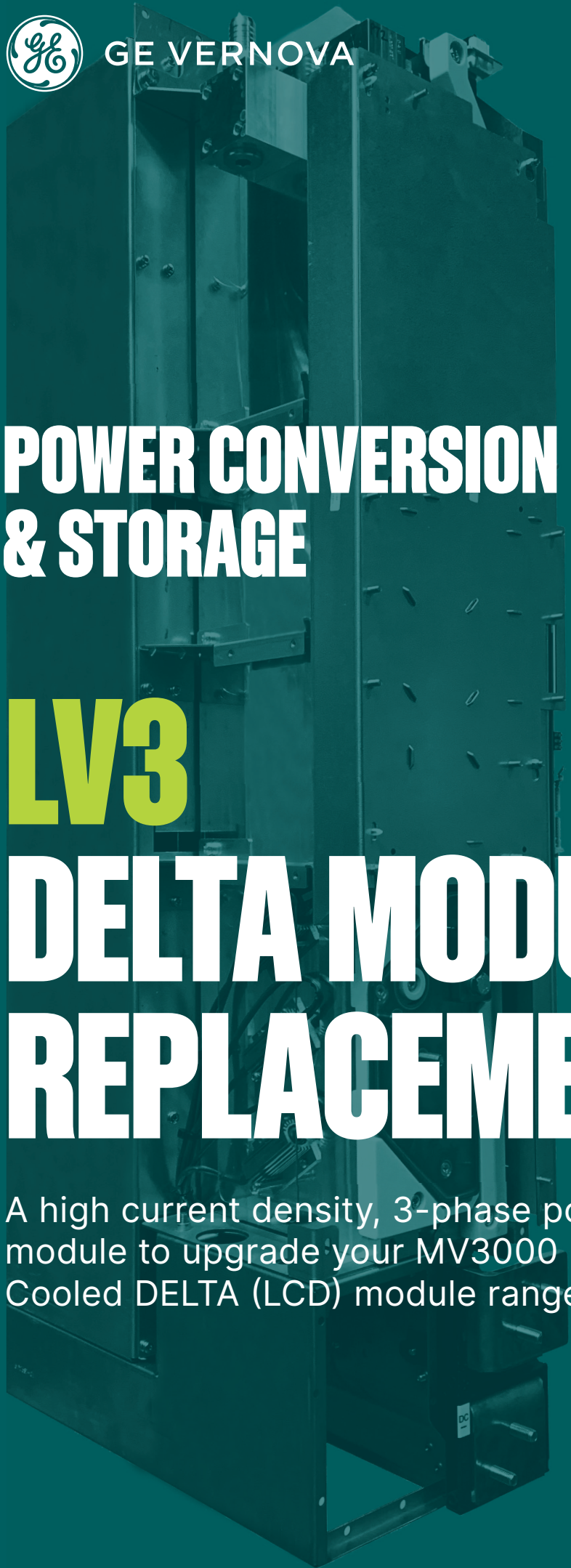
GE VERNOVA

LV3 DMR 850A CDC
LV3 DMR 850A PECe
LV3 DMR 1,000A CDC
LV3 DMR 1,000A PECe



POWER CONVERSION & STORAGE

LV3 DELTA MODULE REPLACEMENT

A high current density, 3-phase power module to upgrade your MV3000 Liquid Cooled DELTA (LCD) module range.

www.gevernova.com/power-conversion

Replacing your Delta Modules holds many advantages

Over the last 25 years, Power Conversion & Storage has been a reliable provider of Delta modules for industrial drives, wind converters in renewable energy, and marine propulsion applications. In order to consistently assist our customers in these dynamic markets even beyond the Delta product life, we have introduced an advantageous replacement solution.

The LV3 Delta Module Replacement (DMR) represents a significant advancement, offering a high current density and 3-phase liquid-cooled power module that serves as an effective upgrade to our existing MV3000 Liquid Cooled Delta (LCD) module range.

Designed with meticulous attention to detail, the LV3 DMR seamlessly integrates as a “Fit, Form and Function” replacement for MV3000 Liquid Cooled Delta (LCD) module range. Compatibility with the MV3000 CDC and PECe control interfaces, identical dimensions to the liquid-cooled DELTA modules, and matching electrical characteristics ensure a smooth transition.

The DMR is available in two current ratings, 850A and 1000A, both at 690V, with the flexibility to achieve larger power ratings by connecting modules of the same rating in parallel. All familiar options and variants from the previous generation power modules remain available, maintaining consistency.

Key components from the LCD, such as the reliable capacitor bank, sharing resistors, return pipe, bleed valve, fan assembly, mechanical support, and switch mode power supply (SMPS), have been seamlessly incorporated into the DMR, ensuring a seamless integration of proven elements.

The advantages of the DMR over the DELTA module are manifold.

With a proven operational history dating back to 2018, the DMR is expected to enhance reliability by 40% compared to DELTA modules, thanks to a more robust design. This improvement is driven by leveraging insights from our previous generation modules and an improved cooling concept. It is further impacted by using cutting edge semiconductors with a higher Save Operating Area (SOA) margin in all operating states. An enhanced lamination technique with improved isolation significantly reduce partial discharge issues. The LV3 DMR can reduce losses, leading to improved efficiency and lower cooling requirements.

Opting for the DMR means an unchanged upgrade process, minimizing downtime as the rest of the system remains unaffected. Moreover, the identical characteristics of the DMR and DELTA module translate to minimal re-training requirements for site personnel, ensuring a seamless transition to the enhanced system. Embrace the future of power modules with the LV3 Delta Module Replacement, where innovation meets reliability.

Key Advantages

Proven operational excellence
Field-tested since 2018, the LV3 DMR boasts a robust track record

Enhanced Reliability
Up to 40% improvement in reliability compared to DELTA modules, thanks to an optimized design incorporating practical field experiences and improved materials

Efficiency Boost
Experience improved overall system efficiency

LV3 DMR - your reliable and efficient upgrade solution.

LV3 DMR 850A CDC

Technical Specifications

Electrical Data	
Network type	TN, TT, IT
Voltage range	690 V_{AC} +10% / -20%
Current rating	850 A_{rms}
Overload	110% Full-load current for 60s/600s at T_{in}=50°C & 800 A_{rms}, 150% Full-load current for 60s/600s at T_{in}=50°C & 587 A_{rms}
Supply frequency (nominal)	50Hz, 60Hz
Output frequency range	20Hz to 200Hz, below on request
Switching frequency	2,500Hz
Interlock time	4.0µs
DC Link	
Nominal voltage	1,100V_{dc}
Maximum voltage	1,200V_{dc} (continuous) / 1,290V_{dc} (<1s)
Capacitance	11.6mF
Capacitor bank cooling	Air-forced
Environmental Data	
Max. operating temperature	+55°C
Min. operating temperature	+5°C (non-condensing)
Non-operational temperature	-20°C to +70°C
Storage and transport	-20°C to +60°C
Altitude	1,000m nominal
Coolant	
Type	Water/Glycole mixture 50/50%
Max. inlet temperature	+60°C
Min. inlet temperature	+5°C, below on request
Flow rate (pressure drop)	25 l/min (400mBar)
Mechanical	
Dimensions	1,265mm H x 251mm W x 542mm D
Weight	115kg
IP rating	IP00
Power terminals	2 studs M10 per AC phase 2 studs M10 per DC connection
Water connection in/out option	(1) Return pipe/staubli with Ø 22mm (2) Hosetails with Ø 22mm (3) Vent/return pipe/hosetails with Ø 22mm options

Key Data Summary

- Voltage rating: 400–690V
- Maximum current: 850 Arms
- IGBT based power module
- 3-phase in-/output and DC link connections
- Grid or electric machine applications
- Liquid-cooled
- Weight: 115 kg

Benefits:

- Proven technology validated since 2018 in the field
- Improved reliability
- Decreased dry out time
- Higher efficiency and reduced losses
- Lower cooling requirements
- More robust design

LV3 DMR 850A PECe

Technical Specifications

Electrical Data	
Network type	TN, TT, IT
Voltage range	690 V_{AC} +10% / -20%
Current rating	850 A_{rms}
Overload	110% Full-load current for 60s/600s at T_{in}=50°C & 800 A_{rms}, 150% Full-load current for 60s/600s at T_{in}=50°C & 587 A_{rms}
Supply frequency (nominal)	50Hz, 60Hz
Output frequency range	20Hz to 200Hz, below on request
Switching frequency	2,500Hz
Interlock time	4.0µs
DC Link	
Nominal voltage	1,100V_{dc}
Maximum voltage	1,200V_{dc} (continuous) / 1,290V_{dc} (<1s)
Capacitance	11.6mF
Capacitor bank cooling	Air-forced
Environmental Data	
Max. operating temperature	+55°C
Min. operating temperature	+5°C (non-condensing)
Non-operational temperature	-20°C to +70°C
Storage and transport	-20°C to +60°C
Altitude	1,000m nominal
Coolant	
Type	Water/Glycole mixture 50/50%
Max. inlet temperature	+60°C
Min. inlet temperature	+5°C, below on request
Flow rate (pressure drop)	25 l/min (400mBar)
Mechanical	
Dimensions	1,265mm H x 251mm W x 542mm D
Weight	115kg
IP rating	IP00
Power terminals	2 studs M10 per AC phase 2 studs M10 per DC connection
Water connection in/out option	(1) Return pipe/staubli with Ø 22mm (2) Hosetails with Ø 22mm (3) Vent/return pipe/hosetails with Ø 22mm options

Key Data Summary

- Voltage rating: 400–690V
- Maximum current: 850 Arms
- IGBT based power module
- 3-phase in-/output and DC link connections
- Grid or electric machine applications
- Liquid-cooled
- Weight: 115 kg

Benefits:

- Proven technology validated since 2018 in the field
- Improved reliability
- Decreased dry out time
- Higher efficiency and reduced losses
- Lower cooling requirements
- More robust design

LV3 DMR 1,000A CDC

Technical Specifications

Electrical Data	
Network type	TN, TT, IT
Voltage range	690 V_{AC} +10% / -20%
Current rating	1,000 A_{rms}
Overload	110% Full-load current for 60s/600s at T_{in}=50°C & 1,000 A_{rms}, 150% Full-load current for 60s/600s at T_{in}=50°C & 733 A_{rms}
Supply frequency (nominal)	50Hz, 60Hz
Output frequency range	20Hz to 200Hz, below on request
Switching frequency	2,500Hz
Interlock time	4.0µs
DC Link	
Nominal voltage	1,100V_{dc}
Maximum voltage	1,200V_{dc} (continuous) / 1,290V_{dc} (<1s)
Capacitance	16.8mF
Capacitor bank cooling	Air-forced
Environmental Data	
Max. operating temperature	+55°C
Min. operating temperature	+5°C (non-condensing)
Non-operational temperature	-20°C to +70°C
Storage and transport	-20°C to +60°C
Altitude	1,000m nominal
Coolant	
Type	Water/Glycole mixture 50/50%
Max. inlet temperature	+50°C
Min. inlet temperature	+5°C, below on request
Flow rate (pressure drop)	25 l/min (400mBar)
Mechanical	
Dimensions	1,265mm H x 251mm W x 542mm D
Weight	115kg
IP rating	IP00
Power terminals	3 studs M10 per AC phase 2 studs M10 per DC connection
Water connection in/out option	(1) Return pipe/staubli with Ø 22mm (2) Hosetails with Ø 22mm (3) Vent/return pipe/hosetails with Ø 22mm options

Key Data Summary

- Voltage rating: 400–690V
- Maximum current: 1,000 A_{rms}
- IGBT based power module
- 3-phase in-/output and DC link connections
- Grid or electric machine applications
- Liquid-cooled
- Weight: 115 kg

Benefits:

- Proven technology validated since 2018 in the field
- Improved reliability
- Decreased dry out time
- Higher efficiency and reduced losses
- Lower cooling requirements
- More robust design

LV3 DMR 1,000A PECe

Technical Specifications

Electrical Data	
Network type	TN, TT, IT
Voltage range	690 V_{AC} +10% / -20%
Current rating	1,000 A_{rms}
Overload	110% Full-load current for 60s/600s at T_{in}=50°C & 1,000 A_{rms}, 150% Full-load current for 60s/600s at T_{in}=50°C & 733 A_{rms}
Supply frequency (nominal)	50Hz, 60Hz
Output frequency range	20Hz to 200Hz, below on request
Switching frequency	2,500Hz
Interlock time	4.0µs
DC Link	
Nominal voltage	1,100V_{dc}
Maximum voltage	1,200V_{dc} (continuous) / 1,290V_{dc} (<1s)
Capacitance	16.8mF
Capacitor bank cooling	Air-forced
Environmental Data	
Max. operating temperature	+55°C
Min. operating temperature	+5°C (non-condensing)
Non-operational temperature	-20°C to +70°C
Storage and transport	-20°C to +60°C
Altitude	1,000m nominal
Coolant	
Type	Water/Glycole mixture 50/50%
Max. inlet temperature	+50°C
Min. inlet temperature	+5°C, below on request
Flow rate (pressure drop)	25 l/min (400mBar)
Mechanical	
Dimensions	1,265mm H x 251mm W x 542mm D
Weight	115kg
IP rating	IP00
Power terminals	3 studs M10 per AC phase 2 studs M10 per DC connection
Water connection in/out option	(1) Return pipe/staubli with Ø 22mm (2) Hosetails with Ø 22mm (3) Vent/return pipe/hosetails with Ø 22mm options

Key Data Summary

- Voltage rating: 400–690V
- Maximum current: 1,000 A_{rms}
- IGBT based power module
- 3-phase in-/output and DC link connections
- Grid or electric machine applications
- Liquid-cooled
- Weight: 115 kg

Benefits:

- Proven technology validated since 2018 in the field
- Improved reliability
- Decreased dry out time
- Higher efficiency and reduced losses
- Lower cooling requirements
- More robust design

GE VERNOVA

About Power Conversion & Storage, a GE Vernova business

GE Vernova's Power Conversion & Storage business combines advanced energy conversion and storage systems to meet the electrification needs of utilities and industries. With a focus on industrial electrification, power stability, and energy storage solutions, Power Conversion & Storage empowers customers by addressing their most complex electrification challenges and accelerating their transition to a sustainable, decarbonized future.

www.gevernova.com/power-conversion/services

GEA34928 - LV3 Delta Module Replacement_all data sheets