



Optima™ 320 Series Power Distribution Units

Operating Guide and Reference



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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 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 General Description

The Optima 320 Series (model numbers MPD 320XXX) is a family of 11 power distribution units (PDUs) designed for use with a single-phase supply power of either 120 Vac or 100–240 Vac.

Each PDU receives mains power through an inlet located at the rear of the 1U chassis. Power is distributed to all outlets on one or two branches depending on the model. A variety of inlet and outlet connectors is available.

All models except the 320001 include surge suppression, an EMI filter, an indicator for each circuit breaker, and an external chassis ground lug. For models with cords, a 10 foot cord is included. All models are UL and CE certified.

All models are constructed of a steel chassis, are designed for fixed mounting within a 1U rack space in an EIA-310 compliant rack enclosure, and include removable/reversible mounting brackets.

1.6 Product Models

Marway's Standard Products Catalog includes more detailed tables with exact model number configurations with inlets, outlets, and options identified.

Model*	Inlet Configuration	Outlet Configuration (B: back, F: front)				Breakers	Meter
		IEC C13	IEC C19	NEMA 5-15R	NEMA 5-20R		
320001	5-15P cord			B: 12 F: 2		None	
320002	5-15P cord			B: 12 F: 2		(1) 15A	
320003	5-20P cord				B: 12 F: 2	(1) 20A	
320004	C20 chassis	B: 12 F: 2				(1) 20A	
320005	5-15P cord			B: 8 F: 8		(2) 15A	
320006	L5-30P				B: 8 F: 8	(2) 20A	
320007	C20 chassis	B: 10 F: 10				(2) 20A	
320008	L6-30P	B: 6 F: 6	B: 2 F: 2			(2) 20A	
320009	5-15P cord			B: 12 F: 2		(1) 15A	Yes
320010	5-20P cord				B: 12 F: 2	(1) 20A	Yes
320011	C20 chassis	B: 12 F: 2				(1) 20A	Yes

* Each model number begins with MPD and is followed by a -000 (allowing for future variations).



1.7 Product Ratings

By model number, the following are the corresponding inlet and outlet ratings.

Model	Inlet Rating	Outlet Ratings
320001 320002 320009	120 Vac, 1 ϕ , 50/60 Hz 12 A continuous (15 A maximum)	<ul style="list-style-type: none"> • 120 Vac, 1ϕ, 12 A continuous (15 A max.) per 5-15R receptacle • 12 A continuous (15 A max.) total per unit (regardless of receptacle count used)
320005	120 Vac, 1 ϕ , 50/60 Hz 12 A continuous (15 A maximum)	<ul style="list-style-type: none"> • 120 Vac, 1ϕ, 12 A continuous (15 A max.) per 5-15R receptacle • 12 A continuous (15 A max.) total per outlet group / circuit breaker (regardless of receptacle count used) • 12 A continuous (15 A max.) total per unit (regardless of receptacle count used) • Note: the front and rear circuits are for flexibility, not double capacity.
320003 320010	120 Vac, 1 ϕ , 50/60 Hz 16 A continuous (20 A maximum)	<ul style="list-style-type: none"> • 120 Vac, 1ϕ, 16 A continuous (20 A max.) per 5-20R receptacle • 16 A continuous (20 A max.) total per unit (regardless of receptacle count used)
320004 320011	100–240 Vac, 1 ϕ , 50/60 Hz 16 A maximum	<ul style="list-style-type: none"> • 100–240 Vac, 1ϕ, 10 A maximum per C13 receptacle • 16 A maximum total per unit (regardless of receptacle count used)
320006	120 Vac, 1 ϕ , 50/60 Hz 24 A continuous (30 A maximum)	<ul style="list-style-type: none"> • 120 Vac, 1ϕ, 16 A continuous (20 A max.) per 5-20R receptacle • 16 A continuous (20 A max.) total per outlet group / circuit breaker (regardless of receptacle count used) • 24 A continuous (30 A max.) total per unit (regardless of receptacle count used)
320007	100–240 Vac, 1 ϕ , 50/60 Hz 16 A maximum	<ul style="list-style-type: none"> • 100–240 Vac, 1ϕ, 10 A maximum per C13 receptacle • 16 A maximum total per outlet group / circuit breaker (regardless of receptacle count used) • 16 A maximum total per unit (regardless of receptacle count used) • Note: the front and rear circuits are for flexibility, not double capacity.
320008	100–240 Vac, 1 ϕ , 50/60 Hz 24 A continuous (30 A maximum)	<ul style="list-style-type: none"> • 100–240 Vac, 1ϕ, 10 A maximum per C13 receptacle • 100–240 Vac, 1ϕ, 16 A maximum per C19 receptacle • 16 A continuous (20 A max.) total per outlet group (regardless of receptacle count used) • 24 A continuous (30 A max.) total per unit (regardless of receptacle count used)



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 at the front and rear of the unit, and for any attached cables. Inadequate or uneven support may create a hazardous mechanical or electrical condition over time.
2. **Ventilation:** The user is 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. If the unit has ventilation holes, slots, screens, or fans, these must not be blocked. The unit's specified maximum ambient temperature rating must not be exceeded.
3. **Chassis ground:** Grounding should be achieved through the main inlet power cable, assuming that cable is properly grounded at the source end. For additional protection, 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.
4. **Optionally, connect the appropriate cables between the PDU outlets and the equipment being powered by the PDU.** This may be done later according to the startup procedures suitable to the end-user's equipment and application.
5. **If applicable, connect the cabling between the PDU and remote EPO control panel.**
6. **PDU Main Breaker:** Ensure the Main Breaker on the front of the PDU is in the off position before connecting the PDU's inlet cable to the facility power source.
7. **Facility Power Source:** The single-phase facility power source for these product must include an overcurrent protective device capacity as defined in the table below.

Main Inlet	Continuous Current Rating	Mains Protection Required
NEMA 5-15P	12 A	15 A
NEMA 5-20P	16 A	20 A
IEC C20	16 A	20 A
NEMA L5-30P	24 A	30 A
NEMA L6-30P	24 A	30 A



2.2 Installation Mounting

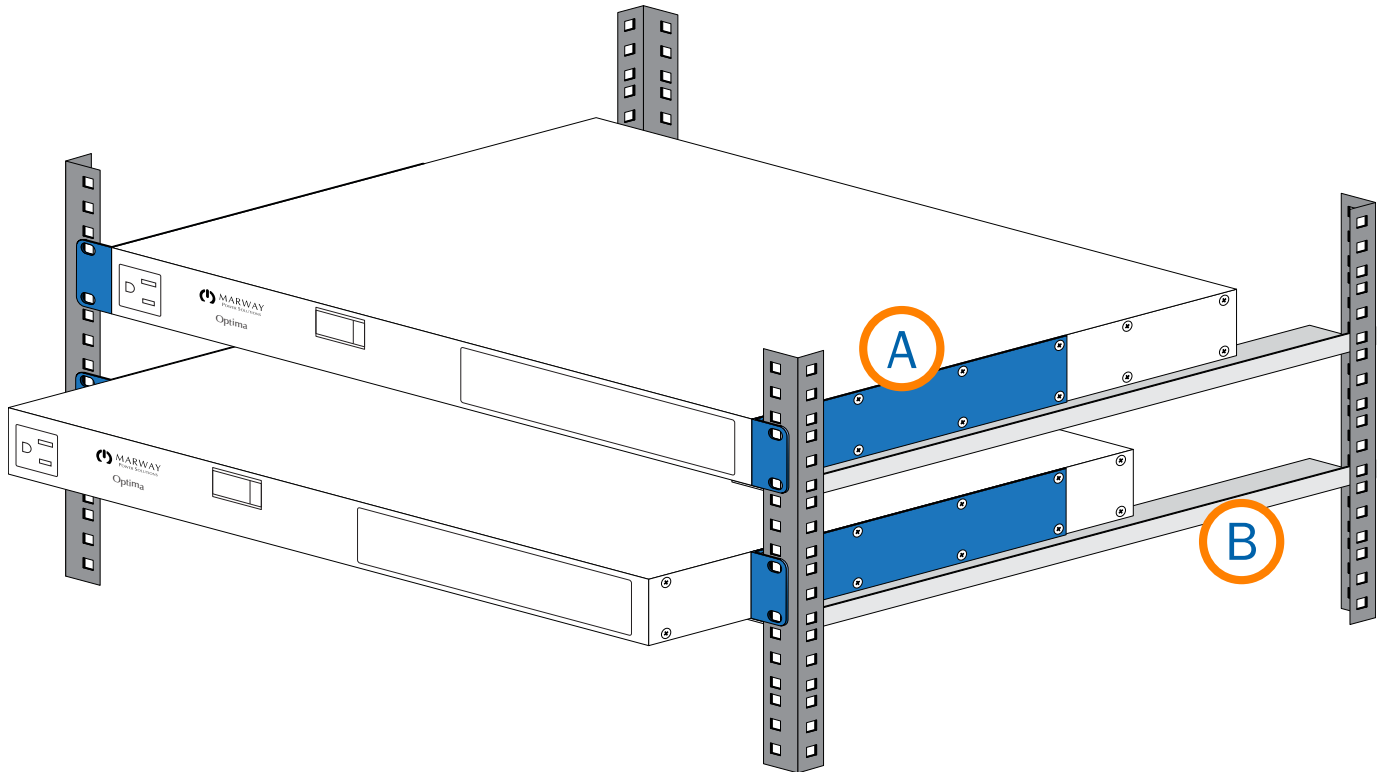


EN — These products are heavy. The flange mounting ears are designed to hold the PDU securely against the rack mounting rails, but are NOT designed to support the weight of the product vertically. The end user is responsible for ensuring the product's weight is properly supported by the rack's infrastructure (which may require adding support rails).

FR — Ces produits sont lourds. Les oreilles de montage à bride sont conçues pour maintenir solidement l'unité de distribution de l'alimentation contre les rails de montage, mais NE sont pas conçues pour soutenir le poids du produit verticalement. Il incombe à l'utilisateur final de s'assurer que le poids du produit est correctement supporté par l'infrastructure du bâti (ce qui peut nécessiter l'ajout de rails de support).

(A) The mounting ears, highlighted in blue, can be positioned flush with the front, or recessed from the front. They can also be flipped (not shown) to mount the rear panel flush or recessed from the rear of the PDU.

(B) The PDU should be supported by rails (not provided). The PDU is too heavy to mount only with the ears.



3 Operation

3.1 Startup

Switch the breaker(s) on the PDU chassis to the off position.

Insert the PDU's inlet connector into the facility mains power source. If there is a facility power disconnect, switch that to the On position. At this point, the PDU is energized, though the indicator lamps will be off.

Switch the PDU's breaker(s) to the On position, and the indicator(s) will be lit. All outlets are now powered.

3.2 Breakers

Various models have one breaker or two circuit breakers. The 320001 does not have a circuit breaker.

When there is a single breaker, in effect this behaves like a main breaker, protecting the whole unit, and providing on/off control for the whole unit.

When there are two breakers, each breaker protects one group of outlets. Outlets are organized into identical groups. The breaker on the front panel protects the outlets on the front panel, and the breaker on the back panel protects the outlets on the back panel. (The back panel is the one with the inlet connection.)

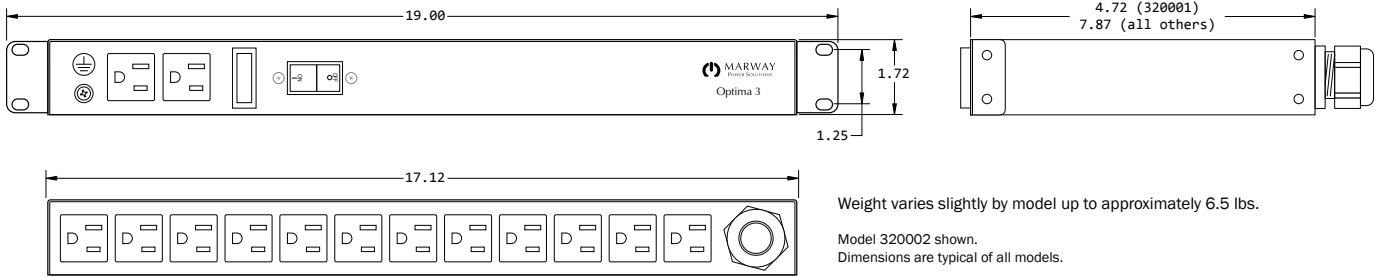
Each breaker has it's own indicator. When lit, power is being supplied to the correlating outlet group.

3.3 Digital Meter

Some models include the monitoring and digital display of volts and amps. The meter will auto rotate every 5 seconds between the volts and amps values. Volts are shown as whole numbers. Amps are shown with one decimal place. Both values are $\leq \pm 2\%$, and are recalculated every 15 seconds.



4 Specifications



Inlet Voltage Options

- 120 Vac, 50/60 Hz, single phase
- 100–240 Vac, 50/60 Hz, single phase
- All voltages are listed as nominal input sources.

Current Capacity Options

- 12 A continuous load / 15 A maximum (5-15P inlet)
- 16 A maximum (C20 inlet)
- 16 A continuous load / 20 A maximum (5-20P inlet)
- 24 A continuous load / 30 A maximum (L5-30P, L6-30P inlets)
- Based on NEC regulations, traditional load ratings are de-rated to 80% for continuous duty. For example, a traditional 30 A maximum rating is now interpreted and labeled as a 24 A continuous duty rating. Optima current ratings are shown with continuous/maximum rating values.

Overload Protection (standard)

- All models (except 320001) include UL 489 circuit breakers.
- All 120 Vac models (except 320001) use single-pole breakers.
- All 100-240 Vac models use double-pole breakers.
- All multi-breaker models are wired with one outlet group per breaker.

Regulatory

- All models certified to UL 62368-1.
- All models CE marked.

Environment

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

Digital Meter (some units)

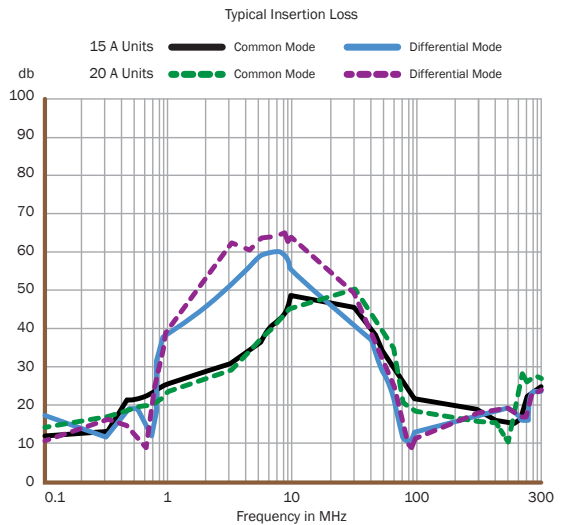
- Volts RMS is measured $\pm 2\%$, updated every 15 s.
- Amps RMS is measured $\pm 2\%$, updated every 15 s.

Surge Suppression (standard)

- All models (except 320001) include a varistor.
- 120 Vac models (except 320001) have a single-pulse energy rating of 200 joules.
- 240 Vac models have a single-pulse energy rating of 350 joules.
- All models (except 320001) have a peak surge current rating of 10,000 A for a single pulse $8 \times 20 \mu\text{s}$ wave.

EMI Filter (standard)

- All models (except 320001) include an EMI filter.
- All models have ≤ 0.6 mA leakage.



5 Contact and Support

5.1 Repairs

If not otherwise arranged between Marway and the customer, repairs must be carried out by Marway. The unit must be returned to Marway clearly labeled with a Return Materials Authorization (RMA) number. Contact Marway Support to obtain an RMA. Package the equipment adequately and send it, together with a detailed description of the problem, and if still under warranty, a copy of the invoice, to the address below.

5.2 Contact Options

Problems with or questions about operation of the unit, use of optional components, with the documentation or software, can be addressed to technical support either by telephone or email.

Address	Email	Telephone
Marway Power Solutions 1721 S. Grand Ave. Santa Ana, CA 92705	Technical support: support@marway.com All other issues: info@marway.com	714-917-6200

5.3 Two Year Warranty

Marway Power Solutions warrants each of its manufactured units to be as described in its specifications, made with quality materials and good workmanship, but also limited by this warranty and no other.

Two Year Warranty – For a period of two years following the date of shipment, Marway will repair or exchange, at Marway’s sole discretion, any unit purchased shown to be defective in materials or workmanship when used for its intended purpose. This will be done at no charge to the purchaser. Purchaser will return unit(s) at its own expense and only with prior authorization from the factory. Instructions will be given by an authorized factory representative at the time an inquiry is made. All repairs will be made at Marway Power Solutions’ corporate headquarters.

Transferability – This warranty is fully transferable to the end user if the purchaser is an original equipment manufacturer and the Marway unit is a component of their product or system sold to an end user.

Further Limitations – Marway’s liability under the terms of this warranty and the purchase and sale of its units is limited to the repair or replacement of its units. Marway shall in no situation be liable for any special, consequential damages or other damages of any kind or nature. Marway’s warranty does not cover units damaged by accident, abuse, misuse, unauthorized repair and such-the-like occurrences out of Marway’s control.

Exclusion of all Implied Warranties – **There are no warranties which extend beyond description on the face hereof. There are no warranties that any unit is fit for any particular purpose nor that they are merchantable.**



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There may be updates to this documentation at:
<http://www.marway.com/docs>

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