Σ-Ahr PWM 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 pulse width modulation (PWM) charge controller for stand-alone solar energy systems. It is designed to have exceptional performance and last longer especially in the most harsh environments.

Efficiency 99.75%

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.

In-field diagnostics

With pushbuttons the main function of the controller can be tested in the field.

TSS-DS-024-R04

TSS4U • Looyenbeemd 3a • 5652 BH Eindhoven • The Netherlands
Tel. +31 40 235 1702 • info@tss4u.com • www.tss4u.com • CoC 17156182

Σ-Ahr PWM Controller

Electrical specifications	Σ-Ahr PWM Controller 24V		Σ-Ahr PWM Controller 48V	
Nominal system voltage	24 Vdc		48 Vdc	
Independent solar array inputs	3		2	
Max. array input current	130 Adc		130 Adc	
Max. array input voltage	90 Vdc		90 Vdc	
Max. continuous battery current	130 Adc		130 Adc	
Max. battery input voltage	65 Vdc		65 Vdc	
Independent load outputs	2		2	
Nominal output current to load	2 x 45 Adc		2 x 45 Adc	
Maximum output current to load	2 x 60 Adc (1 minute)		2 x 60 Adc (1 minute)	
Peak output current to load	2 x 90 Adc (10 seconds)		2 x 90 Adc (10 seconds)	
Operating efficiency solar input	99.75 %		99.75 %	
Typical settings (24Vdc)	**Lead Acid**	**Nicd (19 cells)**	**Lead Acid**	**Nicd (19 cells)**
Load disconnect / high system voltage (alarm)	30.5 Vdc	31.5 Vdc	61.0 Vdc	63.0 Vdc
Load re-connect high voltage	28.8* Vdc	29.45 Vdc	57.6* Vdc	58.9 Vdc
Boost @ 25°C level	28.8* Vdc	N.A.	57.6* Vdc	N.A.
Float @ 25°C level	28.2 Vdc	28.5 Vdc	56.4 Vdc	58.9 Vdc
Low battery voltage (alarm, non-essential load disconnect)	23.6 Vdc	23.0 Vdc	47.2 Vdc	46.0 Vdc
Non-essential load re-connect voltage	25.0 Vdc	25.0 Vdc	50.0 Vdc	50.0 Vdc
Load disconnect low voltage (alarm, essential load disconnect)	23.0 Vdc	21.85 Vdc	46.0 Vdc	43.7 Vdc
Essential load re-connect voltage	24.5 Vdc	24.5 Vdc	49.0 Vdc	49.0 Vdc
Temperature compensation	-3mV / °C / cell	N.A.	-3mV / °C / cell	N.A.

* Boost and float voltage for Lead Acid are temperature dependent

General specifications	
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	0.98 kg
Communication (between Σ-Ahr units)	RS-485
Communication (external)	Modbus TCP/IP (slave)
Analogue input	2x 100mV shunt
Digital output	3x open drain
Approvals	CE
Standards	IEC 61000-6-2 IEC 61000-6-4 IEC 60950-1