



DPA 500N Digital Power Analyzer

DPA 500N - full-compliant single phase harmonics and flicker analyzer

The DPA 500N is a fully compliant analyzer for harmonics and flicker as per the latest IEC/EN 61000-3-2, IEC/EN 61000-3-3 and JIS C 61000-3-2 requirements. It follows the design specifications as per IEC/EN 61000-4-7 (for Class I instruments) and IEC/EN 61000-4-15.

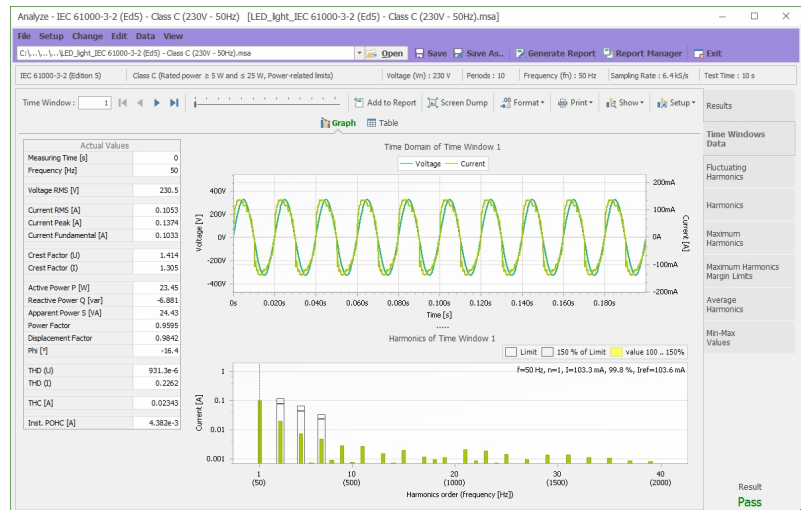
MAIN FEATURES

- Real-time data acquisition
- Internal hard disk for data storage
- 16-Bit A/D converter
- Wide-range current input
- Wide-range voltage input
- Built-in lumped flicker impedance
- High-sophisticated analyzing capability
- USB interface for control and data transfer

Based on a real-time kernel and equipped with its own harddisk it allows to record the measuring data continuously without any gaps or overlapping. The rectangular measurement window is synchronized to each group of 10 or 12 cycles of the mains supply frequency (50Hz or 60Hz) by means of a digital PLL (Phase Lock Loop). A wide-range current input (up to 50A) avoids loss of measured data due to range switching that would occur when using different shunt resistors.

The classification of the measurement can be selected at any time, before or after the measurement has been performed. During all measurements the AC supply voltage is measured simultaneously with the current. The built-in flicker impedance, which is automatically selected when doing flicker measurement, makes the DPA 500N a complete single-box unit for both harmonics and flicker analysis. By means of an external current clamp (optional) the current range can be extended up to 140 Arms and more.

net.control - the control and analysing software for harmonics and flicker



net.control is the software tool needed for the operation of the harmonics and flicker analysing system. It offers all features to control the DPA 500N, to upload the recorded measuring data and for the classification and analysis. It includes analysis as per the latest standards as well as procedures following the former standard requirements. An easy Fail/Pass function allows fast analysis while detailed data is available for extended analysis and EUT evaluation purposes. net.control offers a powerful documentation capability with direct export to Word.

Technical Specifications

| | |
|--------------------|---|
| Measuring system | |
| Voltage | 1 channel 10 - 530 Vrms (4 kVpeak), 16 bit, 15 - 3000 Hz Accuracy: $\pm 0.04\%$ of range $\pm 0.30\%$ of reading |
| Current | 1 channel internal: 0 - 16 Arms continuous (50 Arms short time) external: depending on current transformer used Accuracy: $\pm 0.1\%$ of range $\pm 0.70\%$ of reading $\pm 0.08\%$ of (frequency / 1000) |
| Processing | Embedded processor (Pentium 200 MHz), signal processor (Motorola DSP), memory (internal hard disk, approx. 1 MB/min data, more than 30 hours recording time), USB interface (control and data transfer) |
| Harmonics | |
| Analyzer | Class 1 instrument according IEC 61000-4-7 Ed. 1 and Ed. 2.1 for IEC 61000-3-2, IEC 61000-3-12 (with external current transformer), JIS 61000-3-2 and related standards |
| Harmonics analysis | 1 st to 50 th harmonic, rectangular measurement window (8, 10, 12 or 16 periods), 16 bit ADC, anti-aliasing filter (> 90 dB), FFT algorithm, smoothing filter (1 st order 1.5s digital low pass filter, on/off selectable), grouping (on/off), PLL synchronization |
| Flicker | |
| Flicker meter | according IEC 61000-4-15 for IEC 61000-3-3 and related standards (120 / 230 V, 50 / 60 Hz) Accuracy: better than 5% (as defined by IEC 61000-4-15) Observation period: Pst minimum 1 minute, selectable |
| Analysis | Pst, Plt, Vrms, dc, dt, dmax, Tmax, P50%S, P10%S, P3%S, P1%S, P0.1% |
| Impedance | built-in Z_{ref} according IEC 60725 (line $0.24 \Omega + j0.15 \Omega$ and neutral $0.16 \Omega + j0.10 \Omega$) |

General Specifications

| | |
|--------------|---|
| Environment | 0 - 40 °C, 10 - 90 % (non-condensing), 3 kV insulation voltage (input to housing) |
| Mains supply | 85 - 225 V, 47 - 63 Hz, max. 50 W |
| Dimensions | 19" 3HU housing, 133 x 449 x 500 mm / 5.2 x 17.7 x 19.7" |
| Weight | 13 kg / 28.7 lbs |

Available Options & Accessories

| | |
|-------------------|--|
| MRAC 25 | 19" rack with 25 height units, space to build in DPA 500N, ACS 500N3 or N6 and optional VLCM Kit |
| VLCM Kit DPA 500N | Low current measurement option for DPA 500N and NetWave 3.1, NetWave 7 or Netwave 7.3. Additional low current clamp 5A/1V with jumper on the front panel. Incl. a 19" frontpanel for rack mounting. Rack must be ordered separately. |
| ACC | ISO 17025 accredited calibration |

For a complete harmonics and flicker test setup, an AC source is required which provides a clean sinusoidal voltage signal. For single phase applications a choice of sources is available: ACS 500N series for simple AC applications and NetWave series to cover also immunity tests (i.e. IEC 61000-4-13). All sources are fully compliant and meet the requirements of IEC 61000-3-2, IEC 61000-3-3 and IEC 61000-4-7 in perspective of voltage and current signal quality (harmonics, accuracy, stability etc.).

Available single phase sources

| Source | ACS 500N3 | ACS 500N6 | NetWave 3.1 | NetWave 7 / 7.3 |
|-----------------|-------------|-----------|-------------|-----------------|
| Power | 3 kVA | 6 kVA | 3 kVA | 7 kVA |
| Voltage range | 0 - 300 VAC | | 0 - 310 VAC | 0 - 300 VAC |
| max. current | 12.1 A | 24 A | 10 A | 26 A |
| Frequency range | 10 to 80 Hz | | 0 to 5 kHz | |
| Mode | AC | | AC and DC | AC and DC |