MARWAY
POWER SOLUTIONS

Commander™ Universal Control Panel 5000 & 5100 Series

Operating Guide and Reference

Sep 2025 : P/N 501041-000 Rev D

1 General

1.1 Documentation Symbols (EN)

Safety and warning notices as well as general notices in this document are shown in a box with a symbol as follows:

	Symbol for a life threatening danger.
	Symbol for general safety notices (instructions and damage protection bans) or important information for operation.
	Symbol for general notices.

1.2 Safety Notices (EN)

Mortal danger - Hazardous voltage

- This product is classified as pluggable equipment. The mains inlet plug serves as the disconnect device. The mains inlet plug shall be installed so that it is easily accessible.
- This product is equipped with a safety ground connection through the mains inlet plug, as well as a redundant chassis ground screw on the rear panel. Ensure that the product is properly grounded before applying power.
- Disconnect all power to the product prior to servicing control signal cabling.
- Do not open this product as it contains no user serviceable parts inside. All service concerns should be directed to Marway Power Solutions.
- If this product is used in a manner which does not comply with this instruction manual, the protection provided by the equipment may be impaired.
- All work on connections must be carried out under zero voltage (output disconnect), and may only be performed by qualified and informed persons. Improper actions can cause fatal injury as well as serious material damage.

- This product is intended for indoor use only and should not be exposed to excess moisture. Avoid any use of liquids near the equipment, and condition which cause condensation.
- This product is intended for installation in a restricted access location by a skilled person.
- This product is intended for use by an instructed person.
- The equipment is only approved for use within the connection limits stated on the product label.
- The ratings for all output receptacles are marked on the top cover of the chassis. Be sure to observe the ratings for all connected load equipment.

1.3 Symboles de Documentation (FR)

Les consignes de sécurité et avertissements, ainsi que les avis généraux figurant dans ce document sont présentés dans un encadré avec un symbole, comme illustré ci-dessous.

	Symbole pour les avis de danger potentiellement mortel.
	Symbole pour les avis de mise en garde pour la sécurité personnelle ou pour la protection de l'équipement.
	Symbole pour les avis importants concernant le fonctionnement.

1.4 Avis de sécurité (FR)

Danger de mort – Tension dangereuse

- Ce produit est classé comme un équipement enfichable. La prise d'alimentation secteur sert de dispositif de déconnexion. La prise d'alimentation secteur doit être installée de manière à être facilement accessible.
- Ce produit est équipé d'une mise à la terre de sécurité via la prise d'alimentation secteur, ainsi que d'une vis redondante de mise à la terre du châssis. Assurez-vous que le produit est correctement mis à la terre avant de le mettre sous tension.
- Débranchez toute alimentation électrique du produit avant d'effectuer l'entretien du câblage des signaux de commande.
- N'ouvrez pas ce produit, car il ne contient aucune pièce réparable par l'utilisateur. Tous les problèmes de service doivent être adressés à Marway Power Solutions.
- Si ce produit est utilisé d'une manière non conforme au présent manuel d'instructions, la protection fournie par l'équipement peut être compromise.
- Tous les travaux sur les connexions doivent être effectués sous une tension nulle et ne doivent être effectués que par des techniciens qualifiés et compétents. Des actions inappropriées peuvent entraîner des blessures mortelles et des dommages matériels graves.

- Ce produit est conçu pour une utilisation à l'intérieur uniquement et ne doit pas être exposé à une humidité excessive. Évitez toute utilisation de liquides à proximité de l'équipement et les conditions susceptibles de provoquer de la condensation.
- Ce produit est destiné à être installé par une personne qualifiée dans un endroit à accès restreint.
- Ce produit est destiné à être utilisé par une personne qui a reçu des instructions appropriées.
- L'utilisation de l'équipement est approuvée uniquement dans les limites de connexion indiquées sur l'étiquette du produit.
- Les valeurs nominales de toutes les prises de sortie sont indiquées sur leur boîtier. Assurez-vous de respecter les valeurs nominales de tous les équipements de charge raccordés.

1.5 Product General Description

The Commander 5000/5100 series is a family of universal control panels (UCPs) which consolidate the On, Off, and Emergency Power Off (EPO) controls for downstream equipment with compatible control signal interfaces. Generally, Marway's UCPs are used in conjunction with Marway's power distribution units such as the Ethernet networked Optima 8 series, the non-networked Optima 5 series, and Optima custom models. As of early 2025, some models have shifted to legacy status, but this manual continues to describe all original models.

Each UCP model has a single phase mains power inlet, user control buttons on the front panel, control signal connectors on the back panel. Each also has a pair of auxiliary convenience power outlets (one at the front, one at the back). All models are constructed of a steel chassis, and are designed for fixed mounting within a 1-U rack space in an EIA-310 compliant rack enclosure.

1.6 Product Models

The products are separated into two families. The 5000 series is designed to NEMA conventions, and the 5100 series designed to IEC conventions. Each of these two families includes models for normally open (N.O.) and normally closed (N.C.) EPO styles. Each style is available with or without an EPO button guard.

Be aware that as of early 2025, some models have been shifted to legacy status. That is, fewer models (as found in our Standard Products Catalog) are generally stocked. Support and service is continues to be available for all models. This manual continues to describe all original models.

Series	Model	Power Connectors	EPO Type	EPO Guard	Power Rating
UCP 5000	UCP 5000-000	NEMA	NO	—	120 Vac, 50/60 Hz, 1 phase 12 amps
	UCP 5000-000G		NO	Yes	
	UCP 5000-001		NC	—	
	UCP 5000-001G		NC	Yes	
UCP 5100	UCP 5100-000	IEC	NO	—	100–240 Vac, 50/60 Hz, 1 phase 10 amps, European Union 12 amps, United States
	UCP 5100-000G		NO	Yes	
	UCP 5100-001		NC	—	
	UCP 5100-001G		NC	Yes	

2 Installation

2.1 Installation Notes

The following guidance must be followed for proper installation of the product.

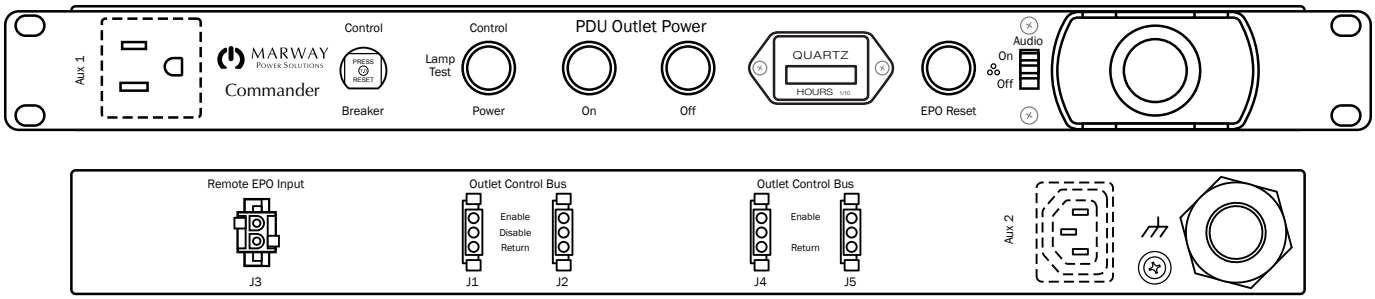
1. Mounting: This product is designed for mounting in an EIA-310 compliant 19” rack. The user is responsible for ensuring the mounting method provides adequate structural support for the product and any attached cables. The user is also responsible for ensuring the mounting location provides adequate ventilation to dissipate heat generated during operation of the product. Ensure the product is securely mounted before applying power.
2. Chassis ground: The rear of the chassis includes a redundant chassis ground screw and ground wire. If desired for your installation location, connect the chassis ground wire to the rack cabinet using an appropriate fastener.
3. This product includes a power cord with a plug, which is used to disconnect power to the product. The facility socket outlet must be installed near the equipment and must be easily accessible.
4. Connect the appropriate remote control cables between the product and one or more PDUs.
5. Ensure the Control Breaker is in the reset (depressed) position.
6. Connect the product power cord to the facility socket outlet.
7. Facility Power Source: The facility power source for this product must include an overcurrent protective device with a maximum rating as defined in the table below:

Main Inlet	Location	Continuous Current Rating	Mains Protection Required
NEMA 5-15P	United States	12A	15A
IEC C-13	United States	12A	15A
IEC C-13	European Union	10A	10A

The current rating for the input and output signals of the control connectors on the back panel is 4 Amps.

See the Specifications pages for full details on dimensions, connections, and ratings.

3 Operation



3.1 Startup

When power is applied to the UCP (and assuming the Control Breaker is engaged), the Control Power lamp will be lit indicating the system is powered. This indicator also functions as a lamp and audible alarm test button. Pressing Control Power will momentarily illuminate all indicators, and trigger the audible alarm.

All normally closed (N.C.) -001 models power up in the EPO mode — as though the EPO button had been pressed. The EPO Reset button must be pressed before beginning normal operation.

3.2 Control Modes and Connector Pins

The system has three modes or states of control named On, Off, and EPO. These modes change the state of the Outlet Control Bus pins at the rear of the unit—which are then interpreted by the remote EPO controller in a Marway PDU (or other equipment with compatible signals).

The following table summarizes the pin connections during the operating modes.

UCP State	–000 Normally Open		–001 Normally Closed	
	J1 & J2	J3 & J4	J1 & J2	J3 & J4
Startup	no connections	no connections	no connections [1]	no connections
PDU Power On	Enable–Return	Enable–Return	Enable–Return Disable–Return	Enable–Return
PDU Power Off	no connections	no connections	Disable–Return	no connections
EPO active	Disable–Return	no connections	no connections	no connections

1 — For N.C. models, no connection on all pins is an EPO state. EPO Reset must be pressed at each new startup.

A –000 normally open (NO) UCP should be paired with PDUs equipped with a NO EPO controller.
A –001 normally closed (NC) UCP should be paired with PDUs equipped with a NC EPO controller.

Note that connectors J1 and J2 are wired in parallel. That is, J1 pin 1 is always common to J2 pin 1, and the same for each of the three pins.

Connectors J4 and J5 are wired independently, but operate in parallel. They will change state at the same time, but J4 pin 1 is never common with J5 pin 1. The same goes for pin 3. There is no Disable signal on J4 and J5. Pin 2 is not used. On these connectors, the loss of the Enable signal is the same for an unpowered UCP, the UCP in Off mode, or the UCP in EPO mode.

3.2.1 Power On/Off Modes

In Power On/Off mode, the PDU Outlet Power On and Off buttons are used to switch on and off the PDU's remotely switchable outlets. Some PDUs may have outlets which are not controlled by these On/Off controls. (There are some variations in behavior depending the PDU type which are explored in the section "3.3 Control Modes and PDU Behaviors".)

3.2.1.1 Enable Signal

For all models, the On and Off buttons control the state of the Commander's Enable signal.

When the On button is pressed, the UCP's Enable signal is asserted. At Outlet Control Bus connectors J1 and J2, pin 1 is connected to pin 3. Additionally, at Outlet Control Bus connectors J4 and J5, pin 1 is connected to pin 3.

When the Off button is pressed, the Enable signal is not asserted.

The On/Off buttons have no affect on the Disable signal.

3.2.1.2 Disable Signal

For –000 NO models, during both On mode and Off mode, the Disable signal is normally open. There is *no* connection with Return (pins 2 and 3) — this is where the model version gets its normally open description.

For –001 NC models, during both On mode and Off mode, the Disable signal is normally closed. There *is* a maintained connection with Return (pins 2 and 3) — this is where the model version gets its normally closed description.

3.2.2 EPO Mode

When the EPO button (large red one on right side which is not labeled), or a remotely connected EPO button connected to the UCP panel, is pressed, the system enters Emergency Power Off (EPO) mode. If the UCP was previously in the On mode, this would be canceled, which results in all switchable outlets in connected PDUs to be switched off. (There are some variations in behavior depending the PDU type which are explored in the section "3.3 Control Modes and PDU Behaviors".)

3.2.2.1 Enable Signal

When in EPO mode, the UCP's Enable signals on J1, J2, J4, and J5 are disengaged (revoking any previous On mode).

3.2.2.2 Disable Signal

For –000 NO models, during EPO mode, the Disable signal is asserted. On Outlet Control Bus connectors J1 and J2, pin 2 will be connected to pin 3.

For –001 NC models, during EPO mode, the Disable signal is *not* asserted. On Outlet Control Bus connectors J1 and J2, pin 2 will *not* be connected to pin 3. In the NC models, the *lack* of this signal indicates the EPO is active.

At the press of one of the connected EPO buttons, the audio alarm will optionally be triggered on the UCP depending on position of the Audio switch. Audio Off will keep the audio alarm silent.

3.2.3 Clearing EPO Mode

After the EPO has been pressed, an operator has to clear the EPO mode before resuming normal operation with On mode.

Press the EPO Reset button. At this point, the system will be in Off mode with the pin connections reverted to the conditions described in the sections above.

If the Audio button has been temporarily switch to the Off position, it should be switched back On so it can alert for the next EPO event.

To return to normal operating mode with PDU outlets powered, press the On button.

3.3 Control Modes and PDU Behaviors

This section is to clarify what behavior to expect with various design options in the PDUs to which the Commander UCP may be connected.

3.3.1 Optima 5 Series PDUs

In the various 5 Series PDUs with remote EPO capability (520, 532, 533), most of the outlets are subject to the EPO control system, though some are always powered as long as the PDU itself is powered.

In 520 Series models, outlets labeled Group A are not subject to the EPO system. They will remain powered as long as the PDU is powered. Outlet groups B and C are subject to EPO control.

In the 532 and 533 PDUs, a pair of outlets labeled J1 are not subject to the EPO system. All other outlets are.

The outlets in Group A or J1 will continue to be powered even when the EPO button is pressed or the EPO Mode switch on the PDU is the Off (middle) position.

3.3.2 Optima 8 Series PDUs

In Optima 820 and 833 series PDUs, most outlets are subject to the EPO system. In the 820 models, outlet J9 is not subject to the EPO system. In the 833 systems, the two highest numbered outlets (varies by model) are not subject to the EPO system. They will remain powered as long as the PDU is powered, even if the EPO button is pressed.

With the addition of the remote control software, the Optima 8 series has an additional facet to consider when the EPO state is activated.

By default, when an EPO event occurs, the Optima responds in two ways. First, the standard EPO control system in the PDU shuts off the main power contactor or relay. This cuts power to all EPO controlled outlets. This action does not change the state of the individual software-controlled outlet relays. Therefore, secondly, the RCM software is triggered to switch all of its remote control outlet relays off.

When EPO is reset, and the Commander is restored to an on state, and the main power relay/contactor in the PDU is turned back on. However, the RCM software, by default, assumes it's own state erring on the side of safety, and the individual remote control outlet relays remain off. An operator, or remote control script, has to restore the desired state of each outlet.

Knowing that in some scenarios it is preferred to have the individual outlets restored to the power state they were in before the EPO event, the RCM software has an option for this. In the Power view of the web interface, the Outlets tab has an option labeled "Auto On When EPO Canceled" for each outlet. When this option is checked, that outlet will ignore the original EPO event, and the remote control relay will not be switched off. There's still no power at the outlet because the main power relay/contactor will have cut the power source. With this option checked, when EPO is reset, power is restored to the outlet because the individual outlet relay will still be in the on state.

There's is more detail about this system in the RCM User Guide version 2.3.x Rev C and later.

3.3.3 Custom PDUs

Custom PDUs may or may not have outlets which are not subject to the EPO system. The pattern of labeling outlets may have to follow specific needs defined by the customer, so it may not be obvious which outlets will remain powered. The end user will need to determine this based on knowing the original design requirements.

If the custom PDU has RCM software and switched outlets, then the behavior described above in “3.3.2 Optima 8 Series PDUs” will apply. Please read that section for details.

If the custom PDU does not have RCM networking software with switched outlets, then any outlet designed to not react to the EPO system will simply remain on (as long as the PDU is powered) even when the EPO button is pressed or the EPO Mode switch on the PDU is the Off (middle) position.

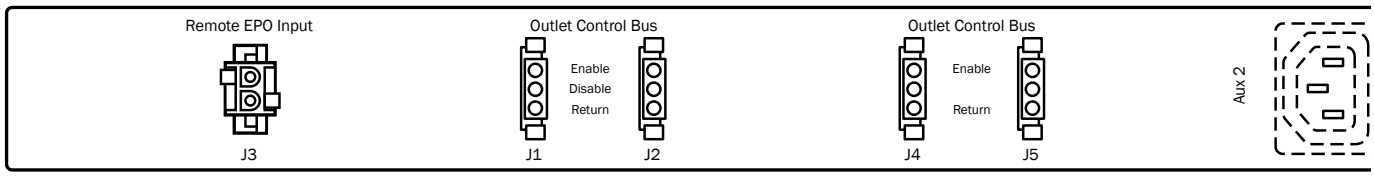
3.4 Using Aux1/Aux2 Outlets

These two outlets are wired directly to the input power, and are always powered. They are not subject to the On/Off/EPO controls of the UCP, nor are they subject to the front panel circuit breaker. The combined load of both outlets is subject to the input power rating of the unit (see “1.6 Product Models”).

4 Connections

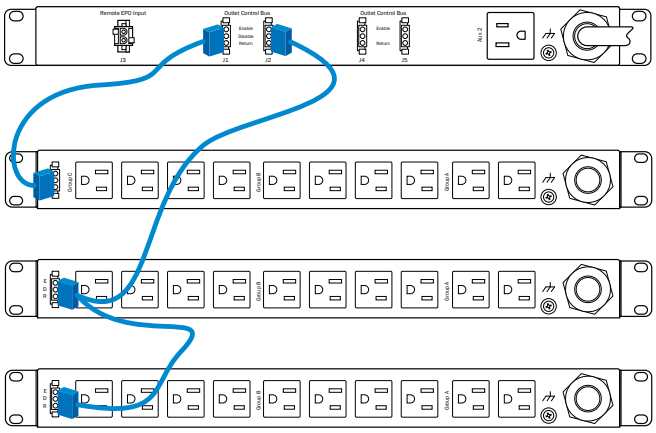
4.1 Connecting to PDUs

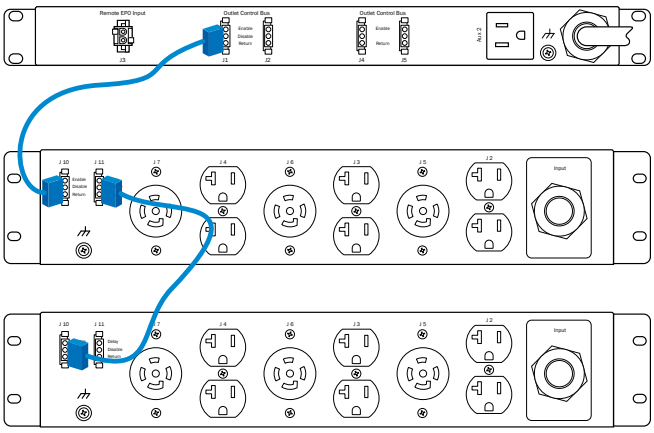
There are four connectors which can be used to control PDUs or other equipment subject to the Commander control panel: J1, J2, J4, and J5 — all of which are on the back face of the system. All four connectors are dry contacts.



While there are four connectors, this does not necessarily limit connecting to just four downstream PDUs. Assuming the UCP is used with Marway PDUs, the conventional method is to connect to the first PDU, then daisy chain multiple PDUs. Some PDUs may have only one remote EPO connection (due to lack of space), in which case Y cables can be used to implement daisy chaining. Nevertheless, connecting multiple PDUs directly to the UCP is possible using the on-board connectors. Connectors J1 and J2 are intended to be used to connect to downstream PDUs.

Shown below are common daisy chain scenarios. The left show the Commander's J1 and J2 being used to directly connect to separate PDUs. The J2 connection is then used to daisy chain to another PDU using a Y cable. The right side shows a classic daisy chain when there are at least two connectors on the PDU. Any combination of these schemes is valid. Also, when PDUs have multiple remote EPO connectors, they're all wired in parallel. It does not matter which connector is used. Even if there are connectors on the front and rear, any of them can be used with equal result.

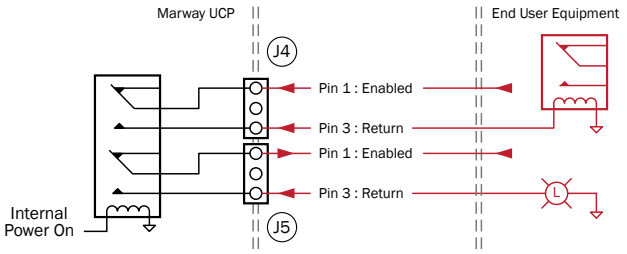




4.2 Remote Status Indication

The Commander's connectors J4 and J5 are intended for remote indication — that is, the ability to drive a lamp or signal input on some remote equipment which indicates that the Commander is in the Power On mode.

Each connector is a dry contact, each is wired independently, and each is rated up to 250 volts, and up to 4 amps.



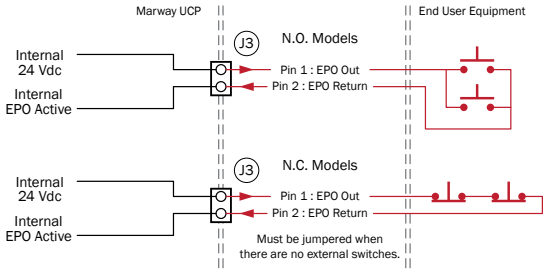
Shown is conceptually what's inside the UCP, and a simplified example of how to use the J4 and J5 connectors for auxiliary Power On signals.

4.3 Connecting Additional EPO Buttons

The Commander's J3 connector is a 24 Vdc source to loop out to one or more auxiliary EPO buttons. Each switch, if there is more than one, would be wired in series or parallel as indicated in the diagram to the right. There is no remote reset. For safety, there is only the one reset in the system at the Commander panel.

N.O. Models — Shorting J3 pin 1 to pin 2 returns the 24 Vdc signal, and creates an EPO active state.

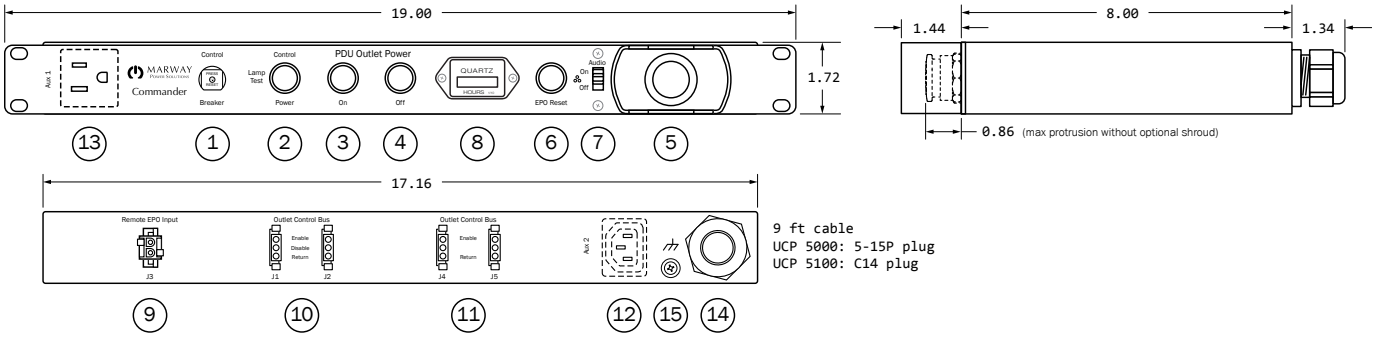
N.C. Models — J3 requires a shorting jumper when no external switches are used. Adding switches in series to break Pin1 from Pin 2 creates an EPO active state.



This diagram shows conceptually what's inside the UCP, and how to use the J3 connector to attach one or more external EPO buttons.

The voltage rating of connector J3 is a significant change from the legacy UCP 3500. UCP 5000/5100 models use 24 Vdc, whereas UCP 3500 models use 20 Vac.

5 Reference



(1) 1 amp breaker, protecting built-in controls.

(2) Control Power lamp / Lamp Test pushbutton. Functions as a lamp, and as a pushbutton. The lamp indicates that power is available to the UCP controls. The momentary pushbutton is used to temporarily illuminate all indicators as confirmation that they are still operable.

(3) PDU Power On lamp/button. The lamp indicates that the outlet control bus is enabled (rear connectors J1, J2, J4, J5). The momentary pushbutton is used to set the outlet control bus to the enabled state. This is typically used to allow PDU outlets to be powered. However, on some PDU models, local controls may still override this signal, and keep outlets off.

(4) PDU Power Off lamp/button. The lamp indicates that the outlet control bus is disabled. The momentary pushbutton is used to set the outlet control bus to the disabled state. This is typically used to prevent PDU outlets from being powered. However, on some PDU models, local controls may still override this signal, to force outlets on.

(5) EPO push button. When pressed, the outlet control bus is disabled, and the UCP is put into an EPO state. All remote-EPO-controlled outlets in PDUs connected to the UCP should be disabled (unless local PDU overrides have them forced on). The EPO Reset lamp will be illuminated, and the audible alarm will be activated (if switch (7) is on).

(6) EPO status lamp / EPO Reset button. The lamp will be illuminated whenever the UCP is in an EPO state. Pressing the button will turn off the EPO state, and put the PDU into a disabled state (EPO lamp will not be lit, and the audible alarm will be silenced). The PDU Power Off lamp will be lit. EPO-controlled outlets will remain off.

(7) Audible Alarm on/off switch. When on, a speaker is activated when the UCP is in an EPO state. The switch is intended to be used to configure the UCP to have the audible alert enabled or disabled as an element of the EPO state.

(8) Time accumulation meter. Displays the accumulated time in which the PDU Power On has been active (the UCP's enabled state).

(9) J3 Remote EPO Input. Allows additional EPO buttons to be connected to the UCP—all of which will operate exactly as the built-in button (5). Remote EPO buttons cannot be accompanied by EPO Reset buttons. Only one reset button (6) for the system is available.

(10) J1 and J2 Outlet Control Bus connectors. Intended for interfacing with Marway PDUs with remote EPO control to provide the enabled and disabled signals. These connectors are wired in parallel.

(11) J4 and J5 Outlet Control Bus isolated auxiliary connectors. Provides dry contacts which signal the outlet power enabled state of the UCP (when (4) has been pressed, and is illuminated). These connectors function in parallel, but each is a separate dry contact.

(12) Auxiliary convenience outlet. This outlet is always powered. It is a NEMA 5-15 on 5000 models, and C13 on 5100 models.

(13) Auxiliary convenience outlet. This outlet is always powered. It is a NEMA 5-15 on 5000 models, and C13 on 5100 models.

(14) Power inlet. The plug will be a 5-15P on 5000 models, and a C14 on 5100 models.

(15) Chassis ground connection.

6 Specifications

5000 Dimensions

1U Rack-mount chassis
Weight: approx. 9 lbs

Front Width: 19.00”
Chassis Width: 17.16”
Chassis Height: 1.72”
Chassis Depth 8.00”

5000 Electrical

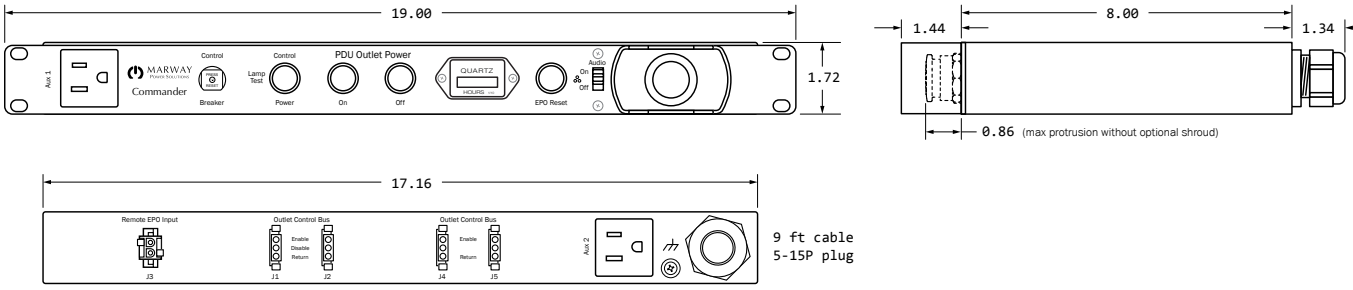
Input power rating: 120 Vac, 50/60 Hz
Current Load: 12 A continuous / 15 A maximum
Power consumption without Aux 1, 2: < 1 amp

J1: AMP #1-480304-0, 250 Vac, 4 A max.
J2: AMP #1-480304-0, 250 Vac, 4 A max.
J3: AMP #1-480699-0, 24 Vdc, no load
J4: AMP #1-480304-0, 250 Vac, 4 A max.
J5: AMP #1-480304-0, 250 Vac, 4 A max.
Aux 1: NEMA 5-15R, 120 Vac **
Aux 2: NEMA 5-15R, 120 Vac **

** combined load of Aux1 and Aux2 is subject to the 12 A USA rating

5000 Environment

Operating Temperature: 32°F to 122°F
Maximum Altitude: 6,562 feet
Relative Humidity: 5% to 85% non-condensing



5100 Dimensions

1U Rack-mount chassis
Weight: approx. 9 lbs

Front Width: 19.00”
Chassis Width: 17.16”
Chassis Height: 1.72”
Chassis Depth 8.00”

5100 Electrical

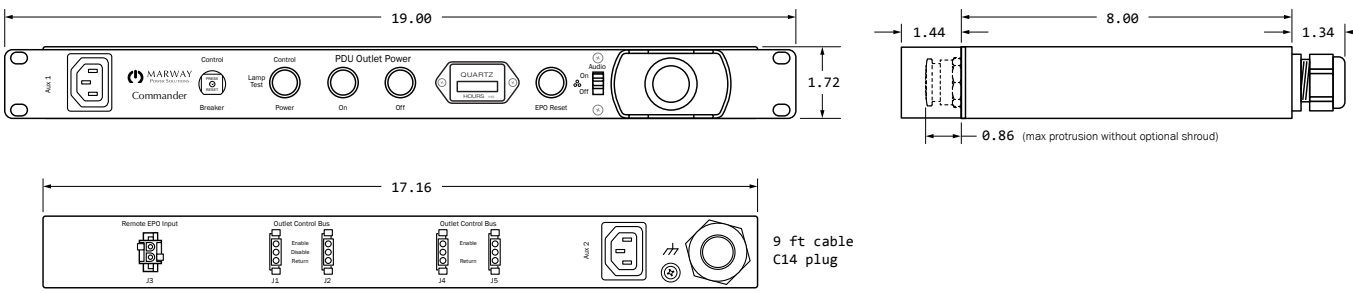
Input power rating: 100-240 Vac, 50/60 Hz
Current Load: 10 A
Power consumption without Aux 1, 2: < 1 amp

J1: AMP #1-480304-0, 250 Vac, 4 A max.
J2: AMP #1-480304-0, 250 Vac, 4 A max.
J3: AMP #1-480699-0, 20 Vac, no load
J4: AMP #1-480304-0, 250 Vac, 4 A max.
J5: AMP #1-480304-0, 250 Vac, 4 A max.
Aux 1: IEC C13, 100-240 Vac **
Aux 2: IEC C13, 100-240 Vac **

** combined load of Aux1 and Aux2 is subject to the 10 A EU rating, or 12 A USA rating

5100 Environment

Operating Temperature: 32°F to 122°F
Maximum Altitude: 6,562 feet
Relative Humidity: 5% to 85% non-condensing



Global Support Contacts

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sales@marway.com
Phone: 800-462-7929 (7am–5pm PST)

There may be updates to this documentation and the software it describes at:
http://www.marway.com/commander-epo-panels

Commander™ Universal Control Panel 5000/5100 Series

Operating Guide P/N 501041-000 Rev D

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