

PRESS RELEASE

Morningstar Introduces Two New Product Innovations at Intersolar Europe 2013

The TriStar MPPT™ 600V charge controller and the Ground Fault Protection Device

Newtown, PA, USA, June 19, 2013: At this year's Intersolar Europe conference in Munich, Germany (June 19-21) Morningstar Corporation unveils the new **TriStar MPPT™ 600V charge controller (TS-MPPT-600V)** and **Ground Fault Protection Device (GFPD) product line families.**

Morningstar launched the TriStar MPPT Controller family in 2009. This line of MPPT controllers has become the world's leading MPPT solar controllers. In fact, Morningstar's TriStar MPPT Controllers are operating in a myriad of off-grid residential, commercial and industrial photovoltaic (PV) installations around the globe. "The TS-MPPT-600V builds on previous application experiences and our 20+ years of power electronics engineering excellence, to deliver the best controller solution for stand-alone or back-up system installations," said Lee Gordon, President & CEO, Morningstar Corporation. "The TS-MPPT-600V uses advanced power electronics to efficiently convert up to 600 Voc (open circuit voltage) PV for 48 or 120 Vdc battery systems." Its high voltage capability and flexible design also means several typical application scenarios are now possible including:

- Off-grid PV systems greater than 150 Voc with long wire runs (from the array to the controller).
- New installation grid-tie PV systems with battery back-up.
- Retrofit grid-tie PV systems with battery back-up.
- Small wind (off-grid or grid-tied) with battery back-up.

Morningstar's TS-MPPT-600V:

- Delivers the industry's best-in-class power efficiency.
 - The TS-MPPT-600V features an advanced internal processor and utilizes Morningstar's patented [TrakStar™](#) Advanced Maximum Power Point Tracking Technology to harvest the maximum power from the solar array's peak power point under all operating conditions.
 - This high-speed processing technology and sweeping methodology enables the TS-MPPT-600V to sweep from the battery voltage to the Voc of the array faster than any MPPT charge controller on the market today—faster than 1/10th of a second.
- Uses Morningstar's patented 4-stage charging algorithm to optimize battery health.
- Features extensive system networking, monitoring and communications.
- Is environmentally optimized and equipped with extensive electronic protections.
- Offers superior lightning protection (from nearby lightning-induced voltage and current spikes).
- Is engineered with a robust thermal and mechanical design to deliver the highest reliability and excellent performance.

MORNINGSTAR INTRODUCES TWO NEW PRODUCT INNOVATIONS ... THE TS-MPPT-600V CONTROLLER & GFPD DEVICE

The Ground Fault Protection Device (GFPD) products are built to be both off-grid and on-grid PV safety devices. The GFPD is available in two model variants (GFPD-150V & GFPD-600V) to support 150V and 600V PV system breaker stacks. The Morningstar's GFPD increases safety and design flexibility in off-grid and on-grid PV systems. Ground fault protection is used in electrical systems to prevent current from following any unintended paths during a ground fault. It is critical to detect any stray current and to interrupt (break) the circuit until safe operation can be restored. Any current imbalance between the conductors of a circuit indicates a ground fault. Morningstar's GFPD will detect this condition and break the circuit on both the positive and negative legs. Disconnecting both poles ensures interruption of the ground fault current.

Morningstar's GFPD:

- Works like traditional AC GFI.
- Maintains the integrity of earth bond for battery and loads.
- Trips at lower fault current with greater accuracy.
- Breaks both conductors in the faulted circuit and completely isolates PV source circuits.
- Does not require an extra warning label(s) at the battery bank (as per U.S. National Electric Code (NEC) requirements).
- Provides design flexibility to meet a wide range of configurations:
 - Positive and negative ground.
 - Large and small arrays alike.
- Makes it easier to locate and troubleshoot ground faults.
- Is powered via the PV system's battery bank.
- Is equipped with both visual and audible alarms.
- Is built to support both single controller and multiple controllers systems:
 - When the Earth bond is not broken Morningstar's GFPD will only shut off affected controller(s).
 - All loads will continue to operate safely with the battery remaining bonded to ground.
 - Multiple controllers and GFPDs can be added on an as-needed basis.

Morningstar's products are built from the inside out and deliver more than twice the industry average in operating life. Morningstar's TriStar MPPT Controllers are the ideal choice for residential, industrial and small commercial installations. They offer a highly efficient power path for charging batteries with high-voltage strings, thin film and other grid-tie PV modules. We invite you to come to our [Booth B4.416](#) to check out our newest products.

- To learn more about Morningstar's TriStar MPPT 600V: www.morningstarcorp.com/TS-MPPT-600V
- To learn more about Morningstar's Ground Fault Protection Device family: www.morningstarcorp.com/GFPD
- Further details about the conference are available at www.intersolar.de

About Us: For over 20 years, Morningstar Corporation has been the global leader in delivering the world's best-in-class solar charge controllers and inverters. Our controllers and inverters have set new standards in performance, innovative features, quality and reliability. In fact, they are integral power electronic components in over 2 million global off-grid photovoltaic installations located in 111 countries on all 7 continents. Morningstar is renowned for delivering the industry's best overall customer value.

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