

RemoteCOM

C20 - C25 Ethernet 10/100MB Converters documentation

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Data Sheet

RemoteCOM (C20 - C25)

RemoteCOM is a complete hardware and software solution for creating remote communication ports. The software part can be uploaded to any of the Redisage C20 - C25 Ethernet Converters. It provides a communication between a LAN host and a device equipped with RS232/RS485 serial interfaces. A dedicated app makes it easy and fast to configure and deploy. There is a possibility to create virtual COM ports with the Redisage Configurator to minimize number of cables.

C20 C21 C22 C23 C24 C25	Features
	<ul style="list-style-type: none">• Ethernet converter to RS232/RS485• ESD protection for the RS485 data line• Power supply: +12 to +30 VDC• Transmission speed up to 115200 bps• Tx, Rx and power LED indicators• RS485 embedded termination 120 ohm• Operating temperatures: -40°C to +75°C• DIN rail mounting• Dimensions: 90x56.4x22.5 mm• 3 years warranty• Customization of OEM is welcomed

Introduction

C20 - C22 are a products family of reliable converters based on the **ESP32 Xtensa LX6** microcontroller, extending the capabilities of industrial devices.

C23 - C25 are a products family of reliable converters based on the **STM32F4** microcontroller, extending the capabilities of industrial devices.

The addition of a network interface allows remote access and full control over communication via a computer.

The user performs the basic configuration of transmission parameters in a browser or via a Telnet/serial console.

Dedicated EMC integrated circuits guarantee improved connection quality by limiting the impact of the interferences typical for an industrial environment.

Specifications

Redisage PN		C20	C21	C22	C23	C24	C25
Ports	RS232	2x	-	-	4x	-	2x
	RS485	-	1x	-	-	4x	2x
	RS232/RS485	-	-	2x	-	-	-
Microcontroller		ESP32			STM32F4		
WiFi		N/A					
Power	Voltage	12-30 VDC					
	Power	< 1 W					
Frame ground connection		yes					
Baud rate		up to 115200 bps					
LED indicators		communication Tx, Rx and power					
RS485 termination		120 ohm manually enabled					
Connector	RS232/RS485	8-pin terminal block max. 2.5 mm ² wire					
	Power	3-pin terminal block max. 2.5 mm ² wire					
	Ethernet	RJ45					
Transmission distance	RS485	max. 1,200 m at 9.6 kbps; max. 400 m at 115.2 kbps (Belden 9841 2P twisted-pair cable, if different cables are used, the transmission distance may change)					
	RS232	max. 15 m at 115.2 kbps					

Redisage PN	C20	C21	C22	C23	C24	C25
Mounting and enclosure	DIN rail, plastic PA - UL 94 V0, black/green					
Temperatures	-40°C to +75°C operating and storage					
Humidity	10 - 90% RH, non-condensing					
ESD protection	±4 kV contact discharge / ±8 kV air discharge					
Certification	CE, RoHS					

Variants

C20 - Ethernet Converter 2 x RS232

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C21 - Ethernet Converter 1 x RS485

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C22 - Ethernet Converter 2 x RS232/RS485

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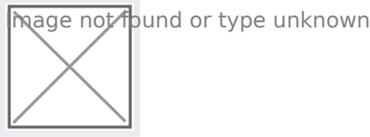
In the C22 converter user should use only RS232 or only RS485 interface of one port as they occupy the same internal bus of the device.

C23 - Ethernet Converter 4 x RS232

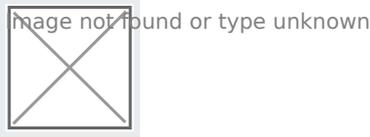
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C24 - Ethernet Converter 4 x RS485



C25 - Ethernet Converter 2 x RS232 & 2 x RS485



Frame ground FG

Electronic circuits are constantly prone to electrostatic discharge ESD. Redisage Electronics modules feature a design for the frame ground terminal block FG. The frame ground provides a path for bypassing ESD, which provides enhanced static protection ESD abilities and ensures the module is more reliable. Connecting FG terminal block to the earth ground will bypass the ESD disturbances outside the device so will provide a better level of protection against ESD.

Frame Ground FG connection reference drawing is provided below.



If earth ground is not available FG can be left floating or it can be connected with the power supply GND.

Pin assignments

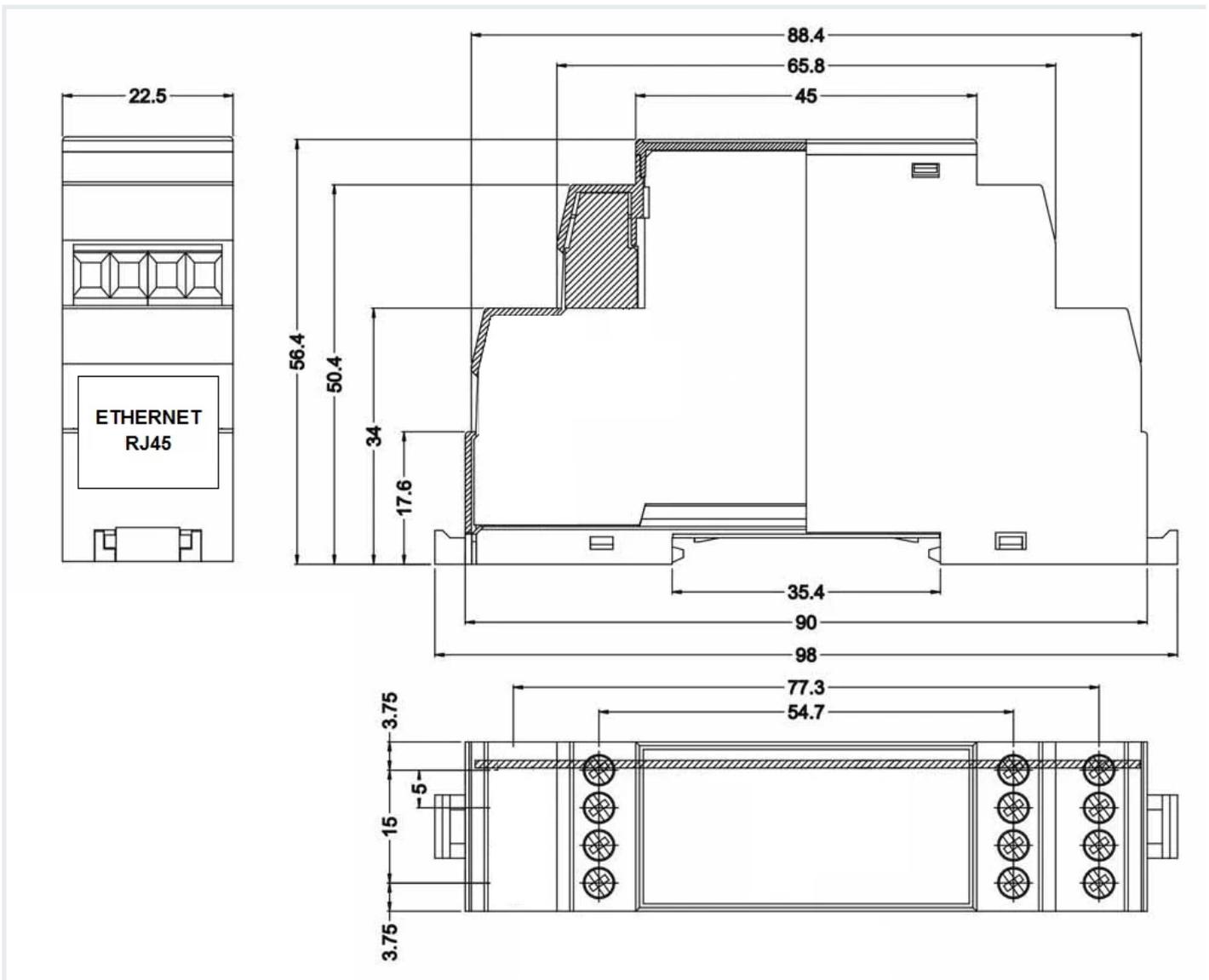
<p style="text-align: center;">C20</p> <p style="text-align: center;">cb11de82-9b9c-441b-ba5e-c7a154b2974af1.png</p>	<p style="text-align: center;">C21</p> <p style="text-align: center;">0e3edd8-81fa-43f3-b5d6-321d3e380273.jpg</p>
<p style="text-align: center;">C22</p> <p style="text-align: center;">b256a7e1-4bcb-44a8-8d61-d9973cc82d4e.png</p>	<p style="text-align: center;">C23</p> <p style="text-align: center;">c0d89b16-0d72-4553-aaad-745659a94c87.png</p>
<p style="text-align: center;">C24</p> <p style="text-align: center;">939689bb-f557-4d08-b093-d2ac790a3bce.png</p>	<p style="text-align: center;">C25</p> <p style="text-align: center;">46bd1368-fb158-4f8d-8114-304a359a9685.png</p>

Enclosure dimensions

2U Module Enclosure

98 x 22.5 x 56.4

Units: mm



Getting started

Power supply

Ethernet converters C20 - C25 have wide voltage power input (12-30 VDC) and the power consumption is less than 1 W.

LED indicators

Ethernet converters C20 - C22 have 3 LED indicators:

- PW LED Blue - Power
- ETH LED Green - Network activity
- ST LED Orange - USB-UART serial console mode

Ethernet converters C23 - C25 have 5 LED indicators:

- PW LED Blue - Power
- ER LED Yellow - Error
- ETH LED Green - Network activity
- COM LED Green - RS232/RS485 activity
- CN LED Yellow - Console mode
- SR LED Red - Service mode

[66a7b90e-9af7-4b47-ae63-40409f98a845.png](#)

Configuration by the Web Page

Default configuration of the Ethernet Converters:

- IP address: **192.168.100.100**
- Subnet mask: **255.255.255.0**
- Gateway: **192.168.100.1**
- DNS 1: **192.168.100.1**
- DNS 2: **8.8.8.8**

Default login details:

- User name: **admin**
- Password: **admin123**

To access to the web page open the web browser, type the IP address in the address bar and log in using the default user name and password. The device and a PC must be connected to the same Local Area Network.

[0ebd9613-722b-4a01-8258-91252cc88f74.png](#)

After a successful login, the status page will show the current status of the ports.

[621a9445-3b44-42ec-b18b-2dd9f1ff95ef.png](#)

To change the user name and password click on the user icon and select "Edit user".

Ports configuration is available on the "Ports" page.

[99bb0679-5937-4fb6-b6f5-59e8d0b89d74.png](#)

[762f162a-1c33-4674-8f6f-827edb003235.png](#)

Item	Description
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Service	RemoteCOM	The RemoteCOM option lets to attach the port to a computer running the Redisage Configurator as if it would be physically present in the computer.
	TCP Socket	TCP/UDP Socket exposes this port as a regular network socket - connect to this socket with own software and write/read data to send/receive data over the serial port without any additional software or serial port handling.
	UDP Socket	
Port		The service number - the device has an "IP Address" by which it is identified and a couple of services running on it. It's required to tell the device which service should be in use by entering this device's IP address and the port number in the RemoteCOM client or user's software.
Connection Timeout [s]		The time specifying how often (every how many seconds) the "keep alive" packet will be sent to check if the client is still connected. Value 0 means that the connection is kept permanently without any timeout.
Inactivity Time [ms]		The maximum allowed time in milliseconds during which there is no data transfer. When connection is inactive for the time longer or equal to the entered value, then it will be closed. Value 0 means there is no measure of the inactivity time at all.
Encryption		Determine how the data is protected 'in flight' over a network. It is available only with the RemoteCOM service. Once enabled, it is necessary to set the password.
Password		Protect the communication between the device and various clients - keep it secret! Same settings have to appear in clients - without the correct passwords, a client will not be able to connect at all.
Termination		Enable/disable termination on the RS line.
Baud Rate		Determine the port's transmission speed over the data channel.
Data Bits		Determine the number of data bits in the port's message frame.

Parity	Enable/disable parity check in the port's message frame.
Stop Bits	Determine the number of stop bits in the port's message frame.
Notes	These notes are for information only - feel free to write down anything related to this port (device it connects to, etc.). They're also shown in the Configurator during the device discovery - in the other words, they're public.

Changing port's service closes all sockets connected to the ports.

In the UDP mode, port number 15051 is reserved for UDP broadcast service.

Network settings can be changed on the "Network" page.

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[98a9fcd9-9549-4d9a-9e04-ef90021cfaff.png](#)

Item	Description
Configuration Method	Enable/disable the DHCP server. If the DHCP server is disabled, the IP address of the device has to be set manually.
IP Address	IP address of the device.
Netmask	Netmask associated with the IP address.
Gateway	Gateway address currently used by the device.
MAC Settings	Allow setting the default MAC address or typing it manually.
MAC Address	Allow changing the physical address of the device.

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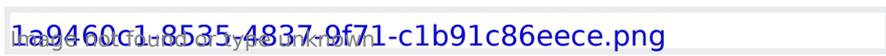
Item	Description
HTTP Port	Determine the port of the control panel.

Item	Description
Telnet Port	Allow connection with the device via Telnet.
Broadcasts	Notify RemoteCOM clients in the same network about this device's existence. With this enabled, the Configurator will automatically set most of the settings correctly after picking the correct port.
Hostname	Label that is assigned to the device.
DNS Address 1 (Primary)	Primary Domain Name System used by the device.
DNS Address 2	Domain Name System used by the device.

On the “Device” page there are tools used to a firmware update, a factory reset and a device reboot.



On the “Info” page there is information about firmware, model, serial number and frontend version.



Configuration by the Serial Console

The device has the ability to be reconfigured via a serial console. C20 - C22 require a dedicated USB/UART converter connected to the USB micro-B connector on the front of the device. C23 - C25 can be directly connected to a PC through a USB cable.

Procedure to enter serial console mode on C20 - C22

- Turn off the power of the device.
- Connect the PC to the C1 micro-USB port of Ethernet converter using the dedicated USB/UART converter.
- Open the serial console (default baud rate is 115200 bps).
- Press and hold the S1 button (or connect Din pin to GND pin if the button is not mounted).
- Turn on the power and wait a few seconds until the **orange** LED lights up.
- Release the button (or disconnect Din pin from GND pin).

Procedure to enter serial console mode on C23 - C25

- Install STM32 Virtual COM Port Driver.
- Turn off the power of the device.
- Connect the PC to the C1 micro-USB port using the USB cable (or use the dedicated USB/UART converter).
- Open the serial console (default baud rate is 115200 bps).
- Press and hold the S1 button.
- Turn on the power and wait a few seconds until the **yellow** CN LED lights up.

- Release the button (or disconnect Din pin from GND pin).

Once this is done, log in using the default username and password, then change the network settings using "ipconfig" command.

[9ec0da3e-1e6e-459b-8c0e-388422e65cb3.png](#)

List of all commands

Command	Description
help	Print the help.
conn	Print active TCP connections.
eth_mac	Print or change MAC address.
exit	Close current CLI session.
http_port	Print or change default http port.
ipconfig	Print or change the network configuration.
net_stat	Print lwIP statistics.
ping	Check internet connection with the desired host.
restart	Restart the system.
reboot	Same as restart.
sys_heap_usage	Print current heap usage.
telnet_port	Print or change default telnet port.
uart	Print or change uart configuration.
uart_service	Print or change uart_service configuration.
user	Print or change user configuration.

Ports configuration commands

In terms of ports configuration it is possible to change parameters like: service, baud rate, data bits, parity, stop bits and so on. UART commands are provided below.

- **uart**
 - **uart help**
Print the help message.
 - **uart list**
List available uarts in the system.

Example:
uart list

- 0: baud: 9600 bits: 8 stop_bits: 1 parity: none (service console)
- 1: baud: 115200 bits: 8 stop_bits: 2 parity: odd (covered by cons.)
- 2: baud: 9600 bits: 8 stop_bits: 1 parity: none
- 3: baud: 1200 bits: 8 stop_bits: 2 parity: even termination: ON (R-COM)
- 3: baud: 38400 bits: 8 stop_bits: 2 parity: none termination: OFF

- **uart PORT_NUMBER baud BAUD**

Set PORT_NUMBER baudrate to BAUD. BAUD value can be one of the following: 2400, 4800, 9600, 14400, 19200, 38400, 57600, 115200.

Example:

```
uart 1 baud 9600
```

WARNING: UART covered by console. Changes will take place after the reset.

- **uart PORT_NUMBER bits BITS**

Set bit length to BITS. BITS value can be one only 8.

Example:

```
uart 2 bits 8
```

- **uart PORT_NUMBER stop_bits STOP_BITS**

Set stop_bits length to STOP_BITS. STOP_BITS value can be only 1 or 2.

Example:

```
uart 2 stop_bits 1
```

- **uart PORT_NUMBER parity PARITY**

Set uart parity to PARITY. PARITY value can be one of the following: none, odd, even.

Example:

```
uart 3 parity even
```

- **uart PORT_NUMBER termination STATE**

Set uart termination to new STATE. STATE can be only ON or OFF.

Example:

```
uart 3 termination ON
```

- **uart_service**

- **uart_service help**

Print the help message.

- **uart_service list**

List of uarts services status.

Example:

```
uart_service list
```

```
1 state: ON service: Remote COM port: 1504 enc: YES
```

```
2 state: OFF service: TCP Socket port: 1510
```

```
3 state: OFF service: UDP Socket port: 1510
```

- **uart_service UART_NUMBER state STATE**

Set UART_NUMBER state to STATE. STATE value can be only ON or OFF.

Example:

```
uart_service 1 state ON
```

- **uart_service UART_NUMBER service SERVICE**

Set UART_NUMBER service to SERVICE. SERVICE value can be one of the following: Remote COM, TCP Socket, UDP Socket.

Example:

```
uart_service 1 service TCP Socket
```

- **uart_service UART_NUMBER port PORT_NUMBER**

Set UART_NUMBER port to PORT_NUMBER. PORT_NUMBER value can be any in the range: 1-65535.

Example:

```
uart_service 1 port 1501
```

- **uart_service UART_NUMBER enc ENC_STATE**

Set UART_NUMBER encryption to ENC_STATE. ENC_STATE can be only YES or NO.

Example:

```
uart_service 1 enc YES
```

If ENC_STATE is YES then it will ask for a new password for encryption.

Network settings

The following commands might be helpful to change network settings according to target LAN parameters.

- **ipconfig**

- **ipconfig addr ADDRESS**

Set IP address to ADDRESS.

Example:

```
ipconfig addr 192.168.0.10
```

- **ipconfig mask NETMASK**

Set subnet mask to NETMASK (in dot-decimal format).

Example:

```
ipconfig mask 255.255.255.0
```

- **ipconfig mask BIT_COUNT**

Set subnet mask to BIT_COUNT bits.

Example:

```
ipconfig mask 24
```

- **ipconfig gateway GATEWAY_IP**

Set network gateway to GATEWAY_IP.

Example:

```
ipconfig gateway 192.168.0.1
```

- **ipconfig dhcp enable/disable**

Enable or disable DHCP client.

Example:

```
ipconfig dhcp enable
```

- **ipconfig dns1 ADDRESS**

Set primary DNS to ADDRESS, disable getting DNS from DHCP if enabled.

Example:

```
ipconfig dns1 192.168.100.1
```

- **ipconfig dns2 ADDRESS**

Set secondary DNS to ADDRESS, disable getting DNS from DHCP if enabled.

Example:

```
ipconfig dns2 1.1.1.1
```

- **eth_mac**

- **eth_mac help**

Print the help message.

- **eth_mac default**

Set device's MAC address to factory-default one.

- **eth_mac set MAC_ADDR**

Set device's MAC address to MAC_ADDR. Accepts both dash and colon-separated formats.

Example:

```
eth_mac set 01-02-03-04-05-06
```

Example:

```
eth_mac set 01:02:03:04:05:06
```

- **http_port**

- **http_port help**

Print the help message.

- **http_port PORT_NUMBER**

Set http port to PORT_NUMBER. A PORT_NUMBER value must be in range: 1-65535.

Example:

```
http_port 80
```

- **http_port status**

Print current http port.

Example:

```
http_port status
```

A current http port is 80

- **telnet_port**

- **telnet_port help**

Print the help message.

- **telnet_port PORT_NUMBER**

Set Telnet port to PORT_NUMBER. A PORT_NUMBER value must be in range: 1-65535.

Example:

```
telnet_port 23
```

- **telnet_port status**

Print current Telnet port.

Example:

```
telnet_port status
```

A current telnet port is 23

Changing username or password

To change username or password, use user command. Available commands:

- **user help**

Print the help message.

- **user mod_name USER_NAME NEW_NAME**

Change the user name to NEW_NAME. It fails if the name is used by another user.

Example:

```
user mod_name admin john
```

- **user passwd USER_NAME**

Change USER_NAME's password.

Example:

```
user passwd admin
```

```
***** <- here is entered password, but '*' appears instead
```

Note: Everyone can change the password for themselves.

Configuration by the Telnet Console

Access to the Telnet console can be obtained using a serial terminal program. Configure the connection type to Telnet, enter the IP address and Telnet port number (**23** by default).

Telnet console commands are the same as ones described in the serial console section.



Redisage Configurator

To configure the RemoteCOM ports use the Redisage Configurator program. Redisage Configurator is an app used to emulate a connection between the converter and a PC as if it would be connected directly to the COM port.

Configuration procedure

- Change the device port service to the RemoteCOM.
- Set up a port number.
- Enable or disable encryption.
- If encryption is enabled create a password.
- In the Redisage Configurator click add the device and then set the COM number and the service port.
- If encryption is enabled enter a password.
- Click save changes.
- Connect to the configured serial COM port via terminal software.

If any change is made to the port configuration, make sure to apply it with the “Save Changes” button.

Reset to factory defaults

Reset to factory defaults is possible on the web page in the device section or using the service mode.

Service mode

Procedure to enter service mode for C20 - C22 converters

- Turn off the power of the device.
- Connect Ethernet converter to the dedicated USB/UART converter via the microUSB port.
- Connect the USB/UART converter to the PC.
- Open the serial console (default baud rate is 115200 bps).
- Press and hold the S1 button.
- Turn on the power.
- Wait until the ST indicator (red LED) lights up.
- Release the S1 button.
- If the process is successful, service commands can be typed into the terminal.

Procedure to enter service mode for C23 - C25 converters

- Install STM32 Virtual COM Port Driver (if it was not done before).
- Turn off the power of the device.
- Connect Ethernet converter directly to the PC (the dedicated USB/UART converter is not obligatory).
- Open the serial console (default baud rate is 115200 bps).
- Press and hold the S1 button.
- Turn on the power.
- Wait until the ST indicator (red LED) lights up.
- Release the S1 button.
- If the process is successful, service commands can be typed into the terminal.

List of commands in the service mode

Command	Description
help	Print the help.
credits	Print current credits value for this device.
dev_ident	Print the device identification value.

Command	Description
restart	Restart the system.
serial_num	Print the serial number of this device.
version	Display the bootloader version.
xmodem	Download image to the internal flash using xmodem.
defaults	Reset application variables to defaults.
ipconfig	Print or change the network configuration.
flash_read	Read bytes from flash memory.
md	Read bytes from memory address.

In the service mode, the “ipconfig” command can only show a last static IP address.

Additional notes

Related information and links		
Ordering information	Accessories	Similar products

Products family sample photo



<https://redisage.com>

DISCLAIMER NOTES

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Datasheet-ID:

SR-D

User Manual

RemoteCOM (C20 - C25)

Introduction

RemoteCOM (C20 - C25)

RemoteCOM is a complete hardware and software solution for creating remote communication ports. The software part can be uploaded to any of the Redisage C20 - C25 Ethernet Converters. It provides a communication between a LAN host and a device equipped with RS232/RS485 serial interfaces. A dedicated app makes it easy and fast to configure and deploy. There is a possibility to create virtual COM ports with the Redisage Configurator to minimize number of cables.

[17c77710-426f-4c4e-b404-2284a07928e0.png](#)

Hardware

RemoteCOM (C20 - C25)

RemoteCOM can be installed on any device from the Redisage C20 - C25 Ethernet Converters family.

Features

Features	
Ethernet converter to RS232/RS485	
ESD protection for the RS485 data line	
Power supply: +12 to +30 VDC	
Transmission speed up to 115200 bps	
Tx, Rx and power LED indicators	
RS485 embedded termination 120 ohm	
Operating temperatures: -40°C to +75°C	
DIN rail mounting	
Dimensions: 90x56.4x22.5 mm	
3 years warranty	
Customization of OEM is welcomed	

Frame ground FG

Electronic circuits are constantly prone to electrostatic discharge ESD. Redisage Electronics modules feature a design for the frame ground terminal block FG. The frame ground provides a path for bypassing ESD, which provides enhanced static protection ESD abilities and ensures the module is more reliable. Connecting FG terminal block to the earth ground will bypass the ESD disturbances outside the device so will provide a better level of protection against ESD.

Frame Ground FG connection reference drawing is provided below.



If earth ground is not available FG can be left floating or it can be connected with the power supply GND.

Specifications

Redisage PN		C20	C21	C22	C23	C24	C25
Ports	RS232	2x	-	-	4x	-	2x
	RS485	-	1x	-	-	4x	2x
	RS232/RS485	-	-	2x	-	-	-
Microcontroller		ESP32			STM32F4		
WiFi		N/A					
Power	Voltage	12-30 VDC					
	Power	< 1 W					
Frame ground connection		yes					
Baud rate		up to 115200 bps					
LED indicators		communication Tx, Rx and power					

Redisage PN		C20	C21	C22	C23	C24	C25
RS485 termination		120 ohm manually enabled					
Connector	RS232/RS485	8-pin terminal block max. 2.5 mm ² wire					
	Power	3-pin terminal block max. 2.5 mm ² wire					
	Ethernet	RJ45					
Transmission distance	RS485	max. 1,200 m at 9.6 kbps; max. 400 m at 115.2 kbps (Belden 9841 2P twisted-pair cable, if different cables are used, the transmission distance may change)					
	RS232	max. 15 m at 115.2 kbps					
Mounting and enclosure		DIN rail, plastic PA - UL 94 V0, black/green					
Temperatures		-40°C to +75°C operating and storage					
Humidity		10 - 90% RH, non-condensing					
ESD protection		±4 kV contact discharge / ±8 kV air discharge					
Certification		CE, RoHS					

LED indicators

Converters C20 - C22	Converters C23 - C25
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LED indicator	Color	Function	LED indicator	Color	Function
PW	Blue	Power	PW	Blue	Power
ETH	Green	Network activity	ETH	Green	Network activity
ST	Orange	Console mode	CN	Yellow	Console mode
	Red	Service mode	COM	Green	RS232/RS485 activity
			SR	Red	Service mode
			ER	Yellow	Error

Pin assignments

<p style="text-align: center;">C20</p> <p>cb11de82-9b9c-441b-b5ec-a154b2974af1.png</p>	<p style="text-align: center;">C21</p> <p>9e3edd8-81fa-43f3-b5d6-321d3e380273.jpg</p>
<p style="text-align: center;">C22</p> <p>b256a7e1-4bcb-44a8-8d61-d9973cc82d4e.png</p>	<p style="text-align: center;">C23</p> <p>c0d89b16-0d72-4553-aaad-745659a94c87.png</p>
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In the C22 converter user should use only RS232 or only RS485 interface of one port as they occupy the same internal bus of the device.

Configuration by the Web Page

RemoteCOM (C20 - C25)

This page presents capabilities of the Ethernet Converters configuration. First of all, make sure that converter is connected to power supply and to the LAN using a patch cord. If the device has no static IP set up, it will be necessary to obtain its IP address in the local network. User interface is mostly similar for all converters but some subpages might be different for several models depending on amount of interfaces. In order to avoid issues, click on a “Help” button in the top right corner on every page.

Login

To access the web page open the browser, type device’s IP address of the converter (default is **192.168.100.100**). Then log in using user’s personal credentials. If it is a first configuration or the converter had a factory reset, use default login details (login: **admin**, password: **admin123**).

[0cbe9613-722b-4a01-8258-91252cc88f74.png](#)

The configuration is available only if devices are connected to the same Local Area Network as the computer used for it.

Status page

After a successful login, there should be an insight to important information such as: port status, service and ports which are in use and other details about the connection.

[621a9445-3b44-42ec-b18b-2dd9f1ff95ef.png](#)

Changing username or password

After clicking “Edit User” under the user icon, it is possible to change the username or the password.

60a6ddcb-65d2-48f6-a471-9eaebc1f75bf.png

08cea4a8-e1e1-4241-a0ea-bf987363d2b7.png

If login details were forgotten, it would be necessary to do a factory reset via a USB/UART converter and a serial console.

Ports page

This page allows to configure the device’s ports. There is a toggle switch next to the “Port” label by which it is possible to turn ON/OFF any particular ports.

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762f162a-1c33-4674-8f6f-827edb003235.png

Item		Description
Service	RemoteCOM	The RemoteCOM option lets to attach the port to a computer running the Redisage Configurator as if it would be physically present in the computer.
	TCP Socket	TCP/UDP Socket exposes this port as a regular network socket - connect to this socket with own software and write/read data to send/receive data over the serial port without any additional software or serial port handling.
	UDP Socket	
Port		The service number - the device has an “IP Address” by which it is identified and a couple of services running on it. It's required to tell the device which service should be in use by entering this device's IP address and the port number in the RemoteCOM client or user’s software.
Connection Timeout [s]		The time specifying how often (every how many seconds) the "keep alive" packet will be sent to check if the client is still connected. Value 0 means that the connection is kept permanently without any timeout.

Item	Description
Inactivity Time [ms]	The maximum allowed time in milliseconds during which there is no data transfer. When connection is inactive for the time longer or equal to the entered value, then it will be closed. Value 0 means there is no measure of the inactivity time at all.
Encryption	Determine how the data is protected 'in flight' over a network. It is available only with the RemoteCOM service. Once enabled, it is necessary to set the password.
Password	Protect the communication between the device and various clients - keep it secret! Same settings have to appear in clients - without the correct passwords, a client will not be able to connect at all.
Termination	Enable/disable termination on the RS line.
Baud Rate	Determine the port's transmission speed over the data channel.
Data Bits	Determine the number of data bits in the port's message frame.
Parity	Enable/disable parity check in the port's message frame.
Stop Bits	Determine the number of stop bits in the port's message frame.
Notes	These notes are for information only - feel free to write down anything related to this port (device it connects to, etc.). They're also shown in the Configurator during the device discovery - in the other words, they're public.

Changing port's service closes all sockets connected to the ports.

In the UDP mode, port number 15051 is reserved for UDP broadcast service.

Network page

In this section, network settings can be changed according to target LAN parameters.

8386aa9b-6add-432d-945d-303e590ed269.png

98a9fcdf-9549-4d9a-9e04-ef90021cfaff.png

Item	Description
Configuration Method	Enable/disable the DHCP server. If the DHCP server is disabled, the IP address of the device has to be set manually.
IP Address	IP address of the device.
Netmask	Netmask associated with the IP address.
Gateway	Gateway address currently used by the device.
MAC Settings	Allow setting the default MAC address or typing it manually.
MAC Address	Allow changing the physical address of the device.

e3574681-36ef-4fdb-8979-97046c2c7d5d.png

Item	Description
HTTP Port	Determine the port of the control panel.
Telnet Port	Allow connection with the device via Telnet.
Broadcasts	Notify RemoteCOM clients in the same network about this device's existence. With this enabled, the Configurator will automatically set most of the settings correctly after picking the correct port.
Hostname	Label that is assigned to the device.
DNS Address 1 (Primary)	Primary Domain Name System used by the device.
DNS Address 2	Domain Name System used by the device.

It is possible to obtain a dynamic IP address. Just switch configuration method from static IP to DHCP (automatic). This process may cause some issues with identifying converters in LAN unless there is an access to the device which is responsible for allocating IP addresses.

Keep in mind that in case of changed IP address user needs to type a new IP in the address bar and log in again.

Device page

On the device page there are tools used to a firmware update, a factory reset and a device reboot.

[744e0c74-d7cf-43f3-a024-fa06e1bd9fc2.png](#)

Item	Description
Firmware Update	Update firmware.
Factory Reset	Restore default ports settings and default network configuration.
Reboot	Reboot the device.

Firmware update

The device firmware update must not be interrupted. Update the device only if experiencing issues, being instructed to do so by our support or requiring the latest features/bugfixes. Failure during the update may 'brick' the device and make it unusable.

[71859a06-2f70-4920-be81-0d60bb5e451e.png](#)

Use the **wire-city-esp32.fir** file for a firmware update.

Factory reset

To restore default settings, press the “Factory Reset” button. After that, user will be asked to type “RESET”. Then it will take a few seconds to reload the web page and restart the device.

[c9d4ee5e-9727-4033-9a9f-12538328efb2.png](#)

Info page

This page contains basic information about the device.

[1a9460c1-8525-4837-9f71-c1b91c86eece.png](#)

Configuration by the Telnet Console

RemoteCOM (C20 - C25)

The device can be also configured via the Telnet Console. Firstly, make sure that converter is connected to the power supply and to the LAN using a patch cord. Knowledge of the device's IP address (default is **192.168.100.100**) and Telnet port number (default is **23**) is necessary to establish a connection.

Use command below in a terminal window to connect to the device:

```
telnet <ip_address> <port_number>
```

If the connection is successful there will be a login prompt visible. Log in using user's personal credentials or the default login details (login: **admin**, password: **admin123**). If login is successful, it will be possible to start typing configuration commands.



The configuration is available only if devices are connected to the same Local Area Network as the computer used for it.

List of all commands

Command	Description
help	Print the help.
conn	Print active TCP connections.
eth_mac	Print or change MAC address.
exit	Close current CLI session.
http_port	Print or change default http port.

Command	Description
ipconfig	Print or change the network configuration.
net_stat	Print lwIP statistics.
ping	Check internet connection with the desired host.
restart	Restart the system.
reboot	Same as restart.
sys_heap_usage	Print current heap usage.
telnet_port	Print or change default telnet port.
uart	Print or change uart configuration.
uart_service	Print or change uart_service configuration.
user	Print or change user configuration.

Ports configuration commands

In terms of ports configuration it is possible to change parameters like: service, baud rate, data bits, parity, stop bits and so on. UART commands are provided below.

- **uart**

- **uart help**

Print the help message.

- **uart list**

List available uarts in the system.

Example:

```
uart list
```

```
0: baud: 9600 bits: 8 stop_bits: 1 parity: none (service console)
```

```
1: baud: 115200 bits: 8 stop_bits: 2 parity: odd (covered by cons.)
```

```
2: baud: 9600 bits: 8 stop_bits: 1 parity: none
```

```
3: baud: 1200 bits: 8 stop_bits: 2 parity: even termination: ON (R-COM)
```

```
3: baud: 38400 bits: 8 stop_bits: 2 parity: none termination: OFF
```

- **uart PORT_NUMBER baud BAUD**

Set PORT_NUMBER baudrate to BAUD. BAUD value can be one of the following: 2400, 4800, 9600, 14400, 19200, 38400, 57600, 115200.

Example:

```
uart 1 baud 9600
```

WARNING: UART covered by console. Changes will take place after the reset.

- **uart PORT_NUMBER bits BITS**

Set bit length to BITS. BITS value can be one only 8.

Example:

uart 2 bits 8

- **uart PORT_NUMBER stop_bits STOP_BITS**

Set stop_bits length to STOP_BITS. STOP_BITS value can be only 1 or 2.

Example:

uart 2 stop_bits 1

- **uart PORT_NUMBER parity PARITY**

Set uart parity to PARITY. PARITY value can be one of the following: none, odd, even.

Example:

uart 3 parity even

- **uart PORT_NUMBER termination STATE**

Set uart termination to new STATE. STATE can be only ON or OFF.

Example:

uart 3 termination ON

- **uart_service**

- **uart_service help**

Print the help message.

- **uart_service list**

List of uarts services status.

Example:

uart_service list

1 state: ON service: Remote COM port: 1504 enc: YES

2 state: OFF service: TCP Socket port: 1510

3 state: OFF service: UDP Socket port: 1510

- **uart_service UART_NUMBER state STATE**

Set UART_NUMBER state to STATE. STATE value can be only ON or OFF.

Example:

uart_service 1 state ON

- **uart_service UART_NUMBER service SERVICE**

Set UART_NUMBER service to SERVICE. SERVICE value can be one of the following: Remote COM, TCP Socket, UDP Socket.

Example:

```
uart_service 1 service TCP Socket
```

- **uart_service UART_NUMBER port PORT_NUMBER**

Set UART_NUMBER port to PORT_NUMBER. PORT_NUMBER value can be any in the range: 1-65535.

Example:

```
uart_service 1 port 1501
```

- **uart_service UART_NUMBER enc ENC_STATE**

Set UART_NUMBER encryption to ENC_STATE. ENC_STATE can be only YES or NO.

Example:

```
uart_service 1 enc YES
```

If ENC_STATE is YES then it will ask for a new password for encryption.

Network settings

The following commands might be helpful to change network settings according to target LAN parameters.

- **ipconfig**

- **ipconfig addr ADDRESS**

Set IP address to ADDRESS.

Example:

```
ipconfig addr 192.168.0.10
```

- **ipconfig mask NETMASK**

Set subnet mask to NETMASK (in dot-decimal format).

Example:

```
ipconfig mask 255.255.255.0
```

- **ipconfig mask BIT_COUNT**

Set subnet mask to BIT_COUNT bits.

Example:

```
ipconfig mask 24
```

- **ipconfig gateway GATEWAY_IP**

Set network gateway to GATEWAY_IP.

Example:

```
ipconfig gateway 192.168.0.1
```

- **ipconfig dhcp enable/disable**

Enable or disable DHCP client.

Example:

```
ipconfig dhcp enable
```

- **ipconfig dns1 ADDRESS**

Set primary DNS to ADDRESS, disable getting DNS from DHCP if enabled.

Example:

```
ipconfig dns1 192.168.100.1
```

- **ipconfig dns2 ADDRESS**

Set secondary DNS to ADDRESS, disable getting DNS from DHCP if enabled.

Example:

```
ipconfig dns2 1.1.1.1
```

- **eth_mac**

- **eth_mac help**

Print the help message.

- **eth_mac default**

Set device's MAC address to factory-default one.

- **eth_mac set MAC_ADDR**

Set device's MAC address to MAC_ADDR. Accepts both dash and colon-separated formats.

Example:

```
eth_mac set 01-02-03-04-05-06
```

Example:

```
eth_mac set 01:02:03:04:05:06
```

- **http_port**

- **http_port help**

Print the help message.

- **http_port PORT_NUMBER**

Set http port to PORT_NUMBER. A PORT_NUMBER value must be in range: 1-65535.

Example:

http_port 80

- **http_port status**

Print current http port.

Example:

```
http_port status
```

A current http port is 80

- **telnet_port**

- **telnet_port help**

Print the help message.

- **telnet_port PORT_NUMBER**

Set Telnet port to PORT_NUMBER. A PORT_NUMBER value must be in range: 1-65535.

Example:

```
telnet_port 23
```

- **telnet_port status**

Print current Telnet port.

Example:

```
telnet_port status
```

A current telnet port is 23

Changing username or password

To change username or password, use user command. Available commands:

- **user help**

Print the help message.

- **user mod_name USER_NAME NEW_NAME**

Change the user name to NEW_NAME. It fails if the name is used by another user.

Example:

```
user mod_name admin john
```

- **user passwd USER_NAME**

Change USER_NAME's password.

Example:

```
user passwd admin
```

***** <- here is entered password, but '*' appears instead

Note: Everyone can change the password for themselves.

Additional notes

After some time of inactivity, session will be disconnected automatically.

In order to avoid issues like connecting to the host, type "help" to get more information.

To get more details about every particular command, append "help" after each commands (example: "ipconfig help").

Factory reset is not available from the Telnet Console level.

Configuration by the Serial Console

RemoteCOM (C20 - C25)

Another way to configure the device is via a serial console. In case of the C20 - C22 Ethernet Converters an additional USB/UART converter is needed.

Procedure to enter serial console mode on C20 - C22

- Turn off the power of the device.
- Connect the PC to the C1 micro-USB port of Ethernet converter using the dedicated USB/UART converter.
- Open the serial console (default baud rate is 115200 bps).
- Press and hold the S1 button (or connect Din pin to GND pin if the button is not mounted).
- Turn on the power and wait a few seconds until the **orange** LED lights up.
- Release the button (or disconnect Din pin from GND pin).

Procedure to enter serial console mode on C23 - C25

- Install STM32 Virtual COM Port Driver.
- Turn off the power of the device.
- Connect the PC to the C1 micro-USB port using the USB cable (or use the dedicated USB/UART converter).
- Open the serial console (default baud rate is 115200 bps).
- Press and hold the S1 button.
- Turn on the power and wait a few seconds until the **yellow** CN LED lights up.
- Release the button (or disconnect Din pin from GND pin).

[a5a95447-11ad-467f-afcf-dd83c392aa44.png](#)

List of all commands

Command	Description
---------	-------------

help	Print the help.
conn	Print active TCP connections.
eth_mac	Print or change MAC address.
exit	Close current CLI session.
http_port	Print or change default http port.
ipconfig	Print or change the network configuration.
net_stat	Print lwIP statistics.
ping	Check internet connection with the desired host.
restart	Restart the system.
reboot	Same as restart.
sys_heap_usage	Print current heap usage.
telnet_port	Print or change default telnet port.
uart	Print or change uart configuration.
uart_service	Print or change uart_service configuration.
user	Print or change user configuration.

Ports configuration commands

In terms of ports configuration it is possible to change parameters like: service, baud rate, data bits, parity, stop bits and so on. UART commands are provided below.

- **uart**

- **uart help**

Print the help message.

- **uart list**

List available uarts in the system.

Example:

```
uart list
```

```
0: baud: 9600 bits: 8 stop_bits: 1 parity: none (service console)
```

```
1: baud: 115200 bits: 8 stop_bits: 2 parity: odd (covered by cons.)
```

```
2: baud: 9600 bits: 8 stop_bits: 1 parity: none
```

```
3: baud: 1200 bits: 8 stop_bits: 2 parity: even termination: ON (R-COM)
```

```
3: baud: 38400 bits: 8 stop_bits: 2 parity: none termination: OFF
```

- **uart PORT_NUMBER baud BAUD**

Set PORT_NUMBER baudrate to BAUD. BAUD value can be one of the following:

2400, 4800, 9600, 14400, 19200, 38400, 57600, 115200.

Example:

```
uart 1 baud 9600
```

WARNING: UART covered by console. Changes will take place after the reset.

- **uart PORT_NUMBER bits BITS**

Set bit length to BITS. BITS value can be one only 8.

Example:

```
uart 2 bits 8
```

- **uart PORT_NUMBER stop_bits STOP_BITS**

Set stop_bits length to STOP_BITS. STOP_BITS value can be only 1 or 2.

Example:

```
uart 2 stop_bits 1
```

- **uart PORT_NUMBER parity PARITY**

Set uart parity to PARITY. PARITY value can be one of the following: none, odd, even.

Example:

```
uart 3 parity even
```

- **uart PORT_NUMBER termination STATE**

Set uart termination to new STATE. STATE can be only ON or OFF.

Example:

```
uart 3 termination ON
```

- **uart_service**

- **uart_service help**

Print the help message.

- **uart_service list**

List of uarts services status.

Example:

```
uart_service list
```

```
1 state: ON service: Remote COM port: 1504 enc: YES
```

```
2 state: OFF service: TCP Socket port: 1510
```

```
3 state: OFF service: UDP Socket port: 1510
```

- **uart_service UART_NUMBER state STATE**

Set UART_NUMBER state to STATE. STATE value can be only ON or OFF.

Example:

uart_service 1 state ON

- **uart_service UART_NUMBER service SERVICE**

Set UART_NUMBER service to SERVICE. SERVICE value can be one of the following: Remote COM, TCP Socket, UDP Socket.

Example:

```
uart_service 1 service TCP Socket
```

- **uart_service UART_NUMBER port PORT_NUMBER**

Set UART_NUMBER port to PORT_NUMBER. PORT_NUMBER value can be any in the range: 1-65535.

Example:

```
uart_service 1 port 1501
```

- **uart_service UART_NUMBER enc ENC_STATE**

Set UART_NUMBER encryption to ENC_STATE. ENC_STATE can be only YES or NO.

Example:

```
uart_service 1 enc YES
```

If ENC_STATE is YES then it will ask for a new password for encryption.

Network settings

The following commands might be helpful to change network settings according to target LAN parameters.

- **ipconfig**

- **ipconfig addr ADDRESS**

Set IP address to ADDRESS.

Example:

```
ipconfig addr 192.168.0.10
```

- **ipconfig mask NETMASK**

Set subnet mask to NETMASK (in dot-decimal format).

Example:

```
ipconfig mask 255.255.255.0
```

- **ipconfig mask BIT_COUNT**

Set subnet mask to BIT_COUNT bits.

Example:

```
ipconfig mask 24
```

- **ipconfig gateway GATEWAY_IP**

Set network gateway to GATEWAY_IP.

Example:

```
ipconfig gateway 192.168.0.1
```

- **ipconfig dhcp enable/disable**

Enable or disable DHCP client.

Example:

```
ipconfig dhcp enable
```

- **ipconfig dns1 ADDRESS**

Set primary DNS to ADDRESS, disable getting DNS from DHCP if enabled.

Example:

```
ipconfig dns1 192.168.100.1
```

- **ipconfig dns2 ADDRESS**

Set secondary DNS to ADDRESS, disable getting DNS from DHCP if enabled.

Example:

```
ipconfig dns2 1.1.1.1
```

- **eth_mac**

- **eth_mac help**

Print the help message.

- **eth_mac default**

Set device's MAC address to factory-default one.

- **eth_mac set MAC_ADDR**

Set device's MAC address to MAC_ADDR. Accepts both dash and colon-separated formats.

Example:

```
eth_mac set 01-02-03-04-05-06
```

Example:

```
eth_mac set 01:02:03:04:05:06
```

- **http_port**

- **http_port help**

Print the help message.

- **http_port PORT_NUMBER**

Set http port to PORT_NUMBER. A PORT_NUMBER value must be in range: 1-65535.

Example:

```
http_port 80
```

- **http_port status**

Print current http port.

Example:

```
http_port status
```

A current http port is 80

- **telnet_port**

- **telnet_port help**

Print the help message.

- **telnet_port PORT_NUMBER**

Set Telnet port to PORT_NUMBER. A PORT_NUMBER value must be in range: 1-65535.

Example:

```
telnet_port 23
```

- **telnet_port status**

Print current Telnet port.

Example:

```
telnet_port status
```

A current telnet port is 23

Changing username or password

To change username or password, use user command. Available commands:

- **user help**

Print the help message.

- **user mod_name USER_NAME NEW_NAME**

Change the user name to NEW_NAME. It fails if the name is used by another user.

Example:

```
user mod_name admin john
```

- **user passwd USER_NAME**

Change USER_NAME's password.

Example:

```
user passwd admin
```

```
***** <- here is entered password, but '*' appears instead
```

Note: Everyone can change the password for themselves.

Service mode

Procedure to enter service mode for C20 - C22 converters

- Turn off the power of the device.
- Connect Ethernet converter to the dedicated USB/UART converter via the microUSB port.
- Connect the USB/UART converter to the PC.
- Open the serial console (default baud rate is 115200 bps).
- Press and hold the S1 button.
- Turn on the power.
- Wait until the ST indicator (red LED) lights up.
- Release the S1 button.
- If the process is successful, service commands can be typed into the terminal.

Procedure to enter service mode for C23 - C25 converters

- Install STM32 Virtual COM Port Driver (if it was not done before).
- Turn off the power of the device.
- Connect Ethernet converter directly to the PC (the dedicated USB/UART converter is not obligatory).
- Open the serial console (default baud rate is 115200 bps).
- Press and hold the S1 button.
- Turn on the power.
- Wait until the ST indicator (red LED) lights up.
- Release the S1 button.
- If the process is successful, service commands can be typed into the terminal.

List of commands in the service mode

Command	Description
help	Print the help.
credits	Print current credits value for this device.
dev_ident	Print the device identification value.
restart	Restart the system.
serial_num	Print the serial number of this device.
version	Display the bootloader version.
xmodem	Download image to the internal flash using xmodem.
defaults	Reset application variables to defaults.
ipconfig	Print or change the network configuration.
flash_read	Read bytes from flash memory.
md	Read bytes from memory address.

In the service mode, the “ipconfig” command can only show a last static IP address.

Factory reset

To restore default settings, type “defaults”. After that, user will be asked to type “default network” to reset the network settings as well. Then user will be informed if the process is successful.

Additional notes

In order to avoid issues like connecting to host, type “help” to get more information.

To get more details about every particular command, append “help” after each commands (example: "ipconfig help").

Redisage Configurator

RemoteCOM (C20 - C25)

Redisage Configurator is an app used to emulate connection between converter and a PC as if its RS232/RS485 ports would be connected directly to the COM port. The advantage of that functionality is lack of additional cables. Transmission can be tested over Ethernet. First connect the device to a local network using the Ethernet port and power it up. During the configuration process set "Service" to the RemoteCOM option on the "Ports" page.

While changing port service from RemoteCOM to TCP/UDP Socket make sure to disable RemoteCOM virtual port in the Redisage Configurator first.

[695bda65-74cf-4695-b478-e42bbd95c617.png](#)

Redisage VSP Driver

In order for Redisage Configurator to work properly, it is necessary to install the Redisage VSP Driver. It can be done with RedisageVSPDriver.Installer available for Windows.

[4e06a5a0-4a26-4fb3-b676-8b6d856b08d2.png](#)

Redisage Configurator

When the device is configured open the Redisage Configurator app.

[11350c46-7007-4fcb-add1-062c5c31ef21.png](#)

Use the "Add Device" button to set up a new connection with a device. On the right side there should be a list of available devices visible. Choose one of them or specify a custom COM port number, an IP address and a service port number.

While specifying a custom virtual COM make sure to use the same IP address and service port as set earlier in the port configuration.

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In order to establish a connection with a desired device use the “Enable” button. To end the connection use the “Disable” button. Service IP/hostname, service port and password can be modified at any time. There are also available 2 options of the encryption methods (none (disabled) or strong (AES-GCM 128-bit, Argon2)) and 5 options of the connection timeout (brief, short, fair, modest or lengthy). Changes have to be saved with “Save Changes” button.

434ace32-b439-47be-b821-da79cef2b770.png

There is also the “Settings” tab at the top of the window from where the Logging Directory or the Device Manager can be opened.

ae6fd1d6-457d-4da4-82bc-99785acd103f.png

If everything is connected properly there should be a new COM port available in the Device Manager. It is also possible to check it, for example, on the web page.

If any change is made to the port configuration, make sure to apply it with the “Save Changes” button.

Troubleshooting

If a discovered device cannot be added, check if it hadn't been added before with a different COM port / service port. In that case, delete previous configuration from the Redisage Configurator.

If that won't work, check if the port service was configured correctly for the RemoteCOM Service.

FAQ

RemoteCOM (C20 - C25)

How to obtain an IP address of the device?

The default static IP address of the device is **192.168.100.100**. However, if the DHCP option is set, it will be necessary to obtain the IP address from a local network. First of all, connect the device to the local network (for example via a network switch). The easiest way to find the IP address of the device is via the Serial Console. After a successful login use “ipconfig” command to print all the information about the Ethernet connection. The IP address should be shown there.

How to recover an access to the device after the password was lost?

The only option to reset the user’s password is to do a hard reset via the service mode in the Service Console. To restore default settings, including login and password, type “defaults” in the terminal. Now the default credentials are:

- login: **admin**
- password: **admin123**

I cannot set up the virtual COM through the Redisage Configurator app. What should I do?

If in the Redisage Configurator a discovered device cannot be added, check if it hadn’t been added before with a different COM port / service port. In that case, delete previous configuration from the Redisage Configurator. If that won’t work, check if the port service was configured correctly for the RemoteCOM Service.

How to check if the device is configured correctly?

The device's status can be checked on the "Status" page of the configuration website. If a connection with the device is established, there should be a corresponded label visible ("Server is starting...", "Waiting for connection" or "Client connected!").

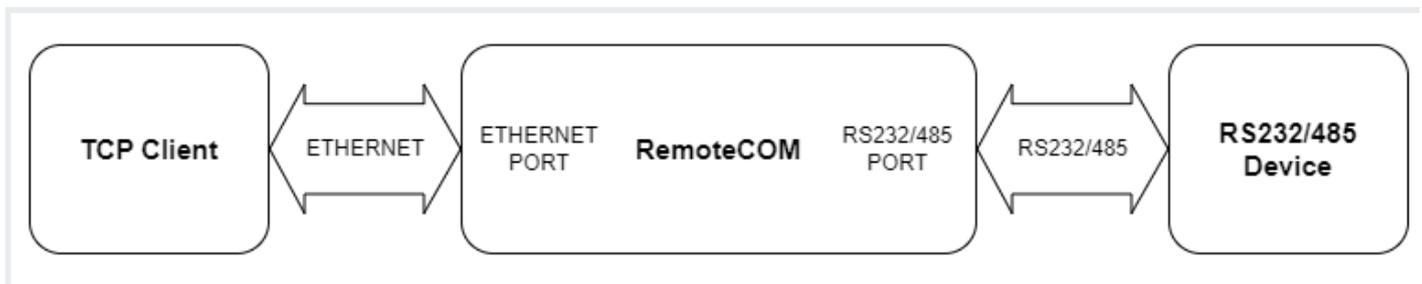
Modes of Operation

RemoteCOM (C20 - C25)

TCP Socket Mode

RemoteCOM (C20 - C25)

This article presents a simple instruction of a first connection between a TCP client and a RS232/485 device through the RemoteCOM. Firstly, connect the RemoteCOM according to the diagram below.



Then, it is necessary to configure the RemoteCOM's ports. It can be done, for example, via the device's web page. Ports' configuration can be also done via the Telnet, serial or service console. Set the **"TCP Socket"** option in the "Service" field on the "Port" page. Check also if the port number is set correctly in the "Port" field. Set desired options of the RS232/485 connection ("Baud Rate", "Data Bits", "Parity", "Stop Bits" - these options should be the same as in the RS232/485 device).

[518960b3-054f-491f-afab-5ad319c53274.png](#)

Now, the device should be ready to work. Once the TCP Client creates a TCP socket, the bidirectional communication should be available.

Test connection

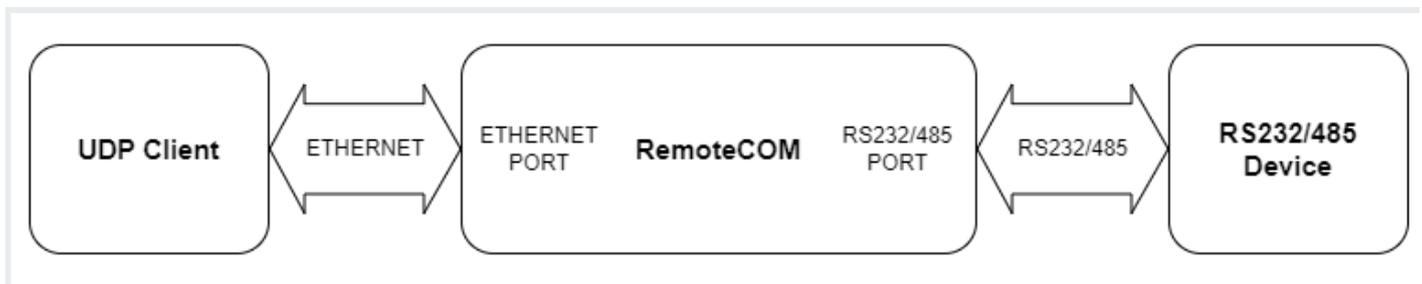
Connection can be easily tested with a USB-RS232/485 converter and [Hercules Setup Utility](#) software. Connect the RemoteCOM's RS232/485 port to the USB-RS232/485 converter and plug it in to the USB port of a PC. Open Hercules Setup Utility program and go to the "Serial" page. Set serial connection options according to the previous RemoteCOM's ports configuration and open the COM port. Then, go to the "TCP Client" page and set the device's IP address and port. After a successful connection, there should be the bidirectional communication available.

[df091a6c-b716-4a25-800a-123a10bcb250.png](#)

UDP Socket Mode

RemoteCOM (C20 - C25)

This article presents a simple instruction of a first connection between a UDP client and a RS232/485 device through the RemoteCOM. Firstly, connect the RemoteCOM according to the diagram below.



Then, it is necessary to configure the RemoteCOM's ports. It can be done, for example, via the device's web page. Ports' configuration can be also done via the Telnet, serial or service console. Set the "UDP Socket" option in the "Service" field on the "Port" page. Check also if the port number is set correctly in the "Port" field. Set desired options of the RS232/485 connection ("Baud Rate", "Data Bits", "Parity", "Stop Bits" - these options should be the same as in the RS232/485 device).

[63525652-3521-4885-aa5a-6af998d9a2d0.png](#)

Now, the device should be ready to work. The bidirectional communication should be available after the device receiving a first message from the UDP client. Before that happens, all of the data sent from the device to the UDP client will be buffered and sent later.

Test connection

Connection can be easily tested with a USB-RS232/485 converter and [Hercules Setup Utility](#) software. Connect the RemoteCOM's RS232/485 port to the USB-RS232/485 converter and plug it in to a USB port of a PC. Open Hercules Setup Utility program and go to the "Serial" page. Set serial connection options according to the previous RemoteCOM's ports configuration and open the COM port. Then, go to the "UDP" page and set the device's IP address and port. The bidirectional communication should be available after the device receiving a first message from the UDP client. Before that happens, all of the data sent from the device to the UDP client will be buffered and sent

later.

[c14dca73-45f9-419f-8a05-adfe46536a19.png](#)

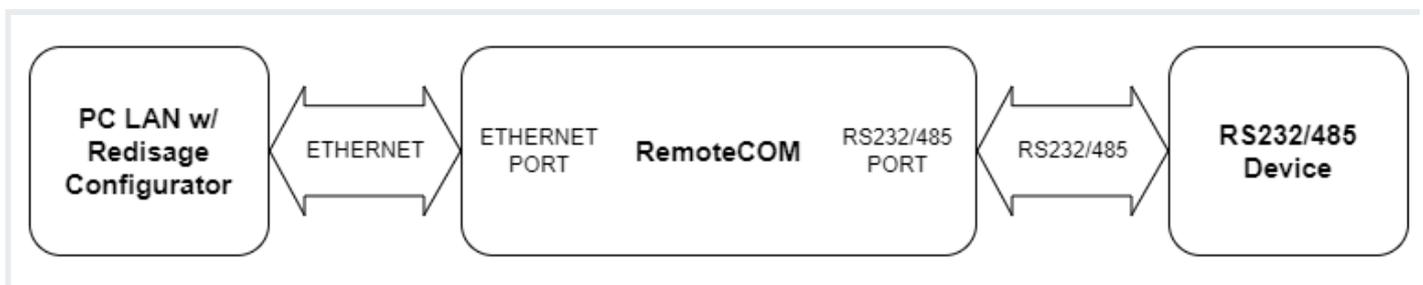
Redisage Configurator

Virtual COM Mode

RemoteCOM (C20 - C25)

This article presents a simple instruction of a first connection between a virtual COM port and a RS232/485 device through the RemoteCOM and the Redisage Configurator app. Redisage Configurator is used to emulate connection between converter and a PC as if its RS232/RS485 ports would be connected directly to the COM port. The advantage of that functionality is lack of additional cables. Redisage Configurator can be installed on Windows machine and requires the Redisage VSP Driver to work (it can be installed with RedisageVSPDriver.Installer).

In order to perform a setup, connect the RemoteCOM according to the diagram below (RemoteCOM should be connected via Ethernet to the same local network as the PC).



Then, it is necessary to configure the RemoteCOM's ports. It can be done, for example, via the device's web page. Ports' configuration can be also done via Telnet, serial or service console. Set the "RemoteCOM" option in the "Service" field on the "Port" page. Check also if the port number is set correctly in the "Port" field. Additionally, encryption can be set to increase the security (it will also require to set up a password).

[6f9c3d38-2582-4c34-ad2d-ab836d769687.png](#)

Next, open the Redisage Configurator and click the "Add Device..." button. Available RemoteCOM's ports should appear on the list. Choose the desired one and click the "Add" button.

[d3ba1f43-7a53-44d4-832a-bd1f94849812.png](#)



If a discovered device cannot be added, check if it hadn't been added before with a different COM port / service port. In that case, delete previous configuration from the Redisage Configurator.

If that won't work, check if the port service was configured correctly for the RemoteCOM Service.

Enable the virtual COM port with the "Save changes" button. If a password was set during the configuration, it will be necessary to type it into the "Password" field.



Now, the device should be ready to work. The bidirectional communication should be available from the start. It is possible to check if created virtual COM port is present in the system. Just go to the "Settings" page and choose "Open Device Manager" button. There should be a "Redisage" COM visible.



Test connection

Connection can be easily tested with a USB-RS232/485 converter and [Hercules Setup Utility](#) software. Connect the RemoteCOM's RS232/485 port to the USB-RS232/485 converter and plug it in to a USB port of a PC. Open 2 instances of Hercules Setup Utility program and go to the "Serial" page of the first one. Set serial connection options according to the previous RemoteCOM's ports configuration and open the COM port (fixed options: Baud Rate 115200; Data Bits: 8; Parity: None; Stop Bits: 1).

Then, go to the "Serial" page of the second Hercules instance and set the virtual COM port in the same way as the serial port of the first Hercules instance. After a successful connection, there should be the bidirectional communication available.



While changing port service back from RemoteCOM to TCP/UDP Socket make sure to disable RemoteCOM virtual port in the Redisage Configurator first.

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Common Resources

Source of common resources used across the RemoteCOM documentation

Tables

Specifications

Redisage PN		C20	C21	C22	C23	C24	C25
Ports	RS232	2x	-	-	4x	-	2x
	RS485	-	1x	-	-	4x	2x
	RS232/RS485	-	-	2x	-	-	-
Microcontroller		ESP32			STM32F4		
WiFi		N/A					
Power	Voltage	12-30 VDC					
	Power	< 1 W					
Frame ground connection		yes					
Baud rate		up to 115200 bps					
LED indicators		communication Tx, Rx and power					
RS485 termination		120 ohm manually enabled					
Connector	RS232/RS485	8-pin terminal block max. 2.5 mm ² wire					
	Power	3-pin terminal block max. 2.5 mm ² wire					
	Ethernet	RJ45					

Redisage PN		C20	C21	C22	C23	C24	C25
Transmission distance	RS485	max. 1,200 m at 9.6 kbps; max. 400 m at 115.2 kbps (Belden 9841 2P twisted-pair cable, if different cables are used, the transmission distance may change)					
	RS232	max. 15 m at 115.2 kbps					
Mounting and enclosure		DIN rail, plastic PA - UL 94 V0, black/green					
Temperatures		-40°C to +75°C operating and storage					
Humidity		10 - 90% RH, non-condensing					
ESD protection		±4 kV contact discharge / ±8 kV air discharge					
Certification		CE, RoHS					

Pin assignments

C20	C21
	
C22	C23
	
C24	C25
	

Configuration by the Web Page

Ports page

Item		Description
Service	RemoteCOM	The RemoteCOM option lets to attach the port to a computer running the Redisage Configurator as if it would be physically present in the computer.
	TCP Socket	TCP/UDP Socket exposes this port as a regular network socket - connect to this socket with own software and write/read data to send/receive data over the serial port without any additional software or serial port handling.
	UDP Socket	
Port		The service number - the device has an "IP Address" by which it is identified and a couple of services running on it. It's required to tell the device which service should be in use by entering this device's IP address and the port number in the RemoteCOM client or user's software.
Connection Timeout [s]		The time specifying how often (every how many seconds) the "keep alive" packet will be sent to check if the client is still connected. Value 0 means that the connection is kept permanently without any timeout.
Inactivity Time [ms]		The maximum allowed time in milliseconds during which there is no data transfer. When connection is inactive for the time longer or equal to the entered value, then it will be closed. Value 0 means there is no measure of the inactivity time at all.
Encryption		Determine how the data is protected 'in flight' over a network. It is available only with the RemoteCOM service. Once enabled, it is necessary to set the password.

Item	Description
Password	Protect the communication between the device and various clients - keep it secret! Same settings have to appear in clients - without the correct passwords, a client will not be able to connect at all.
Termination	Enable/disable termination on the RS line.
Baud Rate	Determine the port's transmission speed over the data channel.
Data Bits	Determine the number of data bits in the port's message frame.
Parity	Enable/disable parity check in the port's message frame.
Stop Bits	Determine the number of stop bits in the port's message frame.
Notes	These notes are for information only - feel free to write down anything related to this port (device it connects to, etc.). They're also shown in the Configurator during the device discovery - in the other words, they're public.

Network page

Item	Description
Configuration Method	Enable/disable the DHCP server. If the DHCP server is disabled, the IP address of the device has to be set manually.
IP Address	IP address of the device.
Netmask	Netmask associated with the IP address.
Gateway	Gateway address currently used by the device.
MAC Settings	Allow setting the default MAC address or typing it manually.
MAC Address	Allow changing the physical address of the device.

Item	Description
HTTP Port	Determine the port of the control panel.
Telnet Port	Allow connection with the device via Telnet.
Broadcasts	Notify RemoteCOM clients in the same network about this device's existence. With this enabled, the Configurator will automatically set most of the settings correctly after picking the correct port.
Hostname	Label that is assigned to the device.
DNS Address 1 (Primary)	Primary Domain Name System used by the device.
DNS Address 2	Domain Name System used by the device.

Device page

Item	Description
Firmware Update	Update firmware.
Factory Reset	Restore default ports settings and default network configuration.
Reboot	Reboot the device.

Configuration by the Serial Console

List of all commands

Command	Description
help	Print the help.
conn	Print active TCP connections.
eth_mac	Print or change MAC address.
exit	Close current CLI session.
http_port	Print or change default http port.
ipconfig	Print or change the network configuration.
net_stat	Print lwIP statistics.
ping	Check internet connection with the desired host.
restart	Restart the system.

Command	Description
reboot	Same as restart.
sys_heap_usage	Print current heap usage.
telnet_port	Print or change default telnet port.
uart	Print or change uart configuration.
uart_service	Print or change uart_service configuration.
user	Print or change user configuration.

List of commands in the service mode

Command	Description
help	Print the help.
credits	Print current credits value for this device.
dev_ident	Print the device identification value.
restart	Restart the system.
serial_num	Print the serial number of this device.
version	Display the bootloader version.
xmodem	Download image to the internal flash using xmodem.
defaults	Reset application variables to defaults.
ipconfig	Print or change the network configuration.
flash_read	Read bytes from flash memory.
md	Read bytes from memory address.

In the service mode, the “ipconfig” command can only show a last static IP address.

Commands

Ports configuration commands

In terms of ports configuration it is possible to change parameters like: service, baud rate, data bits, parity, stop bits and so on. UART commands are provided below.

- **uart**

- **uart help**

Print the help message.

- **uart list**

List available uarts in the system.

Example:

```
uart list
```

```
0: baud: 9600 bits: 8 stop_bits: 1 parity: none (service console)
```

```
1: baud: 115200 bits: 8 stop_bits: 2 parity: odd (covered by cons.)
```

```
2: baud: 9600 bits: 8 stop_bits: 1 parity: none
```

```
3: baud: 1200 bits: 8 stop_bits: 2 parity: even termination: ON (R-COM)
```

```
3: baud: 38400 bits: 8 stop_bits: 2 parity: none termination: OFF
```

- **uart PORT_NUMBER baud BAUD**

Set PORT_NUMBER baudrate to BAUD. BAUD value can be one of the following: 2400, 4800, 9600, 14400, 19200, 38400, 57600, 115200.

Example:

```
uart 1 baud 9600
```

WARNING: UART covered by console. Changes will take place after the reset.

- **uart PORT_NUMBER bits BITS**

Set bit length to BITS. BITS value can be one only 8.

Example:

```
uart 2 bits 8
```

- **uart PORT_NUMBER stop_bits STOP_BITS**

Set stop_bits length to STOP_BITS. STOP_BITS value can be only 1 or 2.

Example:

uart 2 stop_bits 1

- **uart PORT_NUMBER parity PARITY**

Set uart parity to PARITY. PARITY value can be one of the following: none, odd, even.

Example:

uart 3 parity even

- **uart PORT_NUMBER termination STATE**

Set uart termination to new STATE. STATE can be only ON or OFF.

Example:

uart 3 termination ON

- **uart_service**

- **uart_service help**

Print the help message.

- **uart_service list**

List of uarts services status.

Example:

uart_service list

1 state: ON service: Remote COM port: 1504 enc: YES

2 state: OFF service: TCP Socket port: 1510

3 state: OFF service: UDP Socket port: 1510

- **uart_service UART_NUMBER state STATE**

Set UART_NUMBER state to STATE. STATE value can be only ON or OFF.

Example:

uart_service 1 state ON

- **uart_service UART_NUMBER service SERVICE**

Set UART_NUMBER service to SERVICE. SERVICE value can be one of the following: Remote COM, TCP Socket, UDP Socket.

Example:

uart_service 1 service TCP Socket

- **uart_service UART_NUMBER port PORT_NUMBER**

Set UART_NUMBER port to PORT_NUMBER. PORT_NUMBER value can be any in the range: 1-65535.

Example:

```
uart_service 1 port 1501
```

- **uart_service UART_NUMBER enc ENC_STATE**

Set UART_NUMBER encryption to ENC_STATE. ENC_STATE can be only YES or NO.

Example:

```
uart_service 1 enc YES
```

If ENC_STATE is YES then it will ask for a new password for encryption.

Network settings

The following commands might be helpful to change network settings according to target LAN parameters.

- **ipconfig**

- **ipconfig addr ADDRESS**

Set IP address to ADDRESS.

Example:

```
ipconfig addr 192.168.0.10
```

- **ipconfig mask NETMASK**

Set subnet mask to NETMASK (in dot-decimal format).

Example:

```
ipconfig mask 255.255.255.0
```

- **ipconfig mask BIT_COUNT**

Set subnet mask to BIT_COUNT bits.

Example:

```
ipconfig mask 24
```

- **ipconfig gateway GATEWAY_IP**
Set network gateway to GATEWAY_IP.

Example:

```
ipconfig gateway 192.168.0.1
```

- **ipconfig dhcp enable/disable**
Enable or disable DHCP client.

Example:

```
ipconfig dhcp enable
```

- **ipconfig dns1 ADDRESS**
Set primary DNS to ADDRESS, disable getting DNS from DHCP if enabled.

Example:

```
ipconfig dns1 192.168.100.1
```

- **ipconfig dns2 ADDRESS**
Set secondary DNS to ADDRESS, disable getting DNS from DHCP if enabled.

Example:

```
ipconfig dns2 1.1.1.1
```

- **eth_mac**

- **eth_mac help**
Print the help message.

- **eth_mac default**
Set device's MAC address to factory-default one.

- **eth_mac set MAC_ADDR**
Set device's MAC address to MAC_ADDR. Accepts both dash and colon-separated formats.

Example:

```
eth_mac set 01-02-03-04-05-06
```

Example:

```
eth_mac set 01:02:03:04:05:06
```

- **http_port**

- **http_port help**
Print the help message.

- **http_port PORT_NUMBER**

Set http port to PORT_NUMBER. A PORT_NUMBER value must be in range: 1-65535.

Example:

```
http_port 80
```

- **http_port status**

Print current http port.

Example:

```
http_port status
```

A current http port is 80

- **telnet_port**

- **telnet_port help**

Print the help message.

- **telnet_port PORT_NUMBER**

Set Telnet port to PORT_NUMBER. A PORT_NUMBER value must be in range: 1-65535.

Example:

```
telnet_port 23
```

- **telnet_port status**

Print current Telnet port.

Example:

```
telnet_port status
```

A current telnet port is 23

Changing username or password

To change username or password, use user command. Available commands:

- **user help**

Print the help message.

- **user mod_name USER_NAME NEW_NAME**

Change the user name to NEW_NAME. It fails if the name is used by another user.

Example:

```
user mod_name admin john
```

- **user passwd USER_NAME**

Change USER_NAME's password.

Example:

```
user passwd admin
```

```
***** <- here is entered password, but '*' appears instead
```

Note: Everyone can change the password for themselves.

Procedures

Configuration by the Serial Console

Procedure to enter serial console mode on C20 - C22

- Turn off the power of the device.
- Connect the PC to the C1 micro-USB port of Ethernet converter using the dedicated USB/UART converter.
- Open the serial console (default baud rate is 115200 bps).
- Press and hold the S1 button (or connect Din pin to GND pin if the button is not mounted).
- Turn on the power and wait a few seconds until the **orange** LED lights up.
- Release the button (or disconnect Din pin from GND pin).

Procedure to enter serial console mode on C23 - C25

- Install STM32 Virtual COM Port Driver.
- Turn off the power of the device.
- Connect the PC to the C1 micro-USB port using the USB cable (or use the dedicated USB/UART converter).
- Open the serial console (default baud rate is 115200 bps).
- Press and hold the S1 button.
- Turn on the power and wait a few seconds until the **yellow** CN LED lights up.
- Release the button (or disconnect Din pin from GND pin).

Redisage Configurator

Configuration procedure

- Change the device port service to the RemoteCOM.
- Set up a port number.
- Enable or disable encryption.
- If encryption is enabled create a password.
- In the Redisage Configurator click add the device and then set the COM number and the service port.
- If encryption is enabled enter a password.
- Click save changes.

- Connect to the configured serial COM port via terminal software.

Service mode

Procedure to enter service mode for C20 - C22 converters

- Turn off the power of the device.
- Connect Ethernet converter to the dedicated USB/UART converter via the microUSB port.
- Connect the USB/UART converter to the PC.
- Open the serial console (default baud rate is 115200 bps).
- Press and hold the S1 button.
- Turn on the power.
- Wait until the ST indicator (**red** LED) lights up.
- Release the S1 button.
- If the process is successful, service commands can be typed into the terminal.

Procedure to enter service mode for C23 - C25 converters

- Install STM32 Virtual COM Port Driver (if it was not done before).
- Turn off the power of the device.
- Connect Ethernet converter directly to the PC (the dedicated USB/UART converter is not obligatory).
- Open the serial console (default baud rate is 115200 bps).
- Press and hold the S1 button.
- Turn on the power.
- Wait until the ST indicator (**red** LED) lights up.
- Release the S1 button.
- If the process is successful, service commands can be typed into the terminal.

Introduction

RemoteCOM (C20 - C25)

RemoteCOM is a complete hardware and software solution for creating remote communication ports. The software part can be uploaded to any of the Redisage C20 - C25 Ethernet Converters. It provides a communication between a LAN host and a device equipped with RS232/RS485 serial interfaces. A dedicated app makes it easy and fast to configure and deploy. There is a possibility to create virtual COM ports with the Redisage Configurator to minimize number of cables.