



Description

The 7170 is a fast, easy to use mains and harmonics analyser with a large and high resolution graphical display, capable of continuous real-time analysis. It is intended primarily as a dedicated harmonics and flicker analyser for compliance quality measurements, but it can also be used as a general purpose mains analyser.

The unit is available with range of power connectors to suit different national standards. A printer interface is included for record keeping and archiving, along with both RS-232 and USB interfaces for PC connectivity.

A Windows based software is supplied with the module which assists users in taking routine compliance measurements and archiving the results. It can communicate with the instrument through either an RS-232 or a USB connection.

7171 Low Distortion 1 kW Power Source Module

To complement the 7170 a low distortion 1 kW AC power source module (7171) can be fitted in the CalBench. The 7171 is an innovative, low cost, pure power source designed specifically for use with a harmonics analyser such as the 7170.

It permits compliance quality measurements to EN61000-3-2 in situations where the quality of the AC supply is poor or variable.

Features

- Measures power, voltage, current, phase angle etc.
- Tabular and histogram display of harmonics
- Voltage and current waveform displays
- Continuous analysis with real-time graphical update
- Compliance quality measurements to EN61000-3-2/-3
- 320 x 240 pixel high-contrast display
- Wide range of national power connectors available
- Parallel printer and RS232 and USB interfaces
- PC control and documentation software supplied
- Optional low-distortion 1kW AC power source (7171)





Specifications

Mains analyser

Measurement circuit	Single Phase with standard mains connector.
Current rating	16 A rms continuous, or national connector rating if lower.
Voltage ranges	115 V (± 200 V pk) 230 V (± 400 V pk).
Current ranges	± 24 mA pk to ± 400 A pk in fifteen 2:1 ranges.
Frequency range	45 - 66 Hz.
Shunt resistance	3 mOhms.
Sampling rate	300 points per cycle.
Basic accuracy	< 0.2 % ± 1 mA, up to 16 A.
Measured parameters	Vrms, Vpk, Arms, Apk, Crest factors, THD, W, VA, Power factor, Frequency, Inrush current.
Monitor outputs	Re-constructed Voltage and Current Signals.

Harmonics analyser

Measurements	1st harmonic to 40th harmonic. Measurement processing for both 1995 and 2000 Editions of EN61000-3-2. Continuous calculation, analysis and assessment of unfiltered, filtered, average, minimum and maximum current harmonic levels and limits. Continuous measurement and assessment of supply waveform and harmonics.
Current rating	16 A rms continuous, or national connector rating if lower.
Voltage ranges	115 V (± 200 V pk) 230 V (± 400 V pk).
Shunt resistance	3 mOhms.
Transforms window	Continuous 4, 10, 12 or 16 cycle Discrete Fourier Transforms.
Basic accuracy	Better than 5 % of limit or 0.2 % of selected range whichever is the greater.
Display modes	Display of load supply assessment for voltage, harmonics, crest limits and frequency against requirements of EN61000-3-2. Histogram or tabular display of supply voltage harmonics. Histogram display of current harmonics with limits, Min. hold, Max. hold & percentage of limit display options. Tabular display of current harmonics showing present values, limits, average values, average as percent of limit, maximum values, maximum as percent of limit and pass or fail assessment for each harmonic.
Test control	Untimed, manually timed or automatically timed tests; user-defined test time. Limits automatically determined from EN61000-3-2 for appropriate class; Class C and Class D limits can be automatically calculated from power measurements or from ratings declared by the user. Minimum and maximum power thresholds for limits can be changed by the user. Facility for declaring supply voltages other than 230V and deriving appropriate limits. Facility for inseting test limits.
Report printing	Direct printer connection for hard-copy report with user-entered narrative, supply voltage assessment, harmonic analysis and assessment.

Voltage fluctuations and flicker meter

Measurement	Voltage fluctuations dmax, dc, d(t) and flicker Pst and Plt to EN61000-3-3 and EN61000-4-5.
Current rating	16 A rms continuous, or national connector rating if lower.
Voltage ranges	115 V (± 200 V pk) 230 V (± 400 V pk).
Fluctuation range	25 % max. (relative to nominal voltage)
Flickermeter range	Voltage change up to 20 % (sinewave change) or 10 % (low repetition rate rectangular change) relative to AGC level. Equivalent to 6400 pu on 8.8 Hz sinewave.
Flickermeter AGC	Up to ± 5 %.
Flickermeter accuracy	Better than 5 % for Pst range 0.7 to 10.0.
Frequency range	50 or 60 Hz (operates over 43 – 67 Hz).
Report printing	Tabular listing of voltage variations, Pst classifier and Pst in each Plt interval.

7171 Specifications

Input voltage	Factory set to 230 V, 115 V or 100 V; 50 Hz or 60 Hz. Installation Category II.
Supply tolerances	230 V setting: 198 V – 253 V, 115 V setting: 99 V – 127 V, 100 V setting: 90 V – 110 V. 50 Hz setting: ± 0.5 Hz, 60 Hz setting: ± 0.6 Hz.
Output voltage	Tracks the amplitude of the fundamental of the input voltage. A variable voltage input may be used to adjust the output voltage to within the limits specified by EN61000-3-2.
Output distortion	Dependent on the purity of the input but will generally meet the requirements of EN61000-3-2.
Output current	Maximum continuous output current is 4.4 A.
Output power	Maximum output power is input voltage x 4.4 VA
Input connection	IEC connector; front panel switch.
Output connection	UK, Schuko, or other national sockets. Load power switch can be set to DIRECT or CORRECTED for 'A-B' comparisons.
Protection	Thermal trip automatically diverts load to a DIRECT connection in the event of thermal overload.

General Specifications and Ordering Information

Display	320 x 240 pixel backlit LCD.
Interfaces	Parallel Printer, RS-232, USB.
Module Width	400mm (800mm when ordered together), primary console fitting only
Safety / EMC	Complies with EN61010-1 / EMC: Complies with EN61326-1

Ordering Information:

7170.....	Mains and Harmonics Analyser Module
7171.....	Low Distortion 1kW Power Source Module

Due to continuous development Time Electronics reserves the right to change specifications without prior notice.