Novatek-Electro EM-482 Documentation

https://www.overvis.com/docs/en/em-482/

2026-03-30

Table of Contents

Novatek-Electro EM-482

The EM-482 and EM-482-1 are protocol converters manufactured by NOVATEK-ELECTRO LTD. They provide MODBUS communication between devices at RS-485 interface and between clients and servers in TCP networks via Wi-Fi.

The Product is available in two versions (both with a built-in antenna):

- **EM-482** for mounting in conditions with a good Wi-Fi signal (for example, in plastic cases)
- **EM-482-1** with additionally included remote antenna for mounting in conditions with a weak Wi-Fi signal (for example, in metal cases)

Complete Documentation Available

View all documentation on a single page – Perfect for printing or offline reading

Key Features

- **Protocol Bridge**: Convert RS-485 Modbus RTU/ASCII to Modbus TCP for seamless equipment integration
- **Flexible Operation**: Function as Modbus master or slave; custom redirection between TCP client and server, RS-485 master or slaves.
- **Quick Start Web Interface**: Main communication parameters are configured in Wi-Fi access point mode using web-browser
- **Automatic access point switch**: A stronger signal access point is selected out of the several points with the same SSID
- **Modbus Control Interface**: All configuration and monitoring parameters available for a Modbus client, or master, with multi-level access control
- **On-Device LEDs**: Mode and connection status LEDs to simplify setup and diagnostics.

- **Industrial Grade**: DIN-rail mountable, IP20 rated, operating temperature –35°C to +45°C
- **Firmware update capability**: Manual upgrade or a remote command-triggered automatic upgrade

Common Use Cases

- Connecting legacy RS-485 MODBUS devices to modern SCADA systems via Wi-Fi networks
- Wireless MODBUS gateway for industrial equipment
- Remote monitoring integration via Wi-Fi
- Network extension and consolidation across multiple locations
- Building automation system connectivity
- Integration with cloud platforms and IoT systems

Documentation

Getting Started

- **Quick Start Guide** – Get your EM-482 up and running in 15 minutes with step-by-step setup instructions
- **Operating Manual** – Complete safety information, technical specifications, and operating procedures

Configuration

- **Connections & Network Setup** – Wi-Fi and server link recommendations
- **Modbus Interface** – Modbus RTU/ASCII and TCP configuration, parameter reference

Advanced Features

- **Firmware & Updates** – Firmware versions, update procedures, and release notes
- **Software Tools** – Download utilities for testing and configuration

Resources

- EM-482 Product Page – Full product information and specifications
- One-Page Documentation – Complete documentation on a single page for printing
- EM-482 Full Manual (PDF) – Complete operating manual

Support

- **Knowledge Base**: Browse this documentation for detailed guides and references
- **Support Center**: Visit our Support Center for FAQs and troubleshooting
- **Report an Issue**: Submit a support ticket for technical assistance

Quick Start Guide

This guide walks you through setting up your EM-482 Protocol Converter from wiring to successful connection in about 15 minutes.

EM-482 provides Modbus communication between clients and servers in TCP networks and between devices at RS-485 interface.

> ⚠ **Read Safety Instructions First**
>
> Before setting up or operating the EM-482 device, you must thoroughly read the safety information in the operating manual. This includes electrical safety requirements, installation precautions, and proper operating procedures. Operating the device without following these instructions may result in equipment damage, injury, or loss of warranty coverage.

What You'll Need

From the delivery box: EM-482 device (and Wi-Fi antenna, if it is EM-482-1 model to be installed in poor signal environment).

You'll also need:

- 12V DC power supply (7-30V range supported)
- Device with Wi-Fi and web browser for initial setup (computer, phone, or tablet)
- RS-485 Modbus devices to connect
- Twisted-pair cable for RS-485 (Category 1+, shielded recommended)
- Stranded wire (≥1 mm² cross-section), ferrules, and tools (screwdriver, wire stripper)

> ⚠ **Safety First**
>
> Always disconnect power before making connections. Never open the device or operate it with damaged housing. Keep water away from terminals.

Step 1: Physical Setup

Mount your EM-482 on a standard 35mm DIN rail in a well-ventilated location. The device operates from -35°C to +45°C, but avoid areas with excessive vibration, humidity, or corrosive atmospheres.

Before making any electrical connections, ensure all devices are powered off.

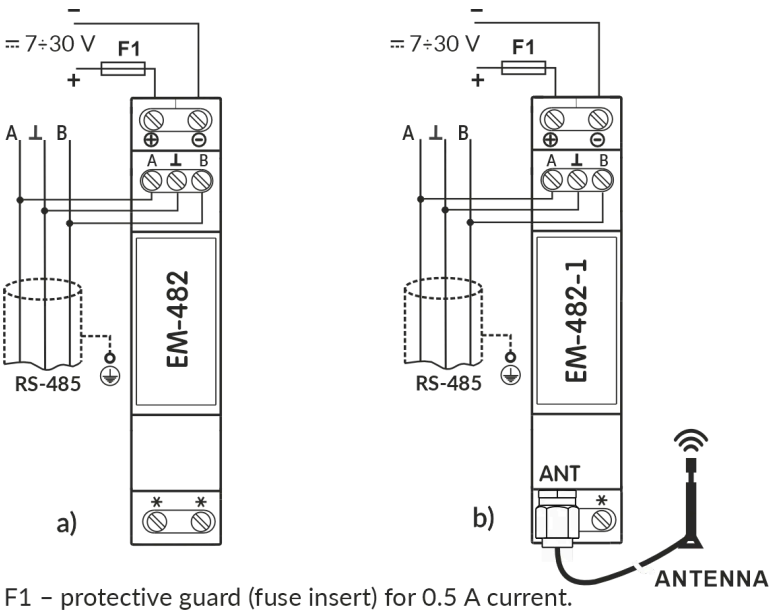
Tighten terminal screws to 0.4 N·m — enough for solid contact without damage.

Antenna connection: If it is EM-482-1 model, place the antenna in reach of the Wi-Fi access point (e.g. outside the metal case where the device is mounted). Connect the antenna cable to the ANT connector of the EM-482-1, then tighten it.

RS-485 wiring: Connect twisted-pair cable to EM-482's RS–485 terminals: terminal A for non-inverted signal, terminal B for inverted signal (your devices might label these as A/D+/+ and B/D-/- respectively). Run the cable to your Modbus

devices and connect accordingly. Use shielded twisted-pair cable (Category 1 or better) for reliable communication over distance.

Power: Connect 12V DC power to the `7÷30V` terminals. For safety, install a 0.5A fuse in the power circuit. Use stranded wire with ferrules, stripped 5mm. Wire cross-section should be 0.5-3 mm².



F1 – protective guard (fuse insert) for 0.5 A current.

Figure 2

Step 2: Power On

When you apply power, all LEDs light up briefly during the 2-second initialization, then the device spends 10-30 seconds establishing Wi-Fi connection.

The `PWR` LED stays green to confirm power. The `WI-FI` LED blinks rarely (every 3 seconds) when establishing the connection and turns on when Wi-Fi connects (blinking afterwards during data transfers).

The `WI-FI` and SRV indicators flashing alternately indicate that the Wi-Fi setup mode (access point) is enabled.

Step 3: Switch to Wi-Fi Setup Mode

1. Press and hold the reset button **«R»** for 2 to 8 seconds; after the «PWR» indicator turns red, release the **«R»** button.
2. If you have entered the Wi-Fi setup mode, make sure that the «WI-FI» and «SRV» indicators are flashing alternately.

> **Note**
>
> To restart the Product and save the user settings – press and release the reset button «R». The Product will restart.

Step 4: Access Web Interface and Configure

1. **Connect to EM-482 access point:** Open your device Wi-Fi list and select the «EM482_xxxxxx» network (where

xxxxxx are the last 6 characters of the Product's MAC address indicated on the product label).

2. **Open EM-482 web interface:** Open your browser and enter the `http://em.com` or `http://192.168.4.1` address.
3. **Configure Wi-Fi network:** Select the EM-482 future access point, enter its password, enable/disable DHCP, set static IP if needed, adjust subnet mask and gateway.
4. **Configure Modbus RTU/ASCII:** This can be done at the cloud server later. Consult the manual of your Modbus devices for their parameters (baud rate, parity and stop bits settings), then match these exactly in EM-482. If no manual is available, start with common values: 9600 or 19200 baud, Modbus RTU protocol, and AUTO-STOP parity (which automatically detects the correct stop bits setting).
5. **Check additional parameters:** Set the remote Modbus TCP server connection, configure cloud server address, set the password, select product hostname to distinguish it in the router lists.

> **Note**
>
> Click Save then `Reset` after the changes. The device will shortly restart with new settings.

Step 5: Connect to Overvis Cloud (Optional)

Overvis Cloud provides remote monitoring and control through a web dashboard. The device label includes a QR code and PIN for quick setup.

1. **Access Overvis server:** Scan the QR code on the device label or manually enter the link from the label (format: `https://c.overvis.com/ABCD1234` where the last part is your PIN). The link redirects to Overvis server's login page. Optionally follow the Overvis link on the Cloud tab.
2. **Login or create account:** Enter your credentials if you have an account. New users should create an account first.
3. **Create Network:** After login, Overvis shows the "Create Network" page. If you came from the QR code/link, the PIN is pre-filled. Otherwise, enter the PIN from the device label and click "Check connection."
4. **Verify connection status:** Overvis displays the connection status — either "Connected" or "Device is not connected to the server." If not connected, check that EM-482 has Internet access. The `SRV` LED should turn on shortly after the `WI-FI` LED.
5. **Configure your network:** Give your network a descriptive name (a "network" represents your EM-482 plus all connected Modbus devices). EM-482 itself (unit ID 111) is added automatically.
6. **Add connected devices:** Select your RS-485 device models from the dropdown menus and enter their Modbus addresses. Overvis creates device instances from templates matching your selections.
7. **Test communication:** Open a device page in Overvis and read its parameters to confirm real-time communication is working.

Troubleshooting cloud connection:

- **`Device is not connected` at the server** → Check Internet connectivity, review Cloud address in web interface settings
- **PIN not accepted at the server** → Verify you entered the exact PIN from this device label
- **Can't create account** → Ensure email address entered is valid, check email for verification link

Troubleshooting

The `PWR` indicator is constantly red or blinking fast in red: This may be due to device malfunction. Contact the seller or manufacturer of the product.

The `WI-FI` indicator does not remain on, but is blinking rarely (every 3 seconds, for more than 2 minutes): The Wi-Fi access point is unavailable. Normal during first 30 seconds while the connection is established. If it persists, check the Wi-Fi settings, access point distance and that it is powered.

The `SRV` indicator remains off (for more than 2 minutes): EM-482 is not connected to the Internet. Verify the server connection address in the web interface. Your network firewall may be blocking outgoing connections. If the issue persists, check the router Internet access.

The `WI-FI` and `SRV` indicators keep blinking alternately: The EM-482 is in setup mode. Either complete the configuration, or exit the mode by pressing the R button on the front panel for about 3 seconds.

Cannot access EM-482 web interface: Check the EM-482 is in setup access point mode (the LEDs are blinking alternately). Check your device is connected to EM-482 access point. Use `http://em.com` or `http://192.168.4.1` address to access the web interface.

`Device already registered` error at server: The device is bound to another Overvis account. Use the `Unbind button` (if it is in one of your accounts), or contact the server administration (or the previous owner) to remove the device from their account.

Intermittent connection drops: Check that the power supply voltage is within the required range (7-30V DC) and can provide sufficient current (up to 110mA). Look for electrical noise or interference sources near the device. Update EM-482 firmware to the latest version.

RS-485 devices not responding: Verify the RS-485 wiring is correct (A and B terminals). Check that the RS-485 bus termination is properly configured. Verify Modbus RTU/ASCII settings match the connected devices. See the Modbus Interface documentation for detailed communication settings.

Service Button Quick Reference

The R button functions depend on press duration:

Quick press: restart device

Hold 2-8 seconds: switch Wi-Fi setup mode on and off

Hold 8+ seconds: Factory reset (erases all settings)

> ⚠ **Caution**
>
> It is recommended to protect the R button from unauthorized access by installing EM-482 in a locked enclosure.

What's Next?

- EM-482 Operating Manual — Complete technical documentation
- Connections Guide — Network setup and security
- Modbus Interface — Protocol details and register reference

Need Help?

For technical support and assistance:

- Email: support@overvis.com
- Support portal: www.overvis.com/support

EM-482 Operating Manual

This Operating Manual explains the design, safety requirements, operating rules, and maintenance procedures for the EM-482 and EM-482-1 Protocol Converters (hereinafter referred to as “Protocol Converter”, “Product”, or “EM-482”; the name “EM-482-1” is used when the characteristics differ).

Safety information

> **ATTENTION**
>
> ALL REQUIREMENTS OF THIS OPERATING MANUAL ARE MANDATORY.
>
> TO ENSURE SAFE OPERATION, IT IS STRICTLY FORBIDDEN TO:
>
> - PERFORM INSTALLATION OR MAINTENANCE WITHOUT DISCONNECTING EM-482 FROM THE MAINS
> - OPEN OR REPAIR EM-482 YOURSELF
> - OPERATE EM-482 IF THE HOUSING IS MECHANICALLY DAMAGED
>
> PREVENT WATER FROM REACHING THE TERMINALS OR INTERNAL PARTS.

During operation and maintenance, observe the requirements of applicable regulatory documents, including:

- Regulations for Operation of Consumer Electrical Installations;
- Safety Rules for Operation of Consumer Electrical Installations;
- Occupational Safety Rules for Operation of Electrical Installations.

Only qualified personnel who have studied this Operating Manual should perform installation, adjustment, and maintenance.

When used in accordance with this manual, the Overvis EM-482 is safe in operation.

EM-482 meets the requirements of the following standards: EN 60947-1; EN 60947-6-2; EN 55011; EN 61000-4-2.

The device contains no hazardous substances in excess of maximum permissible limits.

The development and production quality management system complies with ISO 9001:2015.

General description

The Protocol Converter EM-482 provides MODBUS communication between clients and servers in Wi-Fi TCP networks and between devices at RS-485 interface.

The Product is available in two versions (both with a built-in antenna):

- **EM-482** for mounting in conditions with a good Wi-Fi signal (for example, in plastic cases);
- **EM-482-1** with additionally included remote antenna for mounting in conditions with a weak Wi-Fi signal (for example, in metal cases).

The Protocol Converter:

- provides access to RS-485 devices data via Modbus TCP;
- provides access to Modbus TCP devices for RS-485 devices;
- transfers data to a server or cloud service.

EM-482 provides the following capabilities:

- **Flexible RS-485 communication:** Modbus RTU or ASCII, even/odd/no parity, wide range of baud rates, adjustable delays
- **Automatic access point switch**: A stronger signal access point is selected out of the several points with the same SSID
- **Access security:** passwords for setup mode and connections to the Modbus network, for reading or writing, connecting only to a selected cloud server
- **Firmware update capability**: Manual upgrade or a remote command-triggered automatic upgrade

Overall and Mounting Dimensions and Controls

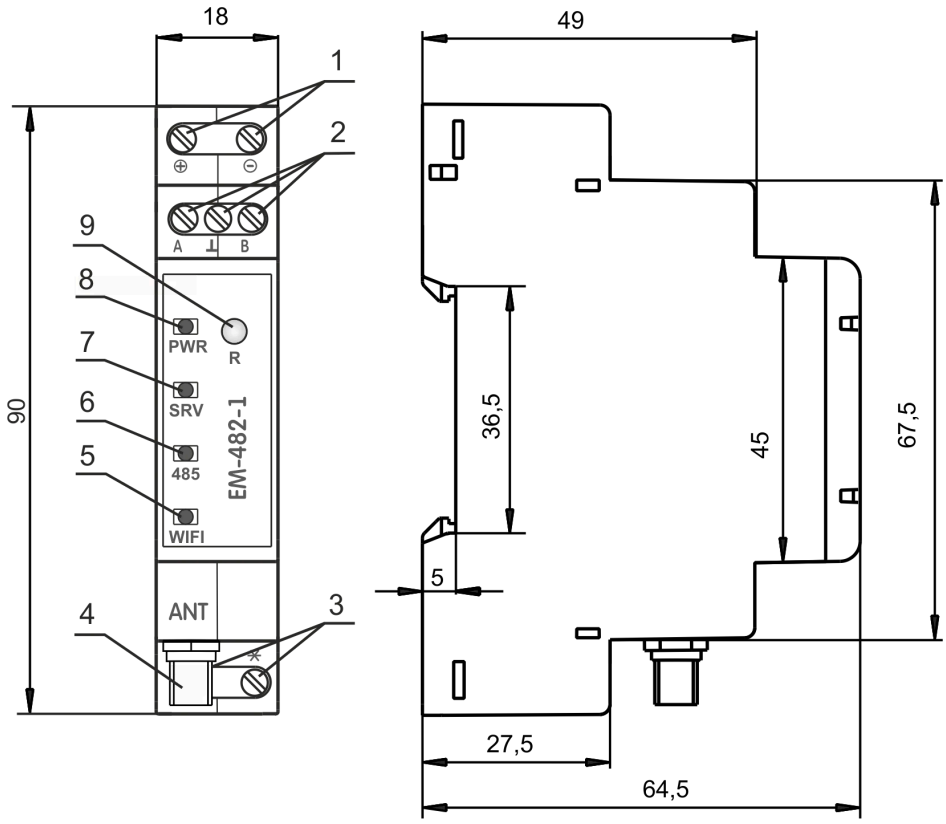


Figure 1 – Overall and mounting dimensions and controls

1. The **+** and **–** terminals are designed for power supply connection (from 7 to 30 VDC).
2. Terminals **A**, ⊥ and **B** are used for connecting to the RS-485 network connection.
3. Terminals are not used.
4. SMA-F **ANT** connector (only for EM-482-1) is used for connecting a Wi-Fi antenna (included).
5. The **WI–FI** indicator is lit while Wi-Fi is connected, blinks every three seconds when searching for a Wi-Fi network, and blinks alternately with the «SRV» indicator in the Wi-Fi setup mode.
6. The **485** indicator lights up when waiting for transmission over RS-485 and blinks when data are being exchanged over RS-485.
7. The **SRV** indicator lit while the data collection server is connected, blinks when data is being exchanged with the server, and blinks alternately with the «WI-FI» indicator in the Wi-Fi setup mode.
8. The **PWR** indicator is green during normal operation and flashes red when a communication error occurs.
9. Reset Button **R** may be used for: entering the Wi-Fi setup mode; restarting the Product; and resetting the parameters to the manufacturer's defaults.

Operating conditions

EM-482 is designed for operation under the following environmental conditions:

- Ambient temperature: –35 ... +45 °C
- Atmospheric pressure: 84 ... 106.7 kPa
- Relative humidity (at +25 °C): 30 ... 80%

> ⚠ **Do not operate EM-482:**
>
> - In conditions of significant vibration or shock
> - At high humidity levels (condensation)
> - In aggressive environments (air containing acids, alkalis, etc.) or in severe contamination (grease, oil, dust, etc.)

Delivery set

Table 1 – EM-482 delivery set

Item	EM-482	EM-482-1
Protocol converter	1 pcs.	1 pcs.
Operating manual	1 pcs.	1 pcs.
Antenna for SMA connector	—	1 pcs.
Packaging	1 pcs.	1 pcs.

Technical Specifications

Table 2 – EM-482 technical specifications

Parameter	Value
DC rated supply voltage	7 – 30 V
TCP networks link interface	Wi-Fi
Wi-Fi Module	ESP8266 (ESP-07)
Wi-Fi Module frequency	2.4 GHz
Supported Wi-Fi standards	IEEE 802.11 b/g/n
Supported TCP network protocols	DNS, DHCP, Modbus TCP, HTTP
Built-in TCP servers	Modbus TCP, HTTP
Serial link interface	RS-485
Supported serial protocols	Modbus RTU, Modbus ASCII
Short circuit output current of RS-485 driver (maximum)	250 mA
The recommended number of devices connected to the RS-485 bus:	
– when the input current of receivers on RS-485 bus is less than 0.25 mA;	≤ 128

Parameter	Value
– when the input current of receivers on RS-485 bus is less than 1 mA	≤ 32
Built-in RS-485 terminator resistance	1 000 Ω
Ready time at power-up	≤ 2 s*
Current consumption (at a supply voltage of 12 V)	≤ 110 mA
Weight	≤ 0.08 kg
Overall dimensions, H×B×L	90 × 65 × 18 mm
The Product designation	Switchgear and control equipment
Rated operating condition	Continuous
Conductor cross-section for connecting to terminals	0.3 – 3 mm²
Tightening torque of the terminal screws of input contacts	0.4 N·m
Climatic design version	NF 3.1
Electric shock protection class	III
Overvoltage category	II
Permissible pollution density	II
Insulation rated voltage	450 V
Rated pulse withstand voltage	2.5 kV
Installation (mounting)	DIN rail 35 mm

* Establishing connections in Wi-Fi / Internet networks can take more time.

> ⚠ **Caution**
>
> RS-485 is not galvanically isolated.

The Product remains functional at any position in space.

Case material: self-extinguishing plastic.

Installation and wiring

Before you start:

- Unpack EM-482 (we recommend keeping the original packing for the entire warranty period).
- Check EM-482 for damage after transportation. If you find any damage, contact the supplier or manufacturer.

- Read this Operating Manual carefully (pay special attention to the power supply in the connection diagram).
- If you have any questions regarding installation, contact the manufacturer.

Wiring requirements

If the temperature of EM-482 after transportation or storage differs from the ambient operating temperature, keep EM-482 under operating conditions for at least two hours before connecting it to the power supply. This prevents condensation on internal components.

> **Installation safety**
>
> PERFORM ALL CONNECTIONS WHEN EM-482 IS DE-ENERGIZED.
>
> Installation errors can damage EM-482 and connected equipment.

To ensure reliable electrical connections, use flexible (stranded) wires. Strip the insulation from the wire ends by 5±0.5 mm and crimp with suitable ferrules. It is recommended to use wire with a cross-section of at least 1 mm².

When connecting to the RS-485 bus, use twisted-pair cable of category 1 or higher. A shielded cable is recommended; in that case, ground the shield according to "ANSI/TIA/EIA-485-A-1998".

Route and fasten wires so as to avoid mechanical damage, twisting, or abrasion of the insulation.

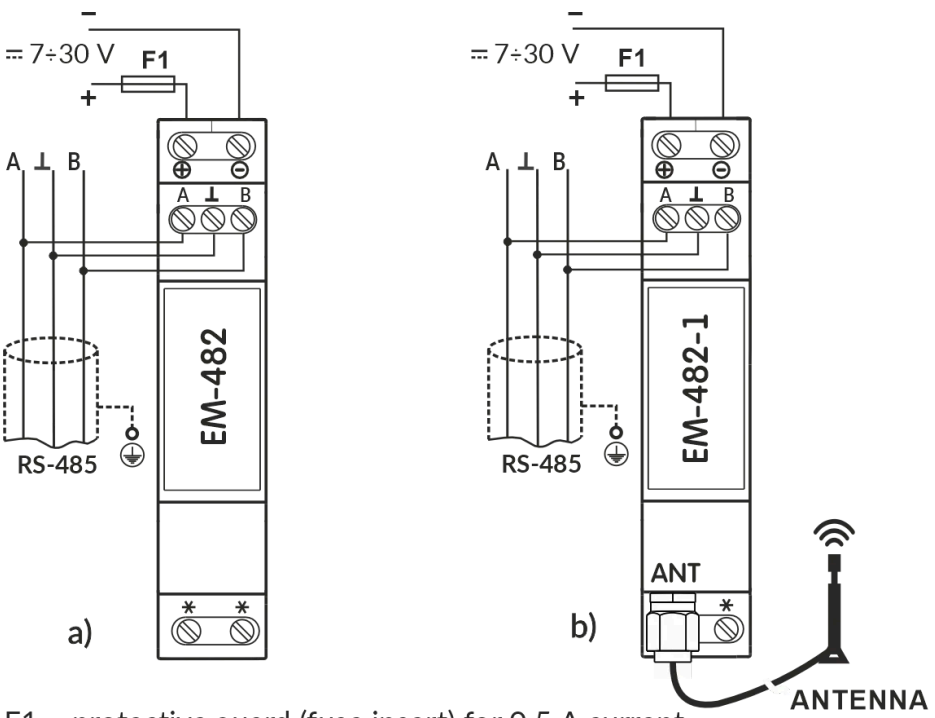
> **Electrical safety**
>
> DO NOT LEAVE EXPOSED WIRE PORTIONS PROTRUDING BEYOND THE TERMINAL BLOCK.

For a reliable contact, tighten the terminal screws with the force indicated in Technical specifications.

> **Tightening torque**
>
> Too little tightening torque can cause heating at the junction point. Eventually the terminal block may melt and the wire may burn.
>
> Too much tightening torque can damage terminal block screws or over-compress and damage the connected wire.

To improve safety and reliability, it is recommended to install the fuse F1 (or its equivalent) in the EM-482 supply circuit, rated for a current of no more than 0.5 A.

Electrical connection



F1 – protective guard (fuse insert) for 0.5 A current.

Figure 2

Figure 2 – Connection diagram

- F1 – fuse (fuse element) rated for 0.5 A;
- Contact A – transmission of non-inverted signal;
- Contact B – transmission of inverted signal.

Follow these steps to connect the EM-482:

- Connect the RS-485 bus cable to the RS–485 terminals (A and B) and to the RS-485 bus (or directly to the device with an RS-485 interface).
- For EM-482-1, install the antenna outside of the case, connect the antenna to the ANT connector (SMA F connector).
- Connect the appropriate DC power supply to the + and – terminals (7÷30V).

Power-up and normal operation

After power is turned on, all indicators light up, and EM-482 performs initialization. After approximately 2 seconds, the indicators (except for the PWR indicator, which turns green) go out, and the Product proceeds to start the Wi-Fi network interface. Startup can take up to 30 seconds.

If the WI–FI indicator lights up, the connection to the network was successful. The WI–FI indicator blinking every three seconds indicates the process of connecting to the network. The WI–FI and SRV indicators flashing alternately indicate that the Wi-Fi setup mode (access point) is enabled.

After this, if enabled in settings, EM-482 establishes a connection with the cloud server. By default, cloud connection is enabled.

If configured, EM-482 establishes TCP connections and waits for incoming TCP connections.

> **Malfunction indicator**
>
> IF THE PWR INDICATOR IS CONSTANTLY LIT RED OR FAST BLINKING RED, PLEASE CONTACT THE MANUFACTURER OR THE PLACE OF PURCHASE OF THE DEVICE.

Communication modes

The EM-482 is a protocol converter that bridges RS-485 Modbus RTU/ASCII networks with Modbus TCP networks. It operates in multiple communication modes simultaneously, providing flexible connectivity through Wi-Fi networks, and RS-485 interface. Each mode serves a distinct purpose and can be used independently or in combination to meet your application requirements.

Connection to cloud server (reverse connection)

EM-482 can establish and maintain a persistent outbound connection to a cloud server (using Modbus TCP protocol).

- EM-482 initiates the outbound connection to the server, bypassing firewall issues
- After connection is established, EM-482 sends its MAC address for identification as a first Modbus TCP packet (response for function 3)
- After that it operates in slave mode, waiting for and processing server requests
- The server sends Modbus requests through this connection
- EM-482 forwards these requests to RS-485 devices or responds with its own register values
- Returns responses back to the server
- If the SRV LED is on, the connection to the server or VPN has been successfully established
- If the SRV LED blinks, data is being exchanged via this connection

Use case: Centralized monitoring and control of distributed equipment through cloud platforms like Overvis Cloud, enabling remote access from anywhere without configuring firewall port forwarding or static IP addresses.

RS-485 Modbus RTU/ASCII master mode

In master mode, EM-482 forwards Modbus requests from TCP clients to devices on the RS-485 bus and returns their responses.

- EM-482 receives Modbus requests from TCP connections (incoming or outgoing)
- Translates Modbus TCP requests to Modbus RTU/ASCII format
- Forwards requests to target devices on the RS-485 network
- Returns responses back to the TCP client
- Supports both Modbus RTU and Modbus ASCII protocols

Request processing is described in detail in Modbus interface.

Use case: Data collection and event tracking for serial port equipment.

Integrated Modbus TCP server (slave mode)

EM-482 acts as a Modbus TCP server, accepting incoming connections and processing Modbus requests.

- Listens for incoming TCP connections from SCADA systems, HMI panels, or other Modbus TCP clients
- Receives Modbus TCP requests from connected clients
- Responds with its own register values or translates requests to Modbus RTU/ASCII and forwards them to RS-485 devices (in master mode)
- Returns responses back to the TCP client
- Supports up to 4 simultaneous incoming TCP connections
- EM-482's own registers can also be accessed directly (supply voltage, user registers, etc.)

Use case: Access to the RS-485 serial port equipment for the TCP devices, HMI panels, SCADA and other Modbus TCP software.

Connection to remote Modbus TCP server (master mode)

EM-482 can establish outgoing connection to remote Modbus TCP server, enabling it to forward requests to remote devices.

- Initiates and maintains TCP connection to specified remote Modbus TCP server via Wi-Fi
- Forwards Modbus requests received from other sources (RS-485 master or incoming TCP connections) to the remote server
- Receives responses from the remote server and returns them to the requester
- Enables bridging between local RS-485 network and remote TCP-based Modbus devices

Use case: Data collection and event tracking for Modbus TCP equipment.

Reverse control translator mode (RS-485 slave, TCP master)

EM-482 can operate as an RS-485 slave while acting as a Modbus TCP master, enabling reverse control scenarios.

- Receives Modbus RTU/ASCII requests from an RS-485 master device
- Translates these requests to Modbus TCP format
- Forwards them to remote TCP server (or local TCP-based devices)
- Receives responses from TCP devices
- Returns responses back to the RS-485 master in RTU/ASCII format

Use case: Access to the Modbus TCP equipment for the RS-485 serial port master device.

Network extension (long-range RS-485 bridging)

Pair two EM-482 units to extend RS-485 networks beyond physical distance limitations by converting to/from TCP.

- One EM-482 operates in master mode on its RS-485 interface, while the other is in slave mode
- First EM-482 receives RS-485 signals and converts them to TCP packets
- Data is transmitted over any distance via TCP/IP networks
- Second EM-482 receives TCP packets and converts them back to RS-485 signals
- Creates a transparent Modbus bridge between two RS-485 networks or segments

- Each EM-482 can operate in master or slave mode on its RS-485 interface as needed

Use case: Connecting RS-485 networks in separate buildings without running long cable runs, extending RS-485 beyond the 1200m distance limit, or accessing remote sites via Internet.

Configuration

EM-482 configuration can be performed in two ways:

- via the web interface, using a browser to configure the most important parameters in the Wi-Fi setup mode (see Quick Start Guide);
- via the Modbus protocol, using cloud server or any Modbus client software that works with EM-482's own registers (see Modbus interface).

> ⚠ **Configuration warning**
>
> When changing EM-482 parameters, you may set the values that interfere with or block subsequent connections. In this case, reset the parameters to factory defaults.

Use the service R button on the front panel to get into Wi-Fi setup mode, restart the controller, or reset factory settings.

To reset the device to factory settings:

- Press and hold the R button for at least 8 seconds. After 2 seconds, the PWR indicator will light up red. After 8 seconds, the settings are reset, and the device restarts; all the indicators blink once.
- Release the R button.

To switch Wi-Fi setup mode on or off:

- Press and hold the R button for 2 to 8 seconds.
- When the PWR indicator lights up red, release the R button.
- All the indicators blink once, and the device restarts.

To reset the device (while preserving the settings):

- Briefly press and release the R button.
- All the indicators blink once, and the device restarts.

> ⚠ **Security recommendation**
>
> For security reasons, protect the R button from unauthorized access (for example, by installing EM-482 in a locked enclosure).

Maintenance

MAINTENANCE SAFETY

TERMINALS AND INTERNAL ELEMENTS MAY CARRY POTENTIALLY LETHAL VOLTAGE. DURING MAINTENANCE, DISCONNECT EM-482 AND ALL CONNECTED EQUIPMENT FROM THE POWER SUPPLY.

MAINTENANCE SAFETY

DO NOT OPEN THE DEVICE. THERE ARE NO SERVICEABLE PARTS INSIDE.

- Only qualified personnel should perform maintenance.
- Recommended maintenance interval is every six months.

1. Check the reliability of wire connections; if necessary, retighten terminals with the torque specified in Technical Specifications.
2. Visually inspect the housing. If you detect cracks or other damage, take EM-482 out of service and send it for repair.
3. If necessary, wipe the front panel and housing with a soft cloth.

Caution

Do not use abrasives and solvents for cleaning.

Service life and warranty

1. The service life of EM-482 is 10 years. After the service life expires, contact the manufacturer.
2. Shelf life is 3 years.
3. The warranty period is 5 years from the date of sale. During the warranty period, in the event of failure, the manufacturer provides free repair.

Warranty conditions

IF YOU OPERATE EM-482 IN VIOLATION OF THE REQUIREMENTS OF THIS OPERATING MANUAL, YOU LOSE THE RIGHT TO WARRANTY SERVICE.

4. The place of purchase or the manufacturer performs warranty service.
5. The manufacturer performs post-warranty service at current rates.
6. Before sending EM-482 for repair, pack it in the original or other packaging that protects it from mechanical damage.

When returning EM-482 for warranty or post-warranty service, please provide a detailed reason for the return in the claims data field.

Transportation and storage

You may transport and store EM-482 in the original package at temperatures from minus 45 to +60 °C and relative humidity of no more than 80%. When transporting EM-482, protect it against mechanical damage.

Manufacturer Contact

“Novatek-Electro” Ltd.

- Website: www.novatek-electro.com
- Address: 59, Mykhailo Boltenko (Admiral Lazarev) str., Odesa, Ukraine, 65007
- Tel: +38 (067) 565 37 68; +38 (050) 359 39 11; +38 (063) 301 30 40

See also

- Versions and modifications
- Quick start guide
- Connections
- Modbus interface
- Firmware update

Connections and Network Setup

> **Important**
>
> Connecting an incorrectly configured device to a data transmission network can disrupt communication between other devices. Ensure all connected devices have compatible settings. Network connections involving more than 2 devices should be performed by qualified network personnel.

> **Quick Start**
>
> For a streamlined connection guide, see the Quick Start Guide.

IP Addressing

The EM-482 uses standard TCP/IPv4 addressing for Wi-Fi communication. DHCP is enabled by default, allowing the device to automatically obtain network settings from your router. Without DHCP the factory default IP address is 192.168.0.111.

> **IP Addressing Fundamentals**

Wi-Fi Connection Methods

EM-482 supports three connection methods via Wi-Fi.

Method 1: Wi-Fi setup access point mode

This mode is only used to configure EM-482 essential communication parameters. It is not intended for Modbus communication.

1. Press the R button on the front panel for about 3 seconds.
2. After the button is released, on entering this mode the WI–FI and SRV LEDs would start blinking.
3. The Wi-Fi access point EM482_XXXXXX would become available, where XXXXXX are the last symbols of the device MAC address (shown on its label).
4. Connect to this access point with your device, open the browser and enter em.com (or 192.168.4.1) in its address line.
5. Select the Wi-Fi access point for EM-482 to connect to.
6. Save settings then restart the device.

Method 2: Network with DHCP Server

If your network access point has DHCP server that assigns IP addresses to new devices:

1. Enter EM-482 configuration mode (see method 1)
2. Select Wi-Fi access point for EM-482 to connect to
3. Enable DHCP server addressing
4. Save settings and reboot EM-482

5. EM-482 would connect to the cloud server, and can be managed there (if the access point provides Internet access)
6. To access EM-482 locally, check its local IP address in the access point router DHCP table, or fix the EM-482 address as static in the access point router settings

Method 3: Network Without DHCP

If DHCP is unavailable, or a static address should be used outside the DHCP range:

1. Enter EM-482 configuration mode (see method 1)
2. Select Wi-Fi access point for EM-482 to connect to
3. Disable DHCP server addressing
4. Set the static IP address, mask and gateway address according to your access point network setup. The EM-482 address should be unique in the network. The gateway is needed only for Internet access (cloud server and firmware updates)
5. Save settings and reboot EM-482
6. EM-482 may connect to the cloud server, and can be managed there (if the manual IP settings are correct and the gateway provides Internet access)
7. To access EM-482 locally, use its manually configured address

Internet Connection via Wi-Fi

> ⚠ **STRONGLY RECOMMENDED**
>
> Connect the device to the Internet under the supervision of your network system administrator and/or Internet service provider representative.

Basic Internet Setup

To connect EM-482 to the Internet via Wi-Fi:

1. Connect EM-482 to a router using one of the methods above
2. Ensure the router is connected to your Internet service provider (ISP)

This setup enables outgoing connections (e.g., active-mode connection to cloud servers, connections to other servers using their static IP addresses).

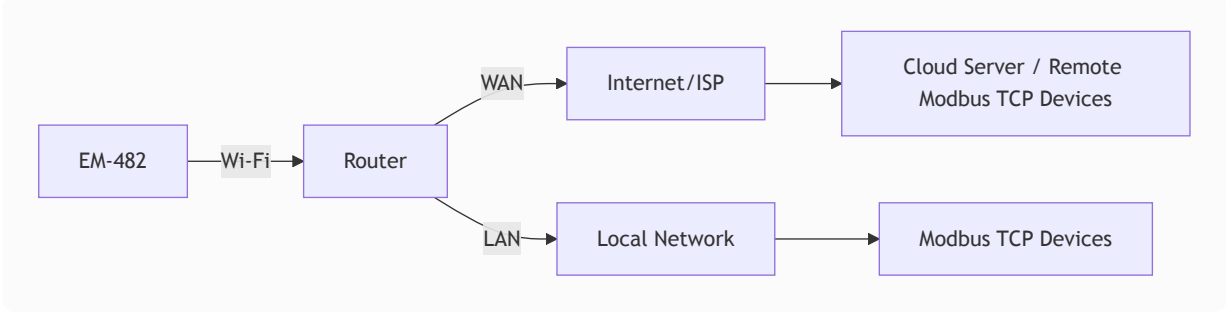


Fig. 3 – EM-482 Internet connection topology via Wi-Fi with DHCP

Incoming Connections Setup

To access the device from the Internet via incoming connections (direct TCP connection or web interface):

1. **Acquire a Static IP**: Get a dedicated line with a static IP address from your ISP
    - Connect the ISP cable to the router's uplink port (usually color-coded, see router documentation)
    - Connect EM-482 to the router
2. **Configure Router**: Following your ISP's recommendations, configure the router for Internet access using the router documentation.
3. **Set Up Port Forwarding**: Configure the router to redirect queries from your static public IP address to EM-482's local IP address. For Modbus TCP access: redirect to the incoming connections port (register 450, factory default: **502**). See Modbus Interface for register configuration details.

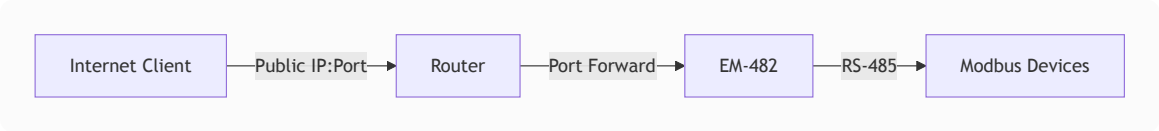
    

    Fig. 4 – EM-482 incoming connections via port forwarding
4. **Configure DHCP Reservation**: Either:
    - Configure the router to always assign the same IP address to EM-482 via DHCP, OR
    - Disable DHCP in EM-482 settings and use a static IP

    This ensures port forwarding works correctly.
5. **Verify Security**: Confirm that EM-482's Internet connection is protected by standard security measures (see Connection Security). Specifically set the setup password and write access password to some unique values. It is also recommended to set the read access password.
6. **Access the Device**: When accessing EM-482 from the Internet, use the static IP address provided by your ISP and the public port specified in your port forwarding configuration

Connection Security

EM-482 provides several security features to protect against unauthorized access:

Built-in Security Features

EM-482 has basic protection against unauthorized access via network. Access for writing and/or reading via Modbus can be deactivated in settings.

Device settings can be changed remotely by entering a password (minimum 5 characters). Access passwords can be set for restriction of writing and/or reading via Modbus.

When entering the password, all settings are only available to the specific client. In case of no requests from the client over a long period, the access returns to locked mode.

> ⚠ **SECURITY WARNING**
>
> For Modbus connections, passwords are transmitted in unencrypted form. Even with correct password authentication, the HTTP and Modbus connections remain unsecured at all segments except Wi-Fi.
>
> **Security Limitations and Recommendations:**
>
> - **Attack Protection**: The device protection system is not designed to counter malicious network attacks, especially denial-of-service attacks aimed at blocking EM-482 rather than gaining access
> - **Network Segmentation**: For complex and large networks (especially when providing Internet access to EM-482), it is strongly recommended to:
>   - Separate EM-482 from unprotected networks using standard security equipment
>   - Use a properly configured router with traffic filtering
>   - Deploy a firewall or similar protective measures

Server Connection

EM-482 supports constant communication with data collection and management servers, for example, Overvis Cloud.

> ⓘ **About Overvis**
>
> Overvis (www.overvis.com) is a system for monitoring and remote control of technological processes that enables you to read data from and control devices including EM-482, store data in a database, review the data in various formats, and receive alarm notifications via SMS or email.

EM-482 factory settings are preconfigured for Overvis connection, once the Internet access is provided, EM-482 would connect to the cloud server. The Overvis system uses MAC address-based authentication — the device's unique MAC address is sent to the server at each connection session.

Connection Methods Overview

There are two ways to connect EM-482 to Overvis Cloud:

1. **Using PIN/QR Code from Label** (Recommended for first-time setup) — The fastest method using reverse connection where EM-482 connects to Overvis. Simply scan the QR code on your device label. Detailed in Quick Start Guide.

2. **Direct Connection from Overvis** (For advanced users) — Overvis connects directly to EM-482 through router port forwarding, requiring a static public IP address. Used rarely due to complexity and security considerations.

Method 1: Using PIN/QR Code from Device Label

This is the recommended method for first-time setup, using the registration information from your EM-482 label.

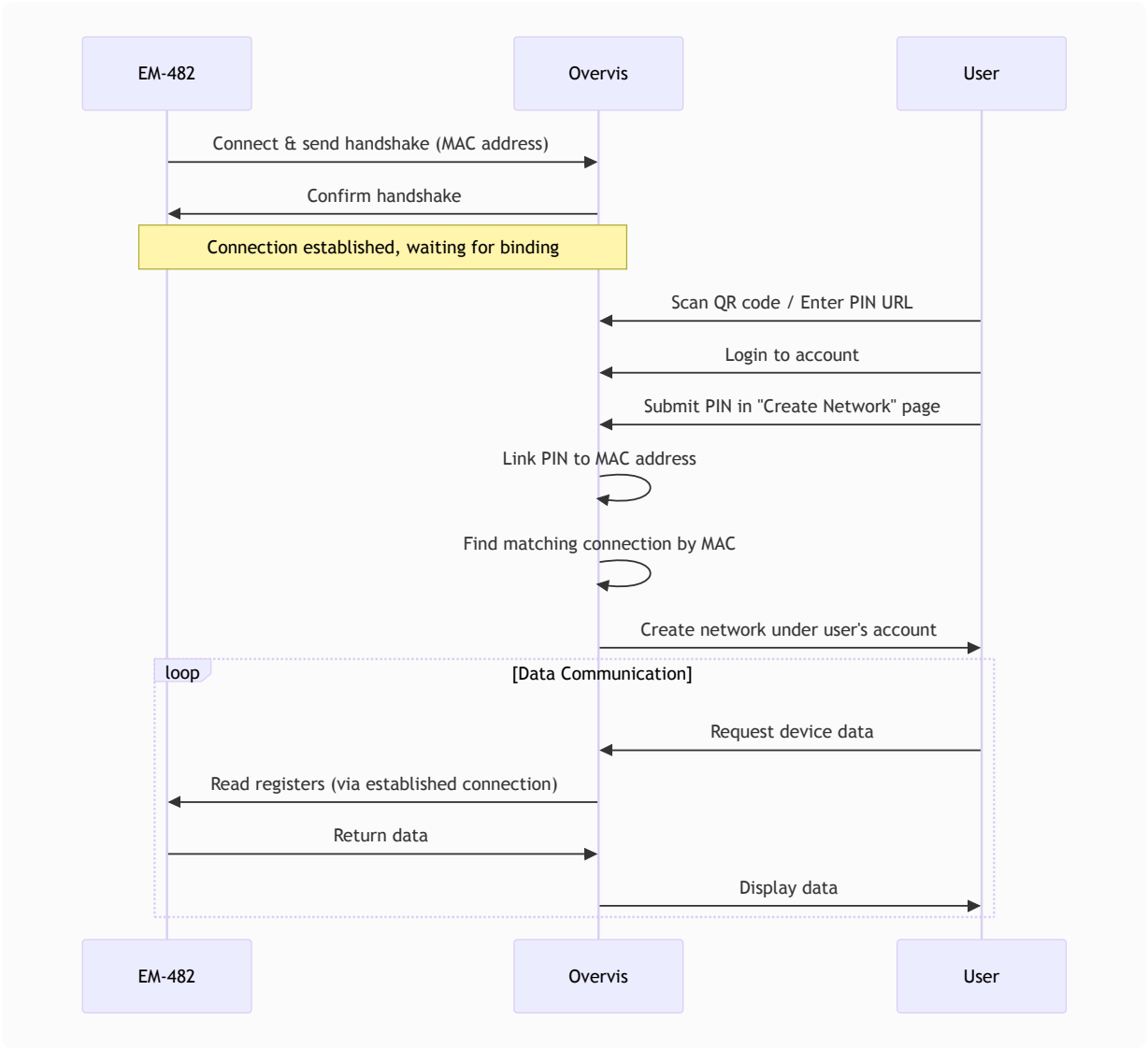


Fig. 6 – Connection sequence for PIN/QR code method (reverse connection)

Connection Flow: EM-482 initiates outbound connection to Overvis and maintains it. User registers by linking the PIN to this existing connection. No port forwarding required.

Prerequisites:

- EM-482 connected to Internet
- QR code label on device (or PIN code from label)
- Overvis Cloud account (or create during setup)

Connection Steps:

1 **Verify Internet Connection**

Ensure EM-482 is connected to the Internet. Check the `Wi-Fi` and SRV LEDs are both on.

Access Overvis Server

Scan the QR code on the device label with your phone or tablet, OR manually enter the URL from the label (format: `https://c.overvis.com/ABCD1234`). The link automatically redirects to Overvis server login page with the PIN embedded in the URL.

3 **Login or Create Account**

If you have an account, enter your credentials. New users should register for a free account first.

4 **Create Network**

After login, Overvis displays the “Create Network” page. If you came from the QR code/link, the PIN is pre-filled automatically. Otherwise, manually enter the PIN from the device label. Click “Check connection” to verify EM-482 is online.

5 **Configure Network**

Give your network a descriptive name (a “network” represents your EM-482 plus all connected Modbus devices). EM-482 itself (Modbus unit ID 111) is added automatically. Add your RS-485 devices by selecting models and entering their Modbus addresses.

6 **Verify Operation**

Open a device page in Overvis and read parameters to confirm real-time communication.

Method 2: Direct Connection from Overvis

This method allows Overvis to connect directly to your EM-482 using its public IP address. It requires more advanced network configuration.

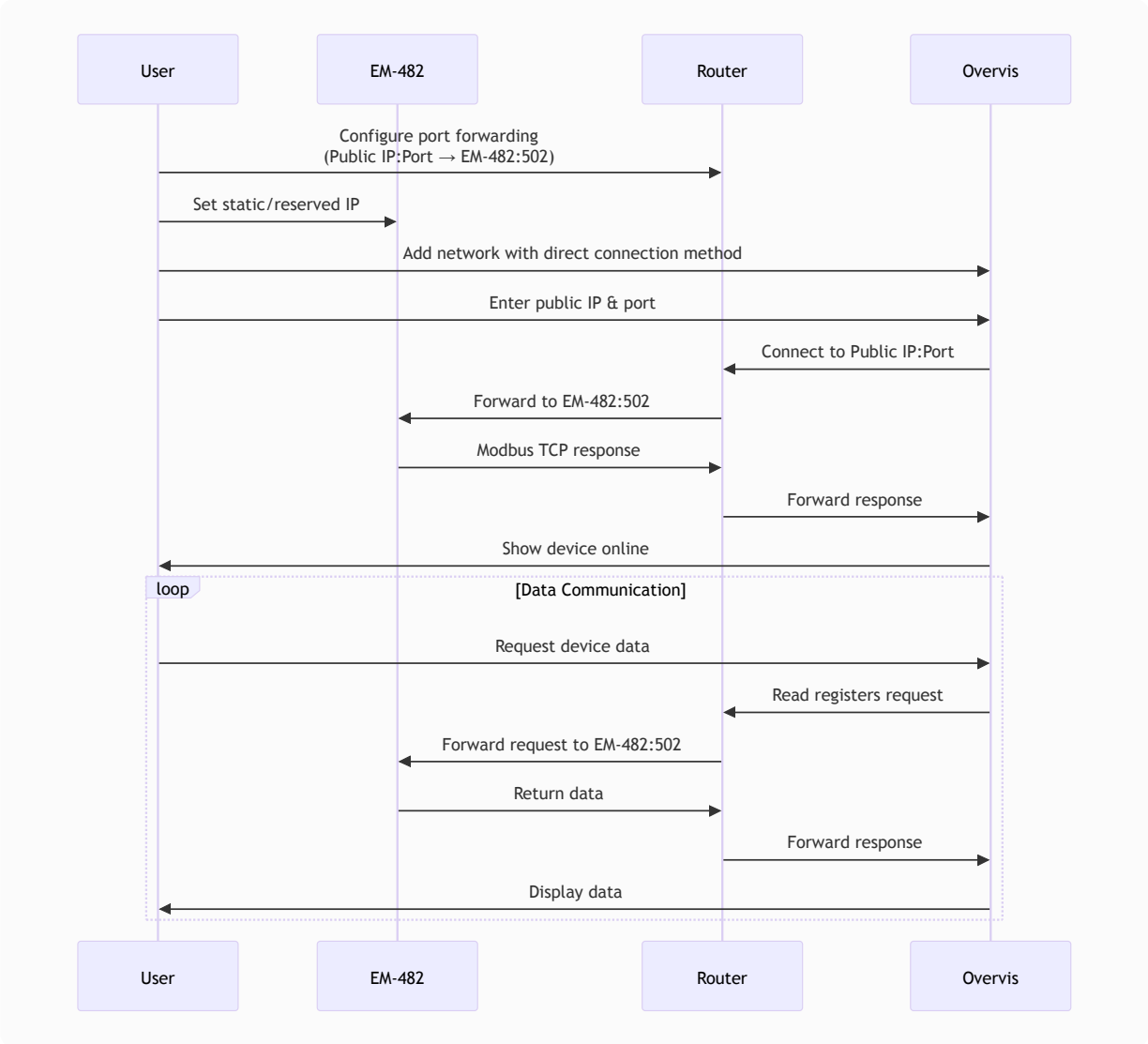


Fig. 11 – Connection sequence for direct connection method (incoming connection)

Connection Flow: Overvis initiates inbound connection to EM-482 through router port forwarding. Requires static public IP.

Prerequisites:

- Static public IP address from your ISP
- Router with port forwarding capability
- EM-482 connected to your LAN
- Overvis Cloud account
- Basic understanding of router configuration and network security

⚠ Advanced Configuration

This method requires configuring your router's port forwarding and exposing EM-482 to the Internet. Ensure you follow security best practices and consult your network administrator if operating on a corporate network.

Connection Steps:

1. **Obtain Static Public IP**

   Contact your Internet Service Provider to obtain a static public IP address for your location. Dynamic IP addresses are not recommended as they may change. Some ISPs offer static IP as a paid add-on service.

2. **Configure Router Port Forwarding**

   Access your router's configuration interface and set up port forwarding to redirect external connections to EM-482. Forward to EM-482's **Modbus TCP port** (default: **502**). External port can be the same (502) or different for security. Forward to EM-482's internal IP address (e.g., `192.168.0.111`).

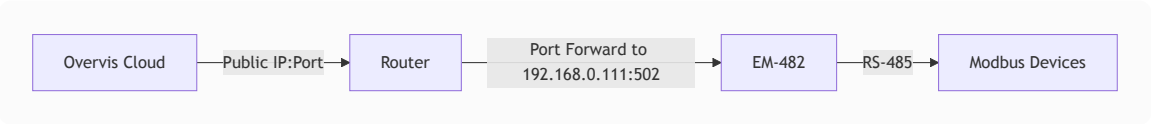


Fig. 12 – Direct connection port forwarding configuration

3. **Configure DHCP Reservation or Static IP**

   Ensure EM-482 always has the same internal IP address:

   - **Option A**: Configure your router to assign EM-482 a reserved IP via DHCP (recommended)
   - **Option B**: Disable DHCP on EM-482 and manually configure a static IP address in the web interface

4. **Verify EM-482 Accessibility**

   Test the connection from outside your network. Use a Modbus TCP client from a different network (e.g., mobile hotspot), connect to your public IP address on the forwarded port, and try reading a register from EM-482 (unit ID 111, register 1 for firmware version).

5. **Configure Security** (Strongly Recommended)

   Set the strong Modbus TCP password in EM-482 settings. Consider changing the external port to a non-standard number. Configure your router's firewall to restrict access by IP range if possible. See Connection Security for additional recommendations.

6. **Create Network in Overvis**

   Log in to your Overvis Cloud account at www.overvis.com. On the "Create Network" page, select the direct connection method. Enter your static public IP address and the external port number (as configured in router). Enter EM-482's Modbus address (default: 111) and Modbus password if configured.

7 **Configure Network**

Give your network a descriptive name (a “network” represents your EM-482 plus all connected Modbus devices). EM-482 itself (Modbus unit ID 111) is added automatically. Add your RS-485 devices by selecting models and entering their Modbus addresses.

8 **Verify Operation**

Open a device page in Overvis and read parameters to confirm real-time communication. Monitor connection stability over 24-48 hours.

Connecting to Other Servers

The only method of connection EM-482 to other cloud servers and SCADA systems is the direct connection method via Modbus TCP.

Configure EM-482 in the monitoring system as a remote Modbus TCP device. This requires setting up port forwarding on your router to redirect external connections to EM-482’s local IP address and Modbus TCP port (default: 502). Your server will initiate connections to EM-482 through your router, similar to Method 2 described above. You’ll need a static public IP address from your ISP.

Since EM-482 uses the standard Modbus TCP protocol for direct connections, no special server software is required—any Modbus TCP client can communicate with the device. See the Modbus Interface documentation for complete register mappings and communication protocols.

Troubleshooting

Problem: EM-482 `WI-FI` LED does not remain on, but is blinking rarely (every 3 seconds, for more than 2 minutes).

EM-482 is not connected to your Wi-Fi access point. Either Wi-Fi access point is misconfigured, or the access point is unavailable. If the issue persists, verify the Wi-Fi access point is properly configured in EM-482 settings.

Problem: EM-482 `SRV` LED remains off (for more than 2 minutes).

EM-482 is not connected to the Internet. Verify the server connection is enabled in the web interface. Check that the server address and port are correct in settings. Your network firewall may be blocking outgoing connections. If the issue persists, check the router internet access.

Problem: EM-482 `WI-FI` and `SRV` LEDs keep blinking alternately.

The EM-482 is in setup access point mode. Either complete the configuration, or exit the mode by pressing the R button on the front panel for about 3 seconds.

Problem: Cannot access EM-482 web interface

Check the EM-482 is in setup access point mode (the LEDs are blinking alternately). Check your device is connected to EM-482 access point. Use `em.com` or `192.168.4.1` address to access the web interface.

Problem: “Device already registered” error

The device is bound to another Overvis account. Use the **Restart Activation** button in the Cloud settings page to unbind it, or contact the server administration (or the previous owner) to remove the device from their account.

Problem: Intermittent connection drops

Check that the power supply voltage is within the required range (7-30V DC) and can provide sufficient current (up to 110mA). Look for electrical noise or interference sources near the device. Update EM-482 firmware to the latest version.

Problem: RS-485 devices not responding

Verify the RS-485 wiring is correct (A and B terminals). Check that the RS-485 bus termination is properly configured. Verify Modbus RTU/ASCII settings match the connected devices. See the Modbus Interface documentation for detailed communication settings.

Further Reading

- **Quick Start Guide** – Get your EM-482 up and running in 15 minutes with step-by-step setup instructions
- **Modbus Interface** — Register mappings and communication protocols for Modbus TCP/RTU/ASCII

Need Help?

If you're experiencing issues not covered in this guide, we're here to help:

- **Technical Support**: Contact the manufacturer's support team
- **Documentation**: Visit overvis.com/support for additional resources
- **Community**: Check the user forums for solutions from other EM-482 users

For warranty service or hardware issues, please contact your authorized distributor or the manufacturer directly.

Modbus Interface Reference

The EM-482 operates as a Modbus gateway, listening for Modbus TCP connections on port 502 (configurable). It supports connections from standard Modbus TCP client applications. Windows client software for basic testing is available for download here.

Upon receiving a connection request, the EM-482 checks its list of active clients. If the maximum list size (as per technical specifications) has not been reached, the new client is accepted.

Once connected, the EM-482 processes Modbus requests from the client. In **RS-485 Slave Mode**, it also accepts requests from a Modbus Master on the RS-485 bus.

Request Processing

The device analyzes each request based on the requested function and the client's access rights (determined by passwords entered).

- **Blocked Requests**: If a request is blocked due to insufficient rights, the EM-482 sends back a Modbus exception (default code 1).
- **Internal Requests**: If the request addresses the EM-482 itself, it is processed internally, and a reply is sent back.
- **Redirection**:
  - **RS-485 Master Mode**: Requests for other devices are converted (Modbus TCP/RTU/ASCII) and redirected to the RS-485 bus. The RS–485 indicator lights up while waiting for a response.
  - **Remote Server**: If configured, requests can be redirected to a remote Modbus TCP server via Ethernet or GSM/LTE.

> ⚠ **Caution**
>
> Ensure there are no duplicate Modbus addresses (identifiers) across the RS-485 bus and the remote Modbus TCP server network. The response is accepted from the first responding device.

> ⚠ **Caution**
>
> Ensure there are no redirection loops. E.g. the remote server address is not the EM-482 own address, etc. Redirection loops cause the responses to take longer, tend to cause exceptions or connection losses.

If a valid response is received, the EM-482 forwards it back to the client.

Troubleshooting

- **Exception `Illegal Function (Code 1)` is returned for a request**: Sent either by EM-482 (if insufficient rights for the request) or by the target device (if the request unsupported). Check the EM-482 settings (`Protection` group) for protection settings. Send the correct password to the EM-482 before using this request. Try allowing these requests, or try some other request.
- **Exception `Gateway Path Unavailable (Code 10 or 0x0A)` is returned for a request**: Sent if the request cannot be redirected. Check the connection to the remote is configured and established (if the target should be requested

using Modbus TCP). Check the `Modbus Master` mode is configured (if the target should be requested using Modbus RTU/ASCII). Check the Modbus address ranges in EM-482 settings for the redirection destinations.

- **Exception `Target Device Failed to Respond (Code 11 or 0x0B)` is returned**: Sent if no response is received from the target device. Check the device settings match the EM-482 configuration for RS-485 (baudrate and parity in particular). Check the target device is powered on.
- **Some exception (not 1, 10 or 11) is returned**: Sent by the target device if it could not perform the request or produce the response data. Check the device manual. Try some other request.
- **The data has been acquired, but the values seem wrong**: Check the device manual. Ensure the Modbus device address and Modbus register address in the request are correct. Check the data formatting in the Modbus client software (which is sending this request). Try dividing the acquired value by 10, 100 or 1000.

Table 1 - Standard Modbus Exception Codes

Code	Exception	Description
1	ILLEGAL FUNCTION	The received function code cannot be processed
2	ILLEGAL DATA ADDRESS	The data address specified in the request is not available
3	ILLEGAL DATA VALUE	The value contained in the request data field is invalid value
4	DEVICE FAILURE	Unrecoverable error has occurred when the addressee has tried to perform the requested action
5	ACKNOWLEDGE	The addressee accepted the request and processed it, but it takes a long time
6	DEVICE BUSY	The addressee is busy processing the command. The client can retry the request later
8	MEMORY PARITY ERROR	The parity error was detected when the addressee has tried to read the extended memory
10	GATEWAY PATHS NOT AVAILABLE	The gateway cannot redirect the request, since there is no path (connection) to the addressee
11	TARGET DEVICE FAILED TO RESPOND TO GATEWAY	The gateway did not receive a response to the forwarded request, because the addressee did not respond in time

Configuration via Modbus

The EM-482 can be configured using any Modbus TCP client.

1. **Connect**: Use the EM-482's IP address (configured manually or provided by the Wi-Fi access point, see its corresponding manual on how to check the address) and Modbus ID (default 111).
2. **Enter Password**: Write the password (default setup access password is in the parameter list, `Protection` group) into the password registers (see **Current Mode Parameters**).
3. **Verify Mode**: If the password is correct, the Mode register will read 1 (Setup Mode).

Managing Settings

In Setup Mode, you can modify the **Changeable Settings** registers.

- **Save Changes**: Write 2 to the Command Register. Verify by comparing changeable parameters with saved parameters.
- **Save & Apply**: Write 4 to the Command Register. Applies Modbus parameters immediately without restart.
- **Cancel Changes**: Write 9 to the Command Register. Reverts changeable parameters to saved values.
- **Factory Reset**: Write 444 to the Command Register. Resets all settings to defaults.
- **Restart Device**: Write 1 to the Command Register. Required for some settings to take effect.
- **Exit Setup Mode**: Write `0` to the first password register (`100`). This clears the password and command registers.

EM-482 Parameters

Table 2 - Parameter Data Formats

Parameter	Range of values	Description	Number of occupied registers
Number	0 – 65535	Integer number (16 bit) in standard range of Modbus register values	1
Number	0 – 4294967295 in two registers, MSB part – first	Integer number, which value can exceed the limit for Modbus register (65535)	2
Character string	In every register – number of 0 to 255 - ASCII character code or 0 (the end of string)	A set of values, each of which is equal to the code of one character in the ASCII encoding. If the string is shorter than the maximum length, the code 0 is placed after the last character.	Max. length of string for this parameter
IP-address (IP-mask)	In every register – one byte (0 – 255)	Set of four byte of address IPv4, from left to right	4
MAC-address	In every register – one byte (0 – 255)	Set of six byte of address MAC-48, from left to right	6

Table 3 - Parameter Groups

Group	Description	Access	Address
Device description	Device and firmware identification	Any mode, read only	0 – 3
Current mode	Access and general commands controls	Password entry is available in any mode, command entry - only in setup mode (after password entry)	100 – 120

Group	Description	Access	Address
Current status	Interfaces and software modules operation, current time and statistics	Any mode, read only	121 – 177, 2000–2005
Changeable settings	Interfaces and features selection and configuration	Only in setup mode, reading or writing	300 – 899, 5250 – 5499
Active settings	The configuration being used by the device at the moment	In any mode, read only	2300 – 2899, 5500 – 5749
Saved settings	This set is saved regardless the power of the device and is used at restart	Only in mode of setting, read only	3300 – 3899, 5750 – 5999

Device Description Parameters

Table 4 - Device Description Parameters

Parameter	Description	Address
Device type	The code that defines the Modbus device for the manufacturer (31 – EM-482)	0
Firmware version	Firmware version of embedded software	1
Check code	CRC32 of firmware of embedded software	2 – 3

Current Mode Parameters

Table 5 - Current Mode Parameters

Parameter	Range of values	Initial value	Description	Address
Entered password	String of characters	0	When entering a valid password, the client is given the appropriate permission (see registers 510 - 569)	100 – 119
			When you enter an empty string, the client rights are reset to the rights level at the time of connection	
Control command	0 – 65407, writing in the configuration mode	0	See **Table 5.1** for the list of commands.	120

Table 5.1 - Control Commands (Register 120)

Value	Command	Description
0	No activity	No action performed
1	Restart	Restart the EM-482 device
2	Save	Save settings changes via Modbus
3	Apply	Apply settings without restarting (Modbus and user's parameters only)
4	Save and apply	Execute "Save" then "Apply" commands
9	Cancel	Revert to saved settings
51	Apply for Modbus	Apply settings for Modbus and RS-485 only
59	Apply for User's	Apply settings for user's custom registers only
444	Factory Reset	Reset settings to factory defaults
35381	Start clock setting	Allow access to clock setting registers
35431	Cancel clock setting	Close access to clock setting registers without changes
40959	Update task memory	Erase the logic program (re-read if memory card is inserted)
64893	Download Updates	Download latest firmware from cloud to the loaded file
65397	Update Firmware	Program firmware from the loaded file
65407	Revert Firmware	Return to the factory firmware file

Current Status Parameters

Table 6 - Current Status Parameters

Parameter	Description	Address
Mode (for details see reg. 122)	0: User's mode;	121
	1: Setting mode	
Tabs of access	See **Table 6.1** for the list of access bits.	122
Time, min	Number of minutes since the moment of start-up	123 – 124
Number of TCP clients	Number of occupied connections of TCP	125
Limit of TCP clients	Number of prospective clients of TCP	126
Load of RS-485, query/s	Total number of query/s via RS-485	127

Parameter	Description	Address
Effective load of RS-485, query/s	Number of responds without errors via RS-485 per second	128
Load of RS-485 per second, %	Load of RS-485 for the last second considering the set rate of RS-485 and time of inactivity	129
Load of RS-485 per minute, %	Load of RS-485 for the last minute	130
Load of RS-485 for 5 minutes, %	Load of RS-485 for the last 5 minutes	131
Load of Modbus TCP, query/s	The number of queries received from clients via Modbus TCP per second	132
Effective load of Modbus TCP, query/s	Number of responds without errors being sent to the client via Modbus TCP per second	133
Load of Wi-Fi, kB/s	Load of Wi-Fi channel	134
Unused parameter	The parameter is reserved for compatibility	135
Max. number of clients of TCP	Maximal number of simultaneously connected clients via TCP – from the moment of start up	136
Max. load of Modbus TCP, query/s	Maximal number of queries received per second from the clients via Modbus TCP – from the moment of start up	137
Max. load of RS-485, %	Maximal load of RS-485 for 5 minutes – from the moment of start up	138
Max. load of Wi-Fi, kB/s	Maximal load of Wi-Fi – from the moment of start up	139
Current IP-address of Wi-Fi	IP-address, by which EM-482 device is accessible in the network	140 – 143
Current MAC-address of Wi-Fi	MAC-address, by which EM-482 is detected in the network	144 – 149
Unused parameter	The parameter is reserved for compatibility	150 – 164
Time to connect to the data collection server	0 – connection to the data collection server is set;	165
	1 – connection to the data collection server is performed;	
	2 – 65534: the number of seconds before reconnecting;	
	65535: connection to the server is not used	
Number of programmed restarts	Number of restarts in accordance to the user setting – for total operational time	166

Parameter	Description	Address
Number of critical errors	Number of noted errors (failures) causing the restart of the device – for total operational time	167
Total operation time, min	The number of minutes of operating time - for the total operational time	168 – 169
Unused parameter	The parameter is reserved for compatibility	170 – 174
Power supply voltage, mV	Voltage at the product power supply terminals	175
Time to connect to a remote TCP server, s	0 – connection to the remote server is set;	176
	1 – connecting to the remote server;	
	2 – 65534: the number of seconds before reconnecting;	
	65535: connection to a remote TCP server is not used	
Status of a connection to a remote TCP server	0 – the connection is not set;	177
	1 – connection is set;	
Firmware Download Status Bits	See **Table 6.2** for the list of status bits.	2004
Firmware file download progress (x 0.01%)	Proportion of downloaded data size to total file size.	2005
	10000 – File fully downloaded	
Firmware File Header	The string identifier of the version, e.g., “EM-482, ver.10”.	2030 – 2061
	A blank string indicates the file is either unverified yet or invalid	

Table 6.1 - Tabs of Access Bits (Register 122)

Bit	Description	Value 0	Value 1
0	Permission to obtain RS-485 reading rights (via password)	Cannot be obtained	Can be obtained
1	Current RS-485 reading permission	No permission	Permission granted
2	Permission to obtain RS-485 write/control rights (via password)	Cannot be obtained	Can be obtained
3	Current RS-485 write/control permission	No permission	Permission granted

Bit	Description	Value 0	Value 1
4	Permission to obtain EM-482 register access (via password)	Cannot be obtained	Can be obtained
5	Current EM-482 register access permission	No permission	Permission granted
6	Reserved	-	Always 1
7	Permission to configure EM-482	No permission	Permission granted
8	Reserved	Always 0	-
9	Connection right	-	Client has right (Always 1)

Table 6.2 - Firmware Download Status Bits (Register 2004)

Bit	Status	Value 0	Value 1
1	Busy Status	Waiting for command	File download in progress
2	Update Download Error	No error	Download error occurred
3	Server Connection	No connection	Connected to server
4	File Data Reception	No data received	Some file data received
6	File Download Completion	File not downloaded	File fully downloaded
7	File Validity	Not confirmed	File is valid

Settings Parameters

Table 7 - Settings Parameters

> **Note**
>
> The internal structure of all sets of settings is similar to the structure of the set described, except for the initial address.

> **Note**
>
> Parameters marked with * are available both over MODBUS and WEB in the Wi-Fi setup mode.

Parameter	Range of values	Factory setting	Description	Address
Wi-Fi network				

Parameter	Range of values	Factory setting	Description	Address
Static IP-address*	IP-address	192.168.0.111	If the dynamic addressing is switched off, IP-address of the device in Wi-Fi network is equal to this value	300 – 303
Subnetwork mask*	IP-mask	255.255.255.0	It is used only with static IP-address	304 – 307
Gateway*	IP-address	192.168.0.1	It is used only together with static IP-address for communication with other networks	308 – 311
Switch on the dynamic addressing with a help of DHCP*	0 – 1	1	0 – for addressing on Wi-Fi access point network, the specified values of the IP address, mask and gateway are used;	312
			1 – If DHCP server is available in the network, then IP address, mask and gateway are received from the server	
Unused parameter	0	0	Should be 0 for compatibility	313
Switch on the use of server gateway DNS	0 – 1	1	0 – DNS of gateway is not used;	314
			1 – The gateway DNS is used to determine the IP addresses of other servers, if they are specified by host names	
IP-address of DNS server	IP-address	8.8.8.8	It sets IP-address of a DNS server	315 – 318
IP-address of additional DNS server	IP-address	0.0.0.0	0.0.0.0 – it is not used	319 – 322
Unused parameter	0	0	Should be 0 for compatibility	323 – 339
SSID – Wi-Fi access point*	Character string		EM-482 is connected to the given access point. Up to 32 characters	340 – 371
Wi-Fi access point password*	Character string		Up to 24 characters	372 – 395

Parameter	Range of values	Factory setting	Description	Address
Unused parameter	0	0	Should be 0 for compatibility	396 – 449
Modbus TCP Server				
TCP connection port for Modbus TCP	1 – 65535	502	It is used for external connection to EM-482 via Ethernet for exchange via Modbus TCP protocol	450
Disconnect inactive clients	0 – 1	1	0 – incoming TCP connection is kept regardless of the time between requests from the client;	451
			1 – disconnect clients that did not send requests for longer than a specified time	
Max. request waiting time, s	0 – 600 000	90	Used if disconnection of inactive clients is selected	452 – 453
Unused parameter	0	0	Should be 0 for compatibility	454 - 456
Own Modbus-identifier of EM-482	0 – 247	111	0 – all queries are sent via Modbus to the Modbus network, the device registers are unavailable by Modbus;	457
			1 - 247 – the device responds Modbus queries with this Modbus identifier without forwarding them on	
RS-485 network				
Bit rate via RS-485, bit/sec*	75 – 230 400	9 600	It is used in case of data exchange between the devices via RS-485, the same value for the devices on the same RS-485 bus cable	458 – 459
Unused parameter	1	1	Should be 1 for compatibility	460
Byte format when transmitting via RS-485*	0 – 5	5	It is used in case of data exchange between the devices via RS-485. See **Table 7.1** for formats.	461
Waiting time for starting the Modbus RTU response, ms	0 – 60 000	200	It is used for transmissions via RS-485 in Modbus RTU mode. After transmission of query, if the first byte of the response was not received within	462

Parameter	Range of values	Factory setting	Description	Address
			this time interval, the waiting for the response is terminated. The response is always waited for at least the silence time between frames	
Enable ASCII exchange mode in Modbus network	0 – 1	0	Exchange mode via RS-485, the same value for all units on the same RS-485 bus cable.	463
			0 – RTU exchange mode (format: 1 start bit, 8 data bits, 2 stop-bits, parity bit, and stop bit or only 1 stop bit – total from 10 to11 bits);	
			1 – ASCII exchange mode (format: 1 start bit, 7 data bits, 2 stop-bits or parity bit and stop bit - total is 10 bits). The non-standard byte formats (register 461, values 4 and 5) are not available in this case, format 3 (2 stop bits) is used instead	
Response time for subsequent Modbus ASCII character, ms	0 – 60 000	1 000	It is used in case of data transfer via RS-485 in Modbus ASCII mode. If you receive a response, if the next byte of the response was not received within this time interval, then the response waiting is stopped. Waiting is always not less than the transmission time of one character (depends on the transmission speed)	464
Connection to the cloud server				
Mode of connection to the cloud server*	0 – 1	1	0: connection to the server is not used;	465
			1: establish and maintain a connection to the data collection server	
Cloud server connection port	0 – 65535	20502	The port to which the party is addressed, making connection between EM-482 and the server (see reg. 465)	466
Time of waiting for response from the	0 – 3 600	120	0 – the server silence time is not limited;	467

Parameter	Range of values	Factory setting	Description	Address
cloud server, s				
			1–3600 – max. time of server silence after which the connection will be stopped and must be remade again	
Delay time before reconnecting to the cloud server, s	0 – 30 000	15	It is used when connecting to the server. After losing connection to the server, the reconnection will be performed after the specified waiting time	468
Unused parameter	0	0	Should be 0 for compatibility	469 - 473
Enable setting the server address with a text string	0 – 1	1	This is used when connecting to the server.	469
			0: the connection is made to a server with a fixed IP address specified in registers 470-473;	
			1: the connection is made to the server with the name specified in registers 474-509	
Server’s IP address	IP address	0.0.0.0	This is used when connecting to the server, if setting the server’s address with a text string is disabled. IP address of a remote server, with which the connection is maintained	470 – 473
Cloud server address	Character string	modbus.overvis.com	It is used when connecting to the server, if the server address setting is turned on with text string. Address of the remote server with which the connection is supported.	474 - 509
			The string of up to 36 characters can be indicated as address. This string should not have any spaces	
Protection				
Password for setup mode access	Character string	11111	It is used to access the configuration mode. The string of 5 to 10 characters in	510 – 519

Parameter	Range of values	Factory setting	Description	Address
			length can be indicated as password. This string should not have any spaces	
Unused parameter	0	0	Should be 0 for compatibility	520 – 549
Password for writing permission via Modbus to the other devices	Character string		It is used to access devices connected to the EM-482, to request write or control functions that can change the status of these devices. The string up to 10 characters in length can be specified as password. This string should not have any spaces	550 – 559
Password for reading permission via Modbus	Character string		It is used to access devices connected to the EM-482, to request read functions, or to access the EM-482 registers, except for registers of version, password, mode and flags. The string up to 10 characters in length can be indicated as password. This string should not have any spaces	560 – 569
Unused parameter	0	0	Should be 0 for compatibility	570 – 571
Enable the protection mode against writing via Modbus	0 – 1	0	0 – Protection against recording is regulated with help of other parameters (password) or deactivated;	572
			1 - Blocking of any queries for functions, excepting functions of Modbus 1, 2, 3, 4, 7, 17, 20	
Enable the protection mode against reading via Modbus	0 – 1	0	0 – Protection against reading is regulated with help of other parameters (password) or deactivated;	573
			1 – Blocking of queries for functions of Modbus 1, 2, 3, 4, 7, 17, 20, excepting reading using function 3 of registers of version, mode and tabs	
Unused parameter	0	0	Should be 0 for compatibility	574

Parameter	Range of values	Factory setting	Description	Address
Miscellaneous				
Unused parameter	0	0	Should be 0 for compatibility	575 - 629
Enable automatic restart of the Product	0 – 1	1	0: periodic restart is disabled;	630
			1: the Product is restarted after a specified period of time	
Restart time, min	5 – 7 200	120	Used when automatic restart is enabled.	631
Enable restart mode automatically only in the absence of connections	0 – 1	1	This is used if automatic restart is enabled.	632
			0: the Product is restarted after a specified period of time since the start;	
			1: the Product is restarted after a specified period of time since the last MODBUS transmission	
Modbus exception code generated when access is denied	0 – 255	1	0 – if the access to Modbus registers is denied, the response to the client is not returned;	633
			1 – 255 – if you deny access to the client who sent the request, this exception code is returned	
Modbus exception code generated when there is no response	0 – 255	11	0 – if there is no response from the addressee (Gateway Timeout), the response to the client is not returned;	634
			1 - 255 – if there is no response from the request recipient, this exception code is returned to the client	
Unused parameter	0	0	Should be 0 for compatibility	635
Modbus exception code generated if	0 – 255	10	0 – If there is no connection to the query addressee (Gateway Path	636

Parameter	Range of values	Factory setting	Description	Address
there is no connection to query addressee			Unavailable), response is not returned to the client;	
			1 – 255 – if there is no connection to the query addressee, this exception code is returned to the client	
RS-485 transmission mode	0 – 1	0	0 – Master mode (Modbus Master): RS-485 is used to send queries;	637
			1 – Slave mode (Modbus Slave): RS-485 is used to receive queries from additional client;	
First Modbus-identifier of RS-485	1 – 255	1	Two parameters define a range of Modbus identifiers used for RS-485.	638
			In the master mode the queries with addresses in this range (and also the broadcast ones with address 0) are sent via RS-485.	
			In the slave mode the queries with addresses in this range (and also the broadcast ones and the queries to EMC-482 address) are received via RS-485	
Last Modbus-identifier of RS-485	1 – 255	255	same as above	639
Connection to the remote Modbus TCP server				
IP-address of the remote server*	IP-address	192.168.0.112	It is used with enabled redirection of queries to a remote Modbus TCP server. IP-address of the remote server wherewith connection is maintained	640 – 643
Port of the remote server connection	0 – 65535	502	Port of the remote server to which the TCP connection will be established	644
Time to wait for response from remote server, ms	0 – 60 000	1 000	It is used during redirection of queries to the remote server. After the query transfer, if the correct response has	645

Parameter	Range of values	Factory setting	Description	Address
			failed to be received within this time interval, response waiting is stopped	
Standby time to repeated connection to the remote server, s	0 – 240	20	It is used during redirection of queries to the remote server. After connection with the server is lost, the repeated connection will be performed after preset standby time	646
Remote server connection mode*	0 – 1	0	0: remote MODBUS TCP server is not used;	647
			1: the connection to the remote MODBUS TCP server is established and automatically maintained	
First Modbus-identifier of the remote server	1 – 255	1	It is used during redirection of queries to the remote server.	648
			Two parameters define the range of Modbus identifiers used on the remote server.	
			Queries with addresses in this range (and also the broadcast ones with address 0) are sent to the remote Modbus TCP server	
Last Modbus-identifier of the remote server	1 – 255	255	same as above	649
Unused parameter	0	0	Should be 0 for compatibility	650 – 729
Wi-Fi services				
Period of search for the best Wi-Fi hotspot	0 – 72	4	0: do not search for access points with a better signal and don't switch between them until the connection is lost; Other values: the number of hours until the search for the access point of the same name with better signal	730
Unused parameter	0	0	Should be 0 for compatibility	731 – 739

Parameter	Range of values	Factory setting	Description	Address
Product Name	Character string		Name to distinguish products from each other	740 – 779
			The string of up to 36 characters can be indicated as address.	
Unused parameter	0	0	Should be 0 for compatibility	780 – 799
User's Settings				
User's settings and saved values	0–65535	0	They can be used for storing any product identification data, or filled in by MODBUS clients for storing and transmitting data to the server	5250 – 5499

Table 7.1 - RS-485 Byte Formats (Register 461)

Value	Format	Description
0	EVEN	1 parity bit, 1 stop bit
1	ODD	1 parity bit, 1 stop bit
2	0 (SPACE)	1 zero bit, 1 stop bit
3	1 (MARK)	1 unit bit, 1 stop bit (similar to 2 stop bits)
4	ABSENT	No parity bit, 1 stop bit
5	AUTO-STOP	No parity bit, 2 stop bits (tx), 1 stop bit (rx)

FAQ

Q: What is the default Modbus TCP port and device address?

A: EM-482 listens on TCP port **502** (configurable in register 450) and uses Modbus address **111** by default (configurable in register 457). The current IP address can be usually checked at the network router which provides the Wi-Fi access point for EM-482.

Q: How do I enter Setup Mode to change configuration?

A: Write the password (found on the device label) to registers 100-119. If correct, register 121 will read 1 (Setup Mode). You can then modify settings in the Changeable Settings registers (300-799).

Q: How do I save my configuration changes?

A: Write command 2 to register 120 to save (then restart EM-482 for the changes to take effect), or 4 to save and apply immediately (only for Modbus and user's settings). Write 9 to cancel unsaved changes.

Q: I have saved the new settings, how do I restart EM-482 remotely?

A: Write command 1 to register 120 to restart. EM-482 will reboot and usually be available again in half a minute. You may need to reconnect then.

Q: How do I configure RS-485 communication parameters?

A: Key registers are:

- **458-459**: Baud rate (default 9600)
- **461**: Byte format/parity (see Table 7.1)
- **463**: Protocol mode (0=Modbus RTU, 1=Modbus ASCII)
- **637**: Transmission mode (0=Master, 1=Slave)

Q: What is the difference between Master and Slave RS-485 modes?

A: In **Modbus Master mode** (default), EM-482 sends queries to RS-485 devices (these queries come from Modbus TCP clients via Wi-Fi). In **Modbus Slave mode**, EM-482 receives queries from an external Modbus Master on RS-485 (these queries usually are intended for remote Modbus TCP server accessible via Wi-Fi). Use Slave mode when EM-482 should act as a slave device on an existing RS-485 network.

**Q: I have configured RS-485 and set EM-482 modbus device ID parameter to match my RS-485 device address. But I still get errors like `Illegal address`.

A: This can happen because EM-482 (configured this way) reads its own Modbus registers instead of redirecting the requests to your RS-485 device. Do not set EM-482 own Modbus ID in the `Modbus TCP Server` parameters to any of your devices addresses. However, reading registers of any device with ID other than this one (which is 111 by default) should work.

Q: Can I connect the RS-485 device if its protocol differs from Modbus?

A: No, the EM-482 supports only Modbus protocol transfers.

Q: Can I connect EM-482 to multiple remote Modbus TCP servers?

A: EM-482 supports connection to a single remote TCP server. If this server is itself a EM-482 converter, they can be configured as a chain, with each one connecting to the next EM-482 IP address. However, the delays are increased with the chain length. To connect several of the other Modbus TCP devices, a converter supporting multiple remote servers can be used (one from the EM-48x or MC-25x series, e.g. EM-483). Configure each remote connection in devices's registers 640-649. The main parameters are the connection mode and the server IP address. Also, set Modbus ID range for each remote server to avoid extra traffic and delays.

Q: How do I reset the device to factory defaults?

A: Enter Setup Mode by writing the password, then write command 444 to register 120. All settings will be reset to factory defaults, including passwords. Restart EM-482 for the changes to take effect.

Q: How do I check the current firmware version?

A: Read register 1 for the firmware version number.

Need Help?

For technical support and assistance:

- Email: support@overvis.com
- Support portal: www.overvis.com/support

Firmware Downloads

Latest Version

Version	Release Date	MD5	Download
10 (Latest)	2024-03-20	`6feff84fc47157358a9de671655467ac`	Download

See Firmware update instructions for the ways to update the firmware.

Changelog

Version 10

2024-03-20 Download

- **New Feature**: Option to remotely start firmware download and update.
- **New Feature**: Option to specify product hostname.
- **New Feature**: Option to auto-switch to the best access point

Version 7

2020-01-30 Download

- **Bugfix**: Wi-Fi operation excessive delays were removed.

Version 6

2020-01-23

- **Improvement**: DNS operation in the automatic IP mode revised for quicker response.
- **Improvement**: RS-485 formats with parity now check the incoming bytes at reception.

Version 5

2019-11-22 Download

- **New Feature**: Option to setup DNS.
- **Improvement**: Wi-Fi connections stability.
- **Improvement**: Simplified entering the Wi-Fi setup mode.
- **Improvement**: Self-descriptive indication.

Version 3

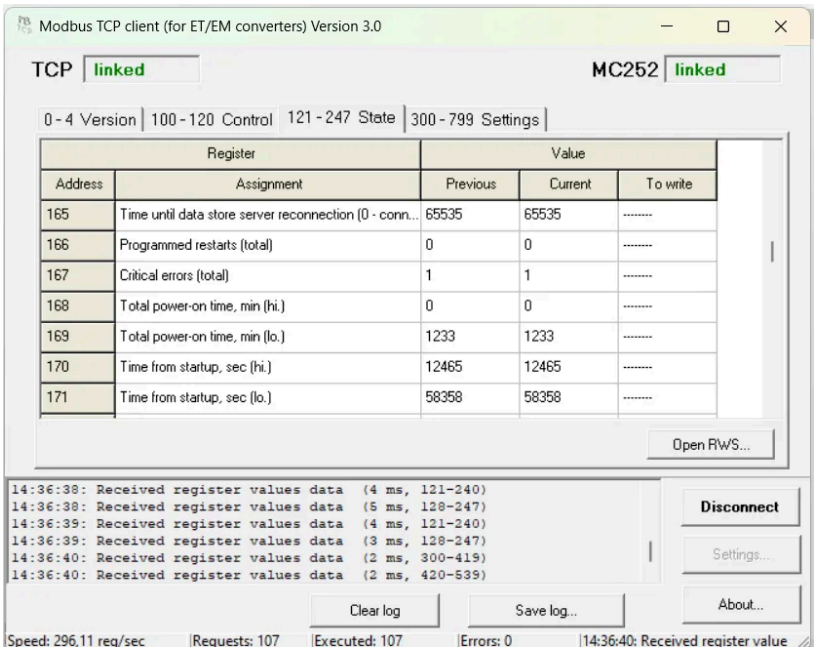
2019-10-01

- **New Feature**: Initial demo release.

Additional Software

This page lists available software utilities for the EM-482 Protocol Converter. These tools are designed to help with device configuration, testing, and Modbus TCP communication.

Windows Modbus TCP Client Software (Novatek-Electro)



The Modbus TCP Client is a Windows application designed for basic communication and testing with network devices that support the Modbus TCP protocol. It enables reading and writing to device holding registers.

This application can also connect to other devices on the network, by using bridge and gateway devices (such as EM-482, EM-483, ET-485 converters, and MC251, MC252, EM-480, EM-481, EM-486 controllers).

Key features include:

- **Simple Interface:** Fast connection to devices for viewing registers and modifying values.
- **Configuration Management:** Save device configurations, including register mappings to a file.
- **Reusable Write Sets:** Save sets of register write operations for repeated use.
- **Event Logging:** Connection logs, data transfers, and errors, which can be exported to a file.

System Requirements

- **OS:** Windows 98/ME/2000/XP/Server 2003/2008/Vista/7/8/10/11
- **Network:** Network adapter
- **Storage:** 2 MB free disk space

Download: Setup_MBTCP_Client(ver3.0).exe

Firmware Update

EM-482 stores two update files in its memory:

- **User firmware** – the file can be uploaded via the WEB-interface or downloaded from the server;
- **Manufacturer firmware** – the file is written by the Manufacturer and cannot be replaced. If the update fails (for example, due to power failure), this file is used for automatic recovery.

Any of these files can be retrieved from the EM-482 memory (to upload to another Product). Firmware can be updated from these files via the WEB-interface, or remotely by Modbus command.

Before you start

> **Data Safety**
> Update to a newer version in most cases retains the device configuration and Modbus settings, unless specifically warned so in the firmware description.

> **Power Supply**
> Ensure the device has a stable power supply during the update process. Do not power off the device while the update is in progress (usually 1 minute).

> **Recoverability**
> The update process faults (e.g. caused by power losses) are recoverable, by repeating the update until it is complete. The update file passes multi-stage check before the update starts. In case of file damage, the update can be completed from the factory default file.

Checking current version

Before updating, check your current firmware version to see if an update is necessary. You can find the version number:

- At the bottom of the **Web Interface** quick setup page, or on the `Files` page.
- By reading Modbus register 1.

Updating from the file can be done in the firmware update mode.

Getting the update file into EM-482

The update files can be written to the EM-482 memory in 2 ways:

1. **Upload from the client device using WEB interface**

   1.1 access the device using the browser (see Quick Start Guide); 1.2 open `Files` page;

1.3 if another file has already been uploaded to EM-482, delete it by clicking the `Delete` button; 1.4 click the file selection button in the `User firmware` row; 1.5 select the update file, for example, `EM-482-1-1-10.FUS` in the window that opens; 1.6 click the `Upload` button in the `User firmware` line. 1.7 wait until the file upload finishes.

> **File check**
>
> After transferring the file, make sure you have uploaded the correct update file. The `User firmware` line should display the firmware header with the version number followed by `Tested` word.

2. **Download from the server manually using MODBUS commands**

   2.1 connect to the device via MODBUS and enter the setup mode (see Configuration via Modbus); 2.2 to verify the version of the downloaded update file, read the header line in registers `2030` - `2061`; 2.3 check if the file download is in progress by reading register `2004`; 2.4 to download the newer version from the cloud server, write the value 64 893 into the control command register `120`; 2.5 control the file download by reading registers `2004` - `2005`; 2.6 after download completion, double-check the version of the downloaded file in registers `2030` - `2061`.

Updating EM-482 from the file

EM-482 firmware can be updated from the file in its memory in 2 ways:

1. **Update manually using WEB interface**

   1.1 access the device using the browser (see Quick Start Guide); 1.2 open `Files` page;

   1.3 press the `Program` button in the row of the needed firmware update file to start the firmware update from it.

2. **Update manually using MODBUS commands**

   2.1 connect to the device via MODBUS and enter the setup mode (see Configuration via Modbus); 2.2 to verify the version of the downloaded update file, read the header line in registers `2030` - `2061`; 2.3 to start the update from the file, write the value 65397 into the control command register `120`.

> **Firmware update process**
>
> At the update command the device will automatically restart and enter update mode. Wait for the firmware update, the process may take 2 to 4 minutes. The device remains offline while in the update mode.

Troubleshooting & FAQ

Q: Will I lose my configuration or data during an update?

A: No, the firmware update to a newer version process is designed to preserve your device configuration, Modbus settings, and historical data. However, downgrading the firmware may revert the settings to factory defaults. In either case, backing up critical data is always recommended.

Q: The “Upload” button is not appearing in the Web Interface.

A: This can happen if some other file is already uploaded. Click the “Delete” button to free the memory.

Q: The firmware does not update automatically.

A: EM-482 does not support automatic updates. However, the firmware can be downloaded and updated from the server using two Modbus commands.

Q: The firmware update does not download at Modbus command.

A: This can happen if:

- The device is already running the latest firmware.
- The device does not have Internet access. Check your Wi-Fi and DNS settings.
- The update server is temporarily unreachable.

Q: The device does not see / does not recognize the uploaded file.

A: This can happen if the file upload was interrupted. Try again, try different browser or use the firmware download from the server.

Q: The update process seems to hang.

A: The update process typically takes 1 minute. If it takes significantly longer:

- Do not power off the device immediately.
- Check the `PWR` red signal, if it is continuously blinking for an error, or the device is unresponsive for over 5 minutes, try a manual restart. If the internal firmware is corrupted, the device should enter the emergency update mode automatically.

Q: Can I downgrade the firmware?

A: Yes, you can install an older firmware version by manually uploading the older firmware file and initiating the update. However, the device settings are not always retained and may be reverted to factory defaults after firmware downgrade.

Need Help?

For technical support and assistance:

- Email: support@overvis.com
- Support portal: www.overvis.com/support