

## Shark® 250 Meter Quickstart Guide



**CAUTION!** Installation of the Shark® 250 meter must be performed only by qualified personnel who follow standard safety precautions during all procedures. Those personnel should have appropriate training and experience with high voltage devices. Appropriate safety gloves, safety glasses and protective clothing are recommended.

During normal operation of the Shark® meter, dangerous voltages flow through many parts of the unit, including: Terminals and any connected CTs (Current Transformers) and PTs (Potential Transformers), all I/O Modules and their circuits. All Primary and Secondary circuits can, at times, produce lethal voltages and currents. Avoid contact with any current-carrying surfaces.

Do not use the meter or any I/O device for primary protection or in an energy-limiting capacity. The meter can only be used as secondary protection.

**IMPORTANT!** Refer to your meter's Installation and Operation Manual for additional safety warnings before performing installation, wiring, or maintenance of your meter. See the link to the manual, below.

**NOTE:** This Quickstart Guide gives basic installation, wiring, and programming instructions. For additional meter operation and programming information, refer to your meter's *Installation and Operation Manual* and the *Communicator PQA™*, *MeterManagerPQA™*, and *EnergyPQA.com™ Software User Manual* on EIG's website:

### User Manual:

<https://www.electroind.com/products/shark-250-power-and-energy-meter-for-utility-and-critical-industrial-substations/>  
From the webpage, click Technical Documents>User Manual.

### Software Manual:

<https://www.electroind.com/products/communicatorpqa-software-application-5/>  
From the webpage, click Technical Documents>User Manual.

### CommunicatorPQA™ Setup Software:

<https://www.electroind.com/products/communicatorpqa-software-application-5/>  
From the webpage, click Download CompQA Pro. To get a Professional license for the software, email sales@electroind.com or call 516-334-0870.

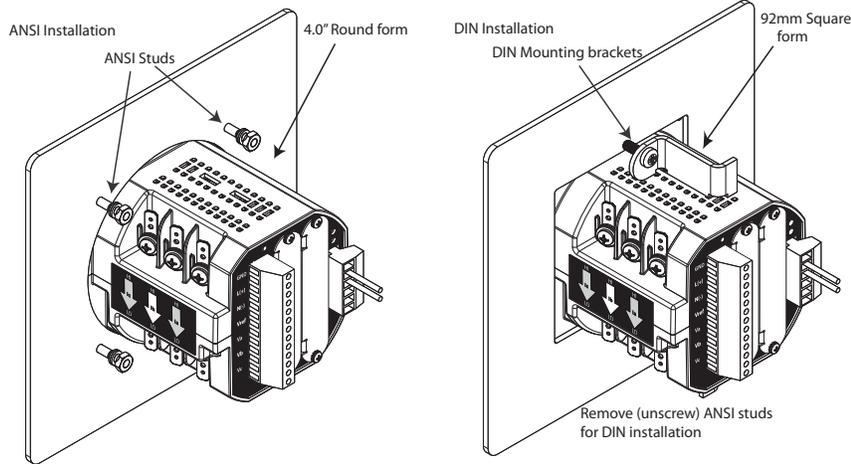
All EIG's metering and software products' literature can be accessed from:  
<https://www.electroind.com/all-products/>

For software and metering integration, EIG's Technical Support Engineers are available on an hourly or daily basis to help with typical commissioning assistance, which includes:

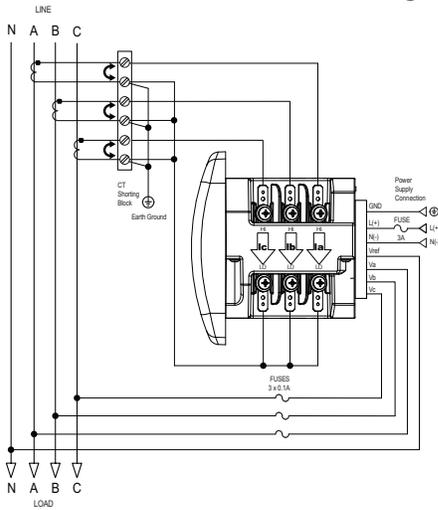
- Verifying meter installation and wiring.
- Verifying proper system integration.
- Working with 3rd parties to ensure cross compatibility.
- Advising users on best practices for optimal implementation.

You can reach Technical Support from 8 a.m. to 8 p.m. EST, Monday-Friday, at 516-334-0870.

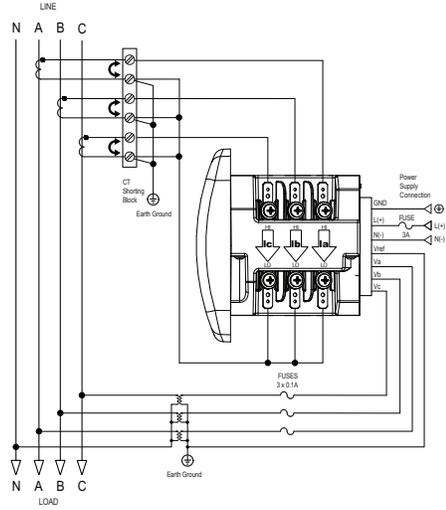
**Mechanical Installation NOTE:** Do not overtighten nuts. The maximum installation torque is 0.4 Newton-Meter.



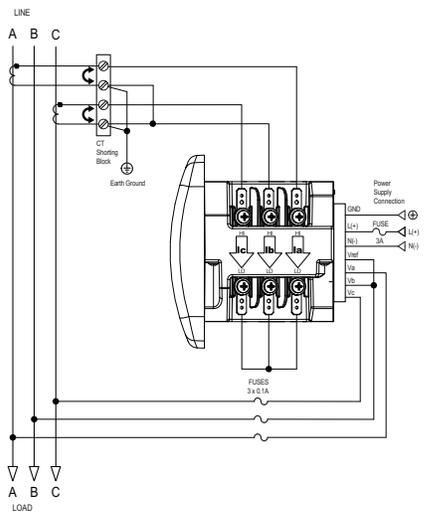
**Electrical Installation:** Select diagram for your application.



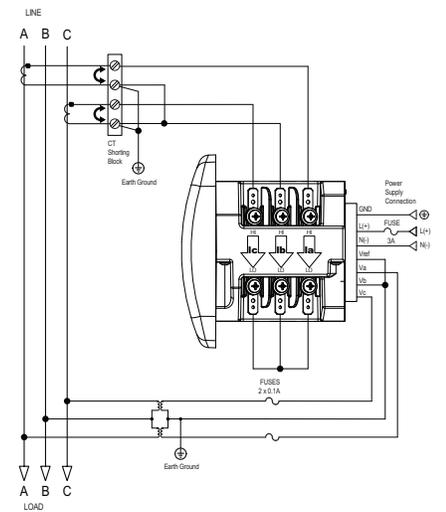
WYE direct, 3 phase, 4 wire



WYE with PTs, 3 phase, 4 wire



Delta direct, 3 phase, 3 wire



Delta with PTs, 3 phase, 3 wire

**NOTE:** Other wiring configurations are available. See the Shark 250 meter User Manual (see page QS-1 for the download link).

**Program Settings Using the Faceplate Buttons:  
(MENU, ENTER, DOWN ARROW, RIGHT ARROW)**

See the figure on the right for the location of the faceplate buttons.

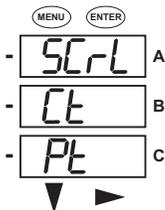


Access Configuration Mode:

1. Push the **MENU** button - you will see the display on the right; rSt will be blinking.



2. Press the **DOWN ARROW** once. CFG (Configuration) moves to the top of the display.

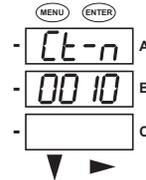


3. Press the **ENTER** button. You will see the Configuration menu, shown on the right.

4. Press the **DOWN ARROW** and then

press the **ENTER** button. You will see the CT numerator setting screen (Ct-n).

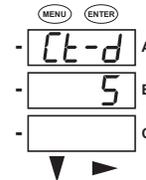
The current CT numerator is shown in the second line. To change the setting, press the **DOWN ARROW** until the value you want is displayed. Then press the **RIGHT ARROW** to move to the next digit. Repeat until the setting is done.



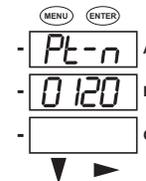
5. Press the **ENTER** button to go to the CT denominator screen (CT-d). This setting is display only - it can't be changed.

**Example:** 2,000/5 Amps: Set the Ct-n value for 2000.

**NOTE:** Ct-n is dictated by primary current; Ct-d is secondary current.



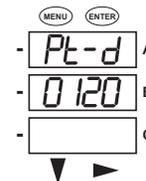
6. Press the **ENTER** button to go to the PT numerator setting screen (Pt-n). The current PT numerator is shown in the second line. To change the setting, press the **DOWN ARROW** until the value you want is displayed. Then press the **RIGHT ARROW** to move to the next digit. Repeat until the setting is done.



7. Press the **ENTER** button to go to the PT-denominator screen (Pt-d). The current PT denominator is shown in the second line. To change the setting, press the **DOWN ARROW** until the value you want is displayed. Then press the **RIGHT ARROW** to move to the next digit. Repeat until the setting is done.

**Example:** 277/277 Volts: Pt-n value is 277, Pt-d value is 277.

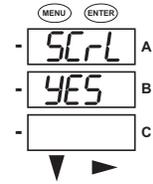
**NOTE:** Pt-n is dictated by primary voltage; Pt-d is secondary voltage.



8. Press the **ENTER** button to go to the Connection setting screen (Cnct). The current setting is shown in the second line. Press the **DOWN ARROW** to choose another value. You can choose 3 EL (element) WYE, 2 Ct del (Delta), or 2.5 EL WYE.



9. Press the **ENTER** button to go to the Scroll setting screen (SCrL). The current setting is shown in the second line. Press the **DOWN ARROW** to choose another setting. You can choose YES (the meter readings will scroll on the display) or no (the meter readings will not scroll on the display).



10. Press the **MENU** button twice. You will see the Store Settings screen (Stor ALL?). The default setting is YES. To save the settings you've made, press the **ENTER** button. You will see the confirmation screen (Stor ALL done) and then the meter resets.



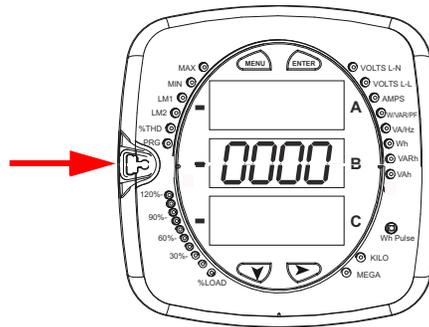
**NOTE:** If you do not want to save your settings, press the **RIGHT ARROW**. YES changes to no. Press the **ENTER** button.

For additional programming instructions for the faceplate buttons, see Chapter 2 in the *Shark® 250/250T Meter Installation and Operation Manual*.



**Connect to the Meter through the USB Port:**

The Shark® 250 meter has a standard USB port that makes connection between the meter and a laptop PC very simple.

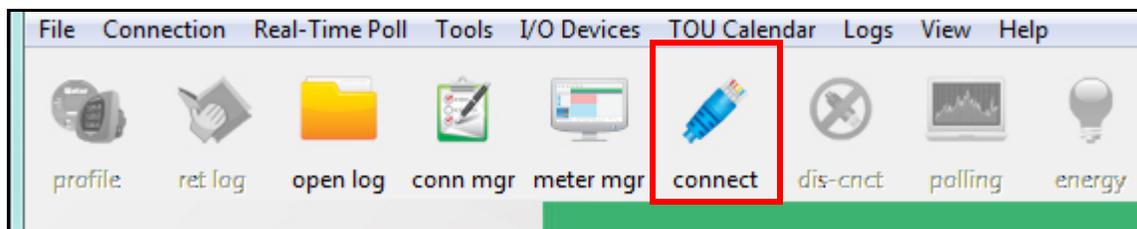


Follow these steps:

1. Connect the meter to the PC, using the USB cable.  
The meter's connection uses a USB mini-B plug. For your convenience, EIG offers a USB-Type A plug to USB mini-B plug cable (part number CAB26522) that can be ordered directly from directly from EIG's webstore: <https://electroind.com/shop/>.

2. Open CommunicatorPQA™ software (see page QS-1 for the download link).

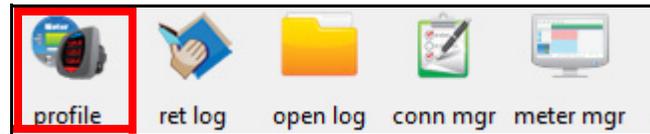
3. Click **Connect** in the Icon Bar.



4. You will see the Connect screen. The default settings are shown in the following example screen.

- a. Click the Serial Port button.
- b. Enter the Device Address (can be from 1-247).
- c. Select the Baud Rate of 57600.
- d. Click the Available Ports button.
- e. Select the USB Com port.
- f. Select Modbus ASCII protocol.
- g. Keep Flow Control, Echo Mode, and Parity as is shown here.
- h. Click Connect.

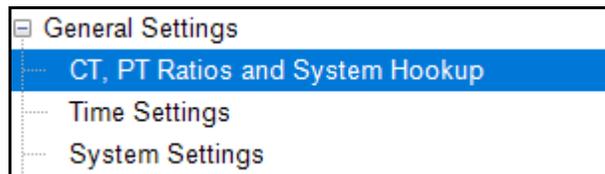
5. The Device Status screen opens, displaying information about the meter.
6. Click OK to close the Device Status screen, and then click the Profile icon in the Icon Bar.
7. The meter's Device Profile screen opens, giving you access to the programmable settings for the meter.



**NOTE:** A few basic settings are explained here. Refer to the *Shark® 250 Meter Installation and Operation Manual* and the *CommunicatorPQA™, MeterManagerPQA™, and EnergyPQA.com™ Software User Manual* (see page QS-1). You can also view the software manual by clicking Help>Contents from the top of the CommunicatorPQA™ software's Main screen.

#### Program CT, PT Ratios:

1. The first Device Profile screen is the CT, PT Ratios and System Hookup. If you were on another settings screen, click General Settings>CT, PT Ratios and System Hookup from the left side of the Device Profile screen.



2. These are the screen settings:

- a. CT Ratio, enter:
  - Primary (CT Numerator): 1 - 9999
  - Secondary (CT Denominator): 5 or 1 A
- b. PT Ratio, enter:
  - Primary (PT Numerator): 1 - 9999
  - Secondary (PT Denominator): 1 - 9999

**Example Settings:**

For a CT of 2000/5 A, set the following CT Ratios in the entry fields:

CT Numerator (Primary) 2000

CT Denominator (Secondary) 5

The Current Full Scale field will read 2000.

For a system that has 14400 V primary with a 120 V secondary line to neutral (PT Ratio of 120:1), set the following PT Ratios in the entry fields:

PT Numerator (Primary) 1440

PT Denominator (Secondary) 120

The Voltage Full Scale field will read 1440.

- c. System Wiring, select from pull-down menu:
  - 3 Element Wye; 2.5 Element Wye; 2 CT Delta
 This value must be set properly for the meter to calculate readings correctly.

- d. Use the Minimum Voltage Threshold box to enter the minimum voltage threshold, which is a percentage of the voltage full scale. This setting adjusts the pick up threshold for the voltage. You set a percentage of the PT primary (PT numerator X PT multiplier) up to 12.7 in the entry field, to configure when the meter will start reading values above 0 voltage.

- e. Total Demand Distortion (TDD Setting): This setting of the Device Profile allows you to set the maximum value for current, which is used for the TDD (Total Demand Distortion) calculation. TDD is an index used to measure harmonics. In this field enter the maximum load current for TDD. To disable TDD, enter 0 in the field.

- f. CT Reversal Phase Enables: Use this setting to enable CT reversal for any phase. This feature is useful if a CT is wired the wrong way and you do not want to (or cannot) change the wiring. This setting is only available for a three element WYE hookup. For any other hookup, this setting will be ignored.

**CT, PT Ratios and System Hookup**

	Primary	Secondary
CT Ratio	1	1
PT Ratio	120	120

CT Ratio: Select 5 Amp secondary for a Class 10 meter and 1 Amp secondary for a Class 2 meter.

System Wiring	Full Scales
3 Element Wye	Voltage: 120
	Current: 1
	Power: 120
	Power Total: 360

Minimum Voltage Threshold
Minimum Primary Voltage: 4.92

Total Demand Distortion (TDD) (Setting the value to zero will disable TDD)

Maximum Load Current: 5

CT Phase Reversal (Configure phases which are reversed)

A [Not Reversed] B [Not Reversed] C [Not Reversed]

**Program Communications Setting:**

1. From the Device Profile screen, click General Settings>Communications.
2. The settings shown are the default settings, Change them, if necessary, for your application.

The screenshot shows a software window titled "Communications" with a green header. It contains two configuration panels. The first panel, "COM1 (USB)", has the following settings: Address (1), Protocol (Modbus ASCII), Baud Rate (57600), Response Delay (0 milliseconds), and Parity (None). The second panel, "COM2 (RS-485)", has the following settings: Address (1), Protocol (Modbus RTU), Baud Rate (57600), Response Delay (0 milliseconds), and Parity (None).

**Program Meter Time:** The meter is preset to Eastern time. To change the meter time:

1. From the Main screen's Title bar, click Tools>Set Device Time.
2. You can either enter the time in the Time fields, or click Use PC Time to set the time using your PC's time.
3. Click Send.

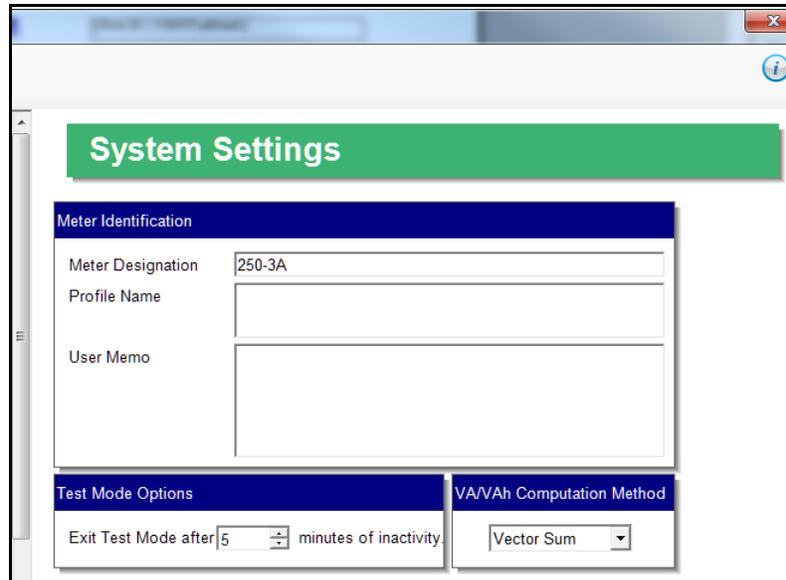
The screenshot shows a dialog box titled "Set Device On-Board Clock". It has two rows of input fields. The first row is for the "Date" with fields for Month (06), Day (19), and Year (2020). The second row is for the "Time" with fields for Hour (16), Minute (20), and Second (18). Below these fields is a checked checkbox labeled "Use PC Time". At the bottom of the dialog are two buttons: "Send" and "Cancel".

**NOTE:** The meter offers multiple Time Synchronization methods. See Chapter 28, Section 28.1.3 in the software manual (see page QS-1; alternatively, you can click Help>Contents from the Main screen to open the manual) for instructions on setting up Time Sync for the meter.

**Program Meter Name:**

To enter an name/ID for the meter:

1. From the Device Profile screen, double-click General Settings>System Settings.



2. Input a new meter designation into the field. Note that it is important to name each meter individually, since the meter name is used to name the log databases when logs are downloaded. See Chapter 28 in the software manual for an explanation of the other settings in this screen.

**IMPORTANT!** When you have made changes to the meter's Device Profile, click Update Device at the top left of the Device Profile screen's Icon Bar, to send the new settings to the meter. The meter will reboot and then you can reconnect to it.



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