

TMEiC Introduces the TMdrive-Guardian™, a Self-Sufficient, NEMA Type 3R Outdoor Enclosure for Flagship Medium Voltage Variable Frequency Drive - TMdrive®-MVe2

Innovative thermal management solution generates significant savings and protects in outdoor environments.

Roanoke, Virginia, (May 20, 2019) - Toshiba Mitsubishi-Electric Industrial Systems Corporation (TMEiC) announces the introduction of the **TMdrive-Guardian™**, an outdoor enclosure for its popular TMdrive®-MVe2 medium voltage (MV) variable frequency drive (VFD). The self-sufficient enclosure eliminates the need to house the drive in a temperature-controlled industrial control building or E-house and has the potential to save companies thousands of dollars and make engineering, procurement, construction and maintenance a breeze.

"Our end-users are beginning to realize that running HVAC systems to keep a VFD within its operating temperature is a significant expense over the life of the installation and takes up valuable indoor space," said Manish Verma, TMEiC senior sales application engineer. "This outdoor enclosure solution is also a great option for customers where the results of a plant-wide energy audit provide evidence of potentially significant energy savings when converting a fixed speed motor to adjustable speed, but do not have space or proper HVAC cooling in their existing MCC rooms to accommodate a VFD."

Cooling has remained a primary concern in the industry since MV air-cooled drives became a staple to accomplish energy savings, soft starting, and speed control for heavy rotating machinery such as pumps, compressors, fans, extruders, blowers, hoists, shredders, and many more applications. TMEiC's outdoor enclosure solves the thermal management challenge. Advantages include:

Features	Benefits
NEMA Type 3R Rated	The enclosure provides protection against dirt, rain, sleet, snow, windblown dust, water.
Wide Ambient Temperature Rating	Designed to operate in the most extreme temperature ratings: -40°C to +50°C (122°F) *1
HVAC Eliminated	Saves an average of \$10,000 - \$15,000 per year in HVAC costs alone when compared to an industrial control building or MCC room with cooling improvements.*2
Black start intelligence	Enclosure prevents thermal shock to VFD components when starting under extended shutdown situation in extremely cold ambient
No Air Filters Required	The innovative air-flow technique eliminates filters and the need for frequent filter replacement*3
Easy Installation	No building required, saving construction and development costs associated with E-houses or industrial buildings.
Plug and Play Installation	Self-sufficient enclosure. Three cables in, three cables out. No external 480V or 120V connections, only utility mains, control cables, and motor leads.
Reduces Tax Liability	The enclosure is classified as weatherproof, free-standing equipment, eliminating the need for real estate improvement that attracts property taxes.
Assembled in America	The enclosure is designed, assembled and tested in the U.S.A.

Notes:

*1 +50°C applicable with appropriate VFD sizing

*2 Estimate based on 1890kVA TMdrive-MVe2 running 80% of the time, industrial electricity rate = 6.51¢/kWhr

*3 Filters provided on the VFD will need to be serviced and cleaned as per installation site

The new enclosure further enhances the TMdrive®-MVe2, delivering more ease of use and value to operators. Introduced in 2014, the TMdrive®-MVe2 supports medium-voltage motors without the need for an output transformer and provides variable reactive power compensation for voltage support and line-side power factor correction. The unique design eliminates the challenges associated with aging variable frequency drive designs, such as low efficiency, fixed input power factor, and high output harmonics. Now, with the custom outdoor enclosure, the drive can be applied outdoors with short lead times and budget friendliness.



TMdrive-Guardian™ enclosure for the TMdrive-MVe2 Medium Voltage Drive
(Note: front door panels not shown in photo)

Voltage	Frame	Approximate Motor Shaft HP (kW) at 4.16 kV	Rated Output Current (A)	Inverter kVA output at 4.16 kV
4.16 kV	100 - 600	536 - 3,040 (400) - (2,268)	69 - 385	500 - 2,770

To learn more about the outdoor medium voltage drive and how can it be applied for new and retrofit applications, please contact your local TMEiC representative for a product overview or educational lunch & learn. View the product technical data-sheet [here](#).

Media Inquiries: Manish Verma, Senior Sales Application Engineer, Manish.Verma@tmeic.com

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About Toshiba Mitsubishi-Electric Industrial Systems Corporation (TMEiC)

Toshiba Mitsubishi-Electric Industrial Systems Corporation (TMEiC) was formed in 2003 following the merger of the industrial systems departments of Toshiba Corporation and Mitsubishi Electric Corporation. TMEiC manufactures and sells variable frequency drives, motors, photovoltaic inverters and advanced automation systems for a range of industrial applications. We drive industry.

The North American operation –

TMEiC Corporation, headquartered in Roanoke, VA, designs, develops and engineers advanced automation, large AC and DC motors, photovoltaic inverters, and variable frequency drive systems. TMEiC Corporation specializes in Renewable Energy, Metals, Material Handling, Oil & Gas, Mining, Paper, Testing and other industrial markets worldwide. We drive industry. www.tmeic.com

TMEiC Corporation, 2060 Cook Dr., Salem, VA 24153, USA
Tel: +1 540 283-2000



www.tmeic.com