

Contents

| | |
|------------------------------------|----|
| Welcome to Acuvim | 2 |
| Copyright | 3 |
| Getting started..... | 3 |
| 1. Communication settings | 3 |
| 2. Add new device..... | 4 |
| 3. Connection | 4 |
| 4. Getting help | 5 |
| User interface | 6 |
| Main window | 6 |
| Main menu..... | 7 |
| Toolbar | 8 |
| Functions | 9 |
| Basic monitoring | 9 |
| Add/Delete device..... | 9 |
| Data Logging..... | 9 |
| Import/Export device profile | 13 |
| Acuvim-X series..... | 13 |
| Readings | 15 |
| Settings | 22 |
| Acuvim-L series | 24 |
| Readings | 24 |
| Acuvim II..... | 25 |
| Readings | 25 |
| Settings | 27 |
| Troubleshooting..... | 28 |
| Installation | 29 |

Welcome to Acuvview

Developed by Accuenergy Corporation, Acuvview software is designed for the Acuvim-X, Acuvim-L and Acuvim II series power meters.

Acuvview software provides user-friendly real time monitoring and data logging for energy saving and power quality analysis. This software is intended for users to monitor multiple parameters continuously, and allow users to monitor and maintain the meter in real-time.

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Getting started

1. Communication settings

Connection parameters must be set first before communicating with the meter. To start setting, do one of the following:

- 1) Before you enter the main window.
- or
- 2) Click **Settings > Connection Settings**.
- or
- 3) Click the icon .

The dialog box is shown as figure 1.

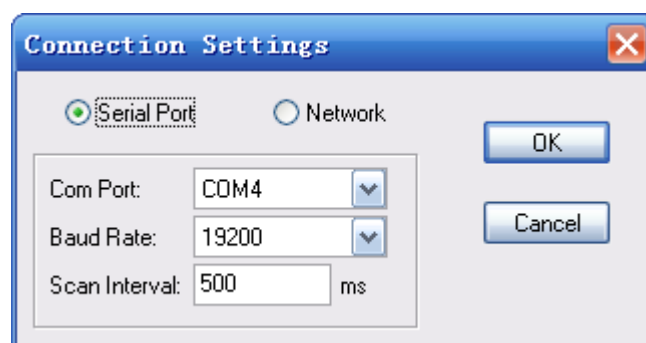


Figure 1: Connection settings


- **Serial Port/Network:** Select Serial Port with RS485; Select Network with Modbus TCP gateway (for example: Acuvim II + AXM-Net).
- **Com Port:** Select a serial port on a computer.
- **Baud Rate:** This should be the same as the meter setting.
- **Scan Interval:** This is used to adjust the time interval between two messages. (500ms is recommended.)

2. Add new device

After the above step, you need to select a device to communicate with. To add a new device, do one of the following before entering the main window:

1) Click **Operation > Add Device**.

or

2) Click the icon .

The dialog box is shown as figure 2.

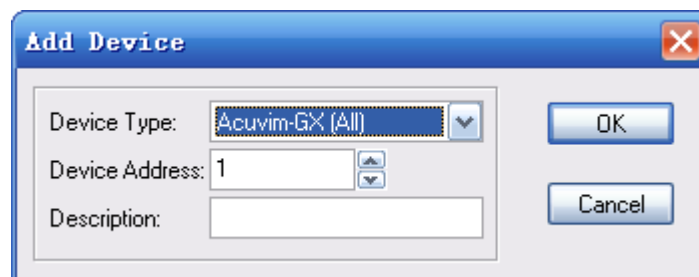


Figure 2: Add device


- **Device Type:** Model of the device you are going to communicate with.
- **Device Address:** This should be same as the meter setting.
- **Description:** Indicates where the device is used such as XX line.

3. Connection

You can read all the measurements after you have correctly finished the steps. To connect, do one of the following:

1) Click **Operation** > **Connect**.

or

2) Click the icon .

or


3) Press F9 on keyboard.

4. Getting help

For more information, do one of the following:

1) Click **Help** > **Help**.

or

2) Click the icon .

User interface

Main window



Figure 3: Main window

The main window includes a menu bar, a toolbar, workspace, a status bar. The workspace displays meter's windows. The status bar displays messages.

As shown in Figure 3, the following includes a description of all items:

A -- Menu bar

B -- Toolbar

C -- Window title:

Displays device type, device address, connection status, etc

D -- Tree browser:

You can browse meter functions quickly.

E -- Data area:

Displays data related to meter function or available operation.

F -- Communication:

Displays sent/received messages, and also indicating communications errors in the monitoring state, which generally are numbers of devices in problem (not refreshing in time)

Main menu

The Main menu includes operation, settings, tools, window and help.

1. Operation

- **Connect:** Connect device and read data and allow write command.
- **Disconnect:** Disconnect device and stop data reading and disallow write command.
- **Start Data Logging:** Start data logging, record data at setting time.
- **Stop Data Logging:** Stop data logging, stop recording.
- **Add Device:** Add a new device that is going to be connected.
- **Delete Current Device:** Delete top window of current active device.
- **Exit:** Quit the application.

2. Settings

- **Connection Settings:** Set connection parameters here.
- **Data Log Settings:** Check and set data logging parameters of device(s) to be monitored.
- **Device Properties:** Modify device address here.

3. Tools

- **Import Device Profile:** Load the settings of current active device window from a device profile file.
- **Export Device Profile:** The device profile of current active device window can be saved as a file.
- **Import and Update Device:** Load and send all settings in current active device window to meter.
- **Find Device:** Search on-line for Acuvim II in LAN.

4. Window

- **Cascade:** Rearrange all windows in cascade mode.
- **Minimize All:** Minimize all windows.

5. Help

- **Help:** Display help document.
- **About:** Display version, copyright information.

Toolbar



Connect: Connect device and read data and allow write command.



Disconnect: Disconnect device and stop data reading and disallow write command.



Start Data Logging: Start data logging, record data at setting time.



Stop Data Logging: Stop data logging, stop recording.



Add Device: Add a new device that is going to be connected.



Delete Current Device: Delete top window of current active device.



Connection Settings: Set connection parameters here.



Data log Settings: Check and set data logging parameters of devices that is to be monitored.



Device Properties: Modify device address here.



Cascade: Rearrange all windows in cascade mode.



Minimize All: Minimize all windows.



Help: Display help document.

Functions

Basic monitoring

1. Set connection parameters first. Refer to the [Communication settings](#) section.
2. Add device window. Refer to the [Add new device](#) section.
3. Connect. Refer to the [Connection](#) section.
4. Click the node in tree browser on the left side, you can see measuring values. The content displayed in the device window may be different according to different device types.
5. Click **Disconnect** menu or icon to stop whenever you want.

Add/Delete device

1. Add a new device. Refer to the [Add new device](#) section.
2. If there is an unused device window, select it and click **Device Properties** menu or icon, then make the device available.
3. If some windows may not be used any more, click **Delete Current Device** menu or icon.


Data Logging

1. Data logging settings

You must set data log before you use this function. To set it, do one of the following:

- 1) Click **Settings > Data Log Settings**.

or

- 2) Click the icon .

The dialog box is shown as figure 4.

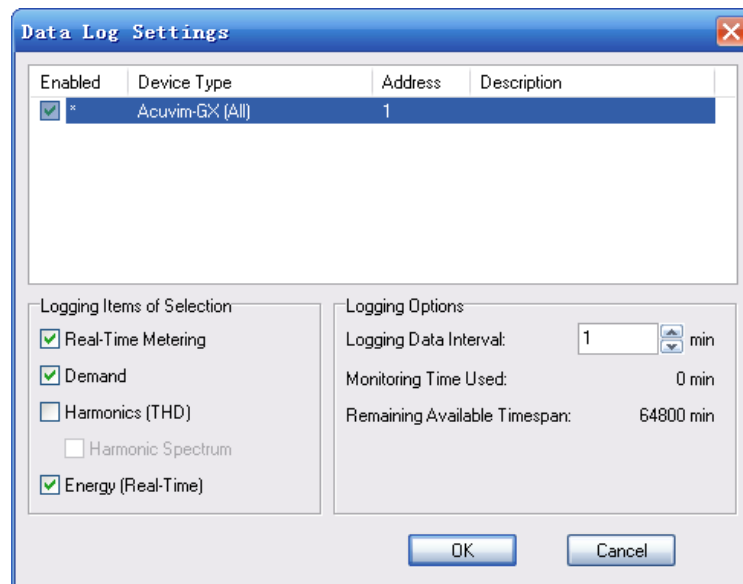


Figure 4: Data log settings

- **Device List:** Displaying all of those available device windows which are working in data logging mode. It also can enable or disable data logging of any devices.
 - **Logging Items of Selection:** Select a list item, and then you can select one or more valid logging items of it.
 - **Logging Options:** This option is to set data logging interval which indicates how long to store monitoring results. At the same time, you can check out the information in monitoring process.
2. Now connect, and pause for 5 second. Then click the **Start Data Logging** menu or icon to enable this function.
 3. Click the **Stop Data Logging** menu or icon to stop this function as required.
 4. **View and analyze data**

There is a folder called **MonData** in the installation directions where all **Data logging** files are stored. Each file name begins with the computer's time when data logging starts. Its format is yyMMddHHmmss (Year, Month, Day, Hour, Minute, Second). And make sure to according to following rules before you open any file:

Special Attention:

Never double click any EXCEL files (inc. monitoring data files) on your computer when data logging is active, otherwise it may cause software to become unstable and potentially produce inaccurate results (such as out-of-order and loss of data, etc.).

The correct options to open the objective files are:

1. Click **Start > Program > Microsoft Office > Microsoft Office Excel** to open the Excel application. When the main window of Excel is open, click **File > Open** and choose the objective files in the dialog box.

or

2. Copy the objective files to another computer and open them.

5. Data Log file

After you open a data log file, you can see the following items:

Real-Time / Demand / Energy / THD / VHS / IHS

- Real-Time: Real-Time Metering
- Demand: Demand
- Energy: Real-Time Energy
- THD: THD
- VHS: Voltage Spectrum
- IHS: Current Spectrum

All parameters in the table are shown as following:

| ● Real-Time | | | | | | | |
|-------------|---------------------|-----|---------------------|----|------------|-----|---------------------|
| Time | Record Time | ULL | Volts LL Average | PC | Watt C | SC | VA C |
| FREQ | Frequency | IA | I A | P | Watt Total | S | VA Total |
| UA | Volts AN | IB | I B | QA | VAR A | PFA | Pwr Factor A |
| UB | Volts BN | IC | I C | QB | VAR B | PFB | Pwr Factor B |
| UC | Volts CN | I | I Average | QC | VAR C | PFC | Pwr Factor C |
| ULN | Volts LN Average | IN | I N | Q | VAR Total | PF | Pwr Factor Total |

| | | | | | | | |
|-----|----------|----|--------|----|------|--------|-------------|
| UAB | Volts AB | PA | Watt A | SA | VA A | U_UNBL | Unbalance V |
| UBC | Volts BC | PB | Watt B | SB | VA B | I_UNBL | Unbalance I |
| UCA | Volts CA | | | | | | |

| ● Demand | | | | | |
|----------|------------------|--------|----------------------|------------|-----------------------|
| Time | Record Time | QC_IMP | Delivered VAR C | IA | I A |
| PA_IMP | Delivered Watt A | QA_EXP | Received VAR A | IB | I B |
| PB_IMP | Delivered Watt B | QB_EXP | Received VAR B | IC | I C |
| PC_IMP | Delivered Watt C | QC_EXP | Received VAR C | I | I Average |
| PA_EXP | Received Watt A | P_IMP | Delivered Watt Total | P_IMP_PRED | Pred. Del. Watt Total |
| PB_EXP | Received Watt B | P_EXP | Received Watt Total | P_EXP_PRED | Pred. Rec. Watt Total |
| PC_EXP | Received Watt C | Q_IMP | Delivered VAR Total | Q_IMP_PRED | Pred. Del. VAR Total |
| QA_IMP | Delivered VAR A | Q_EXP | Received VAR Total | Q_EXP_PRED | Pred. Rec. VAR Total |
| QB_IMP | Delivered VAR B | S | VA Total | S_PRED | Pred. VA Total |

| ● Energy | | | | | |
|----------|--------|----------|----------|----------|----------|
| EP_IMP | Ep_imp | EQ_EXP | Eq_exp | EP_NET | Ep_net |
| EP_EXP | Ep_exp | ES | Es | EQ_TOTAL | Eq_total |
| EQ_IMP | Eq_imp | EP_TOTAL | Ep_total | EQ_NET | Eq_net |

| ● THD | | | | | |
|---------|-------------------|---------|------------------|---------|------------------|
| UA_THD | THD Volts AN/AB | UA_CF | Crest Factor V A | IB_ETHD | Even THD I B |
| UB_THD | THD Volts BN/BC | UA_THFF | THFF V A | IB_KF | K Factor I B |
| UC_THD | THD Volts CN/CA | IA_OTHD | Odd THD I A | UC_OTHD | Odd THD V C |
| U_THD | THD Volts Average | IA_ETHD | Even THD I A | UC_ETHD | Even THD V C |
| IA_THD | THD I A | IA_KF | K Factor I A | UC_CF | Crest Factor V C |
| IB_THD | THD I B | UB_OTHD | Odd THD V B | UC_THFF | THFF V C |
| IC_THD | THD I C | UB_ETHD | Even THD V B | IC_OTHD | Odd THD I C |
| I_THD | THD I Average | UB_CF | Crest Factor V B | IC_ETHD | Even THD I C |
| UA_OTHD | Odd THD V A | UB_THFF | THFF V B | IC_KF | K Factor I C |

| | | | | | |
|---------|--------------|---------|-------------|--|--|
| UA_ETHD | Even THD V A | IB_OTHD | Odd THD I B | | |
|---------|--------------|---------|-------------|--|--|

| | | | | | |
|--------|--------------|--------|--------------|--------|--------------|
| ● VHS | | | | | |
| UA_H2 | | UB_H2 | | UC_H2 | |
| UA_H3 | 2nd~31st | UB_H3 | 2nd~31st | UC_H3 | 2nd~31st |
| UA_H4 | Harmonic V A | UB_H4 | Harmonic V B | UC_H4 | Harmonic V C |
| ... | | ... | | ... | |
| UA_H31 | | UB_H31 | | UC_H31 | |

| | | | | | |
|--------|--------------|--------|--------------|--------|--------------|
| ● IHS | | | | | |
| IA_H2 | | IB_H2 | | IC_H2 | |
| IA_H3 | 2nd~31st | IB_H3 | 2nd~31st | IC_H3 | 2nd~31st |
| IA_H4 | Harmonic I A | IB_H4 | Harmonic I B | IC_H4 | Harmonic I C |
| ... | | ... | | ... | |
| IA_H31 | | IB_H31 | | IC_H31 | |

Import/Export device profile

- You can import device profiles for current active device window very easily. If you simply want to check the content of the imported profile, be sure to disconnect first, so that you do not update to the meter's current settings. If you want to send the imported profile to device, follow these steps:
 - 1) Connect first.
 - 2) Click **Tools > Import and Update Device**, select the file you want.
- You can store the settings of the current window to a file via **Export Device Profile**.

Acuvim-X series

Acuvim-X series includes Acuvim-DX (TOU), Acuvim-EX (PQ), Acuvim-FX (Alarm), Acuvim-GX (All).

A Comparison of Acuvim-X series is shown in table 1.

Table 1: Comparison of Acuvim-X series

| Functions | DX | EX | FX | GX |
|--------------------|----|----|----|----|
| Real-Time Metering | √ | √ | √ | √ |
| Digital I/O | √ | √ | √ | √ |

| | | | | | | |
|------------------------------------|-----------------------------------|---------------|-----------|---|---|---|
| Demand | | √ | √ | √ | √ | |
| Harmonics | THD | <i>Total</i> | | √ | √ | |
| | | <i>Phases</i> | | √ | √ | |
| | Voltage Spectrum | | | √ | √ | |
| | Current Spectrum | | | √ | √ | |
| Sequence Component | | | √ | √ | √ | |
| Phase Angles | | | √ | √ | √ | |
| Energy | Real-Time | | √ | √ | √ | |
| | Current Month TOU | | √ | | √ | |
| | Prior Month TOU | | √ | | √ | |
| | Cumulative TOU | | √ | | √ | |
| | Frozen | Real-Time | | √ | | √ |
| | | Current | Month TOU | √ | | √ |
| Cumulative TOU | | √ | | √ | | |
| Max and Min | Current | | | √ | √ | |
| | Prior | | | √ | √ | |
| Voltage Eligibility Ratio | Daily | | | √ | √ | |
| | Monthly | | | √ | √ | |
| | Yearly | | | √ | √ | |
| | Cumulative | | | √ | √ | |
| | Frozen | | | √ | √ | |
| SOE Log | | | | √ | √ | |
| Alarm Log | | | √ | √ | √ | |
| Waveform Log | | | | √ | √ | |
| Trending Log | | | | √ | √ | |
| System Status | <i>Alarm</i> | | | √ | √ | |
| | <i>SOE, Waveform, Trending</i> | | | | √ | |
| | <i>TOU Schedules Settings</i> | | √ | | √ | |
| | <i>Device Run-Time</i> | | √ | √ | √ | |
| Device Information | | √ | √ | √ | √ | |
| General Settings | | √ | √ | √ | √ | |
| Digital I/O Settings | | √ | √ | √ | √ | |
| Demand Settings | | √ | √ | √ | √ | |
| Energy Settings | | √ | | | √ | |
| TOU Schedules Settings | | √ | | | √ | |
| Alarm Settings | <i>Alarm Settings</i> | | | √ | √ | |
| | <i>Waveform Settings</i> | | | | √ | |
| Voltage Eligibility Ratio Settings | | | √ | | √ | |
| Other Settings | <i>Max and Min Recording Mode</i> | | | √ | √ | |
| | <i>Trending Settings</i> | | | | √ | |

We have used Acuvim-GX (All) as the example to introduce some of the functions. In order to

entirely understand the abilities of the software, please ***thoroughly*** read the Acuvim-X series user's manual.

Readings

1. Digital I/O

To control the relay, please click the related **Control** button.

2. Demand

If you want to synchronize demand calculation of all the devices on the bus, please click **Synchronize Demand** button.

3. Voltage Spectrum, Current Spectrum

The A in figure 5 means there's no display when harmonics are 0%.

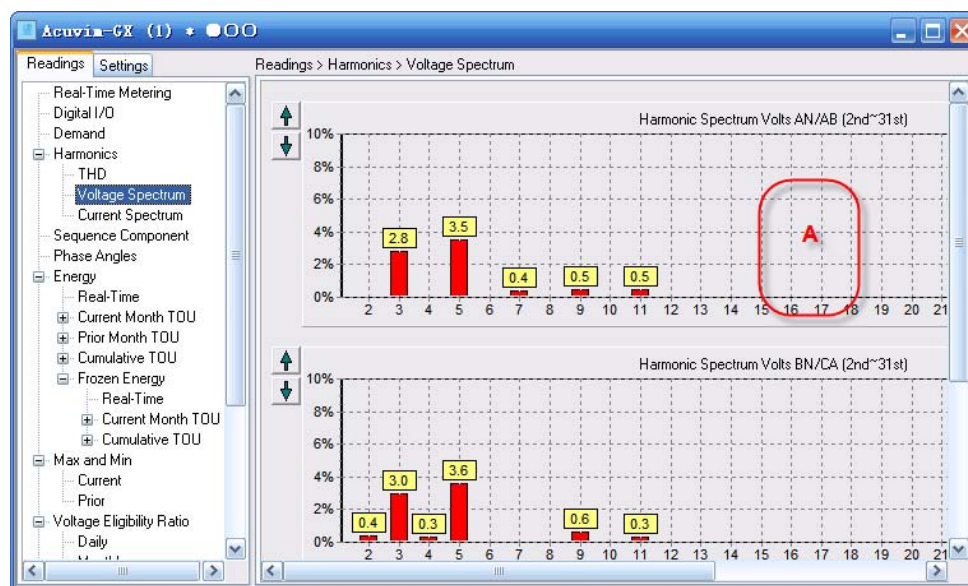


Figure 5: Voltage spectrum

4. Sequence Component

Φ_{uaia} is the angle between I A and V A. The broken-line circle on the outside indicates 100% of full range.

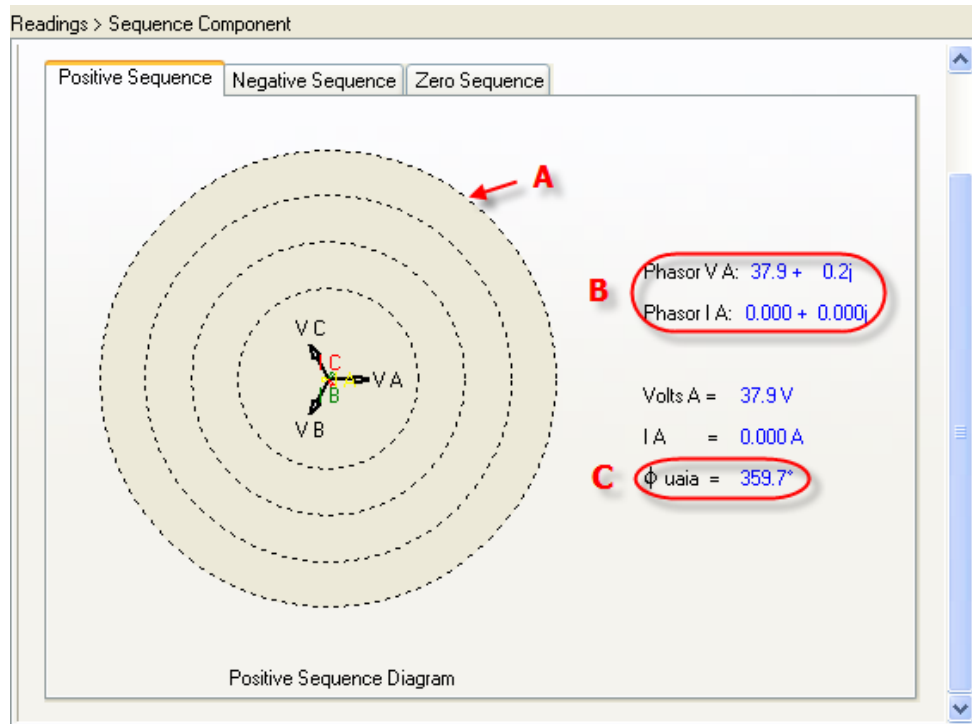


Figure 6: Positive sequence

As shown in Figure 6, the following includes a description of all items:

- A -- Full range indicator
- B -- Vector expression
- C -- Angle between I A and V A

5. Real-Time Energy, Current Month TOU, Cumulative TOU

You can modify the value of energy by clicking underlined characters.

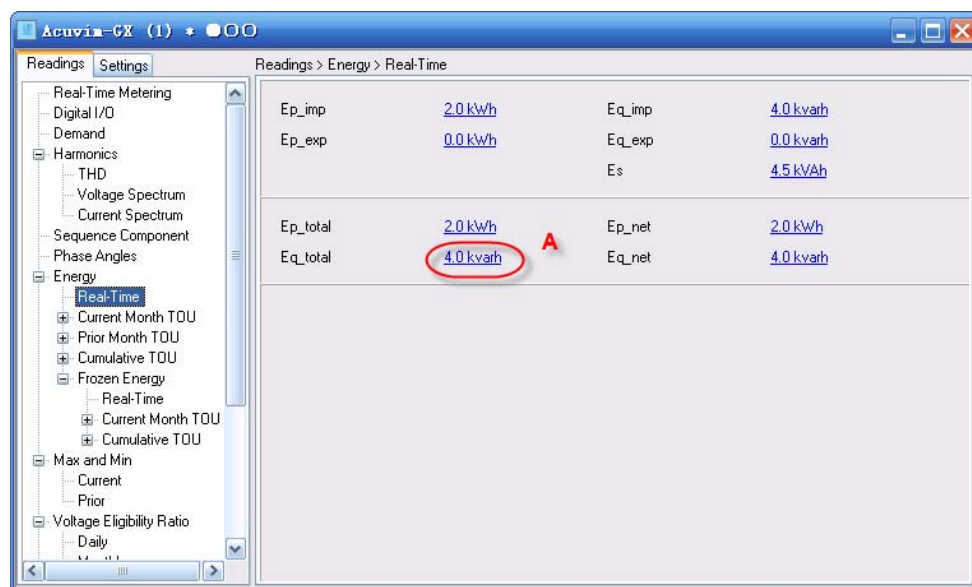


Figure 7: Real-time energy

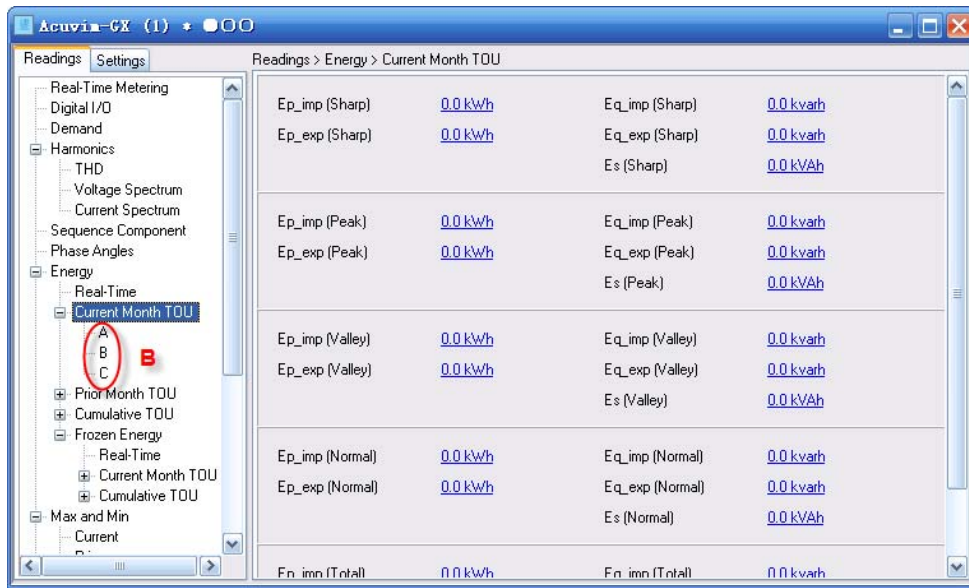


Figure 8: Current month TOU

As shown in figure 7 and figure 8, the following includes a description of all items:

A -- You can modify energy value by clicking characters.

B -- You can check current month TOU of all phases by clicking characters.

6. Prior Month TOU

As shown in figure 9, the A has pointed out the billing time of prior month on the Prior Month TOU node in the browser tree.

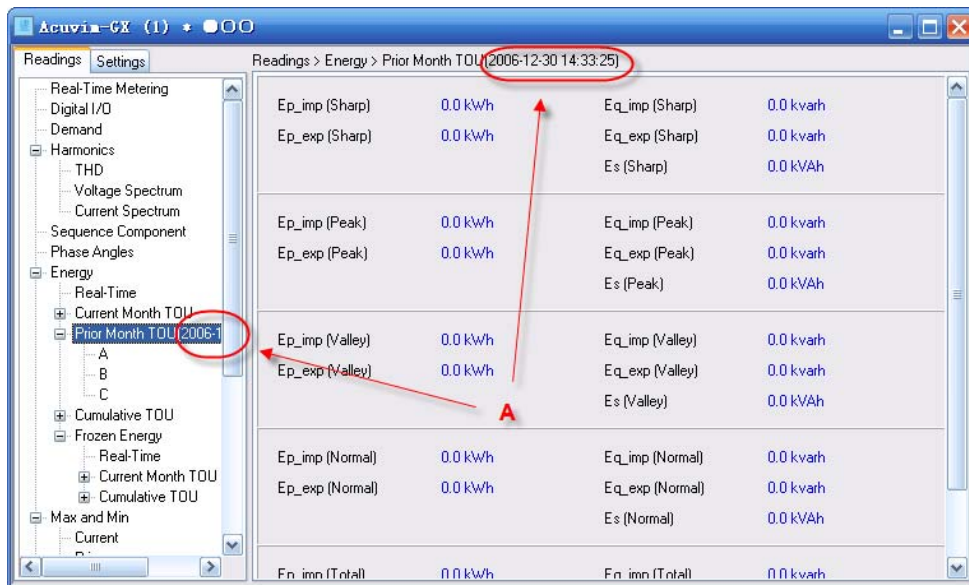


Figure 9: Prior month TOU

7. Frozen Energy

As shown in figure 10, the time displayed on the Frozen Energy node in the browser tree is the time of freezing real-time energy, current month TOU and accumulative TOU.

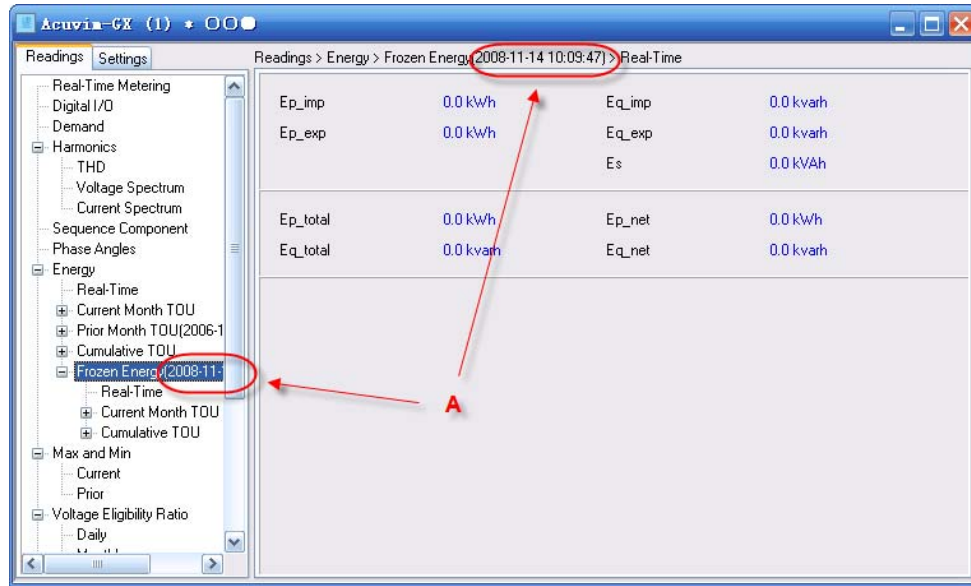


Figure 10: Frozen energy

8. Prior Max and Min

As shown in figure 11, the time displayed on the Prior node in the browser tree is the time of recording Prior Max and Min.

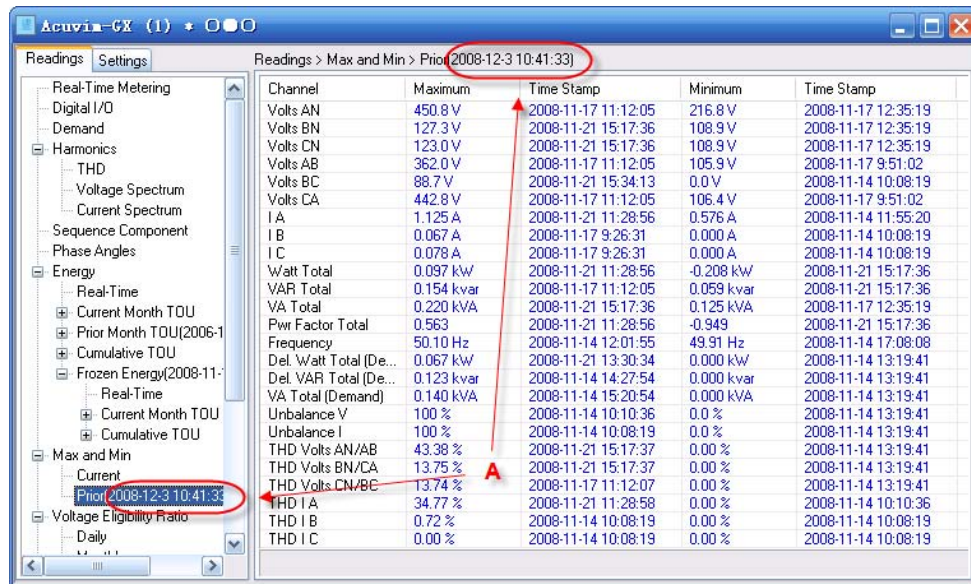


Figure 11: Prior Max and Min

9. Frozen Voltage Eligibility Ratio

As shown in figure 12, the time displayed on the Frozen node in the browser tree is the time of freezing voltage eligibility ratio.

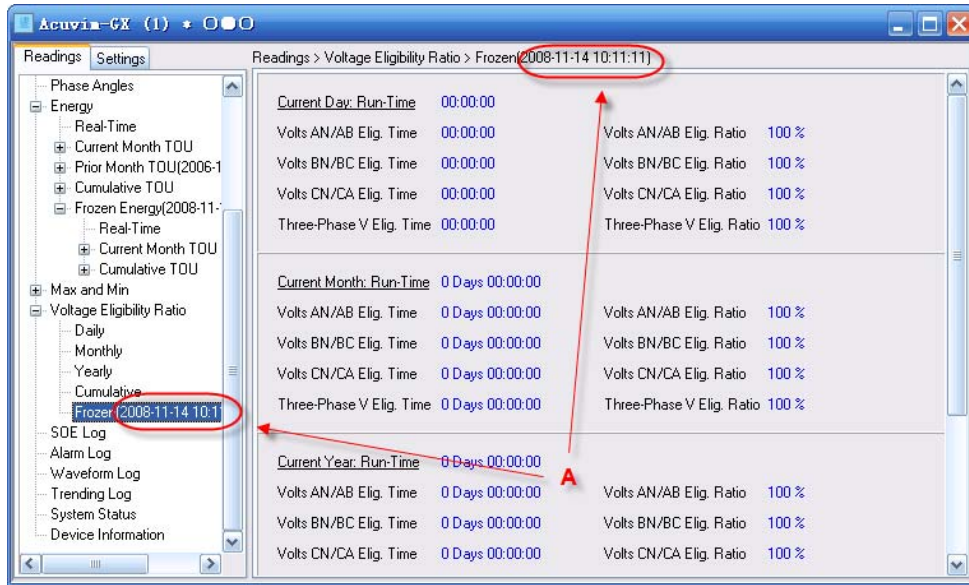


Figure 12: Frozen voltage eligibility ratio

10. Waveform Log

There are two kinds of situation in waveform log:

- 1) Click the **Retrieve Waveform** button to read the data corresponding to the selected item, and the Data column will not be empty after your reading. It will then draw a waveform graph automatically.

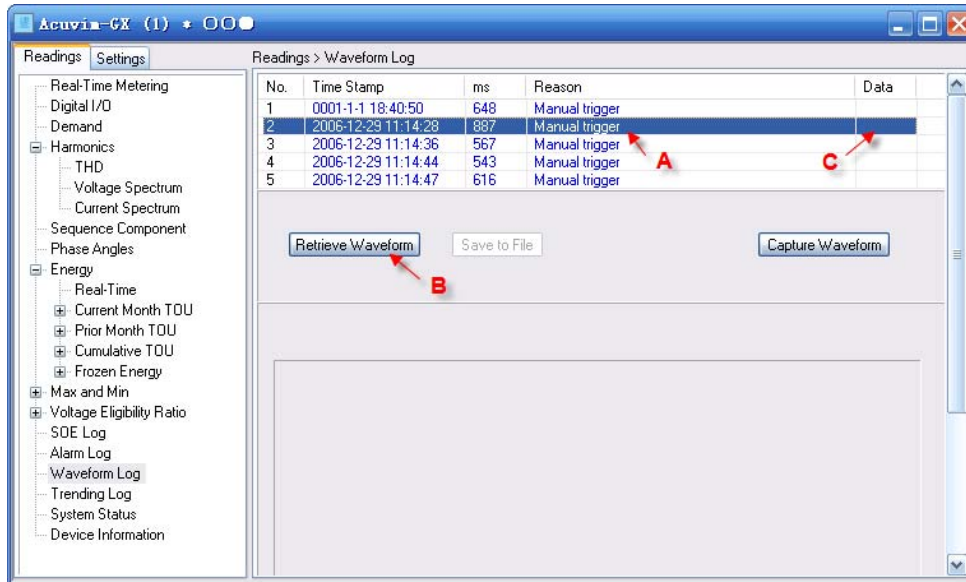


Figure 13: Waveform log (1)

As shown in figure 13, the following includes a description of all items:

- A -- Step 1: Select an item to read.
- B -- Step 2: Click the **Retrieve Waveform** button.
- C -- The Data column will not be empty after reading.

or

2) You may select an item whose data is not empty, then its waveform will be displayed as shown in figure 14. The A means to click an item with data.

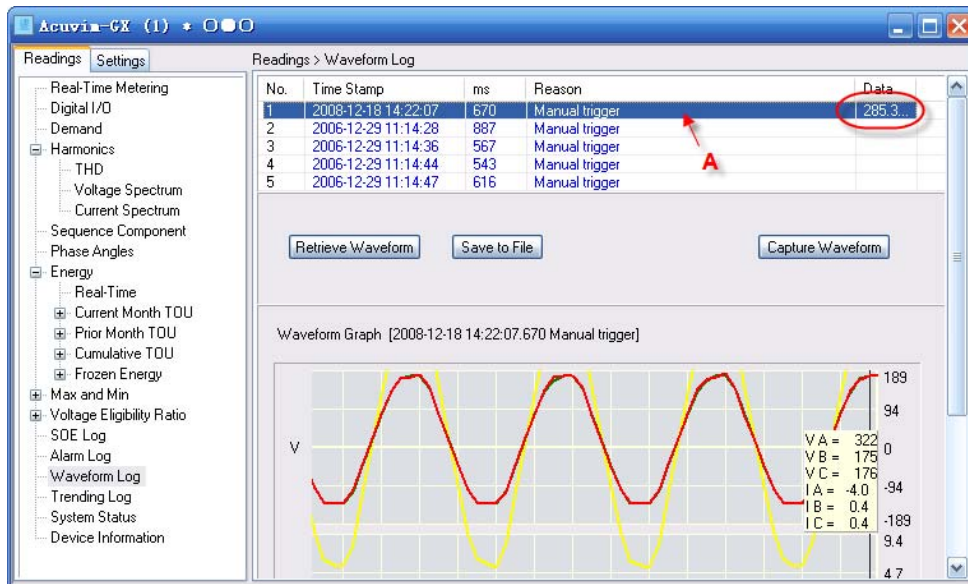


Figure 14: Waveform log (2)

Click the **Save to File** button, then you can save the data of selected items as an Excel file, for later analysis.

In typical waveform as is shown in figure 15, the following includes a description of all items:

- A -- Capture time and reason
- B -- Capture time when capturing condition is satisfied
- C -- Values on current time stamp
- D -- Movable time label

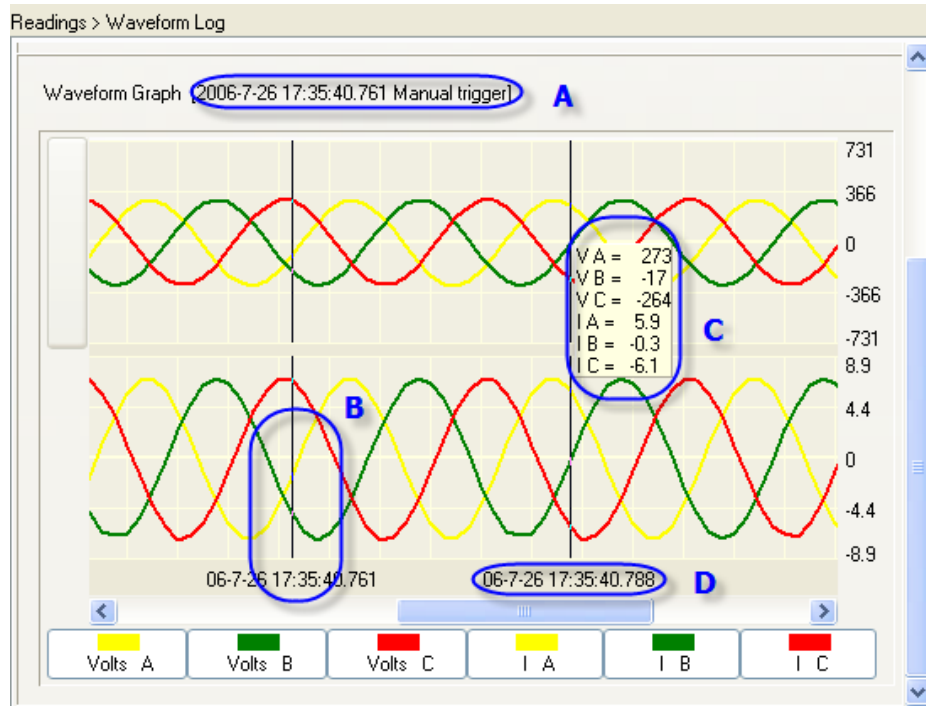


Figure 15: Waveform graph

11. Trending Log

You can read current trending data by clicking the **Retrieve Trending** button. It will draw a trending graph automatically after reading. Then click the **Save to File** button, and the data will be saved in an Excel file for later analysis.

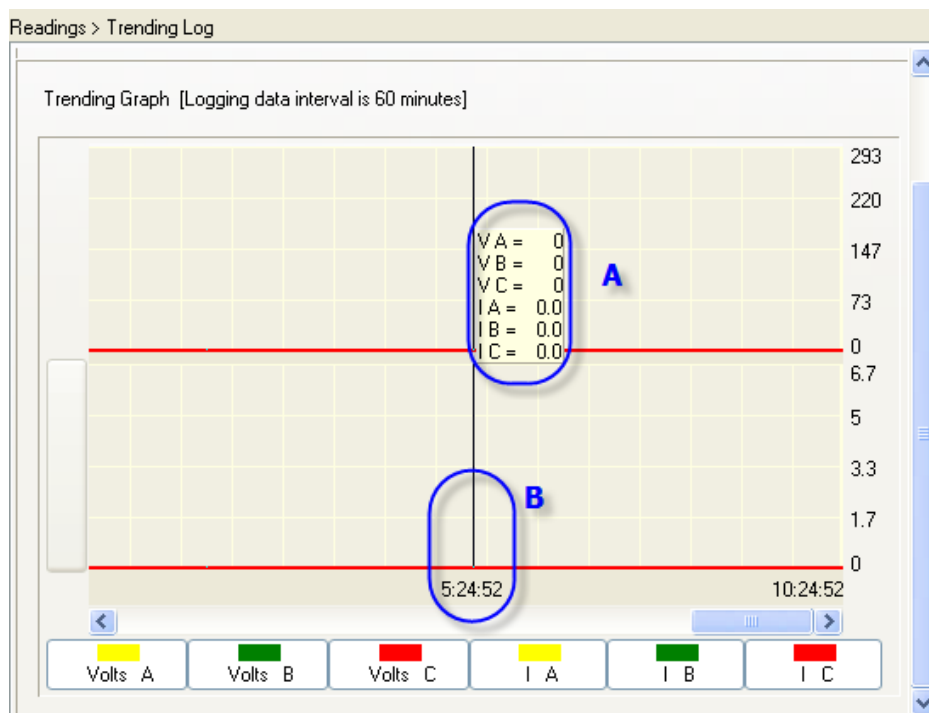


Figure 16: Trending graph

In typical trending as shown in figure 16, the following includes a description of all items:

A -- Logging data interval

B -- Movable time label

C -- Values on current time stamp

12. System Status

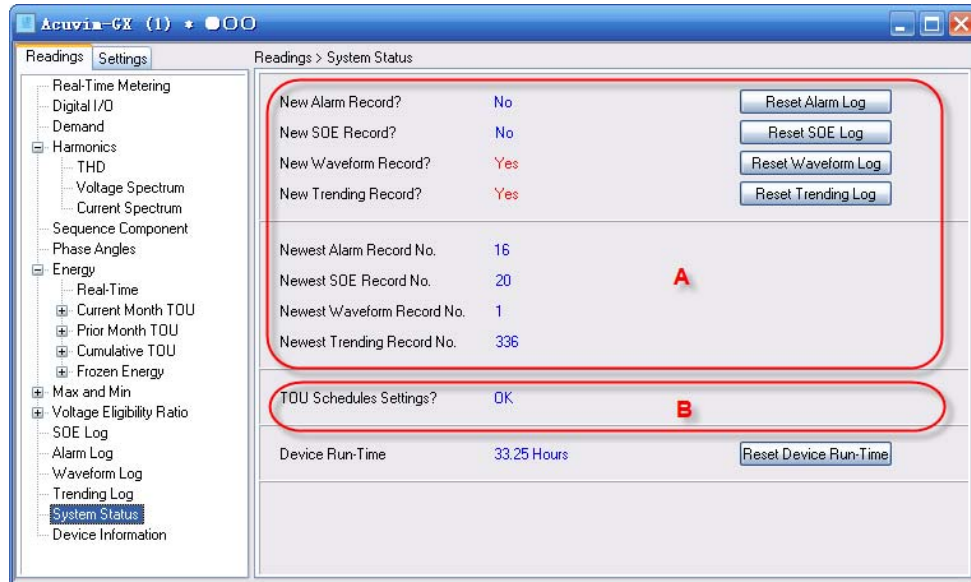


Figure 17: System status

As shown in figure 17, the following includes a description of all items:

A -- Important parameters used in reading data automatically

B -- Important feedback information used in TOU settings

Settings

1. Digital I/O

Don't forget to select the type of RO or DO when it is used as alarm output.

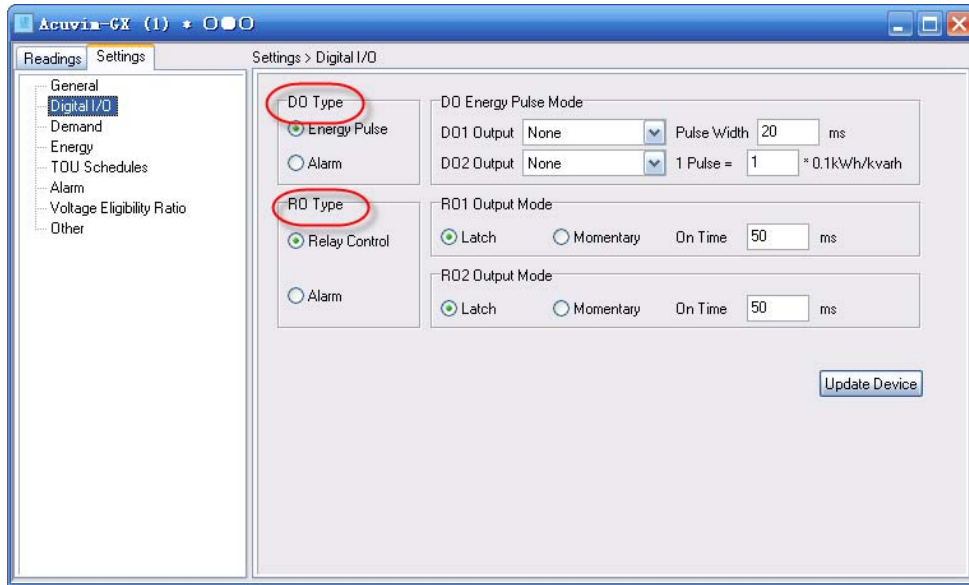


Figure 18: Digital I/O settings

2. Energy

Notice: When you click **Reset Real-Time Energy, Start Resetting TOU, Start Freezing** and **Restore TOU Schedules to Defaults** buttons, it will take effect at once without having to click the **Update Device** button.

3. Alarm

Notice: When you set the Set point of alarm limit, there is are no units for them. All units are displayed in Alarm Channel.

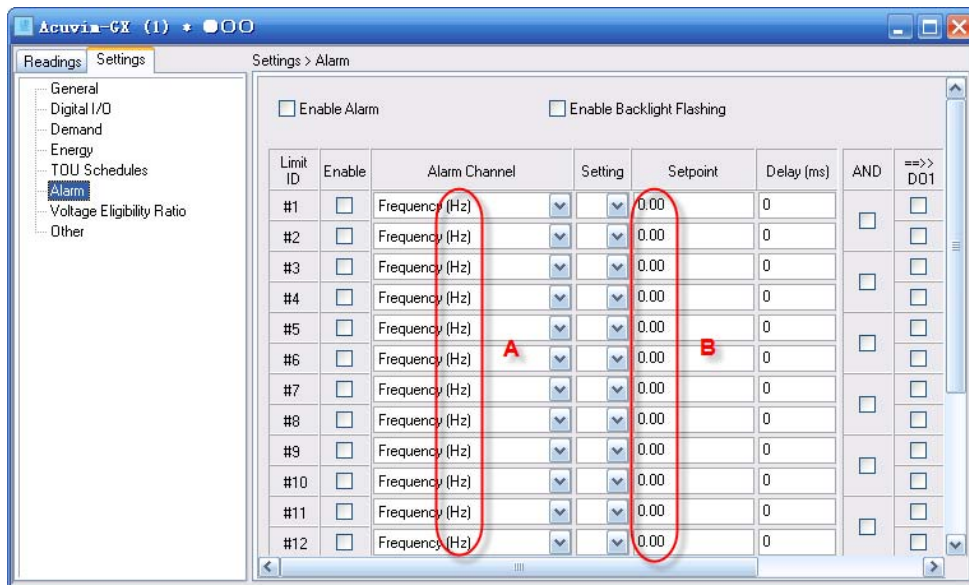


Figure 19: Alarm settings

As shown in figure 19, the following includes a description of all items:

A -- Unit of Alarm Channel

B -- Value without unit

4. Voltage Eligibility Ratio

Notice: When clicking **Start Resetting TPVER** and **Start Freezing TPVER** button, it will take effect at once without having to click the **Update Device** button.

Acuvim-L series

Here we introduce some of the functions of Acuvim-CL. In order to understand the software abilities, please ***thoroughly*** read the user's manual of the Acuvim-L series.

Readings

1. Voltage Spectrum, Current Spectrum

The A in figure 20 means there is no display when harmonics are 0%.

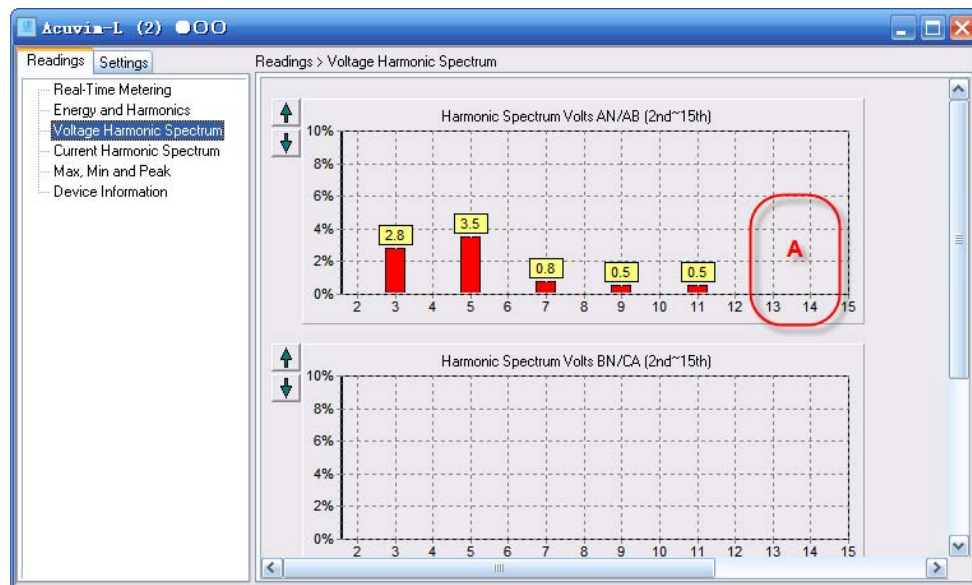


Figure 20: Voltage spectrum

2. Energy and Harmonics

You can modify the value of energy by clicking underlined characters with.

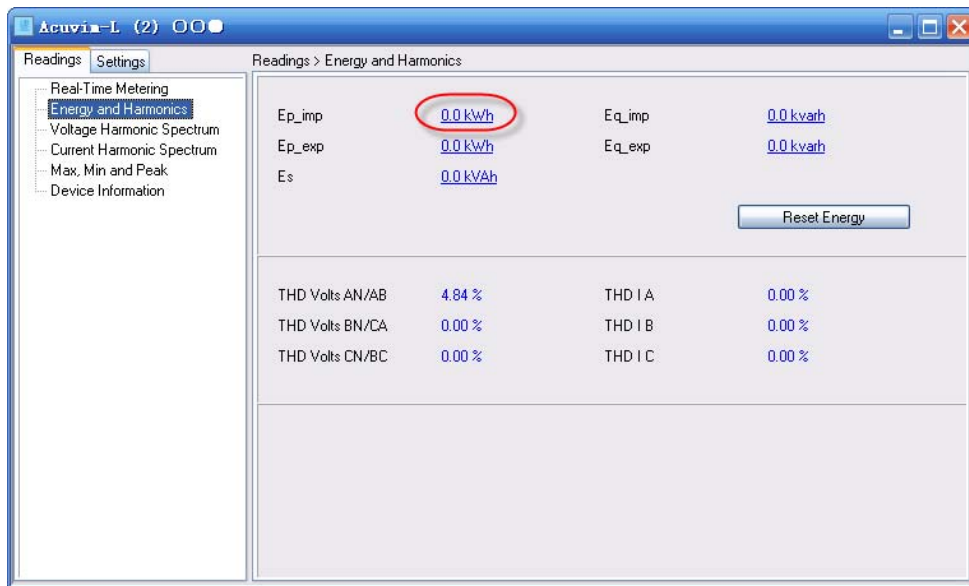


Figure 21: Energy and Harmonics

Acuvim II

Here we introduce some of the functions of the Acuvim II. In order to understand the software abilities, please ***thoroughly*** read the user's manual of the Acuvim II.

Readings

1. Energy

You can modify the value of energy by clicking underlined characters.

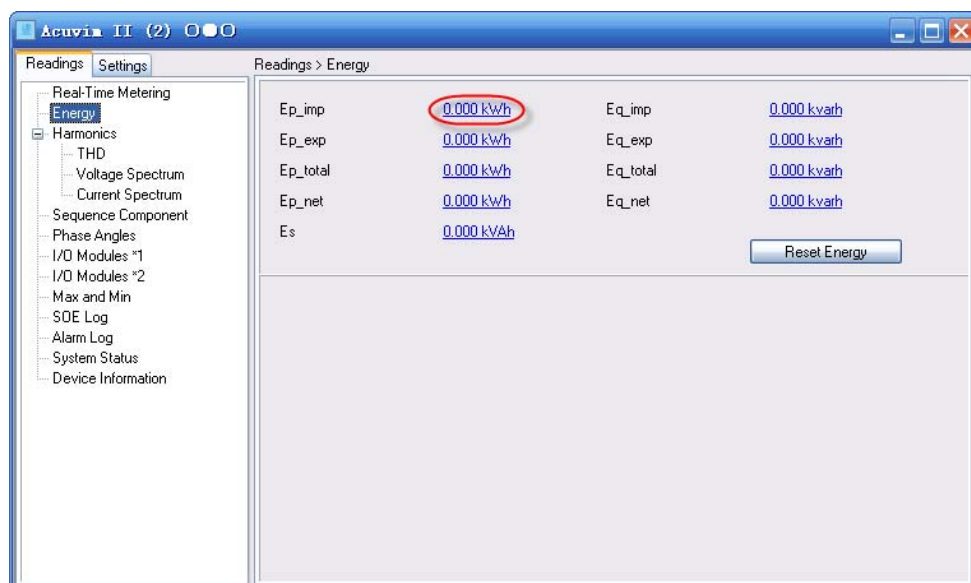


Figure 22: Energy

2. Voltage Spectrum, Current Spectrum

The A in figure 23 means there is no display when harmonics are 0%.

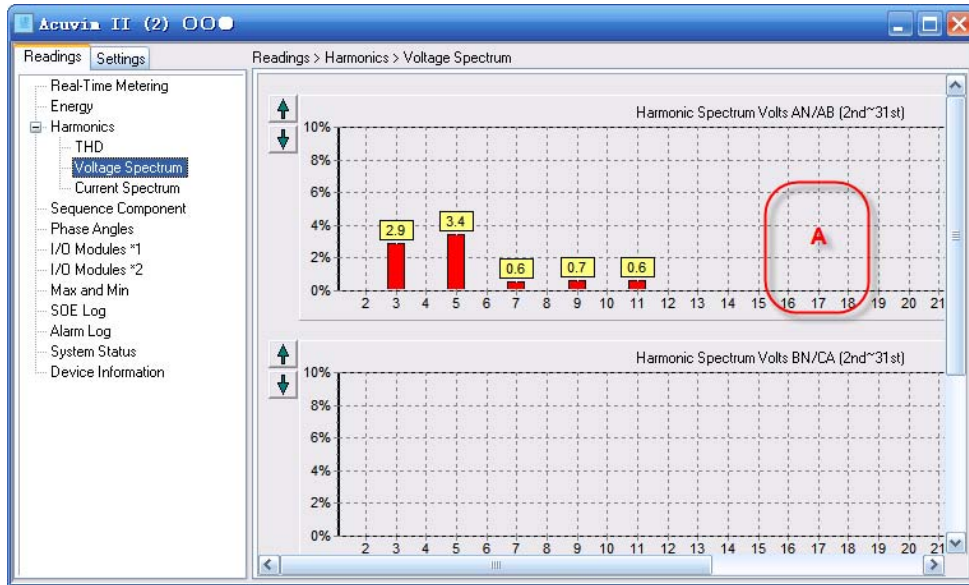


Figure 23: Voltage spectrum

3. Sequence Component

ϕ_{uaia} is the angle between I A and V A. The broken-line circle on the outside indicates 100% of full range.

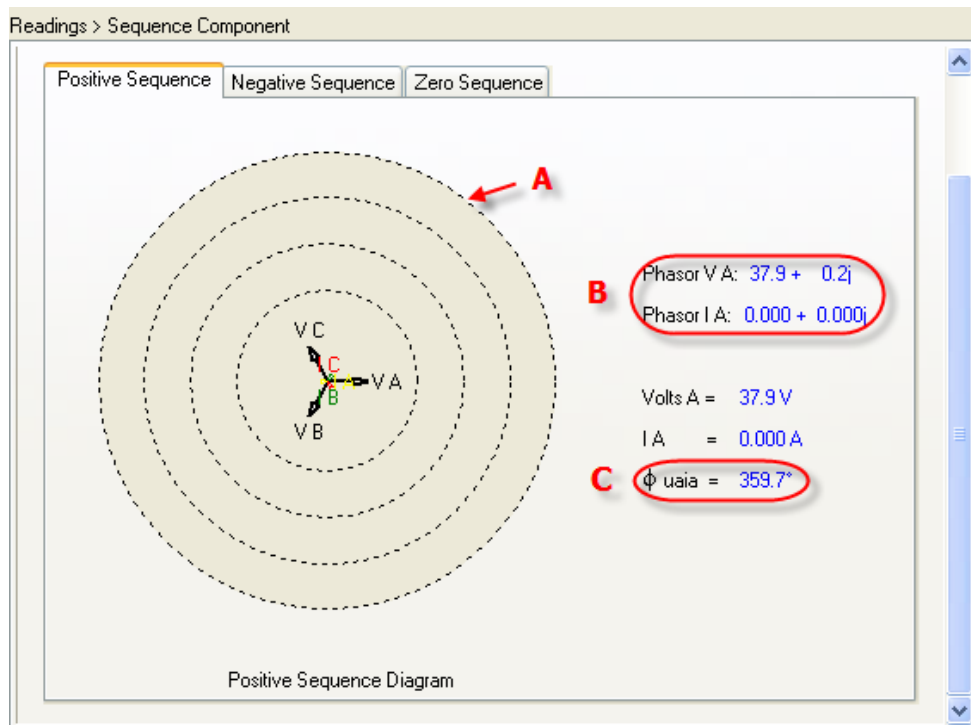


Figure 24: Positive sequence

As shown in Figure 24, the following includes a description of all items:

- A -- Full range indicator
- B -- Vector expression
- C -- Angle between I A and V A

4. I/O Modules

As shown in Figure 25, AO parameters are shown as real value, and AI parameters show as numerical value (range: 0~4095).

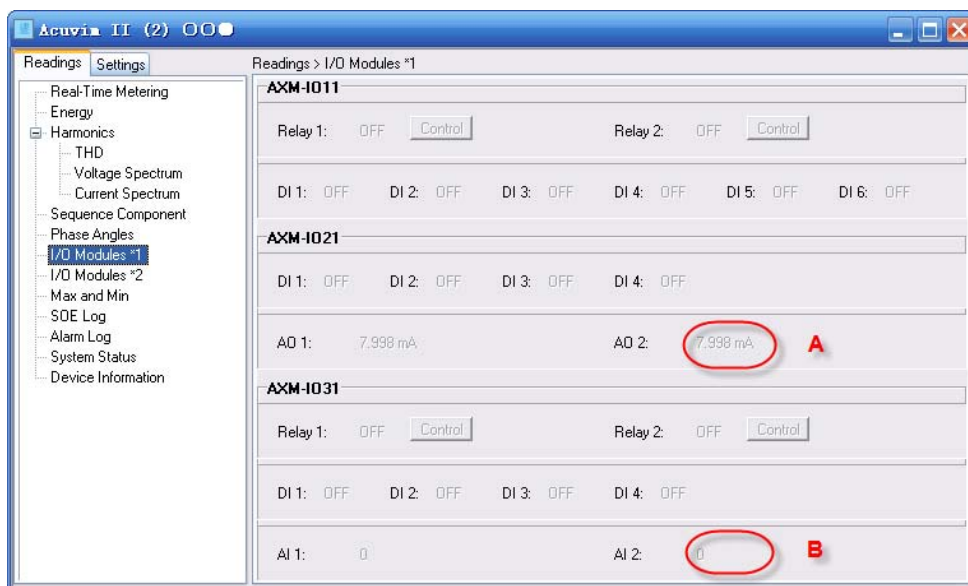


Figure 25: I/O Modules

Settings

1. Alarm

Notice: When you set the Set point of the alarm limit, there are no units for them. All units are displayed in the Alarm Channel.

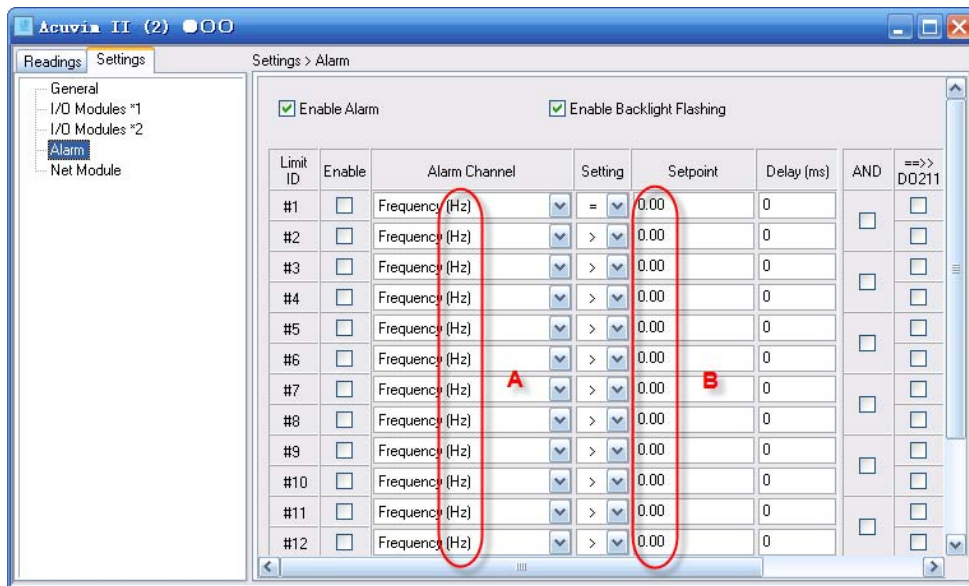


Figure 26: Alarm settings

As shown in figure 26, the following includes a description of all items:

A -- Unit of Alarm Channel

B -- Value without unit

Troubleshooting

1. Why is the drop-down list of the Com Port in Connection Settings dialog empty?

Answer: Because the program has not detected any available serial port, please check if there are any idle.

2. Why is there no new waveform in the list after I clicked Capture Waveform button?

Answer: Because the waveform buffer is full. Make sure that the current 5 waveforms are not being used, and clear them in the System Status page by clicking Reset Waveform Log button.

3. Why are there inconsistencies between the displaying value and the real value of voltage

and current?

Answer: This may be caused by incorrect settings of the PT and/or CT ratios, please check the General Settings page.

4. How can I know whether the settings of TOU are right and taking effect?

Answer: Firstly, check out whether the feedback information of TOU settings in the System Status page is correct. If correct, then check whether related TOU settings are enabled. Lastly, check whether there is any change in the Current Month TOU page.

5. Does Start Freezing mean to freeze at once?

Answer: Yes. But if you want to go back to Assign freeze mode after clicking the Start Freezing button, you have to set it again.

Installation

1. Installing

Double click setup file, follow the guide step by step.

2. Uninstalling

To remove this program from your system:

- a) Open the Windows Control Panel, double-click Add/Remove Programs.
- b) Find the application name in the list and select it.
- c) Follow the instructions in the Uninstall Wizard step by step.