Cyberex® Mission Critical Power Quality

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Cyberex® Mission Critical Power Quality

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Digital Static Transfer Switches

SuperSwitch³™ Redefines Reliability

Thirty years ago, Cyberex® revolutionized power distribution with its invention of the Static Transfer Switch. Since then, Cyberex® has installed more units than any other manufacturer. It is from this experience and our customers' requirements that the SuperSwitch³™ has evolved.

Designed with a true fault-tolerant architecture, SuperSwitch³™ ensures there is truly no single point of failure through the use of our transfer algorithm and robust electrical components. With an increased MTBDE to an estimated 10 million hours, SuperSwitch³’s reliability is unmatched. SuperSwitch³™ redefines power reliability with its exceptional design, serviceability and user interface.

Breakthrough Technology

- Fault-tolerant architecture eliminates single point of failure
- SuperSwitch™ algorithm delivers unmatched transfer characteristics
- Dynamic Inrush Restraint protects system by minimizing downstream magnetizing currents
- Three tiered user-defined thresholds for power quality management
- Software-guided breaker operation eliminates human error
- Graphical user interface and mimic panel for local system monitoring and configuration
- Remote access capability for system, event and alarm monitoring
- Flexible access for ease of cabling, operation and maintenance
- Unparallele alarms, metering and diagnostics
- Detailed monitoring, reporting and trending capability
- Advanced communications allow access at any time from any location
- Unique modular design reduces open-door time to 15 minutes for standard servicing
- Ultra-dense footprint reduces demand on valuable data center real estate
- Reduced number of internal components maximizes reliability
Digital Static Transfer Switches

Dynamic Inrush Restraint Limits Inrush Current for 480V Applications

Based on loading and power system parameters, SuperSwitch3™ can dynamically modify its standard transfer switching algorithm. This technology limits the load inrush current in situations where the switch must make an immediate transfer to preserve load power quality. This breakthrough technology not only restricts the stress on fuses and breakers in the power distribution train, but also minimizes the chance of load interruption. Ultimately, this capability provides the maximum possible power quality of the voltage output for mission-critical applications.

Expert Power Management

With ever-increasing power requirements and the necessity to ensure uptime, SuperSwitch3™ provides exceptional power management.

Waveform Capture

SuperSwitch3™ is available with waveform capture. Cyberex’s waveform capture feature uses digital signal processors and high-speed analog-to-digital converters to simultaneously sample both source voltages and currents. The waveform data is collected in .1 millisecond intervals as 12-bit samples to provide an extremely high level of detail.

The SuperSwitch3™ is capable of storing 25 waveform capture events for both transfer and non-transfer events. Each measurement contains a total of five cycles; two cycles prior to the event and three cycles after the event.

The waveform can be sent via e-mail and imported into an Excel® spreadsheet for additional viewing and analysis.

Software-Guided Breaker Operation and Bypass

Easy-to-follow command and indicator lights eliminate the causes of human error.

Data and Alarm Management

With over 100 event types, 2500 events can be stored or downloaded for analysis.

Remote Access

Compatibility with Building Management Systems provides access from any location at any time.
Digital Static Transfer Switches

Reliability through Design Excellence
SuperSwitch™ provides maximum reliability through its innovative design. The modular components, from the power stage to the redundant bus architecture, have been engineered to unprecedented standards. With the fewest numbers, yet most reliable components, SuperSwitch™ ensures the highest level of functionality and minimum open-door time.

Small-Footprint Chassis
As much as 30% smaller than comparable industry models, the ultra-dense design maximizes floor space. Ease of installation and flexibility are ensured by flexible access from either the front, side or rear. Power connections are made from either the top or bottom.

Graphical User-Interface
User-friendly software and Rapid Response™ mouse allow for quick system configuration, power monitoring and response to alarms. Independent mimic panel provides redundancy to LCD data.

Printed Circuit Boards
Designed to eliminate a single point of failure, 10 robust boards are easily accessible (no stacking) and removed without load disruption. LED indication quickly provides comprehensive self-diagnosis status.

Power Stage Assembly
Fully rated SCRs are employed to prevent system damage after load faults. Infrared scans are easily accomplished without removal of assembly. Service-friendly design permits removal in 15 minutes or less.

Main Logic Board
Integral design provides advanced diagnostics and management of three-tiered power quality. Separate boards are used for each source, while independent drive circuits, with high fault isolation, are used for each phase. Fiber optic communications between the Gate Drive Board improve noise immunity and fault isolation.

Control Wiring
Electrical noise is mitigated by limited harnesses and signal interconnections, coupled with pre-defined cable routing and quick disconnects.

Power Wiring and Bus
Connections and maintenance are made easier by staggered phase connections and ample gutter space. 100% of connections are torqued, ensuring maximum reliability.

Molded Case Switches
Provide maximum interruption for fault currents and eliminate nuisance trips. Plug-in style components designed for easy and quick exchange.

Redundant Cooling
Smartly designed to ensure maximum cooling and reliability, the double-redundant fans provide back-up cooling and notification of any fan failures.

Gate Drive Board
Continuously monitors and reports the state of the SCRs and provides precision scaled voltage for power quality and metering. Independent of graphical user interface, board always remains in state last commanded by the main logic.
# Specifications

**Components**
- SCR: Fully-Rated, Hockey-Puck Type
- Mimic Panel: LED Current Flow
- LCD: Graphical, Backlit (Std.) or Color Display (Opt.)
- Fans: Dual Redundant
- Power Supplies: Triple Redundant
- Internal Bus: Dual Redundant
- TVSS: 80kA

**Communications and Software**
- Password Protection: Defined User Tiers
- Event Types: Information, Warnings and Alarms
- Alarm Notification: E-mail (or E-mail to Pager)
- Software Upgrades: Remote Downloadable
- Emergency Power Off: Remote (Std.) or Local (Opt.)
- Relay Contacts: 5 (Std.)

**Power and Event Management**
- Metering 1: kVA, kW, Ipeak, Phase, Current, Voltage, Frequency
- Metering 2: Power Factor, kVA Demand, Harmonic Analyzer
- Event Alarm Log: 2500 Events

**Electrical Characteristics**
- Voltage/Frequency: 208/480/600V, 3-Phase, 4-Wire, 60 Hz
- Current Rating: 200/400/600A/1000A
- Short-Circuit Withstand: 100kA
- Overload Capability: 125% (30 Min.), 150% (1 Min.), 1000% (3 Cycles)
- Circuit Breakers: Non-Automatic or Automatic

**Operational Characteristics**
- Controls: Full Digital
- Type II: Fuseless Current Path
- Bypass: System Assisted
- PQ States: Preferred, Acceptable and Emergency
- Transfer: Automatic or Manual
- Sensing Time: 2ms
- Auto Transfer: 4ms (or Less)
- Reacquisition: 3 Cycles
- Transfer Angle: User-Defined, Max 180°
- Temperature: 0 to 40° C (Operating), 0 to 80° C (Storage)
- Audible Noise: <65 dBA (6 ft.)

**Standards**
- NEMA: All Applicable Standards
- UL®: 1008 Listed
- FCC: Compliant (Part 15)
- NEC®: 2002
- IEEE: 587 (ANSI C62.41)

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# Ordering Information

<table>
<thead>
<tr>
<th>CAT. NO.</th>
<th>AMPS</th>
<th>VOLTS</th>
<th>DIM. (W x D x H)</th>
<th>BTU/HR.</th>
<th>WEIGHT (LB.)</th>
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<td>1200</td>
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<td>208V</td>
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<td>1400</td>
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<tr>
<td>DSR-06002-326-</td>
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<td>480V</td>
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<td>DSR-08002-326-</td>
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<td>208V</td>
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<td>6000</td>
<td>1800</td>
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<tr>
<td>DSR-10002-326-</td>
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<td>1000A</td>
<td>480V</td>
<td>46” x 34” x 76”</td>
<td>8400</td>
<td>2400</td>
</tr>
</tbody>
</table>

Configurations available up to 4000A. Contact your T&B sales representative for more information.

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To order the DSTS Series, please contact your T&B sales representative.
Power Distribution Systems

PDM II Series

Data centers are essential for individual businesses to have a presence on the Internet. Reliable uninterrupted power is critical to the mission of any organization’s data center. At Cyberex®, we have embraced the challenge to develop solutions that meet the needs of the modern data center while maintaining our heritage of offering the highest reliability on the market today.

The Cyberex® PDM II Series offers the most reliable and flexible power distribution product on the market today, with almost unlimited configurations of panelboards and subfeed breakers to meet every load requirement. Three cabinet designs support kVA ratings up to 500kVA.

Our Circuit Management series of products provides solutions to monitor and manage any combination of individual branch circuits or subfeeds from a single hardware platform.

The flexibility of the Cyberex® PDM II Series benefits the system designer, the installer and the owner. If one of our countless standard configurations doesn’t meet your application’s needs, Cyberex® is a master at customization. Our engineering staff stands ready to create just what you need.

Designed for Performance and Flexibility

- Multiple panelboard and breaker configurations offer the highest level of customization for diverse loads
- Comprehensive system monitoring provides ultimate flexibility for collecting and managing power data
- Optional safety barrier to separate primary and secondary voltages
- Branch circuit and subfeed management (optional) provides enhanced power data collection for branch circuits and subfeeds
- Remote monitoring interfaces to building management system using Modbus, web server and SNMP traps
- PDM Hi Res display with 320 x 240 resolution capable of monitoring and storing data from up to 16 local or remote circuit management devices — each with up to 168 circuits
- Efficient high-isolation, copper-wound transformers increase performance and significantly reduce EMI and RFI noise
- Spacious cable management and landing area simplifies frequent wiring changes and provides ease of installation
- Easy maintenance access ensures safe and trouble-free repair in minimum time
- Compact footprint maximizes valuable floor space
- ETL Listed to both UL® 60950 and UL 891; suitable for installation inside or outside IT-designated spaces

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**Standard Product Specifications**

**Electrical**
- kVA: 50–500kVA
- Input: 3-Phase, 3-Wire + Ground
- Input Voltage: 480VAC @ 60 Hz*
- Output: 3-Phase, 4-Wire + Ground
- Output Voltage: 208/120VAC*
- Panelboards: Up to (6) 42-Circuit Output Panelboards
- Transformer Ratings: K13 (Std.) • K4/K20 (Opt.)
- Transformer: Copper, Delta-Wye, Electrostatic Shielding
- Transformer Temperature Rise: 150°C (Std.) • 115°C (Opt.)
- Transformer Inrush: Normal (17X) and Low (6X)
- Transformer Compensation Taps: (4) 2⅔ % FCBN, (2) 2⅔ % FCAN
- Transformer Insulation: 220°C (Class R)
- Neutral Rating: 200%

**Operating Conditions**
- Temperature (Operating): 0 to 40°C • 37°C for 300 kVA
- Temperature (Storage): -40 to 60°C
- Audible Noise: Maximum: 55 dBA
- Maximum Operating Altitude: 8,200 ft. (2,500m)

**Dimensions**
- Height (All Cabinets, Sidecars): 77.4”
- Depth (All Cabinets, Sidecars): 34”
- Width (Main Transformer Section): 34” or 46” Depending on kVA
- Sidecars Available in Three Widths: 10” Side Facing
  - 24” Front and/or Rear Facing
  - 34” Front and/or Rear Facing
- Up to Six Sidecars Allowed
- Up to Six Panelboards per Sidecar: (2) Front Facing and/or (2) Rear Facing
- I-Line Panel Available
- Standard Column-Width or 400A Panelboards Available
- Subfeed Breakers Available: 100/150/225/400A

**General**
- Natural Convection Cooled
- Hinged Dead Front Panel
- 320 x 240 LCD Display
- Swivel Casters
- Single Point Ground
- Top and Bottom Entry
- Welded Frame Construction on Main Transformer Cabinet

**Options**
- Branch Circuit Monitoring
- Subfeed and Branch Circuit Breakers with or without Monitoring
- Remote Emergency Power Off (EPO)
- Transient Voltage Surge Suppression
- Lightning Arrester, Surge Arrester
- Floor Stands
- Input Junction Box: • Input Terminal Block

**Standards**
- NEMA (All Applicable Standards)
- ETL Listed to UL® 60950 and UL 891
- FCC Compliant (Part 15)
- * Other configurations available as non-standard.

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**Standard Monitoring Specifications**

**Power Monitoring**
- Input Voltage Line to Line (True RMS) S
- Output Voltage Line to Line (True RMS) S
- Output Voltage Line to Neutral (True RMS) S
- Output Current (True RMS) S
- Neutral Current (True RMS) S
- Ground Current (True RMS) S
- kVA S
- kW S
- Frequency S
- Percent Load per Phase S
- KWH Consumption S
- Power Factor per Phase S
- Peak Demand S (UC)
- Total Harmonic Distortion (Voltage and Current) S
- Load Crest Factor S
- Load Power Factor S
- Percent of Full Load S

**Control**
- Emergency Power Off (EPO) Push Button S
- Remote EPO Push Button Compatible S
- Four Form C Output Alarm Contacts S
- Four Form C Input Contacts – User Configurable S

**Power Alarms**
- High Transformer Temperature S
- Shutdown-Transformer Temperature S
- High/Low Input Voltage S (UC)
- High Output Current S (UC)

**Annunciation**
- Horn S
- Acknowledge Push Button S

**Communications**
- Modbus RTU (RS-485) S
- Modbus TCP (Ethernet) S

S = Standard
(UC) = User Configurable

Cyberex® cables complement any PDM configuration and are designed to mate with virtually any computer or peripheral device. Features include:
- UL® Listed and NEC® compliant
- NEMA, IEC, Russellstoll® and field wire configurations
- Identification labeling and optional colors
- Quick delivery

To order the PDM II Series, please contact your T&B sales representative.
Power Distribution Systems

PDM II Slim Series

PDM II Slim — Reduced-Footprint Power Distribution Module

Today’s data centers are struggling to add servers to meet the ever-increasing demand for computer services. Not all installations have the luxury of a sprawling computer room for expansion. Small data centers are bounded by the available floor space and must make the best use of every square foot. Cyberex’s new Slim PDM blends the isolation transformer and panel board distribution into the middle or end-of-the-rack lineup, saving valuable space normally taken by oversized PDU cabinets. The mid-sized transformer in the PDM Slim is tuned to the rack form factor to maximize power density while offering all the same features found in a full-sized PDM.

Big Mission-Critical Features in a Small Package

• Two 42-circuit panel boards placed conveniently within your rack lineups
• Top or bottom entry/exit provides flexible installation options
• Branch circuit management provides detailed status of individual circuits and early warning of overloads
• Advanced communications allow remote monitoring of circuits by the BMS
• Local display can be used as an Ethernet gateway to concentrate branch circuit data from up to 15 other Slim PDMs
**Power Distribution Systems**

**Standard Product Specifications**

### Electrical
- **kVA**: 50, 75, 100, 125kVA
- **Input**: 480 or 600VAC, 60 Hz, 3-Phase, 3-Wire + Ground
- **Output**: 208/120VAC, 3-Phase, 4-Wire + Ground

### Transformer
- **Type**: Copper, Delta-Wye, Dual Shield, Class 220, 200% Neutral, 60 Hz
- **K-Rating**: K-20 (std.), K-13 (opt.)
- **Temperature Rise**: 150°C (std.), 115°C (opt.)
- **Taps**: (4) 2.5% FCBN, (2) 2.5% FCAN

### Distribution
- **Panel Boards**: (2) Square D or GE Standard 42 Circuit

### Operating Conditions
- **Temperature**: 0 to 40°C (operating), -40 to 60°C (storage)
- **Audible Noise**: 55 dBA (maximum)
- **Altitude**: 8,200 ft. (2,500m) maximum

### Dimensions
- **Height**: 77” (195.6cm)
- **Depth**: 38” (96.5cm)
- **Width**: 24” (61.0cm)

### General
- **Convection Cooled
- Hinged Dead Front Panels
- Casters and Leveling Feet
- Top/Bottom Entry/Exit
- Hi-Res LCD Display with Ethernet

### Options
- **Branch Circuit Management
- TVSS

### Standards
- **ETL Listed to UL® 60950 and UL 891
- NEMA (All Applicable Standards)
- FCC Part 15 Compliant

*Other configurations available as non-standard.

**Power and System Monitoring**

The PDM II Slim features all the same powerful power and circuit monitoring and communications capability as our full-size PDM, including branch circuit management, web server and SNMP alarm traps.

### Local Display

**Web Server**

<table>
<thead>
<tr>
<th>PDM Main</th>
<th>BCM Panel Overview</th>
<th>BCM Panel Individual</th>
</tr>
</thead>
</table>

To order the PDM II Slim Series, please contact your T&B sales representative.
Power Distribution Systems

RPP II Series

Today's data centers require the highest level of reliability and performance. The Cyberex® RPP II Series provides two tiers of products with the flexibility to expand your data center distribution capabilities. Fed from your existing PDM, the RPP readily provides up to four 42-pole panelboards, four main breakers all fed from up to four sources.

Our traditional RPP is sized to fit over standard 2-foot-square raised floor tile and serves loads at 208/120 volts.

Traditional Design Offers Performance And Flexibility

- Multiple input capability improves management of dual-corded loads
- Multiple panelboard and breaker configurations offer the highest level of customization
- Comprehensive system monitoring provides ultimate flexibility for collecting and managing power data
- Branch circuit management (optional) provides enhanced power data collection for branch circuits
- Remote monitoring interfaces to building management system
- Local high-resolution display (optional) monitors up to 16 RPPs with 2,688 branch circuits
- Spacious cable management and landing area simplify frequent wiring changes and make installation easy
- Compact footprint maximizes valuable floor space

Product Specifications

**Electrical**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
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</thead>
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<tr>
<td>Input/Output</td>
<td>3-Phase, 4-Wire + Ground</td>
</tr>
<tr>
<td>Input/Output Voltage</td>
<td>208/120V @ 60 Hz</td>
</tr>
<tr>
<td>Input Amperage</td>
<td>100/150/225/400A</td>
</tr>
<tr>
<td>Panelboards</td>
<td>Up to (4) 42-Circuit Output Panelboards</td>
</tr>
<tr>
<td>Source Breakers</td>
<td>Up to 4</td>
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<tr>
<td>Neutral Rating</td>
<td>200%</td>
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**Operating Conditions**

<table>
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<tr>
<th>Specification</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Temperature (Operating)</td>
<td>0 to 40° C</td>
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<tr>
<td>Temperature (Storage)</td>
<td>-40 to 60° C</td>
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<tr>
<td>Maximum Operating Altitude</td>
<td>8,200 ft. (2,500m)</td>
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**Dimensions/Weight**

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<th>Specification</th>
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<td>Height</td>
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<tr>
<td>Depth</td>
<td>26 in. (66.04cm)</td>
</tr>
<tr>
<td>Width</td>
<td>24 in. (61cm)</td>
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<tr>
<td>Weight</td>
<td>500–550 lbs. (227–249kg)</td>
</tr>
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**General**

- Natural Convection Cooled
- Hinged Deadfront Panel
- Single Point Ground

**Communications**

- Modbus RTU (RS-485) (advanced and branch circuit monitoring)
- Modbus TCP (with optional BCM and display)

**Options**

- Basic or Advanced Monitoring
- Branch Circuit Monitoring
- Source and Branch Circuit Breakers with or without Monitoring
- Transient Voltage Surge Suppression
- Plug-In or Bolt-On Branch Circuit Breakers
- Input Junction Boxes
- Column Width Panelboards

**Standards**

- NEMA (all applicable standards)
- ETL Listed to UL® 508A
- FCC Compliant (Part 15)
- ANSI C62.41
Power Distribution Systems

Basic Configurations

A – Source Quantity

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<td>1</td>
<td>1 Source</td>
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<td>2</td>
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<tr>
<td>3</td>
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B – Source Breakers

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C – Panelboards

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<td>3</td>
<td>3 Panelboards</td>
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Basic Metering (Current)

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<tr>
<td>1</td>
<td>(1) Meter and (1) 4-Position Switch (3-phases + 1 neutral)</td>
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<td>2</td>
<td>(1) Meter and (1) 8-Position Switch (3-phases + 1 neutral)</td>
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<tr>
<td>3</td>
<td>(2) Meters and (1) 8-Position Switch and (1) 4-Position Switch (3-phases + 1 neutral)</td>
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<td>4</td>
<td>(2) Meters and (2) 8-Position Switches (3-phases + 1 neutral)</td>
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<td>5</td>
<td>(3) Meters and (2) 8-Position Switches and (1) 4-Position Switch (3-phases + 1 neutral)</td>
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<td>6</td>
<td>(3) Meters and (3) 8-Position Switches (3-phases + 1 neutral)</td>
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<tr>
<td>7</td>
<td>(4) Meters and (3) 8-Position Switches and (1) 4-Position Switch (3-phases + 1 neutral)</td>
</tr>
<tr>
<td>8</td>
<td>(4) Meters and (4) 8-Position Switches (3-phases + 1 neutral)</td>
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Advanced Metering (Current, Voltage & Power)

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<tr>
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<td>(1) Meter with (1) 3-Phase Monitoring Point</td>
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<td>(2) Meters with (2) 3-Phase Monitoring Points</td>
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<td>(3) Meters with (3) 3-Phase Monitoring Points</td>
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<tr>
<td>4</td>
<td>(4) Meters with (4) 3-Phase Monitoring Points</td>
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D – Source Breaker Amps

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<td>2</td>
<td>150A</td>
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<tr>
<td>3</td>
<td>225A</td>
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Cyberex® offers cables that complement any RPP configuration and are designed to mate with virtually any computer or peripheral device. Features include:
- UL® Listed and NEC® compliant
- NEMA, IEC, Russelstoll® and field wire configurations
- Identification labelling and optional colors
- Quick delivery

RPP II systems, available with Advanced Branch Circuit Management to improve power quality management, enable you to manage individual circuits locally via the Web or BMS.
High Power RPP

Finally, a versatile new RPP design distributes 415/240-volt power directly to the rack lineup. The new High Power RPP has a rack form factor and is offered in higher voltage and higher amperage configurations, putting more kilowatts into the white space.

- Available in a wide range of standard voltages, including 415/240, 400/230, 380/220 and 208/120VAC, 3-phase, 4-wire configurations
- Available with up to 400-amp panelboard distribution options
- Input connections: direct connect to panelboard breakers (225A, 400A), main input breakers (400A, 600A), single or dual 800A lugs
- Traditional configurations: up to four sources, four panelboards, four main breakers
- 24" end-placed cabinet provides side access and can be configured to match height and depth of standard commercial racks
- 42-circuit panelboard offerings include Square D, ABB and GE; up to 415 volts and 400 amps
- Top or bottom entry/exit
- Door-in-door hinged dead front construction
- Metal barrier between front and rear distribution available

Options:
- Dual feed with main-tie-main and synch check available (3- or 4-pole)
- Windowed doors
- Branch circuit management, Modbus RTU, optional display with Modbus TCP, web server and SNMP trap monitoring
- TVSS, 40kA per source

Versatile Distribution and Cabinet Options

The Cyberex® High Power RPP is designed to fit in a standard rack lineup and is offered with Square D, GE and ABB panelboards in both 225A and 400A configurations and in voltages up to 415 volts. The new ABB Proline panelboard is designed especially for mission-critical applications demanding superior coordination between branch breakers and panelboard main breakers. The high-speed, current-limiting design provides highly selective tripping in less than four milliseconds at up to 25kA available fault current. Additionally, the Proline panelboard has an innovative finger-safe design that ensures personnel safety even when the dead front is open.

The Cyberex® high-density rack-based RPP is available in most of the configurations of sources, main breakers and panelboards found in the conventional 225-amp, 208-volt models. A new feature is the adaptability to the form factor of the standard 24" wide rack lineup. The new RPP is configurable to a variety of standard “U” heights using top hats and a range of depths from 36” to 46” in 2” increments.

To order the High Power RPP, please contact your T&B sales representative.
Integrated Systems

Mission-critical power switching and distribution in one integrated custom system.

ZF Series

The Zero Footprint (ZF) Series, similar to the MC Series, provides redundant operation using two sources feeding one common group of output distribution devices. The ZF Series has dual transformers at the input of a Cyberex® SuperSwitch3™ Digital Static Transfer Switch (DSTS). The output of the static switch feeds output distribution devices which may include subfeed breakers and/or panelboards.

This integrated package offers a single, easy-to-install, factory-tested unit with a footprint that saves valuable floor space and avoids expensive inter-cabinet wiring.

A multitude of available distribution features and comprehensive circuit management with advanced communications provide the ultimate in design flexibility and reliability.

Proven Components and Performance

- Integrated SuperSwitch3™ DSTS and special distribution ensures reliability and availability of the entire critical power system
- Operator interface is the same reliable, easy-to-use interface found in the Cyberex® SuperSwitch3™ Digital Static Transfer Switch
- Dual input-positioned transformers offer ultimate redundancy and reliability
- Output distribution in separate side car cabinet offered in a wide range of configurations, including removable or fixed mounted breakers and panelboards
- Software-guided breaker operation reduces possibility of operator error
- Remote communications use standard protocols to interface with a building management system (BMS)
- Compact footprint maximizes valuable floor space and reduces power cabling costs
- Easy maintenance access means low MTTR (mean time to repair)

Zero Footprint provides added reliability to any architecture
Navigate and control the SuperSwitch™ with confidence using a rotary mouse, triple-redundant system status display, active mimic panel and LCD and LED indication.

The Zero Footprint Series features two main breakers, two impedance-matched transformers and DSTS to create the ultimate mission-critical system.

To order the ZF Series, please contact your T&B sales representative.
**Integrated Systems**

**MC Series**

The Mission Critical (MC) Series provides redundant operation using two sources feeding one common group of output distribution devices. By integrating a Cyberex® SuperSwitch³™ Digital Static Transfer Switch (DSTS) and Cyberex® Power Distribution Module (PDM), the MC Series provides the highest level of customization for diverse equipment loads and maximum growth. Coupled with advanced communications and branch circuit and sub-feed circuit management, the MC Series is the key design element for ensuring maximum uptime for your facility.

**Proven Components and Performance**

- Integrated SuperSwitch³™ DSTS and PDM maximize reliability and availability of the entire critical power system.
- Fault-tolerant DSTS design eliminates single point of failure.
- Dynamic inrush restraint (DIR) decreases transformer inrush and increases system reliability.
- Primary or secondary DSTS design options with input- or output-positioned DSTS offer maximum flexibility.
- Software-guided breaker operation reduces possibility of operator error.
- Multiple panelboard and breaker configurations provide maximum design flexibility.
- Comprehensive system and circuit monitoring provides ultimate visibility of operating data.
- Branch circuit and subfeed monitoring (optional) collects, organizes and manages detailed information about each circuit.
- Remote communications use standard protocols to interface with a building management system (BMS).
- Compact footprint maximizes valuable floor space and reduces power cabling costs.
- Easy maintenance access means low MTTR (mean time to repair).

The Mission Critical (MC) Series provides redundant operation using two sources feeding one common group of output distribution devices. By integrating a Cyberex® SuperSwitch³™ Digital Static Transfer Switch (DSTS) and Cyberex® Power Distribution Module (PDM), the MC Series provides the highest level of customization for diverse equipment loads and maximum growth. Coupled with advanced communications and branch circuit and sub-feed circuit management, the MC Series is the key design element for ensuring maximum uptime for your facility.
### Product Specifications

**Electrical**
- **VA** 75–300kVA
- **Input** 208, 480 or 600V, 3-Phase, 3-Wire plus Ground
- **Output** 208/120V, 3-Phase, 4-Wire plus Ground
- **Neutral** 200% Rated

**Transformer(s)**
- **K-Ratings** K-20 (std.), K-4, 9, 13 (opt.)
- **Construction** Copper Windings, Dual Electrostatic Shield
- **Temperature Rise** 150°C (std.), 80°C, 115°C (opt.)
- **Compensation Taps** 2%/4% (4 FCBM, 2 FCAN)
- **Insulation Rating** 220°C

**Distribution**
- **Panelboards** Up to 6 (252 poles)
- **Subfeed Breakers** Up to 24 (100, 150, 225, 400 amps)
- **I-Line** Up to Two 800-Amp I-Lines with 10 Removable Breakers

**General Operating**
- **Operating Temperature** 0 to 40°C
- **Cooling** PDM: Convection, DSTS: Dual Redundant Fans
- **Audible Sound** <65 dBA (maximum)
- **Operating Altitude** 8,200 ft. (2,500m)
- **Efficiency** PDU: 97.5% (typical), DSTS: 99%

**Digital Static Transfer Switch Section**
- **Transfer Time** 4 Milliseconds (sense plus transfer time)
- **Controls** Digital Signal Processor (DSP)-Based
- **Display** High-Res Graphical User Interface
- **Type II** Fuseless Current Path
- **SCR Type** Hockey Puck
- **Bypass** Six Non-Automatic Breakers with Software-Guided Bypass Sequence
- **Control Power** Dual Power Bus Fed by Three Sources
- **Redundant Design** No Single Point of Failure

**PDM Section**
- **Dual Transformer** Positioned at Input to 208-volt DSTS
- **Single Transformer** Positioned at Output of 480-volt DSTS
- **Panel Boards** Up to 6 (252 poles)
- **Subfeed Breakers** Up to 24 (100, 150, 225, 400 amps)
- **I-Line** Up to Two 800-Amp I-Lines with 10 Removable Breakers

### Communications
- **Modbus** RTU (RS-485), TCP (Ethernet)
- **Web Server** Access with Any Browser via Internet
- **SNMP Traps** Summary Alarm Traps
- **E-mail** DSTS Announces Selected Events

### Metering and Event Management
- **Voltage and Current** DSTS and PDM Input and Output
- **Power and Energy** DSTS and PDM Input and Output
- **Branch Circuit Management** (Optional) Up to 188 Poles per Module
- **Subfeed Management** (Optional) Up to 24 3-Pole Circuits
- **Event Log** Up to 2500 Time-Stamped Alarms and Warnings
- **Waveform Capture** (Optional) Records 25 5-Cycle Events

### Options
- **Circuit Management**
- **TVSS**

### Standards
- **UL® (DSTS)** ETL Listed to UL 1008
- **UL (PDM)** ETL Listed to UL 60950 and UL 891
- **NEMA** All Applicable Standards
- **NEC®** All Applicable Sections
- **FCC** Part 15 Compliant

### Dimensions
- **Height** 77.4 in. (196.6cm)
- ** Depth** 34.0 in. (86.4cm)
- **Width** Consult Factory
- **Weight (MC11)** 2,500 lbs. (1,134kg) to 3,900 lbs. (1,769kg)
- **Weight (MC12)** 3,200 lbs. (1,451kg) to 6,700 lbs. (3,039kg)

To order the MC Series, please contact your T&B sales representative.
Branch Circuit Management

A single solution for all your monitoring needs.

Circuit Management

Managing individual circuit loading is critical to the reliability of your center. The Circuit Management (CM) system provides accurate load management information and alerts you to potential problems before they affect your operation. User-configurable set points allow you to know when each circuit is approaching a load threshold that could interrupt power to that device. This notification allows your staff to proactively maintain your critical operation.

Designed for Performance, Flexibility and Reliability

- Factory integrated as an optional feature to your PDM or RPP, the Circuit Management system can be used for communicating valuable information to your central management system or to a local or remote display panel
- The CM actively monitors the load current of each of your circuits and reports this information to you for cost allocation or load protection management
- The Circuit Management system can be field maintained or upgraded to allow the addition or replacement of individual sensors — competitors offer only a fixed component system carried on a PCB that must be abandoned within your panels and bypassed with an inelegant hardware configuration when upgraded or repaired

Flexible Configurations

A single Circuit Management module can be configured to gather current, voltage*, power* and energy* data in the following distribution devices:

- Circuit Management — Up to four 42-circuit panelboards (168 poles)
- Subfeed Circuit Management — Up to 24 3-wire or 4-wire subfeed breakers
- Combination Circuit Management — Panelboard branch breakers and subfeed breakers can be combined in a single configuration
- Main Feed Circuit Management — Up to four sources in multi-fed RPPs can be monitored

* Requires energy option.
Branch Circuit Management

Innovation in Design
- Plug with connectors for circuit sensors simplify maintenance
- Snap-on mounting for circuit sensors with integral protection resistor are field replaceable
- Fully enclosed electronics module protect delicate circuit boards

Best in Class Serviceability
- Easily replace individual circuit sensors in the field, means only one circuit is affected, not the entire panel
- Only power down one individual branch, not entire panel
- Minimize costs and downtime

Ease of Configuration
- User-friendly, intuitive graphical user interface
- Flexible configuration — By individual circuit or entire panelboard

Advanced Connectivity
- Single system monitors up to 168 branch circuits — Can be panelboards or a combination of panelboards and subfeeds
- Monitor up to 2,688 circuits with one local display
- Both 2 and 4 wire modbus compatible
- Integrates with your building management system

Panelboard Compatibility
- Fits most panels: Square D, GE, standard and column width

Web Server & SNP

Web Server Features
- Provides instant snapshot of current or power levels on any circuit in your data center from a remote location
- Provides web page access to a maximum of 16 Cyberex® Circuit Management devices interconnected via Modbus and/or Ethernet
- Allows up to 2,688 individual circuits to be monitored remotely on the web for current, voltage*, power*, energy*, alarm status and set-point configuration (*requires energy option)
- Provides SNMP summary alarm traps for use with the customer’s monitoring system
- When integrated with your building management system the circuit data can be used to create a load profile over time to help you better plan capacity
- Secure, multi-level password-protected environment

Panel Overview Display Web Server
Individual Circuit Display Web Server

Branch Circuit Management Retrofit

Cyberex® offers a complete Circuit Management Retrofit Solution available to any RPP, PDM or other panelboard or subfeed application. Our field service team can assess your facility’s exact needs and configure a solution that provides Circuit Management capability equal in performance to our factory integrated system without interruption to your loads. Because of the diversity in today’s facilities, Cyberex® Circuit Management retrofit products were designed to offer a broad range of mounting options without the use of drilling or intrusions into your existing equipment beyond the introduction of split core current transformers (CTs). The split core CTs are clamped onto energized branch circuits without interruption to your critical loads.

A single local display can concentrate data from 16 Cyberex® Circuit Management systems and send it to remote monitoring systems via Modbus TCP or the Web Server. Connects to your building management system or a standard web browser.