

AVID CONTROLS®

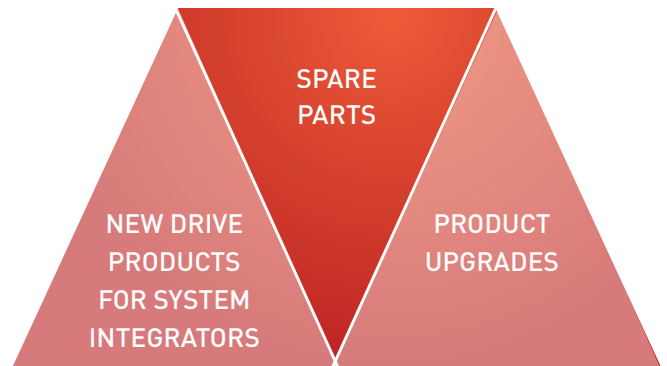


MV3000 DRIVE PRODUCTS FROM AVID CONTROLS®

The **MV3000** range is a proven, reliable and flexible drive system which allows you to build modular construction converters from 200kW to 6MW+ suitable for supply voltages from 380V to 690V AC.

Applications include:

- Oil Drilling Equipment including Mud Pumps, Draw works & Top Drives
- Centrifuges
- Coilers, roller tables & mills
- Compressors
- Conveyors
- Wind & Solar Converters
- Extruders
- Fans & pumps
- Lifts & hoists
- Mixers & stirrers
- Marine Propulsion/Thrusters
- Test benches
- And other applications



AVID AND MV3000

Avid Controls, Inc. manufactures the **MV3000** range of components under GE Technology license which grants irrevocable, perpetual, exclusive, transferrable, unrestricted and world-wide license to use, develop, manufacture, remanufacture, recondition, repair or sell products. This combines the tried and tested pedigree of an **established product** with the innovation and drive of Avid Controls®.

Inventory is on the shelf for delivery 24/7/365.



PROVEN RELIABILITY

Reliability has been specifically built into the **MV3000** from concept onwards. With over 30 years of refinement this is an extremely reliable product, due to detailed thermal and lifetime modeling and utilizing 60% fewer components than previous generations. The AE3000 has once again increased the reliability to a new level with innovative, higher technology attributes including the exclusive sealing of the IGBTs and utilizing "ruggedized" chips within the IGBTs. There are many other improvements within the AE3000 product making it the most reliable in industry.

PROVEN PEDIGREE

The MV3000 range has a **proven track record** and a massive installed base world-wide.

- 12,000+ Wind Turbine Converters representing 23 GW of installed capacity
- 15,000+ Delta Power modules in non-wind applications including Solar and general Industrial
- 1 GW+ Marine and Offshore applications including thrusters and cargo pumps
- 2 GW + of drilling systems globally both offshore and land drilling rigs

SHOCK LOAD WITHSTAND

The protection for the power devices in the **MV3000/AE3000** is incredibly fast. As a result when an instantaneous overload occurs, such as a blockage in a pump, the output current is clipped at 180% of full load current. This allows the drive system to continue powering the motor without damage to itself and if the blockage is temporary, the process can continue without interruption.

ACTIVE MANAGEMENT OF OVER TEMPERATURE

Monitoring of drive temperatures and simulation of motor heating allows the **MV3000/AE3000** to take intelligent action should either the motor or drive system begin to overheat.



SUPPLY LOSS RIDE THROUGH

Short breaks in the AC mains supply do not need to interrupt your process. The MV3000/AE3000 can ride through such supply losses by generating energy from the load inertia to keep the control system healthy.

DYNAMIC MODE CHANGE

The **MV3000/AE3000** can change its control mode on-line bumplessly. Many processes require the low speed dynamic performance of encoder-based vector control for process start but not once the process is running at normal speeds. If the encoder or encoder cabling fails while the process is running, the drive system can instantly transfer to encoderless vector control resulting to its normal completion.

AIR OR LIQUID COOLING

The MVD500 Delta module is the workhorse of the air-cooled range and available with standard cooling fans. Up to six 500A modules can be connected in parallel using the 1600A rectifier or as an AEM configuration. Air cooling offers the advantage of simplicity and ease of maintenance.

For higher powers above 3,000KW, the liquid cooled inverter modules are an option where a liquid coolant system transfers heat away from the power electronics where it can be easily dissipated outside the actual installation area. This provides an extremely compact and cost-effective solution that allows space saving of up to 60% when compared to similar air-cooled packages. Another advantage of liquid cooling is that almost silent operation of the drive can be achieved.



DELTA – MODULAR CONCEPT

The DELTA format is an easy to use **modular solution** which allows **MV3000** components to be connected together in standard cubicles. This gives many advantages including **reduced maintenance** costs by having common spares which are **easy to replace**. This DELTA format is available either as **air cooled** or **liquid cooled** modules. Rectifiers, both air cooled and liquid cooled, are also available within this modular solution.

AE3000 – MORE OPTIONS

Extending the range of traditional 500, 800 and 1000A Delta Modules, **Avid now offers the AE3000 using the Avid Extreme Inverter (AEI) modules and the Avid Extreme Rectifiers (AER)**. The AE3000 components are interchangeable with the legacy **MV3000** products. The AEI has the highest current density of any power module in the world.

In addition to providing more power AEI modules have:

- Sintered solder-free IGBT chips for extended life operation
- Ruggedized IGBT die for improved environmental robustness
- Reduced internal voltage overshoot
- A more robust, fully digital gate driver
- Fully sealed IGBT modules that are protected from condensation
- Continuous, accurate monitoring of IGBT silicon temperature



ACTIVE ENERGY MANAGEMENT

The **MV3000/AE3000 AEM – Active Energy Management** range implements **low harmonic technology**, in the form of two identical IGBT bridges, giving full four quadrant control. A controlled IGBT input bridge replaces the conventional diode bridge receiver to give near sinusoidal supply current during both motoring and regeneration.

- Harmonic distortion meeting or exceeding IEEE-519 Standards
- Regenerative four quadrant control
- Unity power factor control

With stringent regulatory requirements being enforced across a wide spectrum of industries, AEM technology is one of the most effective solutions to meet these requirements.

INVERTER MODULE RATINGS

COOLING	PRODUCT	CURRENT
Air	MVD500	500A
	AEI800A*	800A
Liquid	MVDL800	800A
	MVDL1000	1000A
	AEI 900L	900A
	AEI 1250L	1250A
	AEI 1400L	1400A

* Available 4th Quarter 2018

DRIVE DATA MANAGER™

Most users prefer to use a keypad on the plant floor rather than a PC. The Drive Data Manager redefines the keypad concept with menu navigation, online help, multi-lingual, quick start and instrumentation facilities all wrapped in an ergonomic design with a large, easy to read display.



SYSTEM UPGRADES AND SPARE PARTS

In addition to providing new drive systems, Avid offers solutions for upgrades to your existing drives. Upgrading an existing system with new modules provides a more cost-effective solution than buying a brand new drive system as many original parts can be retained. The upgrade is also achieved in less time than installing new.

UPGRADE EXAMPLES AND OPPORTUNITIES

A 1.3MW Air Cooled drive on a large pump, installed in 1995, was upgraded by having its 5 x obsolete GDD377 Delta modules replaced with new MVD500 modules. The controller was upgraded from the original Omega controller to a new CDC. The original rectifier, magnetics, bussing, circuit breaker and cabinet were retained.

A large mixing machine employing 4 x MVDL643 obsolete liquid cooled deltas was upgrading by replacing the Delta modules with new MVDL800 modules. The system retained its original control and cooling system and the upgrade was done over one weekend thus minimizing downtime.

A 1MW AEM drive was upgraded to drive a new 1.2MW motor by replacing the MVDL1000 modules with AEI1250L modules.

An early generation 2.3MW wind turbine converter installed in 2006 had all six delta units replaced with brand new AE3000 inverter modules from Avid thus improving reliability and extending the life of the turbine.

YOU AND AVID CONTROLS®

Building on many years' experience in the harsh environment of the drives in the drilling and marine market, you can be sure that **Avid Controls® will supply world class products** which will enhance the reliability and performance of your plant.

Furthermore, you can rely on Avid to continue to innovate by adding more products to the range and enhancing existing ones.



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Avid Controls® operates an ISO9001 Quality System