

MicroGenius[®] 2

Genset Engine Start Battery Charger
12 & 24 Volts, 6 to 25 Amps



Small. Powerful. Rugged.

Standard J1939 and Modbus communications.

**Hardened switchmode
powertrain**

**UL Listed and
NFPA 110 approved**

**Designed & tested for
industrial applications**

Contact
Stored Energy Systems LLC
Longmont, Colorado, USA

www.sens-usa.com
(303) 678-7500
info@sens-usa.com

CAD drawings, firmware,
certifications, and technical
documentation are available
on our website.



Robust reliability. More power in less space.

State-of-the-art features

SENS MicroGenius 2 advanced technology genset battery chargers deliver from 6 to 25 amps at 12 or 24 volts*.

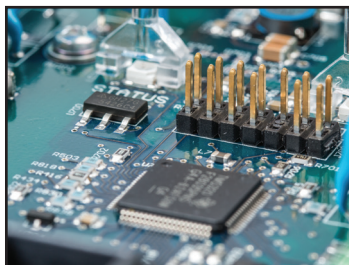
MicroGenius is the only family of genset chargers that meets all modern battery charging and energy efficiency regulations.

- UL listed to category BBHH required for "Emergency Generators"
- Legal for sale under California and Oregon energy efficiency regulations
- All units survive harsh EN 60068 standard vibration abuse at the 4G level

*Consult factory for higher output voltage MicroGenius chargers up to 120 volts DC nominal

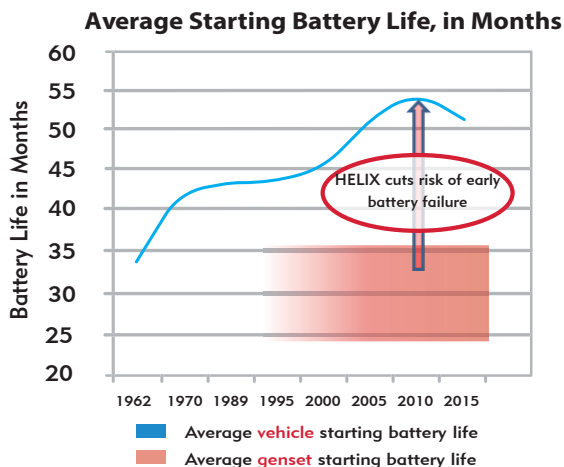
Patented Dynamic Boost™ charging

Dynamic Boost charges batteries faster and more completely than other conventional chargers, with lower risk of overcharge.



Safer, more reliable battery performance

Revolutionary HELIX™ (High Efficiency, Life-eXtending) technology reduces the risk of early & catastrophic genset battery failures.



NFPA 110 approved - eliminate battery maintenance

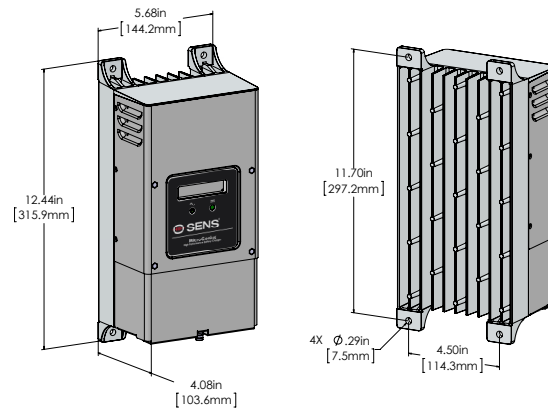
Optional engine cranking voltage drop monitoring eliminates NFPA 110 battery maintenance

CRANKING VOLTAGE DROP



MicroGenius 2

7.2 lbs. (3.3 kg) maximum



Specifications for MicroGenius 2

AC input	VAC, Hz	90-265 ¹ single-phase VAC, 47-63Hz DC voltage applied at AC terminals: 100-375 VDC, 0Hz (≥500W models only, output limited to 2/3 rated power)
	Protection	Supplementary overcurrent protection fuse, transient protected to EN 61000-4-5 level 4
	Power factor & efficiency	PF >.95 typical; max efficiency 93-95%; meets CEC Title 20 Efficiency Regulations; standby AC draw <3W for 180-450W and <7W for 500-750W
DC output	Volts, amps	12V/24V nom. at 10A/6A, 12A/10A, 15A/15A ¹ , 20A/20A, or 25A/25A
	Charging modes	Multi-stage, including float, boost and two additional HELIX voltages in flooded lead-acid battery program
	Current limit	Factory set at 100% of rating. Field adjustable with optional keypad or from PC. ²
	Charging characteristic	Constant voltage, current limited; patented Dynamic Boost control and HELIX (when FLA battery is selected)
	Line & load regulation	±0.5%
	Output ripple	< 30 mVrms with or without battery. Delivers fast-responding, stable, well-filtered DC without battery.
	Battery temp. compensation	Standard. Optional remote battery temperature probe. ³
	Output protection	Current limit, supplementary overcurrent protection fuse, transient protected
	Dead battery charge	Starts into, and recharges zero volt battery without user intervention
	Parallel operation	Two or more chargers operate with all modes synchronized for increased current or fault tolerance ⁴
Adjustment & Controls	Charge mode control	Fully automatic patented Dynamic Boost system (VRLA or ultracap charging program disables boost mode). Manually initiated timed boost & commissioning modes available with keypad option. ⁵
	Adjustments	12 or 24-volt; battery type program; fine voltage setting; alarm setpoints; alarm relay mapping
	Battery type programs	Flooded lead-acid, AGM, NiZn, NaCl (salt), NiCd, VRLA, ultracapacitor
	Field voltage adjustment	3 methods: jumper pins, from front panel keypad ⁵ or from PC ²
Status display	LEDs	Two multi-color front panel status LEDs
	Metering & status display	Optional. Voltmeter accurate to +1%; ammeter to +1%; 20-character display of status & alarm messages. ⁶
Alarms	Alarms	Factory set, field reconfigurable, latching or non-latching. Alarm functions announced on the J1939 and Modbus ports and on the optional LCD include summary, AC fail, charger fail, high DC volts, low DC volts, low cranking volts, overvoltage shutdown, reverse polarity battery, incompatible battery, invalid settings, I/O bus inactive, thermal fold back, no temperature probe, current limiting, ground fault and low current. Any alarm is assignable to Form C contacts.
	Alarms: Form C contacts	Optional. Two ⁷ or five ⁸ Form C contacts, each rated 30V, 2A resistive, assignable. Standard configuration includes summary, AC fail, charger fail, high DC volts, low DC volts and low cranking volts.
Networking	J1939 communications	CAN 2.0 extended ID on RJ45 port
	Modbus communications	Modbus RS-485 on RJ45 port
	SENSbus/USB	Proprietary bus for connection of paralleled chargers, SENS accessories and SENS Setup Utility
Environmental	Operating temperature ⁹	Convection cooled; -40C to +70C; full spec from -40C to +50C ¹⁰
	Humidity	5% to 95%, non-condensing
	Ingress protection	NEMA2/IP22; UL Listed "Rainproof"
	Vibration & shock resistance	Vib: Swept Sine (EN60068-2-6): 4G, 18-500Hz, 3 axes. Random: 20-500Hz, .01G ² /Hz. Shock: EN 60068-2-27 (15G)
	Electrical transient	ANSI/IEEE C62.41 & EN 61000-4-12 on power terminals
Abuse protection	Reverse polarity	Charger self-protects without fuse clearing. Indication via LED & optional LCD.
	Wrong voltage battery	Charger-battery voltage mismatch shuts down charger. Indication via LED & optional LCD.
	Overvoltage shutdown	Selective; shutdown only operates if charger causes the overvoltage condition
	Overtemperature protection	Gradual output power reduction if heatsink temperature becomes excessive
Regulatory compliance	North America	C-UL Listed for US & Canada: UL 1236 categories BBGQ, BBHH, BBJY and QWIR ¹¹ , CSA 22.2, No. 107.2. Certified to UL 1236 supplements SB (marine), SC (fire pump) and SE (emergency generator).
		NFPA-70, NFPA-110 ¹²
		FCC Part 15, Class B, ≥ 600W models Class B
		Seismic: Rigid & non-structure wall mount; max S _{DS} of 2.5G. IBC 2000-2022, Calif. BC 2007-2022
	European Union (CE)	American Bureau of Shipping, type approved
		EMC: 2014/30/EU (EN 61000-6-2 & EN 61000-6-4)
		LVD: 2014/35/EU (EN 60335-1 & EN 60335-2-29)
		RoHS: 2015/863 (EN 63000)
Construction	Housing/configuration	Die-cast aluminum heatsink base with stainless steel covers & fasteners
	Connections	AC & DC terminal blocks: 20 to 10AWG. J1939 and Modbus-485: RJ45. Form C alarms: 28 to 16AWG

¹ When set for 24-volt output, full 15A output of 450W available above 170 VAC input, 12A output current max between 100 VAC and 170 VAC input ² Requires USB charger option or adapter SENS p/n 209254 plus free SENS software available at www.sens-usa.com ³ Remote battery temp sensor is optional. Order SENS p/n 209481 ⁴ Requires standard RJ45 network cable to connect paralleling bus. Order SENS p/n 208118-72 (72-inch length) or 208118-180 (180-inch length) ⁵ Requires that digit 12 of the model number be F ⁶ Requires that digit 12 of the model number be D, E, or F ⁷ Models with E as digit 12 of the model number include 2 ea. Form C alarm contacts ⁸ Models with D or F as digit 12 of the model number include 5 ea. Form C alarm contacts ⁹ At 65 deg. C and above the LCD display may be unreadable and display life will be reduced ¹⁰ Full spec to +55C for 180W and +40C for 450W ¹¹ 300W and 450W models only ¹² All chargers equipped with an alarm / display board meet NFPA-110 requirements. For chargers without an alarm / display board to meet NFPA-110, charger volts, amps and charger fail alarm available on the J1939 port must be announced by the genset control panel.

How To Order **MicroGenius 2**

Product Type	Power	-	Output Volts	-	Output Current	-	Alms & Comms	Special Options
M	4	-	22	-	1515	-	F	N
(A)	(B)		(C)		(D)		(E)	(F)

	Parameter	Code	Value
(A)	Product Family	M	MicroGenius 2
(B)	Power	1 3 4 6 7	180W 300W 450W 600W 750W
(C)	Output Voltage	22	12/24V
(D)	Output Current	1006 1210 1515 2020 2525	10A @ 12V; 6A @ 24V (180W only) 12A @ 12V; 10A @ 24V (300W only) 15A @ 12/24V (450W only) 20/20A @ 12/24V (600W only) 25/25A @ 12/24V (750W only)
(E)	Alarm & Communication Options	A D E F G	Base model; includes J1939 & Modbus RS-485 communications Base model + LCD + USB-C + 5 ea. Form C alarm relays Base model + LCD + USB-C + 2 ea. Form C alarm relays Base model + LCD + USB-C + 5 ea. Form C relays + keypad control Base model + LCD + USB-C + 5 ea. Form C relays + keypad control + Modbus TCP/IP
(F)	Special Options	F G L N T V W	FC to MicroGenius 2 adapter plate (enclosed charger only) MicroGenius 150 to MicroGenius 2 adapter plate (enclosed charger only) LC to MicroGenius 2 adapter plate (enclosed charger only) NRG10 to MicroGenius 2 adapter plate (enclosed charger only) Remote Temperature Sensor shipped with charger Includes cranking voltage drop monitoring Includes cranking voltage drop monitoring and 6ft remote temperature sensor

Contact SENS or your local sales representative for additional specification, engineering and installation information, or visit SENS' website for latest available data. Specification subject to change without notice.

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