PSI 10

Single phase, electronic current source

Application:

The PSI 10 is a single-phase computer controlled current source, designed for use in meter test systems and in the laboratory. It is offered in three performance steps with 1000 VA, 2000 VA and 4000 VA output power available. The models are housed in a 19 inch plug-in unit, 6 height modules, independent of output power.

The PSI 10 generates an isolated, variable alternating current decoupled by a transformer. The output current is stabilized by an internal feedback loop and overlaid digital control loop for amplitude, phase angle and distortion factor. Harmonics can be added to the fundamental wave.

Internal circuits protect the source against overload, open outputs, mains breaks and energy recovery. The use of a voltage stabiliser at the entry point is not necessary.

Control of the source is achieved via an optical serial interface. A ring bus system and a synchronizing signal interface, both with optical terminals, allow the connection of several sources to a polyphase system.

For safety reasons adding the STE 10 control unit to the PSU 10 is strongly recommended. The STE 10 has the following functions:

- On-off switch
- Emergency stop switch
- Protection against short circuits between U and I in the output circuits

Key features of the PSI 10

- Compact electronic current source (single phase)
- Controlled by PC via optical interface RS 232 C
- High accuracy and stability of the adjusted load independent of supply voltage deviations.
- Power efficiency > 85 %
- Current range: 1 mA to 120 A
- Output power: 1000 VA, 2000 VA, 4000 VA
- Generation of harmonics

Options

- CAMCAL software for stationary systems

Technical Data PSI 10

Model	Description	1000 VA	2000 VA	4000 VA
Fundamental Data				
Supply voltage		3x230/400 V ±15 %		
		50 / 60 Hz ± 5%		
Power consumption	maximum	1200 W (1700 VA)	2300 W (3400 VA)	4600 W (6800 VA)
Weight		15 kg	25 kg	35 kg
Housing	19“-plug-in unit	6 HE		
Dimension [mm]	Width x Height x Depth	483 x 265 x 600		
Ambient temperature		+10 °C ... +40 °C		
Functional temperature		-10 °C ... +50 °C		
Storage temperature		-40 °C ... +80 °C		
Efficiency	At full load	> 85 %		
Fundamental frequency range		45 ... 65 Hz (Optional mains voltage synchronization)		
Resolution		0.01 Hz		
Phase angle		0 ... 360 degrees		
Kind of feedback control		Digital feedback control with DFT - algorithm under laid feedback loop		

Model	Description	1000 VA	2000 VA	4000 VA
Fundamental wave				
Current range		1 mA ... 120 A		
Internal ranges	80 A ... 120 A	1000 VA	2000 VA	4000 VA
	12 A ... 80 A	1000 VA	2000 VA	3200 VA
	1.2 A … 12 A	480 VA	480 VA	480 VA
	120 mA … 1.2 A	48 VA	48 VA	48 VA
	12 mA … 120 mA	4.8 VA	4.8 VA	4.8 VA
	1 mA ... 12 mA	0.48 VA	0.48 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 %		
Spread	(Time base 5 s)	< 0.05 % / 2 min.		
Drift	(Time base 150 s)	< 0.005 % / h		
Load reaction	0 % - 100 % load	< 0.01 %		
Power factor of load		1 ... 0.1 lag		

Model	Description	1000 VA	2000 VA	4000 VA
Additional signals				
Generation of harmonics	2. – 5. Harmonics	Max. 40 %		
	6. – 21. Harmonics	Max. 10 %		
	Sum of all harmonics	Max. 40 %		
Peak current on the individual current ranges and the belonging peak voltages	187 A	12.9 V	25.9 V	51.7 V
	124 A	19.5 V	39 V	62 V
	18.7 A	62 V	62 V	62 V
	1.87 A	62 V	62 V	62 V
	187 mA	62 V	62 V	62 V
	18.7 mA	62 V	62 V	62 V