ETC Mk2 Power Control Processor User Manual

ETC Retrofit Guide
Power Control Processor Mk2

Contents

Overview

Note: The Power Control Processor Mk2 Retrofit Kit is for use with panels that do not already have a Power Control Processor Mk2 installed.
The Power Control Processor Mk2 (PCP-Mk2) is used in Echo Relay Panel Mains Feed and Elaho Relay Panel Mains Feed (ERP Mains Feed), Echo Relay Panel Feedthrough and Elaho Relay Panel Feedthrough (ERP Feedthrough), and Sensor IQ systems. These systems support field-replacement of the Power Control Processor.

Note: Power Control Processor Mk2 does not support the Override Relay Panel Option (ORPO). If you have the ORPO installed in your panel it will not function after you install the Power Control Processor Mk2.

Included in the Retrofit Kit

Description	ETC Part Number	Quantity	Notes
PCP Mkt user interface	7123A2216-CFG	1	
Power wiring harness	7123B7021	1	six-color
Retainer clip	HW7519	1	for the user interface ribbon cable
Nylon spacer	HW9444	2	for moving a RideThru Option Card from an old user interface to a new user interface in ERP Mains Feed or ERP Feedthrough, if necessary
Snap-in stand off	HW9491	4	for reorienting a RideThru Option Card in a Sensor IQ panel, if necessary
CatS connector	N2026	1	two-part connector for CatS cable termination
Surface-mount CatS box	N2025	1	for CatS cable termination
Double-stick tape, 1.5 in	1342	1	for CatS cable termination
Cable tie adhesive mount	HW741	2	for ERP Mains Feed
Cable tie ..	HW701	2	for ERP Mains Feed
4 ft Cat5 patch cable	N4009	1	for ERP Mains Feed
1 ft Cat5 patch cable	N4036	1	for ERP-Feedthrough and Sensor IQ

Required Tools

- Phillips screwdriver
- Slip joint pliers
- Sheathing tool or cutter for Cat5 cable jacket
- Snips or other precision cutting tool (only for Sensor IQ)

Install the Power Control Processor Mk2

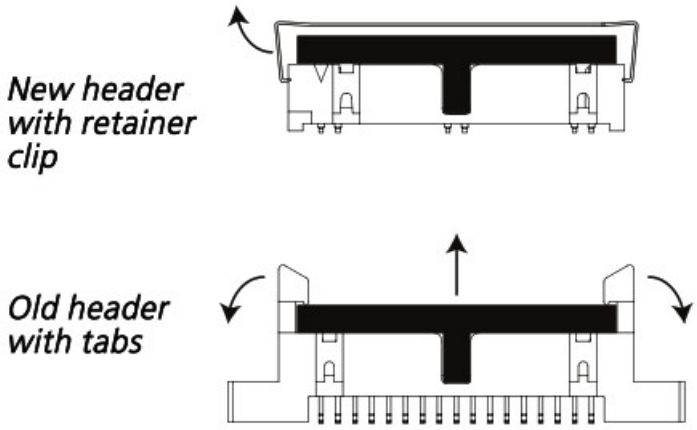
WARNING: RISK OF DEATH BY ELECTRIC SHOCK! Failure to disconnect all power to the panel before working inside could result in serious injury or death.
De-energize main feed to the panel and follow appropriate Lockout/Tagout procedures as mandated by NFPA 70E. It is important to note that electrical equipment such as relay panels can present an arc flash hazard if improperly serviced. This is due to the high amounts of short-circuit current available on the electrical supply to this equipment. Any work must comply with OSHA Safe Working Practices.

Disconnect the Wiring from the Old User Interface

The Power Control Processor Mk2 ships with one retainer clip (ETC part number HW7519) to secure the gray user interface ribbon cable to the header on the new Power Control Processor Mk2.

Note: Look for the white part number sticker on your old Power Control Processor. If the part number is

7123B5623 rev F or earlier, the ribbon cable header has tabs that secure the ribbon cable onto the header. See the illustration to the right for details about disconnecting the ribbon cable.



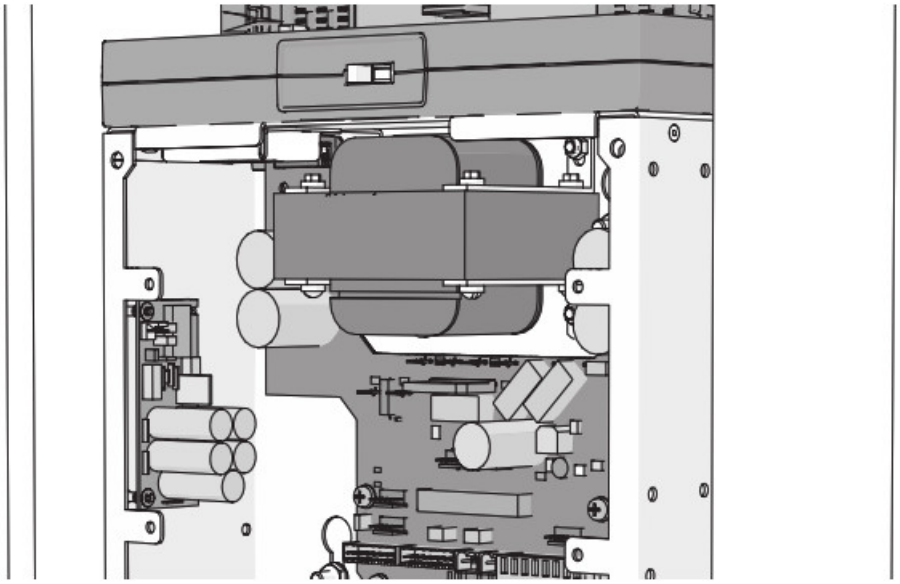
1. Remove the retainer clip or fold out the tabs securing the ribbon cable to the header on the old user interface and gently pull the ribbon cable from the header. See the note above.
   • If your old user interface had a retainer clip, you may discard it. A new retainer clip is provided in the kit.
2. Check the part number on the six-color power wiring harness between the termination board and the old user interface.
   • If the wiring harness is not 7123B7021, disconnect it and discard it. You will use wiring harness 7123B7021 provided in the kit.
   • If the wiring harness is 7123B7021, you can reuse it. Disconnect it from the old user interface, but leave it connected to the termination board. You can keep the wiring
   harness 7123B7021 provided in the kit as a spare or throw it away.
3. If your panel has a RideThru Option Card installed, follow the steps at Move a RideThru Option Card – ERP Mains Feed or ERP Feedthrough on page 3.
   • If you do not have a RideThru Option Card, continue with Connect Wiring to the PCP-Mk2 on page 4. You may discard the four snap-in standoffs (HW9491) from the kit.

Move a RideThru Option Card – ERP Mains Feed or ERP Feedthrough

1. You may discard the four snap-in standoffs (HW9491) from the kit.
2. Disconnect the red-and-black harness from the old user interface's two-pin "ride thru" header.
3. Remove the three screws securing the RideThru Option Card to the old user interface.
   • Set the three screws aside for reinstallation.
   • Keep any spacers that were installed with these screws. You will need a total of three spacers to install the RideThru Option Card on the new user interface. Two spare spacers (ETC part number HW9444) are included in the Power Control Processor Mk2
   Replacement Kit.
4. Secure the RideThru Option card to the new user interface with the three screws you removed above, placing one spacer on each screw between the user interface and the RideThru Option Card bracket.
5. Connect the free end of the red-and-black harness on the RideThru Option Card to the twopin "ride thru" header on the new user interface.
6. Continue with Connect Wiring to the PCP-Mk2 on the next page.
   Move a RideThru Option Card – Sensor IQ

CAUTION: If you are replacing a Power Control Processor Mk2 in a Sensor IQ panel with a RideThru Option Card installed in the panel, the orientation of the RideThru Option Card is important. The capacitors that protrude from the RideThru Option Card can interfere with the network cable connection on the Power Control Processor Mk2. Make sure that the protruding capacitors on the RideThru Option Card are positioned farthest away from the mains voltage compartment.

- **The capacitors should point down in a top-feed panel.**
- **The capacitors should point up in a bottom-feed panel.**



Note: The Sensor IQ shown above is mounted in a top-feed orientation. In a bottom- feed panel, mount the RideThru Option on the lower-right wall of the low-voltage box with the capacitors pointed up (away from the mains voltage compartment).
If your RideThru Option Card is installed in your Sensor IQ panel in the correct orientation, continue with Connect Wiring to the PCP-Mk2 on the next page. You may discard the four snap-in standoffs (HW9491) from the kit.
Follow these steps if you need to reorient the RideThru Option Card in your Sensor IQ panel:

1. Remove the doors and covers from the panel. See the Sensor IQ Installation Manual for instructions on removing doors and covers.
2. Disconnect the red-and-black wire harness from the RideThru Option Card.
3. Cut the tips off of the four snap-in standoffs securing the RideThru Option Card to the Sensor IQ panel. Remove the standoffs from the panel and from the RideThru Option Card.
4. Four new snap-in standoffs are provided for mounting the RideThru Option Card to the Sensor IQ panel. Align the four standoffs with the mounting holes on the RideThru Option Card.
5. Press gently on the standoffs until the tabs pass through the mounting holes on the option card and lock in place.
6. Orient the RideThru Option card with the protruding capacitors positioned farthest away from the mains voltage compartment. See the illustration on page 3.
   • The capacitors should point down in a top-feed panel.
   • The capacitors should point up in a bottom-feed panel.
7. After correctly orienting the RideThru Option Card, align the standoffs with the mounting holes on the interior of

the low-voltage cavity.

8. Press gently on the standoffs until the tabs pass through the mounting holes in the lowvoltage cavity and lock the RideThru Option Card in place.
9. Connect one end of the red-and-black wire harness to the RideThru Option Card.
10. Connect the other end of the red-and-black wire harness to the two-pin “ride thru” header on the new user interface.

Connect Wiring to the PCP-Mk2

1. Install the gray ribbon cable to the header on the new user interface and secure it with the retainer clip (included, ETC part number HW7519).
2. Install the six-color power wiring harness (7123B7021).
   • If it is not already connected, connect the unlabeled connector on the harness to the termination board header labeled
   - “J10 CONTROLLER POWER” for ERP-FT
   - “J4 CONTROL” for ERP Mains Feed
   - “J9 CONTRL POWER” for Sensor IQ
   • Connect the labeled connector on the harness to the new user interface to the header labeled “J3 POWER”.

Terminate the Network Connection

The Power Control Processor Mk2 has an integrated network interface. The Power Control Processor Mk2 Retrofit Kit includes patch cables and an Unshielded Twisted Pair (UTP) surfacemount connector to allow you to use your existing incoming Cat5 cable and to provide strain relief.

Locate the Components for your Panel

Locate the following components provided in the retrofit kit.

ERP Feedthrough or Sensor IQ

Description	**ETC Part Number**	**Quantity**
Cat5 connector	N2026	1
Surface-mount Cat5 box	N2025	1
Double-stick tape, 1.5 in	I342	1
1 ft Cat5 patch cable	N4036	1

ERP Mains Feed

Description	ETC Part Number	Quantity
Cat5 connector	N2026	1
Surface-mount Cat5 box	N2025	1
Double-stick tape, 1.5 in	I342	1
Cable tie adhesive mount	HW741	2
Cable tie	HW701	2
4 ft Cat5 patch cable	N4009	1

Remove the Old Ethernet Option Card
ERP Feedthrough

1. Disconnect the five-color wire harness between the Ethernet Interface Option Card and the Termination Board.
2. Disconnect the incoming Cat5 cable from the Ethernet Interface Option Card.
3. Remove the four screws securing the Ethernet Interface Option Card to the user interface panel.
4. Remove the card from the panel.
5. The Ethernet Interface Option Card is not compatible with the Power Control Processor Mk2. You can discard the option card and screws.
6. If network cable is already terminated to a surface-mount box, continue with Connect the Patch Cable on page 8. If network cable is not yet terminated in your panel, continue with Wire the Connector on page 7.

ERP Mains Feed

1. Disconnect the five-color wire harness between the Ethernet Interface Option Card and the Termination Board.
2. Disconnect the incoming Cat5 cable from the Ethernet Interface Option Card.
3. Remove the four screws securing the cover over the Ethernet Interface Option Card.
4. Remove the four standoffs securing the Ethernet Interface Option Card to the bottom of the panel.
5. Remove the Ethernet Interface Option Card.
6. The Ethernet Interface Option Card is not compatible with the Power Control Processor Mk2. You can discard the option card, standoffs, screws, and option card cover.
7. If network cable is already terminated to a surface-mount box, continue with Connect the Patch Cable on page 8. If network cable is not yet terminated in your panel, continue with Wire the Connector on the facing page.

Sensor IQ

1. Disconnect the five-color wire harness between the Ethernet Interface Option Card and the Termination Board.
2. Disconnect the incoming Cat5 cable from the Ethernet Interface Option Card.
3. Cut the tips off of the four snap-in standoffs securing the Ethernet Interface Option Card to the Sensor IQ panel. Remove the standoffs and the Ethernet Interface Option Card from the panel.
4. The Ethernet Interface Option Card is not compatible with the Power Control Processor Mk2. You can discard the option card.
5. If network cable is already terminated to a surface-mount box, continue with Connect the Patch Cable on page 8. If network cable is not yet terminated in your panel, continue with Wire the Connector on the facing page.

Wire the Connector

If network cable is already terminated to a surface-mount box in your panel, skip this section and continue with Connect the Patch Cable on the next page. If network cable is not yet terminated in your panel, follow the instructions below.
The Category 5 surface-mount connector supplied in this kit includes two pieces: a base unit and a cap. The cap has colored markings on one end to indicate where to insert each of the cable's color-coded wires. Follow the T568B wiring scheme, as illustrated on the cap sticker, for compatibility with ETC network wiring conventions.

1. Leave a length of about 25 cm (10 in) in the panel for connecting and for slack for future service needs.
2. Follow standard Cat5 installation procedures to remove the end of the cable jacket and expose the conductors:

• Remove about 13 mm (1/2 in) of the end of the outer cable jacket using a sheathing tool or cutter, making sure not to damage the insulation of the inner conductors. If one or more of the conductors are damaged during this process, cut the cable off squarely and start again.

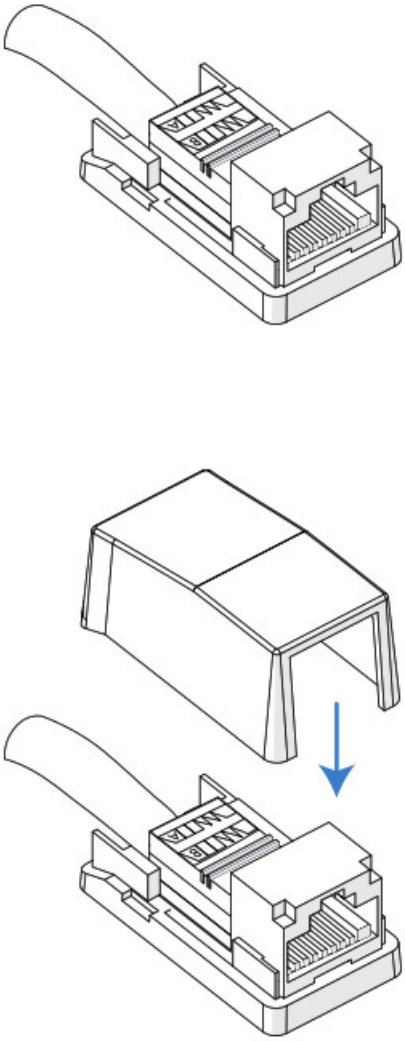
3. Untwist the conductors and line them up according to the T568B color-coded markings.
   Insert the conductors into the connector cap. The cable jacket should come close to the edge of the connector with as little of the conductors visible as possible. Otherwise, cut off the cable squarely and start again.
4. If any conductors extend beyond the edge of the connector cap, trim the excess so that the ends of the conductors are flush with the edge of the connector cap.
5. Press the cap firmly on the connector base until the two pieces snap together. Use slip joint pliers to apply pressure evenly across the cap and to secure the connection, but make sure not to break the plastic while applying pressure.

Attach the Connector to the Box and Assemble

1. Insert the front edge of the connector into the mounting box so that the slot in the front edge of the connector aligns with the tab in the bottom section of the box.
2. Push down on the back of the connector to snap it into the box.
3. The rear of the cover has a small U-shaped cutout. Remove this cutout to allow the cable to pass through without getting pinched. Route the cable through the box's guide as shown.
4. Align the cover with the bottom section and snap the two pieces together.

Install the Connector in the Panel

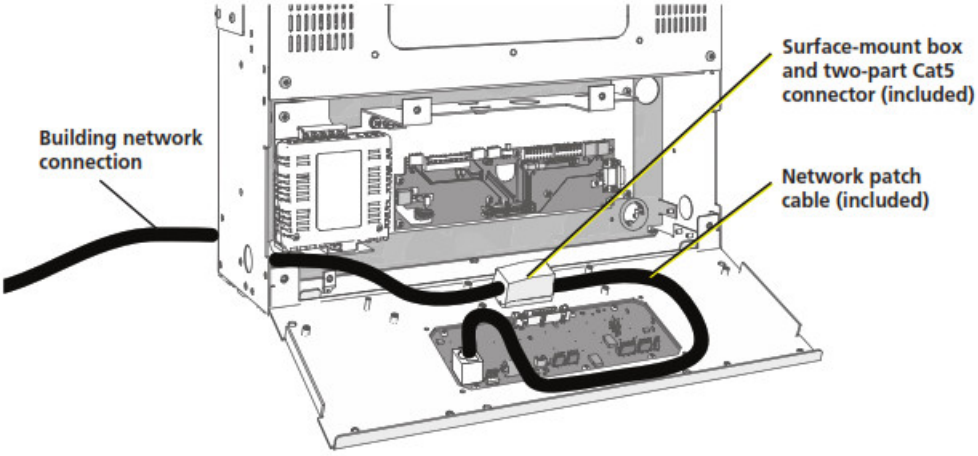
Use the double-sided tape provided in the retrofit kit to attach the bottom of the surface-mount box to your panel. See the following illustrations.



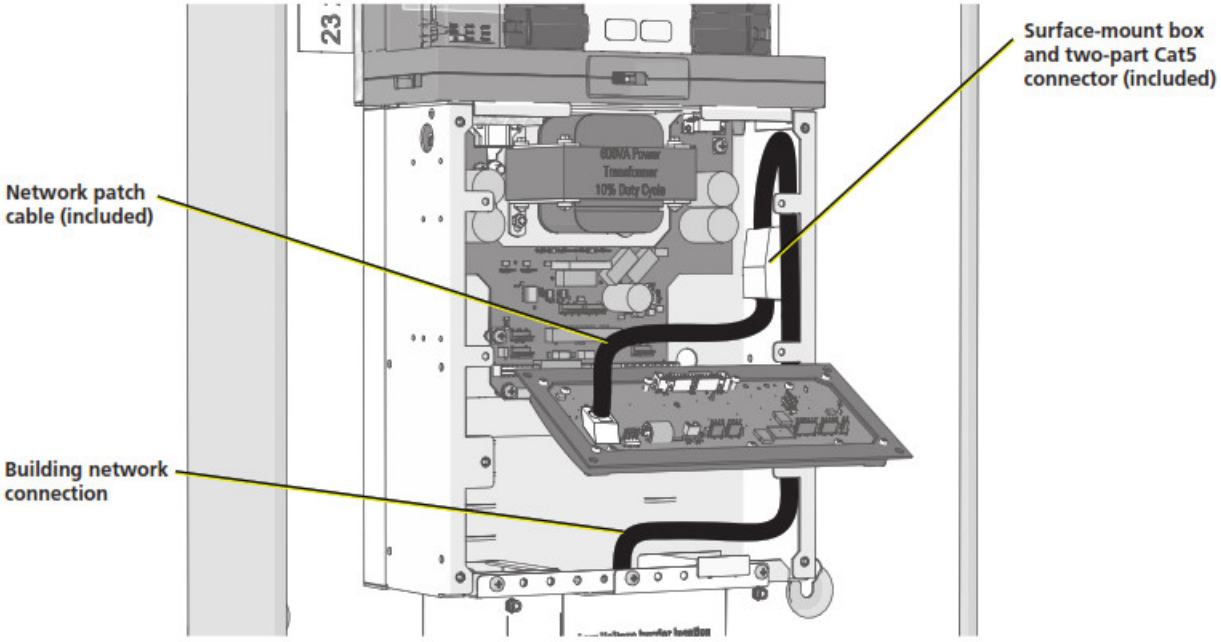
Connect the Patch Cable
ERP Feedthrough or Sensor IQ
Connect the 1 ft patch cable (N4036) from the surface-mount connector to the back of the user interface.

- Discard the unused 4 ft patch cable (N4009).

ERP-FT



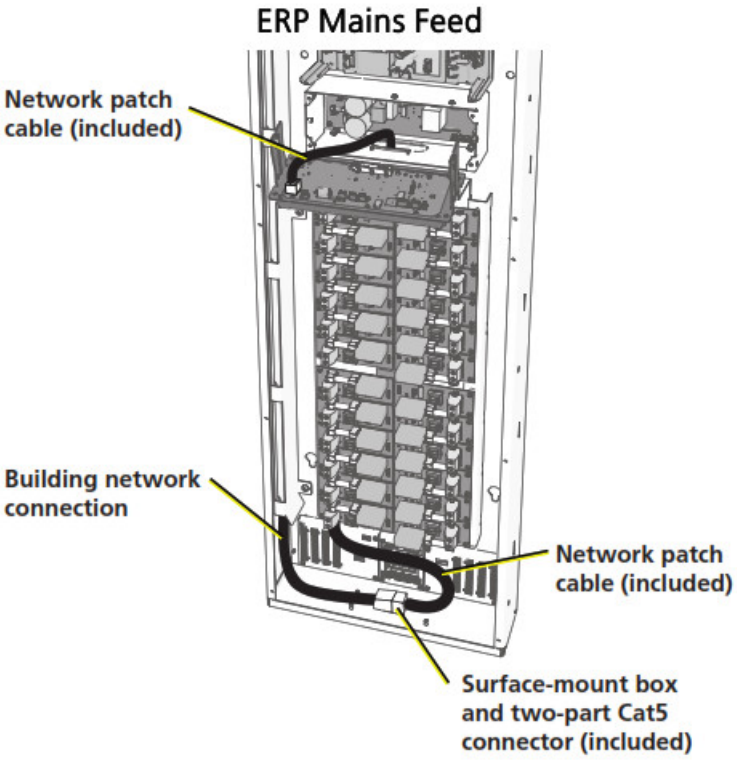
Sensor IQ



Note: The Sensor IQ shown above is mounted in a top-feed orientation.

ERP Mains Feed
Top-Feed

1. Route the 4 ft network patch cable (N4009) through the ribbon cable opening in the bottom of the user interface enclosure, behind the relay card mounting panel to the surfacemount box.
   • The kit includes a cable tie and adhesive cable tie mount to dress the patch cable, as needed.
2. Connect the patch cable to the surface-mount box.
3. Connect the patch cable to the back of the user interface.
4. Discard the unused 1 ft patch cable (N4036).



Bottom Feed

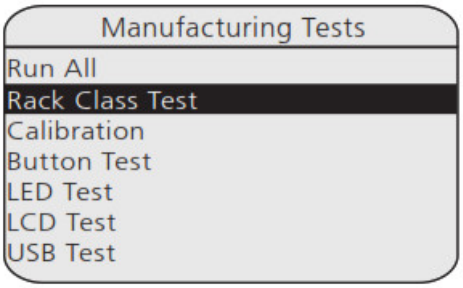
1. Route the 4 ft network patch cable (N4009) from the surface-mount box, behind the relay card mounting panel, and through the ribbon cable opening in the bottom of the user interface enclosure.
   • The kit includes a cable tie and adhesive cable tie mount to dress the patch cable, as needed.
2. Connect the patch cable to the back of the user interface.
3. Connect the patch cable to the surface-mount box.
4. Discard the unused 1 ft patch cable (N4036).

Configure the Processor

Note: After configuring the PCP-Mk2 via the UI, save the configuration file and reboot the PCP-Mk2.

Access the Factory Menu

1. Hold down the [1] key while rebooting the processor until the Manufacturing Tests menu appears.
   • To reboot the processor: Press the reset switch at the bottom right with a non-sharp, pointed object (e.g. a pen).
2. Release the [1] key.
   • You will now have access to the Manufacturing Tests menu.
3. Use [Up] (▲) and [Down] (▼) to navigate to the Rack Class Test menu.
4. Press [Enter] (ü) to confirm the selection.



5. Use [Up] (▲) and [Down] (▼) to select the appropriate rack type and press enter to commit the selection.
   - ERP – for US ERP racks
   - ERPCE – for CE EchoDIN systems
   - Sensor IQ – for Sensor IQ Intelligent Breaker Panels
   - ERP-FT – for ERP-FT racks
6. Press [Back] ( ) two times to exit the factory menu.

Power Calibration

Note: Power supply calibration only applies to ERP Mains Feed and Sensor IQ panels. If the power supply is not correctly calibrated, the unit will display BACK UP POWER ACTIVE on the screen, or will display incorrect voltage values.

To calibrate a panel, you will need a measurement of the incoming voltage. Voltage measurement should only be undertaken by trained personnel wearing appropriate protective equipment.

1. Access the Factory Menu. See Access the Factory Menu on the previous page.
2. Use [Up] (▲) and [Down] (▼) to navigate to Calibration.
3. Use the numeric key pad to enter the measured voltage, multiplied by 100.
   - For example, if your measured voltage was 120.26 V, you would enter 12026.
4. Press [Back] ( ) to exit the Calibration screen.
5. Press [Back] ( ) a second time to boot to the main software.

Save Configuration

Saving a panel configuration creates a file for storage to the root directory of a connected USB storage device.

1. Insert a USB storage device in the USB port on the left side of the front of the user interface.
2. Navigate to File Operations.
3. Press [Enter] (ü) to select Save Configuration.
4. The Save Configuration screen displays and the default “Filename: Echo1” is selected. You can save your file under a name between Echo1 and Echo16.
5. To select a different filename, press [Enter] (ü). The selection will focus on “Echo#”.
6. Use [Up] (▲) and [Down] (▼) to scroll through the list. Press [Enter] (ü) to make the selection.
7. Scroll to Save to USB key and press [Enter] (ü). The dialog will display “Saving to USB”. The file will always be saved to the root directory of the USB device.

Reboot the Processor

Reboot the PCP-Mk2.

Compliance

For complete product documentation, including compliance documentation, visit etcconnect.com/products.

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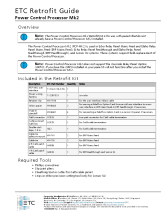
7123M2300 Rev A Released 2023-02

Documents / Resources

	ETC Mk2 Power Control Processor [pdf] User Manual 7123A2216-CFG, 7123B7021, HW7519, HW9444, HW9491, N2026, N2025, I342, HW741, HW701, N4009, N4036, Mk2 Power Control Processor, Mk2, Power Control Processor, Control Processor, Processor

References

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