MTE Meter Test Equipment

PSU 10

Single phase, electronic voltage source

Application:

The PSU 10 is a single-phase, computer controlled voltage 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 modules are housed in a 19 inch plug-in unit, 6 height modules, depending on output power.

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

Internal circuits protect the source against overload, short circuit, 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 poly-phase 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 PSU 10

- Compact electronic voltage 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 %
- Voltage range: 30 V to 300 V
- Output power: 1000 VA, 2000 VA, 4000 VA
- Generation of harmonics
- Generation of ripple control signals

Options

- Software CALegration

Technical Data PSU 10

Fundamental Data

	Description	1000 VA	2000 VA	4000 VA
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		

Fundamental wave

	Description	1000 VA	2000 VA	4000 VA
Voltage range		30 V … 300 V		
Internal ranges	150 V ... 300 V	1000 VA	2000 VA	4000 VA
	75 V ... 150 V	1000 VA	2000 VA	4000 VA
	25 V … 75 V	1000 VA	2000 VA	4000 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		0.1 lead ... 1 … 0 lag		

Additional signals

	Description	1000 VA	2000 VA	4000 VA
Generation of harmonics	2. – 5. Harmonics	Max. 40 %		
	6. – 21. Harmonics	Max. 10 %		
	Sum of all harmonics	Max. 40 %		
Ripple control frequency		Max. 2200 Hz		
Ripple control amplitude	Related to the fundamental wave	Max. 10 %		
Peak voltage on the individual voltage ranges and the belonging peak currents	467 V	5.18 A	10.4 A	20.8 A
	233 V	10.4 A	20.8 A	41.5 A
	117 V	20.7 A	41.4 A	82.7 A