CU-E57C

CU-E57C-ETH

Technical Data & Product User Manual

Date: March 2024
File name: User Manual & Technical Data_CU-E57C-ETH_240322.docx
Confidential

Revision history

Version	Date	Comments
1.0	20.03.2024	First release
1.1	22.03.2024	Up-issue with refined configuration section and worked example.

Table of contents

About this document

Range of validity

The present manual applies to the **E57C Ethernet [ETH]** communication module.

Purpose

The user manual contains all the information required for metering applications for the intended purpose. This includes:

- Provision of knowledge concerning the characteristics, construction, and function of the product.
- Information about potential dangers, their consequences, and measures to prevent any danger.
- Details about the performance of all activities throughout the service life of the product (including parameterisation, installation, commissioning, operation, maintenance, decommissioning, and disposal).

Target group

The content of this user manual is intended for technically qualified personnel of energy supply companies, responsible for system planning, installation and commissioning, operation, maintenance, decommissioning, and disposal of the product.

Reference documents

The following documents provide further information related to the subject of this document:

- “Comander_Connect” Application User Manual

1 Safety

1.1 Safety information

The following symbols are used to draw your attention to the relevant danger level, i.e. the severity and probability of any danger, in the individual sections of this document.

Warning
Used to indicate a dangerous situation that could cause bodily injury or death.

Caution
Used to indicate a situation/ action that could result in material damage or loss of data.

Note
Used to indicate general guidelines and other useful information.

In addition to the danger level, safety information also describes the type and source of the danger, its possible consequences, and measures for avoiding the danger.

1.2 Responsibilities

The owner of the product described by this manual – usually the utility company – is responsible for assuring that all persons engaged in working with product:

- Have read and understood the relevant sections of the user manual.
- Are appropriately qualified for the work to be performed.
- Strictly observe the safety regulations (laid down in section *1.3 "*Safety regulations*"*) and the operating instructions as specified in the individual sections.

In particular, the owner of the product bears responsibility for the protection of persons, prevention of material damage and the training of personnel.

For this purpose, Landis+Gyr provides training on a variety of products and solutions. Contact your local Landis+Gyr representative for more information.

1.3 Safety regulations

The following safety regulations must be observed at all times:

- The meter connections must be disconnected from all voltage sources during installation [of the meter and/or E57C communication unit] or when opening any covers.
- Contact with live parts can be fatal. The main fuses should, therefore, be removed and kept in a safe place until the work is completed so that another person cannot replace them unnoticed.
- Local safety regulations must be observed. Only technically qualified and appropriately trained personnel are authorized to install the product.
- Only appropriate tools shall be used for the job. This means, e.g., that the screwdriver must be of the correct size for the screws, and the handle of the screwdriver must be insulated.
- The product must be held securely during installation. They can cause injuries if dropped.
- Products that have been dropped must not be installed, even if no damage is apparent, but must be returned to the service and repair department (or the manufacturer) for testing. Internal damage may result in malfunctions or short-circuits.
- The product must never be cleaned under running water or with compressed air. Water ingress can cause short-circuits.

2 Description of unit

The CU-E57C-ETH device is an E57C communication module that enables an Ethernet interface to a Landis+Gyr E570 meter.

The E57C ETH communication module supports two-way data transmission between the electricity meter in which it is installed, and a suitably capable device connected to the Ethernet interface.

2.1 Functional overview

The unit supports two-way data transmission between the electricity meter and a device connected to the Ethernet interface. It suited to work with Landis+Gyr E570 meters in terms of:

- Physical properties, signals, meter interface and communication protocols,
- Authentication mechanism,
- Power,
- Housing structure,
- Location of connectors and installation method (in the dedicated slot of the meter).

2.2 Type designation

The E57C ETH variant has the part number P000410660.

2.3 Technical details

CASE	
Dimensions	Made of plastic, designed to be mounted into terminal slot of the meter.
Level of protection	After installation, no worse than the degree of protection of the meter. The housing prevents access to the internal components of the modem.
Operating temperature	-30°C ÷ +70°C
Humidity	20 – 90% (non-condensing)
POWER CONSUMPTION	
AC (Power supply parameters)	3,8 V DC, max 200mA
Maximum power consumption	0.76W
INTERFACES	
Meter interface	UART, dedicated meter connector
Ethernet interface	RJ45

2.4 E570 Meter compatibility

The CU-E57C-ETH device is compatible with the point-to-point E570 meter types ZMY/ZFY405CW1 and ZMY/ZFY410CW1 at these firmware levels onwards:

- FW V84.14.15
- FW V84.18.19

3 Mechanical construction and user interface

The communication unit is equipped with the connectors described below. Access to the internal power supply and communication interfaces is not possible from the outside after the communication unit is installed in the E570 and secured with a mounting seal.

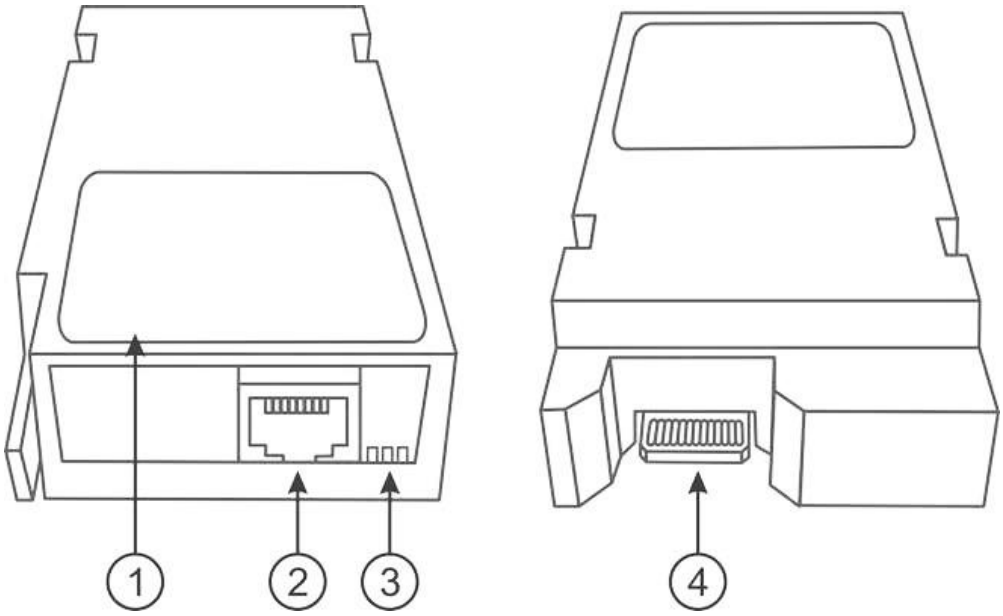


Figure 1. Arrangement of connectors and indicators of the device

1. Device nameplate,
2. Ethernet interface at an RJ45 socket,
3. LED indicators
4. UART interface and communication unit power supply.

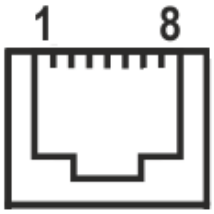
The LED indicators [3] are used to show [L to R]:

LED	Colour	State		
		Off	Flashing	On
LK/ACT 10		No connection	Data transfer	Connected at 10Mb/s
LK/ACT 100		No connection	Data transfer	Connected at 100Mb/s
Power		No power	-	Powered

3.1 Ethernet interface

The unit provides an Ethernet interface according to the T568 A/B standard. Access to the Ethernet interface is via an RJ45 socket.

Pin allocation of the RJ45 socket:



Pin	Description
1	Transmit+
2	Transmit-
3	Receive+
4	Not connected
5	Not connected
6	Receive-
7	Not connected
8	Not connected

3.2 Device nameplate

The unit nameplate includes:

- A master barcode which contains:
  - module type (5 chars),
  - serial number (8 chars),
  - production date (2 chars), and
  - check digit (1 char),
- Module name,
- Manufacturers name,
- Serial number with a barcode,
- MAC address,
- Part number,
- Supply and interface information,
- Year and place of production,
- CE and WEEE symbols

4 Installation

The CU-E57C-ETH device is equipped with a dedicated communication interface for interoperation with a Landis+Gyr E570 meter. This interface is engaged when the E57C is physically installed into a suitable E570 meter.

4.1 Installing the E57C ETH communication unit in the meter's terminal slot

Installation of the E57C ETH communication unit in the E570's communication unit slot should be started with making sure that the RJ45 socket will be visible after installation. Insert the E57C into the E570 slot as shown in the photo below.

Figure 2. The unit inserted inside the meter's terminal slot.

Then, gently push the device until the mounting clip locks the E57C, as shown in the illustration below.

Figure 3. The unit properly secured by mounting clip.

5 Operation

5.1 Configuring the communication unit

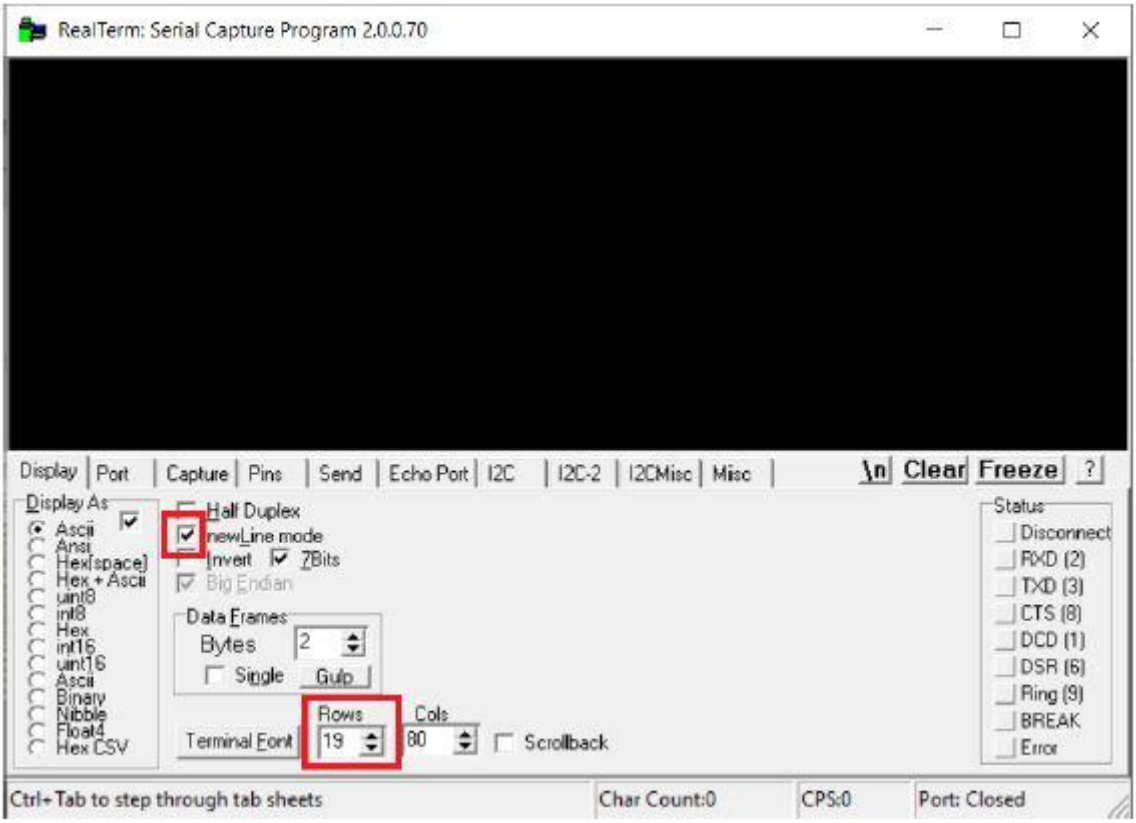
The CU-E57C-ETH device must be configured to operate in a TCP/IP network.

The dedicated software support tool “Comander_Connect” can be used to create an appropriate unit specific configuration but so to can any command line terminal application. The instructions below are prepared with (and show the use of) *RealTerm: Serial Capture Program 2.0.0.70* (referred to subsequently as *RealTerm*).

5.1.1 Start *RealTerm* application and configure the view

In the “Display” tab:

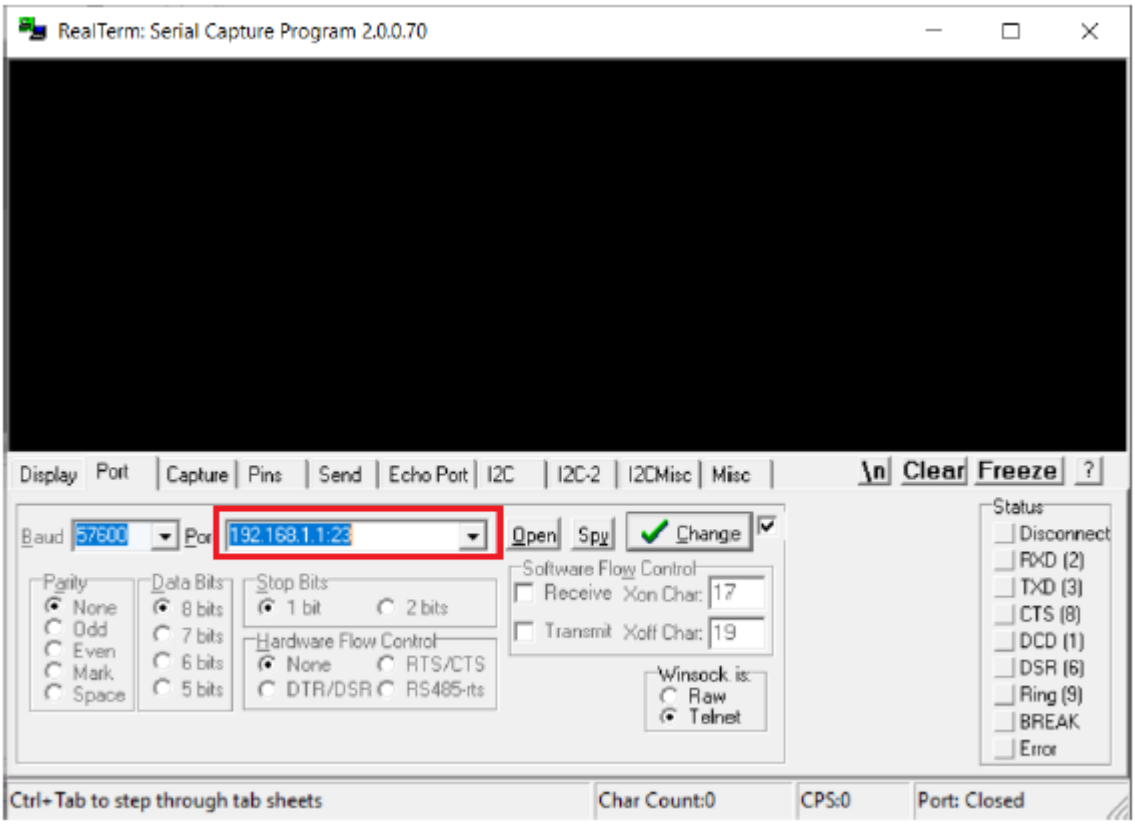
1. Check the “newline mode” checkbox.
2. Set the number of rows displayed by the terminal (which might need adjustment if responses from the device do not fit on the screen)



5.1.2 Enter the IP address of the device

In the ”Port” tab:

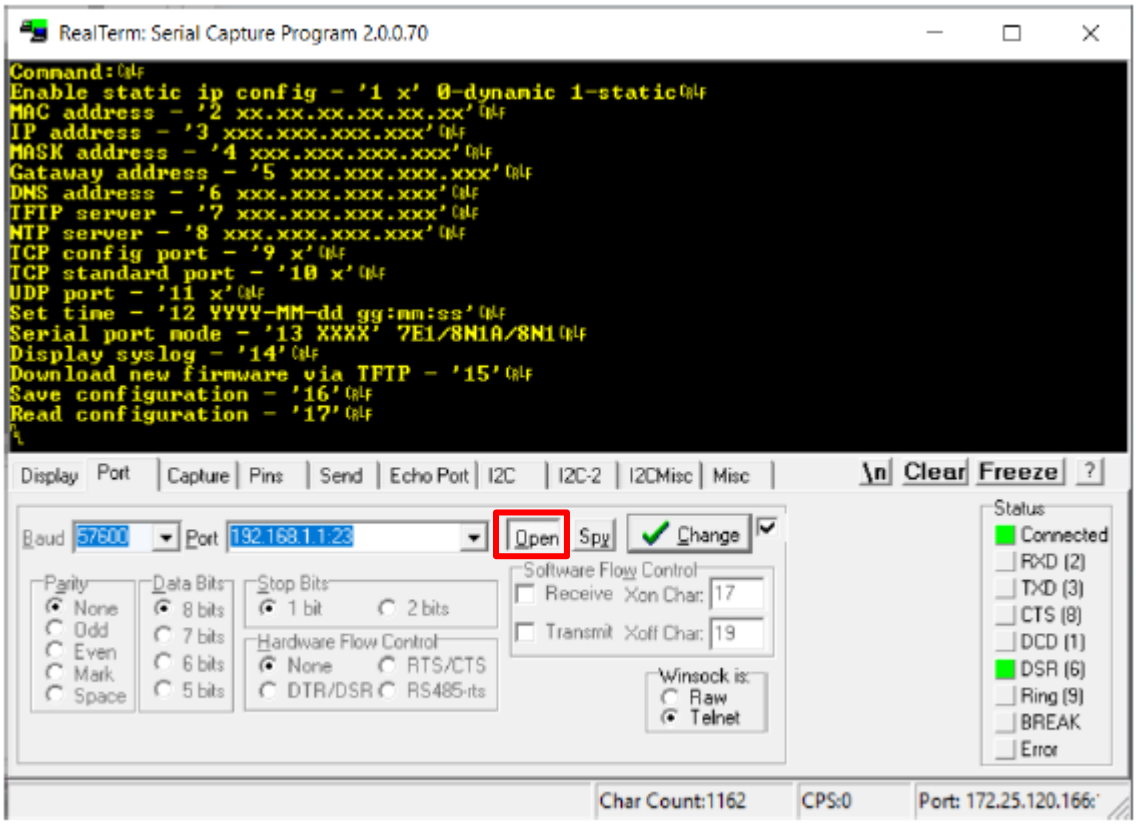
1. Enter the IP address of the communication unit. The default IP address is 192.168.1.1:23



5.1.3 Connect to the device

In the ”Port” tab:

1. Click the “Open” button to establish a connection to the communication unity. A configuration menu is displayed when connected.
2. The status of the connection between *RealTerm* and the E57C CU is shown on the right-hand side.



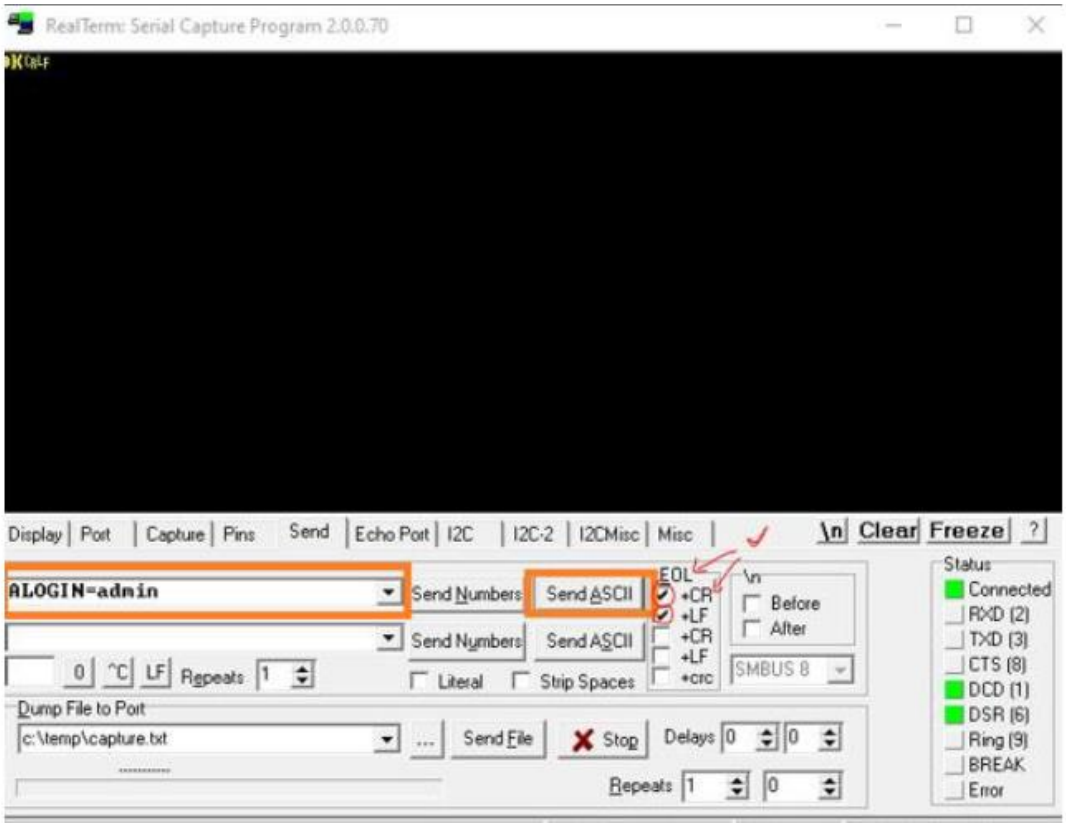
5.1.4 Configuration of the device

5.1.4.1 Log-in and Reading Device Parameters

After connecting to the E57C communication unit successfully use the “send” tab for further action.

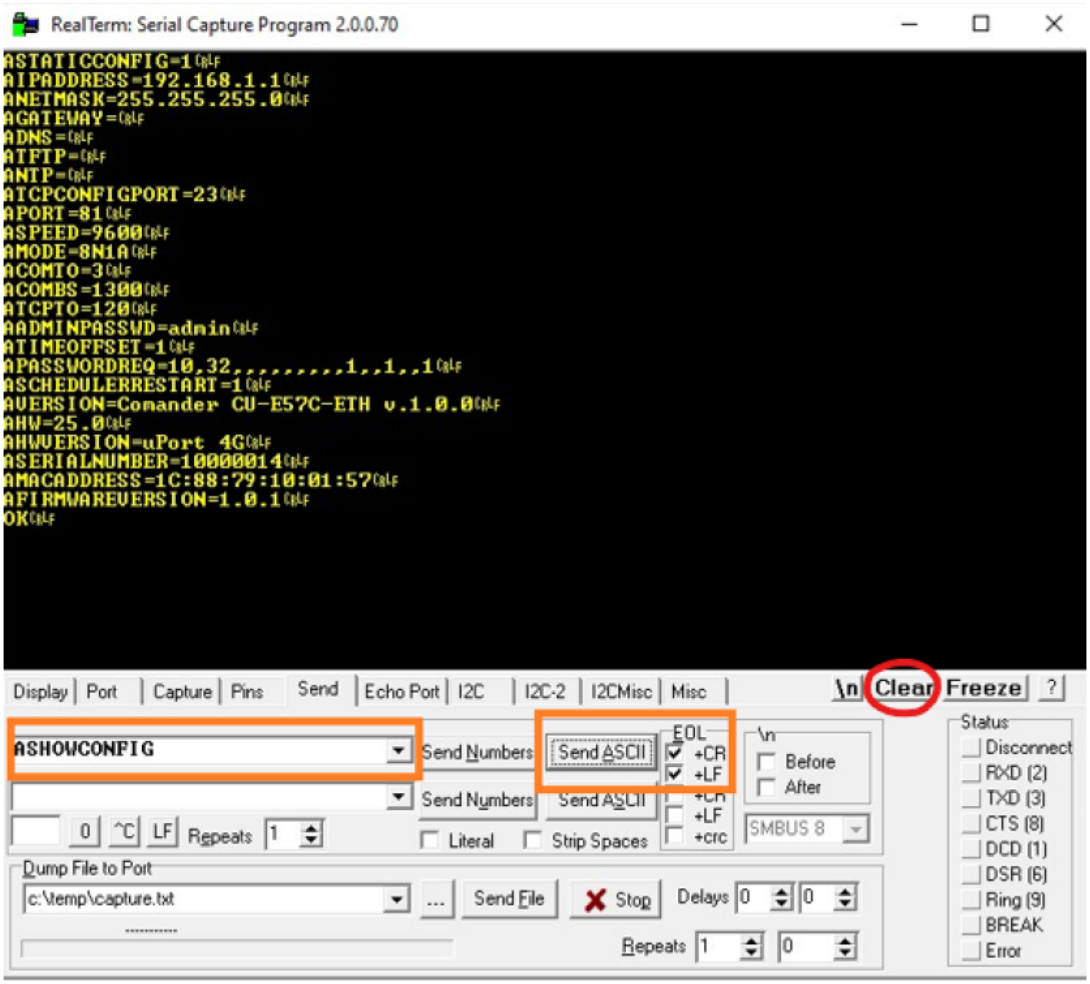
In the ”Send” tab:

1. Mark [tick] both “+CR” and “+LF” checkboxes.
2. Log into the device by typing “ALOGIN=admin” and execute the command by pressing the “Send ASCII” button as shown below:



As shown above an “OK_{CRLF}” response will indicate a successful log-in.

3. After successfully logging into the device type “ASHOWCONFIG” and execute the command by pressing the “Send ASCII” button. The current parameter settings of the E57C will be shown in *RealTerm* as shown below:



Some of these parameters are read only, for example:

AVERSION	Read device type [read only]
AHW	Read HW type [read only]
AHWVERSION	Read HW version [read only]
ASERIALNUMBER	Read serial number [read only]
AMACADDRESS	Read MAC address [read only]
AFIRMWAREVERSION	Read FW version [read only]

Some of these parameters can be modified using commands as described in the next section.

Before modifying any given parameter, it is recommended to clear the window terminal to see the next steps better. This button is found on the righthand side of window.

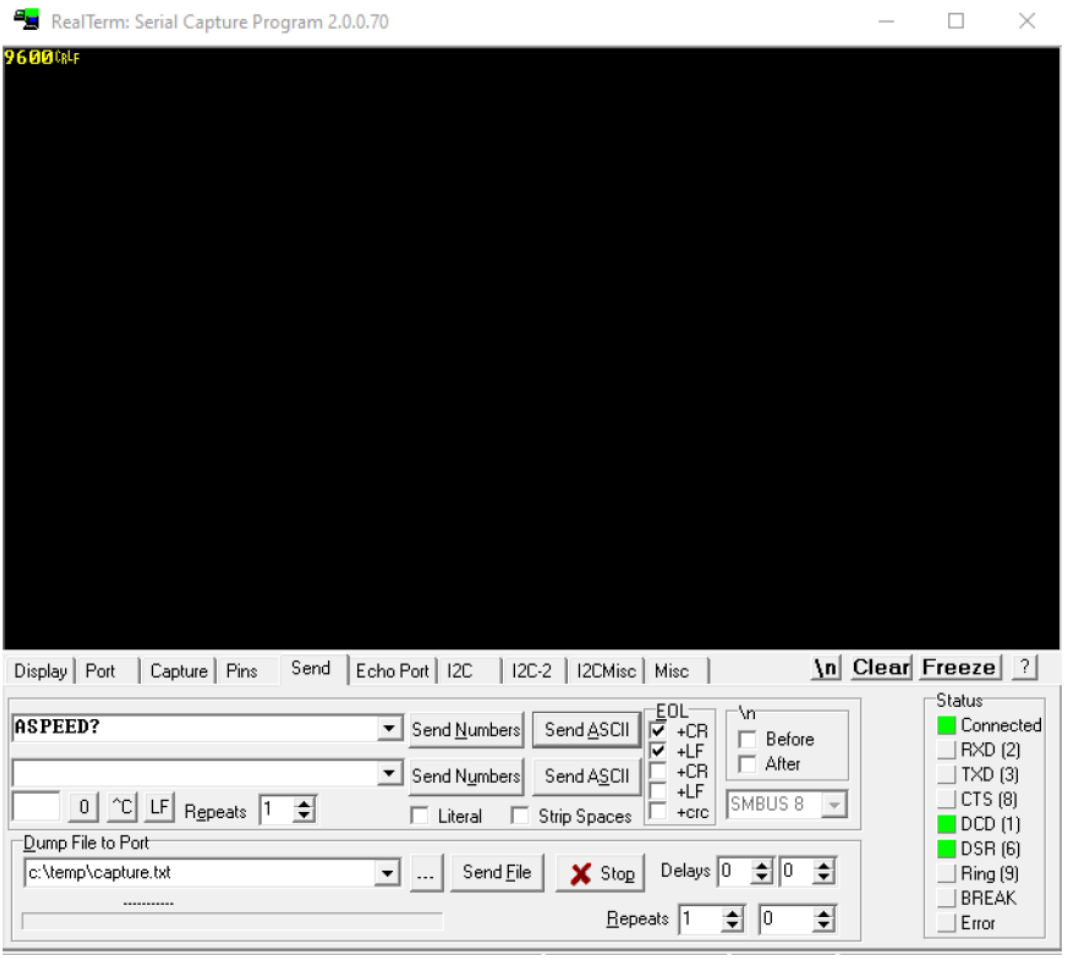
5.1.4.2 Writing Device Parameters

These parameters can be modified in *RealTerm*:

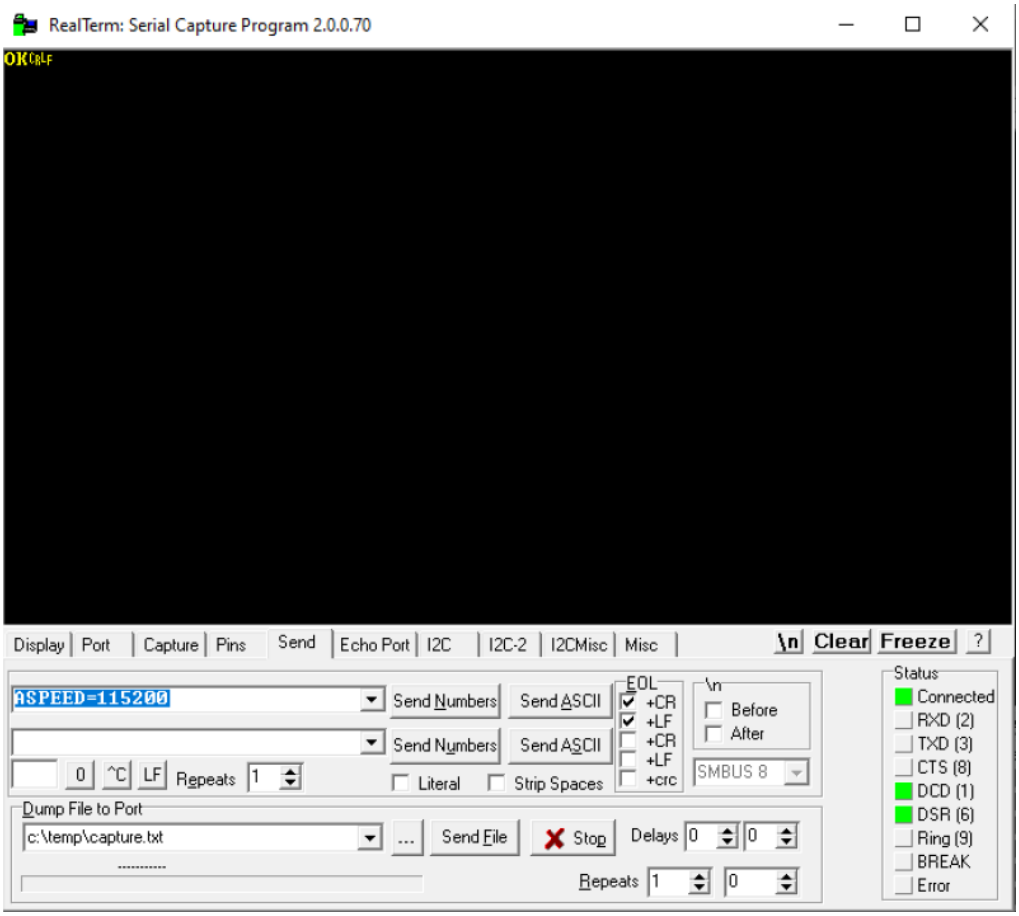
ASTATICCONFIG	1 = Setting “1” enables a static IP address configuration 0 = Setting “0” enables DHCP configuration of the CU IP address
AIPADDRESS	Read/Write IP address
ANETMASK	Read/Write MASK address
AGATEWAY	Read/Write Gateway address
ADNS	Read/Write Domain Name Server address
ATFTP	Read/Write TFTP server address
ANTP	Read/Write NTP server address
AICPCONFIGPORT	Read/Write Administration IP port
APORT	Read/Write Meter reading port
ASPEED	Read/Write baud rate of the CU/meter interface
AMODE	Read/Write interface mode of the CU/meter interface: • 8N1A • 8N1 • 7E1 • 8E1
AADMINPASSWWD	
ATIMEOFFSET	
APASSWORDREQ	

While remaining the in the ”Send” tab of *RealTerm* as described above, to modify a given parameter:

2. First read that single parameter with an appropriate command for that parameter (e.g. ASPEED? to read the current baud rate of the CU/base meter interface), followed by execution of the read command by pressing the “Send ASCII” button. This is shown in the screen shot below:



3. Next type the new desired value for the parameter after the parameter command name (e.g. ASPEED=115200 to parameterise the baud rate of the CU/base meter interface to the new value), followed by execution of the write command by pressing the “Send ASCII” button. This is shown in the screen shot below:



4. To save the new parameterised value to the E57C CU, type ASTORE followed by execution of the command by pressing the “Send ASCII” button.
5. To restart the E57C so that the new parameter becomes active type ARESET followed by execution of the command by pressing the “Send ASCII” button.
6. To check the new parameter has become active and is now part of the device configuration connect to the device again (as per section 5.1.4.1) and read that parameter (e.g. ASPEED?) as described at the outset of this section 5.1.4.2.

6 Maintenance

No user serviceable parts are present in the E57C communication module.

7 Decommissioning and disposal

Electronic waste treatment
This product must not be disposed of in regular waste. Use a professional electronic waste treatment process.

The components used to manufacture the device can, in the main, be broken down into constituent parts and sent to an appropriate recycling or disposal facility. When the product is removed from use, the whole product must be sent to a professional electronic waste treatment process. The waste treatment and disposal plants must be approved by local regulatory authorities.

The end processing of the product and recycling of its components must always be carried out in accordance with the rules and regulations of the country where the end processing and recycling are done.

On request, Landis+Gyr will provide more information about the environmental impact of the product.

Disposal and environmental protection regulations
The following are general guidelines and should not take priority over local disposal and environmental policies, which should be adhered to without compromise.

Components	Disposal
Printed circuit boards	Delivered to recycling plants.
Metal components	Sorted and delivered to metal recycling plants.
Plastic components	Sorted and delivered to re-granulation if at all possible.
Batteries	Removed from product and delivered to specialized recycling plants.

8 Index

Contact:
Landis+Gyr AG
Alte Steinhauserstrasse 18
CH-6330 Cham
Switzerland
Phone: +41 41 935 6000
www.landisgyr.com

Landis+Gyr
manage energy better