

DESCRIPTION

The CL-1400 Power Energy Trainer introduces students to electrical metering used by power companies. The trainer demonstrates peak load and power variables used by power companies in calculating bills sent to their customers.

The trainer helps the student understand the value of techniques that improve the use and power variables, both of which reduce the overall cost of the electrical energy used. The savings that can be achieved are demonstrated by comparing a typical customer's electric bill before and after installing a control system.

The CL-1400 trainer comes complete with a power regulators, energy meters, lighting and heating simulators, a test switch assembly, potential and current transformers, magnetic contactors and a stopwatch.



SPÉCIFICATIONS

DESCRIPTION	CL-1400-00	CL-1400-50
Supply voltage:	120/208V AC, 3 PH	220/380V AC, 3 PH
Frequency:	60 Hz	50 Hz
Total weight:	164 kg (360 lbs)	
Panel size:	122 x 163 x 20 cm (48.8 x 65.2 x 8.0 in)	
Stand size:	185 x 90 x 80 cm (74.0 x 36.0 x 32.0 in)	
Product number:	50305	50616

BASIC EQUIPMENT FOR THE CL-1400

DESCRIPTION	QTY	CL 800-00 (60 Hz)	CL 800-50 (50 Hz)
Clamp-on transformer	3	250 A	
Potential transformer	1	240/120V	380/120V
Current transformer	1	15/5 A	
Three-pole breaker	1	3-pole, 15 A, 240V	
Energy/power meter	1		
Apparent power meter	1		
Stop watch	1	CL-1025-00	CL-1025-50
Test switch assembly	1	4-pole	
Peak load demand regulator	1		
Power factor regulator	1		
Three phase switch	2		
Lighting simulator	1		
Heating simulator	1		
Magnetic contactor	5	3-pole, 30 A, 600 V	3-pole, 25 A, 600 V
Set of safety patch cords (41)	1	CL-1012	
Mobile stand	1		
Student's manual	1	CL-1400-95-00	CL-1400-96-50
Teacher's manual	1	CL-1400-95-00	CL-1400-96-50

OPTIONAL EQUIPMENT COMPATIBLE WITH THE CL-1400

DESCRIPTION	QTY	CL-1400-00 (60 Hz)	CL-1400-50 (50 Hz)
Synchronous motor	1	CL-211-00	CL-211-50
Squirrel cage induction motor	1	CL-213-00	CL-213-50
Variable resistive load bank	1	CL-311-00	CL-311-50
Variable inductive load bank	1	CL-312-00	CL-312-50
Variable capacitive load bank	1	CL-313-00	CL-313-50
Single phase wattmeter	1	CL-411-00	CL-411-50
Three phase wattmeter/varmeter	1	CL-418-00	CL-418-50
Set of AC ammeters with 4 reading scales	1	CL-421-00	CL-421-50

LIST OF EXPERIMENTS

The CL-1400 package includes a lab handbook containing instructions for carrying out the following experiments:

1. Measurement of electrical energy and computations of a customer's bill for electricity supply with pricing based upon the domestic tariff;
2. Measurement of active and apparent peak power demand;
3. Study of thermal curve for an apparent peak of power demand meter;
4. Definition and calculations made in preparing a bill where both energy and power are included in the tariff;
5. Hand operated peak power demand regulator;
6. Automatic peak power demand regulator – Part 1;
7. Automatic peak power demand regulator – Part 2;
8. The peak power demand evaluation;
9. Calculating the saving achieved with use of the automatic peak power demand regulator;
10. Measuring the power factor;
11. Regulating the power factor. The power factor demand regulator – Part 1;
12. The power factor demand regulator – Part 2; and,
13. Calculating the saving realized by correcting the power factor.



CL-1400 FRONT PANEL