Atop Technologies, Inc.

1-port Modbus Gateway MB5001C/MB5001C-Sis

User's Manual



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Important Announcement

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This document is intended to provide customers with brief descriptions on the product and to assist customers to get started. For detail information and operations of the product, please refer to the manual in the CD attached.

FCC WARNING Class A for 1-port Modbus Gateway(MB5001C/MB5001C-Sis)

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and radiates radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expenses.

A shielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord can be used.

Use only shielded cables to connect other devices to this equipment by RS-232 or RS-485 ports.

Be cautioned that changes or modifications not expressly approved by the party responsible for compliance could void ones authority to operate the equipment.



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1. Introduction

Modbus is an industry adopted communication protocol based on RTU, ASCII, and TCP protocols for various applications; these three protocols are commonly used by hardware equipments in the industry, such as DCS, PLC, HMI, power load measurement, various sensor and measuring instruments. The Modbus Gateway is capable of implementing the Modbus environment between different hardware interfaces, thereby streamlining the process of management and application.

Diverse Hardware Infrastructure

Modbus Gateway supports the four most commonly used hardware communication interfaces, RS232, RS485, RS422, and Ethernet. The simple-to-use configuration software provided with Modbus Gateway can quickly modify the hardware interface to use, and easily switch to the existing hardware communication infrastructure.

Switching between Modbus Protocols

Modbus Gateway supports the standard Modbus protocol and is capable of converting any Modbus protocols between Modbus TCP and Modbus RTU or Modbus ASCII for all supported hardware interfaces.

1.1 Packaging

Please check ones package contains the following items:

- Atop MB5001C or MB5001C-Sis Modbus Gateway x 1
- 5 pins Terminal Block for Serial Connector x 1 (only for MB5001C-Sis)
- 3 pins Terminal Block for Power Connector x 1 (only for MB5001C-Sis)
- Product CD containing configuration utility x 1
- Wall-mounting screws x 2
- Atop Modbus gateway quick start guide x 1

Optional Accessories :

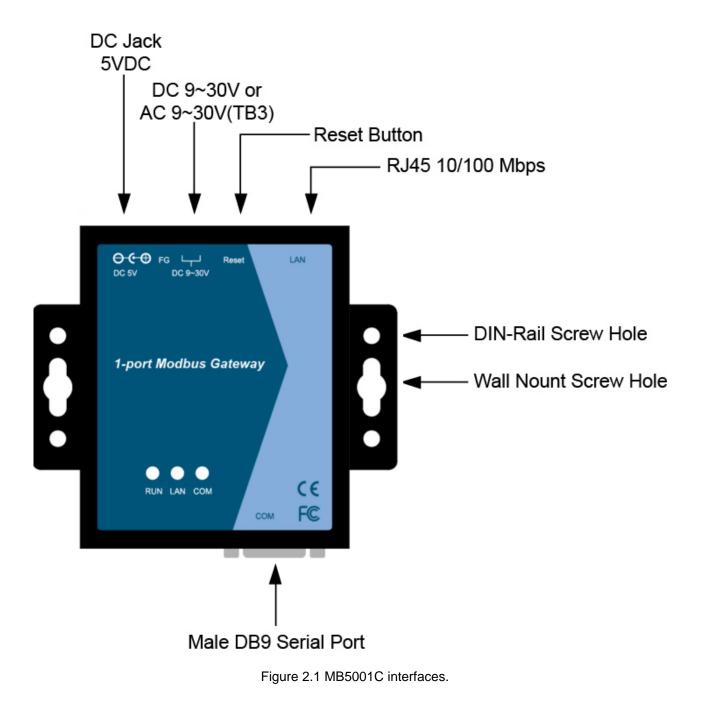
- 1. DK-25 DIN-Rail Kit f
- 2. Power Adapter with DC jack- PIN 1.3 output 5.0V 1A
 - (1) AD5V1A(US) Switching adapter
 - (2) AD5V1A(EU) Switching adapter
- 3. Power Adapter with Terminal block output 12V 1.25A
 - (1) US315-12(US) Switching adapter
 - (2) US315-12(EU Switching adapter



2. Hardware Setup

NOTE:

- 1. MB5001C (for RS-232), MB5001C-Sis (for RS422/485). Panel layout in Appendix A.3.1
- **2.** One can press the reset button of MB5001C to reset the settings to the default value Figure 2.1 shows the interfaces.



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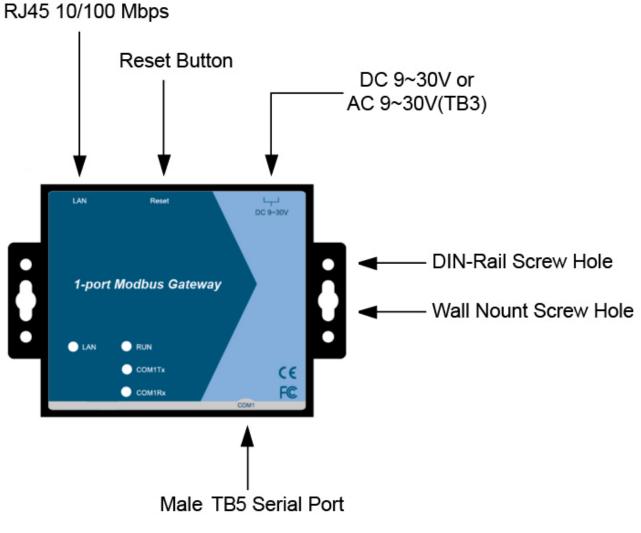


Figure 2.2 MB5001C-Sis interfaces

2.1 LED Indicators

2.1.1 LAN LED

Message	Description	
Off	Ethernet Disconnected	
Blinking with Green	Data is transmitting on Ethernet for 100Mbps	
Blinking with Orange	Data is transmitting on Ethernet for 10Mbps	
Table 1. LAN LED Message		

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2.1.2 COM Port LED

Message	Description	
Off	No data is transmitting on COM port	
Blinking Data is transmitting on COM port		
Table 2. COM Port LED Message		

2.1.3 RUN LED

Message	Description	
On	Jumper JP1 Pin1 and Pin2 are shorted to disable	
	AP firmware running	
Blinking (rate: 0.5 Sec)	AP firmware is running normally	
Table 3. RUN LED Message		

2.2 Installation Procedures

<u>Step 1:</u> Connect MB5001C to power source using 5V DC Jack(Note that DC Jack is 5V only, and only use it with a power adaptor), or 9~30V DC Terminal Block power source.

Note : MB5001C provide two power inputs can be connected simultaneously to live DC power sources. Anyone of the power inputs fails, the other live source acts as a backup to support power needs automatically. The redundant dual DC power inputs give one extra assurance of non-stop operation.

MB5001C : 5V DC Jack or DC 9-30V 3-pin Terminal Block power input

MB5001C-Sis: DC 9-30V 3-pin Terminal Block power input

- <u>Step 2</u>: Connect MB5001C to Ethernet network. Use a standard straight-through Ethernet cable when one connect it to a hub/switch, one also can connect it to ones PC's Ethernet port via a cross-over Ethernet cable for easy set up. However, in this case one need to make sure ones PC is in the same network sub-net as MB5001C.
- Step 3: Connect MB5001C's serial port to a serial device.
- <u>Step 4:</u> Placement options. One can mount MB5001C to a wall/panel (Mounting screws included) or Din-Rail rack (Require optional item model: Din-Rail-Kit DK-25).



3. Software Setup

MB5001C Modbus Gateway is shipped with default settings shown in the following table:

Property	Default Value
IP Address	10.0.50.100
Gateway	10.0.254
Subnet Mask	255.255.0.0
User Name	admin
Password	default
COM 1	9600,None, 8, 1, No flow control, buffer disabled, packet delimiter timer 2ms
Link 1	Type: TCP Server, Listen port 4660, Filter=0.0.0.0
SysName of SNMP	name
SysLocation of SNMP	location
SysContact of SNMP	contact

3.1 Configuration by Device Management Utility

3.1.1 Static IP

Use Device Management Utility that comes with product CD to configure the network parameters of MB5001C. Please click "**Configuration**" button(ref Figure 3.1) then give it a static IP information.(Figure 3.2)

<u>S</u> earch	Configuration <u>A</u> dvance A <u>b</u> out					
	<u>N</u> etwork Ctrl+N	4				
	<u>L</u> ocate					
No.	<u>R</u> eboot	IP Address	MAC Address	Host Name	Kernel	AP Information 🔷
23	Config by browser	10.0.210.5	00:60:E9:00:26:CA		V2.18	208DVS231A TCP(M=X ,SM=TCP,2
24		192.168.38.253	00:60:E9:00:26:FD		V2.18	208DVS231A TCP(M=X ,SM=TCP,1
25	Options	10.0.9.1	00:60:E9:05:E7:D0	0060E9-05E7D0	V2.22	ATOP Proxi.A SOYAL V2.32 U
26	GYYZ6A-104	10.0.22.100	00:60:E9:02:8C:56		V1.47	CTV-0010 8V2.32 SP1 0
27	MB5001C	10.0.49.9	00:60:E9:05:0D:0C	LeoT	V2.54	Modbus Tcp V1.54, 502: listening
28	MB5001C	10.0.187.151	00:60:E9:06:64:B3	name	V2.54	Modbus Tcp V1.55, 502: listening
29	MG512	10.0.172.133	00:60:E9:06:07:FC		V1.0	PowerMeter V0.19
30	PM5302	10.0.172.132	00:60:E9:06:08:14		V1.0	PowerMeter V0.29
31	SE5001	10.0.161.105	00:60:E9:01:91:E9	name	V2.54	TerminalSrv v3.41X A
32	SE5001-S2	10.0.160.2	00:60:E9:06:D3:6E	name	V2.54	TerminalSrv v3.364X A
33	SE5001-S2	10.0.160.53	00:60:E9:06:D3:	name	V2.54	TerminalSrv v3.413MU Ss 🛛 🗸
<						>
Configure	e network setting					

Figure 3.1 Configure by Device Management Utility



Network Setting		
Please set the appropriate IP settings for this device		
DHCP (Obtain an IP automatically)		
IP address:	10 . 0 . 30 .100	
Subnet mask:	255.255.0.0	
Gateway:	10 . 0 . 0 .254	
Host name:		
<u></u> K	Cancel	

Figure 3.2 Static IP setup dialog window

3.1.2 Auto IP (Dynamic IP)

A DHCP server can automatically assign the IP address and network settings. MB5001C supports the DHCP function. By default, the DHCP function on MB5001C is disabled; one can use Device Management Utility software to search network information automatically by following steps :

- ->Execute Device Management Utility (Figure 3.1)
- ->Click on the IP address of MB5001C in Device Management Utility
- ->Click "Config" button(It will pop-up Dialog Window)
- ->Check "Auto IP" (Figure 3.3)
- ->Click " Config Now" button(The MB5001C will restart and get IP from DHCP server automatically)

Network Setting		
Please set the appropriate IP settings for this device		
☑ DHCP (Obtain an IP automatically)		
IP address:	10 . 0 .195.122	
Subnet mask:	255.255.0.0	
Gateway:	10 . 0 . 0 .201	
Host name:		
<u>o</u> k	Cancel	

Figure 3.3 Device Management Utility Auto IP Dialog Window

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3.2 Configuration by Telnet Utility

One can use Telnet utility to change configuration settings of MB5001C by following steps :

3.2.1 Login to the System

->Open Ms-DOS command prompt window

->Telnet to MB5001C using command "**Telnet IP_address**".(For example : Input **Telnet 10.0.50.100** in Ms-DOS command prompt window).After telnet to MB5001C, system prompts for a password, the default password is "**default**". (Figure 3.4)



Figure 3.4 Login to the system

Note: One can press the default button of MB5001C to reset the password to the default value.

1. After verifying the password, the following terminal screen appears.(Figure 3.5)

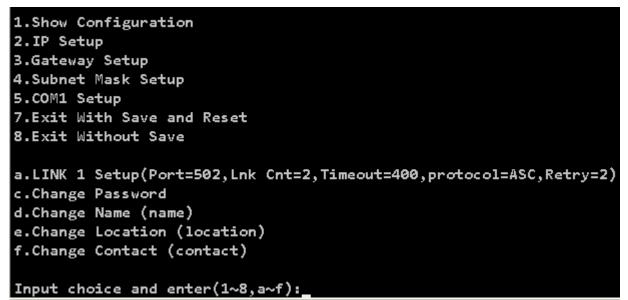


Figure 3.5 Main menu

Note: Changes to networking parameters will take effect only when one exit and restart MB5001C.

->Select "1" from "Input choice and enter (1~8,a~f):" to enter show configuration page as following:(Figure 3.6)

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Input choice and enter(1~8,a~f):1 1

IP Addr=10.0.160.53
Gateway=10.0.0.254
Mask =255.255.0.0
port 1=RS-232,9600,None,8,1

Figure 3.6 Show Configuration

This page gives one the general information of MB5001C including IP address, Gateway, subnet mask, and serial information of the device.

3.2.2 IP Setup

Select "2" from "Input choice and enter (1~8,a~f):" to Setup IP:(Figure 3.7)

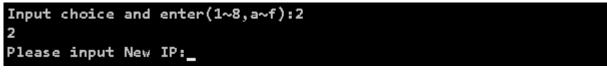


Figure 3.7 IP Setup

3.2.3 Gateway Setup

Select "3" from "Input choice and enter (1~8,a~f):" to Setup Gateway:(Figure 3.8)

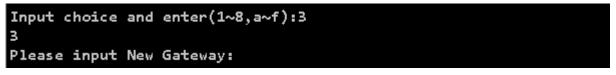


Figure 3.8 Gateway Setup

3.2.4 Subnet Mask Setup

Select "4" from "Input choice and enter (1~8,a~f):" to Setup Subnet Mask:(Figure 3.9)



Figure 3.9 Gateway Setup

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3.2.5 COM1 Setup

Select "5" from "Input choice and enter (1~8,a~f):" to Setup COM1. One can then give the COM port alias name, set the baud rate and parity, determine number of data bit and stop bit, and decide if one want to use flow control and the type of flow control one want to use. The following screen (Figure 3.10) illustrates how to setup 9600 baudrate, none parity, 8 data bits, and 1 stop bit.

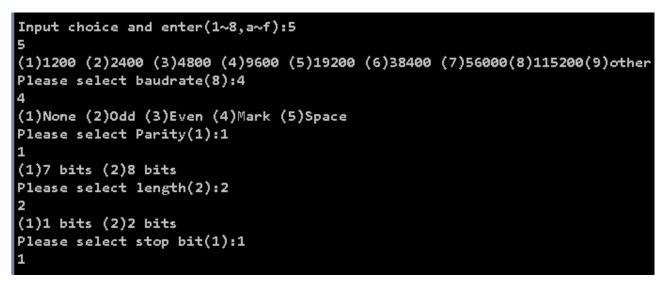


Figure 3.10 COM1 Setup

3.2.6 Exit with Save and Reset

Select "7" from "Input choice and enter (1~8,a~f):" to Exit with Save. Please choose this option to save all the previous changes to EEPROM, the device will restart automatically.

3.2.7 Exit with Save and Reset

Select "8" from "Input choice and enter (1~8,a~f):" to Exit with Save. Please choose this option to discard all the previous changes the device will close telnet connection automatically.

3.2.8 Link 1 Setup

Select "**a**" from "**Input choice and enter (1~8,a~f)**:" to Exit with Save. The following screen (Figure 3.11) illustrates how to set port to 502, connection to 2, input timeout to 400, protocol to ASCII, and retry to 2 times.

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```
a.LINK 1 Setup(Port=502,Lnk Cnt=1,Timeout=200,protocol=ASC,Retry=1)
c.Change Password
d.Change Name (name)
e.Change Location (location)
f.Change Contact (contact)
Input choice and enter(1~8,a~f):a
Please input Modbus TCP_LISTEN_PORT(502):502
502
Please input Connect Count(1):2
2
Please input Timeout(200):400
400
(1)ASC (2)RTU
Please select Protocol(1):1
1
Please Input Retry Count(1):2
2
```

Figure 3.11 Link1 Setup

3.2.9 Change Password

1. Select "*c*" from "Input choice and enter (1~8,a~f):". The following screen (Figure 3.12) illustrates how to change an empty password to "1111".

```
Input choice and enter(1~8,a~f):c
c
Please input old password:
Please input new password:1111
****
Please verify new password:1111
****
add:1Password changed!
```

Figure 3.12 change the password

2. If one want to change the password, please type the old password in the "Please input old password" field, type the new password in the "Please input new password" and the "Please verify new password" fields.

Note: One can press the default key of product to reset password to the default value.

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3.2.10 SNMP Settings

a. Select "d" from "Input choice and enter (1~8,a~f):" to change SNMP Name field.

Note that if you press enter, MB5001C will fill in a default name equal to its MAC.

b. Select "e" from "Input choice and enter (1~8,a~f):" to change SNMP Location field.

c. Select "f" from "Input choice and enter (1~8,a~f):" to change SNMP Contact field.

3.3 Configuration Using Web Browser

- 1. Make sure one PC is located on the same network sub-net as MB5001C
- 2. Open a web browser, then type in the IP address of MB5001C to be configured. Default user name is **admin** and default password is **default**.
- 3. MB5001C's network, link mode and COM ports settings can be configured in different web pages.
- 4. Click "Save Configuration" to save settings.
- 5. Click "Restart" button to make the change effective if necessary.

It is also possible to modify various settings through the web server interface. To do so, please follow the steps below.

3.3.1 Log in to the System

1. From web browser, type in the IP address of MB5001C in the URL.

Example: http://10.0.50.100

2. The following authentication screen appears. (Figure 3.16) Please type in user name and password then click on OK. The user name is admin and password is "default".

Enter Net	work Passwo	rd	? ×
? >	Please type yo	ur user name and password.	
IJ	Site:	10.0.50.100	
	Realm	NeedPassword	
	<u>U</u> ser Name	admin	
	<u>P</u> assword		
	🔲 <u>S</u> ave this p	assword in your password list	
		OK Cano	el

Figure 3.16 login the system via Web

3. The following overview page appears.(Figure 3.17)



	Modbus Gateway			
<u>Overview</u>	Overview			
	The general device information of this Modbus Gateway.			
Networking	Model Name	MB5001C		
<u>Security</u>	IP Address	10.0.187.151		
	MAC Address			
COM1	SysName			
MODBUS	Systame			
	SysContact			
	Kernel Versio			
	AP Version	Modbus Tcp V1.55, 502:		
	Link Status	listening		

Figure 3.17 Overview

3.3.2 Change Password

1. Click on the "Security" link and the following screen appears.(Figure 3.18)

Security The default password is null, you can change the password by filling in the new password to New Password and Verified Password fields, be aware that password is case sensitive.								
	Old Password							
	New Password							
Verified Password								
	Save Configuration							

Figure 3.18 Change the password

2. Please input the old password in the "**Old Password**" field, input the new password in the "**New Password**" and the "**Verified Password**" fields, and then click on "**Save Configuration**" to update



the password.

Note: One can press the default key of product to reset password to the default value.

3.3.3 Network Setup

Click on the **"Networking"** link and the following screen appears. Fill in IP information under TCP/IP field. Alternatively, one can do the configuration by clicking on DHCP to obtain auto IP address, gateway and subnet mask information.

Enable SNMP by checking "**Enable**", fill in network identification information under SNMP field and click on the "Save Configuration" button to save the changes, please notice that the setting will not become effective until one restart MB5001C.(Figure 3.20)

	igure network setting	gs of this Modbus Gateway. After saving estart the device to make the settings effective
[DHCP	Obtain an IP automatically
	IP Address	10 . 0 . 187 . 151
	Default Gateway	10 . 0 . 0 . 254
	Subnet Mask	255 . 255 . 0 . 0

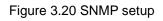
Figure 3.19 TCP/IP setup



SNMP

By enabling SNMP you allow the management utility to collect the information of this Modbus Gateway. You can change the device network identity as well by changing the system name, location and contact.

SNMP	Enable					
SysName	name					
SysLocation	location					
SysContact	contact					
Read Community	public					
Write Community	private					
Trap Server IP	0.0.0.0					
Alert Event	 Cold/Warm Start Link Down Link Up 					
Save Configuration Restart						





3.3.4 Configure COM1 Settings

Serial Interface	RS-232					
Baud Rate	9600 💌					
Parity	⊙None OOdd OEven OMark OSpace					
Data Bits	⊙ 7 bits ○ 8 bits					
Stop Bits	O 1 bit O 2 bits					
Data Packet Delimiter Inter-character Time Gap : 0 msec (0~30000, 0:Auto)						
COM Type Selection ©RS232 ORS485 ORS422						
Save Configuration Restart						

Figure 3.21 Com1 Setup

Note :

- 1. The default Baud Rate of MB5001C is 9600 and it is associated with serial port COM respectively.
- 2. The default value for data packet delimiter is 0. When the delimiter is set to 0 (Auto), MB5001C will automatically chooses the optimal delimiter according to the baud rate.
- 3. The "COM Type Selection" will show different port interface according to its selected port type.
- 4. After configuring the parameters, click on the "Save Configuration" button to save the changes, please notice that the setting will not become effective until click "restart".

3.3.5 Modbus Settings

MODBUS To configure the Modbus parameters.							
TCP Listen Port	502 (1~65535)						
TCP Connection(s)	1 (1~4)						
Serial Reply Timeout	200 msec (2~30000)						
Serial Protocol	RTU 💌						
Serial Timeout Retry 1 (0~9)							
Save Configuration Restart							

Figure 3.22 Modbus Setup

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TCP Listen Port: Modbus/TCP Listen port. Default is 502. Please note that Ethernet interface only support Modbus Slave.

TCP Connections(s): Maximum of four simultaneous Modbus/TCP connections is allowed.

Serial Reply Timeout: If the serial side does not respond with the specified time, data would be dropped and not transmitted over TCP even if the gateway receives it later.

Serial Protocol: Select between Modbus/ASCII and Modbus/RTU. Please note that Serial interface only support Modbus Master.

Serial Timeout Retry: If "0" is set, the gateway would not store TCP packets in the buffer. If the number is greater than "0", the gateway would store the TCP packets in the buffer and retries the specified times when the Modbus device on the serial side does not respond.

Note: After configuring the parameters, click on the "Save Configuration" button to save the changes, please note that the setting will not become effective until "restart" is clicked.

3.4 Assign a New IP Address by ARP Command

Use ARP command to assign a static IP address of MB5001C using its hardware MAC address. The MAC address is printed on the rear side of device in the format of "0060E9-xxxxxx". The following example shows how it works within MS-DOS command prompt window.

(For example change IP from 10.0.50.100 to 10.0.50.101, and the MAC address of MB5001C is 00-60-e9-11-11-01)

Step1: Add the new host IP to ARP table

->Open Ms-DOS command prompt window

->Input arp -s 10.0.50.101 00-60-E9-11-11-01 (Figure 3.26)

C:\Documents and Settings\Administrator>arp -s 10.0.50.101 00-60-e9-11-11-01

C:\Documents and Settings\Administrator>_

Figure 3.26. Ms-DOS command prompt window

<u>Step2</u>: Change to new IP via telnet port 1 (Figure 3.27)

->Input telnet 10.0.50.101 1

Note: The telnet will be fail and MB5001C will be restarted automatically, after restart the IP address should be change to 10.0.50.101

Step3: Using new IP to configure MB5001C via telnet

->Input telnet 10.0.50.101

Note 1: When using this method to change IP address, PC's IP address and MB5001C 's IP address must belong to the same subnet.

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Note 2: The changed IP address must be legal, otherwise it will be changed back to the default value (10.0.50.100) after restart.

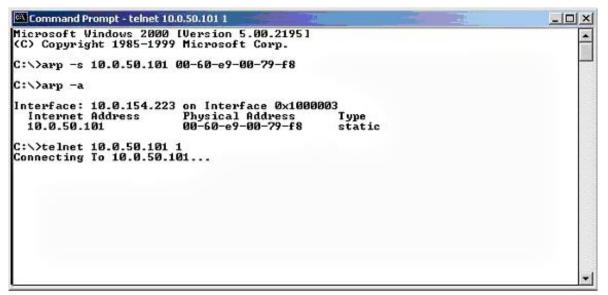


Figure 3.27. Assigning a new IP address by ARP command



5. SNMP Setup

5.1 SNMP Network Management Platform

MB5001C is an SNMP device that allows many popular SNMP Network management platforms such as HP Open View.

Depending on the network management tools one are using, device MB5001C information can be collected from running the management tools including IP address, DNS name, system descriptions and NIC information etc.

5.2 Using NetworkView as an Example

NetworkView is a compact network management tool from NetworkView Software, Inc. (<u>www.networkview.com</u>). It discovers all TCP/IP nodes in a network using DNS, SNMP and ports information and documents with printed maps and reports for future use.

First, download and install the tool on ones PC (Windows 2000 and Windows XP), then start NetworkView.

1. Click on the button to open a new file. The following screen shall appear, in the Addresses field, Enter in the IP address range to search (Figure 5.1).

Discover	×
Map Information Title Description Author	
Discovery type C Single address C <u>R</u> ange C Sub <u>n</u> et	Addresses Start 10 . 0 . 50 . 1 > End 10 . 0 . 50 . 101 >
	<u>S</u> ettings <u>D</u> k <u>C</u> ancel <u>B</u> lank

Figure 5.1 IP address searching

2. Click on "OK" and the following dialog box shall display the searching progress (Figure 5.2).

Discovering network	×
10.0.50.56 : pinging address (1)	
54%	
Cancel	

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Figure 5.2 Searching progress

3. After the search is completed, NetworkView will display the devices found in the main window, as shown below (Figure 5.3).

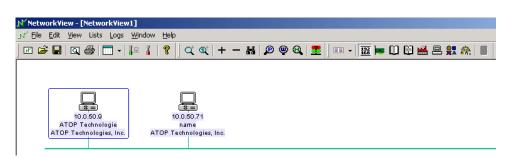


Figure 5.3 NetworkView display the devices found

4. Double-click on the device icon to display information about the device, including IP Address, Company, SysLocation (Max 15 characters), SysName (Max 9 characters) and types etc (Figure 5.4).

Propertie	s					×
General	NetBIOS	Snmp	Tcp Ports Wmi N	ote Moni	toring	
SysDe Comp SysCo SysLo SysUp SysOt SysNa MAC / NetBI	any ontact ocation oTime ojectID	ATOP "ATO "ATO 0 days .1.3.6. "SE50	2 h. 39 m. 18 s. 1.4.1.3755.3.2.10		3 10:33:54 CST 2	2006 mips
•	esses and Ro		Add to <u>O</u> ID database	Edit <u>B</u> r	Dutes Labels	Export Help

Figure 5.4 NetworkView display device information

Note:

- 1. The NetworkView tool is limited to information extracting and viewing only.
- 2. To modify the configurations please use the web server, Telnet or Device Management Utility.



6. Diagnostics

There are several ways one can check on the status and availability of MB5001C.

6.1 Use Standard TCP/IP Utility Ping Command

From Windows Start menu, select Run and type in "ping <TCP Server IP address>".

If the connection is established, the Reply messages are displayed, otherwise it will indicate Request timed out (Figure 6.1).

```
C:\WINNT\system32\cmd.exe
                                                                             _ 🗆 X
C: >ping 10.0.50.100
Pinging 10.0.50.100 with 32 bytes of data:
Reply from 10.0.50.100: bytes=32 time=10ms TTL=64
Reply from 10.0.50.100: bytes=32 time<10ms IIL=64
Reply from 10.0.50.100: bytes=32 time<10ms TTL=64
Reply from 10.0.50.100: bytes=32 time=10ms TTL=64
Ping statistics for 10.0.50.100:
   Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
   Minimum = Oms, Maximum = 10ms, Average = 5ms
C: >ping 10.0.50.100
Pinging 10.0.50.100 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 10.0.50.100:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Figure 6.1 Standard TCP/IP utility ping command

6.2 Use Device Management Utility

Use **Device Management Utility** that comes with the product CD or diskette to check on the status of MB5001C. The status and version can be read from the tool.

For example, 'listening' means that COM1 is still waiting for TCP connection (Figure 6.2).



5	(🛰 🛛	Ko 💐 🥭					
No.	Caution	Model	IP Address	MAC Address	Host Name	Ker	AP Information
17		GW231A	10.0.187.101	00:60:E9:00:17:2A		V2.18	209DVS231A TCP[M=X,SM=TCP,224
8		GW231A	10.0.210.1	00:60:E9:00:48:D4		V2.18	208DVS231A TCP[M=X ,SM=TCP,10.
9		GW231A	10.0.210.2	00:60:E9:00:26:EC		V2.18	208DVS231A TCP[M=X ,SM=TCP,10.
20		GW231A	10.0.210.5	00:60:E9:00:26:CA		V2.18	208DVS231A TCP[M=X ,SM=TCP,224
21		GW231A	192.168.38.253	00:60:E9:00:26:FD		V2.18	208DVS231A TCP[M=X ,SM=TCP,10.
22		GW26A-104	10.0.9.1	00:60:E9:05:E7:D0	0060E9-05E7	V2.22	ATOP Proxi.A SOYAL V2.32 U
23		GW51C-MAXI	10.0.21.99	00:60:E9:00:90:38	12345	V2.35	TerminalSrv ver3.16X S
24		MB5001C	10.0.160.2	00:60:E9:06:D3:6E	name	V2.54	Modbus Tcp V1.56, 502: listening
25		MG512	10.0.172.133	00:60:E9:06:07:FC		V1.0	Powermeter VU.29
26		PM5302	10.0.172.132	00:60:E9:06:08:14		V1.0	PowerMeter V0.29
.7		SE5001	10.0.161.105	00:60:E9:01:91:E9	name	V2.54	TerminalSrv v3.41X A
8		SE5016	10.0.172.116	00:60:E9:02:CF:8C	0060E9-02CF8C	V3.11	Serial Server V3.19
9		SE5404	10.0.160.99	00:60:E9:02:6F:48	0060E9-026F48	V3.17	Serial Server V3.26
10		SE5416	10.0.189.131	00:60:E9:02:D0:1A	0060E9-02D01A	V3.17	Serial Server V3.26
11		SE8502-M12	10.0.161.100	00:60:E9:06:DB:80		V3.10	SE8502-M12 V3.12
2		SE8502-M12-Sis	10.0.50.100	00:60:E9:04:6A:6D		V3.10	SE8502-M12-Sis V3.10
13		SE9001-T-14M	10.0.167.50	00:12:3F:72:08:15	SAMPLE	V2.20	ProWebSrv ver Sample_PjSV82
4		SW5002	10.0.50.109	00:60:E9:03:5A:E2	0060E9-035AE2	V1.22	SW5002 V3.19
35		SW5002	10.0.195.199	00:60:E9:05:39:7B	УУУУУУУУУУУ	V1.16	SW5002 V1.41 S S

Figure 6.2 Device Management Utility



Appendix A: Management Utility

A.1. Device Management utility Introduction

Device Management Utility, developed by ATOP, is a special tool for device management and configuration. It can realize the daily management on various ATOP network devices for address search, device positioning, parameter configuring, and firmware downloading.

A.2. Interface

The operating interface of the Device Management Utility is shown below:

	2	tion <u>A</u> dvance A <u>b</u> out					
3	. 🔪 🧯	Ko 💐 🥭	4				
No.	Caution	Model	IP Address	MAC Address	Host Name	Ker	AP Information
17		GW231A	10.0.187.101	00:60:E9:00:17:2A		¥2.18	209DVS231A TCP[M=X ,SM=TCP,224
18		GW231A	10.0.210.1	00:60:E9:00:48:D4		V2.18	208DVS231A TCP[M=X ,SM=TCP,10.1
19		GW231A	10.0.210.2	00:60:E9:00:26:EC		V2.18	208DVS231A TCP[M=X ,SM=TCP,10.1
20		GW231A	10.0.210.5	00:60:E9:00:26:CA		V2.18	208DVS231A TCP[M=X ,SM=TCP,224
21		GW231A	192.168.38.253	00:60:E9:00:26:FD		V2.18	208DVS231A TCP[M=X ,SM=TCP,10.1
22		GW26A-104	10.0.9.1	00:60:E9:05:E7:D0	0060E9-05E7	V2.22	ATOP Proxi.A SOYAL V2.32 U
23		GW51C-MAXI	10.0.21.99	00:60:E9:00:90:38	12345	V2.35	TerminalSrv ver3.16X S
24		MB5001C	10.0.160.2	00:60:E9:06:D3:6E	name	V2.54	Modbus Tcp V1.56, 502: listening
25		MG512	10.0.172.133	00:60:E9:06:07:FC		V1.0	PowerMeter V0.29
26		PM5302	10.0.172.132	00:60:E9:06:08:14		V1.0	PowerMeter V0.29
27		SE5001	10.0.161.105	00:60:E9:01:91:E9	name	V2.54	TerminalSrv v3.41X A
28		SE5016	10.0.172.116	00:60:E9:02:CF:8C	0060E9-02CF8C	V3.11	Serial Server V3.19
29		SE5404	10.0.160.99	00:60:E9:02:6F:48	0060E9-026F48	V3.17	Serial Server V3.26
30		SE5416	10.0.189.131	00:60:E9:02:D0:1A	0060E9-02D01A	V3.17	Serial Server V3.26
31		SE8502-M12	10.0.161.100	00:60:E9:06:DB:80		V3.10	SE8502-M12 V3.12
32		SE8502-M12-Sis	10.0.50.100	00:60:E9:04:6A:6D		V3.10	SE8502-M12-Sis V3.10
33		SE9001-T-14M	10.0.167.50	00:12:3F:72:08:15	SAMPLE	V2.20	ProWebSrv ver Sample_PjSV82
34		SW5002	10.0.50.109	00:60:E9:03:5A:E2	0060E9-035AE2	V1.22	SW5002 V3.19
35		SW5002	10.0.195.199	00:60:E9:05:39:7B	<u> </u>	V1.16	SW5002 V1.41 S S
٢							>

Ready, Total 38 devices

Caution Field	Description			
!	! IP conflict. There are two devices with the same IP address in the network.			
@	The device is using DHCP.			
<	The device is being located.			
+	You have logged into the device.			
?	MAC conflict. There are two devices with the same MAC address in the network.			



A.3. Functions

A.3.1. Device Search

This function is applied to search devices in the network. There are four methods to search devices, Search by Broadcast, Search by IP addresses, Search by MAC addresses and Rescanning devices by using the current search method. To select the search methods, users click the "Search" on the main menu which is shown below.

n Deviceview V	71.10.00								
Search Configuration Advance About									
✓ Broadcast Search Search by IP Ad Search by MAC				1					
Seatch by MAC		IP Address	MAC Address	Host Name	Ker	AP Information			
Add a Device	Ctrl+A	10.0.187.101	00:60:E9:00:17:2A		V2.18	209DVS231A TCP(M			
Ping		10.0.210.1	00:60:E9:00:48:D4		V2.18	208DVS231A TCP(M			
1 IIIg		10.0.210.2	00:60:E9:00:26:EC		V2.18	208DVS231A TCP(M			
Exit		10.0.210.5	00:60:E9:00:26:CA		V2.18	208DVS231A TCP(M			
21	GYYZJIA	192.168.38.253	00:60:E9:00:26:FD		V2.18	208DVS231A TCP(M			
22	GW26A-104	10.0.9.1	00:60:E9:05:E7:D0	0060E9-05E7	V2.22	ATOP Proxi.A SOYA			
23	GW51C-MAXI	10.0.21.99	00:60:E9:00:90:38	12345	V2.35	TerminalSrv ver3.16			
24	MB5001C	10.0.160.2	00:60:E9:06:D3:6E	name	V2.54	Modbus Tcp V1.56,			
25	MG512	10.0.172.133	00:60:E9:06:07:FC		V1.0	PowerMeter V0.29			
26	PM5302	10.0.172.132	00:60:E9:06:08:14		V1.0	PowerMeter V0.29			
27	SE5001	10.0.161.105	00:60:E9:01:91:E9	name	V2.54	TerminalSrv v3.41X			
28	SE5016	10.0.172.116	00:60:E9:02:CF:8C	0060E9-02CF8C	V3.11	Serial Server V3.19			
29	SE5404	10.0.160.99	00:60:E9:02:6F:48	0060E9-026F48	V3.17	Serial Server V3.26			
30	SE5416	10.0.189.131	00:60:E9:02:D0:1A	0060E9-02D01A	V3.17	Serial Server V3.26			
31	SE8502-M12	10.0.161.100	00:60:E9:06:DB:80		V3.10	SE8502-M12 V3.12			
32	SE8502-M12-Sis	10.0.50.100	00:60:E9:04:6A:6D		V3.10	SE8502-M12-Sis V3			
33	SE9001-T-14M	10.0.167.50	00:12:3F:72:08:15	SAMPLE	V2.20	ProWebSrv ver Sar			
34	SW5002	10.0.50.109	00:60:E9:03:5A:E2	0060E9-035AE2	V1.22	SW5002 V3.19			
35	SW5002	10.0.195.199	00:60:E9:05:39:7B	<u> </u>	V1.16	SW5002 V1.41 S S 🗸			
<		ш				>			

Alternatively, users can select by clicking the button on the toolbar as below.



b Device	eview ¥1.10.00					
<u>S</u> earch <u>C</u>	onfiguration <u>A</u> dvance A <u>b</u> out					
	> 🖧 🖏 🥭	4				
No. Ca	aution Model	IP Address	MAC Address	Host Name	Ker	AP Information
17	GW231A	10.0.187.101	00:60:E9:00:17:2A		V2.18	209DVS231A TCP(M
18	GW231A	10.0.210.1	00:60:E9:00:48:D4		V2.18	208DVS231A TCP[M
19	GW231A	10.0.210.2	00:60:E9:00:26:EC		V2.18	208DVS231A TCP[M
20	GW231A	10.0.210.5	00:60:E9:00:26:CA		V2.18	208DVS231A TCP[M
21	GW231A	192.168.38.253	00:60:E9:00:26:FD		V2.18	208DVS231A TCP[M
22	GW26A-104	10.0.9.1	00:60:E9:05:E7:D0	0060E9-05E7	¥2.22	ATOP Proxi.A SOYA
23	GW51C-MAXI	10.0.21.99	00:60:E9:00:90:38	12345	V2.35	TerminalSrv ver3.16
24	MB5001C	10.0.160.2	00:60:E9:06:D3:6E	name	V2.54	Modbus Tcp V1.56, 🚽
25	MG512	10.0.172.133	00:60:E9:06:07:FC		V1.0	PowerMeter V0.29
26	PM5302	10.0.172.132	00:60:E9:06:08:14		V1.0	PowerMeter V0.29
27	SE5001	10.0.161.105	00:60:E9:01:91:E9	name	V2.54	TerminalSrv v3.41X
28	SE5016	10.0.172.116	00:60:E9:02:CF:8C	0060E9-02CF8C	V3.11	Serial Server V3.19
29	SE5404	10.0.160.99	00:60:E9:02:6F:48	0060E9-026F48	V3.17	Serial Server V3.26
30	SE5416	10.0.189.131	00:60:E9:02:D0:1A	0060E9-02D01A	V3.17	Serial Server V3.26
31	SE8502-M12	10.0.161.100	00:60:E9:06:DB:80		V3.10	SE8502-M12 V3.12
32	SE8502-M12-Sis	10.0.50.100	00:60:E9:04:6A:6D		V3.10	SE8502-M12-Sis V3
33	SE9001-T-14M	10.0.167.50	00:12:3F:72:08:15	SAMPLE	V2.20	ProWebSrv ver Sar
34	SW5002	10.0.50.109	00:60:E9:03:5A:E2	0060E9-035AE2	V1.22	SW5002 V3.19
35	SW5002	10.0.195.199	00:60:E9:05:39:7B	УУУУУУУУУУ УУ	V1.16	SW5002 V1.41 S S 🥃
<						>
	al 38 devices					

Broadcast Search

Once "Broadcast Search" is selected, a box will pop up as below. The user may type in or select different broadcast address based on his own requirement.

Broadcast Search	
Input one to broadcast:	Add
255 . 255 . 255 . 255	
Select one to broadcast:	Delete
	<u>O</u> K
	Cancel

Search by IP address

Once "Search by IP Address" is selected, an interface will pop up as below. Here user may have two options: Select an IP address to search or Search device in the range of IP address.



Search Devices by IP Addresses 🛛 🛛 🔀									
-Select an	IP add	lress	to se	earch					
10.0.50.1	20						N	ew	
						L	De	lete	
☐ Search	device	es in 1	the ra	ange (of IP a	ddres:	3		
□ P address	s rang	e —							
From:		0		0		0		0]
To:		0		0		0		0	
					<u>о</u> к			<u>C</u> ancel	

Search by MAC Address

If "Search by MAC Address" is selected, another box will pop up as below. Here the user may search in two ways: "Search a MAC address to search" or "Search devices in the range of MAC address"



Search Devices by MAC Addresses	×
Celect a MAC address to search-	_
New	
Delete	
Search devices in the range of MAC address	
MAC address range	٦
From: 00 : 60 : E9 : 00 : 00 : 00	
To: 00 : 60 : E9 : FF : FF : FF	
	1

Rescan

Once the user click the "Rescan" button on the toolbar, the Device Management Utility shall re-search devices by using the current search way.

A.3.2. Firmware

This function is applied to downloading a firmware into the selected device. The user can enter the window for downloading by firstly clicking a designated network device, and then selecting the submenu option "Firmware Download" in the main menu option "Firmware", or directly clicking the button **Upgrade from disk**.



b Device	eview ¥1.10.00					
<u>S</u> earch <u>C</u>	onfiguration <u>A</u> dvan	ace A <u>b</u> out				
		nware 🕨 Firmware <u>D</u> ownload	Ctrl+D			
	👻 👰 🗻					
No. Ca	ution Model	IP Address	MAC Address	Host Name	Ker	AP Information
18	GW231/	A 10.0.187.101	00:60:E9:00:17:2A		V2.18	209DVS231A TCP(M
19	GW231/	A 10.0.210.1	00:60:E9:00:48:D4		V2.18	208DVS231A TCP[M
20	GW231/	A 10.0.210.2	00:60:E9:00:26:EC		V2.18	208DVS231A TCP(M
21	GW231/	A 10.0.210.5	00:60:E9:00:26:CA		V2.18	208DVS231A TCP[M
22	GW231/	A 192.168.38.253	3 00:60:E9:00:26:FD		V2.18	208DVS231A TCP[M
23	GW26A	-104 10.0.9.1	00:60:E9:05:E7:D0	0060E9-05E7	V2.22	ATOP Proxi.A SOYA
24	GW510	-MAXI 10.0.21.99	00:60:E9:00:90:38	12345	V2.35	TerminalSrv ver3.16
25	MB5001	IC 10.0.160.2	00:60:E9:06:D3:6E	name	V2.54	Modbus Tcp V1.56,
26	MG512	10.0.172.133	00:60:E9:06:07:FC		V1.0	PowerMeter V0.29
27	PM5302	2 10.0.172.132	00:60:E9:06:08:14		V1.0	PowerMeter V0.29
28	SE5001	10.0.161.105	00:60:E9:01:91:E9	name	V2.54	TerminalSrv v3.41X
29	SE5016	10.0.172.116	00:60:E9:02:CF:8C	0060E9-02CF8C	V3.11	Serial Server V3.19
30	SE5416	10.0.189.131	00:60:E9:02:D0:1A	0060E9-02D01A	V3.17	Serial Server V3.26
31	SE8502	-M12 10.0.161.100	00:60:E9:06:DB:80		V3.10	SE8502-M12 V3.12
32	SE9001	-T-14M 10.0.167.50	00:12:3F:72:08:15	SAMPLE	V2.20	ProWebSrv ver Sar
33	SW5002	2 10.0.50.109	00:60:E9:03:5A:E2	0060E9-035AE2	V1.22	SW5002 V3.19
34	SW5002	2 10.0.195.199	00:60:E9:05:39:7B	УУУУУУУУУУУ У	V1.16	SW5002 V1.41 S S
35 @	SW5002	2 169.254.145	00:24:1D:9E:91:9E	УУУУУУУУУУУ У	V1.16	SW5002 V1.41 S S
36	SW5002	2 192.168.1.1	00:1A:4D:2F:87:27	0060E9-035AE2	V1.22	SW5002 V3.19 🗸 🗸
<						>
Upgrade ker	rnel or AP from local	disk				

b De	viceview ¥1.10.00					
Searc)	n <u>C</u> onfiguration <u>A</u> dvance A <u>b</u> out					
) 🛸 🖧 🖉 🖉					
No.	Caution Model	IP Address	MAC Address	Host Name	Ker	AP Information 🛛 🔼
17	GW231A	10.0.50.99	00:60:E9:10:17:29		V2.18	208DVS231A TCP(M
18	GW231A	10.0.187.101	00:60:E9:00:17:2A		V2.18	209DVS231A TCP(M
19	GW231A	10.0.210.1	00:60:E9:00:48:D4		V2.18	208DVS231A TCP(M
20	GW231A	10.0.210.2	00:60:E9:00:26:EC		V2.18	208DVS231A TCP(M
21	GW231A	10.0.210.5	00:60:E9:00:26:CA		V2.18	208DVS231A TCP(M
22	GW231A	192.168.38.253	00:60:E9:00:26:FD		V2.18	208DVS231A TCP(M
23	GW26A-104	10.0.9.1	00:60:E9:05:E7:D0	0060E9-05E7	V2.22	ATOP Proxi.A SOYA
24	GW51C-MAXI	10.0.21.99	00:60:E9:00:90:38	12345	V2.35	TerminalSrv ver3.16
25	MB5001C	10.0.160.2	00:60:E9:06:D3:6E	name	V2.54	Modbus Tcp V1.56,
26	MG512	10.0.172.133	00:60:E9:06:07:FC		V1.0	PowerMeter V0.29
27	PM5302	10.0.172.132	00:60:E9:06:08:14		V1.0	PowerMeter V0.29
28	SE5001	10.0.161.105	00:60:E9:01:91:E9	name	V2.54	TerminalSrv v3.41X
29	SE5016	10.0.172.116	00:60:E9:02:CF:8C	0060E9-02CF8C	V3.11	Serial Server V3.19
30	SE5416	10.0.189.131	00:60:E9:02:D0:1A	0060E9-02D01A	V3.17	Serial Server V3.26
31	SE8502-M12	10.0.161.100	00:60:E9:06:DB:80		V3.10	SE8502-M12 V3.12
32	SE9001-T-14M	10.0.167.50	00:12:3F:72:08:15	SAMPLE	V2.20	ProWebSrv ver Sar
33	SW5002	10.0.50.109	00:60:E9:03:5A:E2	0060E9-035AE2	V1.22	SW5002 V3.19
34	SW5002	10.0.195.199	00:60:E9:05:39:7B	УУУУУУУУУУ УУ	V1.16	SW5002 V1.41 S S
35	SW5002	192.168.1.1	00:1A:4D:2F:87:27	0060E9-035AE2	V1.22	SW5002 V3.19 🔍 🗸
<						>
Ready,	Total 35 devices					

And then the user can select and download the required firmware from the disk, as shown in the figure below. The user can also select several same devices at one time, and realize the firmware updating for them by selecting **Apply for all selected devices have same model**.

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Download Firmware from Disk	×
Please select a kernel firmware or AP firmware from disk, and then download it to the device MB5001C (10.0.160.2).	the
Current versions:	
Kernel: V2.54	
AP: Modbus Tcp V1.56, 502: listening	
C Download kernel firmware	
C:\hex	
Download AP firmware	
Y:WVeilangWodbus\ATT\SE5001\SE5001_MB_v1	
Apply for all selected devices have same model	
🔲 Pop up report dialog	
Pop up Authorize dialog	
Upgrade <u>C</u> anc	el

A.3.3. Configuration

This function is for device configuration to set up parameters, to import and to export the parameters, and to set up some options. Here is the list of configurations: "Network", "SNMP", "COM Port", "Locate", "Reset", "Import Setting", "Export Setting", "Virtual COM", "Config by browser" and "Options." Users can carry out a configuration operating through menu or by clicking the corresponded button on the toolbar, shown as the figure below:



b Dev	viceview ¥1.10.00					
<u>S</u> earch	Configuration <u>A</u> dvance A <u>b</u> out					
	<u>N</u> etwork Ctrl+N					
	Locate					
No.	<u>R</u> eboot	IP Address	MAC Address	Host Name	Ker	AP Information 🔥
20	Caufia ha harman	10.0.210.2	00:60:E9:00:26:EC		V2.18	208DVS231A TCP(M
21	Config by browser	10.0.210.5	00:60:E9:00:26:CA		V2.18	208DVS231A TCP(M
22	Options	192.168.38.253	00:60:E9:00:26:FD		V2.18	208DVS231A TCP(M
23	GWZ6A-104	10.0.9.1	00:60:E9:05:E7:D0	0060E9-05E7	V2.22	ATOP Proxi.A SOYA
24	GW51C-MAXI	10.0.21.99	00:60:E9:00:90:38	12345	V2.35	TerminalSrv ver3.16
25	MB5001C	10.0.160.2	00:60:E9:06:D3:6E	name	V2.54	Modbus Tcp V1.56,
26	MG512	10.0.172.133	00:60:E9:06:07:FC		V1.0	PowerMeter V0.29
27	PM5302	10.0.172.132	00:60:E9:06:08:14		V1.0	PowerMeter V0.29
28	SE5001	10.0.161.105	00:60:E9:01:91:E9	name	V2.54	TerminalSrv v3.41X
29	SE5016	10.0.172.116	00:60:E9:02:CF:8C	0060E9-02CF8C	V3.11	Serial Server V3.19
30	SE5416	10.0.189.131	00:60:E9:02:D0:1A	0060E9-02D01A	V3.17	Serial Server V3.26
31	SE8502-M12	10.0.161.100	00:60:E9:06:DB:80		V3.10	SE8502-M12 V3.12
32	SE8502-M12-Sis	s 10.0.50.100	00:60:E9:04:6A:6D		V3.10	SE8502-M12-Sis V3
33	SE9001-T-14M	10.0.167.50	00:12:3F:72:08:15	SAMPLE	V2.20	ProWebSrv ver Sar 😑
34	SW5002	10.0.50.109	00:60:E9:03:5A:E2	0060E9-035AE2	V1.22	SW5002 V3.19
35	SW5002	10.0.195.199	00:60:E9:05:39:7B	<u> </u>	V1.16	SW5002 V1.41 S S
36	SW5002	192.168.1.1	00:1A:4D:2F:87:27	0060E9-035AE2	V1.22	SW5002 V3.19
	@ VDM-310	10.0.154.101	00:26:FB:00:02:57		V0.3	
38	@ VDM-310	10.0.154.102	00:1D:19:F0:F4:A5		V0.3	~
<						>

Network

The user can modify the IP address of any selected device, shown as the figure below. You can statically assign IP address, Subnet mask, and Gateway. Optionally, you can set up the device with a host name. You can select DHCP option to obtain an IP address automatically.

Network Setting					
Please set the appropriate IP settings for this device (MB5001C, 10.0.160.2).					
DHCP (Obtain an IP automatically)					
IP address:	10 . 0 .160 . 2				
Subnet mask:	255.255.0.0				
Gateway:	10 . 0 . 0 . 254				
Host name:	name				
OK	Cancel				

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Locate

The user can apply this function to locate a device when its IP address is known, but its position is unknown. If a device is selected, the device will appear to sing. Users can locate the device by selecting the Configuration submenu **Locate** or clicking the **Locate** button on the toolbar.

Reboot

The device should be restarted after a successful modification of parameter configuration. Users can also carry out a restart through the submenu option **Reset**.

The user can also select several devices at one time, and save the parameter information of these selected devices into a designated parameter file by selecting "Save all the selected devices".

Configure by Browser

Some devices are supplied with build-in Web servers, which will be used to configure similar to Device Management Utility software. Users can carry out any parameter setting directly through the submenu option "Config by Browser", and a Web browser is shown in the figure below.

	Modbus Gateway Overview				
<u>Overview</u> Networking	The general device information of this Modbus Gateway.				
		Model Name	MB5001C		
<u>Security</u>		IP Address	10.0.187.151		
COM1		MAC Address	00:60:E9:06:64:B3		
MODDUG		SysName	name		
MODBUS		SysLocation	location		
		SysContact	contact		
		Kernel Version	V2.54		
		AP Version	Modbus Tcp V1.55, 502:		
		Link Status	listening		



Options

The option is mainly applied to setting some common working rules of Device Management Utility, such as the device search time interval or whether to display any device information tip. The dialog is shown in the figure below.





Appendix B: Specifications

B.1 Hardware Specifications

	Specifications				
CPU	 16-bit Embedded CPU 				
	• 100MHz				
Flash Memory	 512K Bytes 				
SDRAM	 512K Bytes 				
EEPROM	 512 Bytes 				
Host	 IEEE802.3 base band 				
Communication	 TCP/IP, UDP, SNMP, HTTP, Telnet, ARP, BOOTP, DHCP, ICMP 				
Reset	 Built-in default key to restore factory default settings 				
Watch Dog Timer	 1.34 second hardware auto reset 				
	 Power failure threshold: 4.75V 				
SerialPort	 One RS-232 or RS-485/RS-422 selectable 				
Communication	 RS-232: EIA-RS-232C standard, Full Duplex, DB9 				
	 RS-485: 2/4 wires, Half/Full duplex, Terminal Block 				
	 RS-422: 4 wires, Half/Full duplex, Terminal Block 				
	Parameters				
	1) Baud-rate: 1200 bps ~ 230Kbps				
	2) Parity: None, Even, Odd, Mark, Space				
	3) Data bits: 7,8				
	4) Stop bits: 1,2				
	5) Packet Delimiter: by inter-character timeout, by characters delimiter				
	6) Flow Control: None, Hardware CTS/RTS, Software Xon/Xoff				
LED indication	 RUN x 1 				
	 LAN x 1 				
	COM port1				
Power Requirement	 5VDC Jack with Power Adaptor or DC +9~30V Terminal Block, 2.8 Watt Max 				
Temperature	Operation: 0°C to 60°C				
	■ Storage: -20°C to 70°C				
Humidity	 20%~90% non-condensing 				
Housing	 65mm(L) x 78mm(W) x 28mm(H) 				



B.2 Software Specifications

Item	Specifications				
Protocol	TCP/IP, UDP, HTTP, SNMP, ARP, Telnet, ICMP, BOOTP, DHCP				
Configuration	 Configuration information for both TCP/IP and serial ports is kept in the EEPROM. 				
	 Configuration utilities of Windows 95/98/2000/NT/XP/2003 are provided for configuring settings. 				
Internal Buffer Size	 TCP receiving buffer size = 8K bytes 				
	 TCP transmitting buffer size = 16K bytes 				
	 RS-232 or RS-485/RS-422 receiving buffer size = 4K bytes 				
	 RS-232 or RS-485/RS-422 transmitting buffer size = 4K bytes 				

B.3 Panel Layout and Connector Pin Assignments

B.3.1 Pin Assignments

DB9 Pin Assignments

The pin assignments of DB9 connector on MB5001C are shown in the following table:

Pin#	RS-232 Full Duplex for MB5001C Model	RS422/4-Wire RS-485 Full Duplex for MB5001C Model	2-Wire RS-485 Half Duplex for MB5001C Model
1	DCD	N/A	N/A
2	RXD	TXD+	N/A (reserved)
3	TXD	RXD+	DATA+
4	DTR	N/A	N/A
5	SG (Signal Ground)	SG (Signal Ground)	SG (Signal Ground)
6	DSR	N/A	N/A
7	RTS	RXD-	DATA-
8	CTS	TXD-	N/A (reserved)
9	N/A	N/A	N/A

Terminal Block Pin Assignments

The pin assignments of Terminal Block connector on MB5001C-Sis are shown in the following table:

Pin#	RS422/4-Wire RS-485 Full Duplex For MB5001C-Sis	2-Wire RS-485 Half Duplex For MB5001C-Sis
1	T+	NC
2	Т-	NC

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3 R+

4

- R-
- 5 SG (Signal Ground)

Data+ Data-SG (Signal Ground)

B.3.2 Ethernet Port (RJ-45)

1. Category 5 UTP cable, 8 core wire.

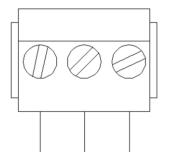


- 2. RJ45 Connector.
- 3. RJ45 Pin Assignment

Pin Assignment	568A Definition	568B Definition
Pin1	Green-White	Orange-White
Pin2 Green		Orange
Pin3	Orange-White	Green-White
Pin4	Blue	Blue
Pin5	Blue-White	Blue-White
Pin6	Pin6 Orange Green	
Pin7	Brown-White	Brown-White
Pin8 Brown Brown		Brown

One can choose either 568A or 568B definition. If one want to make a crossover cable, one should use 568A and 568B definition respectively in each terminal of a UTP cable.

B.3.3 Power Terminal Block Connector



F.G. VIN- VIN+



Note: It could be reversed for the pin of VIN- and VIN+.

B.4 Buzzer/LED Message

B.4.1 Buzzer

- " ^ ": Beep twice
- " = ": Beep off

Message	Description	
^===^^===^^===^^ (1sec)	Watchdog problem, return service is required	
^^^^^	Memory problem, return service is required	
^==^=====*^ (5sec)	Startup OK but AP firmware is disabled	
^==^======*^^ (5sec)	Startup OK and AP firmware is enabled	
Table 1. Buzzer Message		

B.4.2 LAN LED

Message	Description	
LED Off	Ethernet Disconnected	
LED blinking with Green	Data is transmitting on Ethernet for 100Mbps	
LED blinking with Orange	Data is transmitting on Ethernet for 10Mbps	
Table 2. LAN LED Message		

B.4.3 COM Port LED

Message	Description	
LED off	No data is transmitting on COM port	
LED on blinking state	Data is transmitting on COM port	
Table 3. COM Port LED Message		

B.4.4 RUN LED

Message	Description	
	Jumper JP1 pin1 and pin2 are short to disable AP firmware in the flash memory.	
LED blinking (rate: 0.5Sec)	AP firmware is running	
Table 4. RUN LED Message		



Appendix C: Upgrade System Firmware

After the new version of firmware is released, customers can download it from <u>www.Atop.com.tw</u> After one download the firmware, please follow these instructions listed below.

C.1 Upgrade Procedures

When one get a new software version, please follow the sequences below to upgrade ones MB5001C.

- Connect a PC (Windows 95/98/NT/2000/XP) and MB5001C one wish to upgrade the firmware in the same TCP/IP network. Use command **ping** or Device Management Utility program to verify their availability.
- 2. Prepare the download tool and press any key to edit its configuration file **dapdl.cfg**. dapdl.cfg file can be found in the product CD.

DOWNLOAD			
Auto 💌	🗌 🖻 🛍		
Please updat		load configuration file tion IP address and downloaded fi 	ile

3 Edit the **"dapdl.cfg"** file to fit ones system need, the content of the file looks like as the following. Be sure to save ones modifications after the change is made.

Remote_IP 10.0.50.100

Load U5001ap.hex

The first line identifies the IP address of MB5001C, the second line identifies the firmware (.Hex file) name to be downloaded.

- 4 Execute the utility program **download.bat**, it can be found in the product CD.
- 5 Input the user name and password credential, the new firmware will be downloaded.

GWDL		
Auto	I 🗆 🖻 🛍 🖬 🖬	
Following wo Please updat	uld Edit download co	
** (C) 200 ********	1 AIOP Tech. Inc. Al ************************************	

6 MB5001C will automatically restart each time the firmware is successfully downloaded.



S Finished - Du	WNLOAD		
Auto 💌		A	
Please update	ld Edit download configu the destination IP addr to continue	ration file ess and downloaded fi	le
** GW Downl ** (C) 2001 *****	ad Utility V1.24 for ATOP Tech. Inc. All rig	WIN98/NT/2000 **	
Downloading	U21wmap.hex		
	downloaded		

C.2 Critical Issues of Upgrading

- 1 One can always abort the upgrading process by pressing the **<Esc>** key from host PC during the upgrading process. MB5001C will restart automatically and the system remains intact.
- 2 If MB5001C does not receive any upgrading data within **30 seconds**, MB5001C will restart automatically and the system remains intact.
- 3 After the upgrading process finishes, MB5001C will program the flash memory and buzzer beeps 6 times then restarts. Normally, it takes around 10 seconds to complete the programming process. If an error occurs during the programming process, MB5001C will clear the corresponding memory and the system remains intact of what it was.



C.3 Error Messages

Firmware upgrade may not be successful if errors occur during the process.

Error Cause	Message	Comments
Illegal Hex file format	Hex File Text Error	
	Hex File Check-Sum Error	
	Hex File Format Error	
	Hex File End of Record Error	
MB5001C handshaking problem	MB5001C ACK Start Address Error	
	MB5001C ACK Length Error	
	MB5001C Response Command Error	
Configuration file	Remote IP not found	
	Open configuration file failure	



Appendix D: Disable System Firmware

The AP (application program) firmware of MB5001C can be disabled. This function is used in the situation that one downloaded a wrong version of firmware that caused the system crashed.

To disable the current version of firmware and prevent it from executing, please do the followings:

- 1. Turn the power off, open MB5001C case.
- 2. Short pin1 and pin2 of jumper JP1 on the right-top corner from the main board to disable AP firmware.
- 3. Power on MB5001C.
- 4. Download the correct AP firmware to MB5001C.
- 5. Remove the pin 1 and pin2 of jumper JP1 to enable AP firmware.
- 6. Close the case and continue ones operations.



Appendix E: Specification

Specifications		
System		
CPU	16-bit x86 Embedded CPU	
Flash	512K Bytes	
DRAM	512K Bytes	
EEPROM	512 Bytes	
Watchdog	Hardware built-in	
Ethernet		
Compliance	IEEE802.3	
Port	1-port	
Transmission Rate	10/100Mbps Auto-detection	
Connector	RJ45	
Auto MDI/MDI-X	Yes	
Serial		
Interface	RS232/422/485 software selectable(MB5001C) RS422/485 isolation with software selectable(MB5001C-Sis)	
Ports	1-port DB9 or TB5	
Baud Rate	1200bps to 230Kbps	
Parity	None, Odd, Even, Mark, Space	
Data Bits	7 or 8	
Stop Bits	1 or 2	
Data Packet Delimiter	0 to 30000 mini sec. (0:auto)	
Connector	9-pin D-Sub(DB9) / Terminal Block(TB5)	
Power		
Input	DC 5V for DC Jack	
	DC 9-30V for Terminal Block	
Consumption	Max. 2.7W (MB5001C)	
	Max. 3.6W (MB5001C-Sis)	
Environment		
Operating	0°C~60°C (32°F~140°F)	
Storage Temperature	-20°C~70°C (-4°F~158°F), 5~95%RH,(non-condensing)	
Dimension		
W x H x D	65mm x 28mm x 78mm.(MB5001C)	
	85mm x 28mm x 74mm.(MB5001C-Sis)	
Software		

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Configuration	Web console, Telnet
Device View	For Windows
Support Protocol	Modbus RTU,ASCII and TCP
Ordering Information	
MB5001C	Modbus 1-port Gateway Compact(RS232/422/485 DB9 type serial port*1)
MB5001C-Sis	Modbus 1-port Gateway Compact(RS422/485 isolation TB5 type serial port*1)
Regulatory Approval	s
FCC	FCC Part 15, Subpart B, Class A
	CISPR 22:1997, Class A
	ICES-003:2004, Class A
	ANSI C63.4-2003
CE	EN 55022:1994+A1 :1995+A2 :1997, Class A
	EN 61000-3-2:2000, Class A
	EN 61000-3-3:1995+A1 :2001
	EN 55024:1998+A1:2001+A2:2003
	IEC 61000-4-2:2001
	IEC 61000-4-3:2002+A1:2002
	IEC 61000-4-4:2004
	IEC 61000-4-5:2001
	IEC 61000-4-6:2003+A1:2004
	IEC 61000-4-8:2001
	IEC 61000-4-11:2004
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
RoHS	Lead(Pb) Free
MTBF	454442 hrs(51.88 years) in 25°⊂ (MB5001C)
Warranty	5 years
Optional Accessorie	S
Power Adapter	US315-12(US/EU): AC100~240V / DC 12V, 5.08mm pitch terminal block AD5V1A(US/EU): DC5V for DC Jack