



PRIMATA
Tecnologia Eletrônica

Technical Specifications

P55

Power Quality Analyzer



Presentation

The **Power Quality Analyzer P55** is designed to perform measurements in electrical power distribution systems. It is the second generation of analyzers developed by **PRIMATA ELETRÔNICA**, aiming to meet the demands of the energy concessionaires and permissionaires and other users in accordance with **PRODIST – Module 8 of ANEEL (Class S)**.

Weatherproof, portable, intelligent and modern, the **Analyzer P55** is approved by the Federal University of Uberlândia – UFU (Center for Power Quality). It has a removable data storage unit in **Pendrive**, supplied with **32GB memory**, in addition to communication via USB ports, display and keyboard that allow programming directly in the equipment.

Because it has a high memory capacity, the **Analyzer P55** calculates and records all electrical quantities instantly every 1 second, and the **SMD Software** allows the user to analyze and filter only the data needed and with different intervals. Thus, there is no need to pre-program or restrict the electrical quantities to be recorded in the field.



Applications

- ✓ Analysis and measurement of power quality (voltages, currents, powers, frequency, harmonics, voltage and current unbalance, fluctuation, event logging, power quality KPIs);
- ✓ Attendance to PRODIST - ANEEL Module 8 (Class S);
- ✓ Bidirectional energy reports (four quadrants), power consumption and injected energy;
- ✓ Power tariff management, demand and ICMS credit analysis;
- ✓ Power factor correction, spectrum and harmonic distortion losses (voltage and current);
- ✓ Support in the definitions of capacitor filters, with voltage and current harmonic spectrum graphs and a list for detailed analysis of amplitudes and harmonic losses;
- ✓ K-Rating calculation for new transformers (K-Factor), and transformer derating analysis (Factor-K);
- ✓ Graphical analysis of motor in-rush current curve (>1s);

Registered/Calculated Electrical Parameters

- ✓ RMS Voltage;
 - Neutral-Phase and Phase-Phase (A, B and C);
 - Instantaneous, Maximum, Minimum and Medium;
 - Ground neutral voltage;
- ✓ RMS Current (A, B and C);
 - Instantaneous, Maximum, Minimum and Medium;
- ✓ Calculated neutral current (theoretical);
- ✓ Measured neutral current (real);
- ✓ Active, reactive and apparent powers (single-phase and three-phase);
- ✓ Power factor (single- and three-phase);
- ✓ Frequency (A, B and C);
- ✓ Total harmonic distortion rate (Voltage and Current);
- ✓ Fundamental harmonic (Voltage and Current);
- ✓ Individual harmonic distortion rate (up to 50th harmonic - Voltage and Current);
- ✓ Negative sequence voltage unbalance (%) (IEC Standard 61000-4-7);
- ✓ Negative sequence current unbalance in (%) (IEC Standard 61000-4-7);
- ✓ Voltage fluctuation severity (IEC 61000-4-15);
- ✓ Short Term Voltage Variation Event Record - STVV (IEC Standard 61000-4-30 - with RMS value calculated every 1 cycle) with CBEMA curve graphic;
- ✓ Factor-K for transformer derating analysis and K-Factor (standard IEEE C57.110) for new transformers;
- ✓ Bidirectional Power (Four Quadrants) and Demand;

Main Information Displayed

- ✓ Active program in the analyzer;
- ✓ Instantaneous voltage values (Phase-Neutral and Phase-Phase);
- ✓ Instantaneous current values;
- ✓ Neutral current value;
- ✓ Active, reactive and apparent power values (single-phase and three-phase);
- ✓ Power factor (single-phase and three-phase);
- ✓ Harmonic distortion rate per phase;
- ✓ Frequency;
- ✓ Number of valid measurements collected in real time to calculate the DRP/DRC reports;
- ✓ Verification of the correct installation of the analyzer and indication of any errors;
- ✓ Available memory in the Pendrive (in days, hours or minutes);
- ✓ Battery status of the clock-calendar;
- ✓ Date / Time;



Electrical Characteristics

Power supply	
Supply voltage	Maximum: 520 Vac (Phase-Phase) Minimum: 70 Vac (Neutral-Phase)
Power phase	Any of the phases
Consumption (fed by the 3 phases)	3,5 Wh in 127 V or 4,5 Wh in 220 V
Clock-calendar	With rechargeable NiCd battery (200 days autonomy without power)
Communication	
Port	USB
Speed	115 kbps (high speed direct connection with computer)
Scale background (voltage)	520 Vac (Phase-Phase)
Resolution	0.1 V
Accuracy	± 0.5%
Scale background (current)	10A, 200A, 1000A, 3000A or 5000A
Accuracy (centralized conductor)	± 0.2% of reading value ± 1.0% of sensor
Measurement of ground neutral voltage	Yes
Neutral current	Calculated (theoretical) and Measured (real)
Types of connection	Single-phase, 2-phase, 3-phase (Star), Delta (open and closed) and Indirect Measuring (using VTs and CTs)
Environmental operating conditions	
Level of protection	IP 659
Temperature	-10 to 60 °C
Humidity	0 to 100% without condensation
Isolation of connectors	600 V
MTBF (Mean Time Between Failures)	68.400
Recording of absences	Yes
Electromagnetic shielding	Yes



Mechanical Characteristics

Dimensions (H x W x D)	220 x 146 x 107 mm
Weight (with cables and clips, without CTs)	2650 g
Cable length (voltage signals)	2,0 m
Cable length (current signals)	2,0 m
Display with backlight	2 lines x 16 columns
Portable	Yes
Box	
Material	Thermoplastic with UV protection, high impact resistance and self-extinguishable
Level of protection	IP 659
Connectors for signals	Circular panel connectors (at the bottom)
Device for pole fixing	Yes (on top)

Internal Control Program (Firmware)

Minimum interval for events record	16 milliseconds
Memory type	Removable (Pendrive)
Memory capacity	32GB (equivalent to 170 uninterrupted days of acquisition with records every 1 second, without the need to restrict the electrical parameters to be recorded)
Data storage	Independent programming for each acquisition
Programming of internal parameters	Date and time (automatic during connection to PC)
	Transformation ratios (voltages and currents)

Programmable parameters via SMD software

- ✓ Name and description of the acquisition;
- ✓ Type of trigger: immediate or by time (programmed);
- ✓ Type of termination: by date/time, by measures (number of valid measures for DRP/DRC reports) or undetermined;
- ✓ Start date and time (enabled for programmed trigger);
- ✓ End date and time (enabled for closure by date/time);
- ✓ Type of connection: star, open delta or closed delta;
- ✓ PTs transformation ratio;
- ✓ CTs transformation ratio;
- ✓ No need to pre-program or restrict the electrical parameters to be recorded;

Items Supplied with the Product

- ✓ Voltage clips **P10 – Dolphin Clip – CAT III 1000V / 32A** (5 clips):
 - Neutral, Ground Neutral, Phase A, Phase B and Phase C;
- ✓ Current transformers (4 CTs), rigid (clamp type) or flexible sensor:
 - Neutral, Phase A, Phase B and Phase C;
- ✓ Pendrive with 32GB memory for data storage;
- ✓ USB cable for communication with computer;
- ✓ Connection cable for voltage signals;
- ✓ Connection cable for current signals;
- ✓ Bag for transport and storage of equipment and accessories;
- ✓ SMD Software – Data Manipulation System;



Optional Accessory – Personalized Hardcase ¹



¹ The bag is not provided when the hardcase is purchased.

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Page 7 of 7