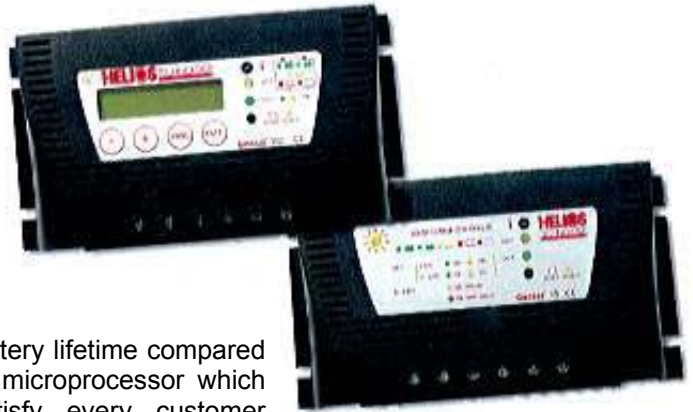


Helios Technology is glad to introduce the new intelligent charge regulator **GENIUS®**, that is the result of the twenty-year experience gained by Helios Technology in the photovoltaic field and of the precious suggestions given by experienced installers. This innovative device takes advantage of the most advanced electronic technologies, to allow an incomparable battery charge management and a continuous and very accurate monitoring of the state of charge of the photovoltaic system. **GENIUS®** is able to control the state of charge of the battery and to check it by means of one sophisticated algorithm which allows even a remarkable increase of the battery lifetime compared to the traditional charge regulators. Thanks to its powerful microprocessor which controls all the available functions, **GENIUS®** can satisfy every customer requirement, proving to be a successful instrument for civil and telecommunication systems, isolated chalets, for campers to recharge the service battery or a second auxiliary one. These batteries could be of a different kind each other.



GENIUS® has been also designed to manage in the best and innovative way systems with night-time loads. In fact it is provided with an integrated crepuscular function and with an adjustable internal timer, so that the customer can adjust the desired night operating time. These features make **GENIUS®** the ideal device for the management of public lighting system as solar street lights, including those equipped with a variable-intensity light, thanks to three available digital outputs. **GENIUS®** can therefore execute several functions, easy to set just positioning the proper jumpers in a slot, while further monitoring and measurements of electrical and environmental parameters can be provided thanks to an available external interface. One display and four keys (option D) or, alternatively, one remote display and four keys (option MAESTRO) allow the system parameters to be shown in real time and to be adjusted according to the customer requirements. Moreover, three digital outputs allow the remote monitoring of the system and some signaling or backup devices could be connected, such as alarms, GSM systems or emergency generating sets.

The **GENIUS®** series comprises four models:

GENIUS 15	: maximum capacity 15A at the module input and 15A at the load output
GENIUS 30	: maximum capacity 30A at the module input and 30A at the load output
GENIUS 15 D	: equipped with programming keys and one 16 characters x 2 backlighted LCD display
GENIUS 30 D	: equipped with programming keys and one 16 characters x 2 backlighted LCD display

NIGHT-TIME FUNCTION

The integrated crepuscular function accompanied with an internal adjustable timer allows to drive night-time loads and to customize their operating time according to the following modes:

- Sunset – sunrise;
- Intelligent night-time operating function which allows to feed the load for an initial minimum fixed period, adjustable by the customer, plus an extra-time depending on the state of charge of the battery. This will prevent the battery itself to discharge too much, so that a minimum lighting period can be assured which can be extended to all night long during the months of higher insolation.

The following options are available:

MAESTRO: Remote LCD display + programming unit, with standard connectors and a 3m cable (maximum allowed cable length: 10m), which can be connected to all the **GENIUS®** models.

PROBE: When a remote temperature probe is linked to the external interface **GENIUS®** can measure the real temperature of the battery housing regardless of the location of the charge regulator itself, so allowing a more accurate management of the state of charge.

SHUNT: One real external shunt designed so that **GENIUS®** can measure and display the output currents up to 100A of an auxiliary battery. In this way **GENIUS®** will know, manage and display the produced, absorbed and remaining energy (Ah) of the battery, with memory data back to the previous 24 hours.

GENIUS® is furthermore provided with **SPECIAL FUNCTIONS** specifically designed for the camper field but which can be also used in the civil field to satisfy particular needs, such as “splitter”, “paralleling device”, “engine stock”, “reverse paralleling device” and auxiliary-battery type selector “.

TECHNICAL DATA

Normal operating voltage	12V / 24V	to be set by jumper C-1
GENIUS 15 max in / out current	15A / 15A	
GENIUS 30 max in / out current	30A / 30A	
Volt resolution	0,1V	
Ampere resolution	0,1A	
Measured values tolerance	1,5 %	
Connecting clamps size	16mm ²	
Body dimensions	206 x 110 x 43mm	
Weight (basic version without display)	560g	
Weight (version with display)	620g	
LEDs OFF / ON self-consumption	16mA / 34mA	
Lighted display self-consumption	33mA	(15s lighting after pressing any key)
MAX voltage difference between IN - BAT – OUT	0,6V at full power, typical 0,2 – 0,4V	
Technology	SMD solid-state with MOSFET	
Charging Mode	serial	
Charging time equ, bst	1 hour	
End of charge algorithm	PWM at steady voltage	
Software owner	Helios Technology Srl	
Temperature adjustment coefficient	-6mV/°C / cell (25°C)	
Selectable type of battery	lead acid or hermetic gel	adjustable with jumper C-3
Operating temperature	from -20C° to +60C°	
Minimum operating voltage	9V	
Overload protection at the “OUT” load output	Electronic to nominal current and against short circuit	
Electronic protection switch-on time	10ms	
Overload protection at the “IN” module input	electronic PWM to nominal current	
IP protection degree	IP22	

VOLTAGE THRESHOLDS VALUES PRESET AT 25°C (VALUES MUST BE DOUBLED FOR 24V SYSTEMS)

Load cut-off	Ldoff	11,3V	Adjustable in GENIUS 15D & 30D versions				
Load RESET	Ldon	12,5V	“	“	“	“	“
Buffering charge	norm	13,8V	“	“	“	“	“
Equalization charge	equ	14,4V	“	“	“	“	“
Deep charge	bst	14,8V	“	“	“	“	“

The above thresholds will be automatically modified by the inner temperature-compensation function

STANDARD EXTERNAL INTERFACES

- 8 jumpers which can be easily positioned by the customer
- RS232 communication port
- Standard connector for the external display (Maestro)
- External peripheral for the “4 wires” connection and inputs for the readings of the external shunt
- Input for an external temperature probe
- Digital ON-OFF outputs for monitoring or remote-driving the system, other auxiliary generating sets, etc

MULTIFUNCTION KEY

This key allows the following operations:

- 1) Forced reset of the load even when the battery is low (“REARM” function);
- 2) Output reset after that the electronic protection switched on because of a current overload or a short circuit;
- 3) Energy saving, performed switching off all the indication LEDs which can be switched back on at any time.

VISUALIZATION AND CONTROL DEVICES

GENIUS® standard version:	2 multicolor LEDs + 1 yellow LED indicating a reverse polarity
GENIUS® display version:	2 multicolor LEDs + 1 yellow LED indicating a reverse polarity + 1 backlighted 16 characters x 2 LCD display, refreshed 6 times per second + 4 multifunction keys

Helios Technology reserves the right to change the technical features without notice.