ELECTRONIC TEST & POWER SYSTEMS

LAB-GSS+TC

HIGH CURRENT DC SYSTEMS

POSITIVE PROBLEM SOLVING

The LAB-GSS+TC is a high current high power DC system. It is comprised of a 65V LAB-GSS module in parallel or series configuration with a LAB-TC module.

When used as a DC power supply the units provide control of V, I and P limits. When sinking energy from the unit under test whilst in parallel configuration, the system automatically inverts the DC to AC and synchronises this output to the grid. A variety of control methods are available. The modules are built with isolated analogue, USB and RS-232 interfaces.

- 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

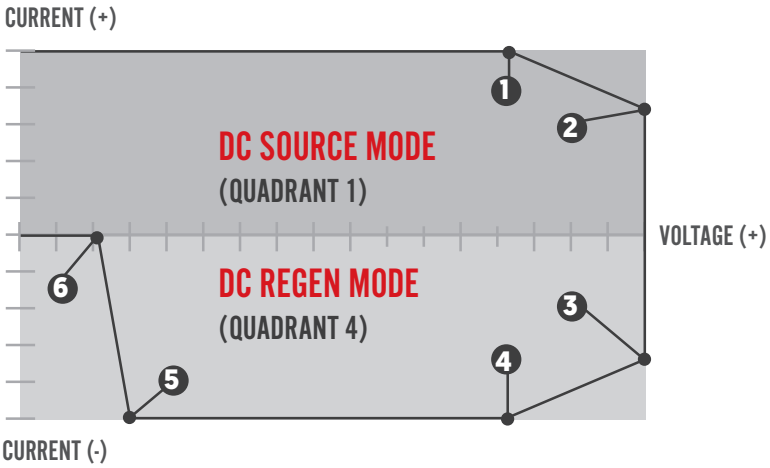
FURTHER DETAILS

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 system 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 system 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 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.



SELECTION TABLE

Part Number	Maximum Power*	Q1 Source Voltage*	Q4 Sink Voltage	Output Current*
LAB-GSS+TC 64-65	+64kW / -32kW	0 - 65Vdc	6 - 65Vdc*	0 to +1200A / 0 to -600A
LAB-GSS+TC 64-130	+64kW	0 - 130Vdc	N/A	0 to 600A

* 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

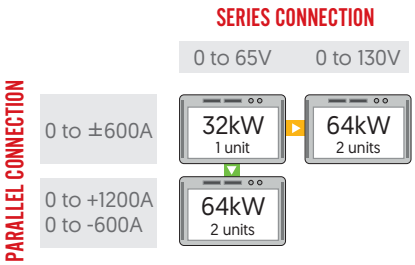
Part Number	Point 1 (Q1)	Point 2 (Q1)	Point 3 (Q4)	Point 4 (Q4)	Point 5 (Q4)	Point 6 (Q4)
LAB-GSS+TC 64-65	53V / 1200A	65V / 984A	65V / -492A	53V / -600A	6V / -600A	2V / 0A
LAB-GSS+TC 64-130	106V / 600A	130V / 492A	N/A	N/A	N/A	N/A

MODULAR DC SYSTEMS

The system is comprised from a 65V LAB-GSS and LAB-TC module from our rental range. These can be arranged in a series or parallel configuration. Each module is able to operate independently, so that systems can be reconfigured, expanded or broken up as needs dictate. Inbuilt system comms allow users to switch between various set-ups.

The modular approach is useful for test houses and research labs who regularly test different sized power devices. Individual modules can be used for the day to day testing of multiple small devices, then grouped together for larger projects.

Our rental systems can be combined in series, parallel or matrix configurations with any LAB-GSS or LAB-TC modules you have previously purchased, providing they have the same nominal outputs. Up to 64 modules can be connected in this way. This allows any short term requirements outside of usual operating ranges to be met.



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LAB-TC TECHNICAL DATA

GENERAL	
Operating Modes	Constant Voltage (0 - 100% of $_{VMAX}$) Constant Current (0 - 100% of I_{MAX}) Constant Power (5 - 100% of P_{MAX})
Input Voltage	3 × 360 - 440 VAC
Line Frequency	48 - 62Hz
Mains Connection Type	3L + PE (no neutral)
Internal Resistance Range	AdjustableΩ_{MAX} = (V_{NOM} / I_{NOM})
Interfaces	Analogue & RS-232
Remote Sense	0 - V_{MAX} + 2%
Efficiency	Up to 95%
Load Regulation (CV, CC)	<± 0.1%
Line Regulation (CV, CC)	<± 0.1%
Response time (10-90%)	<2ms
Over Voltage Protection	0 - 110% of V_{MAX}
Over Current Protection	0 - 110% of I_{MAX}
Output Ripple (300Hz Vrms)	<0.4%
Output Noise (40kHz-1MHz)	<0.1 Vrms
Stability (CV, CC)	<± 0.05%
Operating Temperature	5 - 40°C
Temperature Coefficient (CV)	0.02% per °C
Temperature Coefficient (CC)	0.03% per °C
Temperature Coefficient (CV)	<0.02% of full scale value per°C
Temperature Coefficient (CC)	<0.03% of full scale value per°C
Dimensions (Module Only)	19" × 9U × 570mm (W × H × D), specific flight case dimensions are available on request
Weight (Module Only)	64kg, specific flight case weight is available on request

A more detailed technical summary is available on request

LAB-GSS 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

Every effort is made to ensure that the information provided within this technical summary is accurate. However, ETPS Ltd must reserve the right to make changes to the published specifications without prior notice. Where certain operating parameters are critical for your application we advise that they be confirmed at the time of order. ETPS Ltd specialises in modifying its proven platforms to suit your needs. Please contact our office if your requirement is non-standard. Please note that your actual unit may differ from those shown.

“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.

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