

MRCC Charge Controller

The charge controller is the beating heart of any solar energy system. The MRCC controller is a battery charge regulator for small to medium sized photovoltaic solar systems, which are used for industrial applications. The MRCC features all functions and properties necessary in the industrial field to safeguard an optimum battery charge and discharge cycle.



Key Features :

- Overcharge and deep discharge protection
- Functional test facility
- Protection against reverse current, reverse polarity connection of solar modules and battery and overload on output
- External voltage/temperature sensor ensures long battery lifetime
- Suitable for high starting currents
- Extremely low energy consumption

Main Areas of Application :

- Marine and aircraft beacons
- Wellhead control
- Motors or pumps
- Monitoring and telemetry
- Telecommunication

Technical Specifications

Typical specifications		
Nominal voltage	[Vdc]	24
Solar array inputs	[No.]	1
Max. continuous array input current	[A]	31.5
Max. array input voltage	[V]	80
Max. battery input voltage	[V]	40
Max. load output current	[A]	24 (cont.) / 40 (1 minute)
Peak load output current	[A]	250 (1 second)
Max. terminal connector size	[mm ²]	16
Volt/Temp Sensor		✓
Test Switch/Button		✓
Operating efficiency @ full input and full load	[%]	99.75
Temperature Compensation	[mV/ °C]	-60
Battery type		VRLA
Typical settings		
Pre-warning low voltage(alarm)	[Vdc]	23.6
Load disconnect low voltage (alarm)	[Vdc]	23
Load reconnect level	[Vdc]	24.4
Boost level @ 25 °C	[Vdc]	29
Float level @ 25 °C	[Vdc]	28.4
Float reconnect level	[Vdc]	27.4
Boost reconnect level	[Vdc]	25.6
General specifications		
Operating temperature		-10 °C to +85 °C
Storage temperature		-30 °C to +85 °C
Mounting		Indoor
Dimensions (H x W X D)		17.3 x 10.2 x 6 cm
Unit weight		0.40 kg

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 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.

In-field diagnostics

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

Σ-Ahr MPPT Controller

Electrical specifications	Σ-Ahr MPPT Controller 24V		Σ-Ahr MPPT Controller 48V	
Nominal system voltage	24 Vdc		48 Vdc	
Independent solar array inputs	2		2	
Max. array input current	2 x 12 Adc		2 x 12 Adc	
Array input voltage	120-350 Vdc		120-350 Vdc	
Max. array input power	2400 W		3600 W	
Operating efficiency solar input	97 %		97 %	
Max. continuous battery current	100 Adc		75 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	97 %		97 %	
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	2 kg			
Communication (between Σ-Ahr units)	RS-485			
Communication (external)	Modbus TCP/IP (slave)			
Programmable analogue input	2x 100mV shunt			
Programmable analogue output	1x 4-20 mAdc (passive)			
Programmable digital input/output	5x open drain			
Approvals	CE			
Standards	IEC 61000-6-2 IEC 61000-6-4 IEC 60950-1			

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.

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.

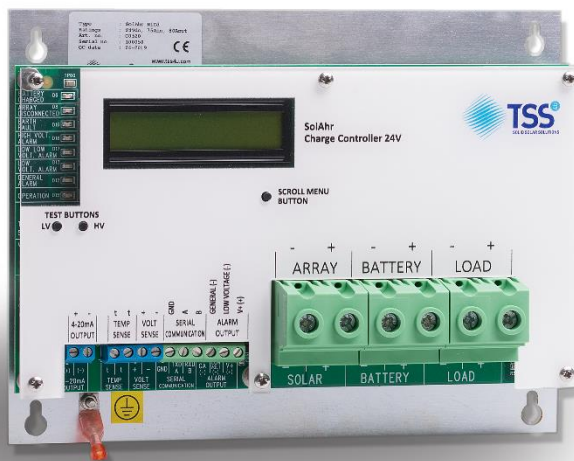
* Boost and float voltage for Lead Acid are temperature dependent

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



SolAhr PWM Charge 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 lasts longer especially in the most harsh environments.



Efficiency 99.75%

This reduces your overall system cost.

LCD Display

Complete visualization of process parameters. In the blink of an eye your system's status is available and clear.

Battery Management

By providing a constant float charge the controller reduces the number of cycles increasing the lifetime of your batteries.

Cost Effective

The charge controller provides the most cost effective solution for small industrial solar energy systems.

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

Technical Specifications

Typical specifications		SolAhr PWM Controller	
Input voltage capability	[Vdc]	24	
Solar array inputs	[No.]	1	
Max. continuous array input current	[A]	75	
Max. array input voltage	[V]	80	
Max. continuous battery charging current	[A]	80	
Max. battery input voltage	[V]	60	
Load output	[No.]	1	
Nominal load output current	[A]	80	
Maximum load output current	[A]	100 (1 minute)	
Peak load output current	[A]	500 (1 seconds)	
Operating efficiency @ full input and full load	[%]	99.75	
Terminal connector size (power)	[mm ²]	16	
Typical settings (24Vdc)		Lead Acid	Nicd (19 cells)
Load disconnect high system voltage (alarm)	[V]	30.5	31.5
Load re-connect high system voltage	[V]	28.8*	29.45
Boost @ 25 °C level	[V]	28.8*	N.A.
Float @ 25 °C level	[V]	28.2	28.5
Low battery voltage (alarm, non-essential load disconnect)	[V]	23.6	23
Load disconnect low voltage (alarm, essential load disconnect)	[V]	23	21.85
Load re-connect high system voltage	[V]	24.5	24.5
Earth fault alarm	[mA]	>100	>100
Temperature compensation		-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 21.0 x 5.5 cm
Unit weight	0.55 KG
Communications	Modbus RTU Battery voltage transducer (passive)
Approvals	CE
Standards	IEC 61000-6-2 IEC 61000-6-4 IEC 60950-1