

SPE 120.3

Static three-phase power source



The SPE 120.3 is a three-phase computer controlled voltage and current source, designed for use in meter test systems and in the laboratory. It is in two performance steps with 300 VA and 600 VA output power available. The models are housed within a 19"-plug-in unit, 6 or 9 height modules, depending on output power.

The SPE 120.3 creates a three-phase network, using a base of electronically generated sine waves. The network is completely independent of the supply voltage, and the use of a voltage stabiliser at the entry point is not necessary. The amplifiers are of pulse-width modulation type.

The SPE 120.3 is controlled by a PC via RS232C serial standard interface.

To complete the power source an STE 10 control unit having the following functions is necessary: on-off switch, emergence stop switch, surveillance of the mains power supply and protection against short circuits between U and I in the output circuits.

When only the SPE 120.3 rack is required customers will need to provide these functions.

An operation keypad and alphanumeric display are available as options for manual operation.

In the test station version, the SPE 120.3 will be delivered with further components, e.g. control unit, reference meter, etc. completely wired in a cabinet.

Key features of the SPE 120.3

- Compact electronic current and voltage source (three- phase)
- Controlled by PC via serial interface RS 232C
- Phantom load generation for three-wire and four-wire active and reactive power meters.
- High accuracy and stability of the adjusted load independent of supply voltage deviations.
- Power efficiency > 85 %
- Current and voltage range: 1 mA to 120 A, 30 V to 300 V
- Output power: 300 VA per phase or 600 VA per phase

Options

- Operation keyboard for manual operation
- Software module for fully automatic measuring
- Generation of harmonics
- Generation of ripple control

Technical Data SPE 120.3

		300VA	600VA
Supply voltage		3x230 / 400 V $\pm 15\%$ 50 / 60 Hz $\pm 15\%$	
Power consumption	maximum	2.2 kW (3.5 kVA)	4.0 kW (6.8 kVA)
Housing	19"-Plug-in unit	6 HE	9 HE
Dimensions (complete Device)	Width x Height x Depth [mm]	485 x 270 x 600	485 x 400 x 600
Weight		ca. 50 kg	ca. 70 kg
Ambient temperature	(Standard)	+10 °C ... +40 °C	
Function temperature		-10 °C ... +50 °C	
Power efficiency	at full load	> 85 %	
Output frequency		45 ... 65 Hz	
Resolution		0.01 Hz	
Phase angle		0 ... 360 degree	
Resolution		0.01 degree	

Voltage source

		300VA	600VA
Voltage range	Phase - Neutral	30 ... 300 V	
Internal ranges	150 ... 300 V	300 VA	600 VA
	75 ... 150 V	300 VA	600 VA
	30 ... 75 V	300 VA	600 VA
Resolution	at the final range value	0.01 %	
Adjustment error	at the final range value	< 0.05 %	
Distortion factor	on linear Load	< 0.5 %	
Stability	(time base of measure. 5 s)	better than 0.05 % / 2 min	
	(time base of measure. 150 s)	better than 0.005 % / h	
Load regulation	0 % - 100 % Load	< 0.01 %	
Capacitive load		$\leq 2 \mu\text{F}$	$\leq 4 \mu\text{F}$
Generation of harmonics	2. - 5. Harmonics	max. 40 %	
	6. - 20. Harmonics	max. 10 %	
	Sum of all harmonics	max. 40 %	
	at the final range value	max. 10 %	
Peak voltages on the individual	467 V	1.6 A	3.1 A
voltage ranges and the belong-	233 V	3.1 A	6.2 A
ing Peak currents	117 V	6.2 A	12.4 A

Current source

		300VA	600VA
Current range		1mA ... 120A	
Internal ranges	80 A ... 120 A	300 VA	600 VA
	12 A ... 80 A	300 VA	600 VA
	1.2 A ... 12 A	300 VA	480 VA
	120 mA ... 1.2 A	30 VA	48 VA
	12 mA ... 120 mA	3 VA	4.8 VA
	1 mA ... 12 mA	0.3 VA	0.48 VA
Resolution	at the final range value	0.01 %	
Adjustment error	at the final range value	< 0.05 %	
Distortion factor	on linear Load	< 0.5 %	
Stability	(time base of measure. 5 s)	better than 0.05 % / 2 min	
	(time base of measure. 150 s)	better than 0.005 % / h	
Load regulation	0 % - 100 % Load	< 0.01 %	
Generation of harmonics	2. - 5. Harmonics	max. 40 %	
	6. - 20. Harmonics	max. 10 %	
	Sum of all harmonics	max. 40 %	
	at the final range value	max. 10 %	
Peak currents on the individual	187 A	3.9 V	7.8 V
	124 A	5.8 V	11.7 V
	18.7 A	38.9 V	62.2 V
	1.87 A	38.9 V	62.2 V
	187 mA	38.9 V	62.2 V
	18.7 mA	38.9 V	62.2 V