TRP-C37MA User's Manual

MODBUS TCP to RTU/ASCII Gateway



User's Manual

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1. Introduction

The TRP-C37MA which is able to analyzes the protocols between Modbus TCP and Modbus RTU / ASCII. It able to assign the UID of Modbus TCP slave from Modbus Serial Master. The TRP-C37MA which is suitable industrial environment Ethernet serial server, wide range power input and serial communicate protection, It Built-in surge, over current, over voltage ensure RS422 / 485 serial communication quality; if user lost password that can fast back to default by external switch.

The TRP-C37MA can as serial server that support 3 operates mode, "Direct IP Mode", "Virtual COM Mode", and "Paired Mode", these modes are supported Modbus RTU / ASCII protocols. The TRP-C37MA offers maximum connection 16 host clients to link the one serial server, it is easy to operate in Modscan32 and Modbus Poll many application uses Virtual-COM mode and Pair Mode.

In network security, the TRP-C37MA is able to set up 8 sets host IP, only these host IP can access the TRP-C37MA.

The TRP-C37MA provides a watchdog timer function, The Watchdog timer allows the system to automatically recover from a system crash. When the TRP-C37MA MCU stop working correctly, the watchdog timer waits for a preset period of time, and performs a hardware reset.

When The TRP-C37MA working at unstable voltage industrial environment, the power detection circuit can prevent the power fail cause of the boot fail then auto re-boot.

The TRP-C37MA will be auto detects function which will be auto connect when the LAN disconnect then re-connect or power off then power on.

In addition to Modbus TCP to RTU/ASCII function, The TRP-C37MA is able to remote monitoring serial device. There are 2 models to choose from:

Automatic monitoring mode: The Serial device must be sends a single pulse to TRP-C37MA continually per 30 seconds. If serial device do not send a single pulse over 30 seconds ,the TRP-C37MA will be actives the relay.

Manual mode: If the serial device need to restart, user can feel free to set the relay enable through the TRP-C37MA web configuration.

1-1. Features

- Automatic remote monitoring serial device.
- Automatic restart the serial device.
- Direct active the relay by web page.
- Read the counter value and DI status from web based utility.
- Adjustable relay latch time from web based utility.
- Wide input range DC power supply.
- Power Input detection circuit.
- External watchdog function prevents system or power fail.
- Support Auto-MDIX twisted pair crossover detection and Auto-Correction.
- Maximum Connection 16 Client PC at Server Mode.
- Compatible with Modscan32, Modbus Poll, CAS Modbus Scanner and SCADA .. Application.

- Maximum 8 sets host IP that limits network access.
- Surge protection and over current and over voltage on RS-422/485 data lines.
- Support baud rate from1200~921600Kbps.
- Auto switching RS-232/422/485 signal interface.
- Virtual COM drivers for WIN98/2000/XP/Vista/2003/7/8/8.1 and WIN10.
- Virtual Com Support Server, Client, UDP mode.
- Virtual Com Support Modscan32 or Modbus Poll utility.
- Fully compatible with Ethernet and TCP/IP protocol.
- Supports 10/100 Mbps Ethernet.
- Power/Link/UART RX/UART TX mode LED indicator.
- Heart Beat function ensures a reliable communicating connection.
- Auto reconnection when power or Ethernet fail.
- Back to factory configuration by external switch.
- Update the firmware from LAN.
- Dual power input select from screw terminal or DC-Jack.

1-2. Specification

- Power Input Voltage: DC +10V to +30V.
- LAN: Auto-MDIX, 10/100 Mbps Auto-detecting.
- RS-232: TX, RX, RTS, CTS, DTR, DSR, DCD, GND.
- RS485 signal: differential 2 half-duplex wires (DATA+, DATA-).
- RS422 signal: differential 4 full-duplex wires.(TX+,RX+,TX-,RX-)
- Baud Rate: 1200,2400,4800,9600,19200,38400,57600,115200,921600 K bps.
- Parity: none, even, odd.
- Data Bits: 5, 6, 7 or 8.
- Stop Bits: 1, 1.5 or 2.
- Protocol: TCP, IP, ARP, DHCP, Telnet, HTTP, UDP, ICMP.
- Modbus TCP Type: TCP Master to Serial Slave, TCP Slave to Serial Master.
- TCP Slave to Serial Master Mode: Maximum 8 TCP Port. UID Range:00~FF.
- External switch: OFF OFF : Directly IP mode, RTU protocol.
 - ON OFF: Virtual-Com and Paired mode .
 - OFF ON: Directly IP mode, ASCII protocol
 - ON ON: Back to Factory.
- Virtual-Com mode support RS232 TXD,RXD,GND.

RS422 TX+,TX-,RX+,RX-.

RS485 D+,D-.

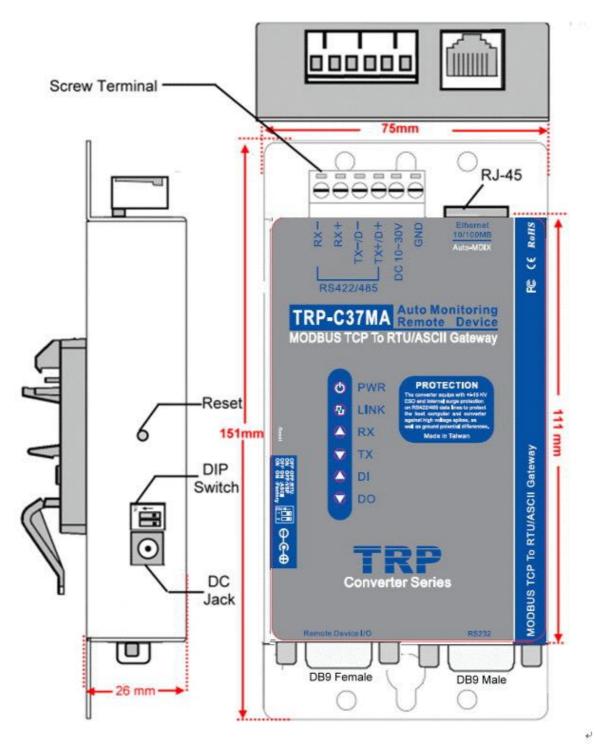
- Heartbeat function: TCP 5300 port send a strings per 5 seconds.
- Maximum TCP connections at the same time: 16.
- Digital I / O connector: D-type 9PIN female.
- Digital input an effective voltage: DC +/- 4 ~ 30V.
- Digital Input count: 0~65535.
- Relay setting start to closing time: 1 ~ 255 (100ms / unit).
- Relay specifications: two independent NC, COM, NO.

- Relay contact capacity: AC 125V / 0.5A, DC 30V / 2A, DC110V / 0.3A.
- Power supply: Screw terminal, or DC jack.
- Serial interface: +/-15 KV ESD.
- RS422/485 interface: Surge, over current, over voltage protection.
- RS422/485 interface: Industrial plug-in screw terminal.
- Plug-in screw terminal wiring: Accepts AWG #12 ~30 wires.
- Power consumption: 12V/140mA.
- Operating Temperature: -10 to 65 °C.
- Humidity: 0~90% Non-Condensing.
- Dimensions: 151(L)*75(W)*26(H) mm.
- Weight: 395g with packing.

2. Hardware Description

The following information is provided to give the user an understanding of how to connect the TRP-C37MA to the LAN and serial device. A review of the switch settings and the functionality of the LED's are also provided.

2-1. Panel layout



2-2. LED indicator

PWR LED: System is ready.(Blinking)

LINK LED: Ethernet cable connection and data active.

TX/RX LED: UART Transiting/Receiving Indicator.

DI LED: Digital Input.

DO LED: Relay Active.

2-3. Power Input

DC Jack: Power Input DC +10V to +30V. (Please use the $5.5^{*}2.1$ mm DC JACK).

There are two types power input.

a. Use the plug of power adaptor than plug in the DC jack on the side.

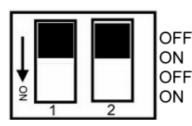
This approach also allows the user to provide additional power to other devices using the

terminal from EU regulation. b .Wiring terminals on the EU regulation

2-4. Reset Button

Push the reset button will Re-Boot.

2-5. DIP Switches



OFF OFF :Modbus RTU/Direct IP ON OFF :Paired Mode/Virtual COM OFF ON :Modbus ASCII ON ON :Back to Factory

2-6. How to back factory by external DIP Switches 1,2

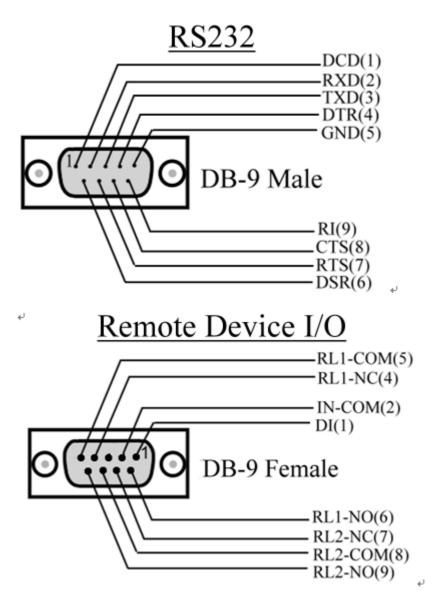
Please adjusts the switch 1,2 to ON ON position then power on till the PWR LED blinking. Meanwhile relay will self-test per second, and then adjust the switch1,2 to OFF OFF original position.

2-7.Factory	Setting
-------------	---------

Device Setup					<u>×</u>
Network Setting	Seri	al Port _Modbus Settin	ug		
Device Name		TRP-C37MA		Module Name	TRP-C37MA
MAC Addres	\$	00-0E-C6-00-03-	2F	Netmask	255.255.255.0
DHCP		Enable	-	Gateway	192.168.1.3
Server/Max Listening		192.168.0.119		DNS	168.95.1.1
Data listen	ing po	rt 502		Transmit Time/Plus	3
C Client/Slav UID Ran		Client/Slave IP Addi	ress Port	Heart Beat	Disable 💌
0 To	0	0.0.0.0	502	Maximun Connection	16 💌
0 To	0	0.0.0.0	502	TCP Keep Alive	7 💌
0 To	Í0	0.0.0	0	New Password	****
0 To	0	0.0.0.0	0	Firmware Version	610
0 To	0	0.0.0.0	0	_ Data Packet Type ——	Management Packet Type
0 To	0	0.0.0.0	0	UDP	🔽 Broadcast
0 To	0	0.0.0.0	0	after reboot	🔲 Multicast
0 To	0	0.0.0.0	0		
				Submit	Save Load

Network Setting	Serial Port Setting
Baud rate	9600
Data bits	8
Parity	None
Stop bits	1
Flow Control	None

2-8. D-sub 9 Pin connector pin assignment



3. Install TRP-C37MA Hardware

STEP1: Connect power source with TRP-C37MA, the PWR LED will blinking.STEP2: Connect TRP-C37MA with internet port by RJ45 LAN cable.If the cable is properly connected the "LINK" LED will light up.

*The TRP-C37MA Support Auto-MDIX, A straight-through or crossover Ethernet cable can be used to make a connection directly to the HUB/Router/PC.

STEP3: Connect TRP-C37MA with RS232 or RS422/485 RTU/ASCII of serial device.

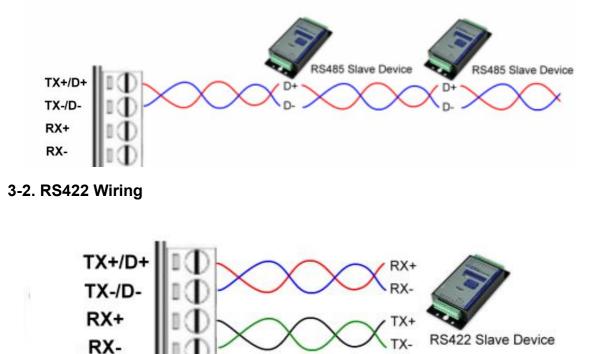
The TRP-C37MA has one DB-9 male connectors for RS232 connection and a screw terminal connector for RS422/485 connection.

The DB-9 serial port is DTE interface. A null modem cable is required to make a connection between the COM port on a PC and the TRP-C37MA serial port. A straight through cable is required to connect the TRP-C37MA serial port to a DCE device.

The screw terminal connector accepts AWG #12 ~30 wires.

STEP4: The serial device should connect to the DB 9 PIN female connector, The pin1,2 is the digital input from the serial device, The DI input which can accepts +/- 4~30V DC input .

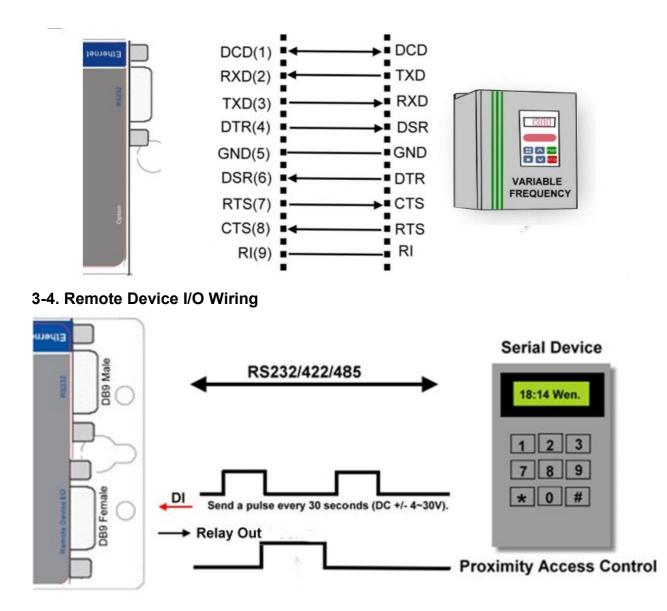
The DO is relay that can connect the AC or DC power or dry contact to serial device.



3-1. RS485 Wiring

3-3. RS232 Wiring

The RS-232 supports 8 channels plus Signal Ground and is configured as DTE like a computer. Signals are single ended and referenced to Ground. To use handshaking, Flow Control must be set to RTS/CTS during Configuration. Refer to the Pin out table for connections.



4. How to configure TRP-C37MA

There are 2 ways to access the Server Properties and program the TRP-C37MA. **a.TRP-C37X DSM utility.**

STORE OF	PC							C28H/C29I		
SM Setting Setting	NO.	Dev	ice N		AC Address 0E-C6-00-03-2F	DHCP	IP 192168.01	Port 19 502	Mode Master	Status Idie
SM Function	Device Se	tup								
Search	Network	Setting	Sec	ial Port Modb	us Setting					
IP Search		e Name Address	() ()	TRP-C37	MA -00-0.3-2P	Module N	eme	TRF-C37M		1
Device Setup		venMas		Enable		Galeway		192.168.1.3		
Web Browser		dening l As listen		192 168 0 out 502	0.19		Time/Plos	3		
Restore	The second second second	entSlev IID Ren		ClientSlave	IP Address Port	Heart Be		Disable 💌		
	0	To	0	0.0.0	902	Maorimur	Connection	16 •		
Reboot	P	To	0	0.0.0	502	TCP Keep	p Alive	7 •		
These de la	0	To	0	0.0.0.0	10	New Pass	hood			
Upgrade	0	To	0	0.0.0	0	Firmware	Version.	610		
	0	To	C	0.0.0	0		schet Type —	Manage	ment Packet 1	уре
	0	To	0	0.0.0.0	0	w	Auto connect	🔽 Bro		
	0	To	0	0.0.0.0	0.5		after reboot	T Mul	ticest	

b. WEB-based utility



TRP-C37MA

Ethernet to RS232/422/485 Serial Server

Serial Settings	
Data Baud Rate	9600 🔻
Data Bits	8 🔻
Data Paritiy	None 🔻
Stop Bits	1 🔹
Flow Control	None 🔻
Network Settings	
	🗹 Enable DHCP
Static IP Address	192.168.1.1
Static Subnet Mask	255.255.255.0
Static Default Gateway	192.168.1.3
Static DNS Server	168.95.1.1
Connection Type	TCP 🔻
Transmit Timer	3
Maximum Connection	16
Master/Slave	Master 🔻
Master:	
Master Listening Port	502
Slave:	
Slave IP Address	0.0.0.0
Slave Port	502
DI Status	0
DI Counter	0
Pulse Timer	1
DO Controller	0
	-
New Password	(0~65535)
	🗆 Enable Reboot
	Apply Reset

4-1. Using TRP-C37X DSM Utility.

The "TRP-C37X DSM" software performs several functions:

- A: Searching for TRP-C37MA connected to the network.
- B: Displaying and changing the configuration of TRP-C37MA.
- C: Upgrading the TRP-C37MA firmware.
- *Refer the Firmware upgrade help file.
- D: Saving and Loading Configuration from external log File or EEPROM.

4-2. Searching LAN for TRP-C37MA

Once TRP-C37MA is connected to the LAN the **TRP-C37X DSM** software will search it and display it in a window by name , IP address, Mac....Information.

	PC			P-C37/C37M/C37A/	C37MA/C	241/0201/020	n/629r	1/0001	
M Setting Setting	Devi	NO.	us List Device Name	MAC Address	DHCP	IP	Port	Mode	Status
		1	TRP-C37MA	00-0E-C6-00-03-29	Enable	192.168.0.132	502	Master	Idle
M Function									
Search									
IP Search									
evice Setup									
Veb Browser									
Restore									
Reboot									

4-3.Configuring Server Properties

Select the "NO." item and Double click to open the Server configuration, after setting then click "Submit" will save the configuration to EEPROM.

Device Name TRP-C37MA	Module Name	TRP-C37MA
MAC Address 00-0E-C6-00-03-29	-	
J	Netmask	255.255.255.0
	dateway	192.168.1.3
Server/Master Listening IP 192.168.0.132	DNS	168.95.1.1
Data listening port 502	Transmit Time/Plus	3
Client/Slave UID Range Client/Slave IP Address Po	Heart Beat	Disable 💌
UID Range Client/Slave IP Address Po To 0 0.0.0.0 502		16 💌
0 To 0 0.0.0 502	TCP Keep Alive	7
0 To 0 0.0.0.0 0		*****
0 To 0 0.0.0.0 0	 Firmware Version	613
0 To 0 0.0.0.0 0	— Data Packet Type —	I
0 To 0 0.0.0.0 0	UDP	🔽 Broadcast
0 To 0 0.0.0.0 0	after reboot	🗖 Multicast
0 To 0 0.0.0.0 0		

Device Name

Device server name, Maximum 10 chars.

MAC Address

The Device server MAC address.

DHCP

If DHCP is disabled, it allows user setting the IP address, Subnet mask, Gateway.

If DHCP is enabled ,the IP address, Subnet mask, Gateway address will be dynamically configuration by DHCP server such router.

When "DHCP" is enabled ,but the DHCP server is not available on the network, the TRP-C37MA will timeout then back to factory setting IP=192.168.1.1.

Master mode:

Listening IP: The Gateway IP address.

Listening port:RS232/422/485 port address.

Slave Mode:

UID Range(1~64) Using UID range to map a query from Modbus serial master with an UID within this range to an IP and port.

Slave IP Address and TCP port

The TRP-C37MA maps a message from MODBUS serial master to a serial slave.

Netmask

The default LAN Netmask is configured for a Class C address. This maybe reconfigured by the user.

Gateway

Input the gateway IP address that can be allows users to access the serial gatway from internet. **DNS**

Short for Domain Name System, an Internet service that translates domain names into IP addresses. Because domain names are alphabetic, they're easier to remember. The Internet however, is really based on IP addresses. Every time you use a domain name, therefore, a DNS service must translate the name into the corresponding IP address.

Transmit timer:0~500 mS/Unit

Time interval to send out serial data char staring packet.

*The function main support serial data input to TRP-C37MA RS232/422/485 port, if serial data is a mass of serial data over 1K Byte ,Trying to adjust the Timer to 200ms.

Hear Beat: Disable /Enable

When Hear Beat enable, it allows open a 5300 port, 5 sec interval to send out data char packet that provides a easy way to ensure the LAN communications between Host PC Client and gateway devices.

Maximum Connection: 1~16

The function allows the user to configure the TRP-C37MA Serial Gateway to have up to 16 TCP client connections.

TCP Keep Alive: 1~7 /Minute

When TRP-C37MA in Server mode, the TRP-C37MA without data over the 1~7 Min setting value,

The TRP-C37MA will be disconnecting TCP.

When TRP-C37MA in Client mode, the TRP-C37MA without data over the 1~7 Min setting value, The TRP-C37MA will be reconnecting TCP.

New Password: 12345

It only accepts value from0~65535 integer, if it input the wrong password over 5 times, the WEB-based utility will locks until the TRP-C37MA re-boot.

Firmware Version

Firmware Version.

Serial Port configuration

Baud Rate: UART Speed from 1200,2400,4800,9600,19200,38400,57600,115200,921600 k bps Data Bit: 5,6,7,8

Parity: Odd, Even, None

Stop Bits: 1, 1.5,2

Flow Control: Xon/Xoff, Hardware, None

Submit

Save parameter value to EE-PROM.

Save

Save parameter value to external log file.

Load

Load parameter value from external log file.

Upgrade

Upgrade the firmware

WEB-based utility configuration

DI Status	0
DI Counter	0
Pulse Timer	200
DO Controller	0
New Password	(0~65535)
	Enable Reboot
	Apply Reset

DI Status:0~1

Digital Input status.

0: Low; 1: High.

DI Counter:0~999

Counter value 0~999.

Pulse Timer:0~255 (100ms/Unit).

- 0 : Normal relay mode
- 1~255(100ms~25.5sec):

When DO Controller=1 Relay will ON a period of time then OFF, It depends on the Pulse timer value.

DO Controller:0~3

- 0: Relay OFF.
- 1: Relay ON a period of time then OFF, It depends on the Pulse timer value.
- 2: Auto remote serial device enable.

Relay will enable a period of time when DI does not receive the pulse within 30 sec.

Relay enable time depends on the "Pulse Timer" Parameters.

3: Auto remote serial device enable.

Relay will be keep ON when DI does not receives the pulse within 30 sec.

4-4. Using the WEB based utility

The Web-based utility that can be used to configure the TRP-C37MA Serial Server from different web browsers.

In Internet Explorer type the IP Address of the Serial Gateway into the address field and press the **Enter** key. The following window will appear:

Example:

If TRP-C37MA IP is 192.168.1.1 Please Input them which should appears the following.

TRP-Serial Ether	net to RS232/422/485 Serial Server - Microsoft Ir	iternet Explorer	_ 8 X
File Edit View Fa	worites Tools Help		2
GBack + () +	🖹 💈 🏠 🔎 Search 👷 Favorites 🕢 🍰	80	
Address a http://19			💌 🛃 Go Links "
		http://www.trycom.com.tw	
	WDT-inside	Ethernet to RS232/422/485 Serial Server	
	Serial Settings Data Baud Rate Data Bits	9600 • 8 •	
	Data Paritiy Stop Bits Flow Control	None None	
	Network Settings		
	Static IP Address	← Enable DHCP 192.168.1.1	_
	Static Subnet Mask	255.255.255.0	
	Static Default Gateway	192.168.1.3	
	Static DNS Server	168.95.1.1	
	Connection Type	TCP •	
	Transmit Timer	10	
	Mada		
Ø			internet -

4-5 How to setup the network security

In network security, the TRP-C37MA is able to setup 1~ 8 sets host IP, only these host IP can access the TRP-C37MA.

The TRP-C37MA actually can make connections with any Host IP,

Once the user has filled in the Host IP, these IP are valid, the TRP-C37MA will be pass with them. Other host IP will not pass.

Refer to the following example illustrates.

*

Maximum 8 sets host IP that limits network access.

	→ → → → → → → → → → → → → → → → → → →	es pass	PC
TRP-C:	37M Gateway	Host IP 192.16	8.0.101~192.168.0.108
		1	
Device Setap			×
Network Setting Serial Po	ort_Modbus Setting		
Device Name	TRP-C37M	Module Name	TRP-C37M
MAC Address 🛛 🗍	00-0E-C6-00-02-5A	Netmask	255.255.255.0
DHCP	Disable 🗾	Gateway	192.168.1.3
 Server/Master Listening IP 	192.168.0.123	DNS	168.95.1.1
Data listening port	502	Transmit Time/Plus	3
C Client/Slave UID Range	ient/Slave IP Address Port	Heart Beat	Disable 💌
0 To 0	2.168.0.101 502	Maximun Connection	16 💌
0 To 0 19	2.168.0.102 502	TCP Keep Alive	7 💌
0 To 0 19	2.168.0.103 🚦 🛛	New Password	***** (0~65535)
0 To 19	2.168.0.104	Firmware Version	601
0 To 0 19	2.168.0.105	– Data Packet Type ——	Management Packet Type
0 To 0 19	2.168.0.106	UDP	✓ Broadcast
0 To 0 19	2.168.0.107 🚦 🛛	' after reboot	🗖 Multicast
0 To 0 19	2.168.0.108	TCP	
	· · · · · · · · · · · · · · · · · · ·		
		Submit	Save Load

5. Install the Virtual-COM

The Virtual-COM utility support TCP/IP \ UDP data mapping to the HOST PC virtual-com, it can creative Maximum 512~1024 virtual-com port, Support Server \ Client \ UDP mode, Support all Windows O.S include Win98/Win2000/WinXP/Vista/Win2003/WIN7,Support Multi-virtual com at different PC to one Serial Gateway; Support Ethernet and Internet , If TRP-C37MA off line or power fail, The Virtual-Com utility will try to Reconnection.

Step 1. Adjust the switch position to "ON, OFF".

Step 2. Insert the TRP-Serial CD and find the TRP-C37MA folder.

Step 3.Click "Vcomm.exe" icon then install Virtual-COM utility.

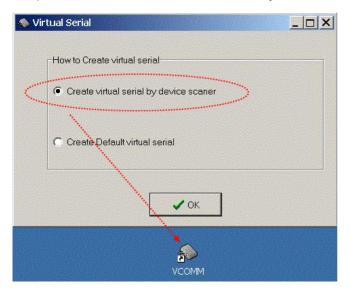
*The Virtual COM utility support multi-language, please select which language do you need.



Step4. Click "OK" button and select "VSP run as Client support Server Device".



Step5. Select "Create virtual serial by device scanner", then press "OK"



Step6. Run VCOMM.exe then click right button select "New Virtual COM"

Manager C	onfig Minimize VSPM About	t Exit			
Virtual COM	Remote Server IP and PORT	State	COM	→Network(Byte)	NetWork->COM(Byte
•			Scan and Append New Virtual COM Edit Virtual COM Delete Virtual COM Minimize VSPM		
			Manager Device		ndard Mode
			UpdateState	F5	
			Exit		

Step7. Select "Select Serial Port" and input TRP-C37MA IP and port then press "OK".

	×
Serial: COM5	
Remote Server IP: 192.168.1.1	
Remote Server IP. 192.168.1.1	
	and the second
Remote Server PORT: 4000	
Map mode: Client	
Note:	
	S. C. S.

Step8. If Virtual-Com setting success, the display will appear bellow.

Step9. Run TRPCOM utility then select virtual-com port make a TRP-C37MA loop test.

💫 Virtual SerialVSPM r			.16		
Manager Config Minir	nize VSPM About I	Exit	COM->N	letwork(Byte)	NetWork->COM(Byte)
COM5 192.168.1.1		Open.9600,N.8,1	1048		986
	COM Test Utility	r ican Ì C51H	ASCIT/Modbus R	TU Support Help	
Se Re Des Se	ninal Command Input- ind Command 123456789ABCDEFG sponse 123456789ABCDEF 123456789ABCDEF scription end the module's com nfiguation setting is e	mand and get real		your module's	Send 80 mS Clear + Checksum checksum end command status.

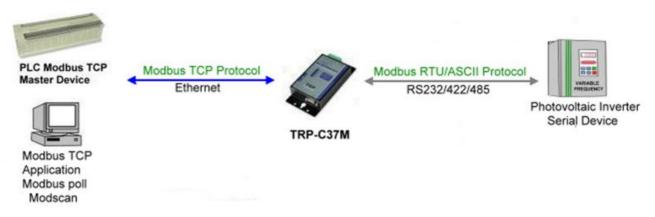
*If in VCOMM's configuration select "Boot with windows", the virtual-com will Auto-connection when windows start.

Setup	X
Baseconfig Networkconfig Workconfig	
Boot with windows	
Init VSP when Start	
Clear VSP when Start	
Ignore used VSP when exit	
Eanbled Device Scaner	
Process priority: Normal	
Thread priority: Normal	
GUI default mode: Normal 💌	
Data refresh interval: 2	
Cancel	

6. Application

6-1 Modbus TCP Master to Modbus RTU/ASCII Serial Slave Mode

*Notice: If TRP-C37MA is MODBUS RTU protocol, Please turn the switch 1,2 to OFF,OFF. OR if TRP-C37MA device is MODBUS ASCII, Please turn the switch1,2 to OFF,ON.



Example:

Step1: Connect PC-----Ethernet-----TRP-C37MA-----RS232/422/485---MODBUS RTU/ASCII device.

Step2.Run Modscan32 utility and input IP/Port, click "OK" button, then Select function code, the response will appear below.

*The Modscan32 utility copyright belong the Win-TECH Software Design, user can find it from the <u>www.win-tech.com</u>.

	dScan32 - ModS Connection Setup		Window Help				
I				? • ?			
õil	10 To 8x 33		4 64				
-M	lodSca1						_ 🗆 🗵
	dress: 0001			S Point Type	Number of Polls: Valid Slave Resp		
	ngth: 100		11: COIL STA	TUS 🔽		Reset Ctrs	
	Connection Deta	nils				×	
	Connect U		I TODA				
		Hemote n	nodbusTCP Serv				
				192.168.1.1 502			
**	Configuration-		Service Port:	302		_	
	Baud Rate:	9600	v	Hardware Flow Con	trol SR from slave		
	Word Length:	8	~	🗖 Wait for C			
	Parity:	NONE		DTR Control RTS Control			
	Stop Bits:	1	~	Delay 0	ms after RTS before transmitting first charac	ter	
				Delay 0	ms after last character before releasing RTS		
			Pi	rotocol Selections			
			OK	Cancel]		

Step3.Select function code.

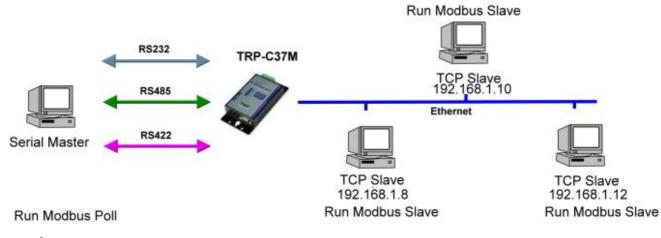
= ModScan32 - ModSca1	
<u>File Connection Setup View Window Help</u>	
=-ModSca1	
Address: 0001 Device Id: 1 MODBUS Point Type Length: 100 01: COIL STATUS 01: COIL STATUS 02: INPUT STATUS 03: HOLDING REGISTER 04: INPUT REGISTER	Number of Polls: 1 Valid Slave Responses: 0 Reset Ctrs
** Device NOT CONNECTED! **	

Step4.the modscan32 will be response below.

ModScan32 - ModSca1	
Elle Connection Setup View Window Help	
=- ModSca1	
Address: 0001 Device Id: 1 MODBUS Point Type Valid Slave Responses: 10	098
Length: 8 03: HOLDING REGISTER 💌 Reset Ctr	s
	_
40001: < 5800> 40002: < 0>	
40003: < 0> 40004: < 5600>	
40005: < 5600> 40006: < 5600>	
40007: < 1> 40008: < 0>	
For Help, press F1	Polls: 1098 Resps: 1098 //.

6-2 Modbus TCP Slave to Serial Master

*Notice: If TRP-C37MA is MODBUS RTU protocol, Please turn the switch 1,2 to OFF,OFF. OR if TRP-C37MA device is MODBUS ASCII, Please turn the switch1,2 to OFF,ON.



Example:

Step1: Connect Serial Master PC-----RS232-----TRP-C37MA-----Ethernet---Multi TCP Slave PC. Step2: Run DSM Search the TRP-C37MA and change the setting.

Device Setup			×
Network Setting Serial P	ort Setting		
Device Name	TRP-C37M	Module Name	TRP-C37M
MAC Address	00-0E-C6-00-02-04	Netmask	255.255.255.0
DHCP	Enable	Gateway	192.168.1.3
 Server/Master Listening IP 	192.168.1.1	DNS Server	168.95.1.1
Data listening port	502	Transmit Timer (ms)	10
. ● Client/Slave UID Range (Client/Slave IP Address Port	Heart Beat	Disable 💌
1 то 8	192.168.1.8 502	Maximun Connection	1
9 To 16	0.0.0.0 502	TCP Keep Alive Timer	7 💌
17 То 24	0.0.0.0	New Password	Juckek
, 25 To 32	0.0.0.0	Firmware Version	352
33 To 40	0.0.0.0 502	_ _ Data Packet Type ——	Management Packet Type
41 To 48	0.0.0.0 502	UDP Auto connect	✓ Broadcast
49 To 56	0.0.0.0 502	after reboot	Multicast
57 To 64	0.0.0.0 502		
		Submit Save	Load

Step3: Run Modbus Poll utility from serial master PC.

*The Modbus Poll and Modbus Slave utility copyright belong the Witte Communications Company Design; user can find it from the <u>www.modbustools.com</u>.

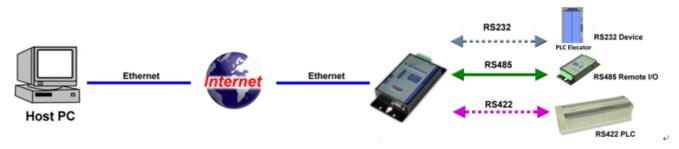
웹 Modbus Poll - Mbpoll1	
File Connection Setup Functions Display View Window	r Help
🗋 🖆 🖶 🎒 🗙 🛅 🖳 🚊 🗐 05 06 15 16 22 23 101	? ∖?
Mbpoll1	
Tx = 18: Err = 0: ID = 1: F = 02: SR = 1	LOOOR
10 Connection	×
10	
10 Port1 Mode 10 RTU O ASCII	ОК
10 9600 Baud 💌	Cancel
10 10 8 Data bits Response Timeout 1000 [mol	
10 None Parity Delay Between Polls	
10 10 1 Stop Bit 1000 [ms]	Advanced
10 Bemote Server	
IP Address Port	
For H 192.168.1.1 502	

Step4: Run Modbus Slave utility from TCP Slave PC and setting the function code as same as the Modbus poll.

🚔 Modbus Slave - Mbslav1		
File Connection Setup Display View	w Window Help	
D 📽 🖬 🚳 🛅 🗏 🚊 💡 🕺		
🕎 Mbslav1		
$\begin{array}{llllllllllllllllllllllllllllllllllll$		×
10011 = 0	9600 Baud Cance	:I
	8 Data bits	
	None Parity DSR CTS	
	1 Stop Bit	ay

6-3 Virtual COM Mode *Bridge Mode

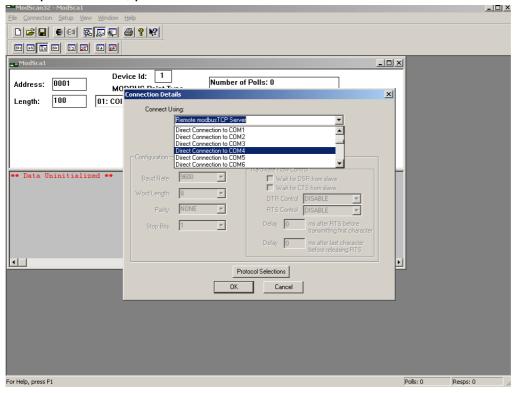
*Notice: Please turn the switch 1,2 to ON,OFF for Virtual-COM Mode.



Example:

Step1. Connect PC-----Ethernet-----TRP-C37MA-----RS232/422/485---MODBUS RTU/ASCII device.

Step2. Run Virtual-COM utility and make a virtual-COM port, Run modscan32 utility and input com port number, press "OK".



Step3.Select function code which you need.

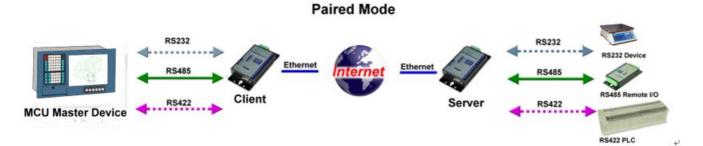
ModScan32 - ModSca1	
<u>File Connection Setup View Window H</u> elp	
□☞■ ●曰 死₽₽ ●? ♥	
<mark>=-</mark> Mod5ca1	
Address: 0001 Device Id: 1 MoDBUS Point Type Length: 100 01: COIL STATUS • 01: COIL STATUS 02: INPUT STATUS 03: HOLDING REGISTER 04: INPUT REGISTER 04: INPUT REGISTER	Number of Polls: 1 Valid Slave Responses: 0 Reset Ctrs
** Device NOT CONNECTED! **	

Step4.the modscan32 will be response below.

== ModScan32 - ModSca1	
Eile Connection Setup View Window Help	
ModSca1	
Device Id: 1 Address: 0001 MODBUS Point Type Length: 8 03: HOLDING REGISTER ▼ Res	
40001: < 5800> 40002: < 0> 40003: < 0> 40004: < 5600> 40005: < 5600> 40005: < 5600> 40005: < 1> 40005: < 0>	
For Help, press F1	Polls: 1098 Resps: 1098 //

6-4 Paired Mode *Bridge Mode

*Notice: Please turn the switch 1,2 to ON,OFF for Paired Mode.



Example:

Step1. Connect PC---RS232/422/485---TRP-C37MA----Ethernet-----TRP-C37MA----MODBUS RTU/ASCII slave device.

Step2.Run DSM set up TRP-C37MA as Client, Input destination IP and Port.

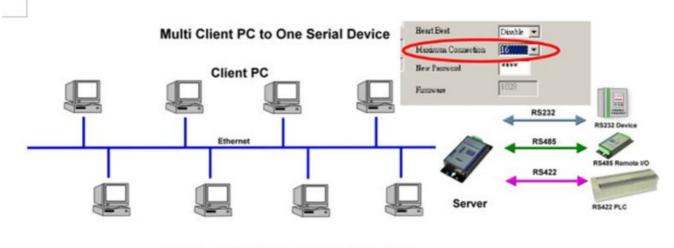
	evice Seti	un –					×	
Try	-		Seria	Port Setting			<u>_</u>	
	Device	Name		TRP-C37M		Netmask	255.255.255.0	
DSM Settir	MACA	ddress		00-0E-C6-00-01-E	3	Gateway	192.168.1.3	
Settin	DHCP			Disable	•	DNS Server	168.95.1.1	
DSM Funct	C Mast List	ter ening lf	>	192.168.1.1		Transmit Timer (ms)	10	
Searcl	Slav			rt 502		Heart Beat	Disable 💌	
IP Sear	1	ID Ran To	ge	Slave IP Address 192.168.1.2	502	Maximun Connection	1 • 7 •	
Device S	9	То	16	0.0.0.0	502	TCP Keep Alive Timer		
	17	То	24	0.0.0.0	502	New Password		
Web Bro [,]	25	То	32	0.0.0.0	502	Firmware Version	1706	
	33	То	40	0.0.0.0	502	– Data Packet Type ––––		
Restor	41	То	48	0.0.0.0	502		Broadcast	
	49	То	56	0.0.0.0	502	Auto connect	Multicast	
Reboc	57	То	64	0.0.0.0	502	TCP		
Upgrac						Submit Save	Load	

Step3.Run DSM set up *TRP-C37MA as Server* and be sure the IP and port as same as client setting.

Network Setting Serial Port Setting									
Device MAC A			TRP-C37M 00-0E-C6-00-01-E3		Netmask Gateway	255.255.255.0 192.168.1.3			
DHCP		P	Disable	•	DNS Server Transmit Timer (ms)	168.95.1.1 10			
C	ening II ælisten				Heart Beat	Disable 🔻			
	ID Ran	ge	Slave IP Address	Port	Maximun Connection	1			
9	To To	16	0.0.0.0	502	TCP Keep Alive Timer				
17	То	24	0.0.0.0	502	New Password				
25	То	32	0.0.0.0	502	Firmware Version	1706			
33	То	40	0.0.0.0	502	_ Data Packet Type —	Management Packet Type			
41	То	48	0.0.0.0	502	UDP	✓ Broadcast			
49	То	56	0.0.0.0	502	after reboot	Multicast			
57	То	64	0.0.0.0	502					

Same step3 and step4 same refer above.

6-5 Multi-Client to 1 TRP-C37MA Server



Maximum Client Connection : 16 Host PC

L

Example:

*Running at Multi-Direct IP Mode

Step1.Connect Multi-PC ---Ethernet----TRP-C37MA Server----TRP-C28 (RS485 ID=1) Step2.Run DSM Set up *TRP-C37MA* Maximum connection=16. Step3.All host PC run Modscan32.

*Running in Multi-Virtual COM Mode

Step1. All PC run Virtual com utility and make a self virtual-COM port, Run TRPCOM utility and select com port number, and press "OK".

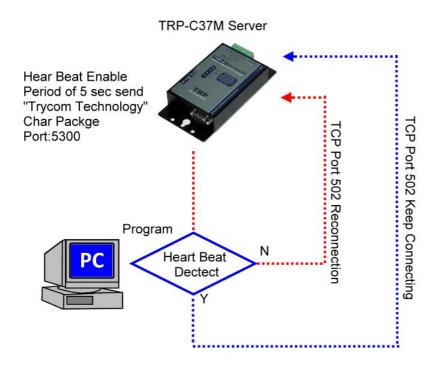
tual COM Remote Server IP and PORT State DM8 192.168.1.1:4000 Open.9600,N.8,1	COM->Network(Byte) NetWork-> 0 0	COM(Byte) Last State TCP/IP Connected	<u> </u>
Setting Termial Scan TCP/IP	2010 Pro Version		
Communication Configuration			
COM8 - 9600 -	OK	andard Mode	
Communication Protocal			
ASCII Modbus RTU	Default		
ASCII Checksum Enable			
	Exit		
Description			
In the settings menu, be sure to select the AS baud-rate from the drop down menus and sele			
Disable before continuing.			

Step3.Select "Terminal" and send command, the response will appear TRP-C28 channel 2 counter value.

Setting Termial Scan TCP/IP Help Terminal Command Input Send Command \$\vertarrow\$12 Instruction #012 Send IO100000 Image: Command B0 mS	2010 Pro Version 📃 🗖 🤉
Send Command #012 Response Interception Send	Scan TCP/IP Help
Response	Instruction
Clear Clear	
Command + Checksum	Command + Checksum
Description Send the module's command and get real time response. If your module's checksum configuation setting is enable, the command checksum will show you the send command status.	

6-6 Heart Beat

The heart Beat function help customer detection the TRP-C37MA LAN on–line or off-line, User can open one 5300 port, if TRP-C37MA on line, the 5300 port will send a char staring period of 5 sec.



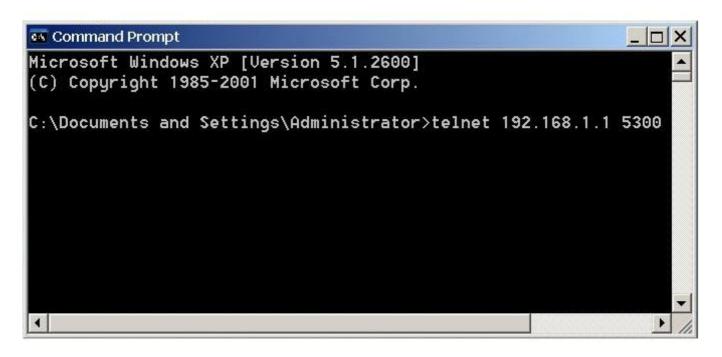
Step1: Run TRP-C37X DSM utility to set up the heart beat enable.

<u> </u>	DNP	1
	Transmit Timer	30
<	Heart Beat	Enable
	Maximun Connection	1 💌
	TCP Keep Alive	2
	New Password	****
	Firmware Version	1108

Step2: RUN TRPCOM then click "Link" button Wait until the Response screen appear the message

Setting	Termial	Scan	ТСРЛР	Help]					
RP-C3X E	thernet Serial S	erver Setting	3		letwork Status					
IP 1	92.168.1.18				Network On line!					
Port 5	300	Linl	< [F	Response					
Send the A	ASCII command -				Trycom TechnologyTrycom TechnologyTrycom Technology					
Send C	ommand		Clear		Loop Adjust					
Rele	ase IP	L	oop Test	F	ast 🛃 🛃 Slow					
Descript	ion ———									
test . o	r send comma	and to TRF	^D -DIO and A	IO to get	, and RS232/422 wire connection for loop the response . Notic:TRP-AIO,DIO using ing as same as that.					

Step3: Click windows start then select Accessories then click "Command Prompt", type dos command telnet 192.168.1.1 5300



Wait until the Response screen appear the char message

7. Using TRPCOM Utility test TRP-C37MA.

We recommend use the virtual-com mode test all RS232/422/485 function.

*Please turn the switch 1,2 to ON,OFF

*Support all ASCII and Binary code includes MODBUS RTU/ASCII Protocol in Virtual-com Mode. **TRPCOM Utility** is demo utility which may help to test TRP-C37MA UART interface .User may

find the utility in the TRP-C37MA support CD. Double click "TRPCOM Utility", the installShield Wizard will guide you complete installation.

User can directly link TRP-C37MA to TRP-Serial Remote IO Modules by RS485, The basic wiring connect.

RS485 Test

DATA+ to DATA+, DATA- to DATA-

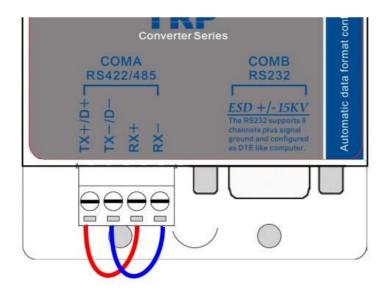
DATA+ to DATA+, DATA- to DATA-.



How to operator please see the diagram below.

RS422 Loop back Test

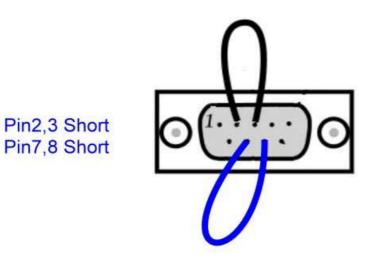
Hardware connects wiring for RS422 loop test. TX+ to RX+, TX- to RX-



RS232 Loop Back Test

Hardware wiring connection for RS232 Loop Test.

TXD to RXD, RTS to CTS.



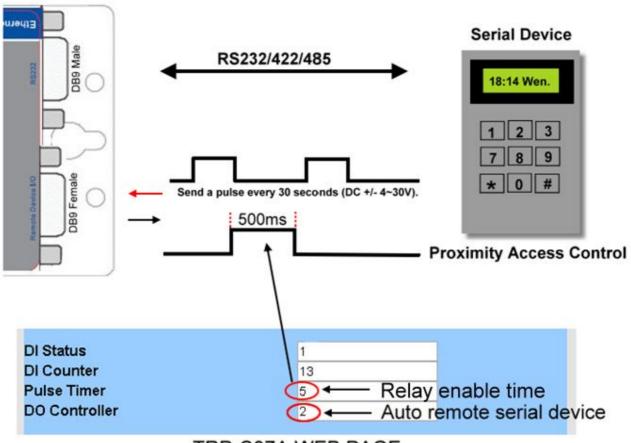
STEP1.RUN Virtual COM utility and set up the TRP-C37MA IP and PORT. STEP2.RUN TRPCOM test utility then select virtual-com port number. STEP3.Select terminal and key-in some word at "send command" text filed. STEP4.Click "Send Command" and get response.

rtual CC DM8 DM9	• Confi <u>c</u>)M B 1 1	9 Minimi i <u>emote S</u> 92.168.1 92.168.1	ze VSPM erver IP ar .1:502 .1:502	About Exi	t State Can't Crea	r Device V te:COM8,Ma te:COM9,Ma	<u>CON</u> 0 0		NetWork->CC))		Can't Cre		
-	tting Com Initi C C Se	2 munica al Settir OM8 Commu RPCOM tting SECOM SECOM SECOM SECOM SECOM COLOR SECOM S	nial tion Confi ng nication Test Utili Termia Command 1456789a nse	Protocal – ty I Sca Ind Input– I bcdefghiji	TCP/IP	UVWXYZ	Help	OK OK Pro Versio	Send 80 Clear	mS		ndard Mode	
			he modu Jation se					lf your mod I show you					

8. How to remote the serial device

8-1 Automatic monitoring mode:

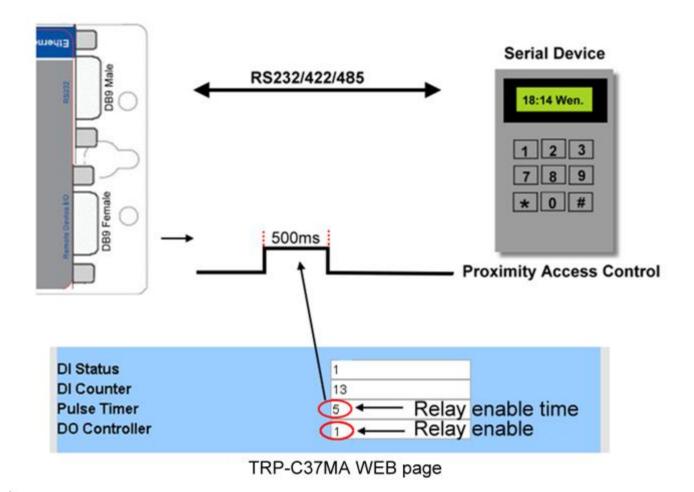
The Serial device must be sends a single pulse to TRP-C37A continually per 30 seconds. If serial device does not send a single pulse over 30 seconds, the relay will enable.



TRP-C37A WEB PAGE

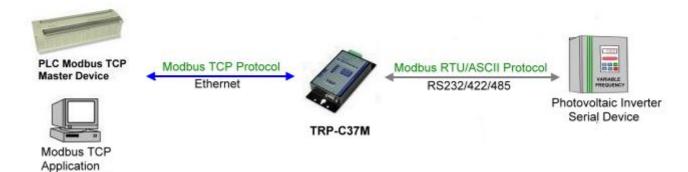
8-2 Manual Remote the serial device.

If the serial device needs to restart, user can feel free to set the relay enable through the TRP-C37 MA web-based utility configuration.



9. Application1.

Modbus TCP Master to Modbus RTU/ASCII serial Device

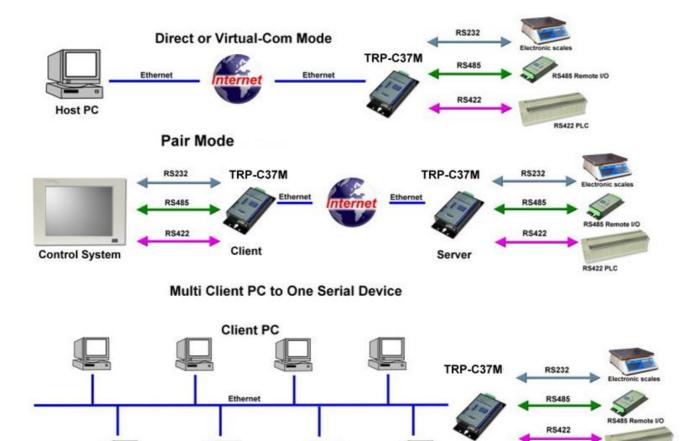


Modbus RTU/ASCII Serial Master to Modbus TCP Slave Device

Modbus poll Modscan



Application 2.(As Bridge)



Server

RS422 PLC

TRP-C37A RS232/422/485 Serial Device Server

9. Appendix

The **TRP-C37A** which is only to send the data between the TCP and Serial, it cannot process the data and perform operations.

Maximum Client Connection : 8 Host PC

What is different between TRP-C37A and TRP-C37MA

This means that no matter what it received any data that can only be responsible for two-way Transmission.

TRP-C37MA Modbus TCP to RTU/ASCII Gateway

The **TRP-C37MA** which is able to analyzes the protocols between Modbus TCP and Modbus RTU / ASCII.

The TRP-C37MA can assign the UID of Modbus TCP slave from Modbus Serial Master.

TRP-C37MA has all the features of TRP-C37A.