ELECTRONIC TEST & POWER SYSTEMS

ELP-GXS
REGEN LOAD

POSITIVE PROBLEM SOLVING

The ELP-GXS is a modern family of DC Electronic Loads. The energy taken from the unit under test is not wasted simply as heat. Instead it is regenerated back to the grid.

The ELP-GXS automatically inverts the DC to AC and synchronises with the 3 phase mains supply and regenerates the output back to the grid. This approach saves significant electricity costs while eliminating the thermal issues associated with traditional heat dissipative loads. A dedicated GUI for implementing battery and fuel cell discharge algorithms is available. Previously recorded discharge details can be transferred to the ELP-GXS meaning real usage conditions can be accurately simulated within the lab.

- Ideal for Battery Pack and Fuel Cell Testing
- Stackable up to 1500V / Very High Powers
- Mains Regeneration of the DC Sink Energy
- Excellent GUI with Built-in Scope Function
- Function Generator with V / I Capability
- Adjustable Internal Resistance

FURTHER DETAILS

An embedded function generating engine is optionally offered to enable the creation of dynamic waveforms. Along with time based programming it is possible to implement models where the set point of voltage is automatically adjusted depending on the current or power being taken.

Another useful tool is the integrated 8 channel oscilloscope. A programmable trigger is available to start recording data. The results and scope set-up can be exported and re-imported to the software for later analysis.

Every unit is built with an interface dedicated to system comms. This modularity ensures that existing ReGen systems can be reconfigured, split or expanded as needs dictate. Multi-load, series and parallel configurations with active load sharing can be realised in to the low MW range.

A variety of standard and optional interfaces are available for remote control. On request a full cabinet integration service is available. For systems with bi-directional source and sink capabilities please see the seperate LAB-GSS datasheet.

TECHNICAL DATA

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AC Line Voltage / Current Relationship	3 × 380VAC ± 10% / 34Arms (20kW units), 54Arms (32kW units) 3 × 400VAC ± 10% / 32Arms (20kW units), 51Arms (32kW units) 3 × 415VAC ± 10% / 31Arms (20kW units), 49Arms (32kW units) 3 × 440VAC ± 10% / 29Arms (20kW units), 47Arms (32kW units) 3 × 460VAC ± 10% / 28Arms (20kW units), 45Arms (32kW units) 3 × 480VAC ± 10% / 27Arms (20kW units), 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)	<0.5%Vpp (<0.1%Vrms) of full scale value
DC Noise (40kHz-1MHz)	<1Vpp (<0.2Vrms)
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
Dimensions	19" × 9U × 634mm (W × H × D), a full cabinet integration service is available on request
Extended Technical Data is Available on Request	

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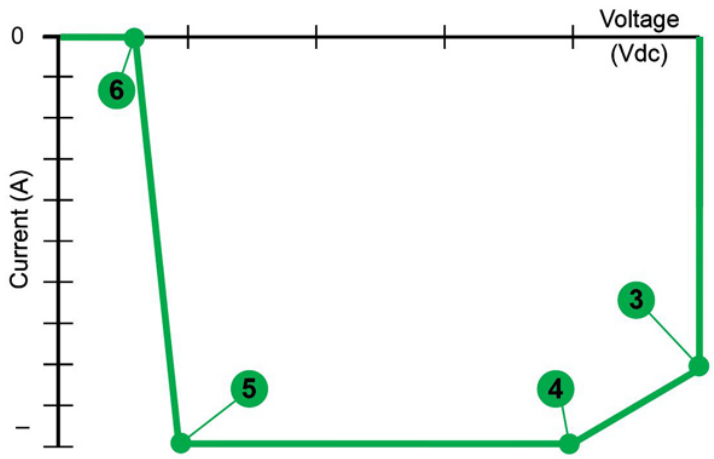

SELECTION TABLE

Part Number	Maximum Power	Q4 Sink Voltage	Current Range
ELP-GXS 20-400	20kW	50 - 400Vdc*	0 to -63A
ELP-GXS 20-500	20kW	40 - 500Vdc*	0 to -50A
ELP-GXS 20-600	20kW	50 - 600Vdc*	0 to -40A
ELP-GXS 32-400	32kW	50 - 400Vdc*	0 to -100A
ELP-GXS 32-500	32kW	40 - 500Vdc*	0 to -80A
ELP-GXS 32-600	32kW	50 - 600Vdc*	0 to -66A

* 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 (Q4)	Point 2 (Q4)	Point 3 (Q4)	Point 4 (Q4)
ELP-GXS 20-400	400V / -50A	317.5V / -63A	50V / 63A	20V / 0 A
ELP-GXS 20-500	500V / -40A	400V / -50A	40V / -50A	15V / 0A
ELP-GXS 20-600	600V / -33.3A	500V / -40A	50V / -40A	30V / 0A
ELP-GXS 32-400	400V / -80A	320V / -100A	50V / -100A	20V / 0 A
ELP-GXS 32-500	500V / -64A	400V / -80A	40V / -80A	15V / 0A
ELP-GXS 32-600	600V / -53.3A	477.6V / -66A	50V / -66A	30V / 0A

OPTIONS

CODE	DESCRIPTION
/4111	Ruggedisation specification for vehicle mount projects
/HMI	Front panel control and display
/LCAL	Integrated liquid cooling of the power stage
/ISR	Integrated safety relay for shutdown to EN954-1 Cat 3/4
/IRXTS	Maximum adjustable internal resistance range extended to 12,000mΩ
/TFE	Integrated function generating engine with application area (parametric) programming
/BATCONTOL	Dedicated battery charge/discharge GUI with adaptive sampling & temp measurement
/BATSIM	GUI simulating battery characteristics with adjustable parameters
/CAPSIM	GUI simulating the electrical characteristics of capacitors with adjustable parameters
/CANCABLE	Connecting cable for multi-unit operation
/RCU	Remote control unit with up to 40m of cable
/PACOB	Protection against accidental contact of output current bars
/RS232REAR	RS-232 on front and rear panel (time shared mode with RS-232 on front)
/RS422	Differential serial interface (time shared mode with RS-232)
/IEEE	Integrated IEEE488.2 (GPIB) interface. (RS-232 only possible on rear panel)
/CANOPEN	Integrated CAN/CANopen interface. (RS-232 only possible on rear panel)
/CANMP	Integrated CANmp interface. (RS-232 only possible on rear panel)
/OPTOLINK	Rear panel integrated fibre optic interface. (RS-232 only possible on rear panel)
/USB	Integrated USB interface. (RS-232 only possible on rear panel)
/ETH	Ethernet interface with listener and talker functions over a LAN (RS232REAR required)
/FILTER	Front panel air filter & frame arrangement
/CAN+USB	Combined CAN and USB interface
/RPP	Protection against reverse polarity of the load

HIGHLIGHTED FEATURES

RUGGEDISED ADAPTATIONS

Ruggedisation of units to military standards is possible for shipborne & vehicle projects. This ensures suitability in harsh conditions by providing protection against shock, vibration & humidity.

FUNCTION GENERATOR

Complex DC waveforms can be implemented through an embedded function generator. Standard square, sawtooth, sine & user defined shapes can be plotted against time. V/I & V/W relationships can also be programmed.

CABINET INTEGRATIONS

Our design specialists will look to find elegant solutions to integrate systems into set cabinet dimensions. Flight case integrations are also possible to provide mobile power equipment.

INTERFACES

A variety of interfaces are available providing unrivalled flexibility for users. Each system can be configured with multiple interfaces.

“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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