



Product brochure

Cyberex[®] SuperSwitch[®] 3 technology 200–4000A digital static transfer switch

SuperSwitch[®]3 technology

200–1000A

SuperSwitch₃ redefines reliability

Forty 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.

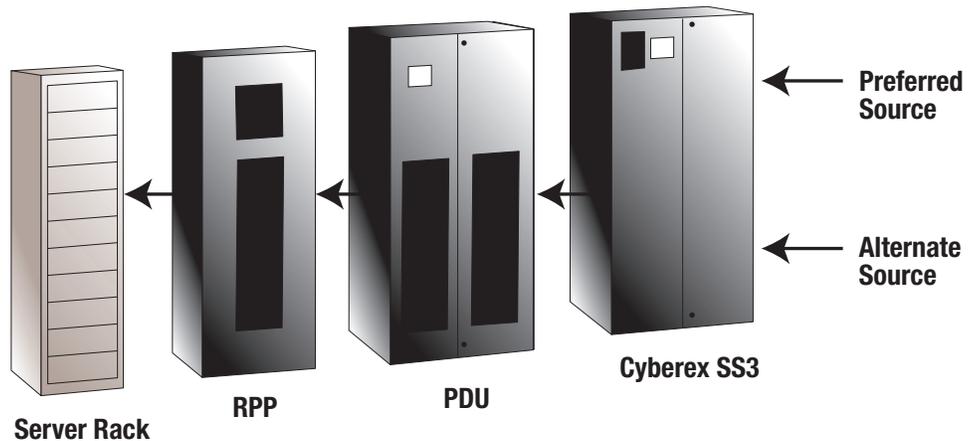
Designed with a 'true' fault-tolerant architecture, SuperSwitch₃ ensures there is truly no single point of failure through the use of our patented transfer algorithm and robust electrical components. With an increased MTBDE to an estimated 1.5 million hours, SuperSwitch₃ reliability is unmatched. SuperSwitch₃ redefines power reliability with its exceptional design, serviceability and user-interface.



Breakthrough technology

- Fault-tolerant architecture eliminates single point of failure
- Patented 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
- Alarms, metering and diagnostics
- Detailed monitoring, reporting 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 dataroom real estate
- Reduced number of internal components maximizes reliability

SuperSwitch₃ provides added reliability to any architecture



Dynamic inrush for applications with downstream transformers

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. The Cyberex 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 0.1 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 6 cycles; 3 cycles prior to the event and 3 cycles after the event.

The waveform can be sent via email and imported into an Excel spreadsheet for additional viewing and analysis.

Software-guided breaker operation and bypass

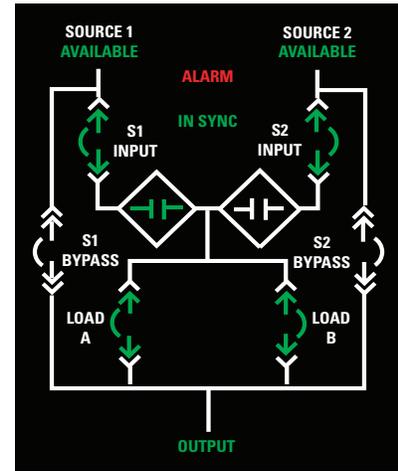
Easy to follow command and indicator lights eliminate the causes of human error.

Data and alarm management

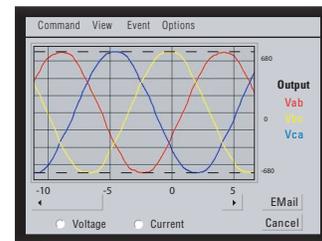
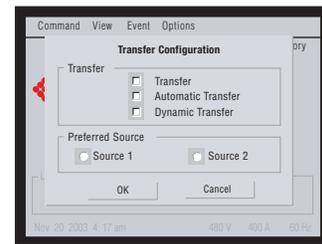
With over 100 warnings/alarms types, 2500 events can be stored or downloaded for analysis.

Remote access

Compatibility with building management systems provides access from any location at any time.



User-friendly control and mimic panel on all SS3 systems provide quick system configuration, power monitoring and response to alarms



Source 1					
Phase A-B:	486 V (101%)	A-N: 280 V			
Phase B-C:	492 V (102%)	B-N: 285 V			
Phase C-A:	485 V (102%)	C-N: 280 V			
Source 2					
Phase A-B:	471 V (98%)	A-N: 272 V			
Phase B-C:	472 V (98%)	B-N: 272 V			
Phase C-A:	479 V (99%)	C-N: 277 V			
Output					
Phase A-B:	469 V	Phase B-C:	471 V	Phase C-A:	477 V

SuperSwitch[®]3 technology

Redefining reliability

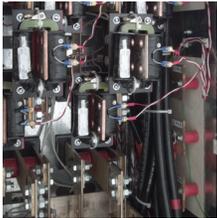
Reliability through design excellence

SuperSwitch₃ 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, SuperSwitch₃ 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.



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.



Power stage assembly

Fully rated hockey puck SCRs are employed to prevent system damage after load faults. The superior cooling design of the assembly enables higher current applications. Infrared scans are easily accomplished without removal of assembly.



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 improves noise immunity and fault isolation.



Innovative arrangement provides optional access for operation, installation and maintenance



Control wiring

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



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.



Rear view of SuperSwitch₃ showing top or bottom entry and exit for power cables

Selection 200–1000A

Amps	Volts	STD kAIC	Optional kAIC	Cable entry	Service access	Dim. (WxDxH)	BTU/hr	Weight	Model#
200A	208V	100K		Bottom/Top	Front/Right	34" x 34" x 76"	2400	1200 lbs.	DSR-02002-326-208
200A	480V	100K		Bottom/Top	Front/Right	34" x 34" x 76"	2400	1200 lbs.	DSR-02002-326-480
200A	600V	50K		Bottom/Top	Front/Right	34" x 34" x 76"	2400	1200 lbs.	DSR-02002-326-600
400A	208V	100K		Bottom/Top	Front/Right	34" x 34" x 76"	3600	1400 lbs.	DSR-04002-326-208
400A	480V	100K		Bottom/Top	Front/Right	34" x 34" x 76"	3600	1400 lbs.	DSR-04002-326-480
400A	600V	50K		Bottom/Top	Front/Right	34" x 34" x 76"	3600	1400 lbs.	DSR-04002-326-600
600A	208V	100K		Bottom/Top	Front/Right	34" x 34" x 76"	4800	1400 lbs.	DSR-06002-326-208
600A	480V	100K		Bottom/Top	Front/Right	34" x 34" x 76"	4800	1400 lbs.	DSR-06002-326-480
600A	600V	50K		Bottom/Top	Front/Right	34" x 34" x 76"	4800	1400 lbs.	DSR-06002-326-600
800A	208V	100K (cETL 65K)		Bottom/Top	Front/Right	46" x 34" x 76"	6000	1800 lbs.	DSR-08002-326-208
800A	480V	65K	100K (cETL 65K)	Bottom/Top	Front/Right	46" x 34" x 76"	6000	1800 lbs.	DSR-08002-326-480
800A	600V	42K		Bottom/Top	Front/Right	46" x 34" x 76"	6000	1800 lbs.	DSR-08002-326-600
1000A	208V	100K (cETL 65K)		ABB (Bottom/Top) Square D (Bottom Only)	Front/Right	46" x 34" x 76"	8400	1800 lbs.	DSR-10002-326-208
1000A	480V	65K	100K (cETL 65K)	ABB (Bottom/Top) Square D (Bottom Only)	Front/Right	46" x 34" x 76"	8400	1800 lbs.	DSR-10002-326-480
1000A	600V	25K	50K	ABB (Bottom/Top) Square D (Bottom Only)	Front/Right	46" x 34" x 76"	8400	1800 lbs.	DSR-10002-326-600

Standard access for all models is Front/Right with Front/Left & Front/Rear as an available option. Clearance around each system varies and is based on local building codes. Consult factory for unit dimensional drawings.

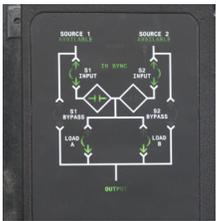
SuperSwitch[®]3 technology

1200–4000A



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.



SuperSwitch₃ 1200–4000A

Designed with a true fault tolerant architecture, SuperSwitch ensures continuous protection in the event of a power disturbance. Rated from 1200 to 4000 Amps, SuperSwitch is a key design element for large, mission critical commercial and industrial applications.

Printed circuit boards

Designed to eliminate a single point of failure, control boards are easily accessible for concurrent maintenance and removed without load disruption. LED indication quickly provides comprehensive self-diagnosis status.



Molded case switches

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



Power supply

With each supply capable of supporting all control power, the triple-redundant design ensures reliability. In the event of a fault, multiple alarms are activated.



The higher ampacity allows the SuperSwitch to deploy as a solution either at the utility entrance or closer to the mission critical loads in the data center. Whether the sources are UPS systems, utilities or generators, SuperSwitch delivers the most cost-effective protection.



Front view of SuperSwitch 4000A showing system modularity



Rear view of SuperSwitch 4000A showing system modularity

Specifications 200–4000A

Components

SCR	Fully-rated, hockey-puck type
Mimic panel	LED current flow
LCD	Graphical, backlit (std.) Color display (std.)
Fans	Dual redundant
Power supplies	Triple redundant
Internal bus	Dual redundant
Surge protection	80kA (200–1200A) 200kA (1600–4000A)

Communications and software

Password protection	Defined user tiers
Remote access	RS232, RS485 and web-based
Event types	Information, warnings and alarms
Alarm	Audible alarm capability with notifications (or email to pager)
Software upgrades	Remote/local downloadable
Emergency power off	Remote (std.), local (opt.)
Relay contacts	5 (std.)

Power and event management

Metering 1	kVA, kW, I _{peak} , phase, current, voltage, frequency
Metering 2	Power factor, kVA demand, harmonic analyzer
Event alarm log	2500 events

Electrical characteristics

Voltage/frequency	208V/380V/400V/415V/480V/600V 50Hz/60Hz
Current rating	200A/400A/600A/800A/1000A/ 1200A/1600A/2000A/3000A/4000A
Short-circuit withstand	25–100kA (voltage dependent)
Overload capability	125% (30 min.) 150% (1 min.) 1000% (3 cycles)
Circuit breakers	Non-automatic or automatic

Operational characteristics

Controls	Full digital
Type I 3000–4000A	Fused protected
Type II 200–2000A	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	Standards
UL	ETL Listed to UL1008S to 1200A 3-pole units; CSA C22.2 No 178
FCC	Compliant (part 15)
NFPA	NEC 2014

Selection 1200–4000A

Amps	Volts	STD kAIC	Optional kAIC	Cable entry	Service access	Dim. (WxDxH)	BTU/hr	Weight	Model#
1200A	208V	100K		Bottom/Top	Front/Right	64" x 42" x 77.25"	10080	2000 lbs.	DSR-12002-326-208
1200A	480V	65K	100K	Bottom/Top	Front/Right	64" x 42" x 77.25"	10080	2000 lbs.	DSR-12002-326-480
1200A	600V	25K	50K	Bottom/Top	Front/Right	64" x 42" x 77.25"	10080	2000 lbs.	DSR-12002-326-600
1600A	208V	100K		Bottom/Top	Front/Rear	120" x 60" x 83"***	16000	6000 lbs.	DSB-31600-326-208
1600A	480V	100K	150K	Bottom/Top	Front/Rear	120" x 60" x 83"***	16000	6000 lbs.	DSB-31600-326-480
1600A	600V	*		Bottom/Top	Front/Rear	120" x 60" x 83"***	16000	6000 lbs.	DSB-31600-326-600
2000A	208V	100K		Bottom/Top	Front/Rear	120" x 60" x 83"***	20000	6000 lbs.	DSB-32000-326-208
2000A	480V	100K	150K	Bottom/Top	Front/Rear	120" x 60" x 83"***	20000	6000 lbs.	DSB-32000-326-480
2000A	600V	*		Bottom/Top	Front/Rear	120" x 60" x 83"***	20000	6000 lbs.	DSB-32000-326-600
3000A	208V	100K		Bottom/Top	Front/Rear	192" x 60" x 83"***	32000	11300 lbs.	DSB-33000-326-208
3000A	480V	100K	150K	Bottom/Top	Front/Rear	192" x 60" x 83"***	32000	11300 lbs.	DSB-33000-326-480
3000A	600V	*		Bottom/Top	Front/Rear	192" x 60" x 83"***	32000	11300 lbs.	DSB-33000-326-600
4000A	208V	100K		Bottom/Top	Front/Rear	192" x 60" x 83"***	44000	11300 lbs.	DSB-34000-326-208
4000A	480V	100K	150K	Bottom/Top	Front/Rear	192" x 60" x 83"***	44000	11300 lbs.	DSB-34000-326-480
4000A	600V	*		Bottom/Top	Front/Rear	192" x 60" x 83"***	44000	11300 lbs.	DSB-34000-326-600

* Call factory

** 1600A–4000A units include a 6" louvre frame for a total system height of 83"

Standard access for 1200A models is front/right with front/left & front/rear as an available option.

Clearance around each system varies and is based on local building codes.

Consult factory for unit dimensional drawings.

Contact us

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