MAGNUS

Reliable and Trusted for Marine

Dockside Converter

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Principle

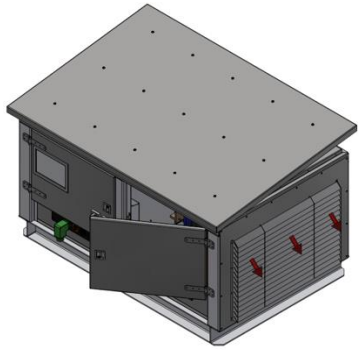
The SP200 and SP300 Dockside Converter is a trusted reliable system used to power yachts and commercial vessels from shore. Suitable for marinas or commercial locations. Based on our established SP200 and SP300 platform the Dockside Converter will provide a reliable, clean and well-regulated supply to vessel.

The converter output is fully isolated from incoming mains, protecting vessel(s) from mains supply faults such as voltage sags, frequency variation and harmonic distortion.

As standard all converters have AFE, Active Front End technology. Preventing and non-contributing to mains harmonics not only complies with local government regulations but also maximises power availability.

For units larger than 125kVA the system has multiple levels of internal system redundancy. In the unlikely event of module failure, the system will continue to operate at reduced capacity.

Systems are standalone with independent cooling. Internal protection from over current or temperature conditions.



Outdoor Pedestal

Indoor Installation

Container Installation

Dockside Converter

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Options

As proven to the marine industry the SP200 and SP300 Converter is a versatile and highly reliable platform, and features can be built into each system to provided added functionality and system operation.

Options include:-

1. Connection to multiple supplies.
2. Multiple outputs with different voltages and frequencies.
3. Safe input and output supply connections to include IP67 plug and sockets.
4. Energy meter to record vessel consumption.
5. Ground fault detection on output.
6. M Controller for remote monitoring and support. Includes cellular connectivity.
7. Ingress protection against dust and water, i.e. IP54.
8. 316 stainless steel cabinet.
9. Flexibility with manoeuvring system, forklift. lift hook and mobile trailer.
10. Containerised solution.

Service and Support

All products are backed by unrivaled customer support. This include remote login to each power system and onsite servicing and maintenance.

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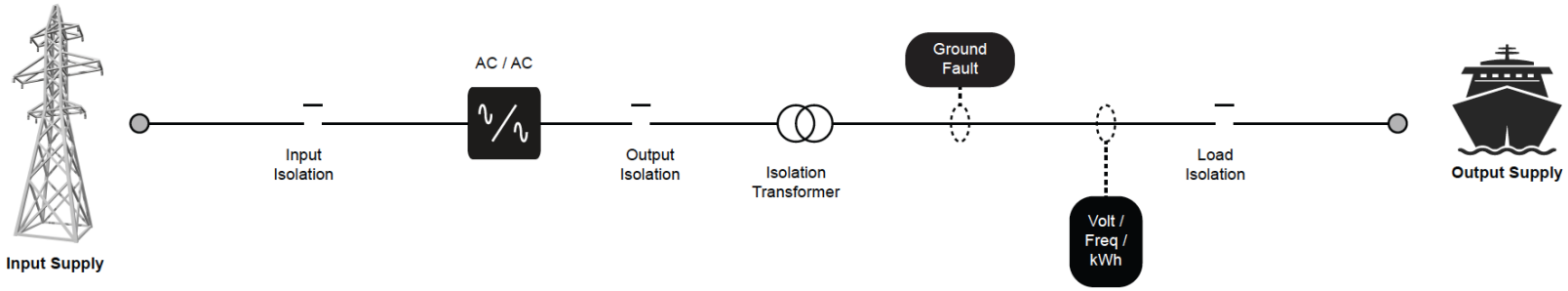
Specification
Topology

System can connect to any voltage source supply such as mains grid, generator or static converter. A wide input voltage range allows the Dockside Converter to be operated worldwide with 50 or 60Hz connection. Built in current protection on converter input for upstream protection. Single cabinet options can be sized from 125kVA to 4MVA. For higher power applications multiple Dockside Converters can be connected in parallel.



Full galvanic isolation is provided on converter output and provides a pure sinusoidal supply to vessel. There is no specific cable type when connecting to the vessel as the output is fully protected from electrical noise. An output circuit breaker provides downstream current protection to vessel and allows system integrity in the event of over temperature or current and ground fault conditions.

System efficiency is greater than 92% and has an overvoltage category: III. Serial communication and a range of digital inputs and outputs can be provided on request.

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Specification Input Supply

The SP200 and SP300 Dockside Converter may connect to a range of different supplies to include single and 3 phase 180 to 690V, 50 or 60Hz. Multiple and isolated inputs can also be provided where additional capacity is required from mains. Selection needs to be confirmed time of ordering.

A.	Single Phase	180-250V	50/60Hz
B.	1 or 3 Phase	180-520V	50/60Hz
C.	3 Phase	180-520V	50/60Hz
D.	3 Phase	350-520Vac	50/60Hz
E.	3 Phase	180-520Vac	50/60Hz
F.	3 Phase	350-690Vac	50/60Hz

Current harmonics: < 3% THDi (at rated load)

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Specification Output Supply

The SP200 and SP300 Dockside Converter can provide a range of outputs. This extends to include multiple outputs or voltage selection. Configuration needs to be confirmed time of ordering.

A.	1 Phase	230V	50Hz
B.	Split Phase	240V	60Hz
C.	3 Phase	380V	50Hz
D.	3 Phase	380V / 220V	50Hz
E.	3 Phase	400V	50Hz
F.	3 Phase	400V / 230V	50Hz
G.	3 Phase	415V	50Hz
H.	3 Phase	415V / 245V	50Hz
I.	3 Phase	480V	60Hz
J.	3 Phase	690V	60Hz

Voltage harmonics:	< 2.5% THDv (linear load)
Overload capability:	120% for 10 minutes (at 75% pre-load), 150% for 30 seconds
Short circuit limit:	200% for 2 seconds (SP300 250%)
Voltage accuracy:	± 1%
Frequency:	± 0.1%

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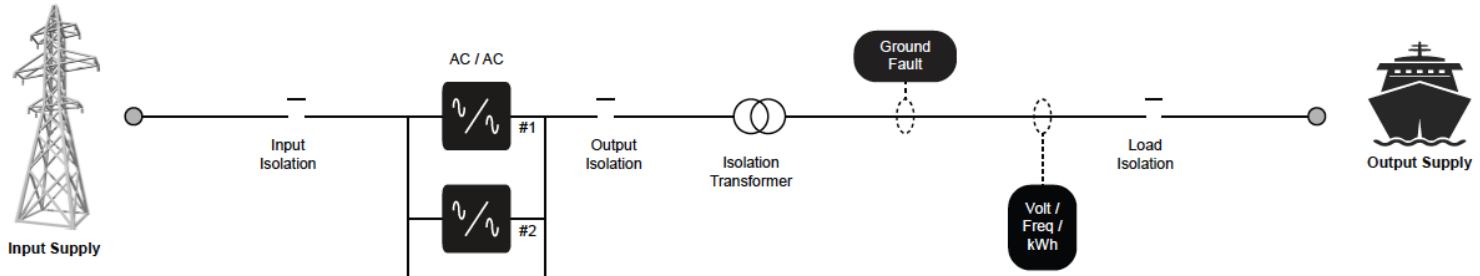
Power and Redundancy

For systems greater than 125kVA multiple power modules are required. With this arrangement this can provide multiple levels of system redundancy. For example, an SP200 400kVA Dockside Converter has 4 Inverter and 4 Rectifiers which provides 4 levels of system redundancy.



SP300 400kVA.
2x Rectifiers
and 2x Inverters

SP200 400kVA.
4x Rectifiers
and 4x Inverters

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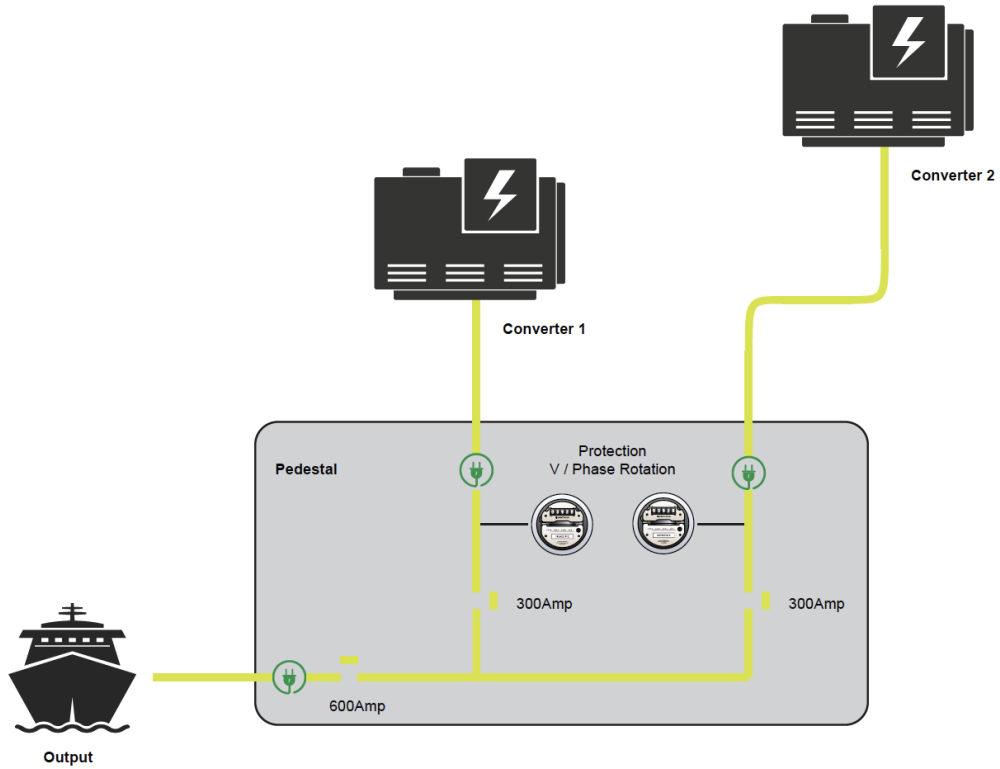
Parallel Operation

For vessels which require high levels of power multiple Dockside Converters can be connected in parallel.

Each converter remains independent and load shares on a common bus using Droop, Voltage and Frequency.

Synchronization is done by Live Bus start. Either converter will synchronize when its output has a supply connected.

When operating independently the Dockside Converter can ramp start from Black Bus not to cause high current conditions on output.



Example:
2x 300Amp Dockside Converters can deliver a combined output of 600Amps.

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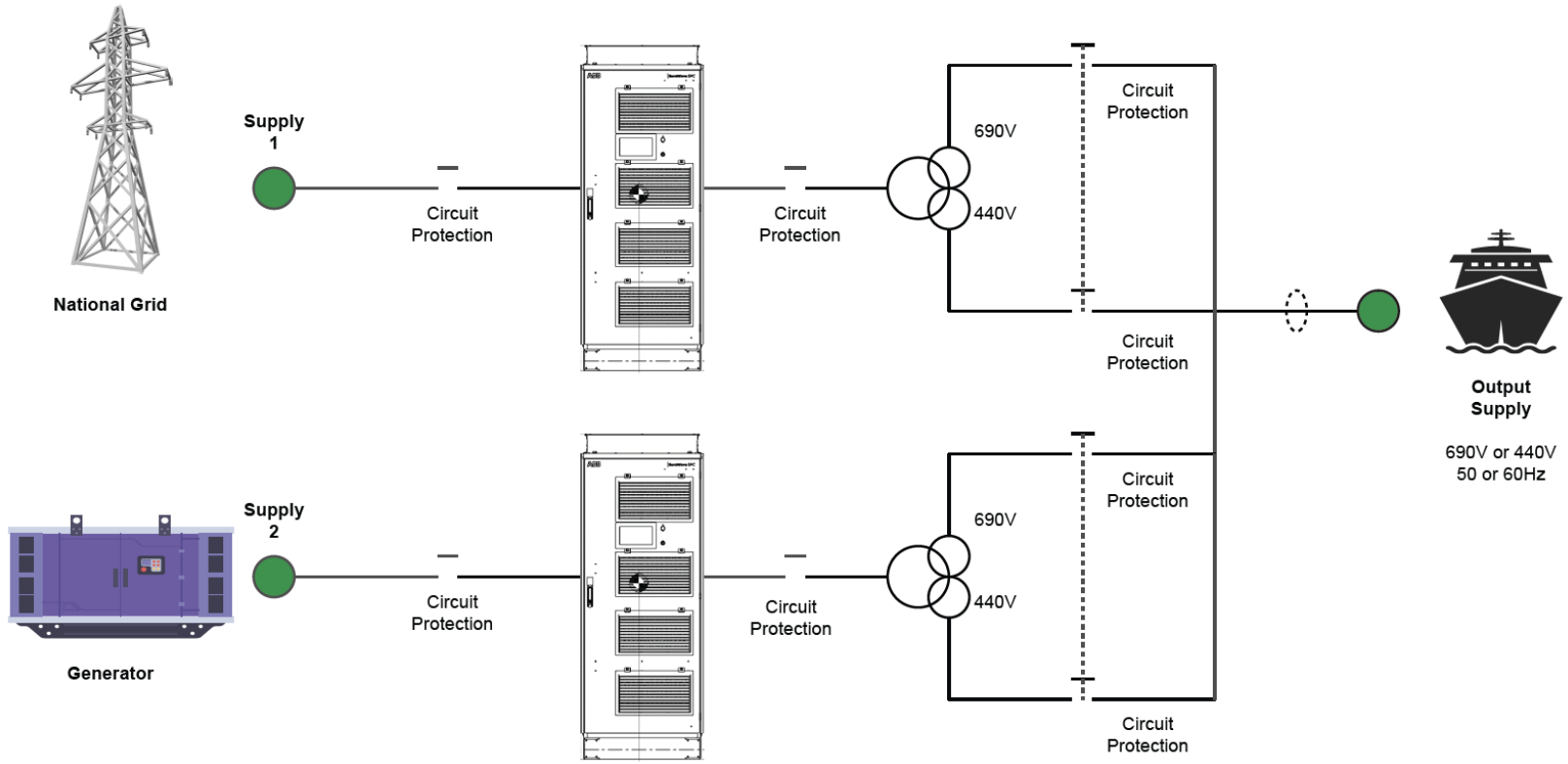
Multiple Power Sources

Where power availability is restrictive the Dockside Converter can be configured with two or more independent / isolated inputs. For example, input 1 mains power and input 2 a generator. Each system will deliver 50% of the total load. Where power is restricted on one supply, droop can be increased to offset power and avoid an overload condition.



Example above the Dockside can provide 690V 60Hz and 440V 50Hz.

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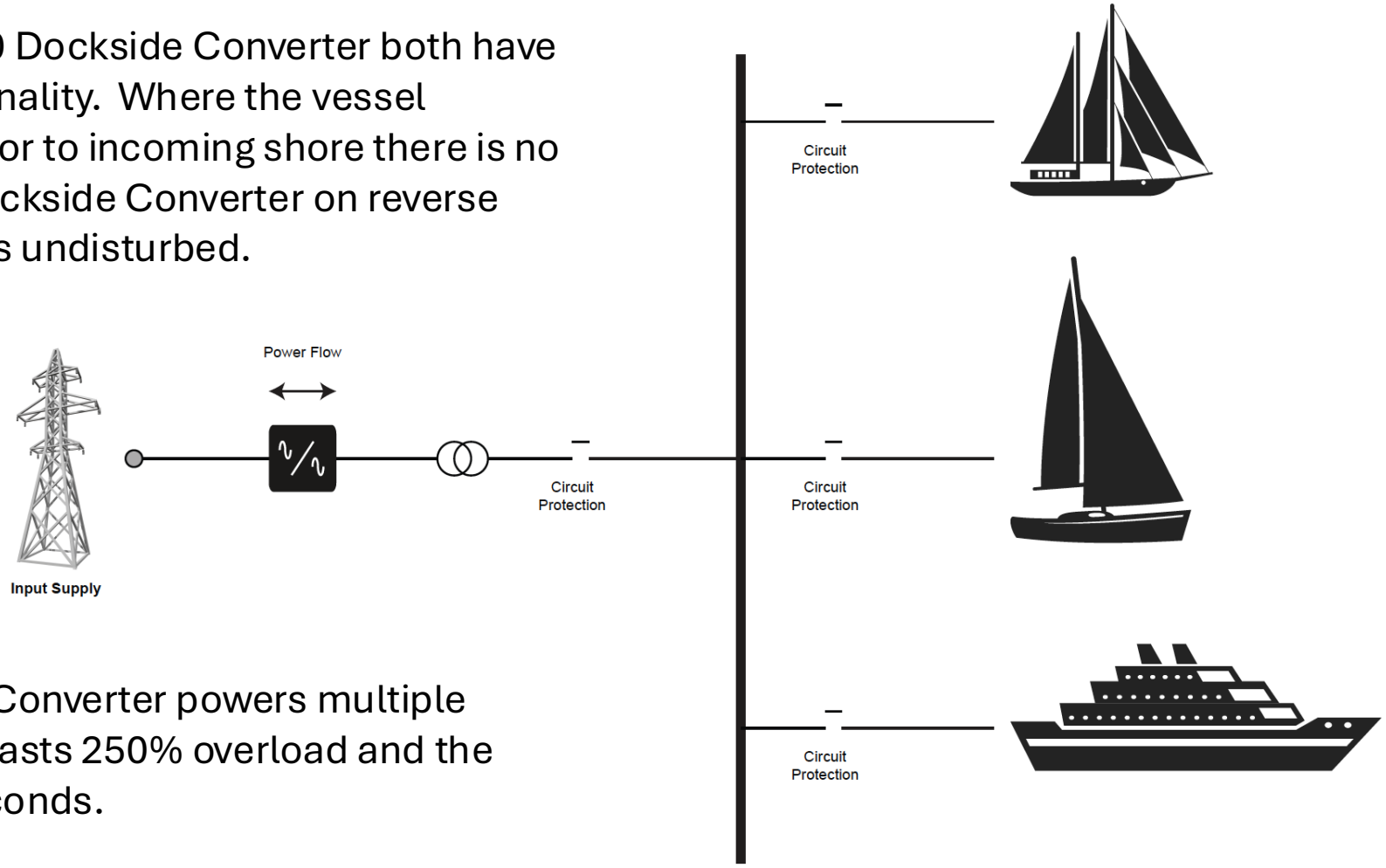
Bi Directional Power Flow

The SP200 and SP300 Dockside Converter both have bi-directional functionality. Where the vessel synchronizes generator to incoming shore there is no risk of tripping the Dockside Converter on reverse power. Power remains undisturbed.



Where the Dockside Converter powers multiple vessels the SP300 boasts 250% overload and the SP200 200% for 2 seconds.

SP300 includes 250% 2s, from 100% load.

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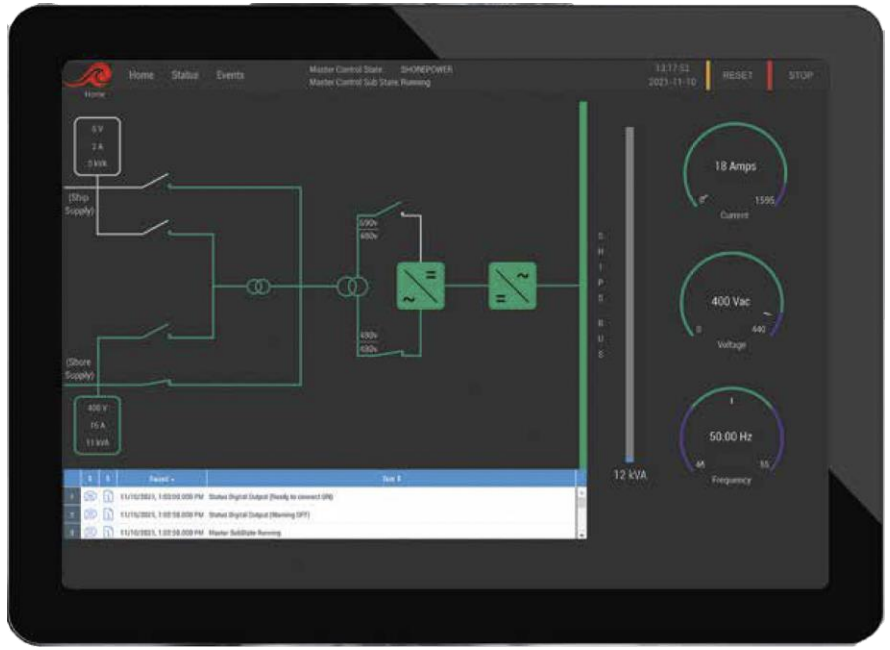
M Controller

Real-Time Monitoring

An advanced diagnostics tool with real-time monitoring for total control. Using a cellular internet connection, this can be accessed remotely or locally through the 12” graphical display. Power quality, temperatures and software updates can be completed local or remotely.

Key Features:

- High level trending with diagnostics
- Power quality logging
- Remote diagnostics
- Over-air updates
- Advanced engineer level access
- System configuration updates through display
- Standard 12" graphic display
- Centralized login where multiple converters are installed.
- Cellular connectivity



Dockside Converter

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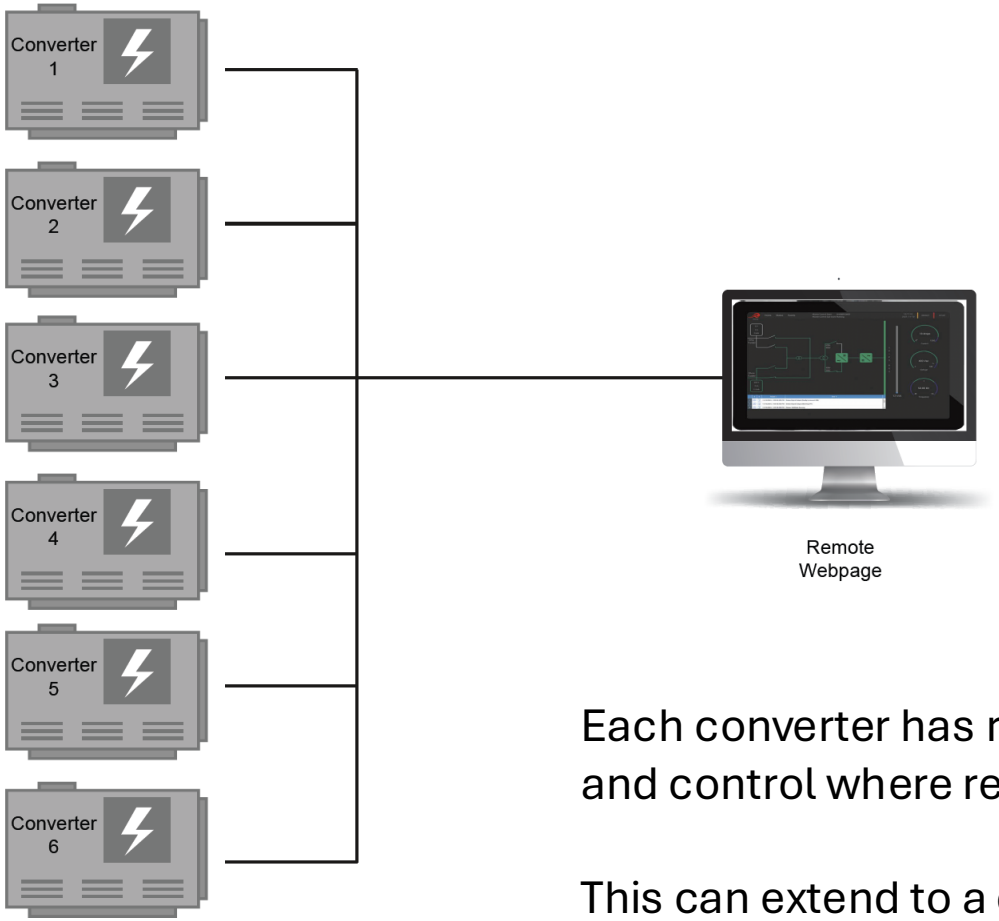
Remote Support and Management



Each converter has remote diagnostics for monitoring and control where required.

This can extend to a centralized display detailing all converter activities and energy consumption for billing.

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Enclosure Options

Indoor

Air and water cooled options.

IP54 Water Cooled

IP44 Air Cooled

Outdoor

Protection against water and dust, mobile and static options.

IP54 Mobile

IP54 Stationary

ISO Container

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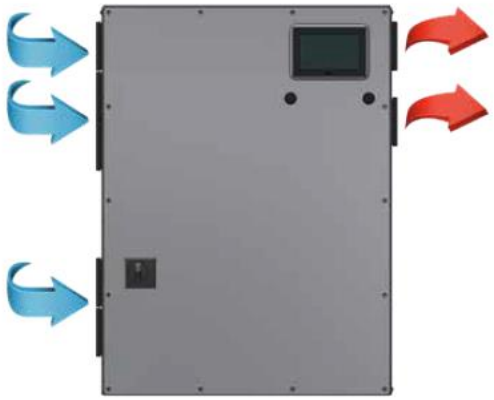
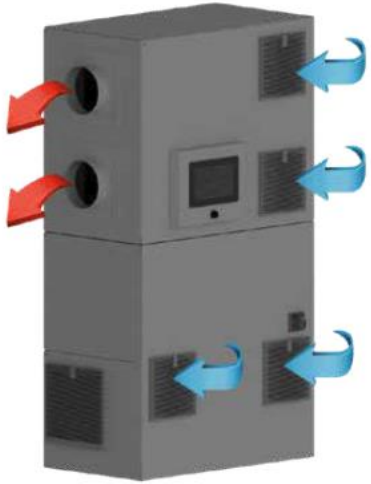
Enclosure Indoor

Forced Air

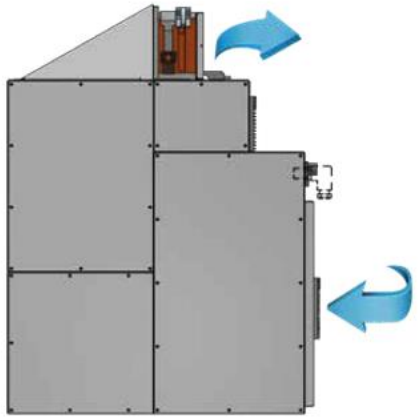


Sealed IP54 Water Cooled

Single Point Extraction



Open Water Cooled



Air Cooling
Systems can be configured with a single point extraction so heat generated by the Converter can be effectively removed from compartment space.

Water Cooling
Cooling with water significantly improves the performance of the entire system as well as its life expectancy. All heat generated by the system is forced through a heat extraction unit which is chilled by water. Chilled air leaving the heat extraction unit recirculates back into the system as a closed-loop design. Compartment temperature, when the system is online, is well regulated without any additional cooling required. Being sealed, noise and risk of internal contamination is kept to a minimum.

Water cooling controller is integrated into the M Controller.

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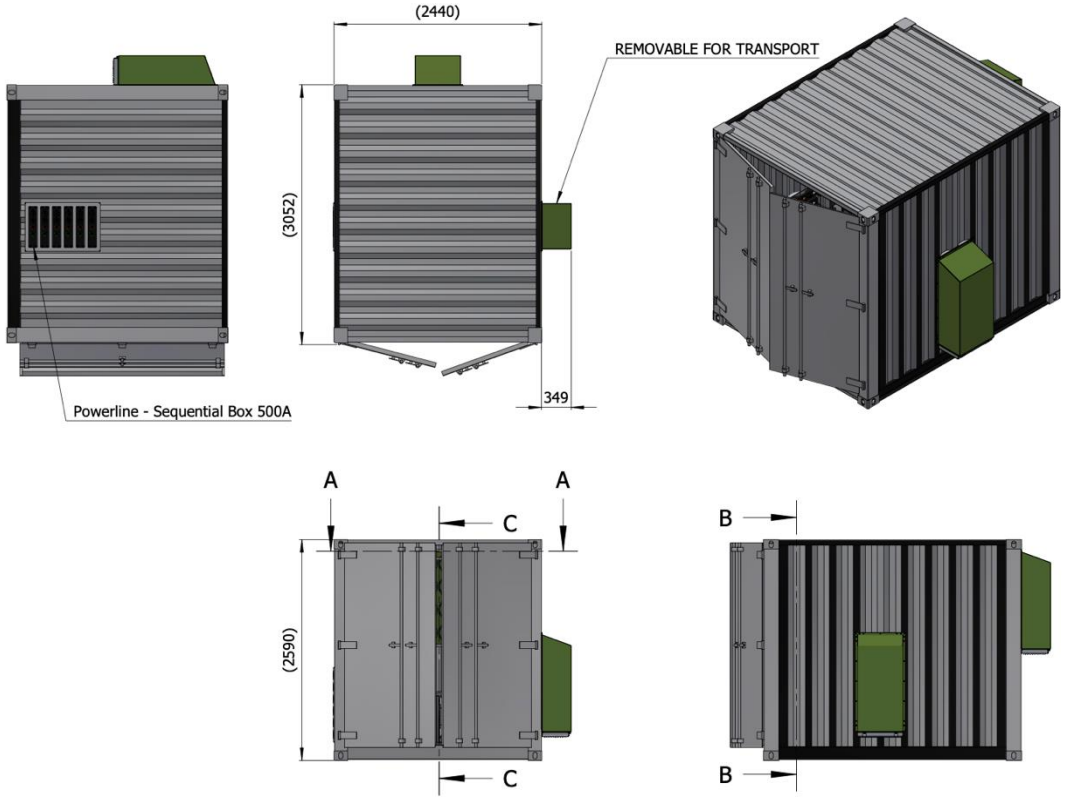
Outdoor
1200kVA ISO Container



The Dockside Converter can be supplied in an ISO Container. This allows common handling of the system for shipping, storage and operation. The container protects against dust and water ingress.

Dockside Converter

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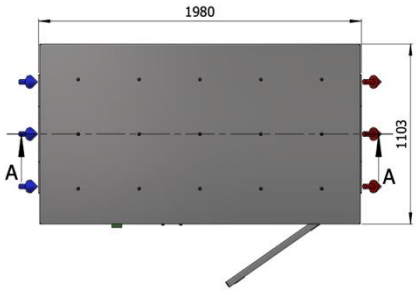
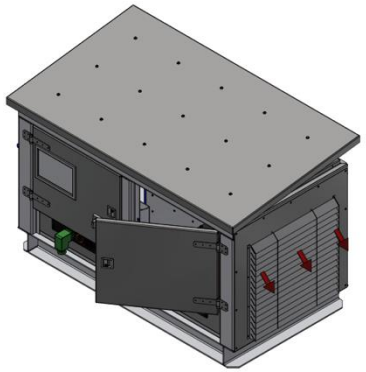
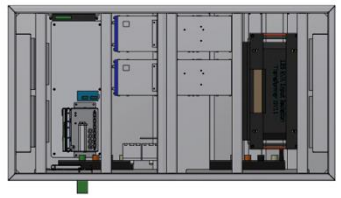
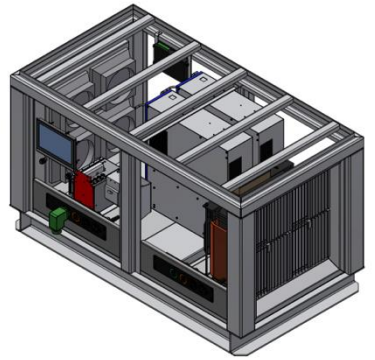
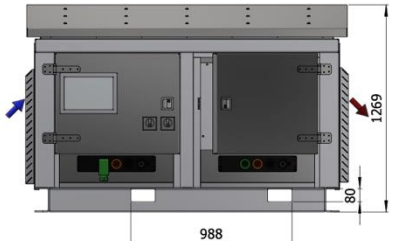
Outdoor 125kVA

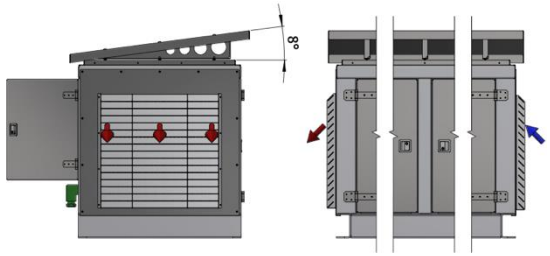


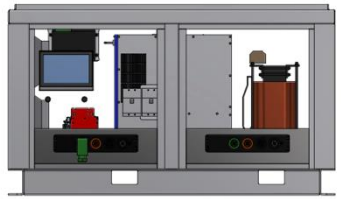


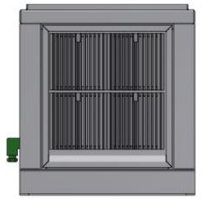


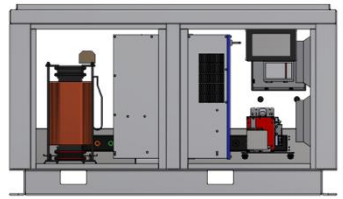


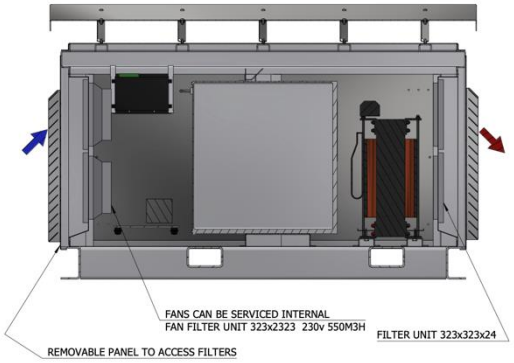












Aesthetically and high quality for superyacht marinas. Input and output supply is through IP67 plug and sockets. System is dust and water ingress proof with good service access for periodic maintenance to include external air filter change.

Dockside Converter

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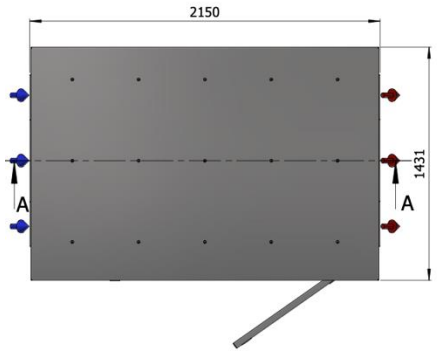
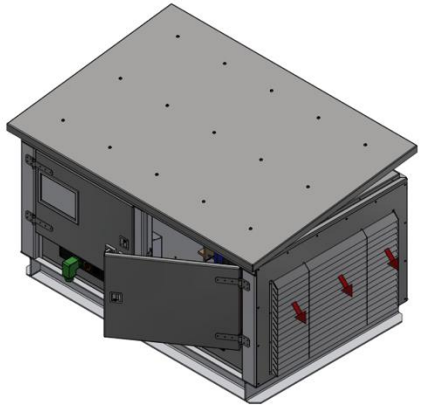
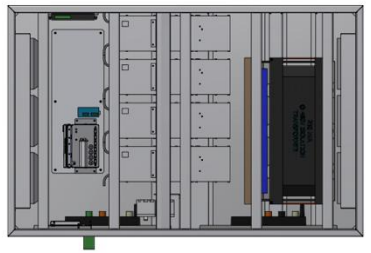
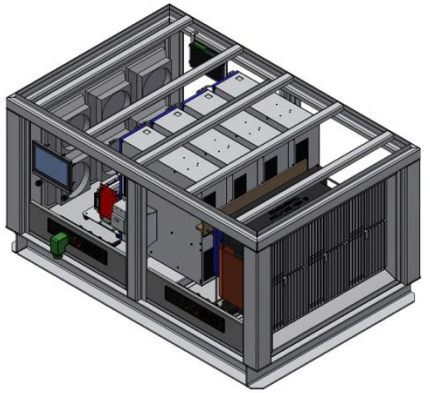
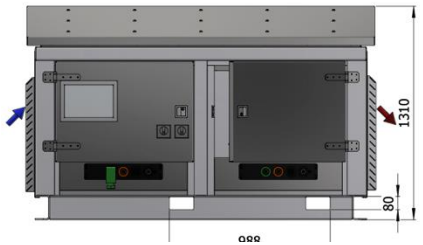
Outdoor 250kVA

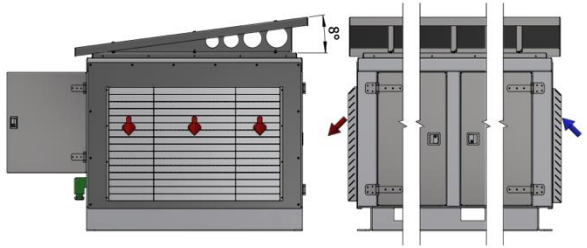


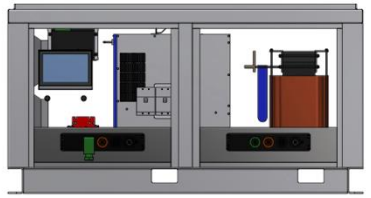


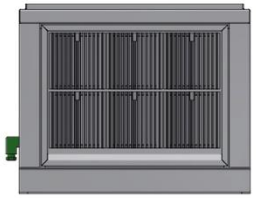


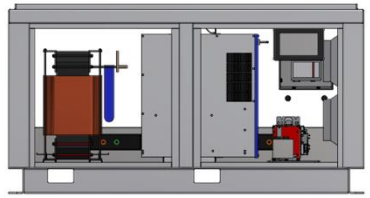


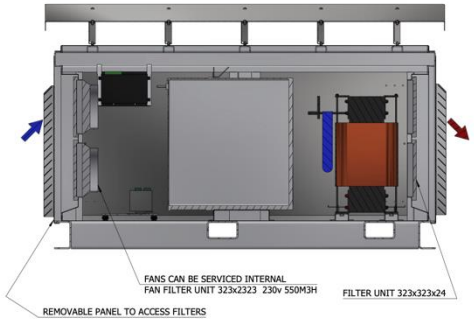












In addition to the design features of the 125kVA unit the system has a top hat to prevent resting water and sun-shade to keep system cool. AC ventilation fans keep noise level to a minimum of 70dB(A) at 1m.

Dockside Converter

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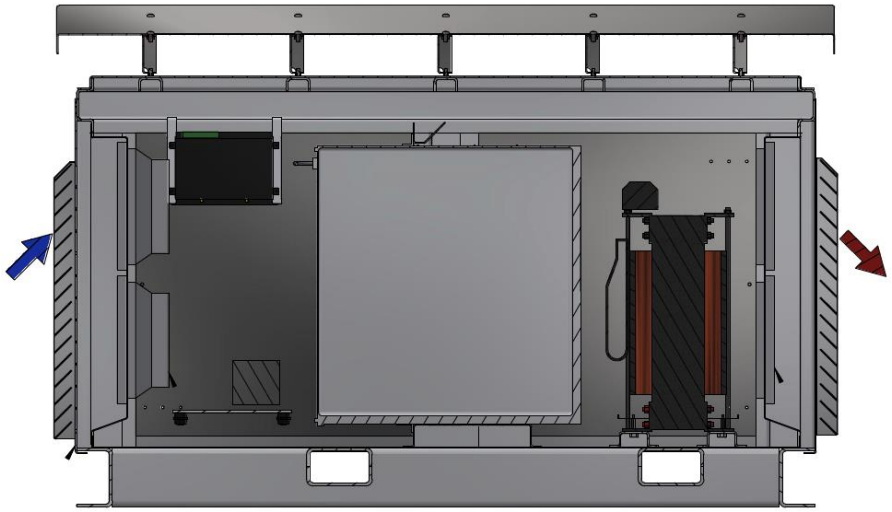
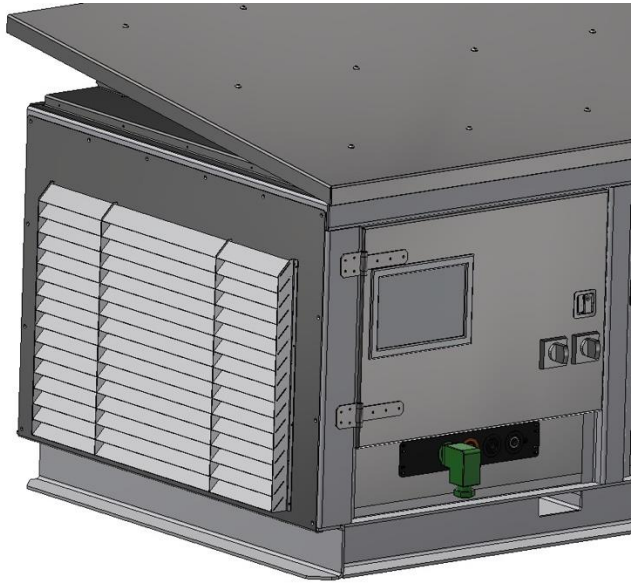
Servicing Filter Inlets



Air filters replacement is accessible by removing the both end side panels. Dockside is 316 Stainless Steel.



Dockside Converter

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Servicing

We offer an exemplary support package so you can enjoy total peace of mind, which lasts well beyond purchase and installation. Our service agreements have been selected to suit the needs of shipyards. Engineering support is available 24 hours a day, 7 days a week. A choice of service level agreements include delivery of spare parts and engineer attendance.

Commissioning overview

To guarantee years of dependable power, we recommend that one of our engineers attends commissioning. This is included at no extra cost with all Silver and Gold service level agreements. Commissioning is fully documented and includes:

- Internal and external inspection.
- Check monitoring and control interfaces.
- Electrical check and initial power-up.
- Full functionality set-up and testing.

Health check

All our products are essentially maintenance-free, however an annual service and inspection is recommended. This includes a full health check of the system, which is fully documented and recorded. All this can be managed by Magnus to guarantee you years of dependable power and total peace of mind.

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Maintenance Plan

Recommended maintenance intervals and component replacements are based on specified operational and environmental conditions. Magnus recommends product inspections according to list below to ensure the highest reliability and optimum performance.

	Legend
R	**R**eplacement of component
I	**I**nspection (visual inspection, correction and replacement if needed)
S	On-**S**ite work (tests, measurements, etc.)

Recommended maintenance actions	Activity	Period
Cooling		
Air ducts	**I**	**1 year**
All fans and filters	**I**	**1 year**
Connections and surroundings		
Thermal scan	**I**	**1 year**
Tightness of terminals	**I**	**1 year**
Dust, corrosion and temperature	**I**	**1 year**
Communications cables and connections	**I**	**1 year**
Aging		
AC filter capacitors	**S**	**1 year**
Spare Parts		
Spare parts	**I**	**1 year**
PCS100 power module DC bus capacitor reforming	**S**	**3 years**
Improvements		
Software upgrades	**I**	**1 year**

Recommend enclosure cabinet air filter inspection and replacement is performed monthly.

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Standards

System complies with UL regulations.

CERTIFICATE OF COMPLIANCE

Certificate Number UL-CA-L346931-41-71202102-2
Report Reference E346931-20120217
Date 21-Sep-2022

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements

Model	Category Description
2UCM000340A661, master control modules	Power Supplies
2UCM000340B6621, slave control module	Power Supplies
2UCM000355A615, master control modules	Power Supplies
2UCM000355B6151, master control modules	Power Supplies
2UCM000356A616, master control modules	Power Supplies
2UCM000356B6161, master control modules	Power Supplies
2UCM000390A615, master control modules	Power Supplies
2UCM000390B6151, master control modules	Power Supplies
2UCM00340A662, slave control module	Power Supplies
Models 2UCM000330A651, 2UCM000355A601, 2UCM000355A602, 2UCM000355A608, 2UCM000355A609, 2UCM000390A601, 2UCM000330B682 and 2UCM000330B677 power modules	Power Supplies
Models 2UCM000330A651,2UCM000330A652, 2UCM000355A601, 2UCM000355A602, 2UCM000355A608, 2UCM000355A609, 2UCM000330B682 and 2UCM000330B677 power modules	Power Supplies
UCM000356A603, master control modules	Power Supplies

Bruce Mahrenholz, Director North American Certification Program

UL LLC

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CERTIFICATE OF COMPLIANCE

Certificate Number 20160623-E350476
Report Reference E350476-20111010
Issue Date 2016-JUNE-23

Issued to: CMP NEW ZEALAND LTD
9 AINTREE AVE, AIRPORT OAKS
PO BOX 107044
MANGERE NEW ZEALAND

This is to certify that representative samples of COMPONENT - SYSTEMS, ELECTRICAL INSULATION
Class 200 (N) insulation system, designated DV-200B

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 1446, Systems of Insulating Materials- General
Additional Information: See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

The UL Recognized Component Mark generally consists of the manufacturer's identification and catalog number, model number or other product designation as specified under "Marking" for the particular Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products that have been produced under UL's Component Recognition Program, UL's Recognized Component Mark: ᴿᴬ, may be used in conjunction with the required Recognized Marks. The Recognized Component Mark is required when specified in the UL Directory preceding the recognitions or under "Markings" for the individual recognitions.

Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for use as components of complete equipment submitted for investigation rather than for direct separate installation in the field. The final acceptance of the component is dependent upon its installation and use in complete equipment submitted to UL LLC.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

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