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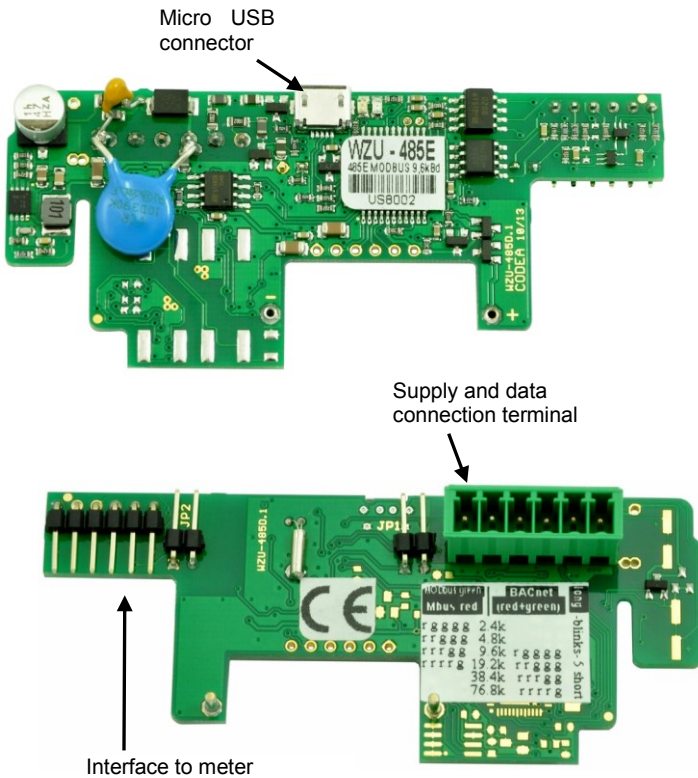
## 1. Safety Information


-  Comply with ESD protection measures.ESD.
-  Avoid short-circuits on the PCB.
-  When connecting, turn off the mains supply.
-  Route connecting cables only through the bush sleeves of the meter.
-  Do not cut the bush sleeves shorter than necessary because this may lower the degree of protection.

## 2. Description of function

WZU-485E-MOD is an add-on communication module for the following types of meters: T550 (UH50...) (firmware 5.15 and higher) and T550 (UC50...).

The module is intended and preconfigured for data transmission using the Modbus RTU protocol on RS485.



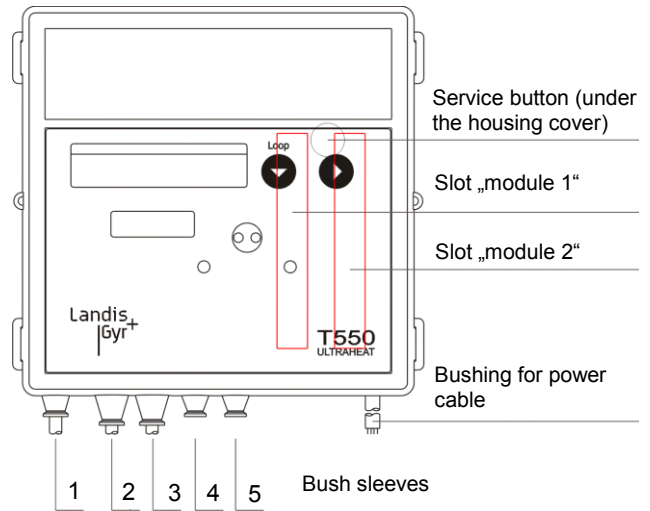
 **Note:** An external power pack must power the module (not included in the module's scope of delivery).


## 3. Items delivered

1. Communication module WZU-485E-MOD
2. Screw connector for RS485 interface and power supply
3. Jumper bridge (red)

## 4. Installation and assembly

Up to 2 communication modules can be installed.




 **Note:** WZU-485E-MOD may only be combined with an M-Bus module in slot "module 2". Only one of them may be operated in fast read-out mode with an update interval shorter than 15 min.

## Installing the communication module


The communication modules are connected via a 6-pole reaction-free connector so that installation or replacement is possible at any time.

To install a communication module proceed as follows:


- Press the 4 side lugs of the housing cover inwards and remove the cover.
- Put the communication module into the correct position.


 **Note:** The module WZU-485E-MOD may only be fitted at slot "module 1".

- Place the communication module carefully in both guide slots and push it in.
- Wait for the module indication on the meter display (Loop 4: "Modul1 MI / G4").
- To connect the power supply and the communication cable of WZU-485E-MOD, open 2 sleeves matching the cross section of the respective cables.


 **Note:** Open the cable sleeves in such a way that they enclose the cable tightly.

- Guide cables through the bush sleeves from the outside.
- Connect the the power supply to terminals 24V and GND, and the communication cable to terminals A+ and B-.


 **Note:** For the connection to the screw terminal, a slot screwdriver with 2.5 mm tip is needed.

 **Attention:** Connecting the power supply to terminals A and B can cause permanent damage to the module.

- Insert the screw connector into its counterpart on the communication module.
- Secure the cables with the metal strain relief.

 **Note:** The jumper bridge must not be inserted during operation.

## 5. LCD display

 **Note:** Both display range and data displayed can differ from this description depending on the meter parameterization. Certain button functions can also be blocked.

## Service loop „LOOP 4“

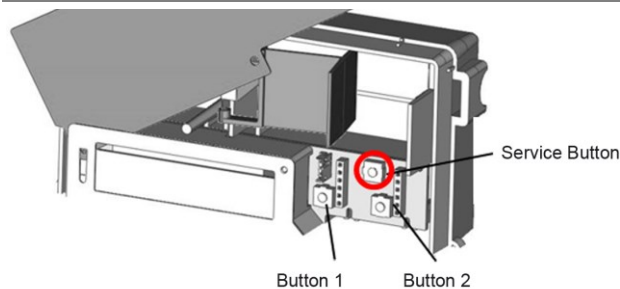
LOOP 4	Head of the loop
...	...
Modul MI	Type "MI / G4" in slot "module 1"
Modul G4	
AP1 0	M-Bus Primary address for slot "module 1"

## 6. Parameterization

### 6.1 Modbus addressing

The communication module can be addressed in the range 1 – 255. The Modbus address corresponds to the meter's M-Bus primary address for module slot 1 (AP1).

### 6.2 Setting the primary M-Bus address on the meter display



#### Call up parameterization mode

Proceed as follows to call up the parameterization operation:

- Hold the service button for about 3 s, until `PRUEF----` is displayed.
- Press button 1 to switch the display until `PRrR-----` is displayed.
- Press button 2 to switch the display until `Ma` is displayed.

#### Entering the primary M-Bus address

Proceed as follows to enter the primary M-Bus address:

- Press button 1 to switch the display until `AP1 0` (primary address for module slot 1) is displayed.
- Press button 2 to activate the parameter to be changed.
- Press button 2 to change the flashing value.
- Press button 1 to enter the set value.

The next point to the right flashes. Repeat the steps above for all points.

- Enter an address in the range from 1 – 255.

The LCD shows a star symbol briefly to confirm.

If the inputs are incorrect, parameterization can be repeated.

#### Completing address parameterization

Proceed as follows to leave the parameterization operation:

- Press button 1 until `Nb-----` is displayed.
- Press button 2.

**Note:** The primary M-Bus address can also be set with the Service Software UltraAssist.

### 6.3 Parameter setting via USB interface

#### Requirements:

- Micro-USB to USB cable
- Computer with Windows OS
- Software "WZU-485 Configuration Tool"; can be downloaded from [www.landisgyr.eu](http://www.landisgyr.eu)



**Attention:** The module's power supply must be switched off before the module is connected to a PC via USB cable.

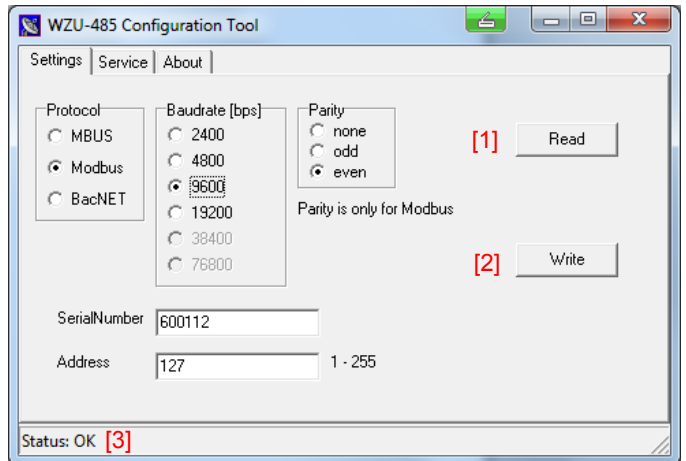


**Note:** The micro-USB interface is used for setting communication protocol and communication speed only.

In case the default parameters are suitable for the Modbus system, no parameterisation is needed.

In other cases, proceed as follows:

- Disconnect the screw connector.
- Connect the module to a PC via micro-USB to USB cable
- Start the software "WZU-485 Configuration Tool".



- Press the "Read" button [1].

The software reads and displays the current parameter settings of the module.

- Make the necessary settings
- Press the "Write" button [2].
- After successful parameterisation, "Status OK" is displayed [3].
- Close the software.
- Disconnect the USB cable from the module.
- Insert the screw connector.
- Close the meter's cover and affix the seals.



**Note: For battery-powered meters:** Operating the communication module with a read-out interval of less than 10 minutes requires a D-cell battery for 6 years.

## 7. Technical data

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### General information

Communication protocol	Modbus RTU on RS485
Modbus address range	1 – 255
Transmission rate	2400 to 19200 bps
Communication address	M-Bus primary address of T550 (Loop 4: <input type="text" value="127"/> )
Data refreshing	Stand-by mode: 60 min In operation: After every data request, up to 10s

### Default settings

Transmission rate	9600 bps
Modbus Parity	even
Communication address (T550)	0

### RS485 information


HW network connection	RS485: A+, B-, GND communication signal inputs (A, B) are protected against short-term (pulse) overload use external resistor (120 Ohm)
Bus termination	

### Power supply

Alternating current	permissible range AC 16...28 V
Direct current	permissible range DC 10...32 V
Consumption	<50mA (typically <20 mA / 24 V)
Recommended fuse	fuse T 100 mA
Galvanic Isolation	
From the meter	yes
From the RS485 network	no

## 8. Modbus description

Unless otherwise indicated, all values are in binary format. 2-byte values (signed), and 4-byte values (unsigned), are used.

 **Note:** The module only transmits absolute values of the meter's parameters.

Data format of a complete meter readout

Address in memory	Value	Name Value	Number of bytes	Discription
1	Tf	Temperatur hot side	2	0.01 °C
2	Tr	Temperatur cold side	2	0.01 °C
3	dT	Temperature difference	2	0.01 K
4	Q	Actual flow	4	0.001 m³/h
6	P	Actual power	4	0.01 kW
8	Ecold	Accumulated cold energy (eq. tariff register 1)	4	format and unit according to header
10	Time	Date and time	4	M-Bus type F
12	F	Info code F 0=No error 3=Internal errors (F3, F4, F7, F8, F9) 5=Flow rate error (F0, F9, F4) 6=Interruption temperature sensor hot side (F1) 7=Short Circuit temperature sensor hot side (F5) 8=Interruption temperature sensor cold side (F2) 9=Short Circuit temperature sensor cold side (F6)	2	Meter Error
13	Header	Module info	2	Units / format 0xABCD nibble D – units for E, EM and Tariffs B'XXx0' – GJ B'XXx1' – MWh Format for E, EM and Tariffs B'XXxx' *10^(XX-3) GJ/MWh nibble C – Format for V, VM and Tariffs B'XXxx' *10^(XX-3) m³
14	E	Accumulated energy (Standard register)	4	format and unit according to header
16	V	Accumulated volume	4	format according to header m³
18	N	Serial number	4	
20	EM	Monthly value - Energy on set day	4	format and unit according to header
22	VM	Monthly value - Volume on set day	4	format according to header m³
24	A1	Pulse input 1 accumulated (not used)	4	Not used
26	A2	Pulse input 2 accumulated (not used)	4	Not used
28	I1	Pulse value input 1 (not used)	4	Not used
30	I2	Pulse value input 2 (not used)	4	Not used
32	N1	Serial number A1	4	
34	N2	Serial number A2	4	
36		Tariff register 1	4	format and unit according to header
38		Tariff register 2	4	format and unit according to header
40		Tariff register 3	4	format and unit according to header

<b>Format Examples</b>	
0xABCD	number in HEX format
B'0101'	number in binary format

## Data reading

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- Data block reading is available for addresses 1 – 41.
- Any address from the range can be chosen as a starting point.
- The module does not check the completeness of the variables it sends.
- The module only responds to data calls with command 03.
- The module reads new data from the meter within 5 seconds after receiving a data block reading request.
- After a data block reading request with the broadcast address "0", the module reads out from the meter, but sends no message.

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