

THE NEXT GENERATION OF FLEXIBLE POWER DISTRIBUTION

# PowerWave BUS SYSTEM™



SPECIFICATIONS	POWERWAVE BUS SYSTEM™ NOTATIONS	SYSTEM RATINGS*		
		160	225	250
AMPACITY SYSTEM	Three specific design options with the most common ampacity.	160	225	250
PROTECTION	Finger-safe indoor rated systems.	IP2X	IP2X	IP2X
RATED VOLTAGE	All systems are rated at 208/480/600 volt, tap off units will determine actual system voltage.	208/480/600V	208/480/600V	208/480/600V
RATED SHORT CIRCUIT CAPACITY	Tested and rated to 22 KAIC	22 KAIC	22 KAIC	22 KAIC
CONDUCTOR TYPE	All conductors and contact points are plated copper.	CU	CU	CU
FREQUENCY RATING		50/60 Hz	50/60 Hz	50/60 Hz
TESTING CRITERIA	ETL certified to UL rating for busway systems.	UL 857	UL 857	UL 857
IEC RATED	ETL certified to IEC rating for busway systems.	60439.2	60439.2	60439.2
SYSTEM WEIGHT PER FOOT	Straight sections only.	6.8lbs	6.8lbs	7.3lbs
SUPPORT DISTANCE	Tested and certified for 10' centers. All elbows, cross and tee come with built in supporting hardware.	10' centers	10' centers	10' centers

\* 400 and 600 amp units available later this year.

COMPONENT LIBRARY	POWERWAVE BUS SYSTEM™ NOTATIONS	SYSTEM RATINGS*		
		160	225	250
STRAIGHT LENGTHS	All sections shipped with coupling on one end.	12 foot	12 foot	12 foot
		10 foot	10 foot	10 foot
		6 foot	6 foot	6 foot
		5 foot	5 foot	5 foot
		3 foot	3 foot	3 foot
ELBOWS	Elbows come standard with consistently aligned neutral phasing, cross neutral phasing is available on request.	Left	Left	Left
		Right	Right	Right
		Down	Down	Down
		Cross	Cross	Cross
TEES	Tee fittings will come standard with consistently aligned neutral phasing, cross neutral phasing is available on request.	Yes	Yes	Yes
CROSS OR X	Cross fittings will come standard with consistently aligned neutral phasing, cross neutral phasing is available on request (special).	Yes	Yes	Yes
FEED UNITS	Feed boxes are used to bring power to the bus system; variations are available.	Available in end, center, two circuit assemblies	Available in end, center, two circuit assemblies	Available in end, center, two circuit assemblies
HANGERS	Hangers are for universal mounting with various support hardware.	Top rail mount Side rail mount	Top rail mount Side rail mount	Top rail mount Side rail mount
TAP OFF (DROP DOWN MINI PDUs)	Tap off units can be mounted at any position along the bus giving power distribution to any point in your facility. Tap off units are available with breakers, receptacles, and corded connections. Variations are available.	Max 60 Amp Multiple Communications	Max 60 Amp Multiple Communications	Max 60 Amp Multiple Communications
COMMUNICATIONS	A dedicated communication channel through PDIq within the busway enclosure can monitor each tap off device.	Yes (optional)	Yes (optional)	Yes (optional)

\* 400 and 600 amp units available later this year.

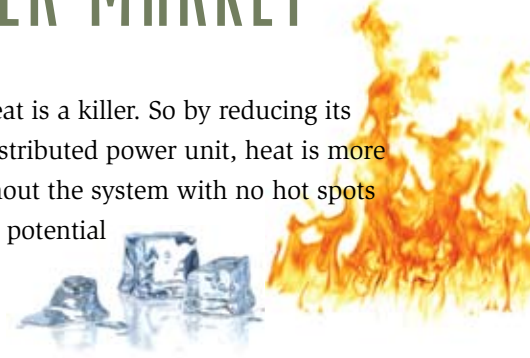
# POWERWAVE BUS SYSTEM™: DESIGNED SPECIFICALLY FOR THE CRITICAL POWER MARKET

The PowerWave Bus System™ is specifically designed for the critical power market by PDI, a leading manufacturer of critical power equipment. With over 30 years serving the data, banking, processing center and industrial markets, PDI has gained an unmatched level of expertise in the development of reliable products for critical power facilities. Through this extensive background and experience, we know that up time and clean power are critical to our customers and more importantly to theirs.

Our structured bus design incorporates many new patent pending design features with specific patents driven by our integrated communications capability; our unique Camtough™ structured joint technology and our Toughrail Technology™ supporting structure. In an industry where up time, reliability and serviceability are critical, isn't it time that a structured bus was designed specifically for you?

- **RELIABILITY** Tested at up to 200% of rating - our PowerWave Toughrail Technology™ is built to last.
- **TRACEABILITY** Clearly defined distribution with zero footprint allows for easy visible tracing of circuits.
- **RE-CONFIGURE** Move it, re-use it, add to it, or change direction – all this without any waste, and all with only minor disruption.
- **COMMUNICATIONS** Optional integrated communication through PDIq provides all the features used in our power distribution unit or remote distribution unit without the foot print and with complete integration to our current Branch Circuit Monitoring System (BCMS) Hub.
- **CONFIGURABLE** Lay it out, change your mind, move an aisle no problem – everything is easier with a distributed bus system.

- **LOW HEAT SOURCE** Heat is a killer. So by reducing its concentration within a distributed power unit, heat is more easily distributed throughout the system with no hot spots and therefore providing a potential reduction in your spot cooling requirements.



- **NO WASTE** Take it down, put it up, store it and re-use it. This is all possible with no waste when you can choose the PowerWave Bus System™ from PDI.

- **RECYCLE** Made of 99% recyclable components, environmentally friendly.



- **TAP OFF UNITS, DROP DOWN (MINI PDU)** Continuous bus allows for distribution of tap off points (Drop Down, mini PDU) at any location along the system with tap offs added or removed at any time. (*Proper safety procedure should always be used when working on live components.*)
- **LOAD-SPECIFIC** Tap off units are completely configurable to meet your load demands, and specific load requirements including monitoring.
- **VISUAL INSTALLATION INDICATORS** Our system is designed so that there are visible installation features that allow you to check that your configuration is securely installed prior to start up.



# THINK OUTSIDE THE BOX: POWERWAVE BUS SYSTEM™

## SIMPLE YET ROBUST

From preliminary concept to final installation you can count on PDI and PowerWave™ Structured Bus.

PowerWave Bus System™ design improves your installation, enhances mobility and ensures the long uninterrupted life of your critical electrical system.

The PowerWave™ Structured Bus system is tested and certified by ETL to the following standards: UL857 and IEC 60439-2.

### GENERAL

Busway systems have been available for years but to date no one but PDI has designed a continuous opening system specifically for critical power and data center installations.

Most available systems are merely adaptations of industrial or commercial systems that have not been specifically designed for your critical power loads.



The PowerWave Bus System™ with Toughrail Technology™ offers a complete line of fully compatible continuous opening plug-in busway with all the required fittings to complete your job.

The PowerWave Bus System™ is a flexible, easy to install, highly efficient structured busway that safely distributes power for any critical power, industrial, or commercial application. Features of the PowerWave Toughrail Technology™ include: a continuous plug-in style rail rated at 160–250 A with plated copper conductor and contacts. The patented PowerWave Toughrail Technology™ systems are available in the following configurations:

- three-pole and four-pole
- optional 150% fully rated neutral
- optional 100% rated isolated ground
- 600 volt max.

System installations are performed quickly and easily. Since our rugged yet lightweight design allows for easy handling and installation with up to a 60% savings in time and labor over competitive cable and conduit methods of installations. This significant savings is inherent to the design of our Toughrail Technology™ system.

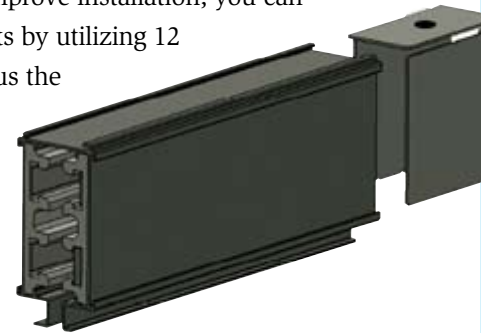
### TOUGHRAIL TECHNOLOGY AND CONSTRUCTION

PowerWave Toughrail Technology™ has a unique and inherently safe yet open and accessible design that meets the IP2X and finger-safe safety standard. Tap off units can be located anywhere on the run, reducing cabling and improving the functionality and aesthetics of your system. The oversized bus bars provide superior voltage drop characteristics. The extruded aluminum housing is a solid, one-piece design, with no welds or bolts, which reduces weight, improves the ground path and enhances stability and strength while minimizing EMI of the system.

Toughrail Technology™ incorporates one of the most unique section-to-section joints available today. With our patented cam-action connection you are assured of a secure, thermally efficient maintenance-free connection. Our design delivers minimal resistance and minimal voltage drops across the connection. To further improve installation, you can eliminate additional joints by utilizing 12 foot sections of bus versus the traditional 10 foot, removing 2 joint connections for every 100' of run.

### HASSLE-FREE CONTINUOUS RUN DESIGN

The PowerWave Bus System™ open channel design provides the installer and end user the greatest flexibility on the market today. With no predetermined tap off points, you can place distribution as needed directly over your loads. The total system enhances the workability of the installation as well as improving the analysis of direct loads. With our Tough Rail Communications system, you can monitor individual loads remotely, improve visibility of critical loads, and precisely monitor thermal activity on the system or the room.



# DESIGN FEATURES

## RUGGED & COMPACT

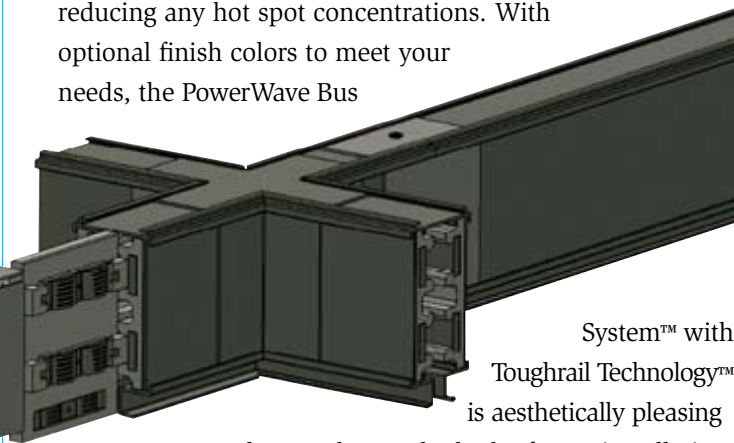
The PowerWave with Toughrail Technology™ structured bus system is a rugged yet compact system that eliminates any need for floor space, maximizing your server installation area. Our unique Toughrail Technology™ integrates power and communication in a single run, enhancing load communications, and reduces the space required compared to multiple cable and conduit runs.



## CONSTRUCTION AND FINISH

PowerWave Toughrail Technology™ system housing is created from

a single piece aluminum extrusion with a black anodized finish which increases the heat dissipation along the bus, reducing any hot spot concentrations. With optional finish colors to meet your needs, the PowerWave Bus



System™ with Toughrail Technology™ is aesthetically pleasing and can enhance the look of your installation.

The insulation used in the PowerWave Toughrail Technology™ system is manufactured with a Class C rated (149°C/300°F) material. The insulation wraps around each bus bar, giving perfect separation from phase-to-phase and phase-to-ground while enhancing the short circuit rating.

## PLATING

To improve system conductivity and reduce resistance the PowerWave Bus System™ is only available with copper bus bars that are nickel plated. This proven system improves the overall contact surface, reduces surface to surface resistance and is resistant to corrosion in higher humidity environments.

## POWERWAVE™ INTEGRAL GROUND PATH

PowerWave Toughrail Technology™ incorporates an integral ground system, as part of its extruded one piece housing. By utilizing the housing design for the grounding system we ensure the path, improve the capacity, and encase the complete system.

## SHORT CIRCUIT STRENGTH

PowerWave Toughrail Technology™ system's unique design for low voltage distribution from 160-250 amps achieves a rating for unprotected bus at 22,000 RMS symmetrical. Our testing was completed and certified by an independent third party.

## VOLTAGE DROP

PowerWave Toughrail Technology™ incorporates a low-loss design generating one of the lowest voltage drop ratings in the industry.

Low resistance is a key design criterion for power quality equipment in the critical power and data markets.



## DIELECTRIC TESTING

UL® and CSA require a one-time dielectric test prior to certification at two times rated voltage plus 1000 VAC (2200 VAC). Every piece of PowerWave Bus System™ is also factory tested to this standard prior to shipment.

# RECYCLE

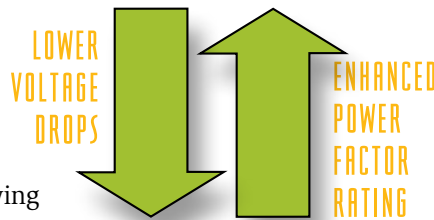
PowerWave Bus System™ gives you a 99% recyclable system installed in your facility. From the simplest component to the most complex, PDI can help you at the beginning and the end of your project.

During the installation, PDI will ship all components in recycled containers and/or with recyclable packaging.

# ENERGY EFFICIENT

Due to the patented design of our product the energy savings available to the end user can be substantial:

- Distributed bus eliminates hot spots from the data center due to electrical cable congestion.
- Distributed bus has less voltage drop than conventional wiring methods allowing for a more efficient use of consumed energy.
- Distributed bus lets you reduce the foot print allocated to electrical systems in your facility, allowing you to make sizing more exact.
- Distributed bus enhances your power factor rating due to the low line-to-line voltage loss.



# SAFE

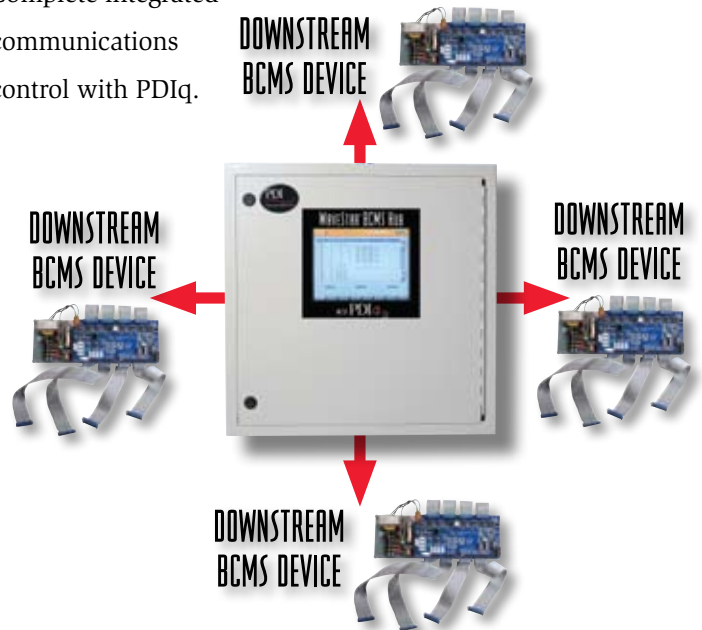
**NON TOXIC:** All components of the PowerWave Bus System™ are strictly made in accordance with all standards to eliminate any toxicity in case of a fire in your facility.



**NON PROPAGATING:** If a fire occurs in your facility, PowerWave Bus System™ is self extinguishing and will not propagate the flame.

# INTELLIGENT

- Communication bus is integrated into system housing.
- Communication runs to all distribution power.
- High level data accumulation.
- Complete integrated communications control with PDIq.



# PDI

creating the perfect wave

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