Tigo Energy®
Module Maximizer™-ES (MM-ES)
Data Sheet

For residential, commercial and utility scale photovoltaic solar arrays, the Tigo Energy® Maximizer™ system optimizes the power output of each module (solar panel); delivers module-level data for operational management and performance monitoring; and provides the ability to deactivate the high voltage DC bus for safer installation, maintenance or fire fighting. Tigo Energy Module Maximizers are key components of the system which reside at each module (one per solar module). The Module Maximizer provides data acquisition, communication to the Tigo Energy® Maximizer™ Management Unit, and energy harvesting control. The very small electronics footprint has been designed to minimize cost and maximize reliability. Tigo Energy Maximizer MM-ES is ideal for the European market and retrofit around the world.

The Tigo Energy output optimization starts with dynamic module balancing – a Module Maximizer (patented) attached to each module manages the energy harvest and sends information to the Maximizer Management Unit for reporting and control. The Tigo Energy Serial Module Maximizer (MM-ES) connects in a series topology. MM-ES maintains best-in-class system conversion efficiencies.

The Tigo Energy Module Maximizer includes a unique technology (patented) which greatly enhances the safety of a PV solar installation. As part of the Tigo Energy Maximizer system, this function can be activated with a safety button or via a remote management console. The system can be installed, maintained or approached by fire personnel without the exposure to voltage levels typically in excess of 400 volts.

The Tigo Energy Module Maximizer is packaged in a NEMA3R enclosure (water and weather resistant), conforms to UL and IEEE safety standards. There are Module Maximizer options to fit any PV module, crystalline silicon or thin-film, regardless of output voltage or nominal power rating.

GREEN BUSINESS
BAY AREA

Ask your PV Solar distribution partner for the Tigo Energy Module Maximizer pre-installed on many of their most popular framed solar panels for simple on-site system installation for your new or existing PV system. Also watch for modules that include the Tigo Energy technology fully integrated into the junction-box – available soon from leading PV module manufacturers.

Module Maximizer-ES Technical Specifications

Input data	MM-ES50	MM-ES75	MM-ES110	MM-ES170
Maximum power	350W	350W	350W	350W
Maximum input DC voltage (Voc)	52V	75V	110V	170V
Vmp range *	16-48V	30-65V	30-89V	30-140V
Maximum continuous current (Imp)	9.5A	6.5A	4.7A	2.6A
Maximum input current (Isc)	10A	7.5A	5A	3A

* Vmp = Voltage at maximum power = Maximum power voltage

Output Data (DC)				
Maximum output power	350W	350W	350W	350W
Maximum continuous current	9.5A	6.5A	4.7 A	2.6A
Nominal Voltage/range	0 - Voc	0 - Voc	0 - Voc	0 - Voc

Mechanical Data	
Operating temperature range	-30°C +70°C
Cooling	Natural Convection
Enclosure environmental rating	IP-65, NEMA3R

Features

Compliance

per UL1741

FCC part 15, class B

EN 61000

Panel connector — NEC 2008 compliant   MC4 compatible (for retrofit) MC3 connectors

Bus connector — NEC 2008 compliant 40AMP

Specifications subject to change. Always check the table on the Tigo Energy Module Maximizer label for specifications as supported by that particular unit.

Optimize the energy harvest of your PV system using the Tigo Energy Maximizer to:

- accelerate system payback
- maximize the power output of individual modules
- reconsider previously rejected projects because of unfavorable shade or orientation
- maintain best-in-class conversion efficiency
- manage the system with module-level data to minimize operational costs and keep the system at peak performance throughout its lifetime
- introduce an unprecedented level of safety for new and existing PV solar installations (patented)
- simplify the balance-of-system design, especially for high Voc or thin-film modules
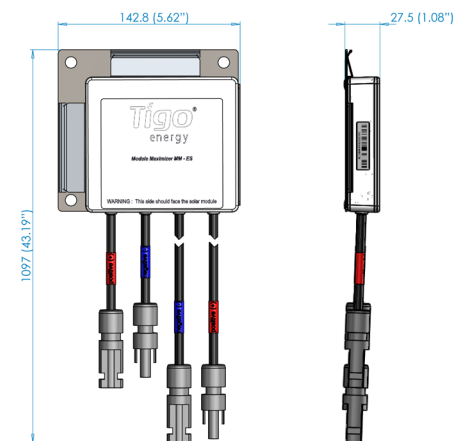
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