CKL Series Modbus, Serial to Ethernet Gateway with 2 x 10/100Base-T(x) Ports, 1 x RS232 and 1 x RS485 Serial Ports and/or BPL (Broadband Power Line Link) User Manual

1. About REDZ CKL Series Modbus, Serial to Ethernet Gateway

CKL Series Modbus, Serial to Ethernet Gateways are designed for industrial-grade Serial to Ethernet communication and particularly for facilities of rugged industry and infrastructure using Modbus Protocol. CKL Series Modbus, Serial to Ethernet Gateways are tailored to perform various features such as wide temperature range, wide power input range and several connectivity ports. Thus, CKL Series Modbus, Serial to Ethernet Gateways are the best choice for facility management, sewage treatment, power utility, telecommunication, transportation and all other applications that require industrial Serial to Ethernet connectivity and Modbus TCP or RTU Protocol conversion.

CKL Series which have REDZ Broadband Power Line (BPL) link allows devices to communicate with full transparent TCP/IP standard over Low Voltage power lines and allows easy connection between TCP/IP based terminals without use of extra cables.

CKL Series Modbus, Serial to Ethernet Gateways can connect all field serial devices to TCP/IP based network. It has 3 Gateway Operating Modes. In Transparent Communication Mode it acts as Serial to Ethernet Gateway and lets field serial devices to be controlled over TCP/IP Network. In Modbus TCP to RTU Conversion Mode it can help field Modbus RTU device to communicate with Modbus TCP Master device or software over TCP/IP Network. In Modbus RTU to TCP Conversion Mode it connects Modbus RTU master device or software to the TCP/IP Network and lets it to communicate with field Modbus TCP or RTU devices. It is the one device solution that support all Modbus TCP or RTU communication networks. Typical applications: Automated Meter reading, Home – Building – Industrial Automation, Remote Control, Remote I/O, Telemetry…

2. Hardware Features

CKL Series Modbus, Serial to Ethernet Gateways have the versions with and without BPL (Broadband Power Line) Link.

2.1 Features

- Supports 2 x 10/100Base-T(X) ports

- Supports Full/Half-Duplex, auto MDI/MDI-X on each port

- Supports 1 x RS232 and 1 x RS485 Serial Connection up to 921600

Baud

- Embedded web interface for ease of use

- Instant switch between Server-Client Operating Modes with buttons

- Up to 10 client connection in Server Mode

- DHCP Server Capability

- Easy to follow Device Status on web interface

- 3 different Gateway Operating Modes:

  Transparent Communication

  Modbus TCP to RTU Conversion

  Modbus RTU to TCP Conversion

- Transparent Operating Mode lets device act as Serial to Ethernet Gateway

- Modbus TCP to RTU (used with Modbus TCP Master Device) Operating Mode lets device act as Modbus Gateway

- Modbus RTU to TCP (used for Modbus RTU Master Device) Operating Mode lets device act as Modbus Gateway

- Up to 10 remote TCP/IP device connection in Modbus RTU to TCP Gateway Operating Mode

- Easy to follow Serial and Ethernet data packages on web interface

- Black List and White List based IP Filter in TCP Server Mode

- Firmware Upgrade over Web

- 2 firmware storage capability on same device (1 active only)

- AC or DC wide range power options

- Wide operating temperature range from -25 to 70 °C AC and -40 to 85 °C DC power input versions

- Rugged Metal IP-40 housing design

- DIN-Rail mounting

2.2 Extra Features for Models with BPL

- Supports 2 x 10/100Base-T(X) ports + 1 x BPL link

- Wide range 3 phase AC input

- Supports up to 30Mbps PHY rate on BPL with Up to 10 hops and 1000 nodes

- Up to 432 sub-carriers from 2 to 28MHz analog bandwidth

- Support LDPC-C FEC with 128-bit AES core

- Plug and play with Master/Slave selection via web interface

3. Installation

Each device has a Din-Rail kit on rear panel. The Din-Rail kit helps device to fix on the Din-Rail. Slant the switch and mount the metal spring to Din-Rail.
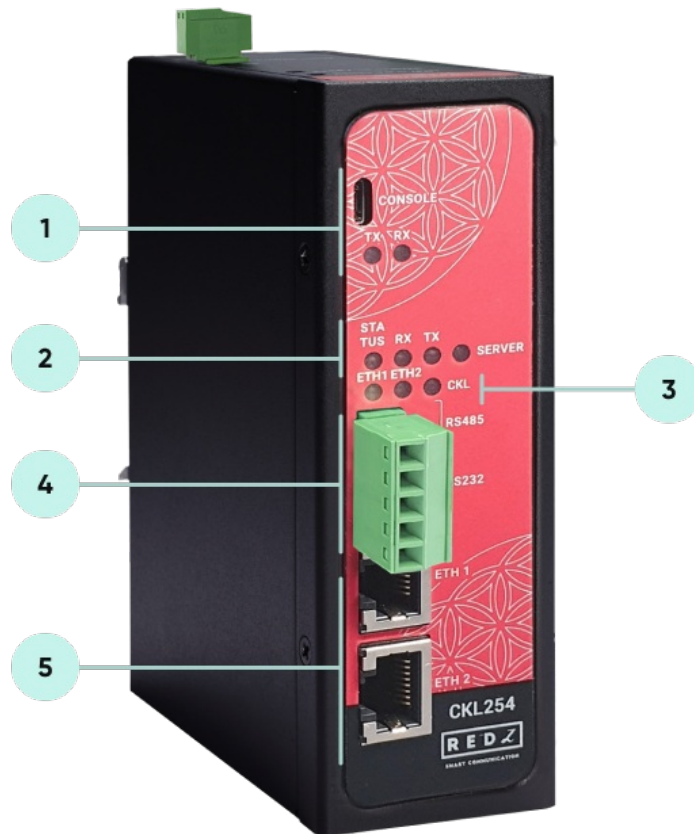
Metal spring

Then Push the switch toward the Din-Rail until you heard a "click" sound.

4. Front Panel Description

4.1 CKL154 & CKL254

1. Micro USB Console port for LOG in 115200 baud

   Console Tx and Rx Blinks when data transmission occurs

2. Device Status LEDs

   STATUS: Blinks based on device operation

   – When TCP line used blinks during no connection and keeps ON

   after TCP connection

   – When Serial line used keeps ON

   Device Tx and Rx Blinks when data transmission occurs

   SERVER: Keeps ON after selecting Server from Server–Client

   Operating Modes. Keeps OFF if Client operating Mode selected

3. ETHERNET Activity LEDs for port 1, 2 and CKL device itself. Blinks

   during ethernet activity

4. 5 pin Terminal Block

RS232: Tx, Rx and GND pins

RS485: A, B and GND pins

Can be activated over web interface and baud rate/data type configurable

5. 10/100Base-T(X) Ethernet ports

4.2 CKL655

1. Micro USB Console port for LOG in 115200 baud

    Console Tx and Rx Blinks when data transmission occurs

2. Device Status LEDs

    STATUS: Blinks based on device operation

    – When TCP line used blinks during no connection and keeps ON after TCP connection

- When Serial line used keeps ON

   Device Tx and Rx Blinks when data transmission occurs

   SERVER: Keeps ON after selecting Server from Server-Client

   Operating Modes. Keeps OFF if Client operating Mode selected

3. ETHERNET Activity LEDs for port 1, 2 and CKL device itself. Blinks during ethernet activity

4. 5 pin Terminal Block for Serial Line

   RS232: Tx, Rx and GND pins

   RS485: A, B and GND pins

   Can be activated over web interface and baud rate/data type configurable

5. BPL Status LEDs

   ACTIVITY: Blinks during BPL Ethernet activity

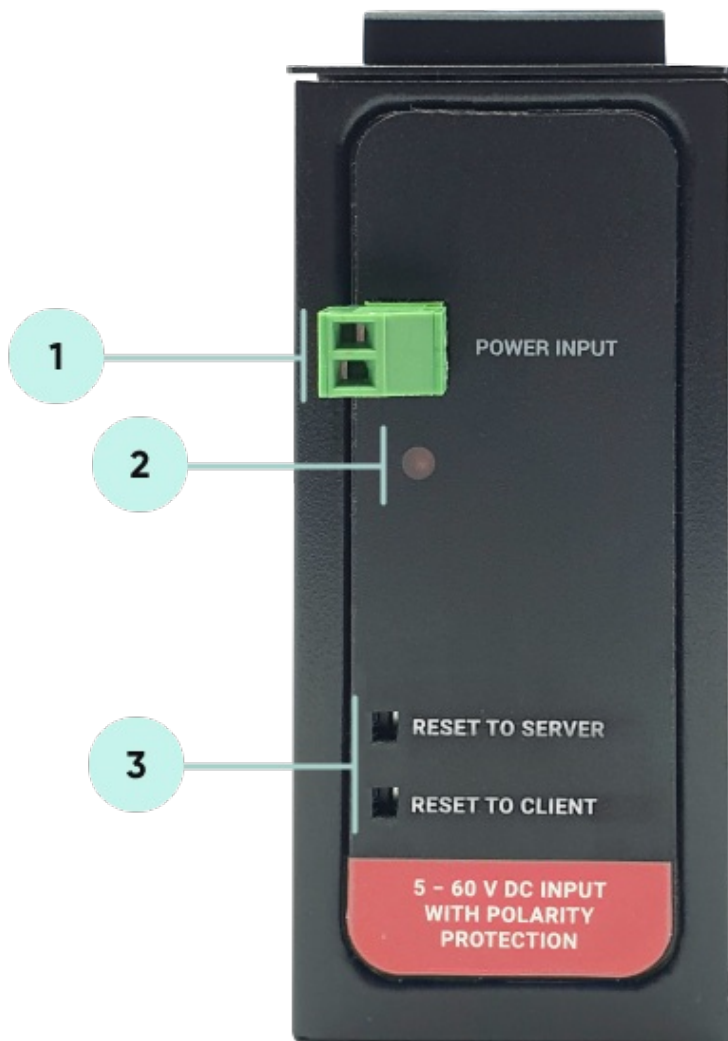   LINK: LED Turns ON if the link can be established over BPL

   MASTER INDICATION: LED Turns ON if the device is configured and powered as "BPL Master" device

6. 10/100Base-T(X) Ethernet ports

# 5. Top Panel Description

5.1 CKL154

1. Power Input DC: 5-48V (allows up to 60V) DC. Polarity protected so that the power input can be connected in any direction

2. Power LED: Turns ON when there is power in device

3. Reset Buttons
   RESET TO SERVER: Resets the device to factory setting as Server

from Server-Client Operating Modes

RESET TO CLIENT: Resets the device to factory setting as Client

from Server-Client Operating Modes

Reset can be done at any time by pushing any of the button for 5

seconds.

5.2 CKL254
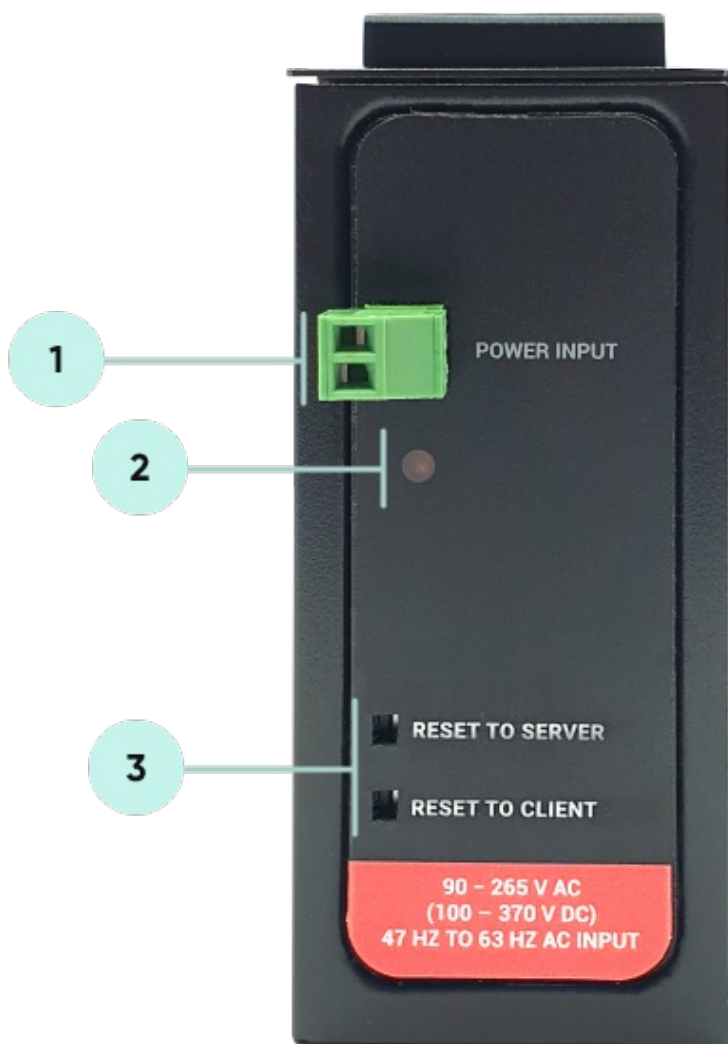
1. Power Input AC: 100 - 240V AC (120 – 370V DC), 50Hz to 60Hz AC
   input

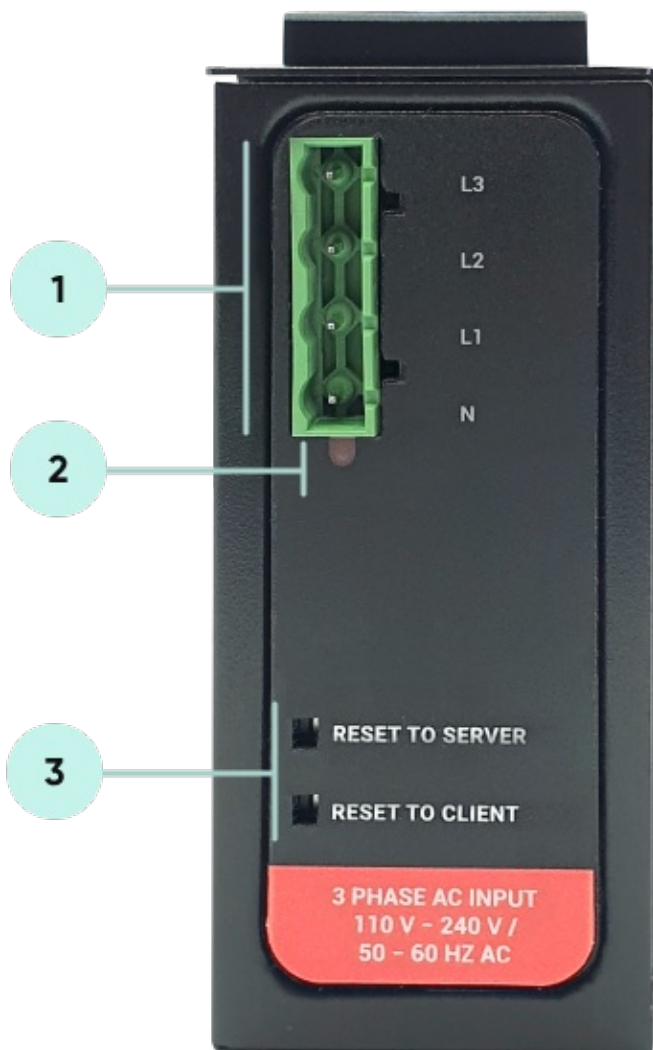2. Power LED: Turns ON when there is power in device

3. Reset Buttons

   RESET TO SERVER: Resets the device to factory setting as Server from Server-Client Operating Modes

   RESET TO CLIENT: Resets the device to factory setting as Client from Server-Client Operating Modes

   Reset can be done at any time by pushing any of the button for 5 seconds.

5.3 CKL655

1. Power Input AC: 3 phase input, 110V–240V/50-60Hz. It is also ok to

connect only single phase to the device such as L1-N connection only.

AC Power supply use L1-N only. Phase 2-3 connections are used to BPL signal transmission.

2. Power LED: Turns ON when there is power in device

3. Reset Buttons

RESET TO SERVER: Resets the device to factory setting as Server from Server-Client Operating Modes

RESET TO CLIENT: Resets the device to factory setting as Client from Server-Client Operating Modes

Reset can be done at any time by pushing any of the button for 5 seconds.

6. Ethernet Cables

CKL Series Modbus, Serial to Ethernet Gateways have standard Ethernet ports. According to the link type, the switches use CAT 3, 4, 5, 5e UTP cables to connect to any other network device (PCs, servers, switches, routers, or hubs).

6.1 Cable Type and Specifications

Cable	Type	Max. Length	Connector
10BASE-T	Cat. 3, 4, 5 100-ohm	UTP 100 m (328 ft)	RJ-45
100BASE-TX	Cat. 5 100-ohm UTP	UTP 100 m (328 ft)	RJ-45

6.2 ETH Cable Pin Assignments

With 100BASE-TX/10BASE-T cable, pins 1 - 2 are used for transmitting data and pins 3 - 6 are used for receiving data.

Pin Number	Description
1	TD+
2	TD-
3	RD+
4	Not Used
5	Not Used
6	RD-
7	Not Used
8	Not Used

7. System Comparison Between CAT5 and BPL Links

	CAT5 Based System	BPL Link Based System
Media	CAT5	Power Line
Bandwidth	100Mbps	Up to 30Mbps
Re-Wire	Yes	No, Using existing Power Line
Span	<100m	<600m
Multiple Nodes	N/A	Up to 10 hops/1000 nodes
Encryption	Yes, but difficult to configure	Yes, Plug & Play
Installment	Difficult	Easy, simply user power line
Installment Cost	High	Low
Total Cost	High	Low

8. Serial Cables

CKL Series Modbus, Serial to Ethernet Gateways have 1 x RS232 and 1 xRS485 port. Serial line can be connected other serial devices such as RTUs, PLCs, energy meters or any other field device.
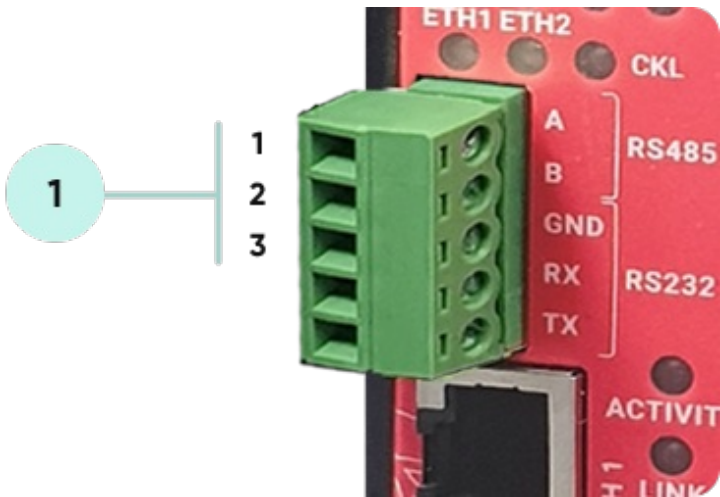
8.1 RS232 Cable Pin Assignments
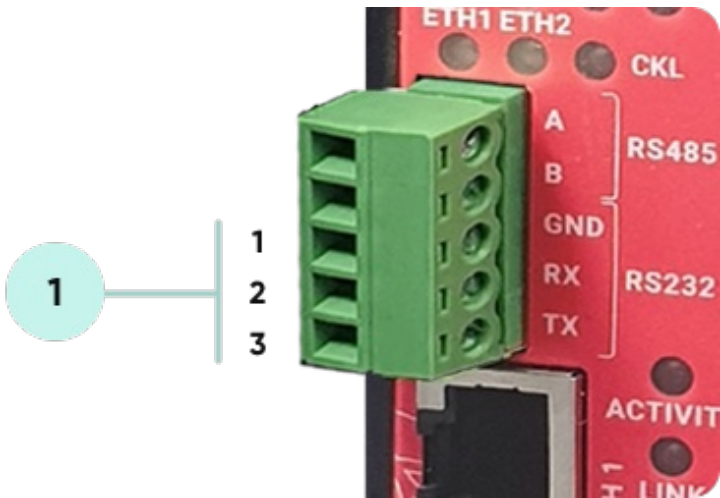
1. Terminal connector for 3 wire Tx-Rx-GND RS232 data transmission

Pin Number	Description
1	GND
2	Rx
3	Tx

8.2 RS485 Cable Pin Assignments

1. Terminal Connector for 2 wire RS485 connection and GND (if needed)
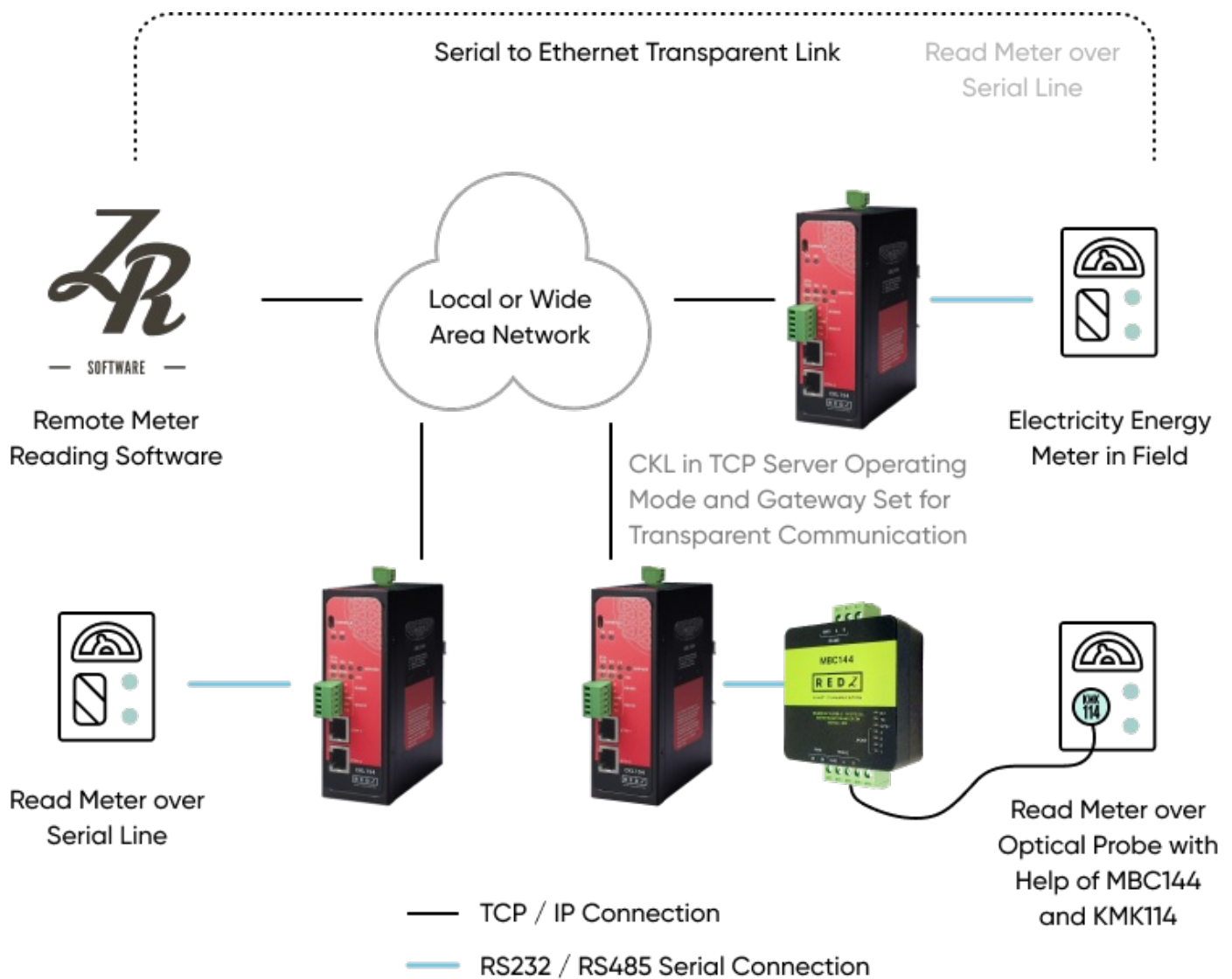
Pin Number	Description
1	A
2	B
3	GND (Suggested to use)

9. Usage Scenarios and Connection Diagrams

Some of the usage scenarios of CKL Series Modbus, Serial to Ethernet Gateways are described below. Usages are not limited to that examples and user may create their own usage scenario.

9.1 Communicate Remote Serial Devices over TCP IP Network

CKL Series Modbus, Serial to Ethernet Gateways can connect field serial device to TCP/IP Network to control that devices remotely with a software on a server or with a TCP/IP device. For example, with CKL Series Modbus, Serial to Ethernet Gateways, users can connect field serial devices such as Electricity Energy Meters and create a system to read that devices remotely.
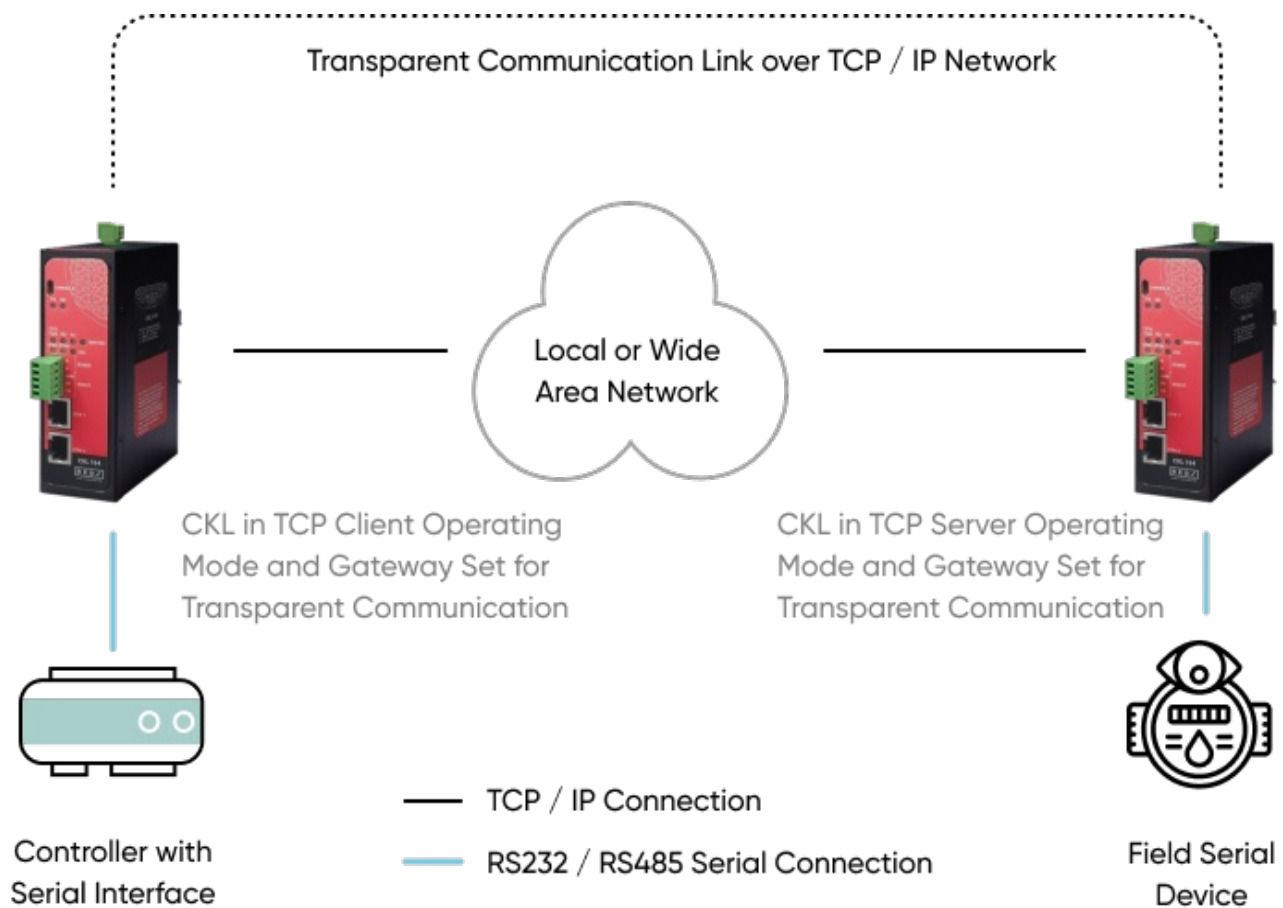
Serial to Ethernet Transparent Link   Read Meter over Serial Line

Remote Meter Reading Software

Local or Wide Area Network

CKL in TCP Server Operating Mode and Gateway Set for Transparent Communication

Electricity Energy Meter in Field

Read Meter over Serial Line

Read Meter over Optical Probe with Help of MBC144 and KMK114

—— TCP / IP Connection

—— RS232 / RS485 Serial Connection

CKL Gateway devices in field configured for Transparent Communication and act as TCP Server to Serial Device Gateway. Field devices are connected over serial line either over RS232 or RS485 and communication data type and baud rate fixed.

In need of remote reading of Electricity Energy Meters over optical probe, CKL can still be configured for Transparent Communication and act as TCP Server to Serial Device Gateway and a REDZ MBC144 can be connected for Auto Baud Rate Change together with REDZ KMK114 RS485 optical probe.

9.2 TCP/IP Link for Field Serial Devices

CKL Series Modbus, Serial to Ethernet Gateways can connect field serial devices over TCP/IP Network just like they are connected over serial line. For example, with CKL Series Modbus, Serial to Ethernet Gateways, users can connect 2 different field serial devices such as a Controller and a Sensor and create a system to communicate transparently over TCP/IP Network.
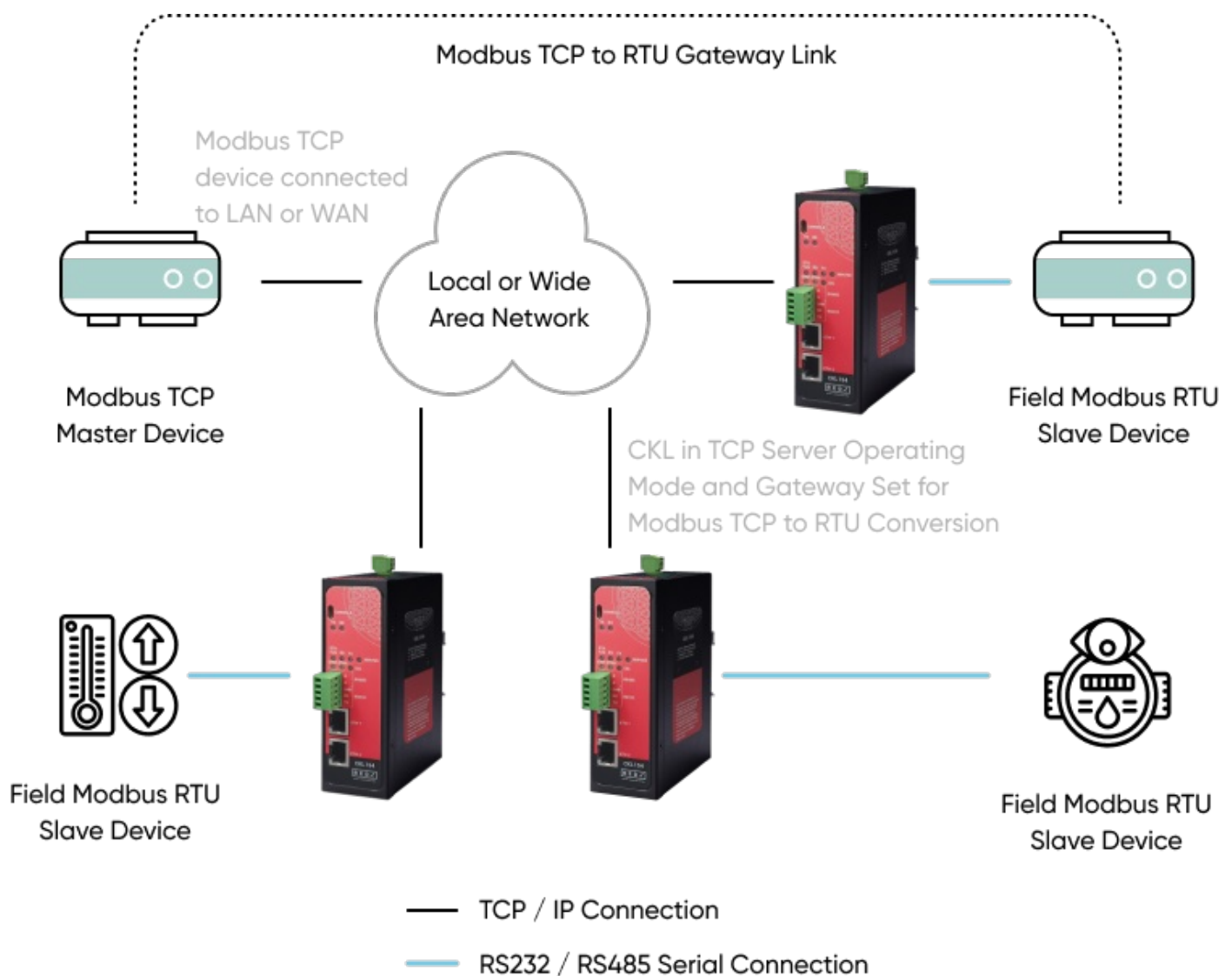
Transparent Communication Link over TCP / IP Network

Local or Wide Area Network

CKL in TCP Client Operating Mode and Gateway Set for Transparent Communication

CKL in TCP Server Operating Mode and Gateway Set for Transparent Communication

—— TCP / IP Connection

—— RS232 / RS485 Serial Connection

Controller with Serial Interface

Field Serial Device

CKL Gateway device in Controller side configured for Transparent Communication and act as TCP Client to Serial Device Gateway. Field device is connected over serial line either over RS232 or RS485 and communication data type and baud rate fixed. CKL can connect to Other CKL device on sensor side by manual entering the IP of TCP Server or simply using REDZ special design, plug and play Server-Client Operating Modes.

CKL Gateway device in sensor side configured for Transparent Communication and act as TCP Server to Serial Device Gateway. Field device is connected over serial line either over RS232 or RS485 and communication data type and baud rate fixed.
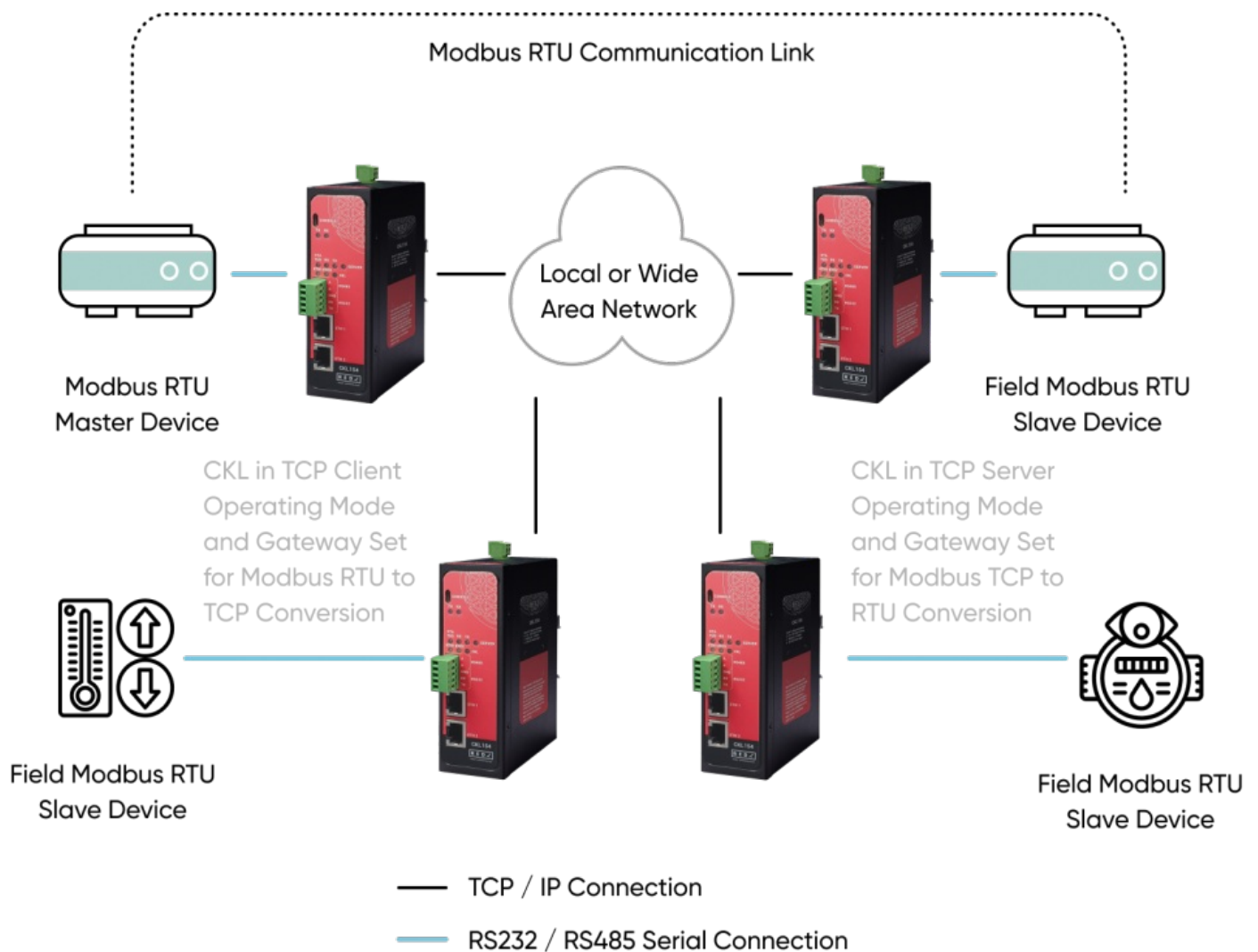
9.3 Modbus TCP to RTU Conversion

CKL Series Modbus, Serial to Ethernet Gateways can connect field Modbus RTU serial device to TCP/IP Network to control that devices remotely with a software on a server or with a TCP/IP device that communicates in Modbus TCP protocol. For example, with CKL Series Modbus, Serial to Ethernet Gateways, users can connect field Modbus RTU serial devices such as remote sensors and remote Input/output modules to TCP/IP network and create an automation system.

Modbus TCP to RTU Gateway Link

Modbus TCP device connected to LAN or WAN

Modbus TCP Master Device

Local or Wide Area Network

Field Modbus RTU Slave Device

CKL in TCP Server Operating Mode and Gateway Set for Modbus TCP to RTU Conversion

Field Modbus RTU Slave Device

Field Modbus RTU Slave Device

—— TCP / IP Connection

—— RS232 / RS485 Serial Connection

CKL Gateway devices in field configured for Modbus TCP to RTU Conversion and act as TCP Server to Serial Device Gateway. Field devices are connected over serial line either over RS232 or RS485 and communication data type and baud rate fixed.

9.4 Modbus RTU to TCP Conversion

CKL Series Modbus, Serial to Ethernet Gateways can connect field Modbus RTU serial device to TCP/IP Network to control that devices remotely. If master side is Modbus RTU, CKL Series Modbus, Serial to Ethernet Gateways can connect that part to TCP/IP network as well to make Modbus RTU to TCP conversion. For example, with CKL Series Modbus, Serial to Ethernet Gateways, users can connect field Modbus RTU serial devices such as remote sensors and remote Input/output modules to Modbus RTU master device over TCP/IP network and create an automation system.
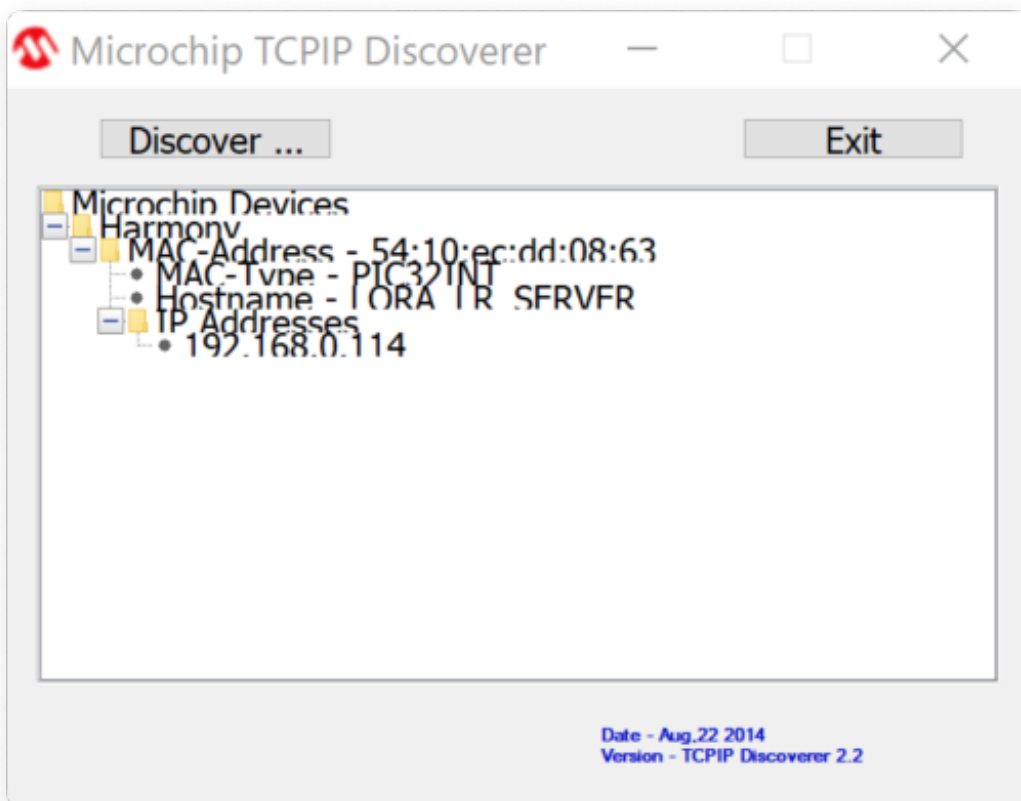
Modbus RTU Communication Link

Modbus RTU Master Device

CKL in TCP Client Operating Mode and Gateway Set for Modbus RTU to TCP Conversion

Local or Wide Area Network

Field Modbus RTU Slave Device

CKL in TCP Server Operating Mode and Gateway Set for Modbus TCP to RTU Conversion

Field Modbus RTU Slave Device

Field Modbus RTU Slave Device

—— TCP / IP Connection

—— RS232 / RS485 Serial Connection

CKL Gateway device on Modbus RTU Master side configured for Modbus RTU to TCP Conversion and act as TCP Client to Serial Device Gateway. Field devices are defined as a list in configuration to enable mapping with field devices Modbus Addresses and related CKL remote fixed TCP IPs and ports.

CKL Gateway devices in field configured for Modbus TCP to RTU Conversion and act as TCP Server to Serial Device Gateway. Field devices are connected over serial line either over RS232 or RS485 and communication data type and baud rate fixed.

10. Configuration via WEB Interface

CKL Series Modbus, Serial to Ethernet Gateways can be configured over web interface.
Device will get IP from DHCP client when connected to a network. User can use discovery tool to see IP of the device.

tcpip_discover
er.jar
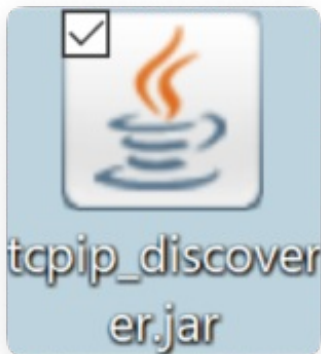
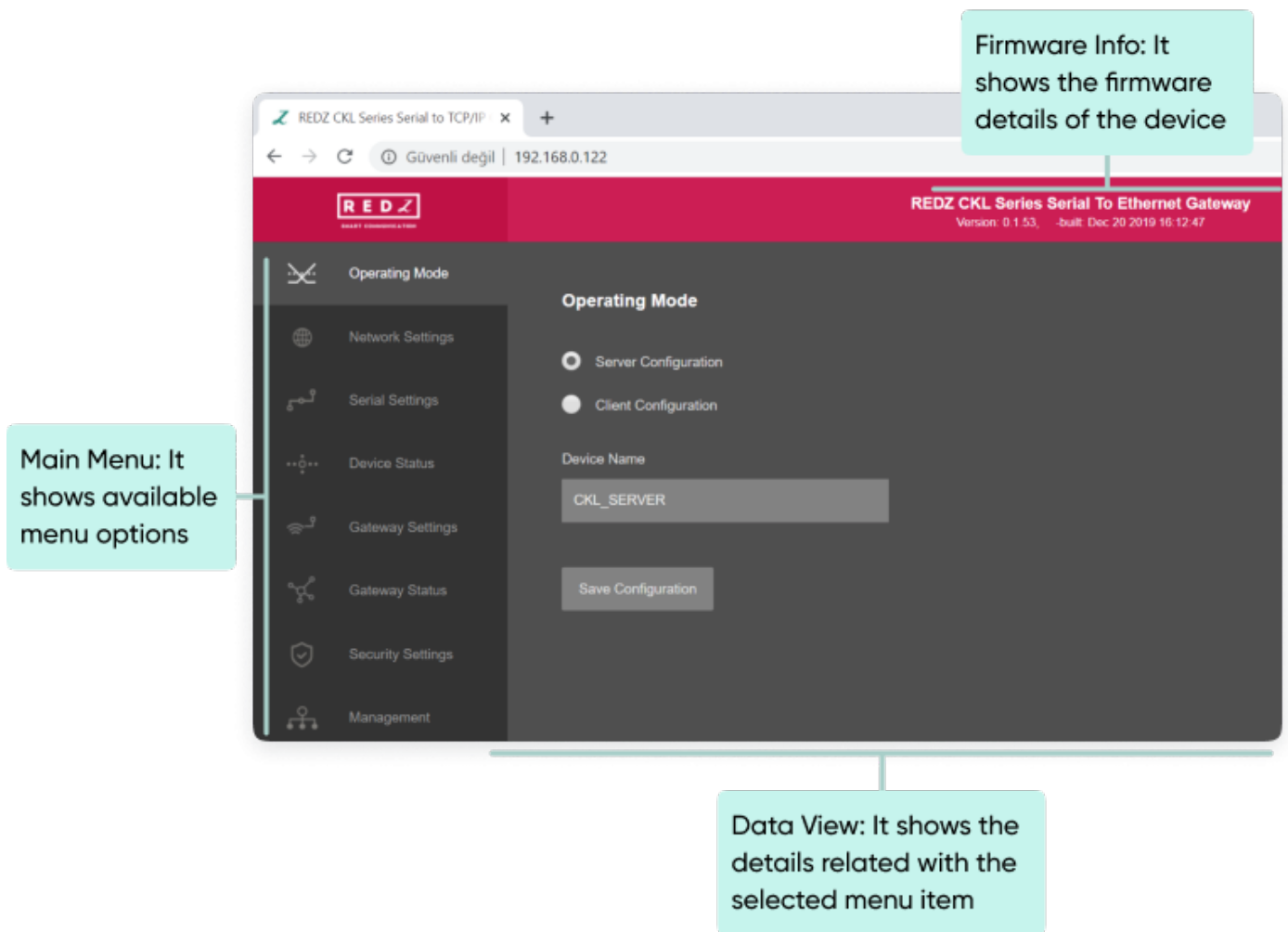Once the IP of the device is set, user may login the device by simply typing the Ip address of device.

10.1 Connecting Web Interface

Simply write IP of the device to the http client. Google Chrome is suggested to use. Login screen will pop up.
Default user name: **admin**
Default password: **admin**

Main screen of device will appear with following information.

Firmware Info: It shows the firmware details of the device

Main Menu: It shows available menu options

Data View: It shows the details related with the selected menu item

10.2 MENU: Operating Mode

From this menu user may select the operating mode of the device.

- CKL can act for example TCP server and wait for TCP socket connection. This way the received TCP data will be transferred to Serial Device and vice versa. Set "Server Configuration" in this case.

- If Set to Client Mode CKL will connect to a TCP server and yet again the received TCP data will be transferred to Serial Device and vice versa. Set "Client Configuration" in this case.

- There 3 Gateway Operating modes:

  Transparent Communication: Available in both TCP Server and Client Operating Modes

  Modbus TCP to RTU Conversion: Available in TCP Server Operating

Mode

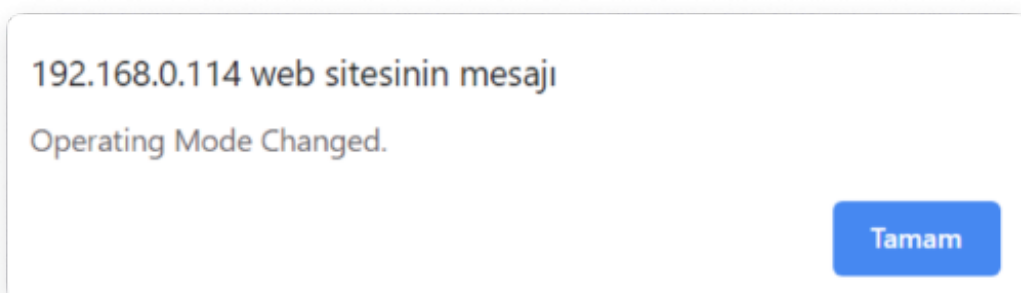Modbus RTU to TCP Conversion: Available in TCP Client Operating

Mode

Device Name" field is used to identify device.
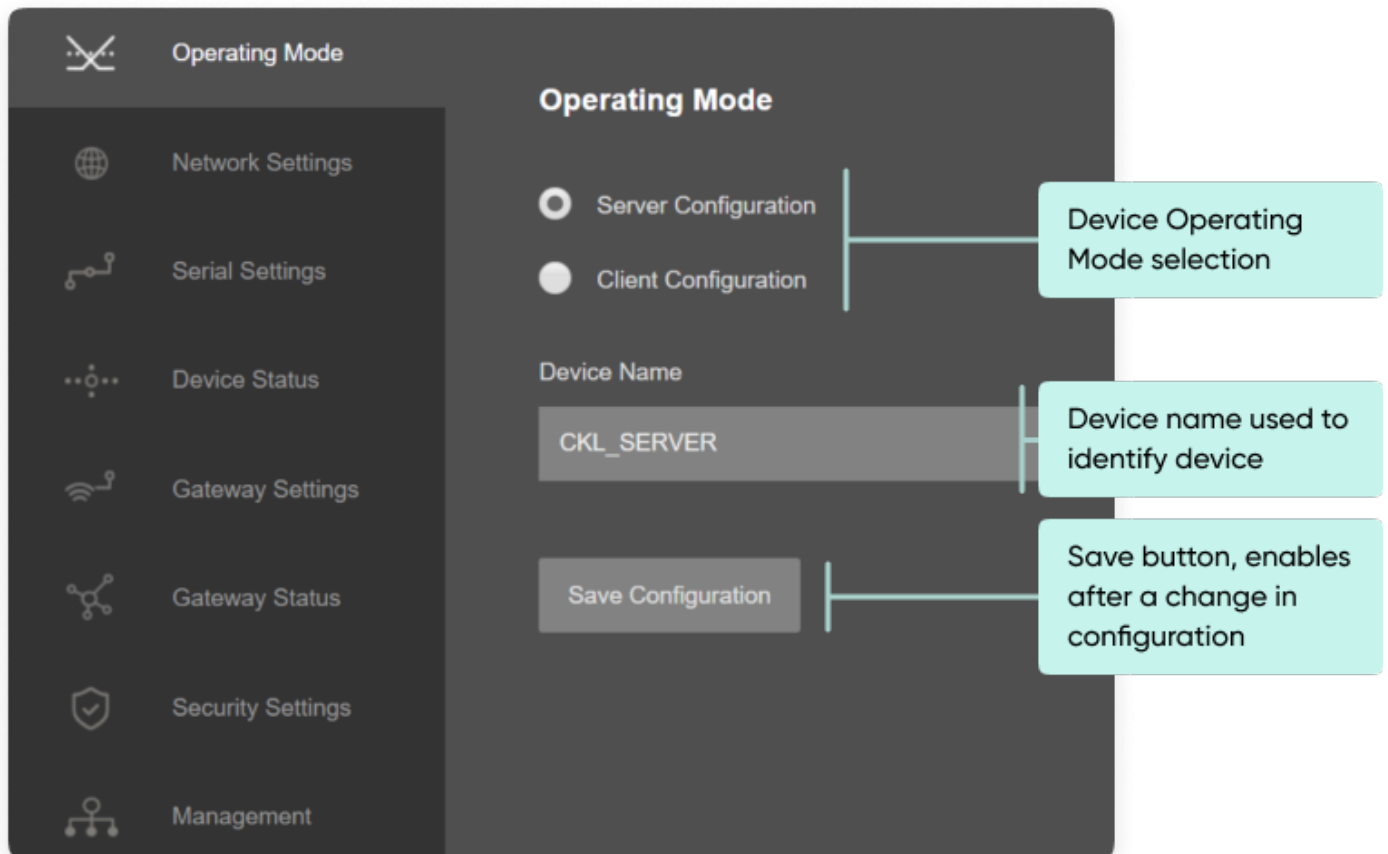
Once the setting has been changed, "Save Configuration" button will be enabled.

After clicking button system will tell if the settings applied successfully or not.

☝️

NOTE 1: CKL Series Modbus, Serial to Ethernet Gateways can keep configuration of 2 different modes in its memory and once the configuration enabled, its already saved settings will be applied. Device can act as Server or Client at a time.

☝️

NOTE 2: Settings will be applied once the device is rebooted from web interface or repowered manually.

10.3 MENU: Network Settings – Server

From this menu user may change the network settings of the device

- User can change TCP Listening port for field devices
- User can select maximum number of clients allowed to connect device
- User can activate DHCP server
- User can force device to a static IP
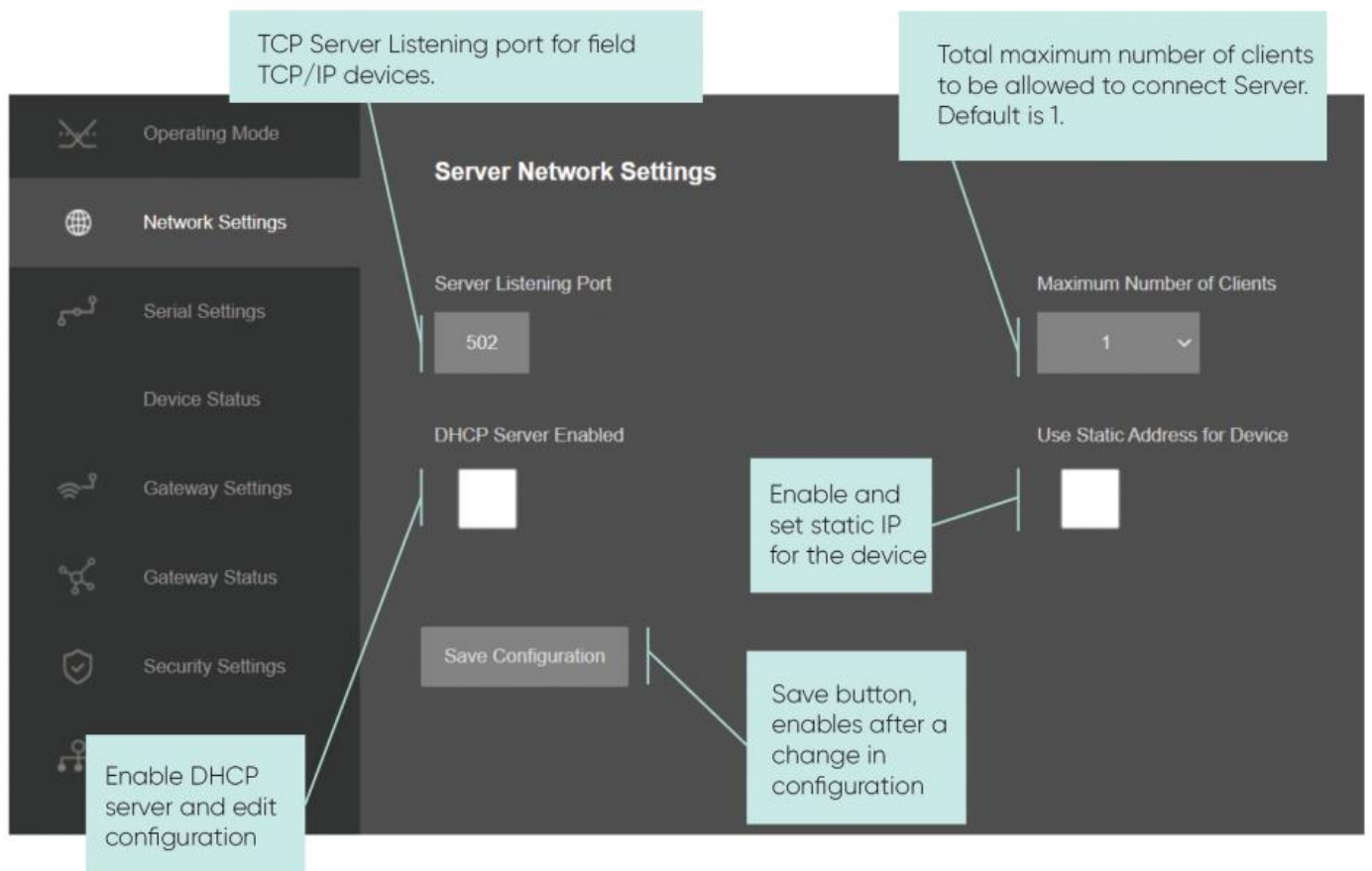
Following parameters and static IP settings available for "DHCP Server" setting.

DHCP Server Enabled

☑

Use Static Address for Device

☐

Server IP Address

| 192 | 168 | 1 | 1 |

Server Net Mask

| 255 | 255 | 255 | 0 |

Server Gateway Address

| 192 | 168 | 1 | 1 |

DHCP Server Primary DNS Address

| 192 | 168 | 1 | 1 |

DHCP Server Range Start Address

| 192 | 168 | 1 | 100 |

DHCP Server Secondary DNS Address

| 192 | 168 | 1 | 1 |

Also if the device has Broadband Power Line (BPL) option

> User can select operating mode of BPL either MASTER or NODE.

☝️

NOTE: Standard firmware of REDZ BPL supports up to 10 hops and 1000 nodes. Only 1 device can be MASTER in same network.

BPL Operating Mode

| NODE ▼ |

Once the setting has been changed, "Save Configuration" button will be

enabled.

Save Configuration

After clicking button system will tell if the settings applied successfully or not.

192.168.0.118 web sitesinin mesajı

Network Settings Changed.

Tamam

☝ **NOTE 1:** CKL Series Modbus, Serial to Ethernet Gateways can keep configuration of 2 different modes in its memory and once the configuration enabled, its already saved settings will be applied. Device can act as Server or Client at a time.
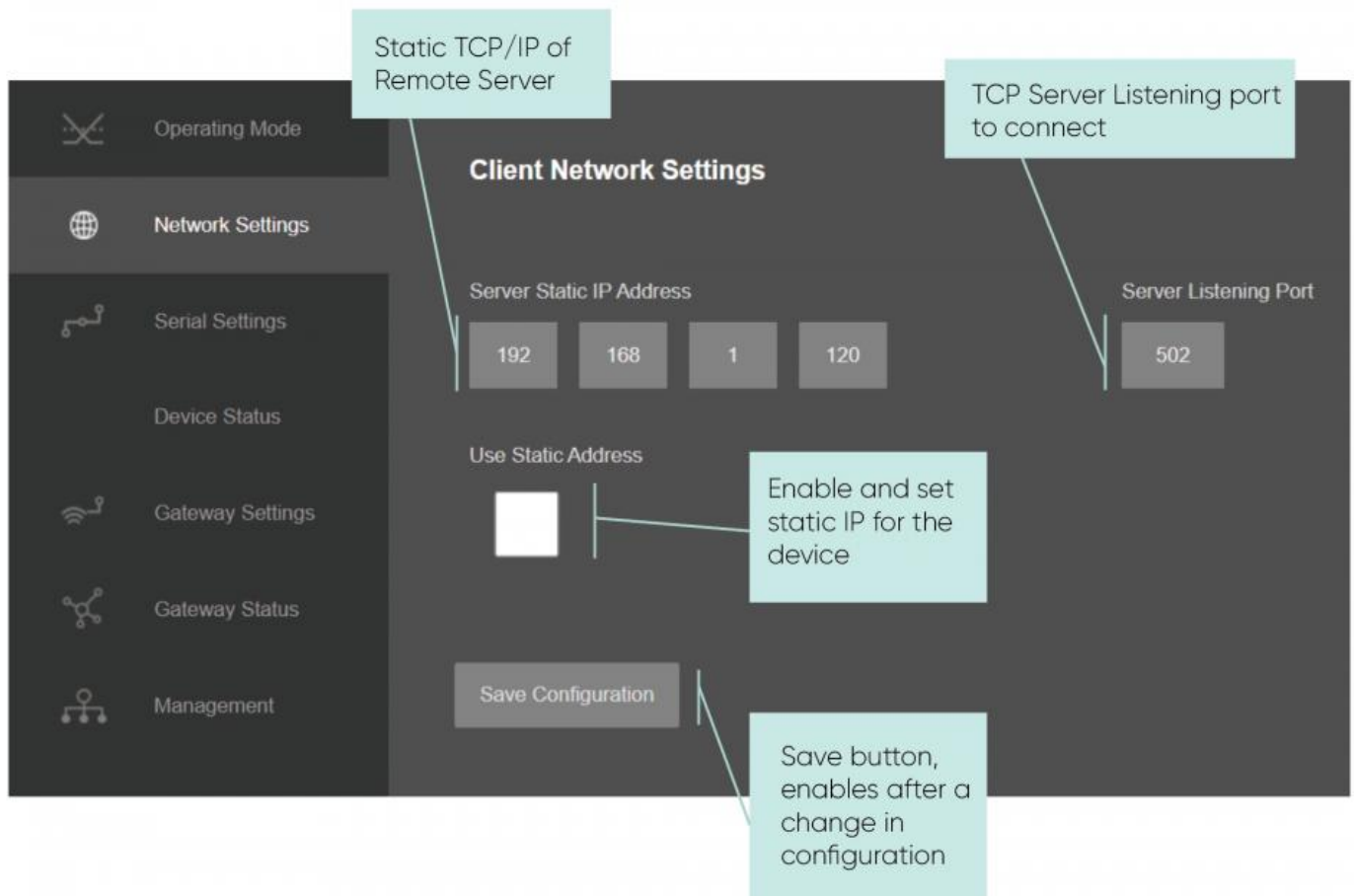
☝ **NOTE 2:** Settings will be applied once the device is rebooted from web interface or repowered manually.

10.4 MENU: Network Settings – Client

From this menu user may change the network settings of the device

- User can manually enter IP of Servertt

- User can change TCP Server Listening port

- User can force device to a static IP

Following parameters and static IP settings available for "Use Static IP Address" setting.

Also if the device has Broadband Power Line (BPL) option:

> User can select operating mode of BPL either MASTER or NODE.

☝️

NOTE: Standard firmware of REDZ BPL supports up to 10 hops and 1000 nodes. Only 1 device can be MASTER in same network. If the device is in client mode, it is suggested to use "NODE" as setting.

Once the setting has been changed, "Save Configuration" button will be enabled.

After clicking button system will tell if the settings applied successfully or not.

192.168.0.118 web sitesinin mesajı

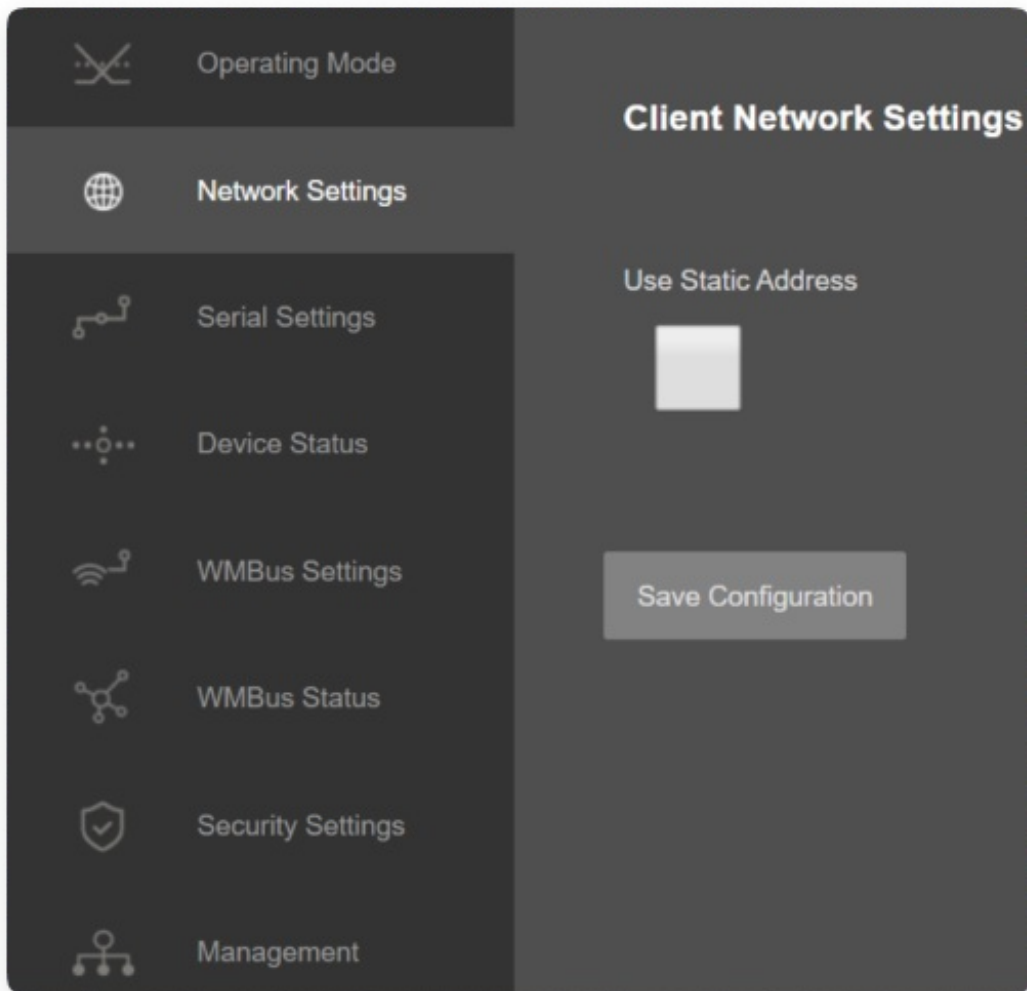Network Settings Changed.

Tamam

☝

NOTE 1: CKL Series Modbus, Serial to Ethernet Gateways can keep configuration of 2 different modes in its memory and once the configuration enabled, its already saved settings will be applied. Device can act as Server or Client at a time.

☝

NOTE 2: Settings will be applied once the device is rebooted from web interface or repowered manually.
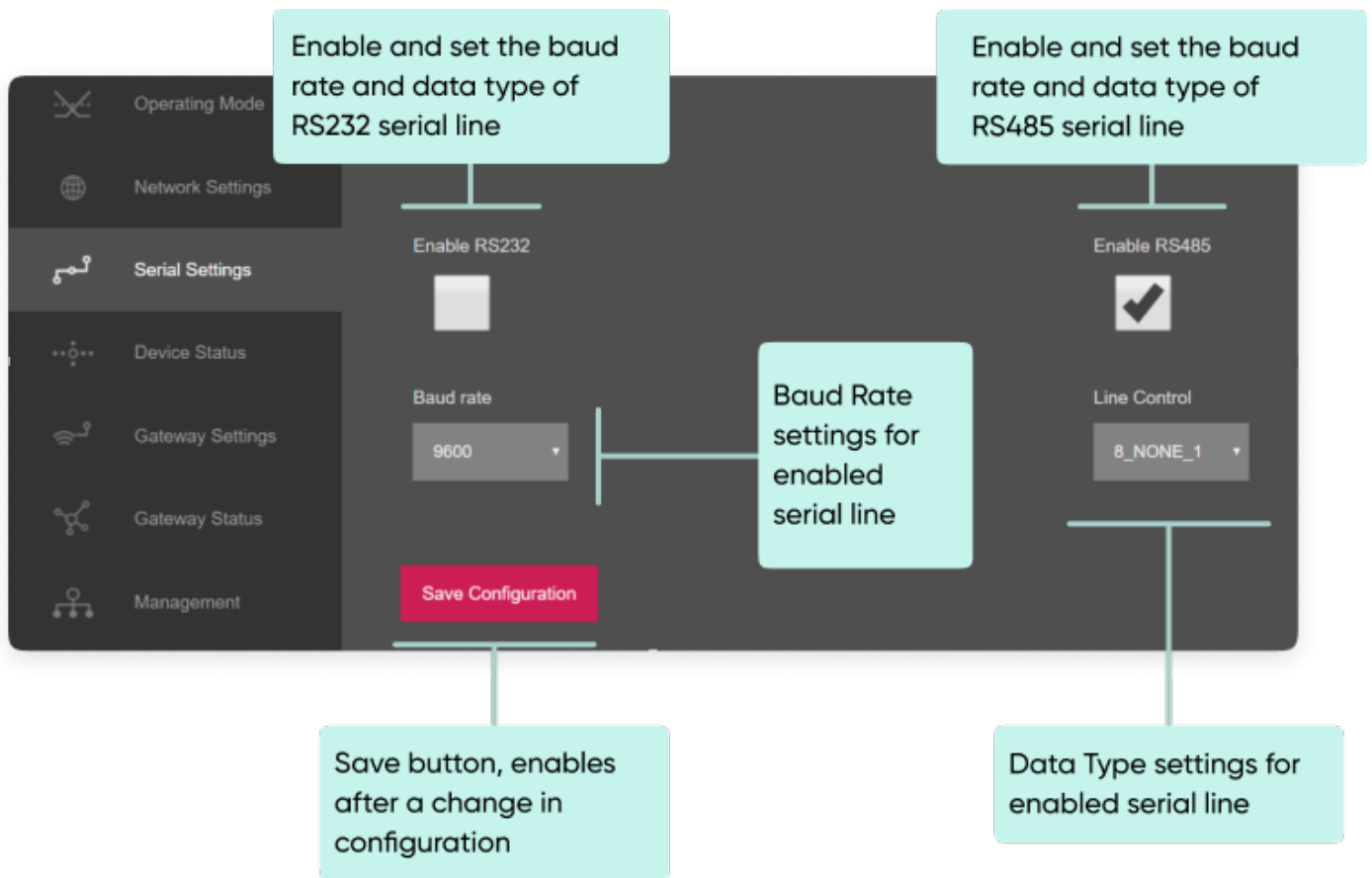
☝

NOTE 3: If Modbus RTU to TCP Conversion is enabled for Gateway Operating mode, the remote server IP will be entered in Gateway Settings page and only following menu items will be available.

10.5 MENU: Serial Settings

From this menu user may change settings related with RS232 or RS485 connection. Only one of the communication will be available at a time. (RS232 or RS485)

- User can select to activate RS232 line and can set baud rate and

  data type for serial line.

- User can select to activate RS485line and can set baud rate and

  data type for serial line.

Enable and set the baud rate and data type of RS232 serial line

Enable and set the baud rate and data type of RS485 serial line

Baud Rate settings for enabled serial line

Save button, enables after a change in configuration

Data Type settings for enabled serial line

Once the setting has been changed, "Save Configuration" button will be enabled.

After clicking button system will tell if the settings applied successfully or not.
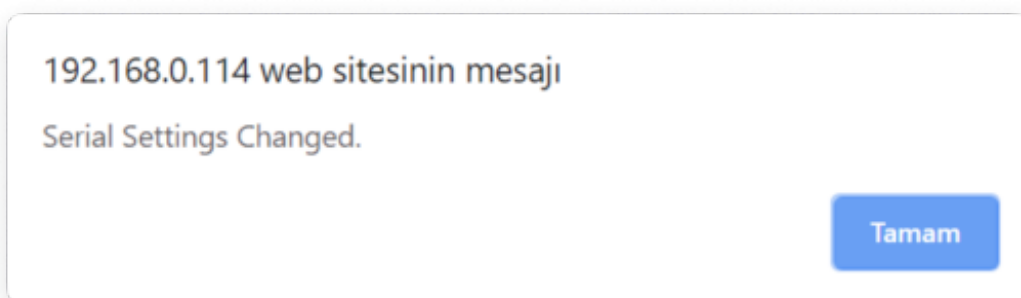
NOTE 1: CKL Series Modbus, Serial to Ethernet Gateways can keep configuration of 2 different modes in its memory and once the configuration enabled, its already saved settings will be applied. Device can act as Server or Client at a time. Let's say TCP Server

enabled in Server operating mode and RS232 serial line enabled in Client operating mode on same device, the device can switch between to settings simply by changing the mode.
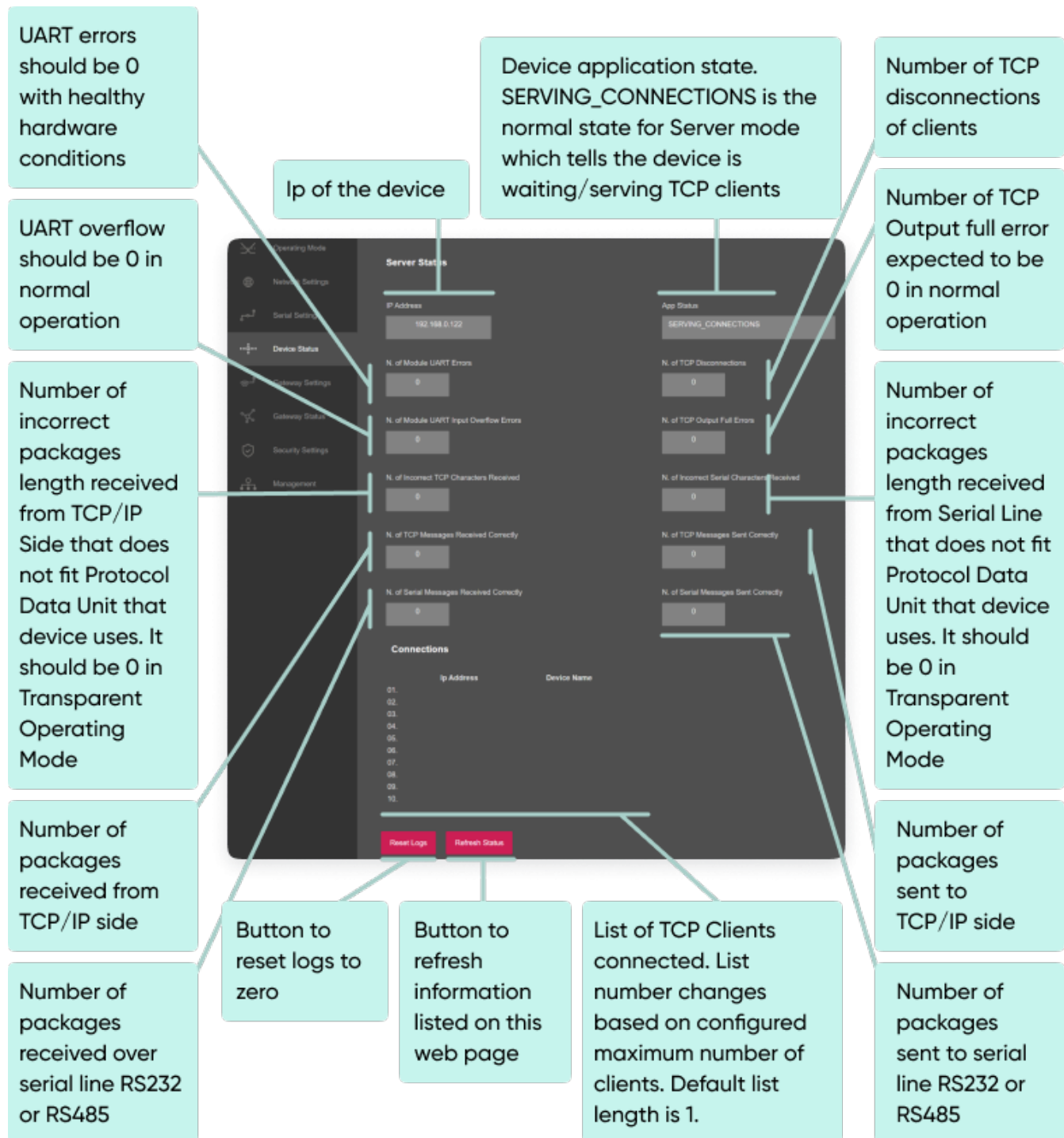
☝️

NOTE 2: Settings will be applied once the device is rebooted from web interface or repowered manually.

☝️

NOTE 3: This page has same settings both for Server and Client operating modes.

10.6 MENU: Device Status - Server

From this menu user may monitor device status and statistics based on operating mode of device. The page also helps users to check device health.

UART errors should be 0 with healthy hardware conditions

UART overflow should be 0 in normal operation

Number of incorrect packages length received from TCP/IP Side that does not fit Protocol Data Unit that device uses. It should be 0 in Transparent Operating Mode

Number of packages received from TCP/IP side

Number of packages received over serial line RS232 or RS485

Ip of the device

Device application state. SERVING_CONNECTIONS is the normal state for Server mode which tells the device is waiting/serving TCP clients

Number of TCP disconnections of clients

Number of TCP Output full error expected to be 0 in normal operation

Number of incorrect packages length received from Serial Line that does not fit Protocol Data Unit that device uses. It should be 0 in Transparent Operating Mode

Button to reset logs to zero

Button to refresh information listed on this web page

List of TCP Clients connected. List number changes based on configured maximum number of clients. Default list length is 1.

Number of packages sent to TCP/IP side

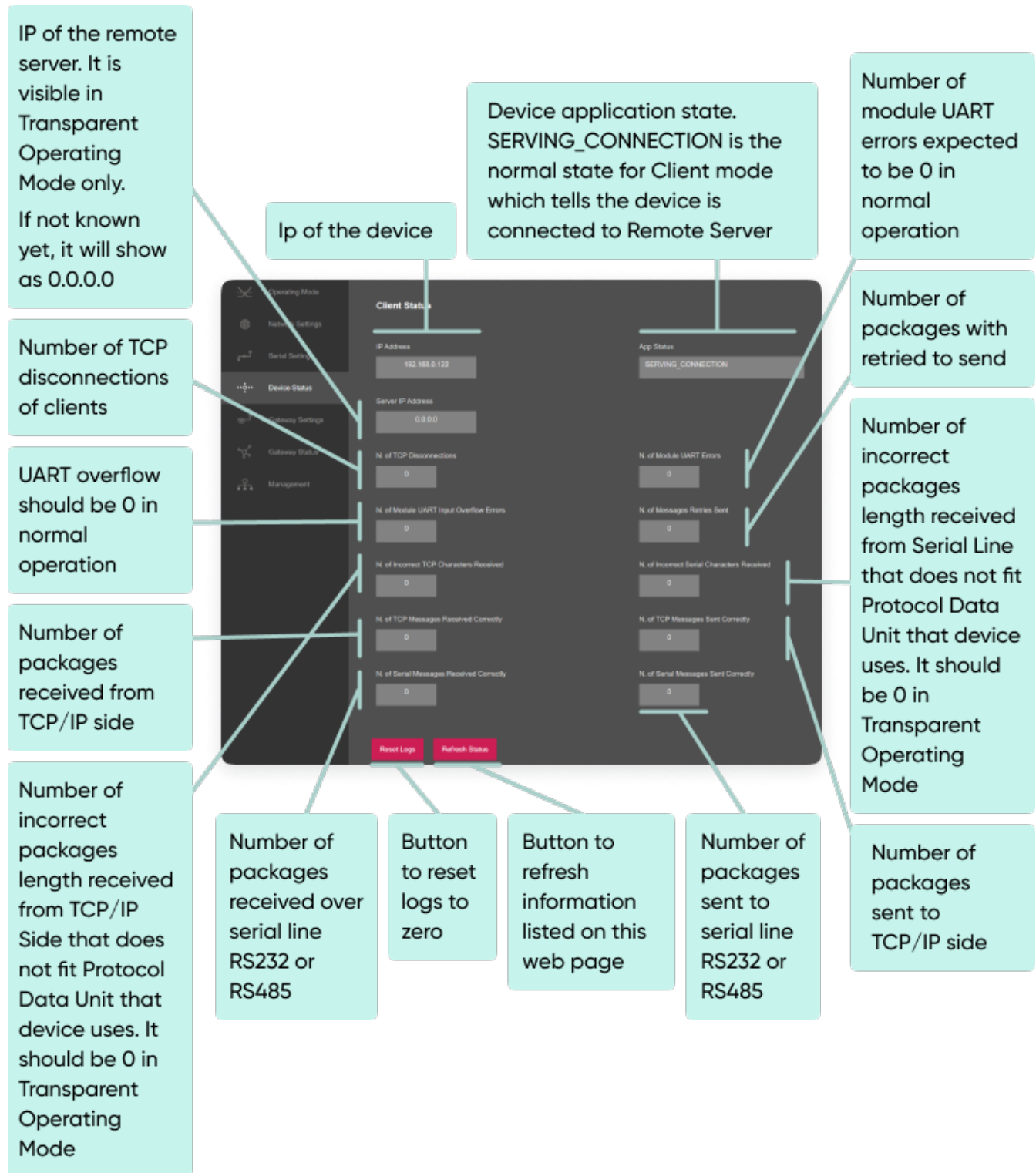Number of packages sent to serial line RS232 or RS485

After clicking "Refresh Status" button, system will reload data only and will not reload page. Button will be disabled during reload for an instance. If timeout occurs during the reload, the button will be enabled again with warning of timeout. In normal operation reload of status data will be
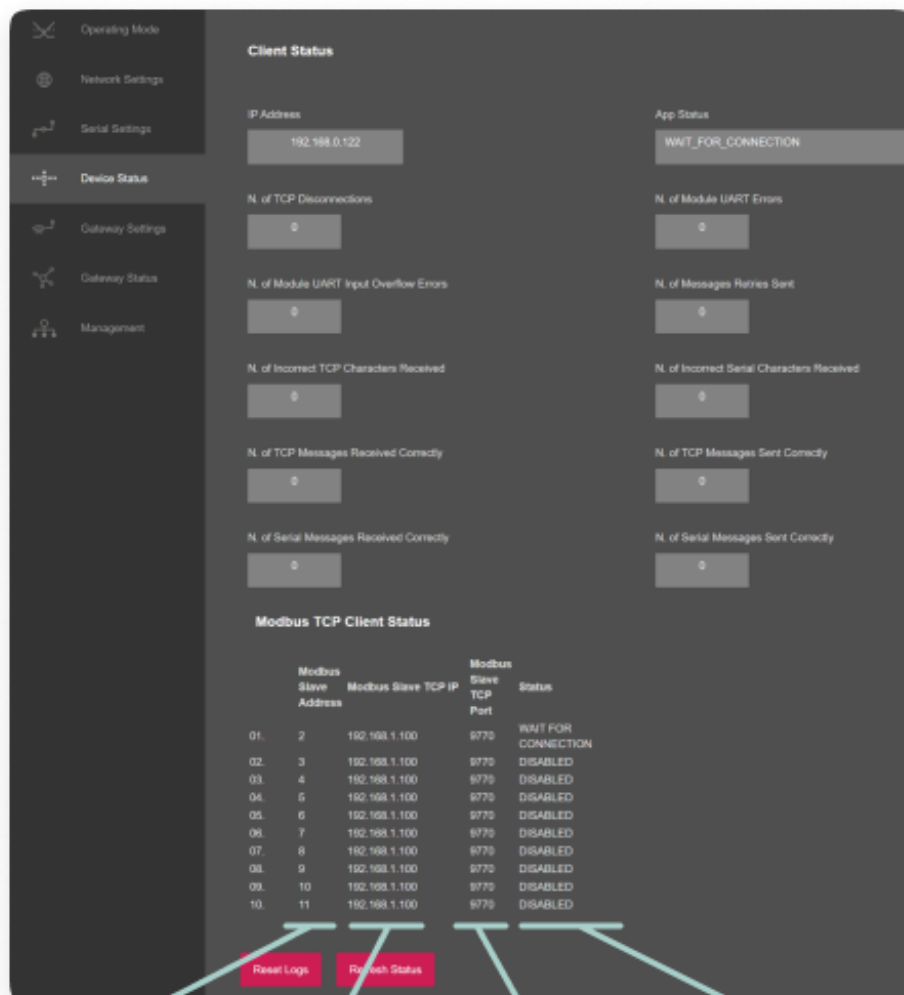
done immediately.

10.7 MENU: Device Status - Client

From this menu user may monitor device status and statistics based on operating mode of device. The page also helps users to check device health.

IP of the remote server. It is visible in Transparent Operating Mode only.

If not known yet, it will show as 0.0.0.0

Ip of the device

Device application state. SERVING_CONNECTION is the normal state for Client mode which tells the device is connected to Remote Server

Number of module UART errors expected to be 0 in normal operation

Number of TCP disconnections of clients

Number of packages with retried to send

UART overflow should be 0 in normal operation

Number of packages received from TCP/IP side

Number of incorrect packages length received from TCP/IP Side that does not fit Protocol Data Unit that device uses. It should be 0 in Transparent Operating Mode

Number of incorrect packages length received from Serial Line that does not fit Protocol Data Unit that device uses. It should be 0 in Transparent Operating Mode

Number of packages received over serial line RS232 or RS485

Button to reset logs to zero

Button to refresh information listed on this web page

Number of packages sent to serial line RS232 or RS485

Number of packages sent to TCP/IP side

If Modbus RTU to TCP Conversion is selected, Status page will show remote client status as well.

Client Status

IP Address	App Status
192.168.0.122	WAIT_FOR_CONNECTION
N. of TCP Disconnections	N. of Module UART Errors
0	0
N. of Module UART Input Overflow Errors	N. of Messages Retries Sent
0	0
N. of Incorrect TCP Characters Received	N. of Incorrect Serial Characters Received
0	0
N. of TCP Messages Received Correctly	N. of TCP Messages Sent Correctly
0	0
N. of Serial Messages Received Correctly	N. of Serial Messages Sent Correctly
0	0

Modbus TCP Client Status

	Modbus Slave Address	Modbus Slave TCP IP	Modbus Slave TCP Port	Status
01.	2	192.168.1.100	9770	WAIT FOR CONNECTION
02.	3	192.168.1.100	9770	DISABLED
03.	4	192.168.1.100	9770	DISABLED
04.	5	192.168.1.100	9770	DISABLED
05.	6	192.168.1.100	9770	DISABLED
06.	7	192.168.1.100	9770	DISABLED
07.	8	192.168.1.100	9770	DISABLED
08.	9	192.168.1.100	9770	DISABLED
09.	10	192.168.1.100	9770	DISABLED
10.	11	192.168.1.100	9770	DISABLED

Reset Logs   Refresh Status

Column shows the configured Modbus Address for the remote Modbus device

Column shows the configured static TCP IP for the remote Modbus device

Column shows the configured TCP port for the remote Modbus device

Column shows status of remote client. If not enabled it will Show DISABLED. If enabled it will Show status either CONNECTED or WAIT FOR CONNECTION.

After clicking "Refresh Status" button, system will reload data only and will not reload page. Button will be disabled during reload for an instance. If timeout occurs during the reload, the button will be enabled again with warning of timeout. In normal operation reload of status data will be done immediately.

10.8 MENU: Gateway Settings – Server

From this menu user may change Gateway Operating Modes for TCP Server device. There are 2 options:

- Transparent: CKL sends received data from TCP/IP side to the Seral

line (RS232 or RS485) and with the same idea sends the received data from Serial line to the TCP/IP side.

- Modbus TCP to RTU: CKL expect a connection from a Modbus TCP Master device and sends Modbus TCP commands as Modbus RTU commands to the Serial line (RS232 or RS485) and with the same idea sends the received Modbus RTU response data from Serial line to the TCP/IP side as Modbus TCP response.
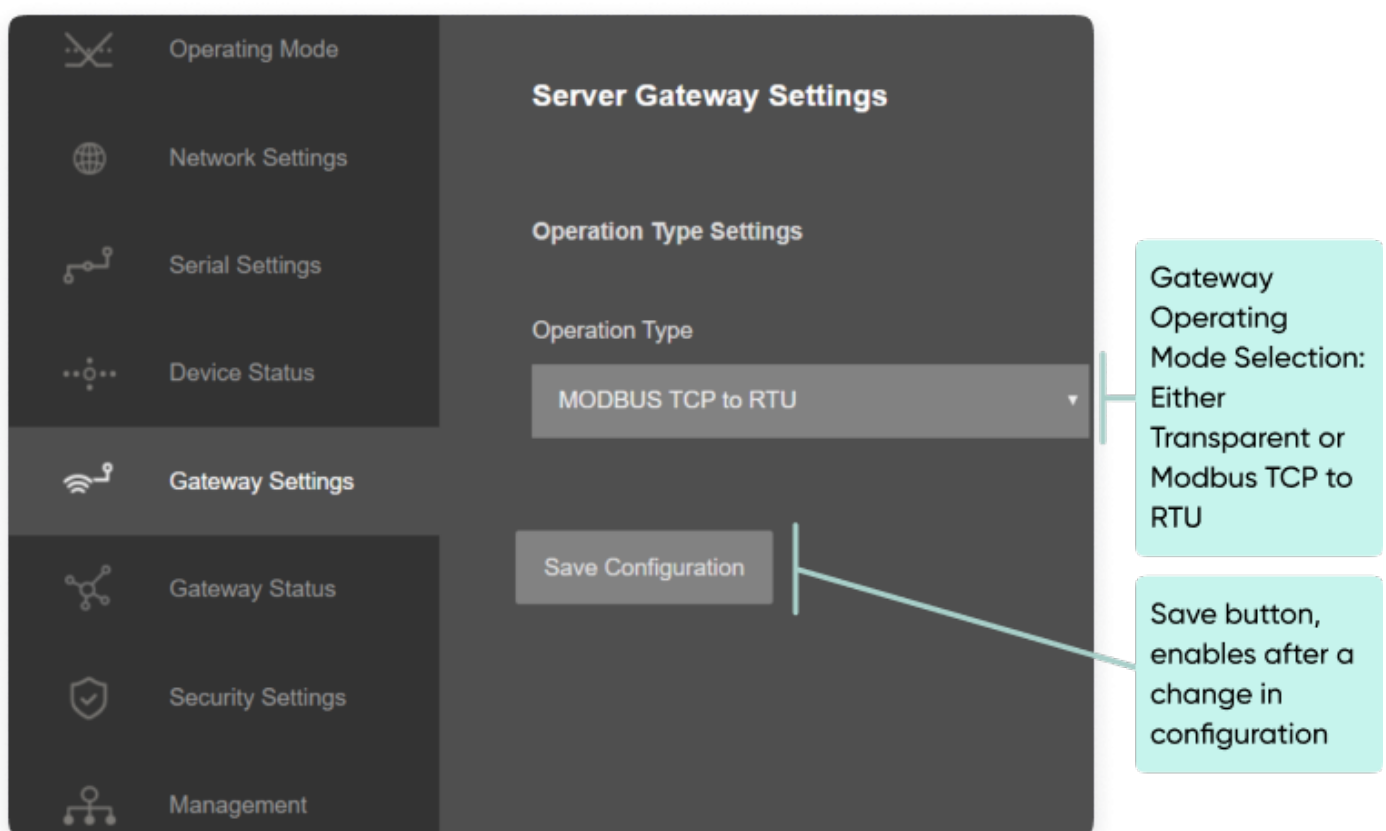
Once the setting has been changed, "Save Configuration" button will be enabled.
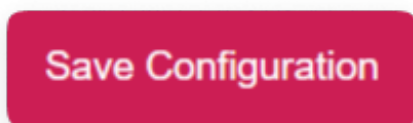
After clicking button system will tell if the settings applied successfully or not.

192.168.0.122 web sitesinin mesajı

Gateway Settings Changed.

Tamam

☝

NOTE 1: CKL Series Modbus, Serial to Ethernet Gateways can keep configuration of 2 different modes in its memory and once the configuration enabled, its already saved settings will be applied. Device can act as Server or Client at a time. This way different Gateway settings can be stored in 2 different operating modes.

☝

NOTE 2: Settings will be applied once the device is rebooted from web interface or repowered manually.

10.9 MENU: Gateway Settings – Client

From this menu user may change Gateway Operating Modes for TCP Client device. There are 2 options.

- Transparent: CKL sends received data from TCP/IP side to the Seral line (RS232 or RS485) and with the same idea sends the received data from Seral line to the TCP/IP side.

- Modbus RTU to TCP: CKL expect a connection from a Modbus RTU Master device and get Modbus RTU commands over the Serial line (RS232 or RS485). Based on Modbus Addresses of received commands, CKL routes the data to target Modbus TCP device. CKL also converts received Modbus TCP response and with the same idea sends it to Serial line.

Gateway Operating Mode Selection: Either Transparent or Modbus RTU to TCP

If Modbus RTU to TCP is selected, TCP Client settings will be opened

Remote Modbus TCP Device Address

Enable remote device connection to let CKL connect the remote Modbus TCP device automatically. At least 1 remote device must be enabled. Maximum 10 remote devices can be connected.

Save button, enables after a change in configuration

Remote Modbus TCP Device static TCP IP

Remote Modbus TCP Device TCP/IP port

Once the setting has been changed, "Save Configuration" button will be enabled.

After clicking button system will tell if the settings applied successfully or not.

☝️

NOTE 1: CKL Series Modbus, Serial to Ethernet Gateways can keep configuration of 2 different modes in its memory and once the configuration enabled, its already saved settings will be applied. Device can act as Server or Client at a time. This way different Gateway settings can be stored in 2 different operating modes.

☝️

NOTE 2: Settings will be applied once the device is rebooted from web interface or repowered manually.

10.10 MENU: Gateway Status

From this menu user may monitor received and sent package details. The latest messages received from TCP/IP and RS232/RS485 serial sides shown here both in HEX and ASCII (if representable) formats with time stamps.

After clicking "Refresh Gateway Status" button, system will reload data only and will not reload page. Button will be disabled during reload for an instance. If timeout occurs during the reload, the button will be enabled again with warning of timeout. In normal operation reload of status data will be done immediately.

☝

NOTE: This page has same options both for Server and Client operating modes.

10.11 MENU: Security Settings

This menu is available only in TCP Server Operating mode since it filters TCP/IP connections based on IP of the devices.
From this menu user may activate TCP IP filter based on White list (accepted packages from IP Address) or Black list (rejected packages from IP Address).

- User can select to activate White List and CKL device will accept data packages only from the devices with addresses stated in the list.

- User can select to activate Black List and CKL device will accept all data packages except from the devices with addresses stated in the list.
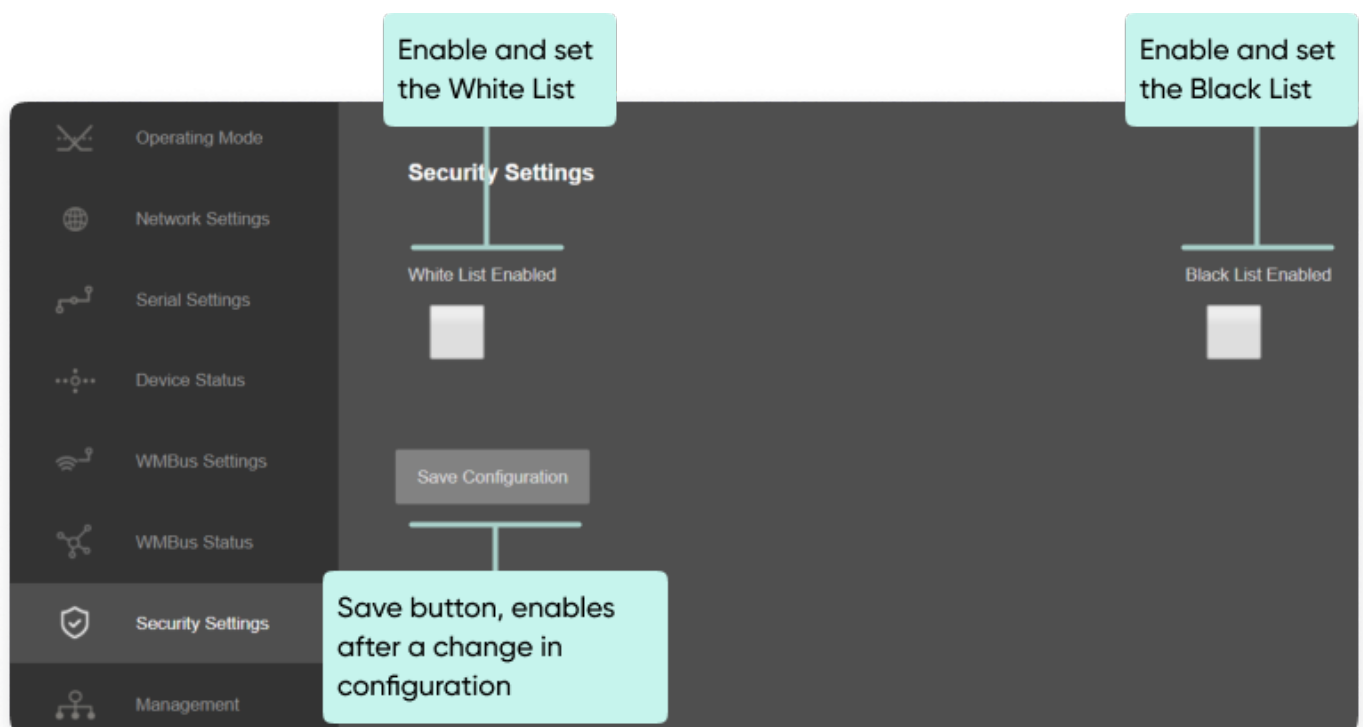
Following settings are available for any of the list :

White List Address Table

192.168.1.100

0.0.0.0

0.0.0.0

0.0.0.0

0.0.0.0

0.0.0.0

0.0.0.0

0.0.0.0

0.0.0.0

0.0.0.0

In this page user can enter 0.0.0.0 or the exact IP value of the device. The options with 0.0.0.0 will be disgarded (not filtered).

Once the setting has been changed, "Save Configuration" button will be enabled.

Save Configuration

After clicking button system will tell if the settings applied successfully or not.

192.168.0.114 web sitesinin mesajı

Security Settings Changed.

Tamam

☝️

NOTE : Settings will be applied once the device is rebooted from web interface or repowered manually.

10.12 MENU: Management

From this menu user may change parameters or send command to device.

- User can not change system time. There is no battery inside the device so clock will be lost after a power down and will set to default.

  The device restarts itself every 86400 seconds (which means every 24 hours). There are also timeout restart routines in Server mode during listening clients and in Client Mode trying to connect to the server. (both preset to 10 minutes which means device will restart system if fails to connect a server in Client mode or a client do not connect in preset time in Server mode.)

- User can change firmware of device. REDZ CKL Series Modbus, Serial to Ethernet Gateways have easy to use firmware capability and system can store 2 firmware at memory. After a firmware change, user can restore back old firmware anytime needed.

  After a firmware change old configuration will be used for minor changes. If a major change occurs system will restore to factory default configuration.

- User can change the login information

- User can change the debug level of the device. REDZ CKL Series Modbus, Serial to Ethernet Gateways series have micro USB and gives log in 115200 – 8N1 format.
  Any terminal program can be used to listen the LOG over micro USB port of the device which is recognized as Virtual COM port in PC.

- User can restore to factory settings and force device to reboot. Factory settings restored for Client if the device in Client mode and factory settings are restored for Server if the device in Server mode.

Management

Live Firmware Update

Select Firmware File

Firmware file to upload

Upload Firmware

Alternative Firmware Date	Alternative Firmware Version
Dec 20 2019 15:47:13	0.1.52

Reboot Alternative Firmware

Change Password

Current Password

New Password

Confirm New Password

Change Password

LOG

Log Level

NONE ▾

Change Log Level and Reboot

Restore / Reboot

Restore Factory Configuration   Reboot Device

Annotations:

Select firmware file and click upload button. Page will show information that firmware is loaded.

Then firmware date and version can be seen and that firmware can be rebooted

System will store previous firmware used and can be restored back at any time

Change system login information

Select LOG level

DEBUG will show all available log and NONE will close LOG

Reset device to factory settings and force to reboot. Factory settings restored for Client if the device in Client mode and factory settings are restored for Server if the device in Server mode

Force device to reboot

Firmware upgrade is possible only with files that REDZ supplied. Once the file selected, CKLshows selected file:

Select Firmware File

Firmware file to upload

CKL111_Serial_TCP-IP_Bridge_v1.52.binimg

Then "Upload Firmware" button must be clicked. Then user must wait until page shows the result.

192.168.0.114 web sitesinin mesajı

Firmware Uploaded.

Tamam

> This may take few seconds only. Please wait .

Then system will show the firmware date and version and user can reboot that firmware.

Alternative Firmware Date	Alternative Firmware Version
Dec 20 2019 15:47:13	0.1.52

Reboot Alternative Firmware

Typical log for the system is shown below.

11. Ordering Information

CKL154: Modbus, Serial to Ethernet Gateway, 2x 10/100 T(x) ETH ports, 1 x RS232 & 1 x RS485, 5-48V (max. 60V) DC Power Input
CKL254: Modbus, Serial to Ethernet Gateway, 2x 10/100 T(x) ETH ports, 1 x RS232 & 1 x RS485, 90 - 265V AC (100 – 370V DC), 47Hz to 63Hz AC Power Input
CKL655: Modbus, Serial to Ethernet Gateway, 2x 10/100 T(x) ETH ports + 1 x BPL (Broadband Power Line) Link, 1 x RS232 & 1 x RS485, 3 Phase AC Power Input, 110V–240V/50-60Hz

12. Product Selection

Model	5-48V (max. 60V) DC Power Input	90 - 265V AC (100 – 370V DC), 47Hz to 63Hz AC Power Input	3 Phase AC Power input, 110V–240V/50-60Hz AC Power Input	2 x 10/100 T(x) ETH Ports	1 x RS232 and 1 x RS485 Serial Ports	Instant Switch to Client or Server Operating Modes with Button	BPL (Broadband Power Line) Link
CKL154	X			X	X	X	
CKL254		X		X	X	X	
CKL655			X	X	X	X	X