

TCP Modbus Converter

Modbus TCP to Modbus RTU

Modbus RTU to Modbus TCP

WE-62C

USER MANUAL

Version 1.0



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TCP Modbus Converter WT-62C User Manual

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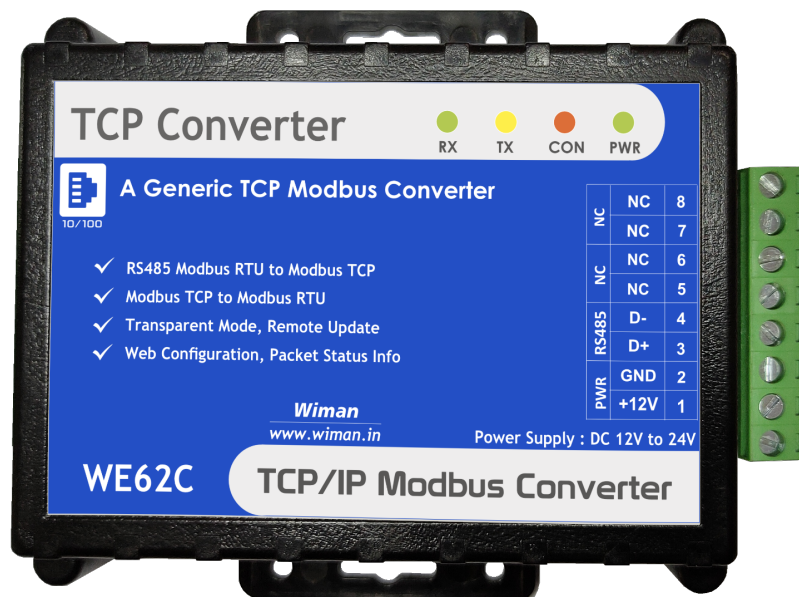
Table of Contents

1 Introduction.....	4
2 Hardware Description	5
2.1 Specifications.....	5
2.2 LED Status	5
3 Getting Started	6
3.1 Info & Device Setting	8
3.2 Modbus Slave – TCP Master (Modbus TCP to Modbus RTU).....	9
3.3 TCP Slave – Modbus Master (Modbus RTU to Modbus TCP).....	11
3.4 Configuration File Operations	13
3.5 Device Packet Status Info	13
3.6 Console – Read/Write Commands.....	13

1 Introduction

In Industrial Internet of Things (IIoT), protocol conversion has been the key to connecting legacy and different vendor devices to networks. The most common protocol conversion is Modbus-RTU-to-Modbus-TCP conversion, and is usually required when metering devices, mostly using Modbus RTU, need to be integrated with SCADA systems, mostly using Modbus TCP. Generally, two ways of Conversion will be required

- ✓ Modbus RTU to Modbus TCP
- ✓ Modbus TCP to Modbus RTU



PIN Details

Pin No.	Pin Name	Description
1	+12V	DC IN - Input voltage: 12V~24V/1A.
2	GND	Ground
3	RXD / D+ / A	RS232 Txd / RS485 Data+
4	TXD / D- / B	RS232 Rxd / RS485 Data-
5	NC	NC
6	NC	NC
7	NC	NC
8	NC	NC
RJ45	LAN	10/100 Mbps

2 Hardware Description

2.1 Specifications

System	
CPU	ARM Cortex
SRAM	32 Kbytes
Flash Memory	256 Kbytes
WDT(watchdog)	Yes
LAN Port	
RJ45 Port	10/100 Mbps Auto Negotiable
Serial ports	
RS232 Utility port	RS-232: TxD, RxD, GND (use for device configuration and debug)
RS485	RS-485: D+, D- (use for communication with other devices)
Baud Rate	Supports 2400,4800,9600,19200,38400,57600,115200
Power	
Operating Voltage	12VDC to 24VDC
Mechanical	
Casing	Plastic
Dimensions (W x L x H)	90mm x 100mm x 25mm
Environmental	
Operating Temperature	-25 °C +55°C
Ambient Relative Humidity	5 ~ 95% RH, non-condensing

2.2 LED Status

LED	NAME	DESCRIPTION	
GREEN 	POWER	Light when Power on the device	
RED 	GSM	LED Status	Connection State
		Flashing (ON for 100ms and OFF for 100ms)	LAN Network Not Connected
		Flashing (ON for 500ms and OFF for 500ms)	LAN Connected to Device
		Double Blink Once at every 3sec	IP is Connected to Server/Client
GREEN 	COM TX	Blink on data Transmission in RS485/RS232 port	
YELLOW 	COM RX	Blink on data Reception in RS485/RS232 port	

3 Getting Started

Basic Requirement for Testing

Hardware

1. TCP Modbus Converter WT-62C (With Power Setup)
2. USB to RS485 Converter
3. LAN Cable

Software

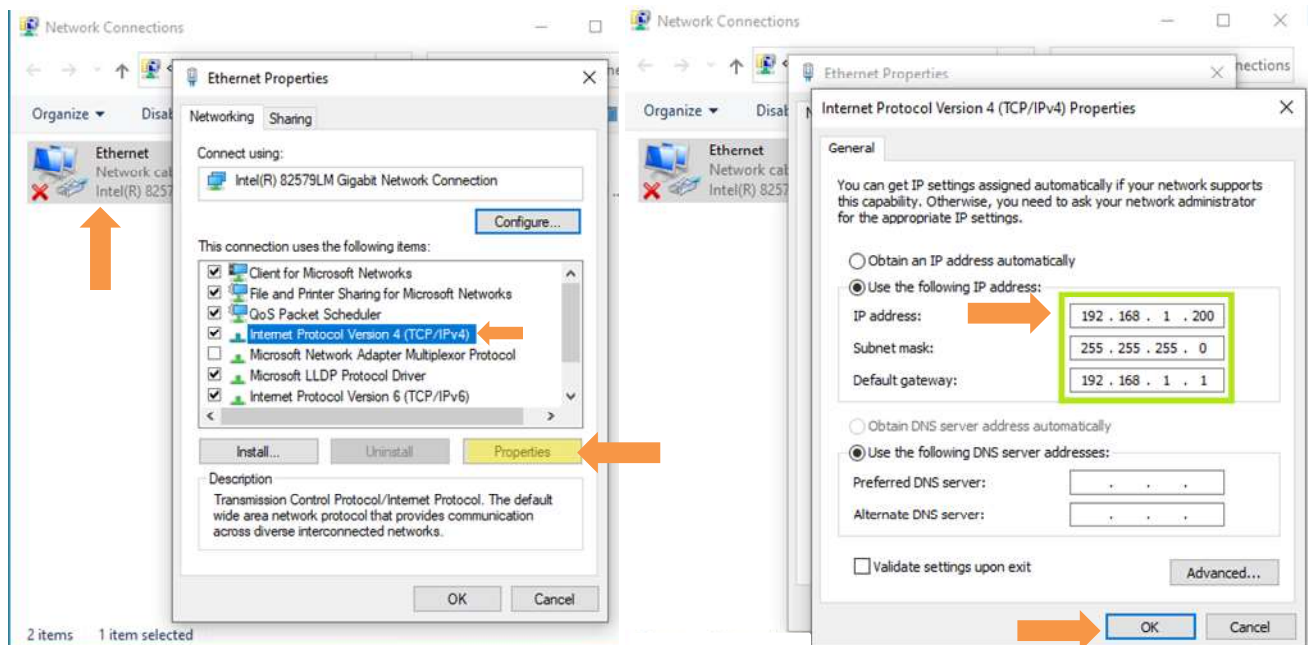
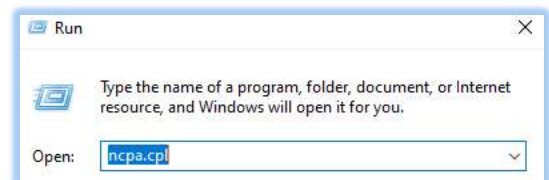
1. Modbus Simulator (Act as Slaves): Modbus Slave or Mod Sim or ModRSSim
2. Modbus Scanner (Act as Polling): Modbus Poll or Mod Scan

Step 1: Set IP in Laptop / Desktop to Access Device Configuration

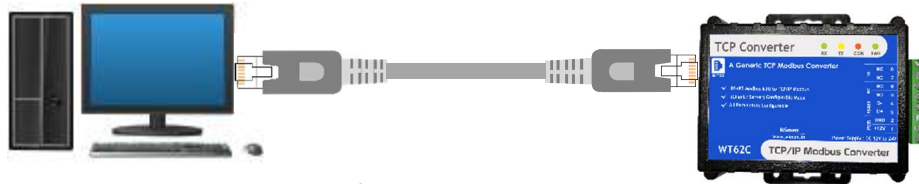
- Device Factory default IP: **192.168.1.100 : 255.255.255.0 : 192.168.1.1**

Run -> ncpa.cpl

- Open Ethernet Adaptor (Double Click) and Set the IP Address



Step 2: Connect LAN Cable to the device and PC



- ✓ Power Up the Device, wait for 20 Sec
- ✓ Check CON LED (RED) Status – ON and OFF every 500ms, Else wait for this Status

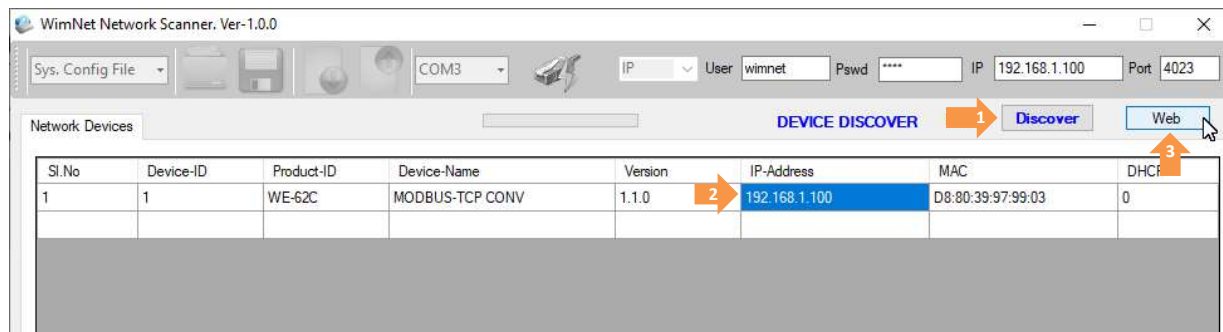
Step 3: Check IP is Connected to the Network

Run -> Cmd -> **ipconfig/all**

```
C:\WINDOWS\system32\cmd.exe
Ethernet adapter Ethernet:

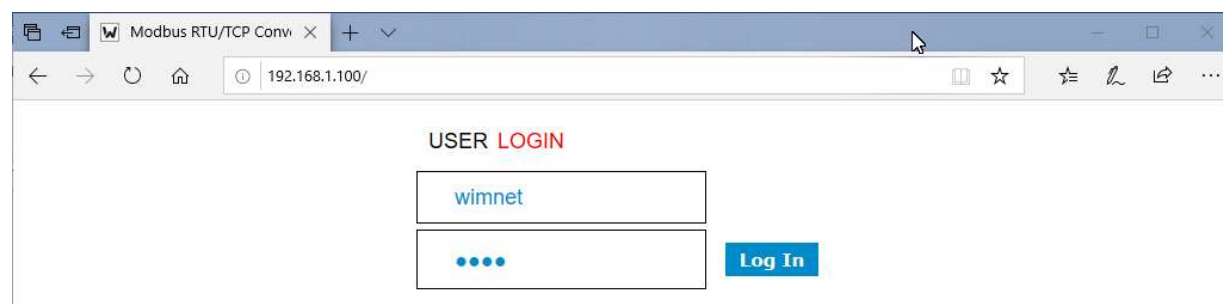
Connection-specific DNS Suffix . : 
Description . . . . . : Intel(R) 82579LM Gigabit Network Connection
Physical Address. . . . . : 
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::a50f:47f5:6343:6238%9(Preferred)
IPv4 Address. . . . . : 192.168.1.200(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.1.1
DHCPv6 IAID . . . . . : 153670212
DHCPv6 Client DUID. . . . . : 00-01-00-01-26-9D-73-AC-28-D2-44-09-A8-1B
```

Step 4: Using WimNet Network Scanner Tool (To find List of Devices in network)



- ✓ Scanner Software will List out the devices connected in the Network or Laptop – Directly
- ✓ Select the Specific IP and Click Web, It Opens the Configuration Web Portal in Web Browser

Step 5: Login with Credentials (User name: **wimnet** | Password: **1234**)



3.1 Info & Device Setting

WIMAN		Modbus RTU / TCP Converter		WE-62C	
				Firmware Ver : 1.1.1	
Info	1	Network		Device IP Network info	
Device					
Network					
Com Port					
Modbus TCP					
Config.File					
Status					
Console					
		Device		System	
		Name: MODBUS-TCP CONV Model: WE-62C Serial No: 0 Firmware Ver: 1.1.1 Hardware Ver: 1.1 Build Date: Jul 19 2020 17:38:19		System UP Time: 0 0:0:21 IP Status: Cont. OK IP Tx/Rx Packet Cnt: 15 / 15 Serial Tx/Rx Packet Cnt: 15 / 15	
		Device H/W, S/W Version Info		Device Connection and Packet Info	

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Edit for Device Setting

Device Settings

ID: — Set Device ID for Identification

Name: — Set Device Name for Identification

User: — Set Login USER name

Password: — Set Login PASSWORD

Discover Port: — Default 4023 for WimNet Device Scanner Port Number

Edit for Device IP Settings

Network Configuration

Type: ☒ Static IP ☐ DHCP — Enable DHCP to Auto Assign IP Address, Static IP - Default

IP Address: — Set Static Device IP Address

Gateway: — Set Static Network Gateway

Subnet Mask: — Set Static Network Subnet Mask

DNS: — DNS IP Default 0.0.0.0 (*Option for Internet Access)

Edit Serial (RS485/232) Com Settings

Serial Port

Baud Rate: — Set RS485/232 Slave Baud Rate

Data Size: — Stop Bit : default (8)

Parity: — Set Parity (None/Even/Odd)

Stop Bits: — Set Stop Bit (1 / 2)

Edit Modbus ID and Timeout Setting

Modbus Setting

Unit ID: — Set 0 = Allow All Slaves

Serial Rx timeout: (x10ms) — Serial Poll Timeout in ms

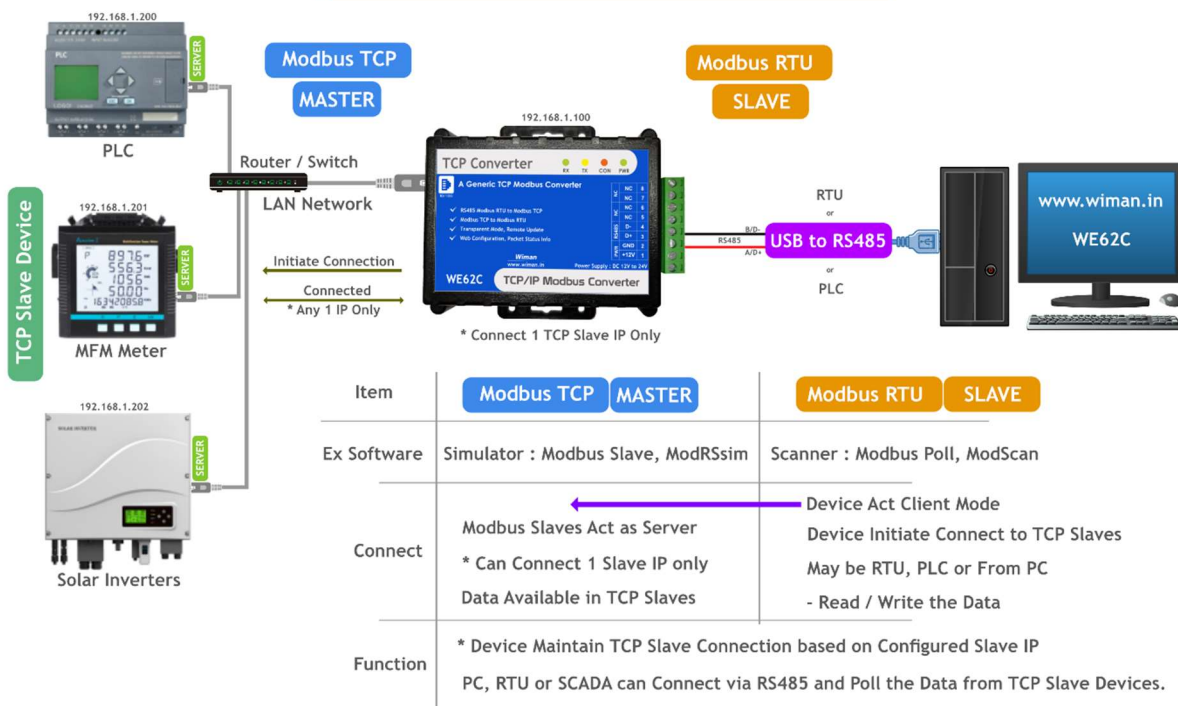
TCP IP Rx Timeout: (x10ms) — TCP Poll Timeout in ms

3.2 Modbus Slave – TCP Master (Modbus TCP to Modbus RTU)

Firmware Ver : 1.1.1	
Info	TCP Setting
Device	Operating Mode: Modbus Slave - TCP Master — Modbus TCP to Modbus RTU
Network	Protocol: TCP — Default TCP Protocol
Com Port	IP Address: 192.168.1.200 — Modbus TCP Device IP Address (Slave Device IP)
Modbus TCP	Port: 502 — Set TCP Device Port Number
Config.File	Connect On Demand: Disable — Disconnect socket after poll cmd resp. — Connect - Once Data is Requested, then Closed
Status	Data Mode: Modbus RTU/TCP — Converts the RTU to TCP, TCP to RTU Modbus Format
	* In Transparent Mode - Acts Like Serial to Ethernet (Client Mode)
	Update Settings

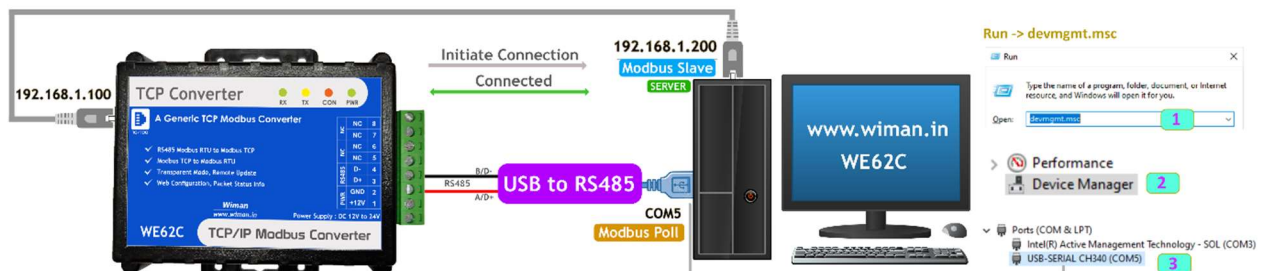
Modbus Slave - TCP Master

Modbus TCP to Modbus RTU

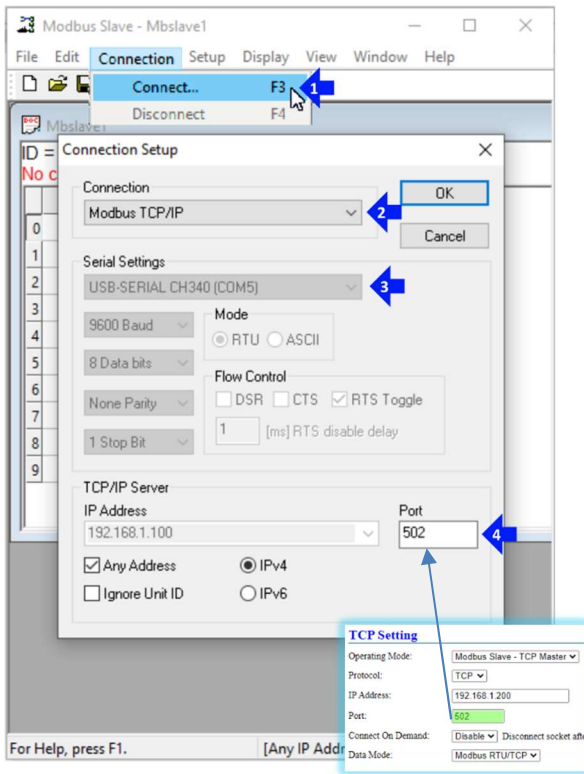


Test Connection Setup

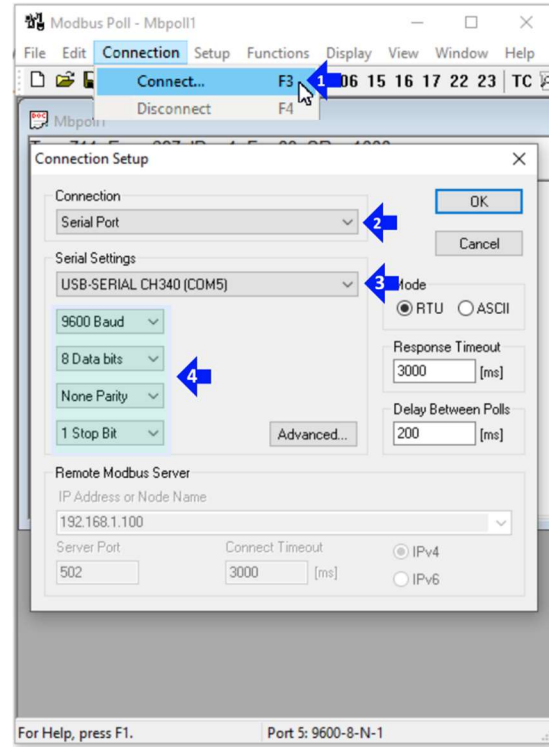
Software Used for Testing - Simulator: **Modbus Slave** and Scanner: **Modbus Poll**



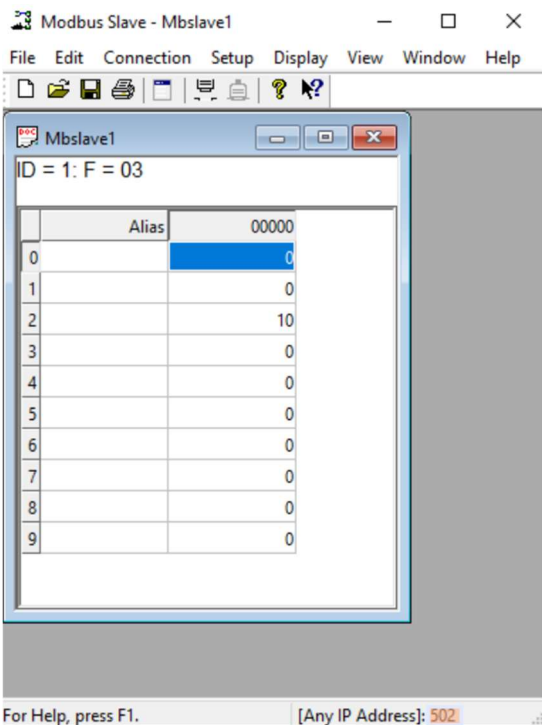
Simulator: Modbus Slave (TCP Connection)



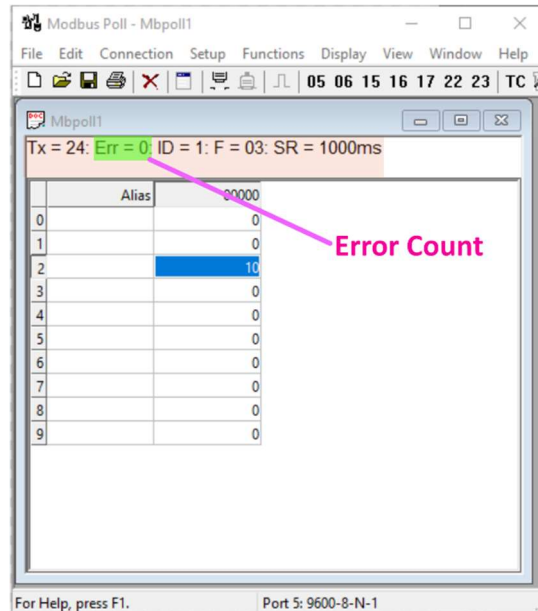
Scanner: Modbus Poll (RS485 Connection)



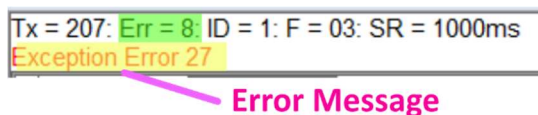
Modbus Slave Starts (Server) ready to give for Poll



Modbus Poll Successfully Connected and Read



If Modbus Slave is Not Connected

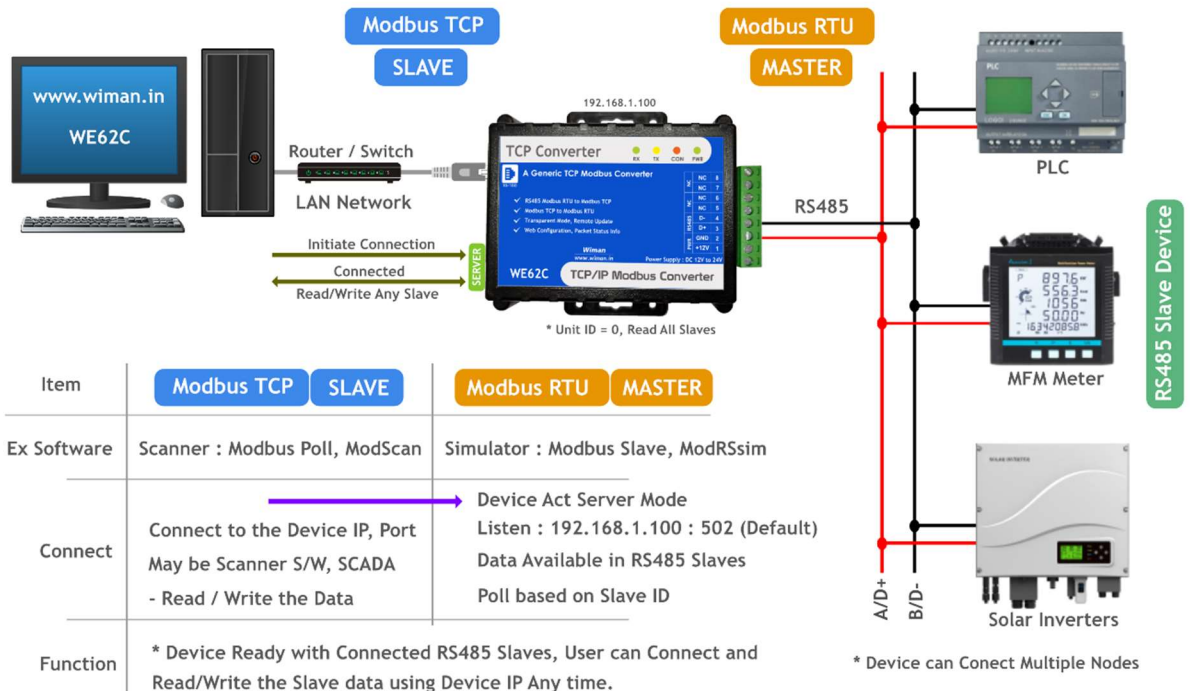


3.3 TCP Slave – Modbus Master (Modbus RTU to Modbus TCP)

Firmware Ver : 1.1.1	
Info	TCP Setting
Device	Operating Mode: TCP Slave - Modbus Master — Modbus RTU to Modbus TCP
Network	Protocol: TCP — Default TCP Protocol
Com Port	IP Address: 192.168.1.200
Modbus TCP	Port: 502 — Set TCP Device Port Number
Config File	Connect On Demand: Disable — Disconnect socket after poll cmd/resp.
	Data Mode: Modbus RTU/TCP — Converts the RTU to TCP, TCP to RTU Modbus Format

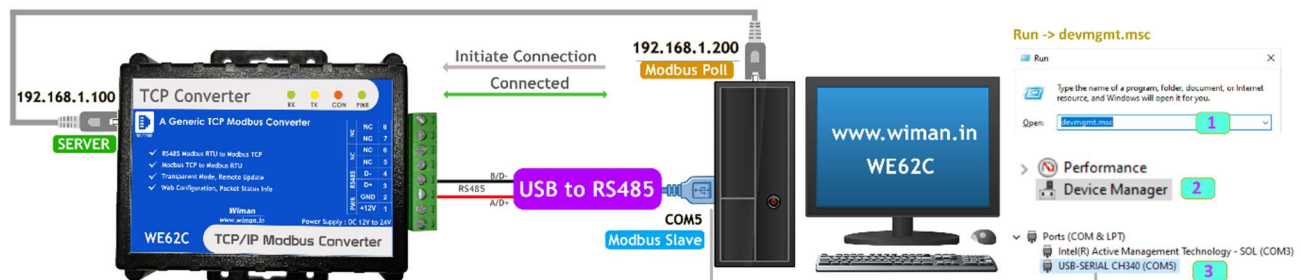
TCP Slave - Modbus Master

Modbus RTU to Modbus TCP

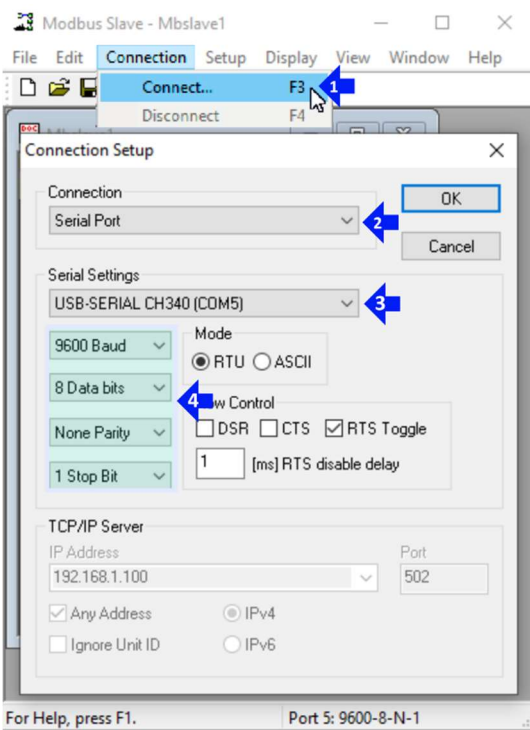


Test Connection Setup

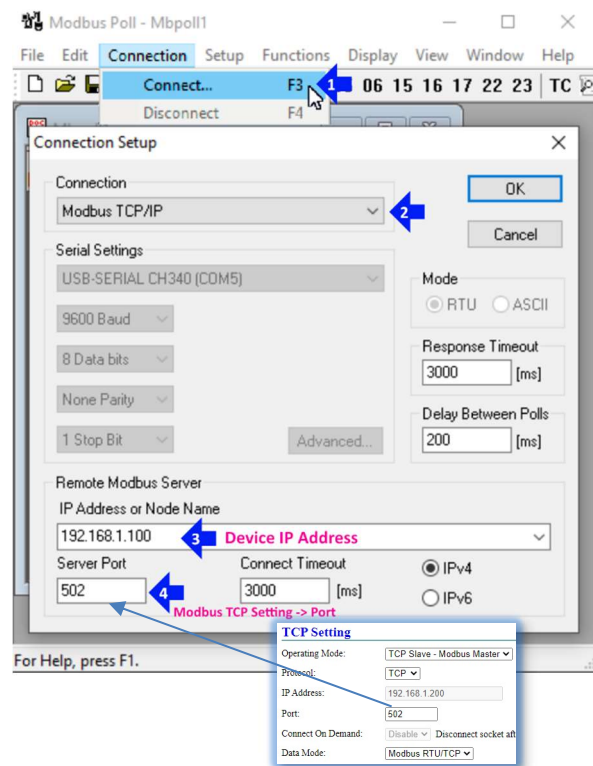
Software Used for Testing - Simulator: **Modbus Slave** and Scanner: **Modbus Poll**



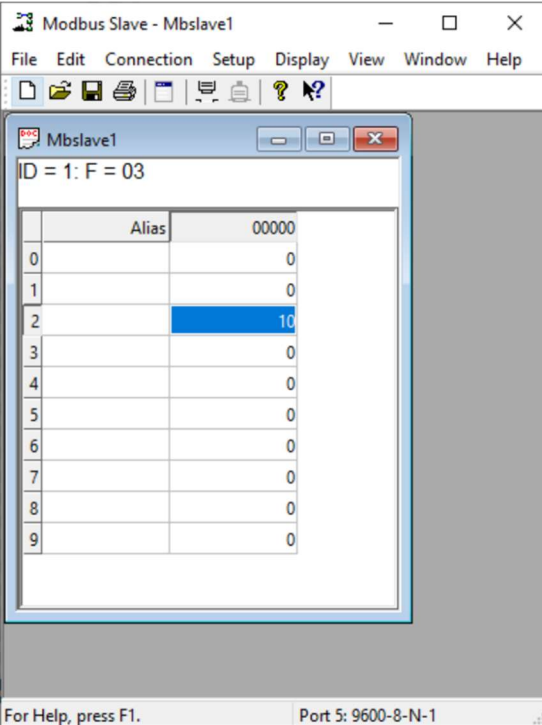
Simulator: Modbus Slave (RS485 Connection)



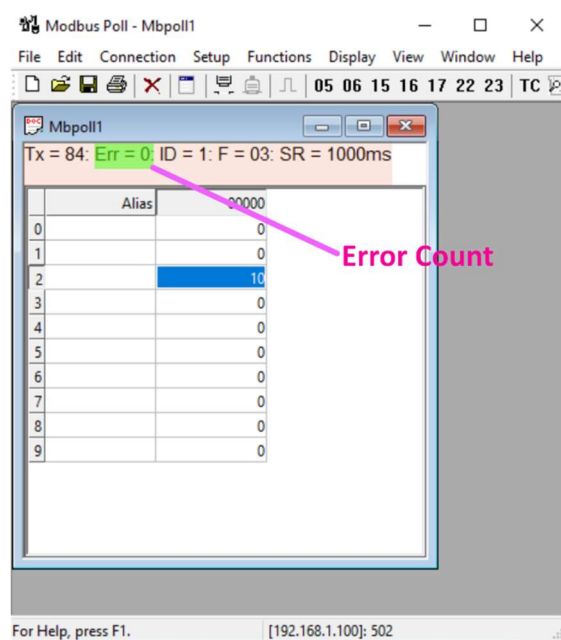
Scanner: Modbus Poll (TCP Connection)



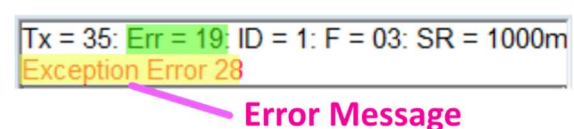
Modbus Slave Starts (Server) ready to give for Poll



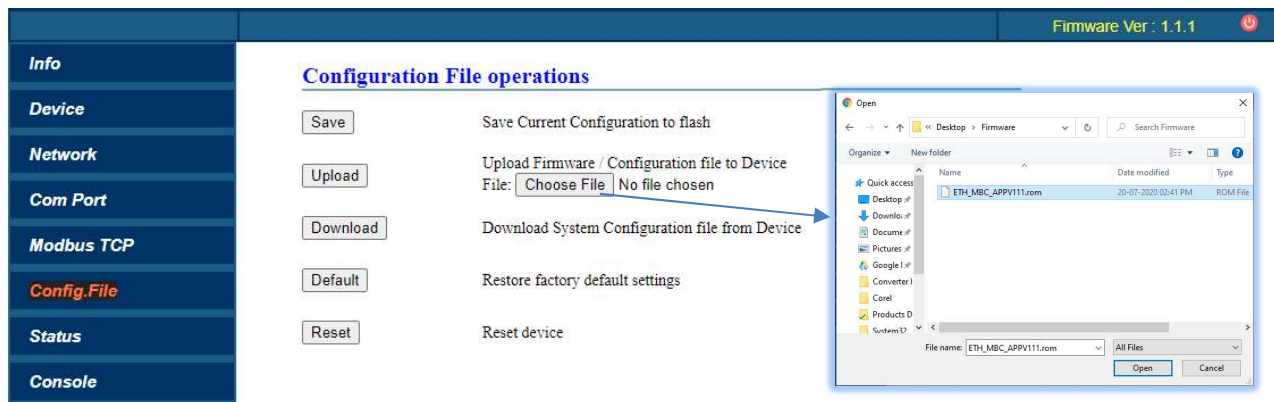
Modbus Poll Successfully Connected and Read



If Modbus Slave is Not Connected



3.4 Configuration File Operations

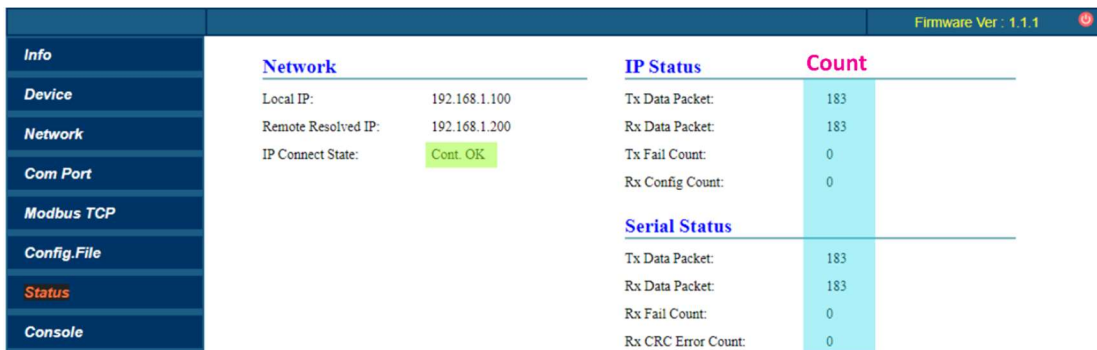


Configuration File operations

- Save**: Save Current Configuration to flash
- Upload**: Upload Firmware / Configuration file to Device
File: **Choose File** No file chosen
- Download**: Download System Configuration file from Device
- Default**: Restore factory default settings
- Reset**: Reset device

Save	Any Settings Updated, Have to Save the Configuration in Device
Upload	Update Firmware/Configuration file to the Device - File open Choose File
Download	Take Backup/Download the Configuration file from device to PC
Default	Restore the Factory Setting – Set by Manufacture
Reset	Reset the Device (Software RESET)

3.5 Device Packet Status Info



Network

Local IP: 192.168.1.100
Remote Resolved IP: 192.168.1.200
IP Connect State: **Cont. OK**

IP Status

Tx Data Packet: 183
Rx Data Packet: 183
Tx Fail Count: 0
Rx Config Count: 0

Serial Status

Tx Data Packet: 183
Rx Data Packet: 183
Rx Fail Count: 0
Rx CRC Error Count: 0

3.6 Console – Read/Write Commands



Console

Rx Reply.

\$!PCFG,P10,D88039979903,Model=W-E-62C;Name=MODBUS-TCP CONV;ID=1;BootVer=MBC-E,Hw:1.1,BC:1.1;FirmVer=M2TC-E,Hw:1.1,SW:1.1.1;SysFile=OK;FactFile=ERR;#

Tx Command.

<Info.sys>

Send Device Config/Status Commands