

# TRISTAR Meters

## Digital Displays for TriStar Solar Charge Controllers



The TriStar Meter-2™ (TS-M-2), TriStar Meter-2-600V™ (TS-M-2-600V) and the TriStar Remote Meter-2™ (TS-RM-2) are advanced digital meters. They are nearly identical except that the TS-M-2 and TS-M-2-600V are mounted on the controller and the TS-RM-2 is flush mounted up to 30 meters away from the controller. The TriStar meters are 2 x 16 character LCD's that display system and controller information, logged data, bar graph metering, alarms and faults for easy troubleshooting. The information may be shown in English, French, German, Portuguese or Spanish. In multi-controller systems, these are networkable using Morningstar's MeterHub to allow individual controller data and aggregate system data to be displayed together on a single meter.

### Key Features and Benefits

#### ■ Easy to install

- Uses standard 6 conductor RJ-11 connectors
- TS-RM-2 fits a "double gang" electrical box and includes 30 meters (98.4 feet) of cable
- Both data and meterbus power flow over a single cable
- Network supports up to 15 devices and, optionally, more than one meter per system

#### ■ Networking capability

- Displays individual controller data from up to 15 TriStars with optional Morningstar MeterHub
- Aggregates system data to show total charge, load and battery charge/discharge state
- Auto detects any device found on the network

#### ■ Easy to use

- Four directional pushbuttons for easy navigation of display screens
- Backlighting to enhance readability
- Meter may be added during initial controller installation, added as an upgrade anytime in the future or connected temporarily for troubleshooting with the ability to use this same meter at other sites

### TECHNICAL SPECIFICATIONS

#### Electrical

- Self-Consumption <0.5W  
42.5 mA (backlight on)

#### Mechanical

- TS-RM-2 Mounting Plate Dimensions 116 x 116 mm / 4.56 x 4.56 in
- Plate Material powder coated steel
- Weight
  - TS-M-2 0.23 kg / 0.5 lb
  - TS-M-2-600V 0.18 kg / 0.4 lb
  - TS-RM-2 0.18 kg / 0.4 lb
- Connector Type RJ-11 (6-pin)
- TS-M-2 cable 0.13 m / 5 in - 6 conductor
- TS-M-2-600V cable 0.35 m / 14 in - 6 conductor
- TS-RM-2 cable 30 m / 98.4 ft - 6 conductor
- Cable Temperature 60°C rating

#### Environmental

- Ambient Operating Temperature -40 °C to +60 °C
- LCD Temperature Rating -20 °C to +70 °C
- Storage Temperature Range -55 °C to +85 °C
- Humidity Tolerance 5 to 95 % (NC)
- Tropicalization Conformal Coating on both sides of circuit board

#### Compatibility

|                     | TS-M-2 | TS-M-2-600V | TS-RM-2 |
|---------------------|--------|-------------|---------|
| • TriStar           | YES    | NO          | YES     |
| • TriStar MPPT      | YES    | NO          | YES     |
| • TriStar MPPT 600V | NO     | YES         | YES     |

#### Certifications

- CE, RoHS and REACH Compliant
- ETL Recognized Component FCC Class B Part 15 Compliant
- ACMA-EMC Compliant
- Manufactured in a Certified ISO 9001 Facility

**Displays for TriStar Meter-2, TriStar Meter-2-600V and TriStar Remote Meter-2**

|                                   | TriStar      |              | TSMPPPT*  |              |   | TriStar      |              | TSMPPPT*     |              |
|-----------------------------------|--------------|--------------|-----------|--------------|---|--------------|--------------|--------------|--------------|
|                                   | Solar Charge | Load Control | Diversion | Solar Charge | <b>Commands</b>                                 | Solar Charge | Load Control | Diversion    | Solar Charge |
| <b>Operating Data</b>             |              |              |           |              | <b>User Settings</b>                            |              |              |              |              |
| • Battery Voltage                 | •            | •            | •         | •            | • Reset Ah/kWh Counters                         | •            | •            | •            | •            |
| • Solar Input Voltage             | •            |              |           | •            | • Reset Min/Max Battery V                       | •            | •            | •            | •            |
| • Charging Current                | •            |              |           | •            | • Equalize Start/Stop                           | •            |              | •            | •            |
| • Load/Diversion Current          |              | •            | •         |              | • Load On/Off                                   |              | •            |              |              |
| • Battery Sense Voltage           | •            | •            | •         | •            | • Reset Battery Service Reminder                | •            | •            | •            | •            |
| • Battery Temperature             | •            | •            | •         | •            | <b>Logged Data<sup>1</sup></b>                  |              |              |              |              |
| • Battery Min/Max Voltage         | •            | •            | •         | •            | • Days of Daily Log Data                        |              |              | Last 60 Days |              |
| • Charging Watts                  | •            |              |           | •            | • Battery Voltage Min (Daily)                   | •            | •            | •            | •            |
| • Load/Diversion Watts            |              | •            | •         |              | • Battery Voltage Max (Daily)                   | •            | •            | •            | •            |
| • Daily Charge Wh                 |              |              |           | •            | • Charge Ah (Daily)                             | •            |              |              | •            |
| • Heatsink Temperature            | •            | •            | •         | •            | • Load Ah (Daily)                               |              | •            | •            |              |
| <b>Settings Data</b>              |              |              |           |              | • Battery Wh (Daily)                            |              |              |              | •            |
| • Nominal System Voltage          | •            | •            | •         | •            | • Solar Vmax (Daily)                            |              |              |              | •            |
| • Battery Type                    | •            |              |           | •            | • Battery Watts Max (Daily)                     |              |              |              | •            |
| • Regulation Type                 | •            |              |           | •            | • Time in Absorption (Daily)                    |              |              |              | •            |
| • Absorption Charge Voltage       | •            |              |           | •            | • Time in Float (Daily)                         |              |              |              | •            |
| • Float Charge Voltage            | •            |              |           | •            | • Time in Equalize (Daily)                      |              |              |              | •            |
| • Equalize Charge Voltage         | •            |              |           | •            | • Faults (Daily)                                | •            | •            | •            | •            |
| • Low Voltage Disconnect Value    |              | •            |           |              | • Alarms (Daily)                                | •            | •            | •            | •            |
| • Low Voltage Reconnect Value     |              | •            |           |              | <b>Total System Data (multiple controllers)</b> |              |              |              |              |
| • Days Between Equalizations      | •            |              |           | •            | • Charge Current                                | •            |              |              | •            |
| <b>Diagnostic Data</b>            |              |              |           |              | • Load Current                                  |              | •            |              |              |
| • Ah Total/Since Last Reset       | •            | •            | •         | •            | • Diversion Current                             |              |              | •            |              |
| • kWh Total/Since Last Reset      | •            | •            | •         | •            | • Charging Watts                                | •            |              |              | •            |
| • Charge State                    | •            |              |           | •            | • Charging Ah                                   | •            |              |              | •            |
| • Load State                      |              | •            |           |              | • Charging Wh                                   | •            |              |              | •            |
| • Fault List                      | •            | •            | •         | •            | • Load Ah                                       |              | •            |              |              |
| • Alarm List                      | •            | •            | •         | •            | • Load Watts                                    |              | •            |              |              |
| • Days Since Last Equalization    | •            |              |           | •            | • Diversion Watts                               |              |              | •            |              |
| • Days Since Last Battery Service | •            |              |           | •            | • Diversion Ah                                  |              |              | •            |              |
| • Cumulative Hours of Service     | •            | •            | •         | •            |   |              |              |              |              |
| • Controller Version              | •            | •            | •         | •            |   |              |              |              |              |
| • Meter Version                   | •            | •            | •         | •            |   |              |              |              |              |
| • Mode of Operation               | •            | •            | •         | •            |   |              |              |              |              |

\*Includes TriStar MPPT and TriStar MPPT-600V  
<sup>1</sup> Logged data available on TriStars with software v13 or later

**WARRANTY:** Five year warranty period. Contact Morningstar or your authorized distributor for complete terms.



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