

**UC-ETH-RS485**

**Ulive systems manufactures various products for industrial use like**

- ✓ **USB-RS485, USB-RS232, USB-RS422, RS232-RS485, RS232-RS422**
- ✓ **ISO-USB-RS485, ISO-RS232-RS485**
- ✓ **ETH-RS485, ETH-RS422, ETH-RS232**
- ✓ **Remote IO modules, 0 – 20mA / 0 – 10V simulator**
- ✓ **PLC, HMI, Relay modules**
- ✓ **Surge protection devices for RS485, 1ph 230V AC, 3Ph 440V AC etc.,**

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## Features

- \* Works with all type of industrial equipments
  - PC, PLC, SCADA, HMI, AC/DC Drives, Genset, UPS, Development Kits, etc.
- \* RS485 Rx and Tx light indications for easy visibility and troubleshooting
- \* RJ45 Status light indications, RJ45 built-in 2KV isolation
- \* User Friendly Configuration Software
- \* Easy to use web page configuration option
- \* Unique MAC address
- \* Compact design suitable for both DIN Rail and Wall mount
- \* Dimension in mm – 110 x 74 x 35
- \* Support 10/100M, TCP Server, TCP Client, UDP, Httpd Client, Web socket
- \* Supports Transparent Mode data transmission
- \* Supports Modbus TCP to Modbus RTU protocol conversion
- \* ESD and Surge protection for Ethernet, RS485 and Power
- \* Supports all Baud Rates from 300 to 250 kBaud.
  - varies on cable length
- \* Supports up-to 256 receivers on the bus
  - also depends on the other devices connected in the RS485 network
- \* ESD protection for RS485 pins
  - ±15-kV Human-Body Model (HBM)
  - ±8-kV IEC1000-4-2, Contact Discharge
  - ±15-kV IEC1000-4-2, Air-Gap Discharge
- \* 12~24V DC Supply
- \* 1 Year Warranty against any manufacturing defects

## Electrical characteristics

Power Input	12V DC ~ 24V DC (not more than 30V DC max. Reverse polarity protected)
Operating Temperature	-40 ~85 °C
Working Current	200mA Max
RS485 in Receive input	± 12V between A and B max
RS485 in Transmit output	A pulled up to +5V, B pulled down to 0V
RS485 Termination	120 Ω between A and B built-in

## Hardware Connection

### Mounting

The module can be mounted in all standard **35mm** DIN Rail channels and as well in Wall with screws. Pull the clip out one step for wall mounting

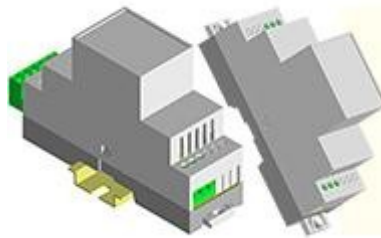


Fig 1 DIN Rail Mounting | Wall Mounting

### Electrical connection

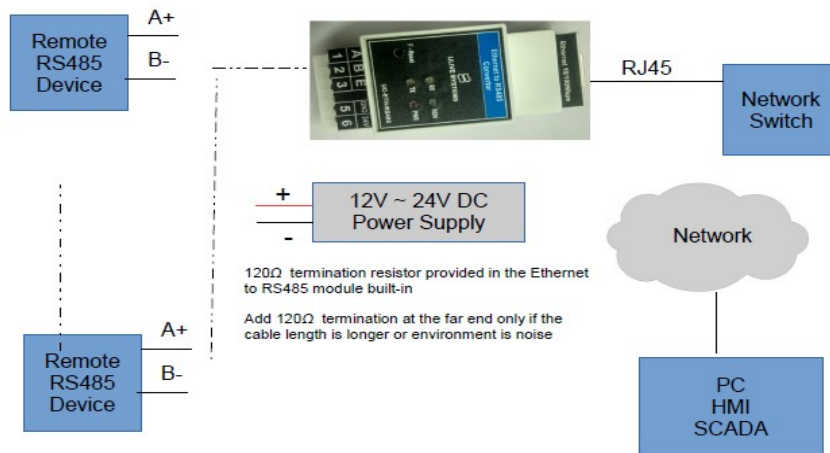


Fig 2 Typical connection example

**Warning:** connecting power terminals to RS485 terminals will damage the device permanently

## First Time Settings

### Settings for PC

\* For connecting directly to a PC a cross over cable is required and PC network settings need to be changed as below.

In Network settings → Properties → Internet Protocol (TCP/IP)

Define a manual IP as below

IP address	192.168.0.1
Subnet mask	255.255.255.0
Default gateway	192.168.0.1

### Default Parameters

IP:	192.168.0.7
username:	admin
password:	admin
baud rate:	115200, 8, N, 1
Local TCP Port:	23
Work mode:	TCP Server, None
RS485 Timeout, Len:	0,0
Web config port:	80

### Web based configuration

You can use a web browser to view and change the IP and Serial settings

Go to the address 192.168.0.7 in the web browser and enter default user name and password as above

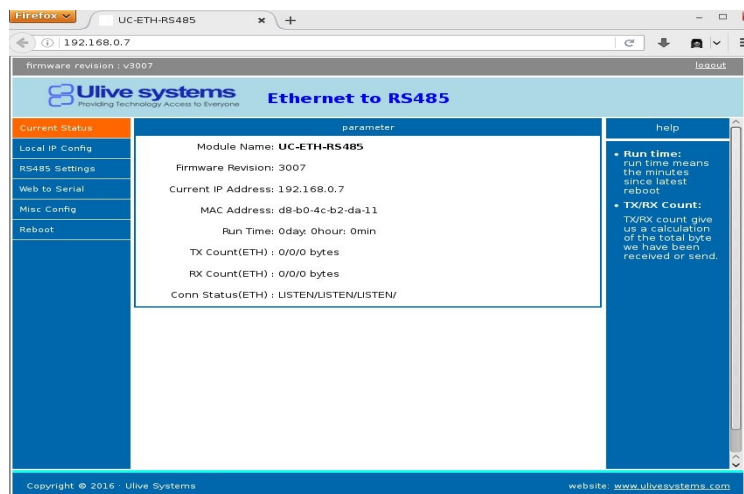


Fig 3 Current Status

## Local IP Configuration

Select Static IP or DHCP for the Ethernet to RS485 Converter

The screenshot shows the 'Local IP Config' section of the web interface. The 'IP type' is set to 'Static IP'. The 'Static IP' is configured as 192.168.1.99, the 'Submask' as 255.255.255.0, and the 'Gateway' as 192.168.1.1. A help sidebar on the right provides details for each field.

parameter	help
IP type: Static IP	• IP type: StaticIP or DHCP
Static IP: 192 . 168 . 1 . 99	• StaticIP: Module's static ip
Submask: 255 . 255 . 255 . 0	• Submask: usually 255.255.255.0
Gateway: 192 . 168 . 1 . 1	• Gateway: Usually router's ip address

Fig 4 IP Settings

## RS485 Settings

The screenshot shows the 'RS485 Settings' section of the web interface. The 'Flow Control and RS485' is set to 'RS485'. The 'Local Port Number' and 'Remote Port Number' are both set to 23. The 'Work Mode' is set to 'TCP Server'. The 'TCP Server details' are set to 'default'. The 'Remote Server Addr' is set to 192.168.0.201. The 'Timeout' is set to 0 seconds. The 'RS485 Packet Time' is set to 0 ms. The 'RS485 Packet Length' is set to 0 chars. The 'Sync Baudrate(RF2217 similar):' checkbox is checked.

parameter	help
Baud Rate: 115200 bps(600~1024000)	• baud: 485 can support up to 250000bps
Data Size: 8 bit	• flowcontrol and RS485: default RS485, Do not change this
Parity: None	• local port: 1~65535, when TCP Client, set this to 0 means use random local port
Stop Bits: 1 bit	• remote port: 1~65535
Flow Control and RS485: RS485	• packet time/length: default 0/0, means automatic packet mechanism; you can modify it as a none-zero value
Local Port Number: 23	
Remote Port Number: 23	
Work Mode: TCP Server	
TCP Server details: default type	
Remote Server Addr: 192.168.0.201 [ N/A ]	
Timeout: 0 seconds (< 256, 0 for no timeout)	
RS485 Packet Time: 0 ms (< 256)	
RS485 Packet Length: 0 chars (<= 1460, 0 for no use)	
Sync Baudrate(RF2217 similar): <input checked="" type="checkbox"/>	

Fig 5 RS485 Settings

RS485 serial port settings can be changed like Baud Rate, Data Size, Parity and Stop bit  
 Note: Do not change the Flow Control and RS485 from default RS485

### When RS485 Packet Time / RS485 Packet Length

0/0 automatic packet mechanism.

User defined/User defined Fixed packet mechanism

### Recommended 0/0 for most protocols

In auto mode

RS 485 Packet Time = 4 Bytes time (e.g @ 115200 Baud ~350 usec)

RS485 Packet Length = 1460 Bytes

Data will be transmitted if any one of the above condition is met

In fixed packet mode

RS 485 Packet Time = User defined milli Seconds

*RS485 Packet Length = User defined Bytes*  
*Data will be transmitted if any one of the above condition is met*

## ModbusTCP to Modbus RTU

Module supports Modbus TCP to Modbus RTU mode.  
 This option can be selected from

RS485 Settings → Work Mode:

This option is suitable for Modbus TCP servers requiring a connection to remote RTU device

## Transparent Serial Connection

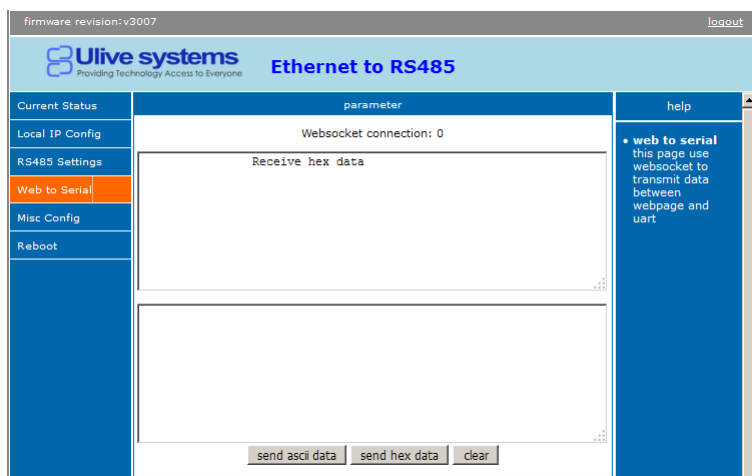
For transparent serial data transmission over TCP select the Work mode option to none

RS485 Settings → Work Mode:

This option is suitable for Custom serial protocols, Ascii terminals, Virtual COM ports, Telnet server connections, Modbus RTU over telnet

## Web to Serial

This option is handy for testing the interface



*Fig 6 Send and receive data using webpage*

Top window display the received data from the serial interface.  
 Bottom window can be used to type and send ascii or hex data

## Misc Configuration

firmware revision:v3007 logout

**Ulive systems** Providing Technology Access to Everyone **Ethernet to RS485**

parameter	help
Module name: Ulive Eth-RS485	• <b>module name</b> max length is 15 char
Websocket port: 6432	• <b>Web port</b> default 80
Webserver port: 80	• <b>ID and ID type</b> we could use it for D2D
Module id(use for indentify modue): 0 (1~65535)	• <b>Mac address</b> user could modify this MAC address
Module id type: 0 (0/1/2/3)	• <b>Buffer data</b> default not checked, buffer data before tcp connection established
MAC address: d8-b0-4c-b1-af-70	• <b>reset timeout</b> default 0, 0-60 mean no timeout, >60 mean when there is no data received during this time, the device will restart
User name: admin	
Pass word: admin	
Buffer data before connected: <input type="checkbox"/>	
Reset timeout: 0 second	

Save Cancel

*Fig 7 Additional settings*

Web page user name, password, MAC ID can be changed

## Reboot

Module needs to be Reboot from web page for the saved changes to be applied