ELECTRONIC TEST & POWER SYSTEMS

LAB-GSS-HC

HIGH CURRENT BIDIRECTIONAL DC SYSTEM

POSITIVE PROBLEM SOLVING

The LAB-GSS-HC is a high current bidirectional DC sink-source which operates in quadrants one and four. When used as a DC power supply the unit provides control of V, I and P limits.

When sinking energy from the unit under test the LAB-GSS-HC automatically inverts the DC to AC and synchronises this output to the grid. A variety of control methods are available. The module is built with isolated analogue, USB and RS-232 interfaces. For high power DC source requirements up to 64kW, this LAB-GSS module can be combined with a LAB-TC 32-65 module in series or parallel configuration.

- Mains Regeneration of the DC Sink Energy
- Excellent GUI with Built-in Scope Function
- Function Generator with V / I Capability
- Battery Cycling and Emulation Software
- Adjustable Internal Resistance

LAB-GSS-HC

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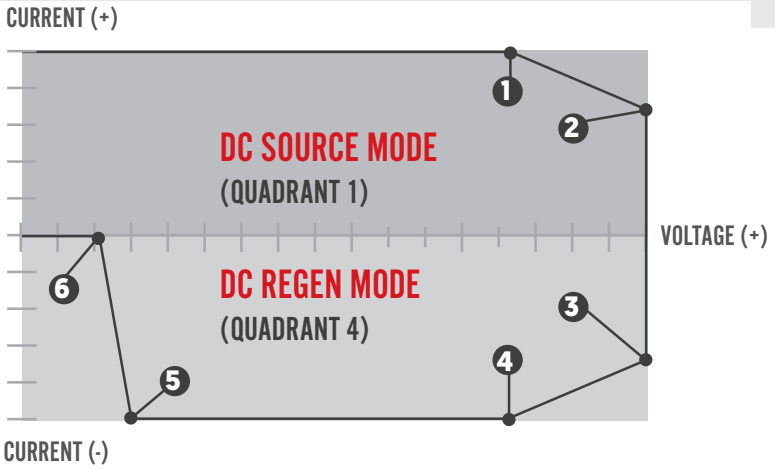

SELECTION TABLE

Part Number	Maximum Power*	Q1 Source Voltage*	Q4 Sink Voltage	Output Current*
LAB-GSS 32-65	32kW	0 - 65Vdc	6 - 65Vdc**	0 to ± 600A

* Higher Q1 powers, voltages and currents are possible when combined in series or parallel configuration with a rental module from our LAB-TC 32-65 range.

** The maximum current that can be taken derates as the voltage reduces beneath the lower level. Please see the operating range table below.

OPERATING RANGE

Part Number	Point 1 (Q1)	Point 2 (Q1)	Point 3 (Q4)	Point 4 (Q4)	Point 5 (Q4)	Point 6 (Q4)
LAB-GSS 32-65	53V / 600A	65V / 492A	65V / -492A	53V / -600A	6V / -600A	2V / 0A

FURTHER DETAILS

A comprehensive software program is provided for operation over the serial or LAN interface. Along with standard output settings the GUI gives access to a host of second level parameters. Voltage and current slopes can be set and protection levels tweaked. Enhanced additional capacitance is provided as standard, making the LAB-GSS-HC ideal for constant voltage applications such as battery simulation. Sense compensation can be programmed and PID controllers adjusted. This helps ensure that the unit can be optimised for particular applications.

A useful bonus is the inbuilt 8 channel recording scope for seeing what is actually on the output. Trigger events, such as a particular current or power level, can be selected. The time resolution and number of sampling points can also be adjusted. Previous scope traces together with the channel and trigger configurations can be imported back into the GUI for analysis.

An embedded function generating engine is an ideal tool for creating and implementing complex waveforms. Standard sine, square and sawtooth shapes can be plotted against time for voltage, current and power outputs. User defined waveforms along with parametric programming is also possible. This allows curves to be set where one output quantity is automatically adjusted depending on the value of another. Waveforms can be exported to the memory of the LAB-GSS-HC and implemented from the front panel.

Another useful feature is that the internal resistance of the system can be adjusted. Additional switchable capacitance is also provided as standard. This makes these bidirectional units ideal for constant voltage applications such as simulating Li-ion and fuel cell stacks along with the cycling of other storage devices such as ultra capacitors and battery packs. Automotive, hybrid and converter drive testing is another important application area for the bidirectional systems.

With their compact size and 2 quadrant operation these are very versatile instruments for every modern power testing laboratory. The modular concept means systems can be easily expanded or reconfigured as required.

TECHNICAL DATA

GENERAL	
AC Line Voltage / Current Relationship	3 × 380VAC ± 10% / 54Arms (32kW units) 3 × 400VAC ± 10% / 51Arms (32kW units) 3 × 415VAC ± 10% / 49Arms (32kW units) 3 × 440VAC ± 10% / 47Arms (32kW units) 3 × 460VAC ± 10% / 45Arms (32kW units) 3 × 480VAC ± 10% / 43Arms (32kW units)
Line Frequency	50Hz ± 0.5Hz for UK (48 - 62Hz possible)
Mains Connection Type	3L + PE (no neutral)
Powerfactor (Q1 Active / Q4 Mode)	≥0.99
Leakage Current (L to PE)	<35mA (protection with ELCB is possible with an additional PE connection)
Isolation (Input to Output & Line to Case)	4000Vrms & 2500Vrms
EMC Emissions and Immunity	EN 61000-6-4 & EN61000-6-2
Islanding for Generation to Public Grid	EN50438 & VDE0126
LVD for Power Installations	EN50178
Voltage Range	0 to 100% of Vmax
Current Range	0 to ± 100% of Imax
Power Range	0 to ± 100% of Pmax
Internal Resistance Range	AdjustableΩ_{MAX} = (V_{NOM} / I_{NOM})
Standard Interfaces	Analogue & RS-232
Optional Interfaces	HMI, USB, IEEE, RS-422, Ethernet, CANmp & CANopen
Voltage Sense Compensation	0 - V_{MAX}
Efficiency	Up to 92%
Load Regulation (CV, CC)	<± 0.1% of full scale value
Line Regulation (CV, CC)	<± 0.1% of full scale value
Temperature Coefficient (CV)	<0.02% of full scale value per°C
Temperature Coefficient (CC)	<0.03% of full scale value per°C
Response Time (Typical 10-90% Load Step Change)	1.1ms (with an ohmic load, at constant line and temperature)
Over Voltage Protection	0 - 110% of V_{MAX}
Over Current Protection	0 - 110% of I_{MAX}
DC Ripple (≤300Hz Vpp)	<0.2% F.S. (typical value at nominal ohmic load, line asymmetry <1Vrms)
DC Ripple (≤300Hz Vrms)	<0.05% F.S. (typical value at nominal ohmic load, line asymmetry <1Vrms)
DC Noise (40kHz - 1MHz Vpp)	<0.2V (typical value at nominal ohmic load, line asymmetry <1Vrms)
DC Noise (40kHz - 1MHz Vrms)	<0.05V (typical value at nominal ohmic load, line asymmetry <1Vrms)
Stability (CV, CC)	<± 0.05% of full scale value
Recommended Operating Temperature	5 - 40°C (extended with ruggedisation)
Weight	97kg
Connection to UK Grid	ER G59-3 tested
Module Dimensions (Without Flight Case)	19" × 9U × 634mm (W × H × D)

Extended Technical Data is Available on Request

“WE ARE POSITIVE PEOPLE”

ETPS engineer electronic power supply and testing systems. Our problem solving skills provide the spark of innovation to some of the world’s leading technology brands.

ETPS
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