PanelMate 5000 Series

Models
5000 Touchscreen
5000 TouchPanel
5000 Split

EXPRESS SETUP

EATON | Cutler-Hammer
Support Services

The goal of Eaton’s Cutler-Hammer business unit is to ensure your greatest possible satisfaction with the operation of our products. We are dedicated to providing fast, friendly and accurate assistance. That is why we offer you so many ways to get the support you need. Whether it’s by phone, fax or email, you can access Eaton’s Cutler-Hammer support information 24 hours a day, seven days a week. Our wide range of services are listed below.

You should contact your local distributor for product pricing, availability, ordering, expediting and repairs.

Website Address
www.cutler-hammer.eaton.com

Use the Cutler-Hammer website to find product information. You can also find information on local distributors or Cutler-Hammer sales offices.

e-COM Support Center
VOICE: 800-356-1243 (8AM-6PM EST)
FAX: 800-752-8602
AFTER-HOURS EMERGENCY:
  • 800-543-7038 (6PM-8AM EST)

Call the e-COM Support Center if you need assistance with placing an order, stock availability or proof of shipment, expediting an existing order, emergency shipments, product price information, returns other than warranty returns, and information on local distributors or sales offices.

e-TRC
Technical Resource Center (support for OI, PLC and IPC)
VOICE:
  • 800-809-2772, selection 5 (8AM-5PM EST)
  • 414-449-7100, selection 5 (8AM-5PM EST)
FAX: 614-882-0417
EMAIL: CHATechSupport@eaton.com
AFTER-HOURS EMERGENCY (PLANT DOWN ONLY):
  • 800-809-2772, selection 5 (5PM-8AM EST)
  • 414-449-7100, selection 5 (5PM-8AM EST)

If you are in the US or Canada, and have OI/PLC/IPC questions, you can take advantage of our toll-free line for technical assistance with hardware and software product selection, system design and installation, and system debugging and diagnostics. Technical support engineers are available for calls during regular business hours.

European PanelMate Support Center
VOICE: +41 1 806 64 44 (9AM-5PM CET)
EMAIL: CHSupport@bfa.ch

This center, located in Zurich, Switzerland, provides high-level quality support and product repair services for your PanelMate products. You will receive real-time technical and application support.

Information Fax-Back Service For Legacy Products
VOICE: 614-899-5323

Legacy Cutler-Hammer product information, specifications, technical notes and company news are available to you via fax through this direct document request service. Using a touch-tone phone, you can select any of the info faxes from our automated product literature and technical document library, enter a fax number and receive the information immediately.

Repair and Upgrade Service (support for OI and IPC)
VOICE:
  • 800-809-2772, selection 5,4 (8AM-5PM EST)
  • 414-449-7100, selection 5,4 (8AM-5PM EST)
FAX: 614-882-3414
EMAIL: RepairCHA@eaton.com

If you have questions regarding the repair or upgrade of an OI/IPC, contact your local distributor. Additional support is also available from our well-equipped Repair and Upgrade Service department.
Hardware Installation

Unpacking
Carefully remove all equipment from the packing cartons and inspect all parts for damage in shipment. Check packing cartons for all items shown on the packing list. Keep the cartons and packing materials for future shipment.

If there is equipment damage due to shipment, report the damage to the carrier who delivered the equipment.

Note: The Interstate Commerce Commission has a time limit on reporting concealed damage.

5000 Touchscreen and TouchPanel Parts Checklist
Your packing carton contains one parts kit containing:
- 1 packet of mounting nuts and washers
- 2 two-terminal connectors (audio output and security keyswitch)
- 1 three-terminal connector (24VDC power)
- 1 four-terminal connector (fault relay)

5000 Split Parts Checklist
Your packing carton contains one parts kit containing:
- 1 packet of mounting nuts and washers
- 2 two-terminal connectors (audio output and security keyswitch)
- 1 three-terminal connector (24VDC power)
- 1 four-terminal connector (fault relay)
- Cable mounting clamp, screw and washers

Safety Considerations
This equipment is suitable for Class I, Division 2, Groups A,B,C,D or non-hazardous locations only.

Mounting
Your PanelMate 5000 unit is approved for use in Type 4, 4X and 12 installations when properly mounted in a correspondingly rated enclosure.

Proper installation and enclosure sizing is essential to ensure long life and trouble-free operation. Your PanelMate 5000 unit should always be mounted in a vertical position. Flat or angled mounting positions will severely shorten the unit’s life.

Refer to Eaton’s Cutler-Hammer PanelMate Hardware Installation Guide for panel sizing and cabling recommendations. The guide is available on the Cutler-Hammer website:

www.cutler-hammer.eaton.com

Panel cutout dimensions and stud torque limits are shown on the Cutout Templates in this document. The Cutout Templates are also available on the Cutler-Hammer website.

Note: Stud nuts must be tightened enough to obtain a proper seal, but not over-tightened to the point where the threads are stripped or the gasket is rendered useless. Always use a torque wrench when installing your PanelMate 5000 unit.

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CAUTION

EXPLOSION HAZARD. SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

WARNING

EXPLOSION HAZARD. DO NOT REPLACE COMPONENTS UNLESS POWER HAS BEEN SWITCHED OFF OR AREA IS KNOWN TO BE NON-HAZARDOUS.

ADVERTISSMENT

RISQUE D’EXPLOSION. LA SUBSTITUTION DE COMPOSANTS PUET RENDRE CE MATERIAL INACCEPTABLE POUR LES EMPLACEMENTS DE CLASSE I, DIVISION 2.

ADVERTISSMENT

RISQUE D’EXPLOSION. COUPER LE COURANT OU S’ASSURER QUE L’EMPLACEMENT EST DESIGNE NON DANGEREUX AVANT DE REPLACER LE COMPOSANTS.
Connections

Connect DC Power

Your PanelMate 5000 unit is designed to operate at 24VDC -15%/+20%. A removable three-position DC power connector attaches to the unit's connector receptacle. The DC input common (-terminal) and the chassis GND terminal are both internally connected to the PanelMate 5000 chassis.

Note: Use #18 AWG (0.82mm²) copper wire for power and ground lead connections.

Note: Power conditioning may be required when the PanelMate 5000 unit is installed in areas of poor power quality.

Connection to the Fault Relay

The fault relay may be wired in normally open or normally closed configuration. It is a Form C contact, rated for 2 amps at 120VAC, 2 amps at 230VAC, and 2 amps at 28VDC resistive load. During normal operation, the fault relay will energize after entering Run Mode. Whenever the PanelMate unit detects a communication error or system failure, the fault relay will be de-energized. It is also possible to de-energize the fault relay whenever an alarm condition occurs. You can set the fault relay to de-energize on alarms by using the System Parameters Table. Refer to the System Parameters topic in the Configuration Software Online Help and in the Configuration Editor User's Guide for more information.

Connection to the Audio Output

The Audio Feedback Kit is an optional accessory to your PanelMate unit. To connect the external 8 Ohm speaker to your PanelMate unit, connect the speaker to the Audio connector.

Connection to the Security Keyswitch

The Security Keyswitch connection is provided for external security/password applications.

Split Models - TouchPanel Connection to the Display Module

For easier installation, your PanelMate unit is shipped with the TouchPanel disconnected from the display modlule. Connect and secure the TouchPanel cable as illustrated, using the clamp, star washer, flat washer and screw included in the parts list.

Note: Use #18 AWG (0.82mm²) copper wire for power and ground lead connections.
Connecting to Serial Ports

Serial Port 1 may be used for a printer, for PLC (or Host) communications, or for connection to a personal computer for upload or download. Serial Port 2 may be used for printer or for PLC (or Host) communications.

Selection of Port 1 for a serial printer must be done with the Configuration Software. Refer to the PLC Name and Port Table topic in the Configuration Software Online Help and in the PanelMate Configuration Editor User's Guide for more information.

Serial Port Termination

Your PanelMate unit is sent without termination. For Serial Port termination switch locations, refer to Figure A. Recommended termination for RS232, DH485 and RS422 communication is shown in the table. For setting the termination on Serial Port 1, use the termination switch on the left of Serial Port 1. For setting the termination on Serial Port 2, use the termination switch on the right of Serial Port 2.

<table>
<thead>
<tr>
<th>Communication</th>
<th>Position</th>
<th>Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS232</td>
<td>1</td>
<td>None (Factory Setting)</td>
</tr>
<tr>
<td>DH485</td>
<td>4</td>
<td>120 Ohm AC coupled</td>
</tr>
<tr>
<td>RS422/RS485</td>
<td>2 &amp; 3</td>
<td>Refer to your PLC Communications Driver Manual for termination information</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RS422 Transmit Data (+) (Output)</td>
</tr>
<tr>
<td>2</td>
<td>RS232 Receive Data (Input)</td>
</tr>
<tr>
<td>3</td>
<td>RS232 Transmit Data (Output)</td>
</tr>
<tr>
<td>4</td>
<td>RS422 Receive Data (+) (Input)</td>
</tr>
<tr>
<td>5</td>
<td>Signal Ground</td>
</tr>
<tr>
<td>6</td>
<td>RS422 Transmit Data (-) (Output)</td>
</tr>
<tr>
<td>7</td>
<td>RS232 Request to Send (Output)</td>
</tr>
<tr>
<td>8</td>
<td>RS232 Clear to Send (Input)</td>
</tr>
<tr>
<td>9</td>
<td>RS422 Receive Data (-)</td>
</tr>
</tbody>
</table>

CAUTION

Your PanelMate unit is equipped with isolated Serial Ports for improved communications reliability. If you are replacing a 120VAC Power Series unit or a Power Series 1500 unit, and are using an RS422 or RS485 cable for PLC communications, you may need to install a new cable equipped with a ground wire. Consult your PLC communications driver manual or contact Cutler-Hammer Technical Support for more information.
Tests and Adjustments

PanelMate Diagnostic Tests
When power is applied to your PanelMate unit, the unit will display a listing of internal diagnostic checks as they are executed. After completing its internal diagnostic checks, the unit will display the Offline Mode Menu.

The PanelMate TouchPanel and Split menu displays the five selections shown below:

- Execute Diagnostics
- Enter Serial Transfer Mode
- Enter Network Transfer Mode
- Display System/Config. Information
- Enter Run Mode

The PanelMate Touchscreen menu displays the six selections shown below:

- Execute Diagnostics
- Enter Serial Transfer Mode
- Enter Network Transfer Mode
- Display System/Config. Information
- Enter Run Mode
- Calibrate Touchscreen

Enter Network Transfer Mode
Network transfer mode is used to read system information over a remote network or remotely place your PanelMate unit into Run Mode. For more information, refer to your PanelMate Transfer Utility User's Manual.

Display System Configuration Information
This selection displays your PanelMate unit's current configuration. Your PanelMate unit is shipped with a demonstration PanelMate configuration. Once you have downloaded a new configuration, this information will be updated to reflect the new configuration information.

Enter Run Mode
Run Mode allows you to display the configuration downloaded to the PanelMate unit and communicate to the PLC (or Host) of your choice. If a new configuration has not been downloaded, the unit will display the demonstration configuration. For more information on Run Mode, refer to your PanelMate Getting Started Manual.

Calibrate Touchscreen
Touchscreen units have a calibration routine that must be performed to determine the boundaries of the video on your touchscreen. Refer to Touchscreen Information for instructions on calibrating the touchscreen.

Execute Diagnostics
This template allows you to perform a series of tests:
- Set Date and Time
- Display test
- Touchscreen test
- Tone, relay and battery test
- System status

For information on performing these tests, refer to your PanelMate Getting Started Manual.

Enter Serial Transfer Mode
To download, upload or read system information over Serial Port 1, your PanelMate unit must be in Serial Transfer Mode. For more information on downloading and uploading PanelMate configurations, refer to your PanelMate Getting Started Manual.
The most basic job of a PanelMate unit is to replace the functions of traditional hard-wired operator station devices such as pushbuttons, lamps and message displays. To replace each category of hard-wired devices, the PanelMate unit supplies a specific visual tool or "template" which can be arranged onscreen with other templates.

During operation, you can select a template to "arm" control buttons or numeric entry. To select a template, touch the TouchPanel area with your finger. Moving your finger around the TouchPanel will cause templates to become outlined or "selected". As you move your finger you will see a correlation between the position of your finger on the TouchPanel and the position of the templates of the screen.

Once a template has been selected or "armed", you can press any desired control button to take action.

For more information on PanelMate online operation, refer to your PanelMate Getting Started User's Guide or Online Operation User's Guide.
Touchscreen Information

PanelMate Operation

The most basic job of a PanelMate unit is to replace the functions of hard-wired operator station devices such as pushbuttons, lamps and message displays. To replace these devices, the PanelMate unit supplies a "template".

During operation, you can select a template to "arm" control buttons or numeric entry. Once a template has been selected or "armed", you can press any desired control button to take action.

The touchscreen is designed for finger or gloved operation only, and does not require the same actuation force as a mechanical switch. A light touch will produce the same result as a heavy one.

For more information refer to your PanelMate Online Operation User's Guide.

Touchscreen Cleaning

A Cleaning Mode utility is provided to make touchscreen cleaning safe and easy. To access it:

1) Place the PanelMate unit in Run Mode
2) Select the Get Page control button
3) Select the More control button
4) Select the Setup Page control button
5) Select the Cleaning Mode template
6) Press the Execute control button

After pressing the Execute button, the Cleaning Mode screen will appear. While this screen is displayed, the touchscreen will not respond to your random touch. After you have finished cleaning the touchscreen, you must return to normal operation by pressing the screen's numbered corners in sequential order: 1, 2, 3, 4.

Touchscreen Calibration

You can calibrate your unit's touchscreen in both Offline and Run modes. To access the calibration screen when in Offline mode, select the Calibrate Touchscreen template on the Offline Mode Menu. To access the calibration in Run mode:

1) Select the Get Page control button from the default control buttons
2) Select the More control button
3) Select the Setup Page control button
4) Select the Calibrate Touchscreen template
5) Press the Execute control button

Although the Offline and Run mode calibration screens are slightly different in appearance, they both use the same calibration process. To calibrate, press the eight boxes/crosshairs located around the screen edges. You may press them in any order, but all must be pressed to calibrate.

Each box/crosshair will turn green when pressed. After the first pass, the boxes/crosshairs will change color to indicate the screen is ready for the second pass. Again, press all eight boxes/crosshairs around the screen edge. When you have pressed the last, the unit will return to normal operation.

CAUTION

Never use foreign objects (pens, screwdrivers or similar) to activate the Touchscreen. Foreign objects may damage the membrane surfaces, causing unreliable operation or failure.

Do not use solvents or other harsh cleaning compounds on the touchscreen. Solvents and abrasive cleaning compounds will cause permanent damage to the touchscreen.
CAUTION

Care should be taken when tightening the nuts. The fasteners must be tightened enough to obtain a proper seal, but not over tightened to the point where the threads are stripped or the gasket is rendered useless. Always use a torque wrench when installing your PanelMate unit.

Torque Limits for Studs
20 inch-pounds for #10-32 nuts

Notes:
Dimensions are in inches.
Millimeter dimensions are in parentheses.
PanelMate Power Pro 5000 Split Cutout Template

CAUTION

Care should be taken when tightening the nuts. The fasteners must be tightened enough to obtain a proper seal, but not over tightened to the point where the threads are stripped or the gasket is rendered useless. Always use a torque wrench when installing your PanelMate unit.

Torque Limits for Studs
17 inch-pounds for #10-32 nuts
7 inch-pounds for #8-32 nuts

Notes:
- Dimensions are in inches.
- Millimeter dimensions are in parentheses.
PanelMate Power Pro 5000 Touchscreen Cutout Template

**CAUTION**

Care should be taken when tightening the nuts. The fasteners must be tightened enough to obtain a proper seal, but not over tightened to the point where the threads are stripped or the gasket is rendered useless. Always use a torque wrench when installing your PanelMate unit.

Torque Limits for Studs
10 inch-pounds for #10-32 nuts

Notes:
Dimensions are in inches. Millimeter dimensions are in parentheses.
Specifications

Temperature
- Operating: 0-50°C
- Non-operating: -20-70°C

Humidity (non-condensing)
- Operating: 20%-95%
- Non-operating: 20%-95%

Installation Rating
Approved for use in Type 4, 4X and 12 installations when properly mounted in a correspondingly rated enclosure

Vibration
- Operating: 1g at 10-500 Hz
- Non-operating: 1g at 10-500 Hz

Shock
- Operating: 30g
- Non-operating: 30g

Pollution
Pollution Degree 1 - Rated for exposure to dry or non-conductive pollutants only

Altitude
- Operating: 10,000 ft (3048 m) above sea level
- Non-operating: 40,000 ft (12,192 m) above sea level

ESD Immunity
- Air: IEC 1000-4-2, Level 4 (+/- 15kV)
- Contact: IEC 1000-4-2, Level 4 (+/- 8kV)

Radiated Immunity
IEC 1000-4-3 (10V/m) 27MHz to 1GHz 80% AM modulation

Conducted Immunity
IEC 1000-4-6 10V from 150kHz to 80mHz, 80% AM modulation with 1kHz sine wave

Surge Immunity
IEC 1000-4-5 500V

Radiated/Conductive
CISPR 22, Class A Emission

Electrical Fast Transient
IEC 1000-4-4, Level 3 (2kV) on power lines (1kV) on I/O lines

Line Frequency Magnetic Field Immunity
IEC 1000-4-8 Level 3, 30A/m at 50Hz and 60Hz

Voltage
AC Models
- 120/230VAC, -15% / +10%
DC Models
- 24VDC, -15% / +20%

Power
AC Models
- 33 Watts (without high speed interface installed)
- 40 Watts (with high speed interface installed)
DC Models
- 24 Watts (without high speed interface installed)
- 30 Watts (with high speed interface installed)

Current
AC Models
- 0.40/0.20A (without high speed interface installed)
- 0.50/0.25A (with high speed interface installed)
DC Models
- 1.2A (without high speed interface installed)
- 1.5A (with high speed interface installed)

Peak Inrush Current
AC Models
- 14A
DC Models
- 9A

Serial Port Rate
Selectable; 110 to 38,400 baud

Serial Port 1 Configuration
DB9S connection selectable for RS232, RS422, or RS485-2 signal levels

Serial Port 2 Configuration
DB9S connection selectable for RS232, RS422, or RS485-2 signal levels

TouchPanel Weight
- 24 Lbs (without high speed interface installed)
- 25 Lbs (with high speed interface installed)

Touchscreen Weight
- 17 Lbs (without high speed interface installed)
- 18 Lbs (with high speed interface installed)