INTELEPOWER CXS SWITCHING SYSTEMS

Intelepower
CenturyYuasa

Intelepower DC UPS - CXS Range Designed For Switching

The demands for quality power in switching applications are placing new demands on DC Uninterruptible Power Supplies (UPS).

Power quality and reliability are integral to ensuring the availability of many of the systems which now run critical operations on a day-to-day basis. These continuing changes in technology have seen businesses evaluate the costs associated with downtime due to power outages, making the need for uninterrupted power an essential component of a business' infrastructure.

Century Yuasa Intelepower Industrial DC power systems are designed to provide absolute reliability where quality power and power equipment is mandatory for overall integrity of operations. Guaranteeing power during mains black-out or brown-out conditions, each system is assembled with Yuasa industrial VRLA batteries.

Through close collaboration with international engineers and local customers, Century Yuasa has developed a range of DC UPS systems under the Intelepower brand which is synonymous with reliability, integrity and value for money. The Intelepower CXS Switching systems have the flexibility to satisfy the most stringent specifications. Intelepower is suitable for:

- Emergency Power
- Industrial Switch Tripping

Intelepower Industrial DC Systems can be customised for your specific application and power requirements. Using a modular design philosophy, Intelepower systems are flexible enough to cater for expansion of components and ease of replacement. This is achieved through the use of switch mode rectifier technology with hot-swappable capabilities. This provides readily expandable power or N+1 redundancy options with minimal cost increases, while offering reduced MTTR (Mean Time To Repair).

Each system is network ready, with integrated SNMP and SCADA technology allowing operators to access system performance in real time from a remote location, reducing costs associated with servicing.

Specialised engineering personnel can design, install, and commission complete systems as well as offer specialised consultative services to manage one-off or a complete network of UPS equipment.

All standard Intelepower CXS Switching systems are designed to all relevant Australian Standards, to provide the reliability of power for essential operations. Century Yuasa has the expertise and resources to ensure that work is carried out effectively and efficiently to internationally bench marked quality standards, ISO 9001:2000.

Regardless of the size of your switching network, an Intelepower system can be designed to provide one of the most reliable uninterruptible power sources.

Key Design Elements That Help You

Duty of care – reduction of risk

Not only does Intelepower look good, but Century Yuasa also ensures full compliance with relevant safety standards and regulations, so that your most precious assets, your staff, are safe. The unique features of the Intelepower battery segregation means that your personnel are protected from unlikely hazardous events.

Power that you can rely on

Only the most reliable components that are available are used, resulting in the best MTBF (Mean Time between Failures) possible. This can be further increased by the addition of a redundant rectifier (recommended)

Low maintenance costs

The high reliability of Intelepower results in low maintenance costs. Although the batteries used are Yuasa and will result in a long life, that life is still finite so Century Yuasa recommends six monthly checks in order to trend the batteries and predict future performance. Because of the technology used, these checks are able to be done in normal hours without disruption to supply. The modular approach to design allows for low cost replacement of electronic components, normally without any disruption to supply.

Low running costs

The high efficiency of the latest switch mode rectifiers, all done with high efficiency power conversion switch mode technology, means that the lowest possible electricity usage is achieved.

Low upgrade costs

What happens when you add equipment that wasn't planned? Usually this requires the purchase of new power equipment. However with the modular design of Intelepower, it is usually possible to upgrade at minimal cost, especially if this is allowed for when selecting.

Easy to purchase and integrate into customer premises

Intelepower is made and stocked in Australia and usually comes complete with delivery, installation and commissioning. All this is done transparently and efficiently by the Century Yuasa expert team. All you need to do is supply AC power close by. The Intelepower equipment meets all relevant International specifications for EMC and other types of electrical interference.

No power down time

Intelepower DC UPS are intended to be powered continuously with no off period, unless the AC power feeding the equipment is off longer than the designed autonomy time. In most cases work such as maintenance and upgrades can be completed without any power down, especially if this work is carried out by Century Yuasa's expert Technicians.

Monitoring

Monitoring is standard on Intelepower systems which are network ready with integrated SNMP and web page access.

CXS48 Systems

	CXS48 Types 1 to 4
Electrical Input	
VAC Input	240VAC (176-320VAC) 1 Phase or 415VAC 3 Phase +N+E
Max Input Current (A)	4.6A @ 240VAC (per rectifier)
Power Factor	>0.99
Input Frequency	45-66Hz
Electrical Output	
Rectifier Type	Intelepower CX 1kW Modular Switch Mode Rectifier
System Nominal VDC	48VDC
Efficiency	>91% (100% load + recharge)
Load Regulation (Static)	<±0.5%
Cooling	Natural convection
Electrical Other	
Distribution	Double Pole MCB
Battery Isolation	Isolation per string
Monitoring and Control	LCD touchscreen display supervision of AC Mains, rectifiers, battery, breakers and earth fault. Intelepower CXCM is network ready with integrated SNMP and web page access.
Alarms	Reports AC mains failure, earth fault alarm and customer definable urgent and non-urgent alarms.
Mechanical	
Cabinet Configuration	45RU Cabinet
Cabinet Colour	N35
Dimensions (mm)	2150H x 600W x 600D
Environmental	
System Rated Temperature	25°C
Operating Temperature Range *	0°C to 45°C
Operating Humidity Range	0 to 95% RH non-condensing
Elevation	0 to 2000m
Design Considerations	AS 3011 Part 2, AS 2676 Part 2, AS 4044, AS 3000, IEEE 485

* Battery performance is rated to 25°C

Further information can be obtained by contacting Century Yuasa Batteries

CXS48 45RU Cabinet

Random Momentary Loads

The Intelepower CXS48 and CXS110 are standard ranges of DC Auxiliary systems for high current industrial switching. With a nominal voltage of 48VDC or 110VDC these systems are configured for 4-hour, 8-hour, 12-hour and 24-hour back-up periods as well as catering for a single random momentary load (<1 minute) (Figure 1)

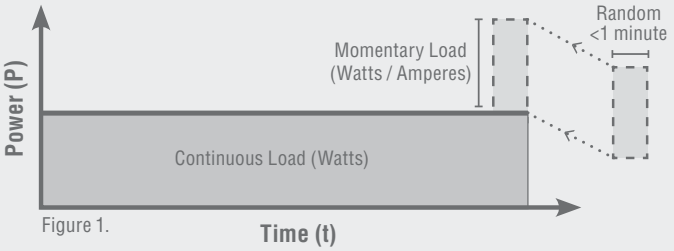

Figure 1.

Engineered to provide a complete and compliant offering, these systems use modular technology to improve redundancy options and reduce down time.

The battery is sized to IEEE 485 for a single standing load and a randomly occurring momentary load for ≤ 1-minute, using k-factors. The battery is sized at 25°C with an aging factor for the battery to ensure the battery's performance to specification at end of the system's design life. An additional design margin has been included to cover switching operations to a minimum operating temperature of 20°C.

Based on 54-cells and with a float voltage of >120VDC classifies the Intelepower CXS110 system as 'Low Voltage' under AS3000. With this in mind, care has been taken to ensure compliance to all relevant standards and additional special features to reduce risks associated with installation and maintenance. All systems include clear and durable engraved labeling for easy identification of hazards and electrical ratings of components.

As the Intelepower CXS48 and CXS110 ranges are designed as floating systems, an earth fault detection device is supplied standard which continuously and actively monitors leakage to earth. The termination of earthing wiring within the cabinet is achieved through a common earthing bar, which includes a provision for termination of field cable shields. The customer connection panel, located at the front, allows ease of termination of DC loads, AC input and alarming take-off's through dedicated terminal blocks.

CXS110 Systems

	CXS110 Types 1 to 2	CXS110 Types 3 to 4
Electrical Input		
VAC Input	240VAC (176-320VAC) 1 Phase or 415VAC 3 Phase +N+E	240VAC (176-320VAC) 1 Phase or 415VAC 3 Phase +N+E
Max Input Current (A)	5A @ 240VAC (per rectifier)	5A @ 240VAC (per rectifier)
Power Factor	>0.99 (100% load)	>0.99 (100% load)
Input Frequency	45-66Hz	45-66Hz
Electrical Output		
Rectifier Type	Intelepower CX 1.1kW Modular Switch Mode Rectifier	Intelepower CX 1.1kW Modular Switch Mode Rectifier
System Nominal VDC	110VDC	110VDC
Efficiency	>93% (100% load)	>93% (100% load + recharge)
Load Regulation (Static)	<±0.5%	<±0.5%
Cooling	Natural Convection	Natural Convection
Electrical Other		
Distribution	Double Pole MCB	Double Pole MCB
Battery Isolation	Isolation per string	Isolation per string
Monitoring and Control	LCD touchscreen display supervision of AC Mains, rectifiers, battery, breakers and earth fault. Intelepower CXCR is network ready with integrated SNMP and web page access.	LCD touchscreen display supervision of AC Mains, rectifiers, battery, breakers and earth fault. Intelepower CXCR is network ready with integrated SNMP and web page access.
Alarms	Reports AC mains failure, earth fault alarm and customer definable urgent and non-urgent alarms.	Reports AC mains failure, earth fault alarm and customer definable urgent and non-urgent alarms.
Mechanical		
Cabinet Configuration	45RU Cabinet	45RU Power Cabinet and 27RU Battery Cabinet
Cabinet Colour	N35	N35
Dimensions (mm)	2150H x 600W x 600D	2150H x 1200W x 600D
Environmental		
System Rated Temperature	25°C	25°C
Operating Temperature Range *	0°C to 45°C	0°C to 45°C
Operating Humidity Range	0 to 95% RH non-condensing	0 to 95% RH non-condensing
Elevation	0 to 2000m	0 to 2000m
Design Considerations	AS 3011 Part 2, AS 2676 Part 2, AS 4044, AS 3000, IEEE 485	AS 3011 Part 2, AS 2676 Part 2, AS 4044, AS 3000, IEEE 485

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CXS110 45RU Cabinet

CXS110 45RU Power Cabinet and 27RU Battery Cabinet

Tailor Your System with Additional Choices

Cabinet Designs – indoor and outdoor

Other cabinet designs are available to order, or in some cases power equipment can be installed in the customer's racks. However it is important to remember two things. Firstly, that we all have Duty of Care and need to maintain compliance with the standards and regulations. Secondly, that the battery size is dependant on the time that you wish the equipment to continue to work during a power failure.

Input voltage

Most Intelepower DC UPS can be supplied from either single phase or 3-phase depending on the total load to be supplied.

Surge and lightning protection

All Intelepower CX Rectifier Modules include surge and lightning protection as standard. For high lightning prone areas, Century Yuasa can advise on additional protection requirements, which can be added to the Intelepower DC UPS in many cases.

Customer defined alarms

The flexible alarm outputs can be configured to your special requirements. Please ask for your Intelepower DC UPS to be pre-programmed to suit.

Customer installation

This can be done if your installation staff have the correct training and expertise; however it is best left to Century Yuasa Technicians. If for some reason this is impractical, then we would recommend training and commissioning be carried out by Century Yuasa.

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Disclaimer

This paper contains information obtained through personal knowledge, professional knowledge, experience and due diligence of research in relation to the nominated topic. It is expected that the information so contained shall be used as an indication of the issues to be considered in relation to the given topic, and that the person(s) seeking to undertake works in relation to this or associated matters are advised to seek professional advice from their Century Yuasa Batteries Pty Ltd. representative through one of the contacts listed below and in other literature. Neither Century Yuasa Batteries Pty Ltd., nor the author shall be held directly or indirectly liable, in anyway whatsoever for any subsequent usage or interpretation of the information so contained in this article and where used outside the scope of its stated purpose. Further information can be obtained by contacting your nearest Century Yuasa Batteries Pty Ltd representative.

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An affiliated business of the GS Yuasa Corporation, CenturyYuasa has an 80-year history of supplying a range of stored energy solutions to the Australian market. An established network of sales and distribution offices throughout Australia and New Zealand has seen the business gain the trust and respect from its customers by focusing on quality products and exceptional customer service.

The portfolio within CenturyYuasa includes a wide range of stored energy products and services, as well as identifiable brands and unique technologies for automotive, materials handling and standby power applications. Directly maintaining and operating three manufacturing centres in Australia and employing some 650 people, CenturyYuasa continues to be Australia's enduring manufacturer of stored energy products.

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