



## Σ-Ahr MPPT Controller

The charge controller is the beating heart of any solar energy system. The desire for perfection at TSS has resulted in the most solid and most efficient charge controller range for stand-alone solar energy systems. It is designed to have exceptional performance and last longer especially in the most harsh environments.



### Efficiency 97%

This reduces your overall system cost.

### Ultimate reliability

The Multi Array input eliminates a single all-or-nothing connection.

### Remote Monitoring

Controller is equipped with an industry standard Modbus TCP/IP interface for easy and reliable remote monitoring.

### Triple Redundancy

The analogue fall back mode kicks in should the processor ever fail. More than one voltage and temperature measurement can be incorporated for maximum reliability. Two completely independent voltage measurements are monitored against high and low voltage

### Small and Large systems

A modular design allows for expansion when larger systems are required. Adapting the capacity to your requirement. No unnecessary cost for unnecessary capacity.

Creating a solid and highly efficient solar energy system to keep you going ...Always!



## Technical Specifications

| Typical specifications                           |       | Σ-Ahr MPPT Controller |  | Σ-Ahr MPPT Controller |  |
|--|-------|-----------------------|--|-----------------------|--|
| Nominal system voltage                           | [V]   | 24                    |  | 48                    |  |
| Solar array inputs (switched independently)      | [No.] | 2                     |  | 2                     |  |
| Max. array input current                         | [A]   | 2 x 10                |  | 2 x 20                |  |
| Max. array input voltage                         | [V]   | 250                   |  | 250                   |  |
| Max. array input power                           | [W]   | 2500                  |  | 5000                  |  |
| Max. continuous battery current                  | [A]   | 100                   |  | 100                   |  |
| Max. battery input voltage                       | [V]   | 65                    |  | 65                    |  |
| Nominal output current to load                   | [A]   | 2 x 45                |  | 2 x 45                |  |
| Maximum output current to load                   | [A]   | 2 x 60 (1 minute)     |  | 2 x 60 (1 minute)     |  |
| Peak output current to load                      | [A]   | 2 x 90 (10 seconds)   |  | 2 x 90 (10 seconds)   |  |
| Operating efficiency at full input and full load | [%]   | 97                    |  | 97                    |  |
| Independent load outputs                         | [No.] | 2                     |  | 2                     |  |

| Typical settings (24Vdc)                                       |     | Lead Acid        |       | Nicd (19 cells)  |       |
|--|-----|------------------|-------|------------------|-------|
| Load disconnect high system voltage (alarm)                    | [V] | 30.5             | 31.5  | 30.5             | 31.5  |
| Load re-connect high voltage                                   | [V] | 28.8*            | 29.45 | 28.8*            | 29.45 |
| Boost @ 25°C level   | [V] | 28.8*            | N.A.  | 28.8*            | N.A.  |
| Float @ 25°C level   | [V] | 28.2             | 28.5  | 28.2             | 29.45 |
| Low battery voltage (alarm, non-essential load disconnect)     | [V] | 23.6             | 23    | 23.6             | 23    |
| Non-essential load re-connect voltage                          | [V] | 25               | 25    | 25               | 25    |
| Load disconnect low voltage (alarm, essential load disconnect) | [V] | 23               | 21.85 | 23               | 21.85 |
| Essential load re-connect voltage                              | [V] | 24.5             | 24.5  | 24.5             | 24.5  |
| Temperature compensation                                       |     | -3mV / °C / cell | N.A.  | -3mV / °C / cell | N.A.  |

\* Boost and float voltage for Lead Acid are temperature dependent

| General specifications |   |
|------------------------|---|
| Model / type           | Σ-Ahr MPPT Controller                         |
| Operating temperature  | -20°C to +85°C                                |
| Storage temperature    | -30°C to +85°C                                |
| Mounting               | Indoor  |
| Dimensions (H x W X D) | 16.0 x 8.0 x 14.6 cm                          |
| Unit weight            | 2 kg  |
| Communications         | Modbus TCP/IP                                 |
| Approvals              | CE  |
| Standards              | IEC 61000-6-2<br>IEC 61000-6-4<br>IEC 60950-1 |