon as the device has booted up the LED S1 should begin to blink (not for CONNECT-CONTROL devices).

When you have selected the connection type CONNECT, you will now have to do an internet communication from the PC which is connected to the CONNECT device. The internet communication e. g. could be to go to the website www.google.com. Thereby the CONNECT device should detect the internet parameters from the PC and will be ready for use. If you have selected the connection type GATEWAY or LTE the device will be ready without any further action.

If you have enabled the automatically connection establishment, the CONNECT now will try to connect to the specified partner device. If you haven't enabled the automatically connection establishment or if you want to connect to another device you can do this via the dialog "device list" on the page "overview" of the web interface.

As soon as the CONNECT device has established a connection with another device the LED S1 stops blinking and lights permanently (not for CONNECT-CONTROL devices). The configured peripheral devices and maybe the PC (when using the connection type CONNECT) will now be able to communicate with the devices of the partner device like they would be on the same network.

Important:

If you have disabled the setting "remote access" the device LED S1 won't blink. Furthermore you won't have to execute an internet communication when using the connection type CONNECT, because the device don't need the internet parameters.

4.3.2 option Router

With the option Router you will be able to use your CONNECT device as bridge or router.

When using the device as bridge multiple interfaces are connected to a shared network. All participants thereby are in the same subnet and can communicate with each other directly. This operation mode is e. g. useful when you want to connect some devices who only have a LAN interface to your existing WLAN network. On the side you can also configure your device as Access Point, so that mobile devices like smart phones or tablets can communicate with devices who have a LAN interface only.

If you have two different subnets which need to be connected with each other the operation mode Router is used. The CONNECT device then routes the packets between the WAN and one or more LAN interfaces. On devices which should access devices on the other interface the gateway have to be set to the IP address of the CONNECT device.

4.3.2.1 overview of possible applications

situation	operation mode	WLAN mode	special feature
with a laptop around the S5/7 PLC	Bridge	Access Point	PLC via S5/7-LAN on LAN-A port, additional LAN participants on LAN-B port
bring S5/7 PLC or LAN participant into an existing WLAN network	Bridge	Client	PLC via S5/7-LAN / LAN participant on LAN-A port, additional LAN participants on LAN-B port
create a separate subnet for connected devices	Router	Access Point	LAN-A port to corporate network, LAN-B port + WLAN to plant network <i>(don't forget to add routes within the corporate network)</i>
extended LAN connection <i>(Attention: 2 devices are required)</i>	Bridge	1. device Access Point 2. device Client	one device as AP and the second as Client

4.3.3 option IP-Switch

With the option IP-Switch you can set up IP address conversions within the CONNECT device. This allows you to connect two networks with different subnet without the need of a router. The access to the devices on the peripheral interface then doesn't occur with the original address rather a virtual address suitable to your network is used.

For example an existing plant network with a controller which have to be addressed from the production data acquisition is to be named. A direct communication between both network participants isn't possible because both networks have a different subnet. Before you now start to change the subnet of the complete plant network, which may be very expensive or you may also have not the authorization for that, the CONNECT device with the IP-Switch option can solve this problem easily. A detailed example as well as the needed configuration is described further down.

Hint:

A CONNECT device where the Remote Access option is installed is inherently a device for coupling via the internet. However, it can also be exclusively used to exchange IP addresses with the IP-Switch option.

By default the entire network traffic is first passed on between the peripheral and router interface. If an IP address entered in the table is accessed from the router interface, the address will be translated according to the entry on the table before the transfer. The passing of the network traffic can also be limited to the entered IP addresses if needed.

When the setting for remote access is activated, the same conversion also takes place when a device of the partner device accesses an IP address entered in the table.

Important:

The communication across subnets enabled with this option only applies if the connection is established from the device on the router interface or the partner device to the device on the peripheral interface. In the other direction no translation is done.

4.3.3.1 example configuration

If the device is only used for the function to translate IP addresses, without any remote access purpose, you will find a description in this section how a minimal configuration for the commissioning can look like. Otherwise you will also find a complete explanation in the section “4.2 Configuration of the device”.

For the following example configuration it is assumed that a controller with the IP address 192.168.2.100 within the plant network (subnet 192.168.2.0/24) should be accessed from the production data acquisition within the corporate network (subnet 10.10.12.0/8) via the IP address 10.10.12.101. All other participants of the plant network should not be reachable from the corporate network.

Hint:

In the following dialogues the commissioning from a device with the options Remote Access and IP-Switch is shown. If the option Remote Access is not installed in your device, some settings are omitted.

First you should make sure that you can access the device as described in the section “4.1 Access the device”. Afterwards you can start with the basic configuration:

basic configuration

In the first step you have to specify some information about your device. The name and the password are optional.

device name:

device number:

device password: 

device name: view name for the device (*optional*)

device number: 1

device password: (*leave empty*)

Click on “next” subsequently.

In the next step you have to specify the usage of the interfaces as well as the parameters for the corporate network:

internet configuration

Next you have to configure how your device should establish a connection to the internet. Depending on the selected connection type different parameters are needed.

connection type: CONNECT
 GATEWAY
 LTE

router interface: LAN-A ▼

PC interface: LAN-B ▼

connection type: GATEWAY
router interface: LAN-A / WAN (interface of corporate network)

IP settings

IP configuration: DHCP
 manually

IP address:

subnet mask:

internet access: gateway
 proxy server

gateway address:

IP configuration: manually
IP address: IP address of the device in corporate network
(example: 10.10.12.100)
subnet mask: 255.0.0.0 (inserted automatically)
internet access: gateway
gateway address: IP address of gateway in corporate network
(example: 10.10.12.1)

Click on “next” subsequently.

Within the next step you have to configure the parameters of the plant network as well as the translation of IP addresses:

peripheral configuration

Here you can select the interface and configure the addresses for the devices (e. g. from a PLC) who can communicate with the devices or the PC from the partner device. When using the connection type CONNECT this step is optional.

interface:

interface: LAN-B / LAN (interface of plant network)

IP settings

IP configuration: DHCP
 manually

DHCP server: enable

IP address:

subnet mask:

IP configuration: manually
DHCP server: no enable
IP address: IP address of the device in plant network
(example: 192.168.2.200)
subnet mask: 255.255.255.0 *(inserted automatically)*

IP-SWITCH

function: enable

network bridge: enable

IP translations: + <>

IP firewall: +

function: enable
network bridge: no enable
IP translations: Entering of the translations which IP address of a device in the plant network corresponds to which IP address in the corporate network.

The entered addresses in the text fields have to be submitted by clicking on the + symbol. You can also specify multiple translations. An already existing entry can be deleted by clicking on the - symbol.

(example: 192.168.2.100 <> 10.10.12.101)

IP firewall:

Entering of IP addresses from devices in the plant network which are allowed to access the corporate network and the internet behind.

The entered address in the text field have to be submitted by clicking on the + symbol. You can also specify multiple addresses. An already existing entry can be deleted by clicking on the - symbol.

(example: 192.168.2.100 - if needed)

In the subsequent block "devices" no configuration is necessary.

Click on "next" subsequently.

In the last step the function of the device gets determined:

partner configuration

In the last step you can specify to which of your other devices the current device should establish a connection automatically. A connection can also be established if necessary via the page "overview".

remote access: enable

connection: establish autoamtically

remote access: no enabled (thereby all further fields are hidden)

Now you have to click on the "Save" button.

The configuration of you device for using the IP-Switch option is now completed.

The controller in the plant network with the IP address 192.168.2.100 can now be accessed from the corporate network with the IP address 10.10.12.101.

4.3.4 option Protocol Converter

With the option Protocol Converter you have the possibility to read or write data from one or multiple S5 controllers who communicate via the H1 protocol (Fetch/Write) with the S7 protocol (PUT/GET). For this you will have to create a list with the connections to the S5 controllers within the device. The assignment between S7 and S5 connections is done via individual IP addresses which can be configured for each S5 connection or via TSAPs.

The access to data from peripherals, inputs, outputs, flags, counters and timers of the S5 are possible via the S7 protocol directly. The addressing on the S7 side is thereby identical with them on the S5 side.

When accessing data blocks you need to pay attention to the addressing because the S5 is Word oriented where the S7 is Byte oriented. This means the address from the S5 needs to be doubled when accessed via the S7 protocol (ex. DW3 in the S5 as DBW6 in the S7). Of course a read access to a single byte from a word is also possible (ex. DL5 as DBB10 and DR6 as DBB11).

If your S5 controller supports the extended data block area (DX) this can also be accessed by adding an offset of 256 to the block number (ex. DX1 as DB257).

Important:

Please note that write access to single bytes of data blocks or single bits aren't possible.

4.3.5 option TimeServer

With the option TimeServer you can synchronize the clock of S5 and S7 controllers connected to the device via GPS (or alternatively via NTP). The device therefore is able to directly set the hardware clock of the PLC (*S7-300/400 only*) or to write the date and time in one of the supported

formats into a data block. Furthermore the option includes a NTP server, which allows network participants to use the CONNECT device as time server.

4.3.6 option Unified

With the option Unified you can connect a Siemens Unified Panel with a S5 controller with a S5-LAN++ to be able to read or write data from the S5 controller via the S7 protocol. To use the function you will first have to create a table within the CONNECT device in which you assign a specific combination of rack/slot to the IP address of the S5-LAN++. Afterwards you will just need to configure a S7 connection within the Unified Panel to the IP address of the CONNECT device.

5 Control elements

5.1 status LEDs

5.1.1 device CONNECT / CONNECT-II

The devices CONNECT / CONNECT-II have some status LEDs on the front side of the device. The LEDs have the following meanings:

- **ON:** lights if the device is powered
- **Wi:** lights on active WLAN and blinks on data transfer
- **S1:** lights on active connection to a partner device and blinks while synchronization and on standby
- **S2:** currently not in use (*only on older devices*)
- **S3:** currently not in use (*only on older devices*)
- **S4:** currently not in use (*only on older devices*)
- **LAN A:** lights if the link state on interface A is active and blinks on data transfer
- **LAN B:** lights if the link state on interface B is active and blinks on data transfer

Furthermore the CONNECT devices with an integrated LTE modem have another LED on the right side of the device near to the SIM card slot. If this LEDs blinks slowly and evenly the modem is executing a network search. As soon as a network was found the LED lights constantly. When a communication is running trough the LTE interface the LED blinks faster or irregularly.

5.1.2 device CONNECT-CONTROL

The device CONNECT-CONTROL has multiple different status LEDs on the front side of the device.

The first green LED is located on the bottom left corner next to the power connector and lights when the device is powered.

For a simple diagnostic of the RJ45 interfaces every connector has its own green LED. This LED lights when a link state is detected and blinks on data transfer.

Furthermore there are some more LEDs on the bottom right corner for a diagnostic of the mobile connection. The five green LEDs below the bars are showing up the signal strength. This means the more LEDs are light up the better the signal is. The LED directly below the mobile symbol is a multi color LED and gives more information about the current general mobile connection:

colors	behavior	meaning
green + red	blinks alternatively every 500ms	no SIM card detected or bad pin code
green + red + orange	blinks alternatively every 500ms	GSM connection gets established
red	blinks every 1s	GSM connection without data connection
	lights / blinks	GSM connection with data connection <i>(blinks on data transfer)</i>
orange	blinks every 1s	UMTS connection without data connection
	lights / blinks	UMTS connection with data connection <i>(blinks on data transfer)</i>
green	blinks every 1s	LTE connection without data connection
	lights / blinks	LTE connection with data connection <i>(blinks on data transfer)</i>

5.2 buttons

5.2.1 device CONNECT / CONNECT-II

The devices CONNECT / CONNECT-II have two buttons on the right side of the case. These buttons are used as follows:

- **FS:** button for applying factory defaults
- **T:** currently not in use

If you want to restore your device to the factory defaults you have to press the “FS” button for at least 3 seconds. For pressing the button you can use a paperclip.

If you have pressed the button for at least 3 seconds and released it again the factory defaults gets loaded into the device. Now your device executes a restart and can be accessed after about 30 seconds via the default settings as described in the chapter “Commissioning”.

5.2.2 device CONNECT-CONTROL

The device CONNECT-CONTROL has a single button on the rear of the case, which can be pressed with the help of the supplied needle or a paper clip. The usage of the button can be individually configured on the web interface from Teltonika. From factory default the following actions are executed depending on the time span where the button is pressed:

min time	max time	meaning
0	5	restart
6	11	restoring user defaults
12	20	restoring factory defaults

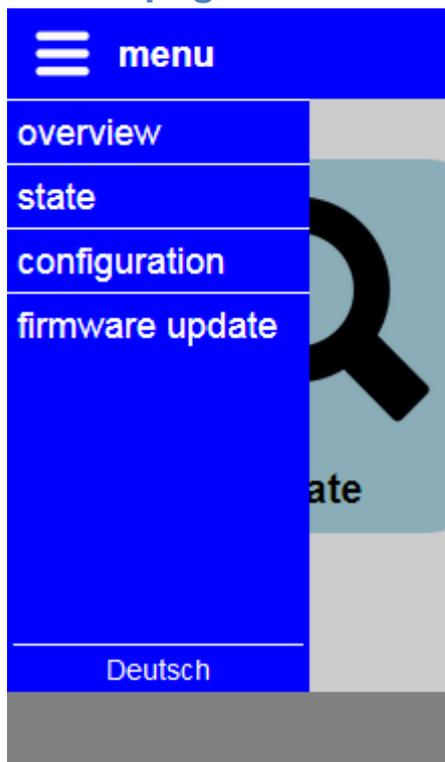
Important:

When restoring the user or factory defaults the CONNECT software is removed from the device too. In this case you have to do a complete new installation of the software.

5.3 web server

The operation of the device for configuration and status checking as well as connecting and disconnecting to / from partner devices is done via the integrated web server. The access to the web server is possible via all interfaces who have an IP configuration. Additionally the web server can also always be accessed via the PC and peripheral interface (when used) with the keyword “connect”.

5.3.1 page structure



All pages consists of a header, a footer and a content area. The menu is hidden by default. With this structure the web page can even be viewed on devices with small resolutions or monitor sizes (e. g. smart phones).

If you want to show the menu you have to click on the icon or the text “menu” on the upper left corner. The menu then gets displayed on the left side. If you want to navigate to one page, you just have to click on the desired entry. If you want to hide the menu you only have to click on the icon or text “menu” again.

The web page language can be changed by clicking on the entry “English” or “Deutsch” on the bottom of the menu. The language selection gets saved within the device.

For CONNECT-CONTROL devices the logo from Teltonika Networks is shown on the left side of the footer. When you have clicked on this logo the web interface of the RUT955 from Teltonika gets opened. There you can then parameterize further settings which are independent of the CONNECT software. For more information about this settings please look into the manual from Teltonika.

5.3.2 access protection

To avoid an inadvertent change of the configuration as well as connecting or disconnecting to or from another device the complete web page can be protected with a password.

The configuration of the password is done on the page “configuration”. If an empty password is specified, as it is the case on factory defaults, no password query will be shown and all pages can be accessed directly.

If you have configured a password, you will be queried to enter a password with the following dialog:



A screenshot of a web dialog box for logging in. The dialog has a blue border and a blue header with the text "log in". Below the header, the word "password:" is followed by a text input field. Below the input field is a button labeled "log in".

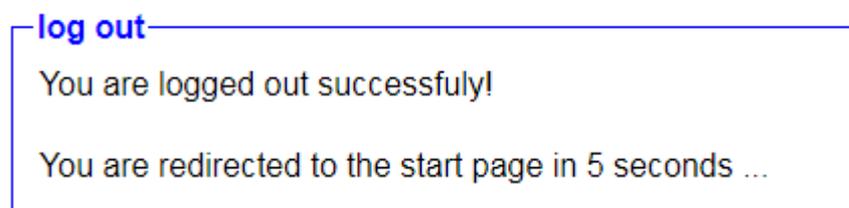
After you have entered the password and clicked on “log in” you will be redirected to the page, which was requested before.

Because of security reasons we recommend to log out of the device after you have finished your work. Therefore you will see the menu entry “log out” on the menu:



A screenshot of a menu entry labeled "logout" in white text on a blue background.

After you have clicked on the menu entry you will see the following message and will be redirected to the start page after 5 seconds, which then queries for a password again:



A screenshot of a web dialog box for logging out. The dialog has a blue border and a blue header with the text "log out". Below the header, the text "You are logged out successfully!" is displayed. Below that, the text "You are redirected to the start page in 5 seconds ..." is displayed.

Hint:

If you have executed a device restart, the loading of factory defaults or a firmware/software update, no log out have to be done, because thereby all users are getting logged out automatically.

5.3.3 page overview



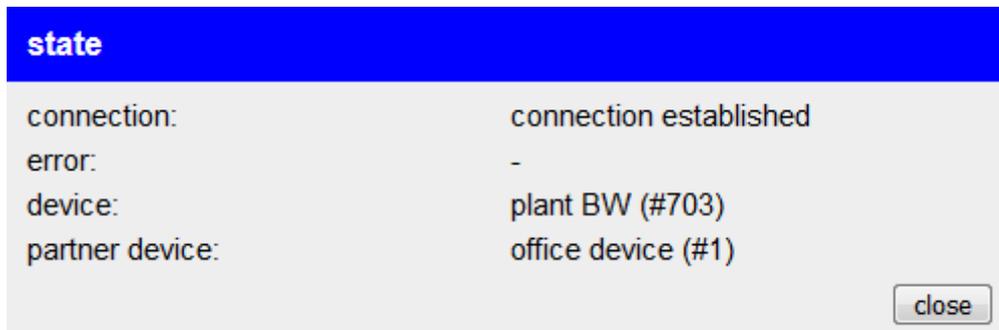
© Copyright PI 2020

The page “overview” is available for devices with the options Remote Access and IP-Switch and is the start page on this devices. The offered data on this page allows you a fast diagnostic of the device state, the management of connections to a partner device as well as the configuration and checking of the addresses from peripheral / network devices from the own device and from the partner device.

For a better overview the information on the page are grouped in multiple dialogues. These dialogues can be be opened with a click on the corresponding light blue button. If you want to close an opened dialog again you can click on the button “close” within the dialog or on some area outside the dialog. The single dialogues are explained in more detail on the next pages.

Hint:

Depending on the installed options as well as on the configuration and state of the device not all dialogues may be available.

5.3.3.1 state

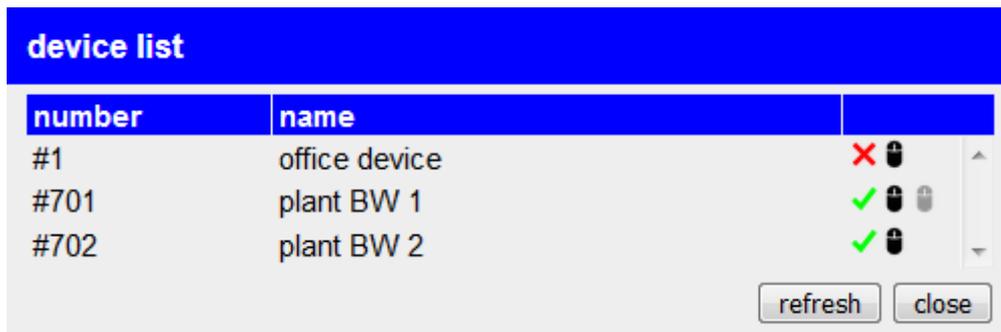
Within the dialog “state” the most important information about the device and the connection are shown:

- connection: The current state of the device and connection.
- error: The last error which occurred on the device.
- device: The name, if exists, and number of the own device.
- partner device: The name, if exists, and number of the device to which currently or lastly a connection is / was established.

Hint:

If the option Remote Access is not installed on your device or if you do not have enabled this function within the settings, the text “not used” will be shown under “connection” as soon as the device is ready for use.

5.3.3.2 device list



When opening the dialog “device list” the device tries to detect all devices who are located within your CONNECT cloud. After a few seconds a table with all found devices will be shown.

With the symbols ✓ and ✗ on the last column of each table row you can establish a connection to the corresponding device or disconnect an already existing connection.

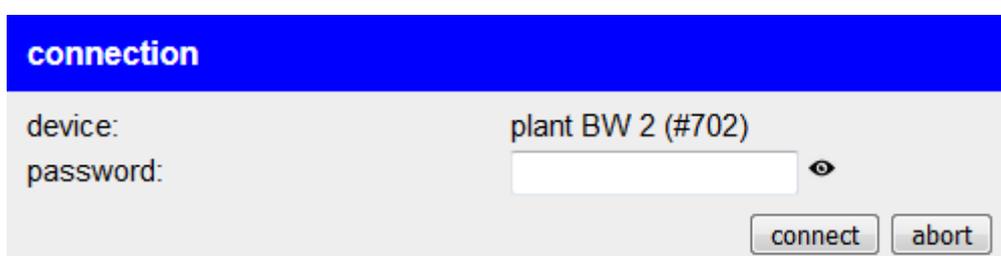
The symbols 🖱️ and 🖱️, who are also located within the last column, are used to start or open and stop the remote config for a device. The remote config is a function to view and control the web interface of another device as if the device where located in the local network.

With the button “refresh” you can reload the device list again manually.

Hint:

If you have disabled the remote access in the settings of the device, this dialog won't be available.

If you want to establish a connection to a device the following dialog will be shown after you have clicked on the ✓ symbol:



On this dialog the name, if exists, and the number of the device, to which a connection should be established to, will be shown again. Furthermore you have an input field where you have to enter the connection password for this device. Afterwards you can click on the button “connect”, to establish the connection to the selected partner.

Hint:

If you are already connected with a partner device and want to connect to another device the previous connection will be disconnected first automatically.

Important:

When you use the connect and disconnect function of the device list the automatically connection establishment will be disabled temporarily. After a restart or maybe when changing the configuration this automatism will be enabled again.

When you want to start the remote config for a device from the list a dialog will be shown too after you have clicked on the symbol :



remote config

device: plant BW 2 (#702)

password: 

start abort

The dialog shows the selected device again and requests for entering the password for the device. Afterwards you can click on the button “start”. When the remote config was be started successfully, a new window will be opened where the web server of the selected device will be shown.

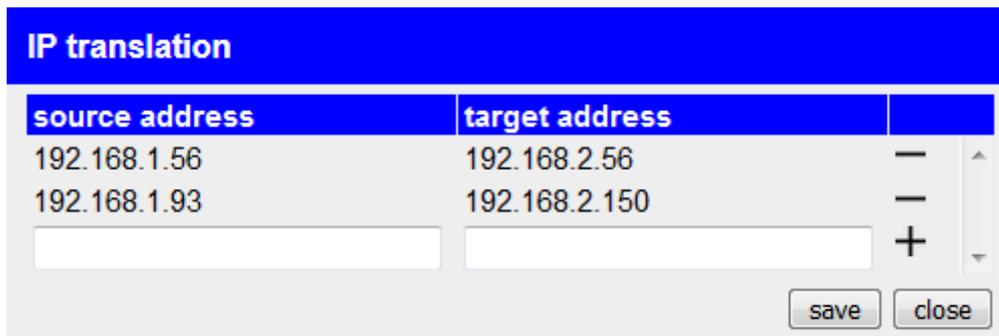
Hint:

If the remote config to another device was started earlier but no stopped, this remote config gets stopped first. The parallel access via remote config to multiple devices is not possible.

Important:

When the remote config could be started successfully but no windows gets opened please make sure that your browser doesn't block pop-ups.

5.3.3.3 IP translation



When the option IP-Switch is available and enabled on your device, you will have the dialog “IP translation”, where you can configure the translations of IP addresses for the devices on the peripheral interface. The source address specifies the original IP address of the device on the peripheral interface where the destination address describes the address in which the IP address gets translated to.

To add a new entry into the table, you will have to fill in the text fields on the last line and click on the + symbol afterwards.

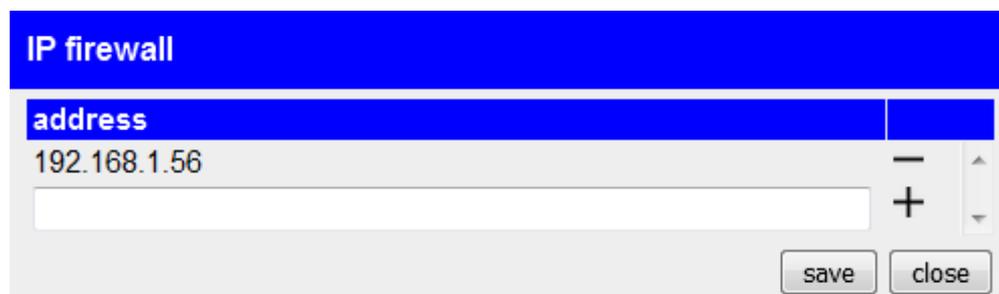
If you want to remove an already existing entry you can click on the — symbol of the corresponding row.

Once you are done with the configuration you have to click on the button “save” to submit the configuration.

Important:

If a device from the peripheral interface should be reachable from the network devices of the partner device too, you will have to enter the destination address of this devices into the dialog “addresses” too.

5.3.3.4 IP firewall



If the option IP-Switch is installed and activated on your device, you will have the dialog “IP firewall”, where you can grant IP addresses of devices on the peripheral interface access to the router interface and the

network or internet behind. For this you only have to enter the IP address where the access should be granted into the dialog. For all other devices the access will be refused. It also does not matter if the IP address is specified within the IP translations or not.

To add a new entry into the table, you will have to fill in the text field on the last line and click on the + symbol afterwards.

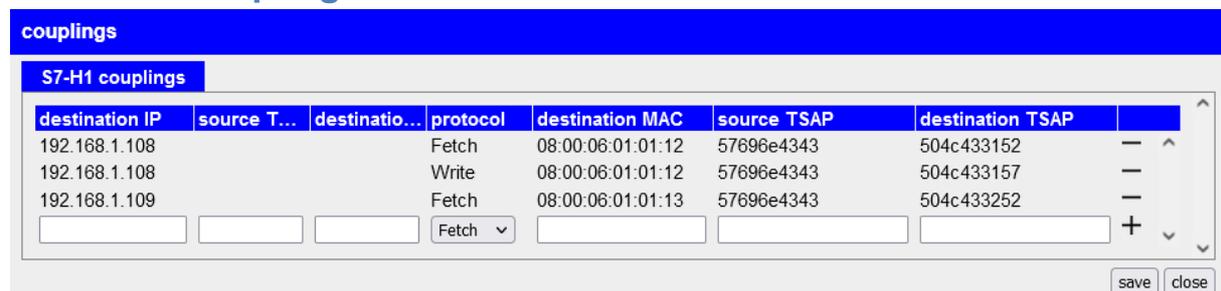
If you want to remove an already existing entry you can click on the - symbol of the corresponding row.

Once you are done with the configuration you have to click on the button “save” to submit the configuration.

Hint:

If you use the connection type LTE this dialog will not be available, because no router interface is used for this connection type.

5.3.3.5 couplings



When the option Protocol Convert is available and enabled on your device, you will have the dialog “couplings”, where you can set up the parameters for the coupling between two devices with different protocols. The dialog is separated into multiple tabs for various couplings, but currently only the S7-H1 couplings are available.

For the S7-H1 couplings you first need to configure with the three first columns how the device should be reachable via the S7 protocol. You can either assign an individual IP address for each connection or you can differ the connections via the source and/or destination TSAP. If you enter an IP address the access is only possible with this IP address via the router interface. Otherwise the access is possible with every IP address of the device. The fields for the both TSAPs are optional if they aren't needed for the assignment to the S5 connection.

When you have set up the S7 side you will now have to choose if the protocol “Fetch” (GET on the S7 side) or “Write” (PUT on the S7 side) should be used. Afterwards you have to enter the MAC address and both TSAPs as they are configured within the CP of the S5 side.

Hint:

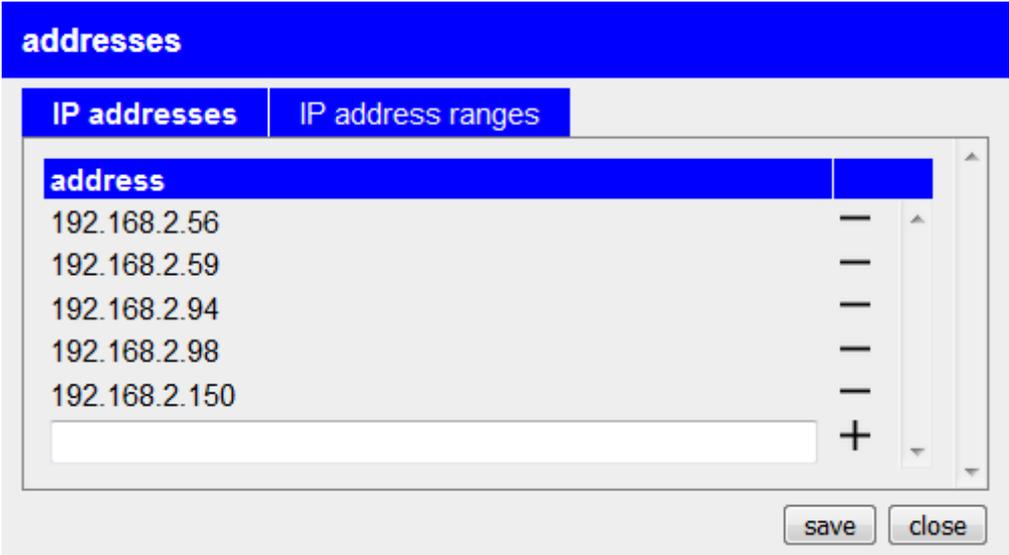
The read and write access on the S5 side always requires two separate connections. But nevertheless you are still able to use a single S7 connection for read and write access, by configuring two connections which doesn't differ on the parameters of the S7 side. The device then assigns the read and write requests to the corresponding connection.

To add a new entry into one of the tables, you will have to fill in the text field on the last line and click on the + symbol afterwards.

If you want to remove an already existing entry you can click on the - symbol of the corresponding row.

Once you are done with the configuration you have to click on the button “save” to submit the configuration.

5.3.3.6 addresses



The dialog “addresses” allows you the configuration of single addresses or complete address ranges for the peripheral devices. The address configuration is separated in multiple tabs but currently only the tabs “IP addresses” and “IP address ranges” are available. The address lists can be opened by clicking on the corresponding tab.

If you want to add an address or address range to a list you have to fill in the input fields on the last row of the table and click on the symbol + afterwards.

If you want to remove an added entry again you can click on the - symbol of the respective row.

When you have finished your configuration you have to click on the “save” button, to submit the changed address lists.

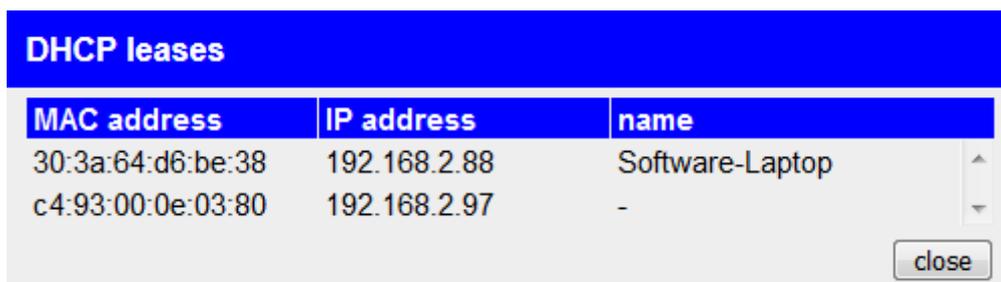
Hint:

The addresses who are configured on this dialog have to be on the same subnet as the IP address from the peripheral interface of the device itself or on the same subnet as devices who are connected with the partner device. Otherwise no communication is possible.

Important:

Only the devices whose address are configured in this dialog, as well as devices who get their configuration via DHCP and, when using the connection type CONNECT, the PC are allowed to communicate via the tunnel with the devices from the connected partner device.

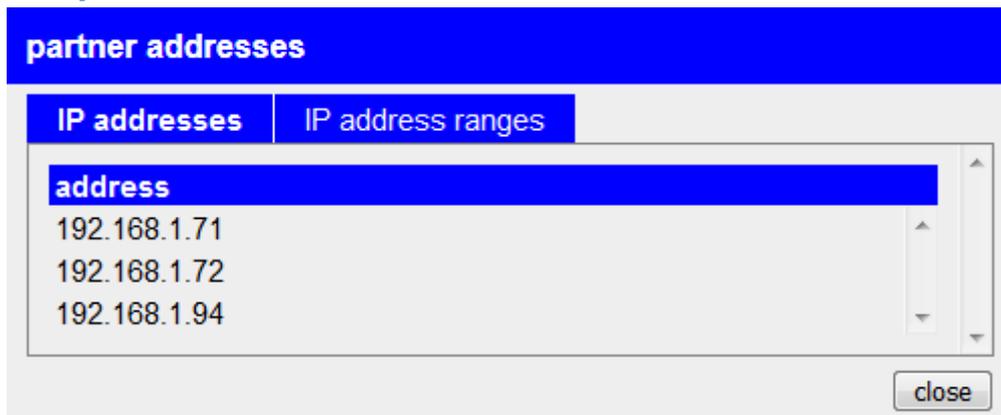
5.3.3.7 DHCP leases



MAC address	IP address	name
30:3a:64:d6:be:38	192.168.2.88	Software-Laptop
c4:93:00:0e:03:80	192.168.2.97	-

Within the dialog “DHCP leases” you can see a list of devices, who automatically got an IP address from the CONNECT device. This devices can, additionally to the manual configured devices, also communicate via the tunnel with the devices of the partner device. Within the table each entry shows the MAC and automatically assigned IP address of the device as well as the device name if applicable.

5.3.3.8 partner addresses



The dialog “partner addresses” will be displayed as soon as a connection to another device is or was established. Within the dialog you can see the addresses and address ranges of the network devices from the current or last partner device. The structure thereby can be compared with the dialog “addresses” with the different that on this dialog no configuration can be done.

5.3.4 page stations



The page “stations” is the start page on devices with the TimeServer option and allows you the diagnosis as well as configuration of the PLC stations (controllers) where a time adjust should be executed.

On the page you can see on the upper right the current system time of the device and in the middle the list of stations. A new station can be added by clicking on the button “add station”. Thereby the same dialogue will be shown as for editing an already existing station. The description of the dialog and the list itself can be found in the following sections.

5.3.4.1 list with stations



Every configured station will be shown as one entry in the list.

On the left side the symbols shows the current state of the station:

-  time adjust was not executed yet
-  time adjust is currently executed
-  time adjust was executed successfully
-  time adjust was not successful

Next to the status symbol the name and IP address is shown in the first line and the current state or last result as well as the last time of the time adjust in the second line. Further information about the current state can be found in the diagnosis dialog.

On the right side of the entry there are a few symbols which allows you to mange the station:

-  enable automatic time adjust
-  disable automatic time adjust
-  show or change settings of station
-  remove station
-  execute time adjust manually
-  show diagnosis information of station

Hint:

Stations where the automatic time adjust is disabled are colored with a light gray background color.

5.3.4.2 settings of a station

The screenshot shows a settings dialog box titled "settings » station 'head control'". The dialog contains the following fields and controls:

- name: head control
- IP address: 192.168.1.160
- channel type: OP connection (dropdown menu)
- rack number: 0 (spin box)
- slot number: 1 (spin box)
- automatic: adjust time automatically
- interval: 3600 (spin box) seconds
- target / format: DB S7 LDT (dropdown menu)
- block number: 10 (spin box)
- block offset: 0 (spin box)

At the bottom right of the dialog are two buttons: "save" and "close".

If you add a new station or open the settings of an existing station a dialog with the following parameters will be shown:

- name: A freely definable name for the station which is used for display only.
- IP address: The IP address of the PLC, the CP or the S5-LAN++ or S7-LAN module.
- channel type: The channel type or resource which is used for the connection to the PLC.
- rack number: The number of the rack where the PLC is connected to. (*default 0*)
- slot number: The number of the slot where the PLC is connected to. (*default 2 for S5 or S7-200/300/400 or 1 for S7-1200/1500*)
- automatic: Determines if an automatic time adjust should be executed for this station.
- interval: The interval in seconds where the automatically time adjust should be executed.

target / format: Determines if the time should be directly written into the PLC or in which format the time should be written into a data block.

- **PLC clock:** directly into the hardware clock of the PLC (*only S7-300/400*)
- **DB S7 DATE_AND_TIME:** into a DB with the S7 format DATE_AND_TIME / DT (*only S7-300/400/1500*)
- **DB S7 LDT:** into a DB with the S7 format LDT (*only S7-1500*)
- **DB S7 DTL:** into a DB with the S7 format DTL (*only S7-1200/1500*)
- **DB binary:** into a DB with a binary format (*see below*)
- **DB ASCII:** into a DB with a ASCII format (*see below*)

block number: The number of the data block where the time should be written to.

block offset: The offset in bytes within the data block where the time should be written to.

If you want to submit the changes you will have to click on the “submit” button. When you click on the button “close” all inputs will be discarded.

structure of format “DB binary”

address	description	example
DW0	year	2022
DB2	month (1 till 12)	3
DB3	day (1 till 31)	25
DB4	day of week (0 for Sunday, 1 for Monday, ... till 6 for Saturday)	5
DB5	hour (0 till 23)	10
DB6	minute (0 till 59)	27

DB7	second (0 till 59)	32
DB8	daylight saving time active (bit 0)	0
DB9	time adjust executed (bit 0)	1

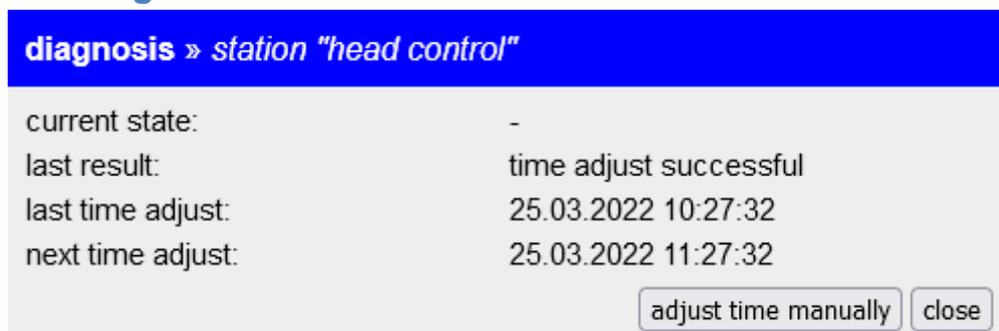
structure of format “DB ASCII”

address	description	example
DD0	year (four digits)	'2' '0' '2' '2'
DW4	month (two digits, 1 till 12)	'0' '3'
DW6	day (two digits, 1 till 31)	'2' '5'
DW8	hour (two digits, 0 till 23)	'1' '0'
DW10	minute (two digits, 0 till 59)	'2' '7'
DW12	second (two digits, 0 till 59)	'3' '2'
DB14	daylight saving time active (Bit 0)	0
DB15	time adjust executed (Bit 0)	1

Hint:

The bit “time adjust executed” within the formats of “DB binary” and “DB ASCII” can be used from the PLC to determine if the CONNECT device has updated the data block. For this the PLC needs to reset the bit as soon as the data has been read.

5.3.4.3 diagnosis of a station



When you open the diagnosis of a station a dialog will be shown with the following information:

- current state: The current state of the time adjust if a time adjust is executed in this moment.
- last result: The result (success or corresponding error) of the last time adjust.
- last time adjust: The time of the last time adjust.
- next time adjust: The time for the next automatically time adjust.

With the button “adjust time manually” you can trigger a time adjust for this station manually. This button has the same effect as the symbol in the list.

5.3.5 page connections



state			configuration		
source IP	source TSAP	destination TSAP	destination IP	state	
192.168.1.72	0100	0202	192.168.1.161	connected	
192.168.1.71	0100	0201	192.168.1.160	connected	
192.168.1.71	0100	0202	192.168.1.161	connected	
192.168.1.71	0100	0202	192.168.1.161	connected	



The page “connections” is the start page on devices with the Unified option and allows you to assign the S7 connections with the S5-LAN++ modules as well as viewing all currently established connections.

The page is divided into two tabs which are described in the next two sections in more detail.

5.3.5.1 state

state			configuration	
source IP	source TSAP	destination TSAP	destination IP	state
192.168.1.72	0100	0202	192.168.1.161	connected
192.168.1.71	0100	0201	192.168.1.160	connected
192.168.1.71	0100	0202	192.168.1.161	connected
192.168.1.71	0100	0202	192.168.1.161	connected

In the tab “state” you will find an overview for all currently established connections to the CONNECT device including their addresses and state.

5.3.5.2 configuration

state		configuration	
rack number	slot number	IP address	
0	1	192.168.1.160	 -
0	2	192.168.1.161	 -
<input type="text"/>	<input type="text"/>	<input type="text"/>	 +

In the tab “configuration” you will be able to set up the assignment of S7 connections (via rack and slot number) to the S5 controller (IP address of the S5-LAN++). The table consists of three columns for each entry:

- rack number: The number of the rack, which is used to assign the S7 connection to the S5 controller. *(default 0)*
- slot number: The number of the slot, which is used to assign the S7 connection to the S5 controller.
- IP address: The IP address of the S5-LAN++ module which is plugged on the S5 controller.

If you want to add a new entry to the list you have to fill in the input fields on the last row of the table and click on the symbol **+** afterwards.

If you want to remove an added entry again you can click on the **-** symbol of the respective row.

Furthermore it is also possible to modify an existing entry. Therefore you have to click on the  symbol, make your changes as desired and finally click on the  symbol. With a click on the  symbol you will also be able to exit the edit mode without making any change.

5.3.6 page status

menu

system

device type: CONNECT
firmware version: 1.02
serial number: -
customer ID: 1234

options

IP-SWITCH: not installed

device

name: -
number: 1

interfaces

connection type: CONNECT
router interface: LAN-A
PC interface: LAN-B
peripheral interface: none

LAN-A interface

state: connected
MAC address: c4:93:00:0e:ba:42
IP address: 192.168.1.236
subnet mask: 255.255.255.0

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The page “status” show different status information about the device as well as information about settings and network interfaces from the device. This information can be helpful e. g. if you want to check if a LTE or WLAN connection exists and how good the signal level is. Furthermore the information on this page can be helpful for the support if you have any problems with your device.

5.3.7 page configuration

The screenshot shows a web-based configuration interface with a blue header bar containing a menu icon and the word "menu". The main content area is divided into four sections, each enclosed in a blue border:

- system:** displays "device type: CONNECT" and "firmware version: 1.00".
- access protection:** contains a "current config password:" field. Below it is a sub-section titled "config password" with a "change password:" checkbox (unchecked), a "new password:" field, and a "repeat new password:" field.
- general:** includes three buttons: "restart:" with "execute restart", "factory default:" with "set factory defaults", and "support request:" with "create file for support".
- device:** features a "name:" field, a "number:" dropdown menu set to "1", and a "password:" field with a toggle icon.

At the bottom of the page, a grey footer bar contains the text "© Copyright PI 2020".

On the configuration page (menu item “configuration”) you have the possibility to set various settings. This allows you to configure the device as needed for your usage. The configuration settings are divided in groups and described in the next points in more detail.

Hint:

Depending on your device type, the installed options and configuration not all groups or settings may be available.

5.3.7.1 system

This image shows a close-up of the "system" configuration group, which is enclosed in a blue border. It displays the following information:

- device type: CONNECT
- firmware version: 1.00

The group “system” shows some information about the device. Here you cannot change anything. The update of the firmware or software can be done on the page “firmware update” or “software update”.

5.3.7.2 access protection

access protection

current config password:

config password

change password: change password

new password:

repeat new password:

Within the block “access protection” you have the possibility to configure the password which is needed for accessing the web interface of the device. If you want to change the password you have to enable the “change password” box and enter your old password into the field “current config password”. This is used as a verification. Next you have to enter your new password into the two text fields. The repeated input is for your own safety, to reduce the risk of typing errors.

Hint:

An empty password as it is set on factory defaults means that you can access all pages without getting a password prompt.

5.3.7.3 general

general

restart:

settings:

factory default:

support request:

Within the area “general” you can execute a restart of your device, backup or restore the configuration of your device or set the device back to factory defaults. Therefore you only need to click on the corresponding button and confirm the safety message.

The button “create file for support” can be used for creating and downloading a file in your browser which contains the configuration and

status of your device. This data can be useful for the technical support, if you have any problems with your device.

Important:

If you restore a configuration or set your device back to factory defaults all current settings will be lost. Please note that when you set your device back to factory defaults the commissioning process have to be done before using the device again.

5.3.7.4 device

The screenshot shows a configuration interface with two main sections. The top section, labeled 'device', contains three input fields: 'name' (a text box), 'number' (a dropdown menu with '1' selected), and 'password' (a text box with an eye icon for visibility). The bottom section, labeled 'partner device', contains three items: a checkbox labeled 'connection: establish autoamically' (note the typo), a 'number' dropdown menu with '1' selected, and a 'password' text box with an eye icon.

The group “device” contains some general settings about the networking of your device within your CONNECT cloud:

- name: The name of the device, which is only used for an easier identification of the device.
- number: The unique number of the device.
- password: The password of the device, which is needed to establish a connection to this device.

Within the subordinate block “partner device” you can configure an automatic connection to one of your other devices from your CONNECT cloud:

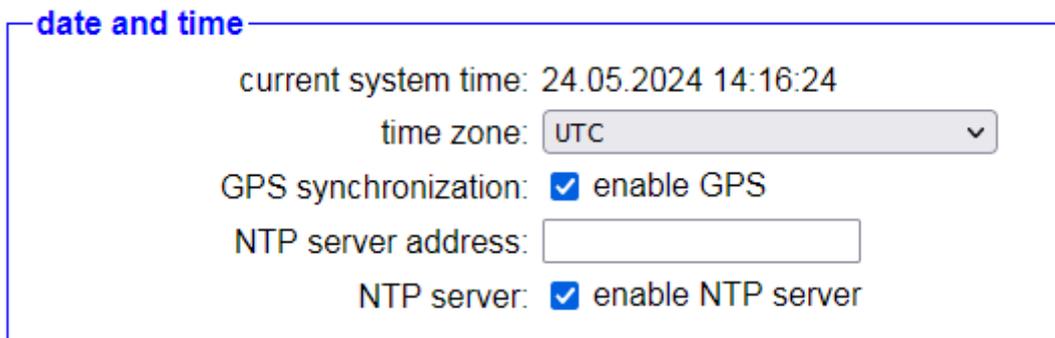
- connection: Specifies if the device should establish a connection to a device from your CONNECT cloud automatically.
- number: The number of the device, where the connection should be established to.

password: The password of the device, where the connection should be established to.

Important:

Every device needs an own unique number. The usage of the same number on multiple devices is not possible.

5.3.7.5 date and time



If the option TimeServer is installed on your device you can configure the settings for the system of the device within the block “date and time”:

current system time: The current date and the current time of the device (this value can't be changed directly).

time zone: The time zone where the device is located.

GPS synchronization: Determines if the device should synchronize it's system time via GPS. (only LTE devices)

NTP server address: The IP address or DNS name of the NTP server which should be used for the synchronization of the system time.

(not needed, when GPS is enabled)

NTP server: Determines if the device should offer it's system time as NTP server to other network participants.

Hint:

On the NTP protocol the UTC time, thus without the time zone, is used always. If needed you will have to configure the time zone on the devices who query the time from the CONNECT separately.

5.3.7.6 interfaces

The settings within the block “interfaces” differ depending on the within the device installed options. Please do note, that a combination with multiple options is also possible.

The screenshot shows a configuration window for network interfaces. It is divided into two main sections: 'interfaces' and 'Router'. The 'Router' section contains the following settings:

- operation mode: none, Bridge, Router
- WAN interface: LAN-A (dropdown)
- LAN interface: Bridge (dropdown)
- bridge interfaces: LAN-A, LAN-B, WLAN
- WAN routing: route WAN to LAN
- LAN routing: route LAN to WAN

If the option Router is installed on your device you can configure the operation mode as well as the usage of the network interfaces within the subordinated block “Router”:

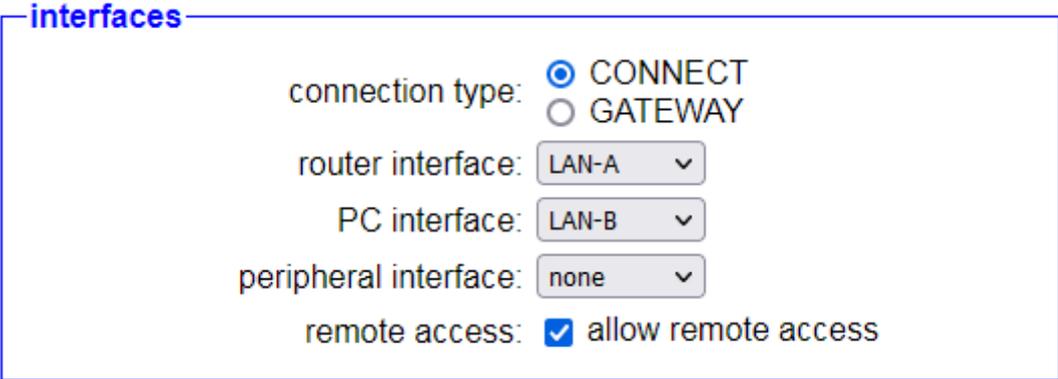
- | | | |
|-----------------|--------|--|
| operation mode: | none | The bridge and router function is disabled. |
| | Bridge | The device connects multiple interfaces to a shared network. |
| | Router | The device routes between the network of the WAN interface and the network of one or more LAN interface. |
- WAN interface: The interface where the remote network (e. g. internet) is connected to.
- LAN interface: The interface where the local network is connected to. If Bridge is selected multiple interfaces can be used.
- bridge interfaces: The interfaces which should be connected to a shared network.

WAN routing: Determines if an access to the devices in the LAN should be possible from the WAN.

LAN routing: Determines if an access to the devices in the WAN should be possible from the LAN.

Important:

The WAN and LAN interface have to be different.



If the option Remote Access is installed on your device you can configure the connection type with the internet as well as the usage of the network interfaces within the block "interfaces":

connection type:	local	The remote access function of the device is disabled.
	CONNECT	The device gets connected between the network and the PC and uses the parameter from the PC to establish an internet connection.
	GATEWAY	The device has an own IP address and uses this to establish a connection to the internet.
	LTE	The device uses the LTE modem to establish a connection to the internet.

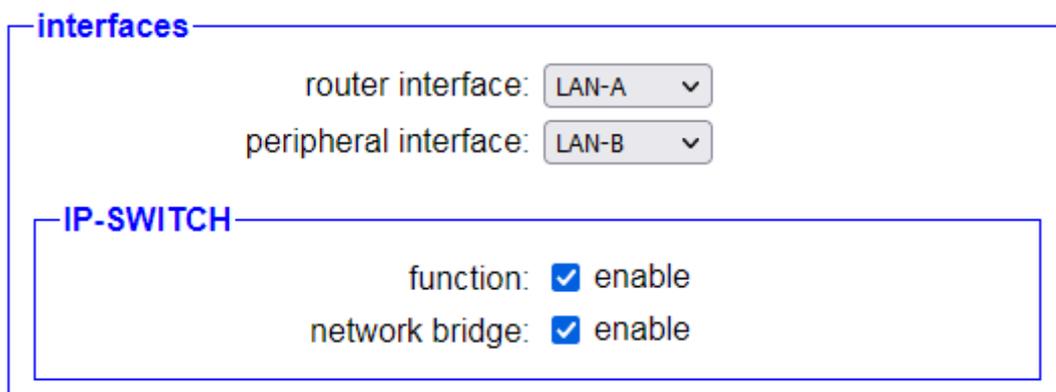
- router interface: The interface where the network with the gateway or proxy server for the internet connection is connected to.
- fallback interface: The interface which can be alternatively be used to establish a connection to the internet. The interface is only used when no connection can be established via the router interface.
- PC interface: The interface where the PC for the automatically detection of the internet parameters is connected to.
- peripheral interface: The interface where the network devices who can communicate via the tunnel with the devices from the partner device are connected to.
- remote access: Determines if an access from or to another device from your CONNECT cloud is possible.

Hint:

The connection type local is available with installed Router option only.
 The connection type LTE is available for CONNECT devices with integrated LTE modem only.

Important:

The router and PC interface have to be different. In contrast to this the peripheral interface doesn't have to differ from the router or PC interface.



When the option IP-Switch is installed on your device, you first have to specify which interfaces should be used within the block “interfaces”:

router interface: The interface where the devices from the network of the peripheral interface can be reached with there translated IP address.

peripheral interface: The interface where the devices which should be reachable from the router interface are connected to.

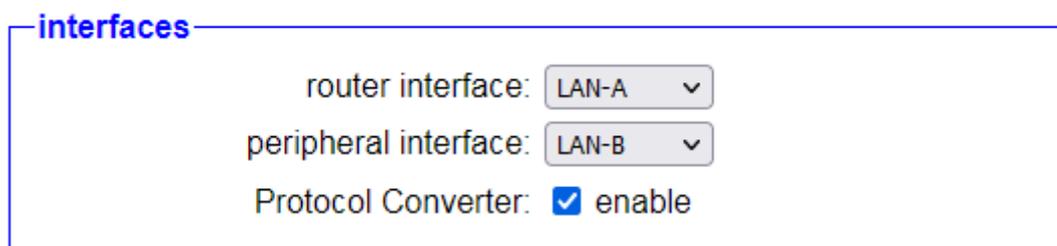
Furthermore you can configure some general settings for the option within the subordinated block “IP-SWITCH”:

function: Determines if the option IP-Switch for the translation of IP addresses should be used.

network bridge: Determines if a network bridge between the router and peripheral interface should be enabled. When this setting is enabled packets for not configured IP addresses will be forwarded without any modification.

Important:

If the option IP-Switch is used the router and peripheral interface have to be different.



When the option Protocol Converter is installed on your device, you will have the following settings within the block “interfaces”:

router interface: The interface from where the devices from the peripheral interface can be reached via the S7 protocol.

peripheral interface: The interface where the H1 participants which should be reachable from the router interface are connected to.

Protocol Converter: Determines if the option Protocol Converter for the translation of protocols should be used.

Important:

If the option Protocol Converter is used the router and peripheral interface doesn't have to be different.

5.3.7.7 LTE settings

The screenshot shows a configuration window titled "LTE settings". It contains the following fields and controls:

- driver:** Two radio buttons are present. The first is labeled "QMI" and is selected (indicated by a blue dot). The second is labeled "AT/PPP" and is unselected.
- PIN code:** A text input field is empty. To its right is an eye icon, indicating that the field is currently hidden.
- network search:** A button labeled "start search" is positioned to the right of the label.
- access point (APN):** A text input field contains the word "internet".
- user name:** A text input field is empty.
- password:** A text input field is empty. To its right is an eye icon, indicating that the field is currently hidden.

The settings in the group “LTE settings” are used for the network attachment of the integrated LTE modem of the devices CONNECT-LTE, CONNECT-II-LTE and CONNECT-CONTROL:

- interface:** Specifies if the interface should be used. (*only CONNECT-CONTROL*)
- driver:** The internally used communication driver between the device and the LTE modem. (*when you have problems with your connection you should switch to the entry AT/PPP; not available on CONNECT-CONTROL*)
- PIN code:** The PIN code which is needed to unlock the plugged in SIM card (optional).
- access point (APN):** The name of the access point from the provider. (*internet → default APN for many providers; automatically detected for CONNECT-CONTROL*)
- user name:** The user name for authentication at the provider for the configured access point (optional).
- password:** The password for authentication at the provider for the configured access point (optional).

If you would like to see which networks are available in the environment of the device you can click on the button “start search”. After about 2 minutes a list with providers and their network types will be shown. The device will automatically select the network depending on your SIM card.

	name	type
network search:	Telekom.de	LTE
	Telekom.de	GSM
	vodafone.de	GSM
	o2 - de	GSM

Hint:

By default the communication driver QMI is used for the LTE modem. If the device is not able to establish an internet connection even when the signal strength is good, we recommend to switch to the driver AT/PPP. If you are using a SIM card from the company Telekom, we generally recommend the driver AT/PPP.

5.3.7.8 proxy settings

proxy settings

proxy server: use proxy server

server address:

server port:

user name:

password: 

Within the group “proxy settings” you can enable and specify a proxy server which should be used to establish an internet connection :

proxy server: Specifies if the internet connection should be established via a proxy server.

server address: The IP address of the proxy server.

server port: The port of the proxy server.
(8080 → often used port for proxy servers)

user name: The user name for authentication at the proxy server (optional).

password: The password for authentication at the proxy server (optional).

Hint:

This settings will only be displayed when using the connection type GATEWAY, because otherwise these settings aren't applicable.

Important:

For the authentication at the proxy server the schemes Basic, Digest and NTLM (v2) are supported. The selection which scheme is used is done by the device automatically.

5.3.7.9 LAN-A / LAN settings

LAN-A settings

MAC address: c4:93:00:0e:ba:42

DHCP mode: -

IP address:

subnet mask:

gateway:

DNS server:

The settings in this group are used for the network attachment and belong to the LAN-A interface (for CONNECT and CONNECT-II) or LAN interface (for CONNECT-CONTROL):

MAC address: The MAC address of the interface (this value can't be changed).

- DHCP mode:
- The device is reachable via the specified address.
 - client The device refers an IP address from a DHCP server.
 - server The device is reachable via the specified address and provides IP addresses to other devices.

IP address: The IP address of the device.

subnet mask:	The subnet mask of the device.
gateway:	The IP address of the gateway (optional).
DNS server:	The IP address of the DNS server (optional).
DHCP start IP:	The first IP address from the IP address range of the DHCP server of the device.
DHCP end IP:	The last IP address from the IP address range of the DHCP server of the device.
WAN port:	Specifies if the WAN port should also be used for the LAN interface. Thereby you will then have 4 instead of 3 LAN ports. Thus an own configuration for the WAN interface is not possible anymore. <i>(only CONNECT-CONTROL)</i>

Hint:

If the web server should not be reachable through this interface, you just have to disable the DHCP mode and leave the fields IP address and subnet mask empty.

Important:

If the interface is part of the bridge interfaces or the connection type CONNECT is set and this interface is used as router interface, these settings aren't available.

Within the delivery status of CONNECT-CONTROL devices the device offers an own WLAN network. This network belongs to the LAN ports and thus to the settings of the LAN interface.

5.3.7.10 LAN-B / WAN settings

LAN-B settings

MAC address: c4:93:00:0e:ba:41

DHCP mode:

IP address:

subnet mask:

gateway:

DNS server:

The settings in this group are used for the network attachment and belong to the LAN-B interface (for CONNECT and CONNECT-I) or WAN interface (for CONNECT-CONTROL):

- interface: Specifies if the interface should be used. (*only CONNECT-CONTROL*)
- MAC address: The MAC address of the interface (this value can't be changed).
- DHCP mode: - The device is reachable via the specified address.
client The device refers an IP address from a DHCP server.
server The device is reachable via the specified address and provides IP addresses to other devices.
- IP address: The IP address of the device.
- subnet mask: The subnet mask of the device.
- gateway: The IP address of the gateway (optional).
- DNS server: The IP address of the DNS server (optional).
- DHCP start IP: The first IP address from the IP address range of the DHCP server of the device.
- DHCP end IP: The last IP address from the IP address range of the DHCP server of the device.

Hint:

If the web server should not be reachable through this interface, you just have to disable the DHCP mode and leave the fields IP address and subnet mask empty. For CONNECT-CONTROL devices you can also just disable the usage of the interface.

Important:

If the interface is part of the bridge interfaces or the connection type CONNECT is set and this interface is used as router interface, these settings aren't available. When you have a CONNECT-CONTROL device and activated the option that the WAN port should be used for the LAN interface this settings also won't be available anymore.

5.3.7.11 WLAN settings

WLAN settings

deactivate WLAN: deactivate WLAN

MAC address: c4:93:00:0e:ba:43

DHCP mode: DHCP server ▾

IP address: 192.168.2.1

subnet mask: 255.255.255.0

gateway:

DNS server:

DHCP start IP: 192.168.2.50

DHCP end IP: 192.168.2.99

search: start search

mode: Access Point (AP) ▾

WDS mode: use WDS mode

SSID: CONNECT WiFi

security type: open ▾

hide SSID: hide SSID

channel: 1 ▾ 🔍

In the group “WLAN settings” (for CONNECT and CONNECT-CONTROL) or “WLAN-2.4GHz settings” (for CONNECT-II) you can

specify the configuration of the WLAN interface for the 2.4GHz frequency band:

deactivate WLAN:	Specifies if the WLAN interface should be disabled or not.
interface:	Specifies if the interface should be used. (<i>only CONNECT-CONTROL</i>)
MAC address:	The MAC address of the interface (this value can't be changed).
DHCP mode:	- The device is reachable via the specified address. client The device refers an IP address from a DHCP server. server The device is reachable via the specified address and provides IP addresses to other devices.
IP address:	The IP address of the device.
subnet mask:	The subnet mask of the device.
gateway:	The IP address of the gateway (optional).
DNS server:	The IP address of the DNS server (optional).
DHCP start IP:	The first IP address from the IP address range of the DHCP server of the device.
DHCP end IP:	The last IP address from the IP address range of the DHCP server of the device.
mode:	Access Point The device provides an own WLAN network. client The device connects to an existing WLAN network.
WDS mode:	Specifies if the WDS mode should be used for the WLAN interface.
SSID:	The SSID / name of the WLAN network.
security type:	The security type / encryption of the WLAN network. (<i>open, WEP, WPA1/2/3 PSK, WPA 1/2/3 Enterprise</i>)

security key:	The security key, which is needed for logging into the WLAN network.
RADIUS address:	The IP address of the RADIUS server.
RADIUS port:	The port of the RADIUS server.
RADIUS password:	The password (“secret”) to log in on the RADIUS server.
auth. method:	The authentication method for logging into the WLAN network. (<i>TLS, TTLS, PEAP, FAST</i>)
auth. protocol:	The authentication protocol for logging into the WLAN network. (<i>PAP, CHAP, MSCHAP/v2, EAP-GTC, EAP-MD5, EAP-MSCHAPv2, EAP-TLS</i>)
CA certificate:	The certificate from the certificate authority for validating the certificates (optional).
client certificate:	The certificate from the client for logging into the WLAN network.
private key:	The private key of the certificate of the client for logging into the WLAN network.
ano. user name:	The anonymous user name which is used in the outer authentication (optional).
user name:	The user name for logging into the WLAN network.
password:	The password from the user for logging into the WLAN network.
hide SSID:	Specifies if the SSID should be hidden.
channel:	The channel of the WLAN network. (<i>channel 1-11 or automatic channel selection</i>)

For the fields CA certificate, client certificate and private key you have the possibility to upload a certificate or key via the  symbol. The file have to be in the PEM format. If you have uploaded the file into the device you can later use the  symbol to download the file again or remove it from the device by clicking on .

If you are not sure about the settings of your existing WLAN network you can scan for all available WLAN networks. Therefore you just have to click on the button “start search”.

The following message should be shown:

search:  search is running ...

After a few seconds a list with all available WLAN networks is shown:

BSSID	SSID	security	channel	signal
c4:93:00:09:34:bd	TINA WiFi	open	1	
00:1e:c0:1a:83:67	EtherSens WiFi	WEP	3	
c0:56:27:9d:98:db	Test-WLAN	WPA2	7	

To select the configuration of one of the founded WLAN networks you have to click on the row of the entry in the table. Now all required fields (mode, SSID, security type and channel) are filled in with the information. Of course the password have to be entered manually, if necessary.

If you want to configure your CONNECT device to operate as an Access Point (AP) it can be useful to determine which WLAN channel is least charged. Therefore the device can show you the channel work load. This can be done by clicking on the  icon behind the channel selection list.

After clicking on the search icon a load symbol will appear instead. A few seconds later the channel work load is determined and shown in a table. This should look similar to the following:

channel usage

channel	SSID	signal
1	TINA WiFi Service	-53 dBm 
3	EtherSens WiFi	-82 dBm 
3	Test-AP	-56 dBm 
7	Test-WLAN	-47 dBm 

Hint:

If the web server should not be reachable through the WLAN interface, you just have to disable the DHCP mode and leave the fields IP address and subnet mask empty. For CONNECT-CONTROL devices you can also just disable the usage of the interface.

Important:

If the interface is part of the bridge interfaces or the connection type CONNECT is set and the WLAN interface is used as router interface, the IP settings for this interface aren't available.

The WLAN interface can't be disabled if the interface is used for one of the interfaces from the CONNECT device.

When using the connection type CONNECT mode Access Point isn't valid if the WLAN interface is used as router interface. If on the other hand the interface is used as PC interface the mode client isn't valid.

The WDS mode in the mode Access Point should only be enabled when you are sure that your Access Point supports this mode. Otherwise the device won't be reachable over WLAN anymore.

WLAN-AP settings

deactivate WLAN-AP: deactivate WLAN-AP

DHCP mode:

IP address:

subnet mask:

gateway:

DNS server:

DHCP start IP:

DHCP end IP:

SSID:

security type:

hide SSID: hide SSID

When you have chosen the mode Client within the WLAN settings the subordinate group “WLAN-AP settings” (for CONNECT and CONNECT-CONTROL) or “WLAN-2.4GHz-AP settings” (for CONNECT-II) will be

shown, where you can configure an additional WLAN network, which is working in the mode Access Point:

deactivate WLAN-AP:	Specifies if the WLAN-AP should be disabled or not.
DHCP mode:	- The device is reachable via the specified address.
	client The device refers an IP address from a DHCP server.
	server The device is reachable via the specified address and provides IP addresses to other devices.
IP address:	The IP address of the device.
subnet mask:	The subnet mask of the device.
gateway:	The IP address of the gateway (optional).
DNS server:	The IP address of the DNS server (optional).
DHCP start IP:	The first IP address from the IP address range of the DHCP server of the device.
DHCP end IP:	The last IP address from the IP address range of the DHCP server of the device. <i>(DHCP mode, IP address, subnet mask, gateway, DNS server and DHCP start/end IP not available on CONNECT-CONTROL)</i>
SSID:	The SSID / name of the WLAN network.
security type:	The security type / encryption of the WLAN network. <i>(open, WEP, WPA1/2/3 PSK, WPA 1/2/3 Enterprise)</i>
security key:	The security key, which is needed for logging into the WLAN network.
RADIUS address:	The IP address of the RADIUS server.
RADIUS port:	The port of the RADIUS server.
RADIUS password:	The password ("secret") to log in on the RADIUS server.
hide SSID:	Specifies if the SSID should be hidden.

Hint:

The WLAN and WLAN-AP settings for CONNECT devices can be used to configure two completely independent networks. Only the global deactivation as well as the configured channel belongs to both networks. On CONNECT-CONTROL devices the WLAN-AP interface belong to the three LAN interfaces and thus uses the same IP parameter as the LAN interface.

Important:

If the interface is part of the bridge interfaces or the connection type CONNECT is set and the WLAN interface is used as router interface, the IP settings for this interface aren't available.

The WLAN-AP interface can't be disabled if the interface is used for one of the interfaces from the CONNECT device.

The usage of the interface as PC interface is not possible.

5.3.7.12 WLAN 5GHz settings

WLAN-5GHz settings

deactivate WLAN: deactivate WLAN

MAC address: c4:93:00:0f:8b:56

DHCP mode: DHCP server ▾

IP address: 192.168.4.1

subnet mask: 255.255.255.0

gateway:

DNS server:

DHCP start IP: 192.168.4.50

DHCP end IP: 192.168.4.99

search: start search

mode: Access Point (AP) ▾

WDS mode: use WDS mode

SSID: CONNECT WiFi 5GHz

security type: open ▾

hide SSID: hide SSID

channel: 36 ▾ 🔍

In the group “WLAN-5GHz settings” you can specify the configuration of the WLAN interface for the 5GHz frequency band of the CONNECT-II devices:

- deactivate WLAN: Specifies if the WLAN interface should be disabled or not.
- MAC address: The MAC address of the interface (this value can't be changed).
- DHCP mode: - The device is reachable via the specified address.
- client The device refers an IP address from a DHCP server.
 - server The device is reachable via the specified address and provides IP addresses to other devices.
- IP address: The IP address of the device.

subnet mask:	The subnet mask of the device.
gateway:	The IP address of the gateway (optional).
DNS server:	The IP address of the DNS server (optional).
DHCP start IP:	The first IP address from the IP address range of the DHCP server of the device.
DHCP end IP:	The last IP address from the IP address range of the DHCP server of the device.
mode:	<p>Access Point The device provides an own WLAN network.</p> <p>client The device connects to an existing WLAN network.</p>
WDS mode:	Specifies if the WDS mode should be used for the WLAN interface.
SSID:	The SSID / name of the WLAN network.
security type:	The security type / encryption of the WLAN network. (<i>open, WEP, WPA1/2/3 PSK, WPA 1/2/3 Enterprise</i>)
security key:	The security key, which is needed for logging into the WLAN network.
RADIUS address:	The IP address of the RADIUS server.
RADIUS port:	The port of the RADIUS server.
RADIUS password:	The password ("secret") to log in on the RADIUS server.
auth. method:	The authentication method for logging into the WLAN network. (<i>TLS, TTLS, PEAP, FAST</i>)
auth. protocol:	The authentication protocol for logging into the WLAN network. (<i>PAP, CHAP, MSCHAP/v2, EAP-GTC, EAP-MD5, EAP-MSCHAPv2, EAP-TLS</i>)
CA certificate:	The certificate from the certificate authority for validating the certificates (optional).
client certificate:	The certificate from the client for logging into the WLAN network.
private key:	The private key of the certificate of the client for logging into the WLAN network.

ano. user name:	The anonymous user name which is used in the outer authentication (optional).
user name:	The user name for logging into the WLAN network.
password:	The password from the user for logging into the WLAN network.
hide SSID:	Specifies if the SSID should be hidden.
channel:	The channel of the WLAN network. <i>(channel 36-68, 100-144, 149-165 or automatic channel selection)</i>

For the fields CA certificate, client certificate and private key you have the possibility to upload a certificate or key via the  symbol. The file have to be in the PEM format. If you have uploaded the file into the device you can later use the  symbol to download the file again or remove it from the device by clicking on .

If you are not sure about the settings of your existing WLAN network you can scan for all available WLAN networks. Therefore you just have to click on the button “start search”.

The following message should be shown:

search:  search is running ...

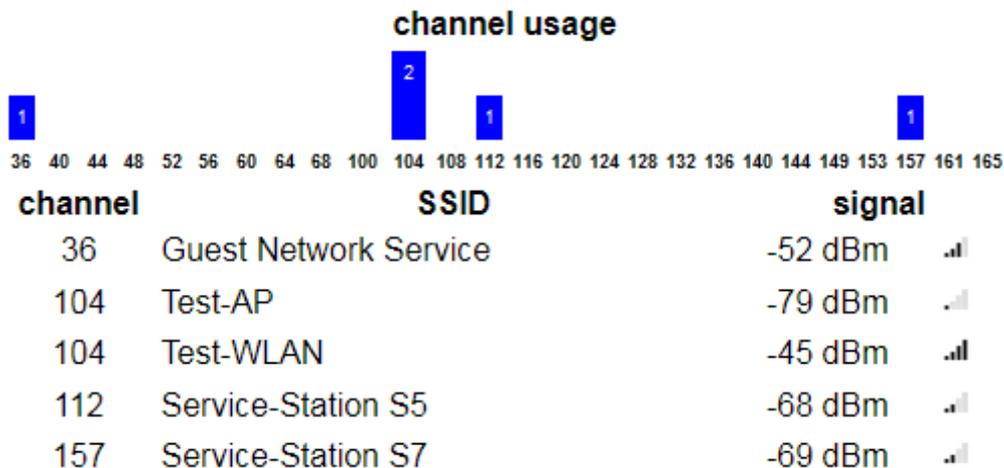
After a few seconds a list with all available WLAN networks is shown:

BSSID	SSID	security	channel	signal
7e:45:58:9f:66:aa	Guest Network	open	36	
c0:56:27:9d:98:dc	Test-WLAN	WPA2	104	

To select the configuration of one of the founded WLAN networks you have to click on the row of the entry in the table. Now all required fields (mode, SSID, security type and channel) are filled in with the information. Of course the password have to be entered manually, if necessary.

If you want to configure your CONNECT device to operate as an Access Point (AP) it can be useful to determine which WLAN channel is least charged. Therefore the device can show you the channel work load. This can be done by clicking on the 🔍 icon behind the channel selection list.

After clicking on the search icon a load symbol will appear instead. A few seconds later the channel work load is determined and shown in a table. This should look similar to the following:



Hint:

If the web server should not be reachable through the WLAN interface, you just have to disable the DHCP mode and leave the fields IP address and subnet mask empty.

Important:

If the interface is part of the bridge interfaces or the connection type CONNECT is set and the WLAN interface is used as router interface, the IP settings for this interface aren't available.

The WLAN interface can't be disabled if the interface is used for one of the interfaces from the CONNECT device.

When using the connection type CONNECT mode Access Point isn't valid if the WLAN interface is used as router interface. If on the other hand the interface is used as PC interface the mode client isn't valid.

The WDS mode in the mode Access Point should only be enabled when you are sure that your Access Point supports this mode. Otherwise the device won't be reachable over WLAN anymore.

WLAN-5GHz-AP settings

deactivate WLAN-AP: deactivate WLAN-AP

DHCP mode:

IP address:

subnet mask:

gateway:

DNS server:

DHCP start IP:

DHCP end IP:

SSID:

security type:

hide SSID: hide SSID

When you have chosen the mode Client within the WLAN-5GHz settings the subordinate group “WLAN-5GHz-AP settings” will be shown, where you can configure an additional WLAN network, which is working in the mode Access Point:

- deactivate WLAN-AP: Specifies if the WLAN-AP should be disabled or not.
- DHCP mode:
 - The device is reachable via the specified address.
 - client The device refers an IP address from a DHCP server.
 - server The device is reachable via the specified address and provides IP addresses to other devices.
- IP address: The IP address of the device.
- subnet mask: The subnet mask of the device.
- gateway: The IP address of the gateway (optional).
- DNS server: The IP address of the DNS server (optional).
- DHCP start IP: The first IP address from the IP address range of the DHCP server of the device.
- DHCP end IP: The last IP address from the IP address range of the DHCP server of the device.

SSID:	The SSID / name of the WLAN network.
security type:	The security type / encryption of the WLAN network. (<i>open, WEP, WPA1/2/3 PSK, WPA 1/2/3 Enterprise</i>)
security key:	The security key, which is needed for logging into the WLAN network.
RADIUS address:	The IP address of the RADIUS server.
RADIUS port:	The port of the RADIUS server.
RADIUS password:	The password ("secret") to log in on the RADIUS server.
hide SSID:	Specifies if the SSID should be hidden.

Hint:

The WLAN-5GHz and WLAN-5GHz-AP settings for CONNECT devices can be used to configure two completely independent networks. Only the global deactivation as well as the configured channel belongs to both networks.

Important:

If the interface is part of the bridge interfaces or the connection type CONNECT is set and the WLAN interface is used as router interface, the IP settings for this interface aren't available.

The WLAN-AP interface can't be disabled if the interface is used for one of the interfaces from the CONNECT device.

The usage of the interface as PC interface is not possible.

5.3.7.13 USB-LAN settings

USB-LAN settings

MAC address: 00:0e:c6:b9:7e:08

DHCP mode:

IP address:

subnet mask:

gateway:

DNS server:

DHCP start IP:

DHCP end IP:

The settings in the group “USB-LAN settings” are used for the network attachment and belong to the LAN interface of the separate available “Ethernet over USB” adapter:

MAC address: The MAC address of the interface (this value can't be changed).

DHCP mode: - The device is reachable via the specified address.

client The device refers an IP address from a DHCP server.

server The device is reachable via the specified address and provides IP addresses to other devices.

IP address: The IP address of the device.

subnet mask: The subnet mask of the device.

gateway: The IP address of the gateway (optional).

DNS server: The IP address of the DNS server (optional).

DHCP start IP: The first IP address from the IP address range of the DHCP server of the device.

DHCP end IP: The last IP address from the IP address range of the DHCP server of the device.

Hint:

This group is only shown if the “Ethernet over USB” adapter is connected to the device. The adapter have to be bought separately and can only be used for devices in standard version and for CONNECT-II-LTE devices. If the web server should not be reachable through the USB-LAN interface, you just have to disable the DHCP mode and leave the fields IP address and subnet mask empty.

Important:

If the interface is part of the bridge interfaces or the connection type CONNECT is set and the USB-LAN interface is used as router interface, these settings aren't available.

5.3.7.14 Bridge settings

Bridge settings

MAC address: -

DHCP mode: ▾

IP address:

subnet mask:

gateway:

DNS server:

The settings in the group “Bridge settings” are used for the network attachment and belong to the virtual Bridge interface, which can be used to summarize multiple physical interfaces to one logical network:

MAC address: The MAC address of the interface (this value can't be changed).

DHCP mode: - The device is reachable via the specified address.

 client The device refers an IP address from a DHCP server.

 server The device is reachable via the specified address and provides IP addresses to other devices.

IP address: The IP address of the device.

subnet mask:	The subnet mask of the device.
gateway:	The IP address of the gateway (optional).
DNS server:	The IP address of the DNS server (optional).
DHCP start IP:	The first IP address from the IP address range of the DHCP server of the device.
DHCP end IP:	The last IP address from the IP address range of the DHCP server of the device.

Hint:

This group is only shown if the Router option is installed on your device and the bridge is used.

If the web server should not be reachable through the bridge interface, you just have to disable the DHCP mode and leave the fields IP address and subnet mask empty.

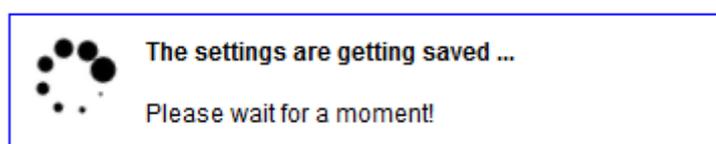
Important:

The bridge interface can't be used as router interface when using the connection type CONNECT.

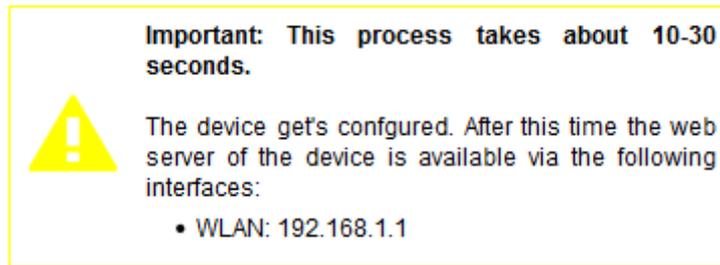
Important:

When changing settings on this page a connection to a partner device and network connections may be reset. Only do configuration changes when it doesn't disturb the current operation and check the status of the device afterwards. If you are using the connection type CONNECT please note that you have to do an internet communication on the PC, so the CONNECT device can detect the parameters from the PC.

If you want to save the configuration you have to click on the button "submit configuration", which is located at the bottom of the page. Now you should see the following message:



If your device does not respond within the next 5 seconds the following message will be shown:



This message indicates that the device is currently not available under the current IP address (e. g. because the IP address, the WLAN network or the operating mode has changed). In the message you will see under which interface and IP address the device will be available in a few seconds. The web page will still try to reconnect to the web page periodically in the background.

If the automatically re-connection does not work within about 1 minute, please check that the computer is connected with the correct interface. Please do also check the WLAN connection and the IP settings of your computer.

Hint:

After the configuration was saved and the device is available again you will be redirected to the start page.

Important:

If you have enabled the DHCP client on the device, no automatically redirection to the start page occurs for this interface, because the IP address of the interface is not known yet.

5.3.8 page firmware / software update

☰ menu

firmware update

device version: 1.00

firmware file: Keine Datei ausgewählt.

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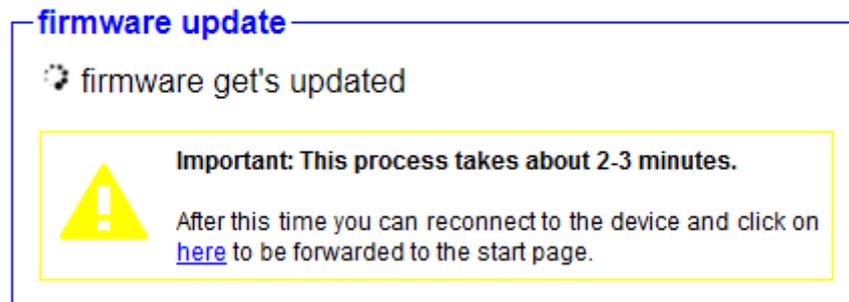
If you want to update the firmware or software of your device you should click on the menu item “firmware update” or “software update”. On this page you can see your current version of the device and have the possibility to select a file.

After you have selected a firmware file (this is a file with the extension .bin) or software file (this is a file with the extension .ipk) you can click on the button, which will start the update process. Now you should see the following message:

firmware update

🔄 file get's uploaded and checked ...

If the file was uploaded and verified as valid firmware or software, you will see the following message:

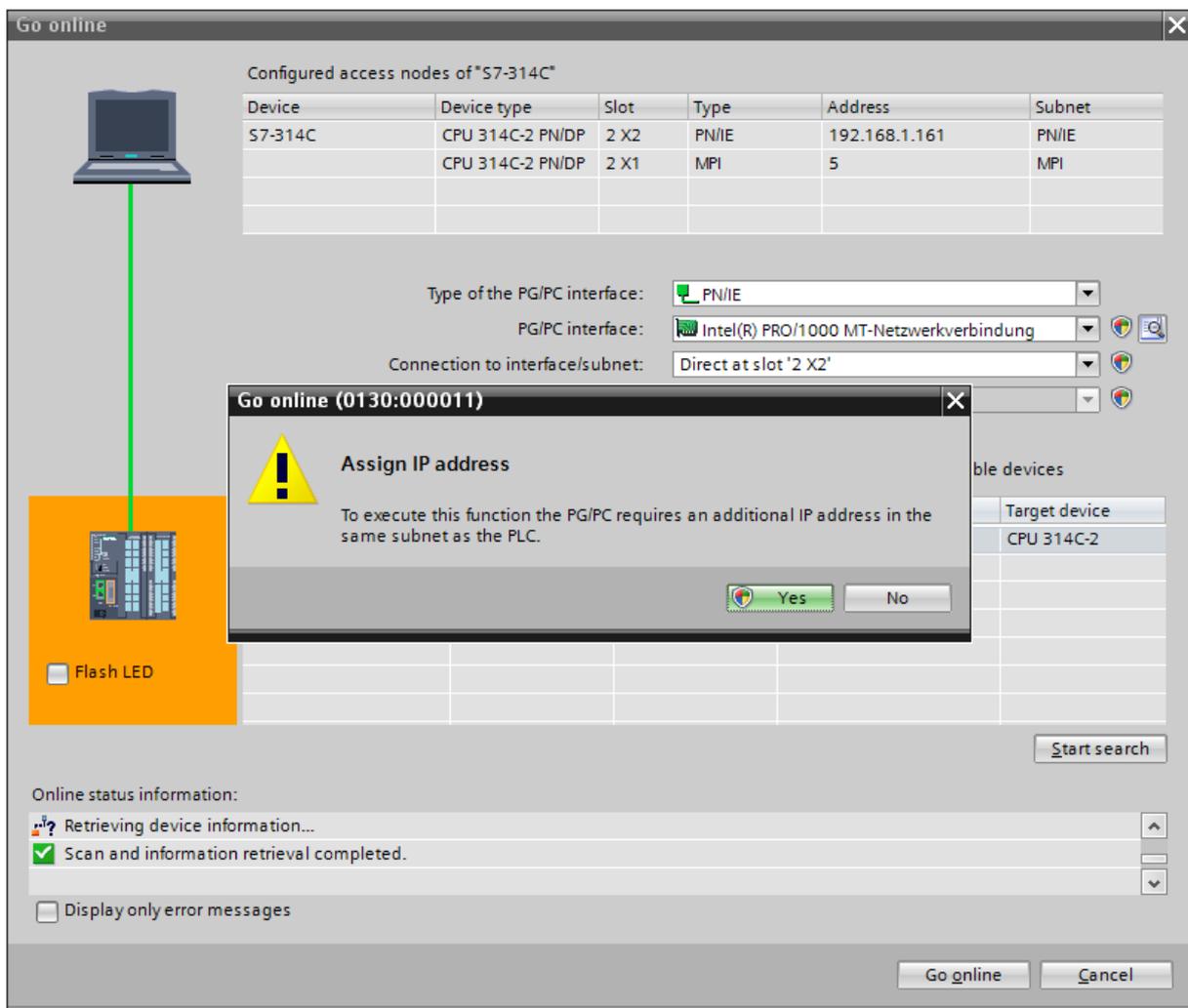


The update process takes about 1-3 minutes. After this time you should reconnect to the WLAN network of your device (if your device doesn't do that automatically). This is of course only necessary if you access the web server via the WLAN interface. When executing a software update on a CONNECT-CONTROL this step is not necessary. Next you should be redirected to the start page automatically. If the forwarding after a firmware update does not work you can click on the link in the text.

6 Application notes

6.1 Access to participant via TIA portal

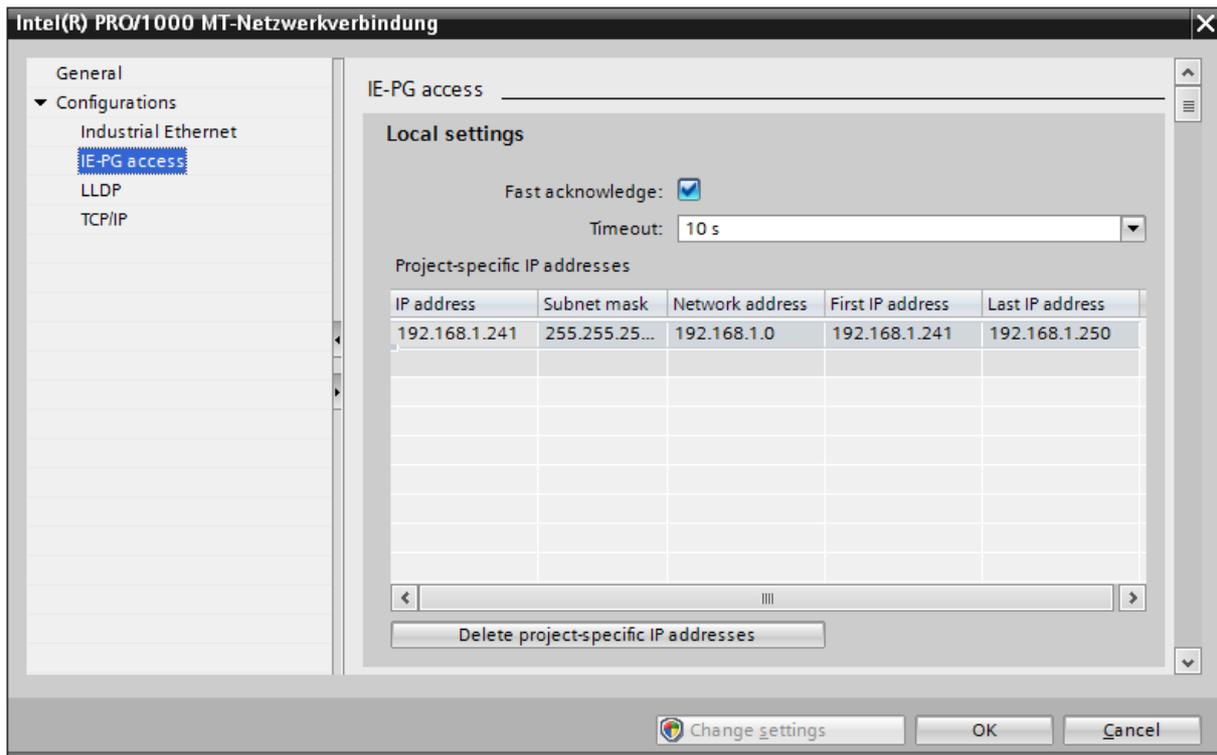
With the help of your CONNECT device and the TIA portal you have the possibility to access a remote participant like a controller or panel to e. g. execute a diagnostic or transfer a change from remote. If the device on site and your PC is not within the same subnet a message appears, which says that another IP address have to be added:



This message has to be confirmed with “No”. Then the communication is possible, at least when the CONNECT device and your PC is configured properly.

If you accidentally clicked on “Yes” no communication is possible and the temporarily added IP address of the TIA portal needs to be deleted.

For this you will have to expand the entry “Online access” on the Project tree (within the Project view), search for your network card and open the properties of them. Within the appeared dialog you have to navigate to the entry “Configurations” → “IE-PG access”. There you should see the temporarily created IP address:



In the dialog you have to click on “Delete project-specific IP addresses”. Finally you can close the dialog and connect to your participant.

7 Technical data

7.1 CONNECT

Supply voltage:	24V DC +/- 20% (over detachable connector) USB (from PC/Power-Pack, for desktop case only)
Power consumption:	2 watt
Display:	web browser status LEDs
Handling/Configuration:	web browser
Interfaces:	2 x 10/100BaseTX RJ45-ethernet-plug 1 x Antenna-connector RP-SMA(f) (2.4 GHz IEEE 802.11 b/g/n)
Operating temperature:	0 - 55°C
Case:	plastic desktop case <i>or</i> plastic clamping case for DIN rail mounting
Dimensions:	plastic desktop case: 115 x 95 x 30 mm plastic clamping case: 114 x 100 x 22,3 mm

7.2 CONNECT-LTE

Supply voltage:	24V DC +/- 20% (over detachable connector)
Power consumption:	12 watt
Display:	web browser status LEDs
Handling/Configuration:	web browser
Interfaces:	2 x 10/100BaseTX RJ45-ethernet-plug 1 x Antenna-connector RP-SMA(f) (2.4 GHz IEEE 802.11 b/g/n) 1 x Antenna-connector RP-SMA(f) (FDD LTE / TDD LTE / TDSCDMA / UMTS / GSM)
Operating temperature:	0 - 55°C
Case:	plastic desktop case <i>or</i> plastic clamping case for DIN rail mounting

Dimensions:	plastic desktop case: 115 x 95 x 30 mm plastic clamping case: 114 x 100 x 22,3 mm
--------------------	--

7.3 CONNECT-II

Supply voltage:	24V DC +/- 20% (over detachable connector) USB (from USB-power-supply 5V)
Power consumption:	9 watt
Display:	web browser status LEDs
Handling/Configuration:	web browser
Interfaces:	2 x 10/100/1000BaseTX RJ45-ethernet-plug 2 x Antenna-connector RP-SMA(f) (2x2 MIMO / 2.4 GHz IEEE 802.11 b/g/n + 5 GHz IEEE 802.11ac)
Operating temperature:	0 - 55°C
Case:	plastic desktop case
Dimensions:	115 x 95 x 30 mm

7.4 CONNECT-II-LTE

Supply voltage:	24V DC +/- 20% (over detachable connector)
Power consumption:	19 watt
Display:	web browser status LEDs
Handling/Configuration:	web browser
Interfaces:	2 x 10/100/1000BaseTX RJ45-ethernet-plug 2 x Antenna-connector RP-SMA(f) (2x2 MIMO / 2.4 GHz IEEE 802.11 b/g/n + 5 GHz IEEE 802.11ac) 1 x Antenna-connector RP-SMA(f) (FDD LTE / TDD LTE / TDSCDMA / UMTS / GSM)
Operating temperature:	0 - 55°C
Case:	plastic desktop case
Dimensions:	115 x 95 x 30 mm

7.5 CONNECT-CONTROL

Supply voltage:	9-30V DC
Power consumption:	7 watt
Display:	web browser status LEDs
Handling/Configuration:	web browser
Interfaces:	4 x 10/100BaseT RJ45-ethernet-plug (3 x LAN, 1 x WAN) 2 x Antenna-connector RP-SMA(f) (2.4 GHz IEEE 802.11 b/g/n) 2 x Antenna-connector SMA(f) (FDD LTE / TDD LTE / 3G / 2G) 1 x Antenna-connector SMA(f) (GNSS / GPS) 1 x RS485 port via plug-connector 1 x RS232 port via D-Sub 9 pins female 2 x digital input (1 x 0-3V, 1 x 0-30V) 1 x analog input (0-24V) 1 x digital output (open collector, 30V, 250mA) 1 x SPST relay output 1 x USB 2.0 socket type A 2 x SIM card slot
Operating temperature:	-40 - 75°C
Case:	metal housing for table or wall mounting
Dimensions:	106 x 80 x 46 mm

Hint:

The hardware of the CONNECT-CONTROL is equivalent to the RUT955 from Teltonika Networks.

8 Approvals

TCB

**GRANT OF EQUIPMENT
AUTHORIZATION**

TCB

Certification
Issued Under the Authority of the
Federal Communications Commission
By:

Timco Engineering, Inc.
849 NW State Road 45
P.O. Box 370,
Newberry, FL 32669

Date of Grant: 09/05/2017
Application Dated: 09/01/2017

Quectel Wireless Solutions Company Limited
7th Floor, Hongye Building,
No.1801 Hongmei Road, Xuhui District
Shanghai, 200233
China

Attention: Johnny xiang

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER: XMR201708EC25E
Name of Grantee: Quectel Wireless Solutions Company Limited
Equipment Class: Licensed Non-Broadcast Station Transmitter
Notes: LTE Module
Modular Type: Single Modular

<u>Grant Notes</u>	<u>FCC Rule Parts</u>	<u>Frequency Range (MHZ)</u>	<u>Output Watts</u>	<u>Frequency Tolerance</u>	<u>Emission Designator</u>
	22H	824.7 - 848.3	0.239	0.004 PM	1M14G7D
	22H	829.0 - 844.0	0.232	0.004 PM	9M03G7D
	22H	825.5 - 847.5	0.195	0.004 PM	2M76W7D
	22H	829.0 - 844.0	0.192	0.005 PM	9M03W7D
	22H	826.4 - 846.6	0.222	0.001 PM	4M13F9W
	27	2502.5 - 2567.5	0.2	0.003 PM	9M04G7D
	27	2510.0 - 2560.0	0.199	0.004 PM	17M9G7D
	27	2502.5 - 2567.5	0.183	0.003 PM	9M04W7D
	27	2510.0 - 2560.0	0.18	0.004 PM	17M9W7D
	27	2562.5 - 2647.5	0.219	0.003 PM	9M06G7D
	27	2565.0 - 2645.0	0.216	0.004 PM	17M9G9D
	27	2562.5 - 2647.5	0.18	0.003 PM	9M02W7D
	27	2565.0 - 2645.0	0.0178	0.003 PM	17M9G9D

Output power listed is conducted. Single Modular Approval for mobile RF Exposure condition. This module can only be used with a host antenna circuit trace layout design in strict compliance with the OEM instructions provided. The antennas used for this transmitter must be installed to provide a separation distance of at least 20-cm from all persons, must have gain of not more than 1.0 dBi, and must not be co-located or operating in conjunction

with any other antenna or transmitter, except in accordance with FCC multi-transmitter product guidelines. Approved for OEM integration only. The grantee must provide OEM integrators, or end-users if marketed directly to end-users, with installation and operating instructions for satisfying FCC multi-transmitter product guidelines. This grant is valid only when the device is sold to OEM integrators and the OEM integrators are instructed to ensure that the end user has no manual instructions to remove or install the device. This device contains functions that are not operational in U.S. Territories; this filing is applicable only for U.S. operations.



CERTIFICATE

The Global Certification Forum Ltd advises that
Quectel Wireless Solutions Co., Ltd.
Has successfully demonstrated compliance
to the GCF certification requirements of GCF CC(2)

For
Quectel EC25-E
Module

On
2017-03-02

GCF CC Version:
3.64.0

Status:
New

GCF Ref. Number:
6309

This certificate has been issued by the Global Certification Forum in accordance with the requirements of the GCF PRDs.
For the actual status of a device certification, refer to the GCF web site.

The device manufacturer confirms that they are solely responsible for certifying the product and holds the GCF entirely harmless from any responsibility or liability associated with the product and/or the certification process. All GCF marks and/or certificates are provided "as is" with no representation and GCF expressly disclaims all warranties whatsoever whether express, implied statutory or otherwise. In no event shall GCF be liable for any direct, indirect, consequential or any damages whatsoever in any way connected with the use or performance of any GCF certified product whether based on contract, tort, negligence, strict liability or otherwise.

Global Certification Forum (GCF) Ltd
www.globalcertificationforum.org Email: secretariat@globalcertificationforum.org
Registered Office: 20-22 Bedford Row, London WC1R 4JS, UK. Company Number 6594830. VAT Number: GB 948 2259 92.



To **Quectel**

Forward to Brian Conrad <brian.conrad@quectel.com>; Sammy Zhu <sammy.zhu@quectel.com>; Sherlock Zhao <sherlock.zhao@quectel.com>; Vincent Alcouffe <vincent.alcouffe@quectel.com>; Edward Huang <edward.huang@quectel.com>; Yolanda Tang <yolanda.tang@quectel.com>; Michal Gadaj <michal.gadaj@quectel.com>; Grzegorz Bazyluk <grzegorz.bazyluk@quectel.com>

From Grzegorz Nowak (Deutsche Telekom AG)

Contact E-Mail: grzegorz.nowak03@t-mobile.pl

Date 28th of June 2018

Subject **Full Certification for Quectel EC25-E module**

Dear Quectel team,
Deutsche Telekom issues a **full certification** for your **EC25-E module**:

Concept Class	Multi-mode M2M module
Deutsche Telekom (DT) Certification Date	28.05.2018
DT Responsible Entity / Contact	IDU-TIV / Grzegorz Nowak
Certified Deutsche Telekom Affiliates*	AL, AT, CZ, DE, GR, HR, HU, ME, MK, NL, PL, RO, SK*
Chipset Firmware Version	EC25EFAR02A08M4G

* Please refer to the OEM Certification Report for Deutsche Telekom Affiliate Country Codes

This product is granted a full technical certification.

Key requirements for full certification are met:

- No-harm to network / communication efficiency – **radio policy manager** – chapter 8 (e.g. GSMA TS.34)
- GCF certification granted
- No P1 (high priority) issues

Deutsche Telekom will keep talking with Quectel about all P2 (medium priority) issues resolving.

Kind regards,
Deutsche Telekom AG

Grzegorz Nowak
IoT Device Verification & Engineering

Digitally signed
by Wayne Gilbert
Date: 2018.06.29
08:25:09 +02'00'

Wayne Gilbert
TIV Access (ITS-IVA)

Address Deutsche Telekom AG
Landgrabenweg 151, 53227 Bonn
Contact + 49 228 181-0, E-Mail: info@telekom.de
Supervisory Board Prof. Dr. Ulrich Lehner (Chairman)
Board of Directors Timotheus Höttges (Chairman),
Reinhard Clemens, Niek Jan van Damme, Thomas Dannenfeldt, Srinivasan Gopalan, Dr. Christian P. Illek, Dr. Thomas Kremer, Claudia Nemat
Commercial register Amtsgericht Bonn HRB 6794
Registered office Bonn

VAT ID No. DE 123475223
WEEEReg.-No. DE50478376



Vodafone Test Certificate

This is to certify that Vodafone Group has tested the following stand-alone module and found it acceptable for use on all Vodafone and Partner networks

MANUFACTURER : Quectel

MODEL : EC25-E
(HW: R1.0,
SW: EC25EFAR02A07M4G)

TECHNOLOGY : LTE

DATE : 22/09/2017

A handwritten signature in black ink, appearing to read "ND".

Nicholas Dixon
on behalf of Stephen Packer
Head of Platforms and Enablers (Vodafone Group Terminals)

This certificate is a statement that the module referred to above has been tested by Vodafone Group and is acceptable for use on all Vodafone and Partner networks. It is not a validation of the performance of the module other than in relation to acceptability on Vodafone networks at the time of testing. No warranty is given by Vodafone Group with regard to the module or its fitness for purpose. The use of this certificate and the Vodafone names are subject to the terms and conditions set out in the Vodafone Group Module Approval Services Agreement.

© 2011 Vodafone Group. VODAFONE and the Vodafone logo are trade marks of the Vodafone Group.

Document Reference Number: 0004

Supplier's declaration of conformity



As required by the following Notices:

- > *Radiocommunications (Compliance Labelling - Devices) Notice 2014* made under section 182 of the *Radiocommunications Act 1992*;
- > *Radiocommunications Labelling (Electromagnetic Compatibility) Notice 2008* made under section 182 of the *Radiocommunications Act 1992*
- > *Radiocommunications (Compliance Labelling – Electromagnetic Radiation) Notice 2014* made under section 182 of the *Radiocommunications Act 1992* and
- > *Telecommunications (Labelling Notice for Customer Equipment and Customer Cabling) Instrument 2015* made under section 407 of the *Telecommunications Act 1997*.

Instructions for completion

- > **Do not return this form to the ACMA.** This completed form must be retained by the supplier as part of the documentation required for the compliance records and must be made available for inspection by the ACMA when requested.

Supplier's details (manufacturer, importer or authorised agent)

Company Name (OR INDIVIDUAL)

Alfacomm Wireless Pty Ltd
TRADING AS

ACN/ARBN

620383066

OR

New Zealand IRDN

--

Street Address (AUSTRALIAN or NEW ZEALAND)

U13, 165-171 North Rocks Rd, North Rocks NSW 2151, Australia
POSTCODE 2151
Phone: +61 452 624 491

Product details and date of manufacture

Product description – brand name, type, current model, lot, batch or serial number (if available), software/firmware version (if applicable)

Product name: LTE Module
Brand name: Quectel
Model : EC25-E, EC25-E MINIPCIE
Date of manufacture or importation of the original/modified item

Compliance – applicable standards and other supporting documents

Evidence of compliance with applicable standards may be demonstrated by test reports, endorsed/accredited test reports, certification/competent body statements.

Having had regard to these documents, I am satisfied the above mentioned product complies with the requirements of the relevant ACMA Standards made under the *Radiocommunications Act 1992* and the *Telecommunications Act 1997*.

List the details of the documents the above statement was made, including the standard title, number and, if applicable, number of the test report/endorsed test report or certification/competent body statement

AS/CA S042.1: 2015, AS/CA S042.4: 2015 Report NO. : R1801A0044-R1V1, R1801A0044-R2V1, R1801A0044-R3V1, R1801A0044-R4V2
AS/NZS CISPR 32-2015 Report NO. : R1801A0044-E1
AS&NZS 2772.2-2016/ARPANSA Standard RPS3-2002 Report NO. : R1801A0044-M1
AS/NZS 60950.1 2011 Report NO. : R1801A0044-L1

Declaration

I hereby declare that:

1. I am authorised to make this declaration on behalf of the Company mentioned above,
2. the contents of this form are true and correct, and
3. the product mentioned above complies with the applicable above mentioned standards and all products supplied under this declaration will be identical to the product identified above.

Note: Under section 137.1 of the *Criminal Code Act 1995*, it is an offence to knowingly provide false or misleading information to a Commonwealth entity.

Penalty: 12 months imprisonment

SIGNATURE OF SUPPLIER OR AGENT 	POSITION IN ORGANISATION Regional Sales Manager ANZ
PRINT NAME Alexander Katsoulis	DATE June 05, 2018

The *Privacy Act 1988* (Cth) (the *Privacy Act*) imposes obligations on the ACMA in relation to the collection, security, quality, access, use and disclosure of personal information. These obligations are detailed in the Australian Privacy Principles.

The ACMA may only collect personal information if it is reasonably necessary for, or directly related to, one or more of the ACMA's functions or activities.

The purpose of collecting the personal information in this form is to ensure the supplier is identified in the 'Declaration of conformity'. If this Declaration of Conformity is not completed and the requested information is not provided, a compliance label cannot be applied.

Further information on the Privacy Act and the ACMA's Privacy Policy is available at www.acma.gov.au/privacypolicy. The Privacy Policy contains details about how you may access personal information about you that is held by the ACMA, and seek the correction of such information. It also explains how you may complain about a breach of the Privacy Act and how we will deal with such a complaint.

Should you have any questions in this regard, please contact the ACMA's privacy contact officer on telephone on 1800 226 667 or by email at privacy@acma.gov.au.

ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ

1. Заявитель (изготовитель) ООО «Инностар», выполняющее функции иностранного изготовителя Quectel Wireless Solutions Co.,Ltd. на основании Договора 017-26-04 от 26.04.2017 с ним в части обеспечения соответствия поставляемой продукции обязательным требованиям и в части ответственности за несоответствие поставляемой продукции обязательным требованиям

Зарегистрировано в МФИНС № 46 по г. Москва от 27.10.2014, ОГРН 5147746278257, ИНН 9715003302

Адрес: 127549, г. Москва, Алтуфьевское шоссе, д.60, Тел: (495) 418 18 19

в лице Главного специалиста Э.В. Кордонского, действующего на основании Доверенности №2 от 11.01.2017

заявляет, что Оборудование модуль сотовой связи EC25-E, Технические условия ТУ QT-26.30-001-58392743-2017 (Далее по тексту – оборудование)

Производства Quectel Wireless Solutions Co.,Ltd., 7th Floor, Hongye Building, No.1801 Hongmei Road, Xuhui District, Shanghai 200233, China на заводах: Flextronics. address: No. 268 Suhong Zhong Road Suzhou SIP, Jiangsu, Китай; Post code: 215027; Qisda. address: 169 ZHUJIANG ROAD6 SUZHOU NEW DISTRICT, Китай, Post code: 215129; SINTAVE. address: Ferry Road Qisha village, Shatian Town, DongGuan, Китай

соответствует Правилам применения абонентских станций (абонентских радиостанций) сетей подвижной радиотелефонной связи стандарта GSM-900/1800, Утв. приказом Мининформсвязи России от 19.02.2008 № 21 Правилам применения абонентских терминалов систем подвижной радиотелефонной связи стандарта UMTS с частотным дуплексным разносом и частотно-кодовым разделением радиоканалов, работающих в диапазоне частот 2000 МГц. Утв. приказом Мининформсвязи России от 27 августа 2007 г. № 100; Правилам применения абонентских терминалов систем подвижной радиотелефонной связи стандарта UMTS с частотным дуплексным разносом и частотно-кодовым разделением радиоканалов, работающих в диапазоне частот 900 МГц, Утв. приказом Минкомсвязи России от 13.10.2011 № 257, Правилам применения абонентских терминалов сетей подвижной радиотелефонной связи стандарта LTE и его модификации LTE-Advanced. Утв. приказом Минкомсвязи России № 128 от 06.06.2011г.

и не окажет дестабилизирующее воздействие на целостность, устойчивость функционирования и безопасность единой сети электросвязи Российской Федерации.

2. Назначение и техническое описание:

2.1. Версия программного обеспечения: Версия ПО: R02A Предусмотренное ПО: отсутствует.

2.2. Комплектность: модуль сотовой связи EC25-E.

2.3. Условия применения на сети связи общего пользования Российской Федерации: в качестве абонентской станции (абонентской радиостанции) в сетях подвижной радиотелефонной связи стандарта GSM 900/1800, в качестве абонентского терминала систем подвижной радиотелефонной связи стандарта UMTS 900/2000; в качестве абонентского терминала систем подвижной радиотелефонной связи стандарта LTE.

2.4. Выполняемые функции: прием/передача данных, голоса, коротких сообщений.

2.5. Ёмкость коммутационного поля для средств связи, выполняющих функции систем коммутации: Не выполняет функции систем коммутации.

2.6. Схемы подключения к сети связи общего пользования с обозначением реализуемых интерфейсов, протоколов сигнализации: Связь осуществляется путем организации радиоканала между оборудованием и базовой станцией, подключённой к мобильному центру коммутации GSM 900/1800, UMTS 900/2000, LTE.



2.7.1. Электрические (оптические) характеристики:

Питание от источника постоянного тока 3.3В - 4.3В.

Заявитель _____

2.7.2. Характеристики радиоизлучения:

Наименование параметра	Значение параметра
В режиме GSM 900/1800	
Общий рабочий диапазон частот передачи/приема, МГц	880 – 915/ 925 – 960 и 1710 – 1785/1805 – 1880
Макс. мощность передатчика, Вт	не более 2
В режиме UMTS	
Общий рабочий диапазон частот передачи/приема, МГц	880 – 915/ 925 – 960 1920 – 1980/ 2110 – 2170
Макс. мощность передатчика, Вт	не более 0,25
В режиме LTE, FDD	
Общий рабочий диапазон частот передачи/приема, МГц	2500 – 2570 / 2620 – 2690; 1710 – 1785 /1805 – 1880; 832 – 862 / 791 – 821
В режиме LTE, TDD	
Общий рабочий диапазон частот передачи/приема, МГц	2570-2620МГц
Макс. мощность передатчика, Вт	не более 0,2

2.8. Реализуемые интерфейсы: с сетью общего пользования: GSM 900/1800, UMTS 900/2000, LTE.

2.9. Условия эксплуатации, включая климатические и механические требования, способы размещения, типы электропитания: Рабочий диапазон температур от -40°C до +85°C при относительной влажности не более 75%. Оборудование в упакованном виде устойчиво к транспортированию при температуре окружающего воздуха от -45°C до +90°C. Оборудование в упакованном виде устойчиво к хранению в течение 12 месяцев в складских отапливаемых помещениях при температуре от -40°C до +85°C и среднегодовом значении относительной влажности 60% без выпадения конденсата. Питание от источника постоянного тока 3.3В - 4.3В.

2.10. Сведения о наличии или отсутствии встроенных средств криптографии (шифрования), приемников глобальных спутниковых навигационных систем: В оборудовании имеются встроенные приемники глобальных спутниковых навигационных систем GPS и ГЛОНАСС. В оборудовании имеются встроенные средства криптографии (шифрования). Нотификация RU0000032668.

3. Декларация принята на основании протоколов испытаний модуль сотовой связи EC25-E, версия ПО: R02A. Предустановленное ПО: отсутствует. Протокол испытаний ООО «Инностар» №8, 10.11.2017 г. Протокол 47-17/5, 10.11.2017 г, проведенных в испытательном центре ООО «НТЦ «КОМСЕТ», аттестат аккредитации №РА.RU.21CC15 от 04.09.2015, Росаккредитации, бессрочно

Декларация составлена на 1 листе с двух сторон.

4. Дата принятия декларации 10.11.2017 г

Декларация действительна до 10.11.2027 г.

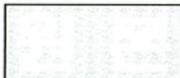
М.П. Кордонский Э.В.



5. Сведения о регистрации декларации соответствия в Федеральном агентстве связи

М.П. Уполномоченный представитель
Федерального агентства связи Р.В. Шередин

변경신고 처리결과 통보서				
전자민원신청번호	201617100000243417	접수일자	2016-12-06	
대상기기	상호 또는 성명	주식회사 엠투엠넷	적합성평가 분야	적합인증
	기자재 명칭	LTE 이동통신용 무선설비의 기기(기타)	기본모델명	EC25-E
	적합성평가 번호	MSIP-CRI-M2N-EC25-E	적합성평가 연 월 일	2016-12-07
변경 사항	변경 전	변경 후		
모델명		EC25-E-K,EC25-E-S,EC25-E-O,EC25-E-L		
기본제조사	Quetel Wireless Solutions Co., Ltd.	Quetel Wireless Solutions Co., Ltd.		
<p>「방송통신기자재등의 적합성평가에 관한 고시」 제16조에 따른 적합성평가 사항의 변경신고 건에 대하여 위와 같이 변경처리 되었음을 알려드립니다.</p> <p>2016년(Year) 12월(Month) 07일(Date)</p> <p>국립전파연구원장 </p>				



방송통신기자재등의 적합인증서 <i>Certificate of Broadcasting and Communication Equipments</i>	
상호 또는 성명 <i>Trade Name or Applicant</i>	주식회사 엠투엠넷
기자재 명칭 <i>Equipment Name</i>	LTE 이동통신용 무선설비의 기기(기타)
기본모델명 <i>Basic Model Number</i>	EC25-E
파생모델명 <i>Series Model Number</i>	EC25-E-L, EC25-E-K, EC25-E-S, EC25-E-O
인증번호 <i>Certification No.</i>	MSIP-CRI-M2N-EC25-E
제조사/제조국가 <i>Manufacturer/ Country of Origin</i>	Quectel Wireless Solutions Co., Ltd. / 중국
인증연월일 <i>Date of Certification</i>	2016-11-21
기타 <i>Others</i>	
<p>위 기자재는 「전파법」 제58조의2 제2항에 따라 인증되었음을 증명합니다. It is verified that foregoing equipment has been certificated under the Clause 2, Article 58-2 of Radio Waves Act.</p> <p style="text-align: right;">2016년(Year) 12월(Month) 07일(Date)</p> <p style="text-align: center;">국립전파연구원장</p> <p style="text-align: center;"></p> <p style="text-align: center;"><i>Director General of National Radio Research Agency</i></p> <p style="text-align: center;">※ 인증 받은 방송통신기자재는 반드시 "적합성평가표시" 를 부착하여 유통하여야 합니다. 위반시 과태료 처분 및 인증이 취소될 수 있습니다.</p>	





สำนักงานคณะกรรมการกิจการกระจายเสียง
กิจการโทรทัศน์ และกิจการโทรคมนาคมแห่งชาติ

The Office of National Broadcasting and Telecommunications Commission

ใบรับรองเครื่องโทรคมนาคมและอุปกรณ์
(Approval Certificate for Telecommunication Equipment)

ที่ (No.) : B38655-16

ใบรับรองนี้แสดงว่าเครื่องโทรคมนาคมและอุปกรณ์ดังรายละเอียดต่อไปนี้ได้ผ่านการตรวจสอบและรับรองมาตรฐานแล้ว
โดยมีเงื่อนไขปรากฏตามเอกสารแนบจำนวน 2 ฉบับ

This is to certify that the telecommunication equipment appeared hereunder has been approved
with condition(s) specified in 2 Annex(es)

ตราอักษร (Brand Name) : QUECTEL

แบบ/รุ่น (Type/Model) : EC25-E

ชนิด (Type of equipment) : MODULE

ประเภทเครื่องโทรคมนาคมและอุปกรณ์
(Product Description) : Cellular Mobile (GSM/WCDMA/LTE Module)

ย่านความถี่วิทยุ (Frequency Range) : Tx: See Annex(es)

Rx: See Annex(es)

กำลังส่ง (Output Power) : See Annex(es)

ผู้ผลิต (Manufacturer) : Quectel Wireless Solutions Co., Ltd., P.R. China

และบริษัทในเครือประเทศอื่นๆ

ผู้ยื่นขอตรวจสอบและรับรอง : บริษัท อิเล็กทรอนิกส์ ซอร์ซ จำกัด

(Applicant)

ลงวันที่ 20 ตุลาคม 2559

(Date of Issue)

ลงชื่อ (Signature) 

(นายจตุรงค์ โชคสวัสดิ์)

ผู้อำนวยการสำนักงานการอนุญาตประกอบกิจการโทรคมนาคม 1
รักษาการแทนผู้อำนวยการสำนักมาตรฐานและเทคโนโลยีโทรคมนาคม
พนักงานเจ้าหน้าที่ 

เลขที่ 87 ซอยพหลโยธิน 8 ถนนพหลโยธิน แขวงสามเสนใน เขตพญาไท กรุงเทพมหานคร 10400 โทร + 66 2271 0151-60 ต่อ 321 โทรสาร +66 2279 2273
No.87 Soi Phaholyothin8, Phaholyothin Rd., Samsennai, Phayathai, Bangkok Thailand 10400 Tel + 66 2271 0151-60 Ext. 321 Fax +66 2279 2273

Certificate of Device

Device 적합 인증서

17-C-07



Trade Name or Applicant 상호 또는 성명	앰투앰넷
Basic Model Number 기본모델명	EC25-E
Manufacturer/Country of Origin 제조사/제조국가	앰투앰넷
Type Identification 형식기호	2017-C-10 모뎀 내장형 LTE+WCDMA
Date of Certification 인증연월일	2017-03-10

This is to certify that the above device is approved on SK telecom's reliability test requirement.
위 단말은 SK telecom 내부 신뢰성 시험을 만족하여 인증되었음을 증명합니다.

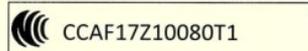
SK telecom

https://www.sktniot.com/spd/special/mdt/net/list/certificate.do?certificate_id=17-C-07 2017-03-13

耕興股份有限公司

電信終端設備審定證明

- 一、申請者：上海移遠通信技術股份有限公司
(上海市徐匯區田州路 99 號 13 幢 401A 室)
- 二、製造廠商：上海移遠通信技術股份有限公司
- 三、設備名稱：EC25-E
- 四、廠牌：Quectel
- 五、型號：EC25-E
- 六、審定類別：LTE900/LTE1800/LTE2500/LTE2600 行動寬頻介面【PLMN10 (105 年修訂版)、最大發射輸出功率 23.34dBm、Tx：885-915MHz、1710-1770MHz、2500-2570MHz、2570-2620MHz、2555-2655MHz、Rx：930-960MHz、1805-1865MHz、2620-2690MHz、2570-2620MHz、2555-2655MHz】；IMEI：86110703；WCDMA FDD 系統【PLMN08 (105 年修訂版)、最大發射輸出功率 22.46dBm、Tx：1920-1980MHz、Rx：2110-2170MHz】；GSM/DCS 系統【PLMN01、Tx：890-915MHz、Rx：935-960MHz、最大發射輸出功率 33.16dBm、Tx：1710-1785MHz、Rx：1805-1880MHz、最大發射輸出功率 29.37dBm】
- 七、審定日期：106 年 01 月 16 日
- 八、審驗合格標籤式樣：



說明：

- 經審驗合格之電信終端設備，送審廠商應依審定證明中所核給之審驗合格標籤式樣，自製標籤標貼或印鑄於設備本體適當位置，始得販賣。
- 審驗合格標籤之使用權專屬取得審定證明之人。依電信終端設備審驗辦法第 15 條規定，持有人得經由網際網路申請同意他人於同廠牌同型號之電信終端設備使用審驗合格標籤，並於次日起 30 天內，應檢具「電信終端設備審驗合格標籤或符合性聲明標籤同意使用備查表」送國家通訊傳播委員會備查。
- 取得審定證明之電信終端設備，有下列情形之一者，得撤銷或廢止審定證明：
 - 經發現原審定設備確有變更其廠牌、型號、設計或性能，而未重新申請審驗者。
 - 經確定原審定設備未依新修正技術規範公告所定實施期限及方式辦理審驗者。
 - 經發現申請審驗時所檢附之資料為偽造或虛偽不實者。
 - 經抽驗未能符合電信終端設備技術規範者。
 - 因代理權、專利權爭議，經法院判決敗訴確定或違反其他規定致不得販賣經審驗合格之電信終端設備。
- 輸入或販賣未經審驗合格之電信終端設備者，依電信法第六十七條規定處新台幣三萬元以上三十萬元以下罰鍰，並得沒入其設備。
- 本審定證明，係依電信法第四十四條第一項規定，由國家通訊傳播委員會委託辦理。

備註：

- 本公司係經國家通訊傳播委員會委託之驗證機構(電信管制射頻器材驗證機構認證證書號碼:NCC-RCB-05/電信終端設備驗證機構認證證書號碼:NCC-RCB-05)，核發本電信終端設備審定證明。
- 本器材使用 Fixed External 天線，天線增益 1.47dBi/GSM900, 2.56dBi/DCS1800, 2.13dBi/LTE B3, 1.56dBi/LTE B7, 1.47dBi/LTE B8, 1.56dBi/LTE B38, 1.56dBi/LTE 2555-2655MHz, 2.56dBi/WCDMA B1。
- 依「商品標示法」及「資訊、通信及消費性電子商品標示基準」規定，標示事項貼於商品或內外包裝上，以免違法而受處分。
- 為方便消費者選購時容易辨識，廠商應在廣告文宣、設備外包裝及使用說明書標示該行動寬頻手機/電信終端設備具備的行動寬頻頻段(LTE700/LTE900/LTE1800/LTE2500-2600)，以避免消費爭議。
- 本機型於行動寬頻(LTE)介面支援 Tx (上行): 885-915MHz、1710-1770MHz、LTE FDD 2500-2570MHz、LTE TDD 2570-2620MHz、LTE TDD 2555-2655MHz，Rx (下行): 930-960MHz、1805-1865MHz、LTE FDD 2620-2690MHz、LTE TDD 2570-2620MHz、LTE TDD 2555-2655MHz 等頻段，不支援 Tx (上行): 703-748MHz，Rx (下行): 758-803MHz 頻段。申請者須在廣告文宣、使用手冊、外包裝上標示清楚支援的頻段以避免消費爭議。
- 本器材設備包含 GSM900/1800/WCDMA/FDD-LTE B3/B7/B8 /TDD-LTE B38/LTE 2555-2655MHz 無線介面。