Acuvim II Ethernet Modules
User's Manual

* 10M/100M BaseT
* MODBUS TCP/IP Protocol
* Data Browsing through HTTP
* Sending e-mail automatically

ACCUENERGY

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Please read this manual carefully before dong installation, operation and maintenance of Acuvim II meter.

Following symbols are used in this user's manual and on Acuvim II meter to alert the dangerous or to prompt in the operating or set process.

Dangerous symbol, Failure to observe the information may result in injury or death.

Alert symbol, Alert the potential dangerous. Observe the information after the symbol to avoid possible injury or death.

Focus symbol, avoid inadvertent operations which may lead to abnormal working of instrument, even damage to the instrument or physical harm.

c**UL**us This mark is on product for UL Listed product
LISTED

Installation and maintenance of the Acuvim II meter should only be performed by qualified, competent personnel that have appropriate training and experience with high voltage and current device.

This document is not fit for any untrained people. Accuenergy is not responsible for any problem happens under proper operation.

Content

Starting!

Congratulations!

You have gotten an advanced, versatile, multifunction power meter. You can call it Remote terminal unit (RTU), and it will benefit your power system.

This manual is about Ethernet module of Acuvim II meter. With Ethernet module, Acuvim II meter can be linked to Ethernet network easily, and it can realize distribution automation based on Ethernet.

Please read this manual carefully before operating and setting the Acuvim II meter to avoid unnecessary trouble.

Chapter 1 helps you to understand the fundamental concept of Ethernet, and application points of Ethernet module.

Chapter 2 describes in detail hardware features of Ethernet module.

Chapter 3 describes in detail function application of Ethernet module.

Appendix lists technical data and specifications and ordering information of Ethernet module.

Chapter 1 Introduction

Ethernet Introduction
Function Description

Ethernet module is an extended communication module of Acuvim II meter. With Ethernet module, Acuvim II meter can be linked to Ethernet easily.

1.1 Ethernet Introduction

Ethernet was originally developed by Xerox and then developed further by Xerox, DEC, and Intel. Ethernet uses a Carrier Sense Multiple Access with Collision Detection (CSMA/CD) protocol, and provides transmission speeds up to 10 Mbps.

Now Ethernet stands for LAN with CSMA/CD protocol.

Ethernet is not a material network, and it is the technology standard. Ethernet is the most current communication standard in LAN. This standard defines the used type of cable and the used method of Signal processing in LAN.

1.2 Function Description of Ethernet module

Please read appendix of technical data and specifications of Ethernet module before using it.

 * The Ethernet module supports Modbus/TCP protocol. It is used as server, and the default value of protocol port is 502, and the user defined range of protocol port is 2000~5999. Device address is the same as Acuvim II meter.

 * The Ethernet module supports SMTP protocol. It has Mail Function and supports "Send mail for timing" mode and "Send mail for event" mode.

* The Ethernet module supports HTTP protocol. It is used as HTTP server, and the default value of protocol port is 80, and the scope of protocol port is 6000~9999.

Chapter 2 Wiring and Connection
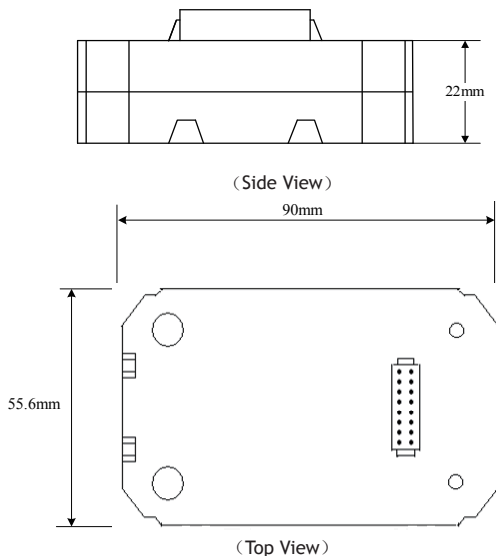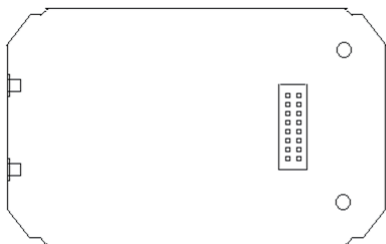
Ethernet module must be linked to Acuvim II meter when it is to be used. In addition, Ethernet module must be the first extended module linked to Acuvim II meter.

> **NOTE**
>
> The environment temperature and humidity should fulfill the requirement of Acuvim II meter. Otherwise it may cause the meter damage.

2.1 Appearance and Dimensions

22mm

（Side View）

90mm

55.6mm

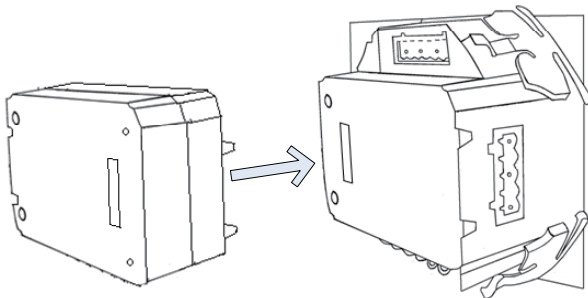（Top View）

（Bottom View）

2.2 Installation Method

Ethernet module is linked to Acuvim II meter by communication plug. It can also be linked to other extended modules like IO modules.

1.   Insert the installation clips to the counterpart of Acuvim II meter, and then press the Ethernet module lightly, so linking is established.

2.   Tighten the installation screw.

Note:

1. lightly in installation or it may cause damage to the IO modules;
2. Installation with power is forbidden.

2.3 Definition of RJ45 Interface

The Ethernet module uses standard RJ45 connector access Ethernet network. The mechanical and electrical characteristics of connector are consistent with the requirements of IEC 603-7.
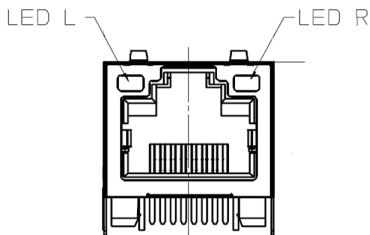
（Top View）

Script	ID	Content
1	TX+	Tranceive Data+
2	TX-	Tranceive Data-
3	RX+	Receive Data+
4	n/c	Not connected
5	n/c	Not connected
6	RX-	Receive Data-
7	n/c	Not connected
8	n/c	Not connected

LED_L (yellow): display speed status. LED on indicates 100Mbps, while

LED off indicates 10Mbps.

LED_R (green): display link and activity status combined. LED on indicates link status, while LED flash indicates activity.

2.4 Cable

Shielded twisted-pair cable (standard 568A or standard 568B) is usually recommended as reference to the EIA/TIA standard.

2.5 Connection Method

1. Direct Connect

Ethernet module use cross line (standard 568A) to connect to computes. Users may refer to the third chapter "Function description of Ethernet module" for using Ethernet module. Module supports Modbus/TCP and HTTP functions for direct connect.

2. Indirect Connect

Ethernet module use straight line (standard 568B) access Ethernet through router or hub. Users may refer to the third chapter "Function description of Ethernet module" for using Ethernet module.

Chapter 3   Function Description

Initializing Ethernet Module
Searching IP Address of Ethernet Module
Description of Modbus/TCP protocol
Browse Webpage and Set Parameters
Mail Function

Detail of Ethernet module will be described in this chapter. It includes how to set parameters of module, how to get IP address and Mac address of module, content about Modbus/TCP protocol, how to visit webs, and how to use mail function.

3.1 Initializing Ethernet Module

AXM-Net default settings are

IP Address (192.168.1.254);
Subnet Mask (255.255.255.0);
Gateway (192.168.1.1);
Primary DNS Server (202.106.0.20).

If you don't know the settings of module when power on for the fist time, you may use the panel of Acuvim II to get them and to configure them.

This procedure shows how to configure Ethernet module settings by panel:

a) Press "H" key and "V/A" key simultaneously on Acuvim II will go to the menu selecting mode. Cursor "Meter" flashes in this mode.
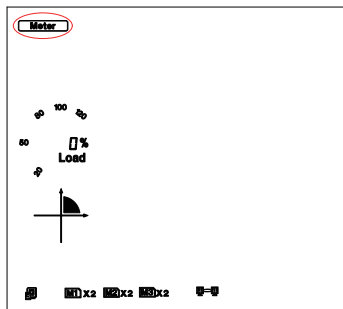
Figure 3-1

b) Press "P" key or "E" key, move cursor to "Setting". Press "V/A" key, go to the meter parameter setting mode. Device address page is the first page of "Setting" mode. It shows the Modbus address of the device for several seconds, and then the screen goes to Access Code page. Press "V/A" key, go to the parameter setting page. Press "P" key or "E" key, move cursor to "NET", press "V/A" key, go to Ethernet module setting page.
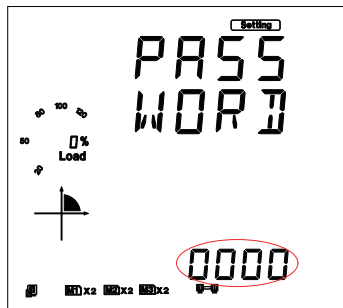

Figure 3-2
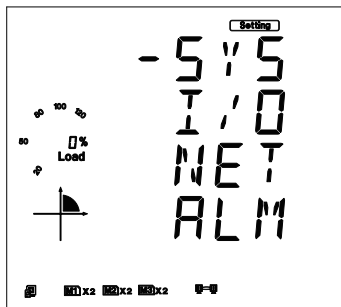
Figure 3-3
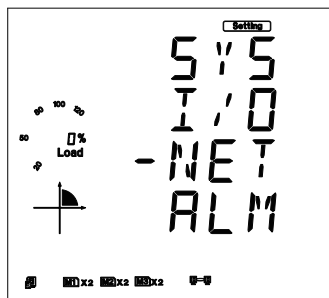
Figure 3-4

c) Set configuration mode in the first setting page. "AUTO" means that users configure module settings with DHCP protocol while "MANU" means that users configure module settings with manual setting. Press "V/A" key, go to setting state, and the pointed area will flash. Press "P" key or

"E" key to select configuration mode, press "V/A" key to affirm. Again press "P" key, go to the second setting page for IP Address.

Note: If you select the "AUTO" mode, please go to step k) directly and reset module. Wait until the reset is finished and find the new IP address in the following step.

Figure 3-5

d) Set IP Address in the second setting page, such as 192.169.1.100 as shown below. Press "V/A" key, go to setting state. Users may set parameter in the pointed area, and cursor starts at the first digit bit. After setting IP Address completely, press "V/A" key to affirm. Again press "P" key, go to the third setting page for Subnet Mask.
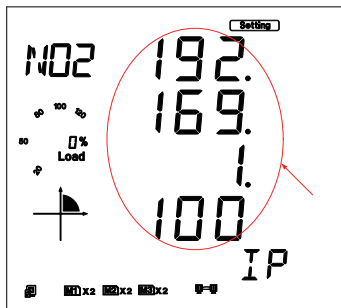
Figure 3-6

e) Set Subnet Mask in the third setting page, such as 255.255.255.0.
Press "V/A" key, go to setting state. Users may set parameter in the
pointed area, and cursor starts at the first digit bit. After setting Subnet
Mask completely, press "V/A" key to affirm. Again press "P" key, go to
the fourth setting page for Gateway.
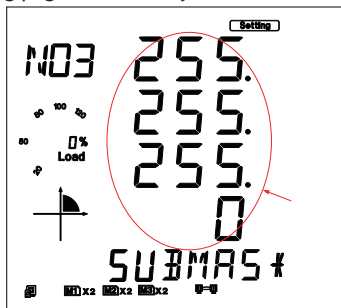
Figure 3-7

f) Set Gateway in the fourth setting page, such as 192.169.1.1. Press "V/A" key, go to setting state. Users may set parameter in the pointed area, and cursor starts at the first digit bit. After setting Gateway completely, press "V/A" key to affirm. Again press "P" key, get into the fifth setting page for DNS Primary Server.
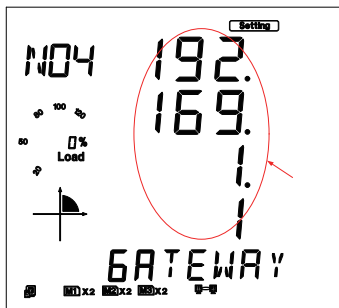
Figure 3-8

g) Set DNS Primary Server in the fifth setting page, such as 202.106.0.20. Press "V/A" key, go to setting state. Users may set parameters in the pointed area, and cursor starts at the first digit bit. After setting DNS Primary Server completely, press "V/A" key to affirm. Again press "P" key, go to the sixth setting page for DNS Secondary Server.

Note: if you want to use SMTP function, DNS parameters must be set correctly.
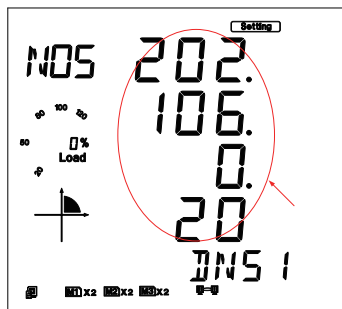
Figure 3-9

h) Set DNS Secondary Server in the sixth setting page, such as 202.106.196.115. Press "V/A" key, go to setting state. Users may set parameter in the pointed area, and cursor starts at the first digit bit. After setting DNS Secondary Server completely, press "V/A" key to affirm. Again press "P" key, go to the seventh setting page for Modbus/TCP port.

Note: if you want to use SMTP function, DNS parameters must be set correctly.
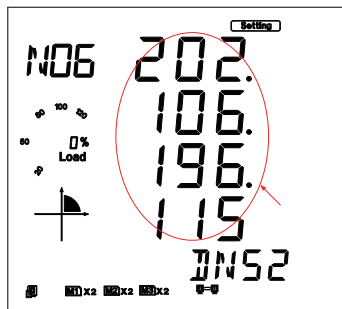
Figure 3-10

i) Set Modbus/TCP port in the seventh setting page, such as 502. Press "V/A" key, go to setting state. Users may set parameter in the pointed area, and cursor starts at the first digit bit. After setting Modbus/TCP port completely, press "V/A" key to affirm. Again press "P" key, go to the eighth setting page for HTTP port. Modbus/TCP port's default value is 502, and the user defined range of port is 2000~5999. If the set port is not in the range, the set port will return default value.
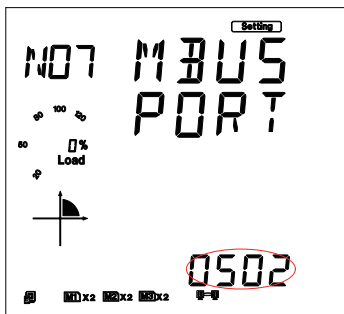
Figure 3-11

j) Set HTTP port in the eighth setting page, such as 80. Press "V/A" key, go to setting state. Users may set parameter in the pointed area, and cursor starts at the first digit bit. After setting HTTP port completely, press "V/A" key to affirm. Again press "P" key, go to the ninth setting page for resetting mode. HTTP port's default value is 80, and the user defined range of port is 6000~9999. If the set port is not in range, the set port will return default value.
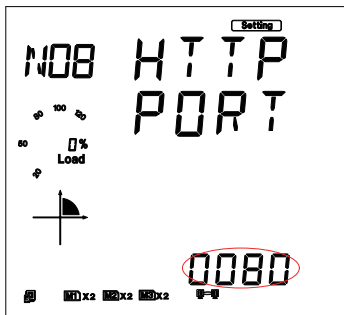
Figure 3-12

k) Set resetting mode in the ninth setting page. Select "RESET" to reset module. Select "NO" means not to reset module. Select "DEFAULT" means load module with default settings and reset module. Press "V/A" key, go to setting state, and the pointed area flashes. Press "P" key or "E" key to select configuration mode, press "V/A" key to affirm.

Note: When configuring Ethernet module settings completely, users must select "RESET" to restart module and new settings will take effect.
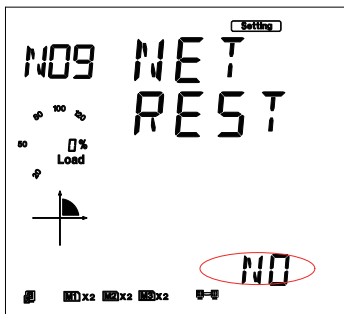
Figure 3-13

l) After configuring AXM-Net settings completely, press "H" key and "V/A" key simultaneously to return menu selecting mode. Users can do other operation.

3.2 Searching IP Address of Ethernet Module

Acuvim II tool software supports search function, and Users use it to get IP address and MAC address of Ethernet module.

Operation step:

1) Press "Start" menu of tool software.
2) Press "Search Device" menu.
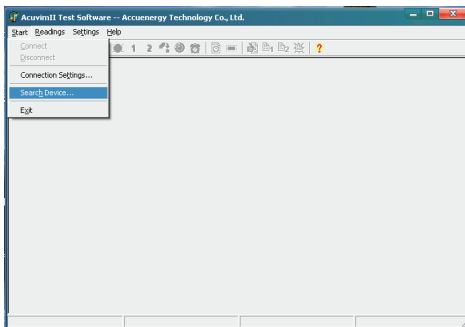
Figure 3-14

3) Tool software pop-up "Search Device(s)" window, and window display IP address and MAC address of module.
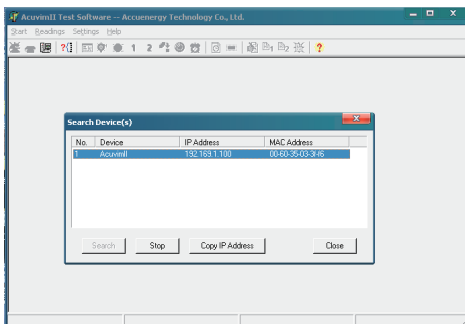
Figure 3-15

3.3 Description of Modbus/TCP protocol

The Modbus/TCP protocol is used for communication in Ethernet module. The protocol sets up master/slave link in Ethernet. First, master device (client) sets up TCP link with slave device (server). Second, master device sends request frame to slave device, and slave device receives request frame and returns response frame to master device. Figure 3-16 displays working mode of Modbus/TCP protocol.
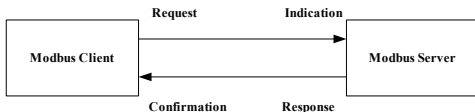
Figure 3-16

1. Protocol

1) Data Frame Format

MBAP Header	Function	Data
7x8-Bits	8-Bits	Nx8-Bits

Table 3-1

2) Modbus Application Header (MBAP Header) Field

Modbus application Header field is start of data frame, and it is consist of seven bytes.

Field	Length	Description
Transaction Identifier	2 Bytes	Identification of a Modbus Request/Response transaction
Protocol Identifier	2 Bytes	Modbus protocol=0
Length	2 Bytes	Number of following bytes
Unit Identifier	1 Byte	Slave address, in the range of 0~247 decimal.

Table 3-2

3) Function Field

The function code field of a message frame contains eight bits. Valid codes are in the range of 1~255 decimal. When a message is sent from a client to a server device the function code field tells the server what kind of action to perform.

Code	Meaning	Action
01	Read Relay Output Status	Obtain current status of Relay Output
02	Read Digital Input(DI) Status	Obtain current status of Digital Input
03	Read Data	Obtain current binary value in one or more registers
05	Control Single Relay Output	Force Relay to a state of on or off
16	Write Multiple-registers	Place specific value into a series of consecutive multiple-registers

Table 3-3

4) Data Field

The data field is constructed using sets of two hexadecimal digits, in the range of 00 to FF hexadecimal. The data field of messages sent from a master to slave devices contains additional information which the slave must use to take the action defined by the function code. This can include items like discrete and register addresses, the quantity of items to be handled, and the count of actual data bytes in the field. For example, if the master requests a slave to read a group of holding registers (function code 03), and the data field specifies the starting register and how many registers are to be read. If the master writes to a group of registers in the slave (function code 10 hexadecimal), the data field specifies the starting register, how many registers to write, the count of data bytes to follow in the data field, and the data to be written into the registers.

2. Format of communication

Explanation of frame

Transaction identifier hi	Transaction identifier lo	Protocol identifier hi	Protocol identifier lo	Length hi	Length lo	Unit identifier
00H	00H	00H	00H	00H	06H	01H

Fun	Data start reg hi	Data start reg lo	Data #of regs hi	Data #of regs lo
03H	40H	00H	00H	48H

Table 3-4

As shown in table 3-4 the meaning of each abbreviated word is:

Transaction identifier hi: Transaction Identifier high byte

Transaction identifier lo: Transaction Identifier low byte

Protocol identifier hi: Protocol Identifier high byte

Protocol identifier lo: Protocol Identifier low byte

Length hi: length high byte

Length lo: length low byte

Unit identifier: slave address

Fun: function code

Data start reg hi: start register address high byte

Data start reg lo: start register address low byte

Data #of regs hi: number of register high byte

Data #of regs lo: number of register low byte

1) Read Status Relay (Function Code 01)

Function Code 01

This function code is used to read relay status in Acuvim II.

1=On   0=Off

There are 8 Relays in Acuvim II, and the start address is 0000H.

The following query is to read 2 Relays Status of Acuvim II Address 1.

Query

Transaction identifier hi	Transaction identifier lo	Protocol identifier hi	Protocol identifier lo	Length hi	Length lo	Unit identifier
00H	00H	00H	00H	00H	06H	01H

Fun	Data start reg hi	Data start reg lo	Data #of regs hi	Data #of regs lo
01H	00H	00H	00H	02H

Table 3-5 Read 2 Relays Status Query Message

Response

The Acuvim II response includes MBAP Header, function code, quantity of data byte, the data. An example response to read the status of Relay 1 and Relay 2 is shown as Table 3-6. The status of Relay 1 and Relay 2 is responding to the last 2 bit of the data.

Relay 1: bit0   Relay 2: bit1

Transaction identifier hi	Transaction identifier lo	Protocol identifier hi	Protocol identifier lo	Length hi	Length lo	Unit identifier
00H	00H	00H	00H	00H	04H	01H

Fun	Byte count		Data
01H	01H		02H

The content of the data is,

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	0

MSB   LSB

（Relay 1 = OFF , Relay 2=ON）

Table 3-6 Read 2 Relays Status Response Message

2) Read Status of DI (Function Code 02)

Function Code 02

1=On   0=Off

There are 38 DIs in Acuvim II, and the start address is 0000H.

The following query is to read the 4 DIs Status of address 1 of Acuvim II.

Query

Transaction identifier hi	Transaction identifier lo	Protocol identifier hi	Protocol identifier lo	Length hi	Length lo	Unit identifier
00H	00H	00H	00H	00H	06H	01H

Fun	Data start reg hi	Data start reg lo	Data #of regs hi	Data #of regs lo
02H	00H	00H	00H	04H

Table 3-7 Read 4 DIs Query Message

Response

The response includes MBAP Header, function code, quantity of data

characters, the data characters.

An example response to read the status of 4 DIs (DI1=On, DI2=On, DI3=On, DI4= On) is shown as Table 3-8. The status of each is responding to the last 4 bit of the data.

DI1: bit0   DI2: bit1   DI3: bit2   DI4: bit3

Transaction identifier hi	Transaction identifier lo	Protocol identifier hi	Protocol identifier lo	Length hi	Length lo	Unit identifier
00H	00H	00H	00H	00H	04H	01H

Fun	Byte count	Data
02H	01H	0FH

The content of the data is,

7	6	5	4	3	2	1	0
0	0	0	0	1	1	1	1

MSB   LSB

Table 3-8 Read 4 DIs Response Message

3) Read Data (Function Code 03)

Query

This function allows the users to obtain the measurement results of Acuvim II.

Table 3-9 is an example to read the 6 measured data (Time) from server device address 1, the data start address is 1040H.

Transaction identifier hi	Transaction identifier lo	Protocol identifier hi	Protocol identifier lo	Length hi	Length lo	Unit identifier
00H	00H	00H	00H	00H	06H	01H

Fun	Data start reg hi	Data start reg lo	Data #of regs hi	Data #of regs lo
03H	10H	40H	00H	06H

Table 3-9 Read Time Query Message

Response

An example response to read Time (2006-12-18 14:15:20) is shown as Table 3-10.

Transaction identifier hi	Transaction identifier lo	Protocol identifier hi	Protocol identifier lo	Length hi	Length lo	Unit identifier
00H	00H	00H	00H	00H	0FH	01H

Fun	Byte count	Data1 hi	Data1 lo	Data2 hi	Data2 lo	Data3 hi	Data3 lo	Data4 hi	Data4 lo	Data5 hi	Data5 lo	Data6 hi	Data6 lo
03H	0CH	07H	D6H	00H	0CH	00H	12H	00H	0EH	00H	0FH	00H	14H

Table 3-10 Read Time Response Message

4) Control Relay (Function Code 05)

Query

The message forces a single Relay either on or off. Any Relay that exists within the Acuvim II can be forced to be either status (on or off). The address of Relay starts at 0000H, and Acuvim II has eight Relay.

The data value FF00H will set the Relay on and the value 0000H will turn it off; all other values are illegal and will not affect that relay.

The example below is a request to Acuvim II address 1 to turn on Relay 1.

Transaction identifier hi	Transaction identifier lo	Protocol identifier hi	Protocol identifier lo	Length hi	Length lo	Unit identifier
00H	00H	00H	00H	00H	06H	01H

Fun	Data start reg hi	Data start reg lo	Value hi	Value lo
05H	00H	00H	FFH	00H

Table 3-11 Control Relay Query Message

Response

The normal response to the command request is to retransmit the message as received after the Relay status has been altered.

Transaction identifier hi	Transaction identifier lo	Protocol identifier hi	Protocol identifier lo	Length hi	Length lo	Unit identifier
00H	00H	00H	00H	00H	06H	01H

Fun	Data start reg hi	Data start reg lo	Value hi	Value lo
05H	00H	00H	FFH	00H

Table 3-12 Control Relay Response Message

5) Preset/Reset Multi-Register (Function Code 16)

NOTE

Prohibit writing zone which have no attribute of write

Query

Function code 16 allows the user to modify the contents of a Multi-Register. The example below is a request to an Acuvim II address 1 to Preset CT1 (500) and CT2 (5). CT1 data address is 1008H, and CT2 data address is 1009H.

Transaction identifier hi	Transaction identifier lo	Protocol identifier hi	Protocol identifier lo	Length hi	Length lo	Unit identifier
00H	00H	00H	00H	00H	0BH	01H

Fun	Data start reg hi	Data start reg lo	Data #of regs hi	Data #of regs lo	Byte count	Value1 hi	Value1 lo	Value2 hi	Value2 lo
10H	10H	08H	00H	02H	04H	01H	F4H	00H	05H

Table 3-13 Preset CT Value Query Message

Response

The normal response to a preset Multi-Register request includes MBAP Header, function code, data start register, the number of registers.

Transaction identifier hi	Transaction identifier lo	Protocol identifier hi	Protocol identifier lo	Length hi	Length lo	Unit identifier
00H	00H	00H	00H	00H	06H	01H

Fun	Data start reg hi	Data start reg lo	Data #of regs hi	Data #of regs lo
10H	10H	08H	00H	02H

Table 3-14 Preset Multi-Registers Response Message

Users may refer to the fifth chapter "Communication" and get the details of Acuvim II.

When users use Moubus/Tcp function, you set best the Scan Interval of tool soft under 1000ms, and set best the Frame Interval of the third soft under 1000ms.

3.4 Browse Webpage and Set Parameters

Ethernet module supports HTTP protocol, has Web Sever function. Users may visit Acuvim II through Ethernet whenever and wherever.

Ethernet module supports IE Browser 5.0 and above editions and Webpage Settings only supports ASCII character.

We assume "**192.169.1.200**" as IP address of module.

Figure 3-17 is flow chart for entering webpage.
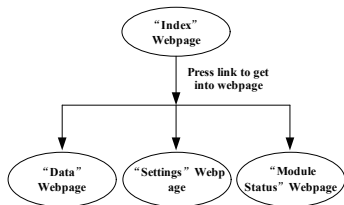
Figure 3-17

1. Index Webpage

Users put IP address of module in Address of IE Browser, and enter "Index" webpage. "Index" webpage supplies three links to enter "Data" webpage or "Settings" Webpage or "Module Status" webpage.
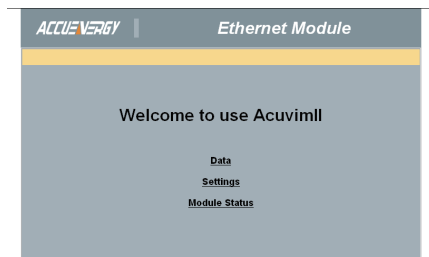
Figure 3-18

2. Module Status Webpage

Press "Module Status" link to enter module status webpage. Webpage shows the state of module and the settings of module.
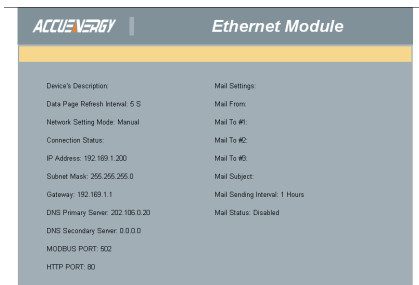
Figure 3-19

3. Settings Webpage

Press "Settings" link to enter settings webpage. Figure 3-20 is flow chart for settings webpage. First IE Browser enters "Password" webpage, and it need check module password. Initial password is 12345678. There are five kinds of setting webpages. They are "Network Settings" webpage, "Mail Settings" webpage, "Webpage Settings" webpage, "Load Default" webpage, and "Password Setting" webpage.
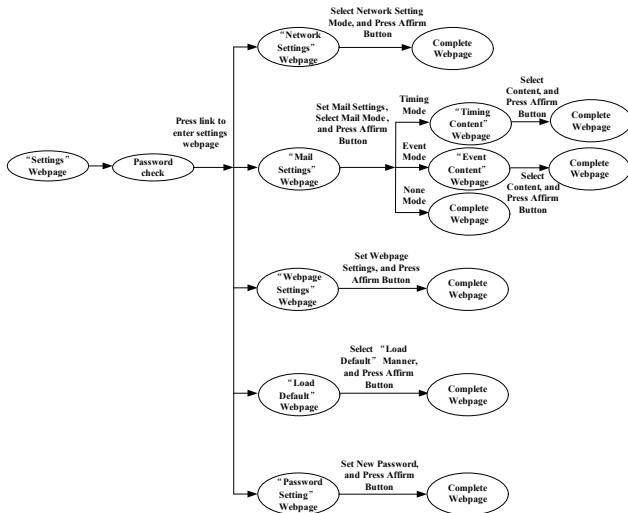
Figure 3-20

1) "Password" Webpage

Figure 3-21: "Password" webpage. If the password is valid, IE Browser will enter "Network Settings" webpage, or else IE Browser will return to "Password" webpage.
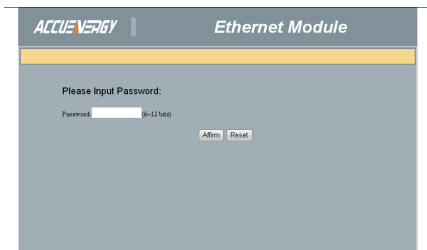
Figure 3-21

2) "Network Settings" Webpage

Figure 3-22: "Network Settings" webpage. It supports two network setting mode: Manual or Auto. Except network setting mode, there are two port settings in Webpage. One is HTTP port, and the other is Modbus/TCP port. The default value of Modbus/TCP port is 502, and the user defined range is 2000~5999. The default value of HTTP port is 80, and the user defined range is 6000~9999.

After new network settings go into effect, users may enter webpage according to new IP address.

Figure 3-22

Figure 3-23: Configure network settings completely for Manual mode webpage.

Figure 3-23

Figure 3-24: configure network settings completely for Auto mode webpage.
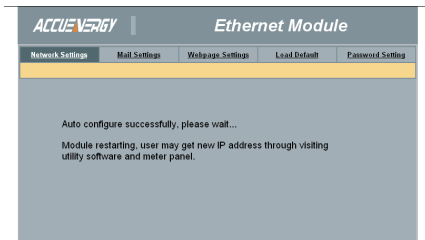
Figure 3-24

3) "Mail Settings" Webpage

Figure 3-25: "Mail Settings" webpage. Users should not set "Mail From" the same as "Mail to". Because some SMTP servers may reject the connection for these settings and the module may not send mail. The value of "Mail Sending Interval" is interval time between two mails under "Send mail for timing" mode, the default value is 1 hour, the range is 1~168 hours. The "Select mode of mail" mode includes "Send mail for timing" mode, "Send mail for event" mode, "None" mode. Users could select single mode and the default mode is "None" mode.

Figure 3-25

Figure 3-26: select mail content for "Send mail for timing" mode webpage. "Send mail for timing" mode is a timing manner according to "Mail Sending Interval" which sends mail content to "Mail to" mail box. Under this mode, mail content includes "Real-Time Metering", "Energy and Harmonics", "Max and Min", and users may select either or all of them.

Figure 3-26

Figure 3-27: select mail content for "Send mail for event" mode webpage. "Send mail for event" mode is a manner of event triggered according to event type ("Alarm" type, "SOE" type) which sends mail content to "Mail to" mail box. Under this mode, mail content includes "Alarm Event", "SOE Event", and users may select either or all of them.
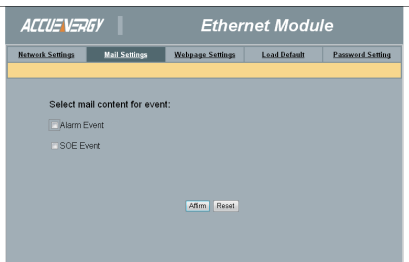
Figure 3-27

Figure 3-28: set "None" mode completely webpage. Mail function is unable.
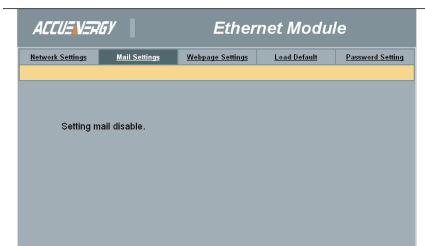
Figure 3-28

Figure 3-29: configure Mail Settings completely webpage.
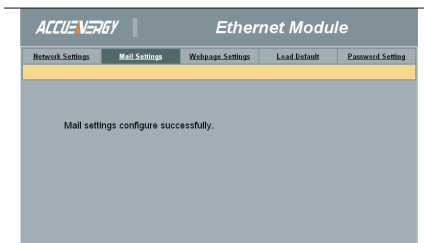
Figure 3-29

The value of "Mail From" and "Mail To" and "Mail Subject" and "Mail Sending Interval" needn't be set repeatedly.

4) "Webpage Settings" Webpage

Figure 3-30: "Webpage Settings" webpage. Users set the value of "Device's Description" according to meter type. The default value of "Data Page Refresh Interval" is 5S, and the range is 5~30S. The select of "Language" supports English and Simplified Chinese.
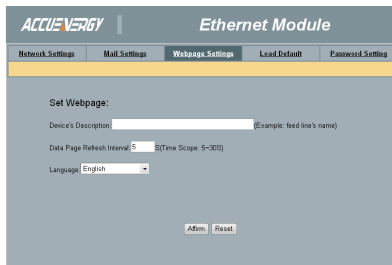
Figure 3-30

Figure 3-31: webpage settings set completely webpage.
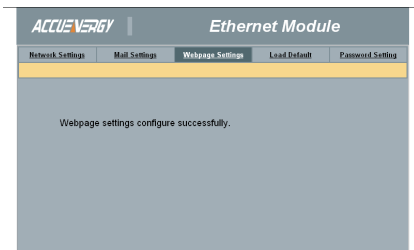
Figure 3-31

5) "Load Default" Webpage
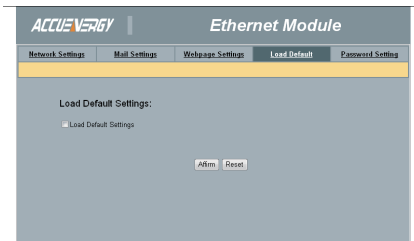
Figure 3-32: "Load Default" webpage.

Figure 3-32

Figure 3-33: Load default successful webpage. The network settings of module will renewed default value.
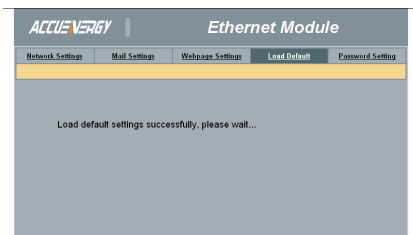

Figure 3-33

6) "Password Setting" Webpage

Figure 3-34: "Password Setting" webpage.

Figure 3-34

Figure 3-35: set password successful webpage.

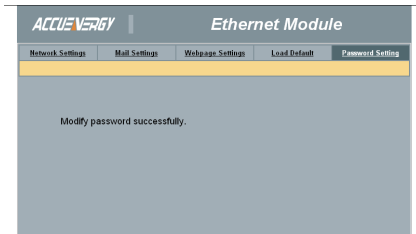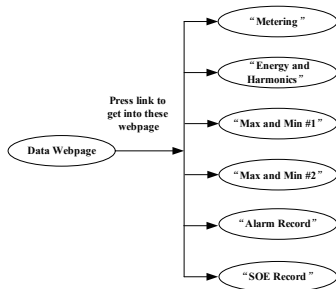| ACCUENERGY | | Ethernet Module | | |

Figure 3-35

4. Data Webpage

Press "Data" Link to Visit Data webpage. Figure 3-36 is flow chart of data webpage. There are six kinds of data webpage. They are "Metering" webpage, "Energy and Harmonics" webpage, and "Max and Min #1", "Max and Min #2" webpage, "Alarm Record" webpage, and "SOE Record"

webpage. Each webpage may refresh according to "Data Page Refresh Interval" and show work status of Acuvim II then.

"Metering" webpage includes the data of real-time parameters for Acuvim II. There are thirty six parameters, such as Volts AN, I A, Watt A.

"Energy and Harmonics" webpage includes the data of energy and harmonics parameters for Acuvim II. There are seventeen parameters, such as Delivered kWh, kVAh, and THD Volts Average.

"Max and Min #1" webpage includes the max and min data of parameters for Acuvim II. There are thirteen parameters, such as Volts AN, I A , and Watt Total(Demand).

"Max and Min #2" webpage includes the max and min data of parameters for Acuvim II. There are twelve parameters, such as Frequency, Imbalance V, and THD I A.

"Alarm Record" webpage includes alarm records for Acuvim II. There are sixteen groups record. Each record includes Time Stamp, Limit ID, Status, Alarm Channel and Value.

"SOE Record" webpage includes SOE record for Acuvim II. There are twenty groups record. Each record includes Time Stamp, DI Status.

3.5 Mail Function

Because Ethernet module supports SMTP protocol, it has mail function. Before sending mail, users must set the parameters of DNS Server. Users may refer to the fourth section "Browse Webs and Set Parameters" and set the parameters of DNS Server.

There are two mail modes according as function. One is "Send mail for timing" mode; the other is "Send mail for event" mode. "Send mail for timing" mode is a timing manner according to "Mail Sending Interval" which sends mail content to "Mail to" mail box. The mail content includes "Real-Time Metering", "Energy and Harmonics", "Max and Min". "Send mail for event" mode is a manner of event triggered according to event type ("Alarm" type, "SOE" type) which sends mail content to "Mail to" mail box and remind users. The mail content includes "Alarm Event", "SOE Event".

Set mail settings completely, module will start work according to set mode.

Appendix

Appendix A Technical Data and Specifications

Appendix B Ordering Information

Appendix C Revision History

Appendix 1 Technical data and specification

Standards	
Protocol Standards	MODBUS Messaging Implementation Guide V1.0a
	RFC793
	RFC821
	RFC2616
Environmental	IEC 60068-2-30
Safety	IEC 61010-1

Communication Port	
Physical Layer	Standard RJ45 socket
Protocol	Modbus/TCP, SMTP, HTTP
Baud Rate	10M/100M auto-adapted

Suitable Condition	
Dimensions	90X55.6X22 (mm)
Weight	65g
Operating Temperature	-25°C~70°C
Storage Temperature	-40°C~85°C
Humidity	5%~95% non-condensing
Power Supply	DC 5V (supplied by Acuvim II meter)
Power Consumption	1W

Appendix 2 Ordering Information

Type: AXM-NET

Appendix C Revision History

Revision	Date	Description
1.0	20070915	

Your Power and Automation Partner

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