



EMSYST

Electricity Meter Test System

Portable Three-Phase Phantom Load and Energy Standard class 0.04 or 0.02

MANUAL TEST	
(Test OFF) (Load OFF)	
Test Type	ERROR
Circuit Type	WYE
Energy Type	Wh
Trigger Type	PICK-UP
Constant (pulses/kWh)	100000
Pulses	1
Test Time	15
Progress: 0	100
ERR -00.008 %	
STAND: 7.1805 Wh	
METER: 7.1800 Wh	
TIME: 14.993 SEC	
Save	Setup
Test ON	Load ON

LOAD Table				
Phase	A	B	C	Σ
VOLT	230.01	229.60	229.91	
AMP	59.973	60.031	60.044	
Phase	359.8	119.7	240.6	
PF	1.000	1.000	1.000	
WATT	13821.4	13838.8	13839.4	41498.6
VAR	-23.94	-51.40	43.26	-31.78
VA	13824.8	13849.6	13833.7	41518.1
Watt%2	0.0	120.0	239.3	
THDv	0.83	0.53	0.56	
THDx	1.21	1.08	1.13	
Frequency : 49.99 Hz				
Setup	LoadOFF			

EE-120A-3S-C



EE-500V-3



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General

The Electricity Meter Test System is used for testing of all types of electricity meters on-site or in a laboratory. It consists of two units:

- Unit 1: EE-120A-3S-C – Three-Phase Current Generator to 120A & Energy Standard class 0.04 or 0.02;
- Unit 2: EE-500V-3 – Three-Phase Voltage Generator up to 500V controlled from Unit 1 via RS485.

The Phantom Load is able to generate three-phase voltages and currents with unprecedented stability and accuracy. The following meter tests can be carried out automatically or semi-automatically with the EE Test System: **Error Test, Register Test, No Load, Starting Current and Maximum Demand Test.**

Full **analysis** of the customer load is easily performed with current clamps to 120A. **Current transformer** parameters and **Z-Burden** on the secondary can also be measured with optional current sensors.

The test results are saved in an internal Flash or on a SD Memory Card. 100 saved files are viewed on the LCD display and transferred to a PC. The EE Software & Data Base operate under Windows XP, 7, 8, 10.

Advantages

- **Flexible structure** - EE Test System works in four different modes:
 - EE-120A-3S unit is used only as a standard for analysis of the customer load, meter and CT testing;
 - EE-120A-3S unit is used for on-site meter tests, generating current synchronized with the service voltage;
 - EE-120A-3S and EE-500V-3 units are used together to test the meter with generated current and voltage;
 - Load Mode – generation of load values and indication of volts, amps, power, phase-shift, PF, THD, f.
- **PC Control:** The EE Test System can be controlled from a PC, using EE Software for testing the meter.
- **Automatic Test Plans:** The Test Plans are used to perform meter tests automatically, with or without PC. The Test Plans are predefined by the Operator - maximum 200 test points when EE Software is used.
- **Generation of harmonics** - up to 19th harmonic, with or without the need of a PC.

EMSYST-6 Ltd.

Office 304, BIC IZOT, 133 Tsarigradsko shousse Blvd., 1784 Sofia, BULGARIA

Tel: +359 2 971 8350 Fax: +359 2 971 8419

e-mail: emsyst@emsyst.com Website: www.emsyst.com



Technical Data

General

Power Supply:	85...265Vac, 47...63Hz
Power Consumption:	max 300VA
Dimensions WxDxH:	465x355x175 mm
Weight:	13.8 kg
Housing:	Rugged plastic Pelican case
Operation temperature range:	-10°C...+50°C
Color LCD Display:	640 x 480 pixels
Relative humidity:	<95 % non condensing
Safety Tests:	IEC61010-1-2002
Degree of protection:	IP-20 (opened), IP-65 (closed)
Overvoltage Category:	300V, Cat III (600V Cat II)
Standard Functionality:	EN 60736, EN 62053, EN 60044-1

Three-Phase Load

Ranges (per phase):	1 mA ... 12 A (max. 2.5V) 10 mA ... 120 A (max. 0.6V)
Output Power (per phase):	70 VA max.
Accuracy :	<±0.1 % (of measured value)
Resolution:	1 mA
Stability:	<0.1 % (in 1 hour)
Harmonic Distortion:	<0.8 %
Phase Shift (for each phase):	0.0°...359.9° (step 0.1°)
Frequency (for all phases):	45...65Hz (step 0.1Hz)
Bandwidth:	30...2000Hz

Three-Phase Standard

Measuring Quantities:	Volts, Amps, Phase Shift, P, Q, S, Wh, VARh, VAh, PF, f, THD, CT Ratio, Z-Burden
Measuring Modes:	1Ph 2W, 3Ph 3W Delta, 3Ph 4W Wye; Active, Reactive or Apparent Energy
Pulse Inputs:	Scanning Head, Manual Button, BNC Input (4V...15V, max. 200kHz)
BNC Pulse output:	50 000 imp/kWh by default (Isolated, TTL level, open collector up to 50V, > 10µs)
Memory	100 files saved in a flash memory, optionally on SD Card

Standard Measurement Accuracy

Quantity	Error Class 0.04	Error Class 0.02	Range (12A)	Range (120A)
Voltage (Phase-to-Neutral)	≤ ±0.03 % ≤ ±0.03 % **	≤ ±0.015 % ≤ ±0.015 % **	30...500Vac 5...29Vac	30...500Vac 5...29Vac
Current (direct)	≤ ±0.03 % ≤ ±0.03 % **	≤ ±0.015 % ≤ ±0.015 % **	40mA...12A 1mA...40mA	250mA...120A 10mA...250mA
Current (with Current Clamps to 120A)	≤ ±0.2 %		--	200mA...120A
Current (with Current Clamps to 1000A)	≤ ±0.2 %		--	5A...1000A
Current (with Flex or HV Probe to 2000A)	≤ ±0.1 % + Es***		--	30A...2000A
Wh / VAh (direct)	≤ ±0.04 %	≤ ±0.02 % *	40mA...12A	250mA...120A
VARh (direct)	≤ ±0.04 % *	≤ ±0.02 % *	40mA...12A	250mA...120A
Wh (with current clamps to 120A)	≤ ±0.2 % *		--	100mA...120A
Wh (with current clamps to 1000A)	≤ ±0.2 % *		--	5A...1000A
Phase shift	0.01°	0.01°	0.00°...359.99°	0.00°...359.99°
Power Factor	0.002	0.002	-1.000...+1.000	-1.000...+1.000
Frequency	0.01Hz	0.01Hz	40Hz...400Hz	40Hz...400Hz
CT Burden – Usec.	≤ ±0.5 %		--	0.10V ... 10.00V
Temperature coefficient (direct)	≤ 0.002 %/K	≤ 0.002 %/K	0 ... 40°C	0 ... 40°C
Long Term Stability (direct)	≤ 0.008 %/year	≤ 0.005 %/year	40mA...12A	250mA...120A

* Error related to Apparent Power (to be divided by the Power Factor);

** Error related to the maximum value of the range;

*** Es is the error of the sensor, specified by the Manufacturer.

EE METER TEST SYSTEM

EE-500V-3

85...265Vac, 47...63Hz
max 150VA
400x330x160 mm
10 kg
Rugged plastic Pelican case
-10°C...+50°C
-
<95 % non condensing
IEC61010-1-2002
IP-20 (opened), IP-65 (closed)
300V, Cat III (600V Cat II)

EE-500V-3 (Voltage Source)

500Vac (0.06A); 300Vac (0.12A)
150Vac (0.24A); 75...5Vac (0.48A)
36 VA max.
<±0.05 % (of measured value)
0.01 V
<0.05 % (in 1 hour)
<0.8 %
0.0°...359.9° (step 0.1°)
(V _A is always 0.0°)
45...65Hz (step 0.1Hz)
30...2000Hz