PowerLogic™ HDPM6000 HMI Display

User Guide

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www.se.com

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Safety Information

Important information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates an hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

Notice is used to address practices not related to physical injury.

Please note

Electrical equipment should be installed, operated, serviced and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

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Mounting the Display

NOTICE

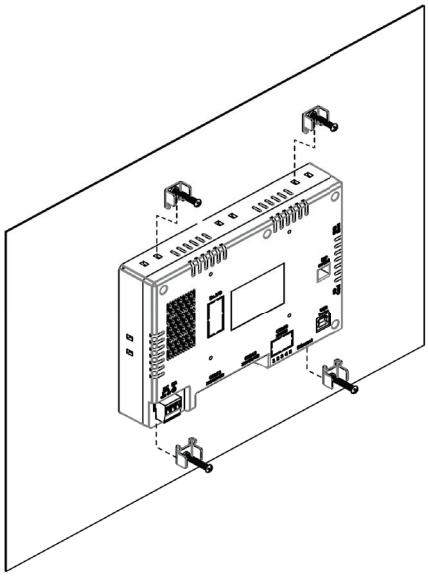
HMI MOUNTING

- Tighten all mounting clip screws evenly instead of tightening each screw one by one.
- The recommended torque for fastening the mounting clip screws is 4 ± 1 kgf·cm (or 0.39 ± 0.1 Nm)

Failure to follow this instruction can result in physical distortion damage to the HMI case.

The HMI display includes hardware to be front-mounted to a panel. Detailed instructions for installation can be found in the Setup Manual included with the display.

The figure below shows the screw clip positions to use on the HMI display case to mount the display to a panel.



Wiring Instructions

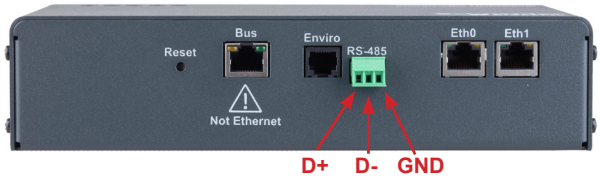
NOTICE

POWER REQUIREMENTS

- Use a Class 2 rated 24VDC power supply that can supply at least 0.42A.

Failure to follow this instruction can result in equipment damage.

1. Connect a communications cable between the HDPM6000 head unit's RS-485 port and the HMI using Belden 3106A cable or equivalent. The HMI RS-485 serial port is configured for a baud rate of 115200. The RS-485 Speed setting on the head unit should be set to 115200 baud.



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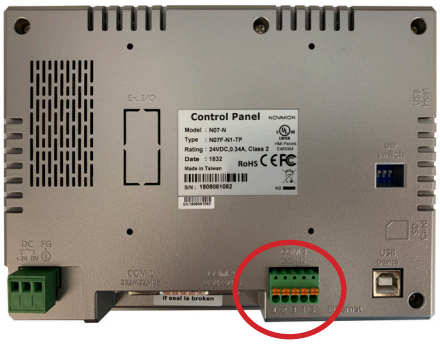
Wiring Instructions (cont.)

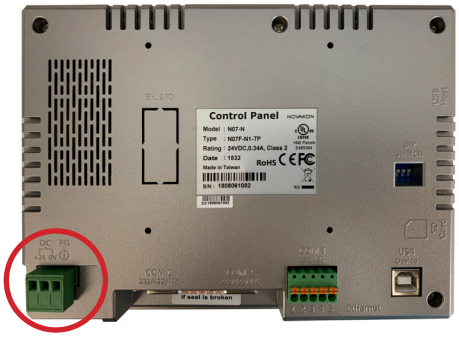
a. Connect the orange/white stripe conductor to the D+ output of the HDPM6000 RS485 port (left terminal), the white/orange stripe conductor to the D- output (middle terminal), and the blue/white stripe conductor to the GND terminal (right).

b. The other end of the communications cable connects to the COM3 terminal block on the rear of the display.
Connect D+ (orange/white stripe) to position 1, D- (white/orange stripe) to position 4, and GND (blue/white strips) to position 5.



c. Add a 120 ohm,0.5W termination resistor at both ends of the RS-485 line. A resistor should be connected between the D+ and D- lines at the HMI end of the RS-485 line and the final HDPM head unit on the RS-485 line.

2. Connect 24VDC to the HMI power terminal plug using 28-12AWG solid or 30-12AWG stranded wire. Strip insulation 7-8mm, insert conductors according to the marking on the display (from left to right, +24V, 0V, ground). Tighten terminal screws to 4.5 lb-inch (0.5084 Nm) of torque.



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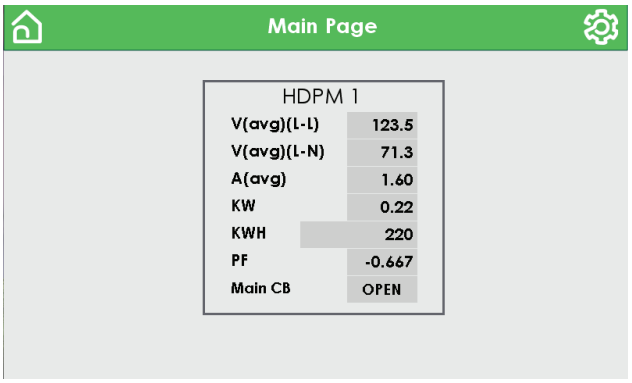
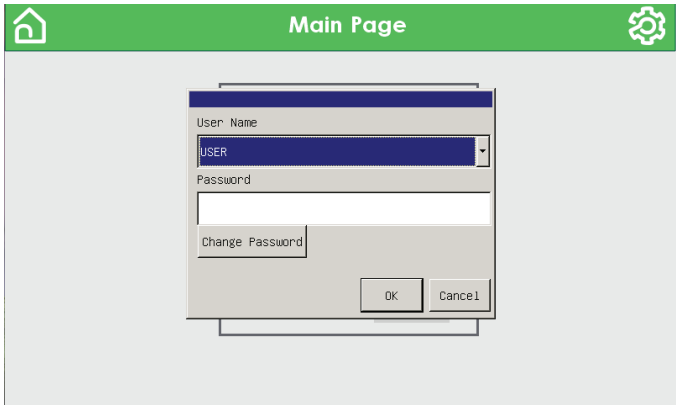
Display Set-Up and Navigation

1. Select the gear icon on the Main page (upper right corner in the blue header bar) to log into the Devices Setup page.



NOTICE
UNAUTHORIZED SYSTEM ACCESS • Default account settings are often the source of unauthorized access by malicious users. If you do not change the default passwords, unauthorized access can occur. Change the default passwords to help reduce this risk. **Failure to follow this instruction can result in compromised data.**

2. The screen below will appear. The user name is 'USER'. For first time access, change the default password by selecting the **Change Password** button and entering the default password 'adminpass' and a new complex password.



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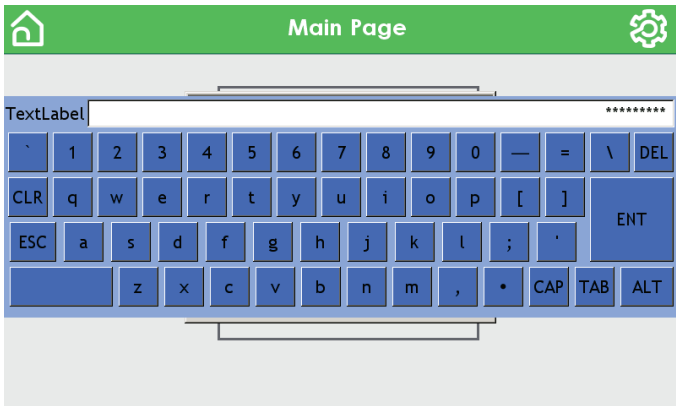
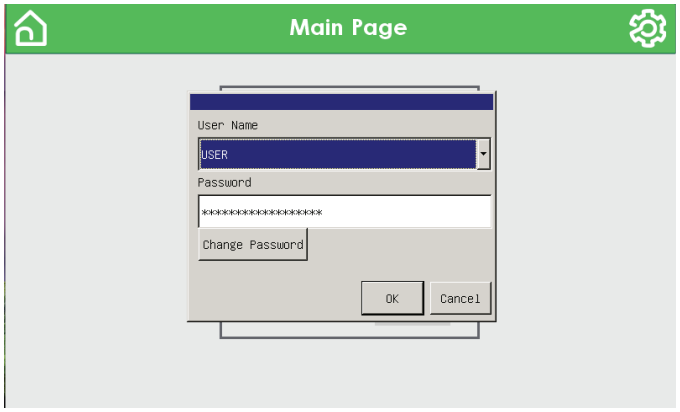
Display Set-Up and Navigation (cont.)

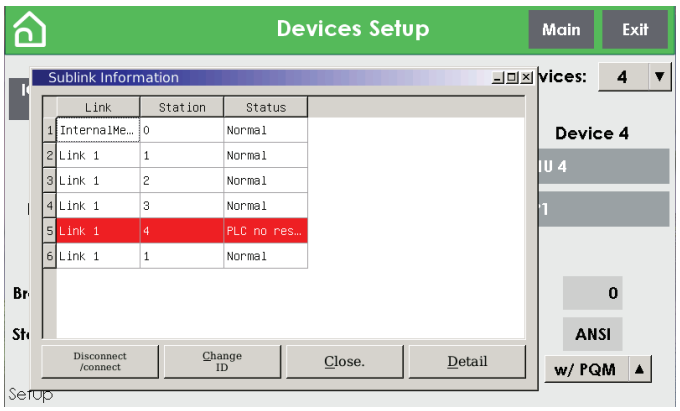
3. Touch the **Password** box to enter the password.
4. The screen below will appear.
5. Select **CAP** for lower case letters. Enter the password and press **ENT**.



6. The screen below will appear after the password has been entered. Select **OK**.



7. The screen below shows other Modbus addresses for additional meters. Up to four meters can communicate to one display. To connect the additional addresses, follow the steps below.



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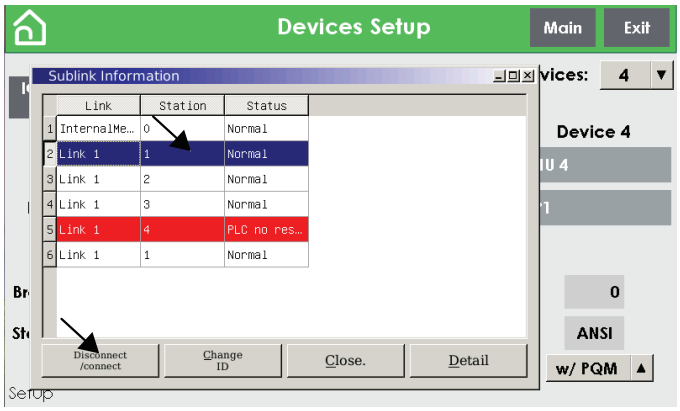
Display Set-Up and Navigation (cont.)

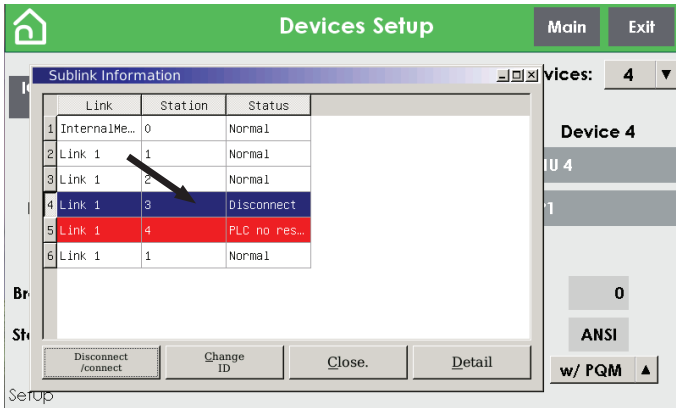
Notes:

(1,2,6) Link-1 Station-1 is for Modbus address 1 (first meter)
(3) Link-1 Station-2 is for Modbus address 2 (second meter)
(4) Link-1 Station-3 is for Modbus address 3 (third meter)
(5) Link-1 Station-4 is for Modbus address 5 (fourth meter)

8. To connect or disconnect, touch the line once and wait for the line to change to the blue highlight color. Once the line is blue, select the **Disconnect/Connect** button in the lower left corner (note: select only once).



9. The screen below shows the HDPM head unit with Modbus address 3 (or Station 3) disconnected.



10. Press **Close** to exit the Sublink Information popup.

11. On the Devices Setup screen, you can preset the Device Name and Panel Name that will appear on the main screens.

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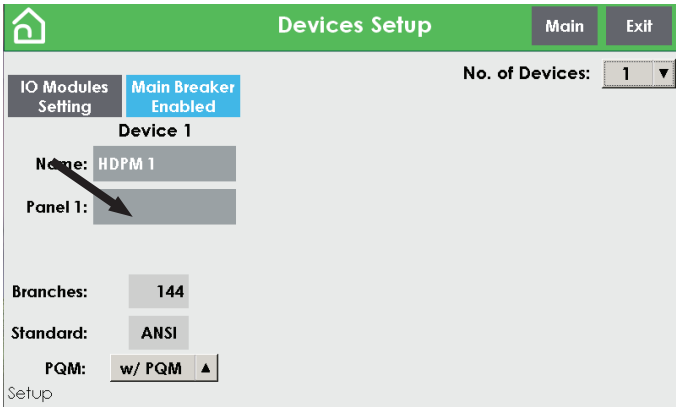
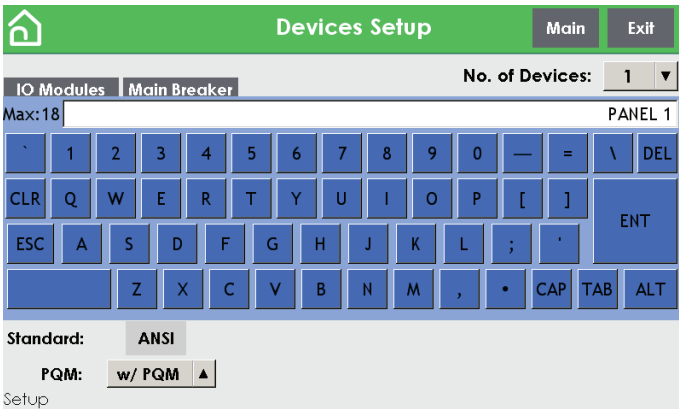
Display Set-Up and Navigation (cont.)

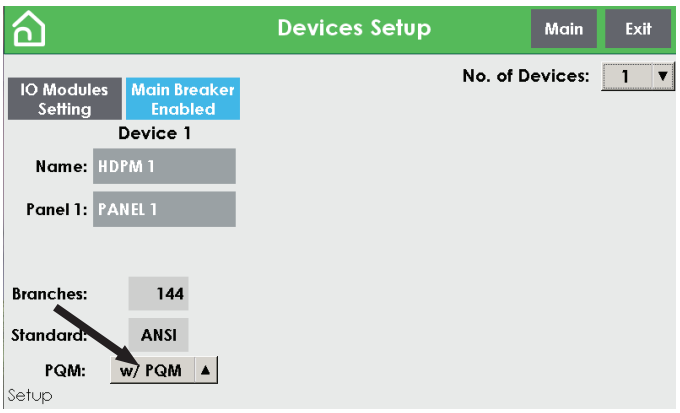
12. Touch the box to enter the Device Name and/or the Panel Name.



13. Enter the Device Name and/or Panel Name and select **ENT**.



14. Configure whether head unit main circuit (PQM), branch circuits, or both are displayed using the "PQM" dropdown box.
    - w/PQM: Head unit and branch circuits
    - No/PQM: Branch circuits only
    - PQM Only: Head unit main circuit



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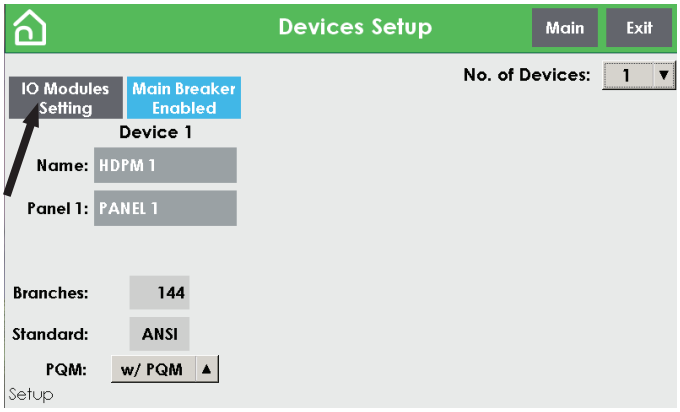
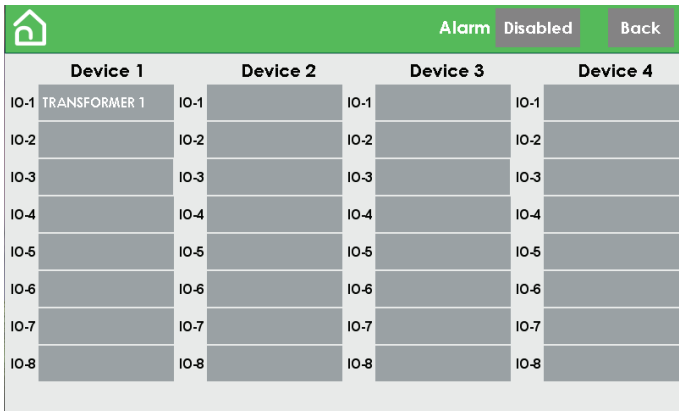
Display Set-Up and Navigation (cont.)

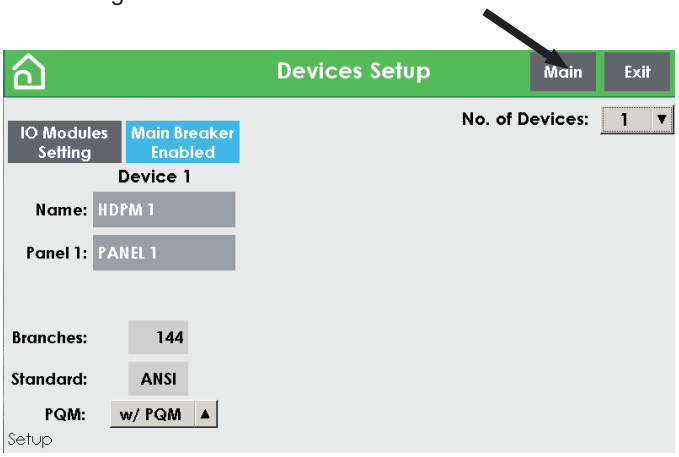
15. Select **IO Modules Setting** to assign names to any I/O modules attached to the head unit bus.



16. Press on the field for each attached I/O module, enter a name in the keyboard and press **ENT**. Each Device column on the screen represents 1 of 4 possible HDPM head units that can be connected to the HMI display. Each head unit may have up to 8 I/O modules attached to the head unit bus. Select **Back** to return to the Devices Setup screen.



17. Select **Main** in the upper right hand corner to return to the Main screen. Select **Exit** to exit the HDPM HMI application and navigate to the factory HMI settings screen.



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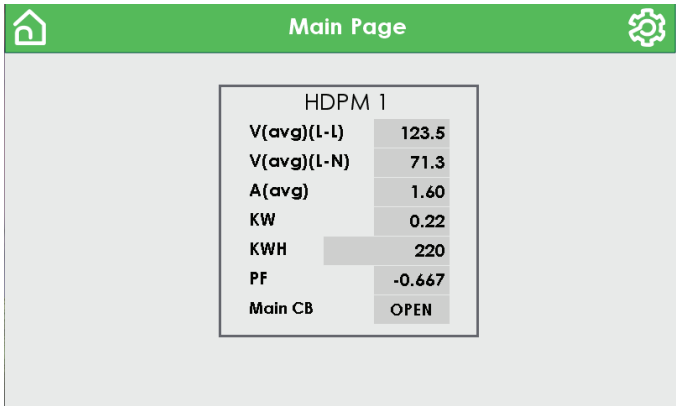
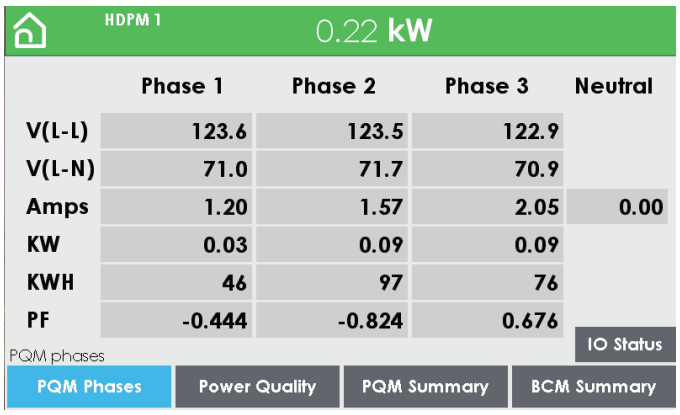
Display Set-Up and Navigation (cont.)

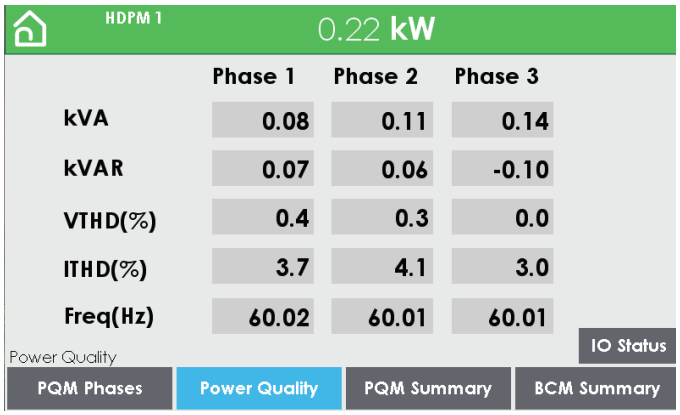
18. From the Main screen, touch the center of the screen to view the head unit (PQM) data pages.



19. Use the PQM Phases screen to view mains voltage, current, power, energy and power factor.



20. Use the Power Quality screen to view mains apparent power, reactive power, frequency, and voltage and current total harmonic distortion (THD) per phase.



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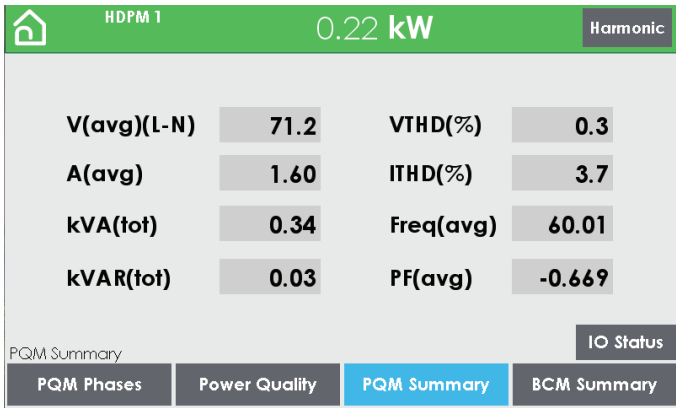
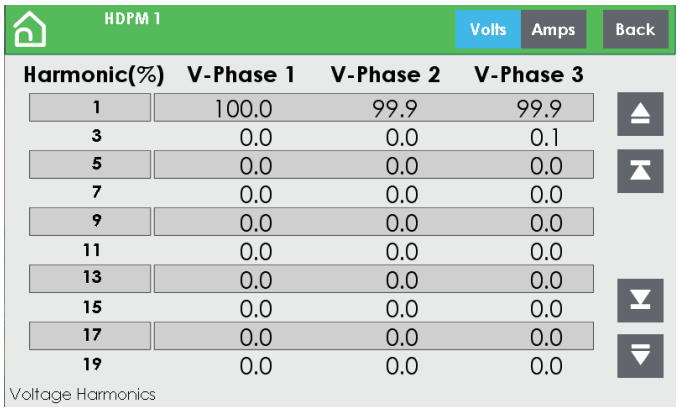
Display Set-Up and Navigation (cont.)

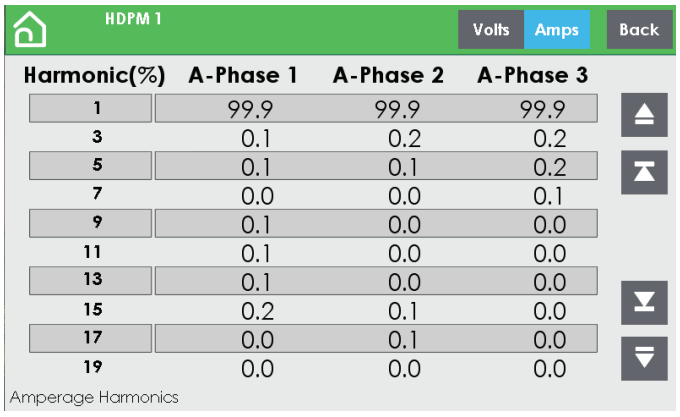
21. Use the PQM Summary screen to view averages and totals for the main circuit.



22. Press the **Harmonic** button in the upper right corner to see the voltage harmonic magnitudes for each phase.



23. Current harmonic magnitudes can be shown by pressing the **Amps** button at the top of the Voltage Harmonics view.



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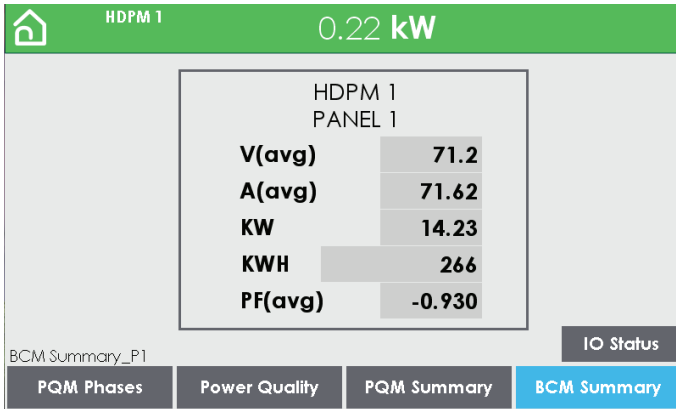
Display Set-Up and Navigation (cont.)

24. Use the BCM Summary screen to view branch circuit voltage, current, power, energy and average power factor. Note that pressing the **BCM Summary** button will not navigate to the BCM Summary screen if the PQM display mode is set to 'PQM Only'.

25. Touch the center of the screen to view data for each branch channel.



26. The Branch Channel screen provides voltage, current, power, energy and power factor for each channel. If the HDPM head unit is configured in ANSI mode, either odd numbered or even numbered branch circuits will be shown on the screen for HDPM6000S or HDPM6000R branch circuit modules. Viewing odd or even number channels can be toggled by pressing the **Odds** and **Evens** buttons at the top of the screen.

Ch	Volts	A(rms)	Watts	PF	kWh
1	71.0	0.00	0	0.000	0
3	71.7	0.00	0	0.000	0
5	71.0	2.49	175	-0.995	2
7	71.0	0.00	0	0.000	0
9	71.7	0.00	0	0.000	0
11	71.0	0.00	0	0.000	0
13	71.0	0.00	0	0.000	0
15	71.7	0.00	0	0.000	0
17	71.0	0.00	0	0.000	0
19	71.0	0.00	0	0.000	2

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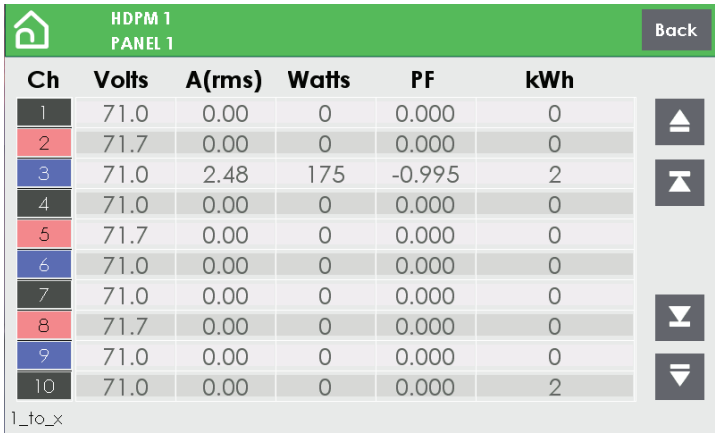
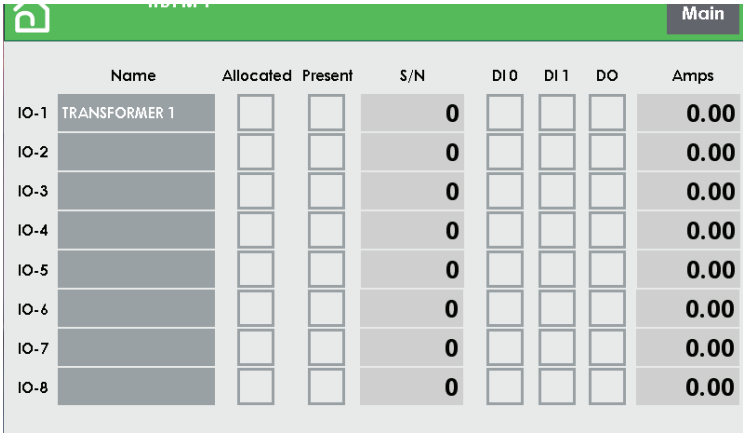
Display Set-Up and Navigation (cont.)

27. If the HDPM head unit is configured in IEC mode, the branch circuits will be shown on the screen in sequential order for HDPM6000S, HDPM6000R, or HDPM6000B branch circuit modules.



Ch	Volts	A(rms)	Watts	PF	kWh
1	71.0	0.00	0	0.000	0
2	71.7	0.00	0	0.000	0
3	71.0	2.48	175	-0.995	2
4	71.0	0.00	0	0.000	0
5	71.7	0.00	0	0.000	0
6	71.0	0.00	0	0.000	0
7	71.0	0.00	0	0.000	0
8	71.7	0.00	0	0.000	0
9	71.0	0.00	0	0.000	0
10	71.0	0.00	0	0.000	2

28. From the BCM Summary screen, if any I/O modules are attached, press the IO Status button to view digital input (DI) states, output relay (DO) state, and CT input current.



	Name	Allocated	Present	S/N	DI 0	DI 1	DO	Amps
IO-1	TRANSFORMER 1			0				0.00
IO-2				0				0.00
IO-3				0				0.00
IO-4				0				0.00
IO-5				0				0.00
IO-6				0				0.00
IO-7				0				0.00
IO-8				0				0.00

29. The Main CB (main circuit breaker) status box appears at the bottom of the HDPM device 1 group of measurements if the Main Breaker setting is enabled (see Step 12). This status box reads the open/closed states of digital inputs DI 0 and DI 1 on an I/O Module connected to the HDPM head unit (and configured to use the first allocation slot on the head unit). The Main CB states and their associated DI 0 and DI1 states are shown in the table below.

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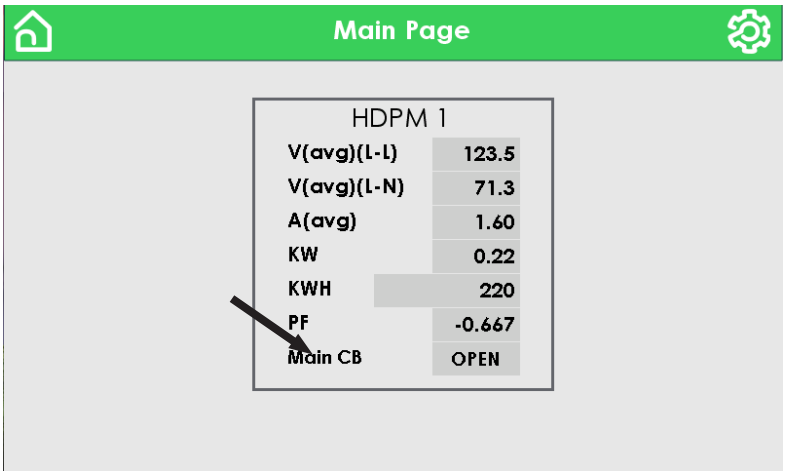
Display Set-Up and Navigation (cont.)

Main CB	DI 1 Input	DI 0 Input
OPEN	open	open
CLOSED	open	closed
TRIPPED	closed	open
INVALID	closed	closed
No I/O	I/O module disconnected	



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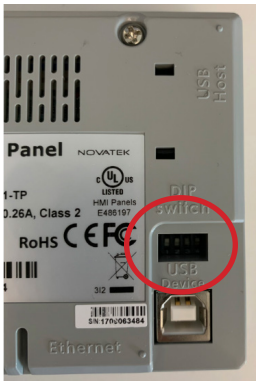
Display Firmware Installation

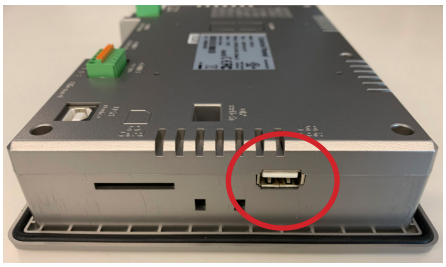
NOTICE
NON FUNCTIONAL DEVICE • Do not interrupt the power (24 VDC) to the HMI during a firmware or application upgrade. **Failure to follow this instruction can result in a non-functional device that may not be recoverable.**

The HMI display executes a combination of firmware (to control low-level functions) and application software (to read data from the HDPM head unit and display the user interface). Follow the steps below to update the HMI firmware and application software. As described by these steps, the firmware should be upgraded first, then the application software.

1. Disconnect power from the local display.
2. Place DIP switches 3 and 4 in the OFF position in the location shown below. DIP switches 1 and 2 should be in the upward position and DIP switches 3 and 4 should be in the downward position.



3. Save the new firmware and application files onto a USB drive. Note that the USB drive needs to be formatted using FAT32 for the HMI to read firmware and application files from the USB drive.
4. The USB port is located on the right side looking at the back of the display.



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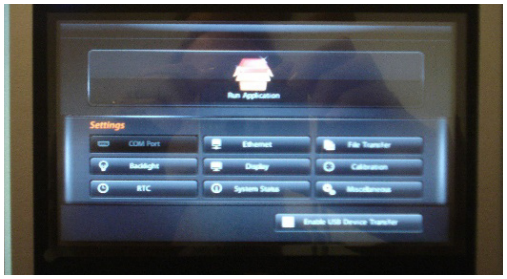
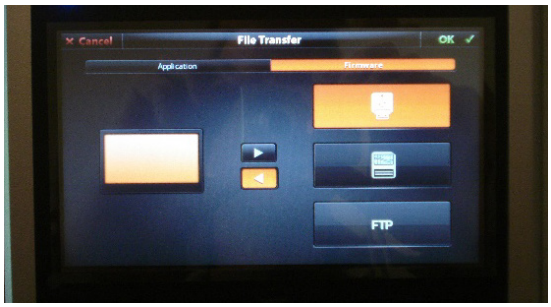
Display Firmware Installation (cont.)

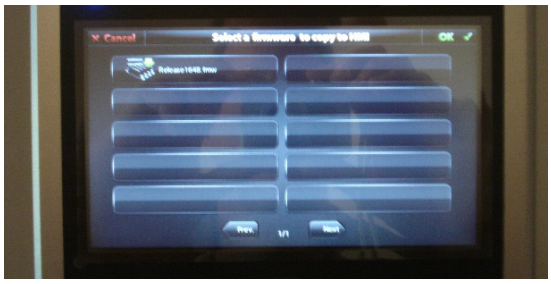
5. Insert the USB drive into the USB port.
6. Restore power to the local display.
7. Once the display initializes, the screen below will appear.
8. Select **File Transfer**.



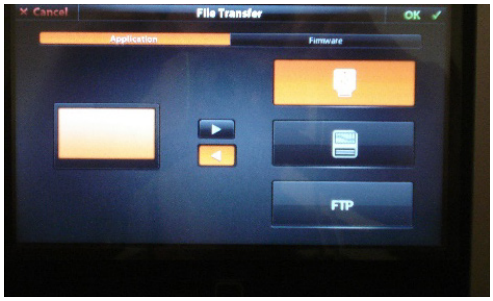
9. If updating the HMI **firmware**, select Firmware and then select **OK**.



10. Select the new firmware file and press **OK**. Firmware files have the extension FMW in the filename.
11. A message will appear showing the old and new firmware versions. Select **OK**.



12. Once the firmware is installed, the screen below will appear.



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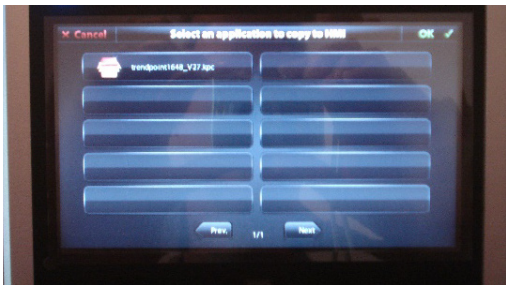
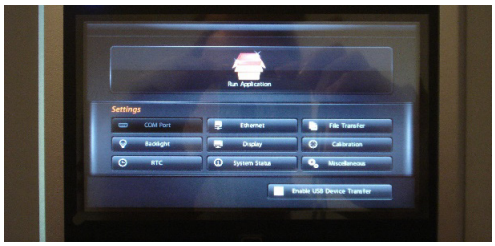
Display Firmware Installation (cont.)

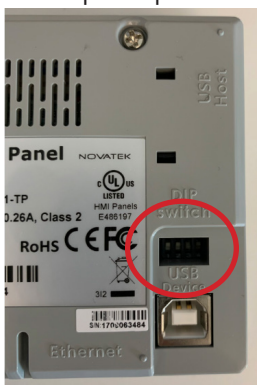
13. If updating the HMI application, select **Application** and then select **OK**.
14. Select the new application file and press **OK**. HMI application files have the extension KPC in the filename.



15. After the application is installed, the screen below will appear.



16. Select **Run Application** and validate the application starts correctly.
17. Remove power from the display.
18. Remove the USB drive from the USB port.
19. Place DIP switches 3 and 4 in the ON position. DIP switches 1-4 should be in the upward position in the location shown below.



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Display Firmware/Application Release Notes

The HMI display executes a combination of firmware (to control low-level functions) and application software (to read data from the HDPM head unit and display the user interface). Each new HMI software release is comprised of an application file and the associated firmware file. When transferring these files to an HMI display, note that the firmware file needs to be applied before the application file.

HMI Application/Firmware Releases

Application	Firmware	Date
HMI Application v2.0	HMI Firmware v1.6.62	September 1, 2023

HMI Application v2.0

The v2.0 application release is designed to operate with firmware version 1.6.62. This application update includes the new features, updates, fixed defects, and improvements described below.

New Features and Updates

Schneider Electric theme for user interface: All screens have been updated to use a color theme in common with other Schneider Electric products, and screen elements have been updated to a more modern, “flat” design.

Support for custom High Power mode: The High Power mode setting on the HDPM is designed to scale the resolution of branch circuit current and power measurements. Custom High Power mode allows the Amps and Watts Resolution settings on the HDPM head unit to be adjusted independently. This application release applies these custom Amps and Watts Resolution scaling factors to displayed branch circuit measurements when the custom High Power mode is enabled.

Support for Energy Resolution setting: The Energy Resolution setting scales the resolution of energy measurements (for HDPM system firmware v0.54 or higher). This energy scaling factor is applied to energy values displayed on HMI screens for HDPM systems with system firmware that includes the Energy Resolution setting.

New Main CB states: The Main Page screen displays a Main CB status when the Main Breaker setting is enabled on the HMI. The HMI application reads the status of both digital inputs on an attached I/O module to display a breaker status of Open, Closed, or Tripped. This application update adds two new states: Invalid (if both digital inputs are in an active state at the same time) and No I/O (if the Main Breaker setting is enabled but no I/O module is attached).

IO Status screen elements removed when I/O Module disconnected: The IO Status screen displays the state of digital inputs, state of the digital output, and CT input value it reads from up to 8 attached I/O modules. These I/O module measurements are now removed from the screen when their associated I/O module is disconnected from the HDPM head unit.

PQM Only mode screens updated: The PQM Phases screen displayed in PQM Only mode now includes per-phase energy measurements, and an IO Status button (which navigates to the IO Status screen) is now available on the PQM screens when in PQM Only mode.

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Display Firmware/Application Release Notes

Fixed Defects and Improvements

Branch circuit screens support up to 192 circuits: Support for up to 192 circuits has been added to all ANSI and IEC mode branch circuit screens.

Harmonics screens display up to the 63rd harmonic: The Volts and Amps harmonics screens now display per-phase odd harmonic values up to the 63rd harmonic.

Support for 24-circuit retrofit module channel numbering updated: The channel numbering for the 24-circuit module can be configured on the HDPM head unit to be either ANSI or IEC in a 108-channel HDPM system. If configured for ANSI, the 24-circuit module channels will appear on HMI Odd channel and Even channel screens for channels 85 through 108. If configured for IEC, the 24-circuit module channels will appear in a separate “85 to 108” screen and use sequential IEC channel numbering.

I/O Alarm setting retention: The Alarm setting (enabled or disabled) on the IO Module Setting screen will be retained after a power cycle of the HMI display.

Branch circuit energy measurement format corrected: Some branch circuit energy values were previously displayed as a negative value because of the number format used by the HMI application. All branch circuit energy values are now displayed correctly.

Energy measurement fields updated: To accommodate display of the largest possible energy values, boxes on HMI screens have been expanded to allow all digits to be displayed, and digits below units of 1 kWh are truncated.

Main Page Iavg measurement format corrected: The Iavg measurement on the HMI Main Page was incorrectly configured, resulting in values scaled up by a factor of 10. The Iavg measurement now uses the correct numeric format.

Multi-device Main Page energy values now point to the correct HDPM units: The HMI Main Page screen contains a summary of measurements for up to 4 connected HDPM head units. The total energy measurements for devices 2 through 4 previously referenced the device 1 energy measurement – these measurements now correctly reference their associated devices.

Icon added for Devices Setup screen: A “gear” icon has been added to the title bar of the Main Page screen to ease access to the Devices Setup screen.

Screen name text field expanded: The text field used to display the screen name on some HMI screens has been expanded to correctly display the text without concatenation.

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