

# GSPS45kW - 90kW Series

## 45kW - 90kW, 20 to 1500V Programmable Power Systems









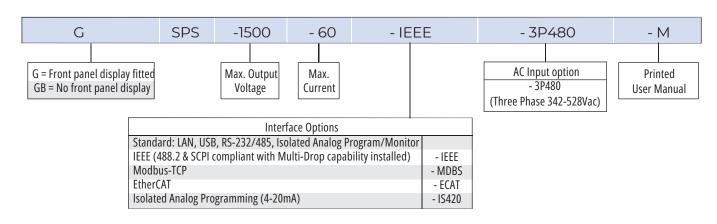




The 19" rack mount 20U high configurable GSPS programmable power systems offers power levels from 45kW to 90kW, output voltages from 0-20 to 0-1,500V and currents of up to 4,500A. The units can operate in constant current, constant voltage or constant power modes with multiple remote programming methods including built-in LAN, USB, RS232 & RS485 and optional Optional EtherCAT, Modbus-TCP, IEEE (488.2) and IS420 interfaces.. Like other models in the GENESYS+ series, they feature a multi-functional front panel display, last setting memory, user selectable Auto-Start, Safe Start, and an arbitrary waveform generator with auto-trigger capability. Up to to 100 steps can be stored into four internal memory cells. The GUI software provides a "virtual front panel" for programing or monitoring units and the Realtime Graph and Waveform creator can store or load sequences. The product is backed with a five year warranty.

Model Selector				
Model Note see "how to order" section for part number configuration	Voltage Adjustment Range (V)(*1)	Current Adjustment Range (A)(*2)	Maximum Power (W)	Efficiency (%) At 380Vac 3-Phase (*3)(*5)
GSPS20-4500	0 - 20	0 - 4500	90,000	89
GSPS30-3000	0 - 30	0 - 3000	90,000	89
GSPS40-2256	0 - 40	0 - 2256	90,240	89
GSPS60-1500	0 - 60	0 - 1500	90,000	90
GSPS80-1128	0 - 80	0 - 1128	90,240	90
GSPS100-900	0 - 100	0 - 900	90,000	90
GSPS150-600	0 - 150	0 - 600	90,000	90
GSPS200-450	0 - 200	0 - 450	90,000	90
GSPS300-300	0 - 300	0 - 300	90,000	90
GSPS600-150	0 - 600	0 - 150	90,000	90
GSPS1000-45	0 - 1000	0 - 45	45,000	90
GSPS1000-67.5	0 - 1000	0 - 67.5	67,500	90
GSPS1000-90	0 - 1000	0 - 90	90,000	90
GSPS1500-30	0 - 1500	0 - 30	45,000	90
GSPS1500-45	0 - 1500	0 - 45	67,500	90
GSPS1500-60	0 - 1500	0 - 60	90,000	90

How to order





Specification		
Model		GSPS45kW - 90kW Series
Input		
Input Voltage Range (Operating) (*4)	Vac	3-phase 342 - 528 (Covers 380, 400, 415, 440, 460 and 480V nominal inputs)
Nominal Input Voltage Range	Vac	380 - 480 (Note: Safety certified for 342 - 528Vac)
Input Frequency	Hz	47 - 63 (Note: Safety certified for 50/60Hz only)
Input Current (380Vac)	Α	162 (max)
Inrush Current at 200Vac (typ) (Cold Start)	Α	GSPS45kW: <390, GSPS67.5kW: 585, GSPS 90kW: 780
Leakage Current (380Vac)	mA	Contact Technical Support
Power Factor (380ac)	-	0.94
Hold Up Time (typical at 100% load)	ms	5
Efficiency	-	See Model Selector Table

Specification													
Model GSPS45kW - 90kW Series													
Constant Voltage Mode	Vout %	20	30	40		80 0.01 of ra				300	600	1000	1500
Maximum Line Regulation (*6)	%	0.01 of rated output voltage +5mV											
Max. Load regulation (*7)	ppm/°C	50 from rated output voltage, following 30 minutes warm-up											
Temperature coefficient	-	0.01% of rated Vout over an 8 hour interval following 30 minutes warm-up. Constant line, load & temp											
Temperature stability	-	Less than 0.05% of rated output voltage +2mV over 30 minutes following power on											
Warm-up drift	V	2 5											
Remote sense compensation/wire (*8)	ms	30	30	30	50	50	50	50	50	50	100	150	200
Up-prog. response time (*9)	ms	50	80	80	80	100	100	100	100	100	100	100	100
Down-prog. Response time full load (*10)	ms	600	600	1000	1000	1000	1500	2500	2500	3000	3000	3000	3000
Down-prog. Response time no load (*10) Transient response time (local sense)	-	Time for output voltage to recover within 1% of its rated output for 20 to 30V models, 0.5% of it's rated of for 40 to 1500V. For a output set point of 10-100%. Less than 1ms for models up to and including 100V											
(load change 10-90% of rated output curre	ent). 2ms for models above 100V. Less than 1ms for models up to and including 100V, 2ms for models above 1												
Output set point: 10-100%.	Vout	20	30	40	60	80	100	150	200	300	600	1000	1500
Constant Current Mode	-	0.05% of rated output											
Maximum Line Regulation (*6)	-	current 0.08% of rated											
Max. Load regulation (*11)	ppm/°C	°C 20-100V models: 100, 150-1500V mo <b>delkp. ՄՕՀ LPirom</b> trated output current, following 30 minutes warm-up											
Temperature coefficient	-	- 0.01% of rated lout over an 8 hour interval following 30 minutes warm-up. Constant line, load & tempera											
Temperature stability	- 20-100V models: Less than ±0.25% of rated output current over 30 minutes following power on,												
Warm-up drift						150-1500	)V model	s: Less th	nan ±0.15	%			
Analog programming/monito	ring. (Iso	olated	from t	he out	:put)								
Vout voltage programming	- 0-100%, 0-5V or 0-10V, user selectable. Accuracy and linearity: ±0.15% of rated Vout.												
lout voltage programming (*13)	- 0-100%, 0-5V or 0-10V, user selectable. Accuracy and linearity: ±0.4% of rated lout.												
Vout resistor programming	-					ale, user s			-	-			
lout resistor programming (*13)	-	o 100%, o 37 long ran seale, aset selectable. Accuracy and intearry. 20.3% of racea vouc.											
Output voltage monitor (*12)	-	- 0-5V or 0-10V, user selectable. Accuracy: ±0.5% of rated Vout.											
Output current monitor (*12) (*13)	-	- 0-5V or 0-10V, user selectable. Accuracy: ±0.5% of rated lout.											

#### Notes

- Notes
  See website for detailed specifications, test methods and installation manual
  \*1:Minimum voltage is guaranteed to maximum 0.15% of rated output voltage for 20V and 30V models; 0.1% of rated output voltage for 40~1500V models.
  \*2:Minimum current is guaranteed to maximum 0.2% of rated output current.
  \*3:Typ. at Ta=25°C, rated output power.
  \*4:For cases where conformance to various safety standards (UL, IEC, etc...) is required, to be described as 380~480Vac (50/60Hz) for 3-Phase 480V models.
  \*5:3-Phase 480V: At 380Vac input voltage. With rated output power.
  \*6:3-Phase 480V models: 342~528Vac. Constant load.
  \*7:From No-Load to Full-Load, constant input voltage. Measured at the sensing point in Remote Sense.
  \*8:The maximum voltage on the power supply terminals must not exceed the rated voltage.
  \*9:From 10% to 90% of Rated Output Voltage at rated resistive load.
  \*10:From 90% to 10% of Rated Output Voltage at rated resistive load.
  \*11:For load voltage change, equal to the unit voltage rating, constant input voltage.
  \*12:For steady state only.
  \*13:The Constant Current programming, readback and monitoring accuracy do not include the warm-up and Load regulation thermal drift.
  \*14:Measured at the sensing point.
  \*15:Max. ambient temperature for IEEE is 40°C.
  \*16:Signal and control ports interface cables length: Less than 3m, DC output power port cables length: Less than 30m.
  \*17:EMC specs based on GSPL22.5kW series.



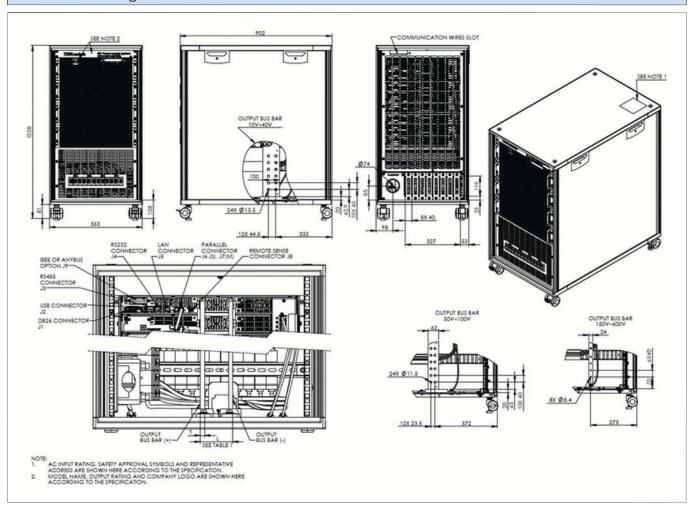
Specification								
Model		GSPS45kW - 90kW Series						
Signals and Controls. (Isola	ated from t	he output)						
Power supply OK #1 signal	-	Power supply output monitor. Open collector. Output On: On. Output Off: Off. Maximum Voltage: 30V.						
CV/CC signal	-	CV/CC Monitor. Open colle Maximum Sink Gurrent: 10mA Maximum Sink Current: 10mA Enable/Disable analog programming control by electrical signal or dry contact.						
LOCAL/REMOTE Analog control	-							
· ·	-	Remote: 0-0.6V or short. Local: 2-30V or open.						
LOCAL/REMOTE Analog signal	-	Analog programming control monitor signal. Open collector. Remote: On. Local: Off.  Maximum Voltage: 30V. Maximum Sink Current: 10mA.						
ENABLE/DISABLE signal	-	Enable/Disable PS output by electrical signal or dry contact. 0-0.6V or short, 2-30V or open. User selectable						
INTERLOCK (ILC) control	-	Enable/Disable PS output by electrical signal or dry contact. Output ON: 0-0.6V or short. Output OFF: 2-30V						
Programmed signals	-	Two open drain programmable signals. Maximum voltage 25V. Maximum sink current 100mA (shunted by a						
TRIGGER IN / TRIGGER OUT signals		Max. low level input voltage = 0.8V. Min. high level input voltage = 2.5V. Max. high level input = 5V positive e tw = 10μs min. Tr,Tf = 1μs max. Min delay between 2 pulses 1ms.						
DAISY_IN/SO control signal		By electrical voltage: 0-0.6V/2-30V or dry contact						
DAISY_OUT/PS_OK #2 signal		4-5V = OK, OV (500Ω impedance) = Fail						
Functions and Features		Total Congression (Constitution of Constitution of Constitutio of Constitution of Constitution of Constitution of Constitution						
Parallel operation	- '	Consult with manufacturer						
Constant power control	-	Limits the output power to a programmed value. Programming via the communication ports or the front						
Output resistance control	-	Emulates series resistance. Resistance range: $1-1000m\Omega$ . Programming via communication ports or front p						
		Programmable Output rise and Output fall slew rate						
Slew rate control	-	Programming range: 0.0001-999.99 V/ms or A/ms						
		Programming via communication ports or front panel						
Arbitrary waveforms	-	- Profiles of up to 100 steps can be stored in 4 memory cells.						
		Activation by command via communication ports or front panel.						
	k (USB, RS2	232/485, Optional (*15) Interfaces)						
Vout		20   30   40   60   80   100   150   200   300   600   1000   1500						
out programming accuracy (*14)	-	0.05% of rated output voltage						
out programming accuracy (*13)	-	0.3% of rated output current						
out programming resolution	-	0.002% of rated output voltage						
lout programming resolution	-	0.002% of rated output current						
Vout readback accuracy	-	0.1% of rated output voltage						
lout readback accuracy (*13)  /out readback resolution	% of rated Vo	0.2% of rated output current						
out readback resolution out readback resolution		t 0.006% 0.004% 0.004% 0.003% 0.002% 0.011% 0.080% 0.006% 0.004% 0.003% 0.011% 0.008%						
out readback resolution  Protective Functions	70 UI TALEU 10U	t 0.002% 0.002% 0.002% 0.002% 0.002% 0.002% 0.002% 0.003% 0.002% 0.002% 0.002% 0.002%						
Vout		20   30   40   60   80   100   150   200   300   600   1000   1500						
vout		Output shut-down when power supply changes mode from CV or Power Limit to CC mode or from CC						
Foldback protection		or Power Limit to CV mode. Preset by user. Reset by AC input recycle in autostart mode,						
oluback protection	by Power Switch, by OUTPUT button, by rear panel or by communication							
	_	Output shut-down. Reset by AC input recycle in autostart mode, by Power Switch, by OUTPUT button,						
Over-voltage protection (OVP)		by rear panel or by communication						
Over-voltage programming range	V	1-24   2-36   2-44.1   5-66.15   5-88.2   5-110.2\$ 5-165.37 5-220.\$ 5-330.75 5-661.\$ 5-1102.5 5-1653.7						
over-voltage programming accuracy	%	±1% of rated output voltage						
Output under voltage limit (UVL)	-	Prevents from adjusting Vout below limit. Does not apply in analog programming.						
output under voltage mint (OVL)		Preset by front panel or communication port.						
Over temperature protection	_	Shuts down the output. Auto recovery by autostart mode.						
over temperature protection		Shats down the output. Auto recovery by autostart mode.						
Output under voltage protection (U\	/D)	Prevents adjustment of Vout below limit. P.S output turns Off during under voltage condition. Reset by AC						



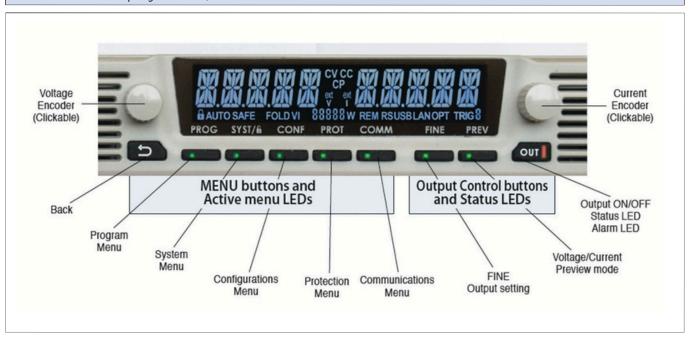
Specification		
Model		GSPS45kW - 90kW Series
Front Panel		
	-	Multiple options with 2 Encoders.
	-	Vout/lout/Power Limit manual adjust
	-	OVP/UVL/UVP manual adjust
	-	Protection Functions - OVP, UVL, UVP, Foldback, OCL, ENA, ILC.
Control functions	-	Communication Functions - Selection of LAN, RS232, RS485, USB or Optional communication interface
	-	Output ON/OFF. Front Panel Lock
	-	Communication Functions - Selection of Baud Rate, Address, IP and communication language
	-	Analog Control Functions - Selection Voltage/resistive programming 5V/10V, $5k\Omega/10k\Omega$ programming
	-	Analog Monitor Functions - Selection of Voltage/Current Monitoring 5V/10V
Display	-	Vout: 4 digits, accuracy: 0.05% of rated output voltage ±1 count. lout: 4 digits, accuracy:
		0.2% of rated output current ±1 count.
	-	OUTPUT ON, ALARM, PREVIEW, FINE, COMMUNICATION, PROTECTION,
Front Panel Buttons Indications		CONFIGURATION, SYSTEM, SEQUENCER.
5 . D . D . L . L	-	Voltage, Current, Power, CV, CC, CP, External Voltage, External Current, Address, LFP Autostart, Safe-start,
Front Panel Display Indications		Foldback V/I, Remote (communication), RS/USB/LAN/Optional communication interface, Trigger, Load/Sto
Circuit breakers	-	The AC supply is protected by 4 x 80A circuit breakers, accessible on the front panel of the cabinet.
Environmental Conditions		
Operating temperature	°C	0 - 50, 100% load.
Storage temperature	°C	-25 - 65
Humidity (Non condensing)	%RH	20 - 90 operating, 10 - 95 storage
	%КП	Operating: 3,000. Derate output current by 2%/100m or derate ambient temperature by 1°C/100m above 2
Altitude (*15)	m	Non-operating: 12,000m.
Mechanical		Non-operating, 12,000m.
Cooling		Forced air cooling by power supply internal fans. Airflow direction from cabinet front panel to rear.
Weight	lea	< 200
Dimensions (WxHxD)	kg	553 x 1028 x 902 (without castors height is 947)
Vibration (Package transportation)	mm	ISTA 1H: 2014, Method: ASTM D4728 Random vibration test.
Shock & Drop (Package transportation	1) -	·
Safety and EMC	-	ISTA 1H: 2014, Drop test Method: ASTM D5276 free fall; Rotation edge drop test: ASTM D6179 Rotational d
afety Certifications and Markings	-	IEC/EN61010-1, CE Mark and UKCA Mark
		Vout≤50V Models: Output, J1, J2, J3, J4, J5, J6, J7, J8 (sense) & J9 (communication options)
Interface classification	-	are Non Hazardous 60≤Vout≤1500V Models: Output & J8 (sense) are Hazardous,
		J1, J2, J3, J4, J5, J6, J7 & J9 (communication options) are Non Hazardous.
		Vout≤50V Models: Input – Output & J8 (sense), J1, J2, J3, J4, J5, J6, J7 & J9 (communication options):
		4242Vdc 1min, Input - Ground: 2835Vdc 1min
		60V≤Vout≤100V Models: Input – Output & J8 (sense), J1, J2, J3, J4, J5, J6, J7 & J9 (communication options):
		4242Vdc 1min, Output & J8 (sense) - J1, J2, J3, J4, J5, J6, J7 & J9 (communication options): 850Vdc 1min,
Withstand voltage		Output & J8 (sense) - Ground: 1500Vdc 1min, Input - Ground: 2835Vdc 1min.
	Vdc	100V <vout≤600v &="" (communication<="" (sense),="" and="" input="" j1,="" j2,="" j3,="" j4,="" j5,="" j6,="" j7="" j8="" j9="" models:="" output="" td="" −=""></vout≤600v>
The stand voltage	vuc	options): 4242Vdc 1min, Output & J8 (sense) - J1, J2, J3, J4, J5, J6, J7 & J9 (communication options): 1275Vdc
		1min, Output & J8 (sense) - Ground: 2500Vdc 1min. Input - Ground: 2835Vdc 1min.
		1000V <vout<1500v &="" (communication="" (sense),="" and="" input="" j1,="" j2,="" j3,="" j4,="" j5,="" j6,="" j7="" j8="" j9="" models:="" optic<="" output="" td="" –=""></vout<1500v>
		4000Vdc 1min, Output & J8 (sense) - J1, J2, J3, J4, J5, J6, J7 & J9 (communication options): 2000Vdc 1min,
		Output & J8 (sense) - Ground: 3280Vdc 1min. Input - Ground: 2835Vdc 1min.
FMC standards (*10) (*47)		IEC/EN61204-3 Industrial environment
EMC standards (*16) (*17)	-	IEC/EN61204-3 Industrial environment, Annex H table H.1, FCC Part 15-A, VCCI-A.
Conducted emission (*17)	-	
Radiated emission (*17)	-	IEC/EN61204-3 Industrial environment, Annex H table H.3 and H.4, FCC Part 15-A, VCCI-A.



## Outline Drawing

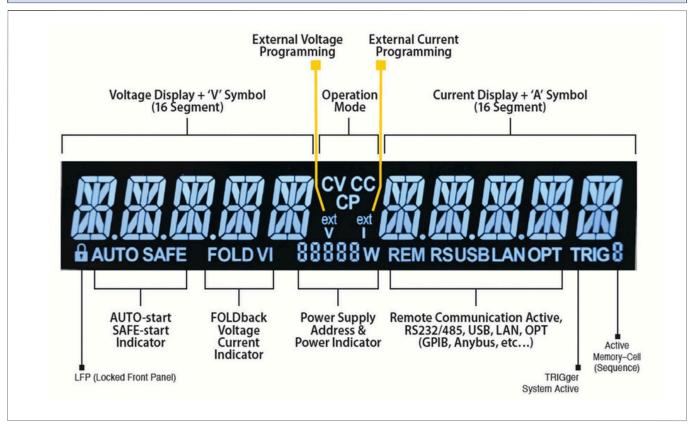


#### Front Panel Display MENU/CONTROL Buttons

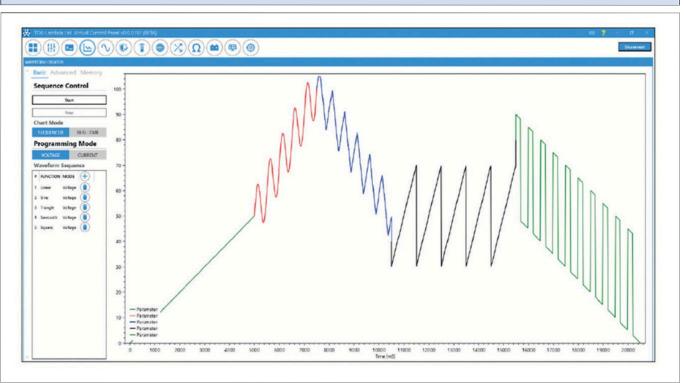




### Front Panel Display MENU/CONTROL Buttons

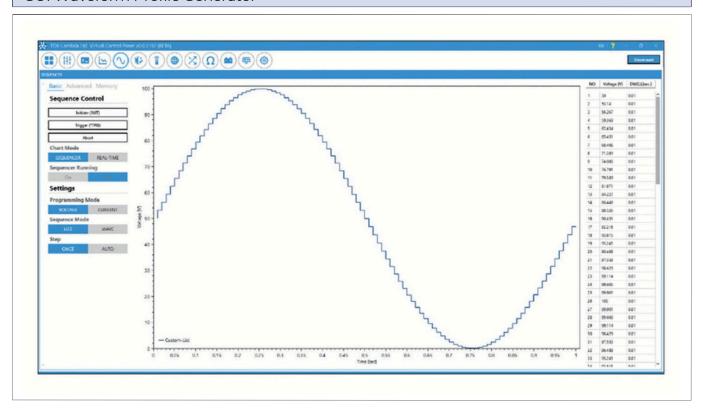


#### GUI Waveform Profile Generator

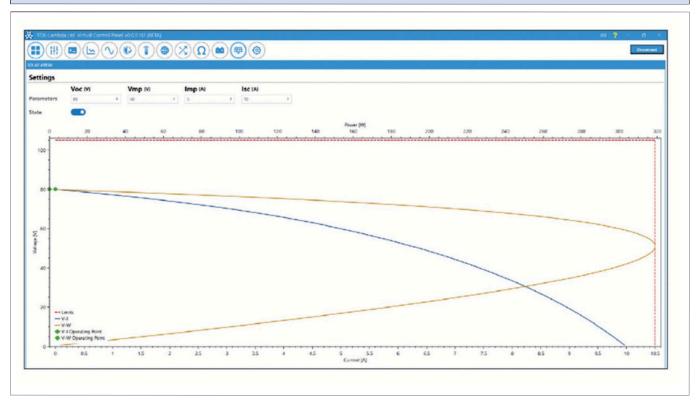




#### GUI Waveform Profile Generator



## GUI Waveform Profile Generator





# Contactgegevens

Spaarpot 149
5667 KW Geldrop
+ 31 (0)40 851 2170
info@BMF-systemparts.com