CURRENT METER

Memory Clamp

CPL

(Cód 7 71 201 - 7 71 202 – 771 203)

USER'S MANUAL

(M 981 204 / 01A)

CPL MANUAL CONTENTS **Page**

1.- BASIC INSTRUCTIONS

This manual is aimed to familiarize de user with the operation of the measuring instrument model ***CPL*** in order to get the best from its features.

CPL meters have been built with components incorporating the most advanced technology in microelectronics and offer benchtop features for the market involving the measurement and record of current in low-voltage power systems.

1.1.- Check the contents of your package

After receiving the analyzer, please check the following points:

a) The meter model corresponds with your order specifications.

b) After unpacking, check that the instrument has not been damaged in transit.

c) The standard set includes the following items:

CPL (The ordered model)
1 power supply set
1 Connection cable between the CPL and the power supplier set.
1 Connection cord between the power supplier set and the a.c. main.
1 RS-232 communication cable.
1 CPL User's manual.
1 Software for PC.
1 Power-Vision User's manual

1.2.- Connection instructions

Before powering and connecting the meter check the following points:

a) Supply voltage: 230 V a.c., ± 15 % (45...65 Hz.)

b) Working conditions:

- Operation temperature: 0 to 50 ºC
- Operation humidity : 25 to 80 % RH

c) Safety : Designed to meet class III *640V* as per EN 61010*.*

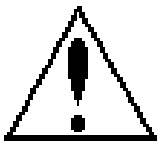
d) Maximum measurable current: according to each type

Code	Clamp type	Measuring range (with external power supply)	Measuring range (with self-supply)
771203	CPL-2000	20 a 2000 A a.c.	300-2000 A a.c.
771202	CPL-1000	10 a 1000 A a.c.	150-1000 A a.c.
771201	CPL-500	5 a 500 A a.c.	75-500 A a.c.

NOTE:

It is advisable to measure close to full-scale value to get better accuracy.

1.3.- Safety conditions



The manual you hold in your hands contains information and warnings about the ***CPL*** that the user should respect in order to guarantee a proper operation of all the instrument functions and keep its safety conditions.

2.- MAIN FEATURES

The **CPL** memory clamp is a programmable measuring instrument that **measures and records in memory** the current flowing through the electric network.

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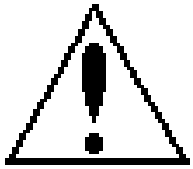
True R.M.S. measuring mode.

Auxiliary supply from the own measured current (self-supply system) or by an external power supply set.

Automatic data recording in memory at regular time intervals (user-programmable recording period), to be further downloaded to a PC.

Setup process done from the PC.

3.- INSTALLATION AND STARTUP



The manual you hold in your hands contains information and warnings that the user should respect in order to guarantee a proper operation of all the instrument functions and keep its safety conditions.

Whether the instrument is not used according to manufacturer's specifications, the protection of the instrument can be damaged.

When any protection failure is suspected to exist or external damages are observed, the instrument must be immediately put out of service. Contact then with a qualified service representative.

4.- SOFTWARE

Before starting works with the clamp, please carefully read this section and select the most suitable operation mode to obtain this data you desire.

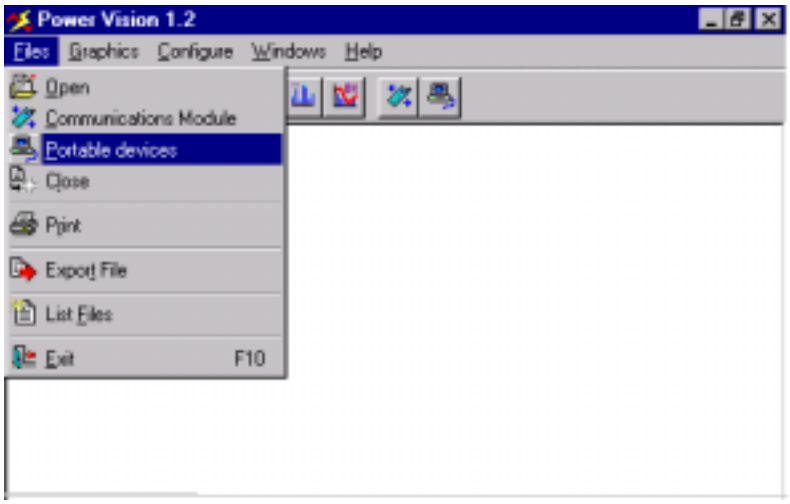
More complete information about the Power-Vision performance can be found in the user's guide saved into the CD the software is supplied in.

4.1.- Communications

The communication procedure between the CPL and the PC is done via the power supply set. Check that the power supply set is properly operating (green led on).

Select the option "Portable Devices" in the "File" menu. The PC will automatically check every port using all possible configurations to search any device connected to it. This action can long several seconds.

This system makes the software use easier for most cases since the device configuration is usually unknown.

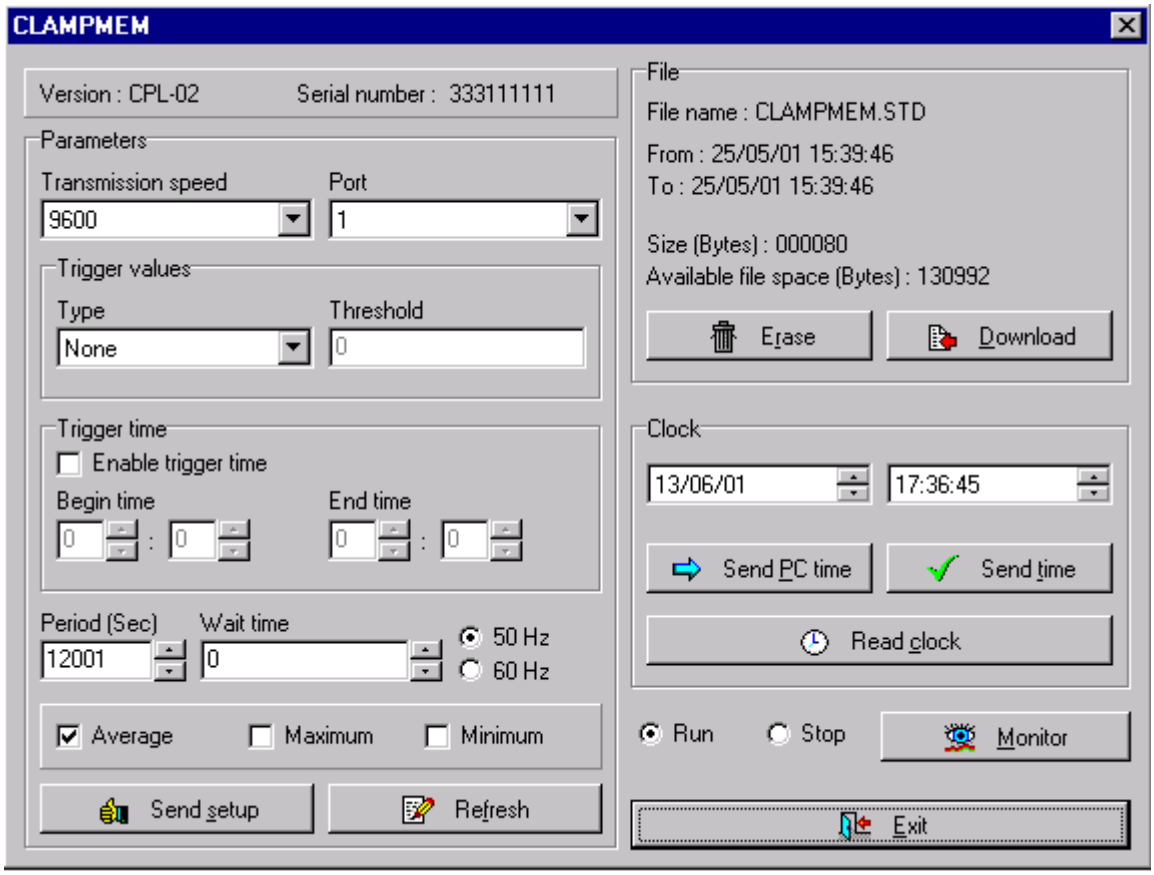


Communication to CPL clamp

The search is started with the last configuration used to establish any type of communication, hence reducing the searching time.

In case of a correct communication to the CPL clamp, then a screen that enables the user to complete several operation will be shown in screen:

- CPL configuration setting
- Communication configuration
- Read files
- Real-time readout display.



4.2.- Setup

A correct operation of the CPL clamp will depend on a right setup and connection actions. The modification of the clamp setup might suppose for some cases the internal memory reboot.

A series of common parameters will be attached to all files created by the clamp:

Version : Clamp version.

Serial number: Clamp identification number.

Transmission port: Connection port of the CPL to the PC.

The parameters that the user can set to get the maximum service from the clamp abilities are:

Baud rate: Baud rate for the communication between the PC and the CPL. Available baud rates are: 9.600 - 19.200 bauds

Date/Time: Time of the clamp on-board clock. Necessary to specify the moment every measurement is effectuated. The date and time can be manually set or automatically synchronized with the PC's on-board clock.

Period: Recording period or data into memory.

- If a recording period of 1 second is set, then the analyzer will record the current instantaneous value.
- If the recording period is set between 2 and 10800 seconds, then the analyzer will record the average value of the current over this period. Besides, the analyzer will record the maximum and minimum value of the current within the period (instantaneous values over 1 second).
- In case that the recording period is set at 0, then the analyzer will record in memory every cycle, and the average value will be the RMS value of every current cycle.

Rated frequency: Set the rated frequency of the monitored network. This is a basic value for the calculation of instantaneous values, since these are reckoned according to the value set by the user at this point.

Trigger Activation: Setting of trigger conditions. Data will be recorded in memory only when trigger conditions are fully met.

- Time On/Off: Set the hour and minute for the data recording process start and end.
- Trigger value: Setpoint for the start of data recording process, that is, when the current measured by the CPL exceeds this setpoint then data will be recorded in memory. To disable this trigger just set to 0.
- Trigger type: Setting of the value that controls the trigger trip. This value can be the average, maximum or minimum value obtained during the set recording period.

Save maximum/minimum/average: Selection of the parameters to be saved in memory by the CPL clamp. When the period is set at 0 or 1, then only the average value will be recorded.

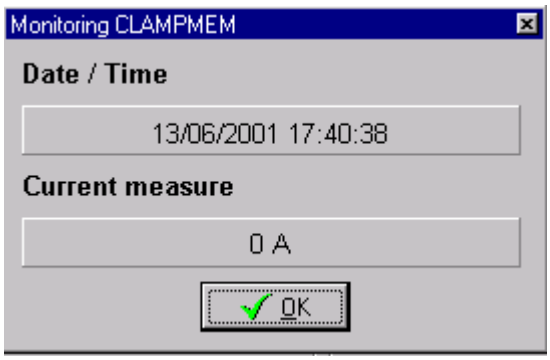
Stop – Run: Use both these options to avoid useless data to be recorded in memory.

- **Stop:** Recording operations are stopped always the button is at this situation. Data in the internal memory can be retrieved, and real-time visualization is also available. When the switch is moved to the *run* position, or in case that the clamp is reset, then the recording operation will start again.
- **Run:** Recording operations are enabled, and data is saved in memory when the recording period is completed.

Delay time: Time to be waiting before the recording operation is started after the clamp has been powered on or the switch has been move to the *run* position.

4.3.- Real-time data display

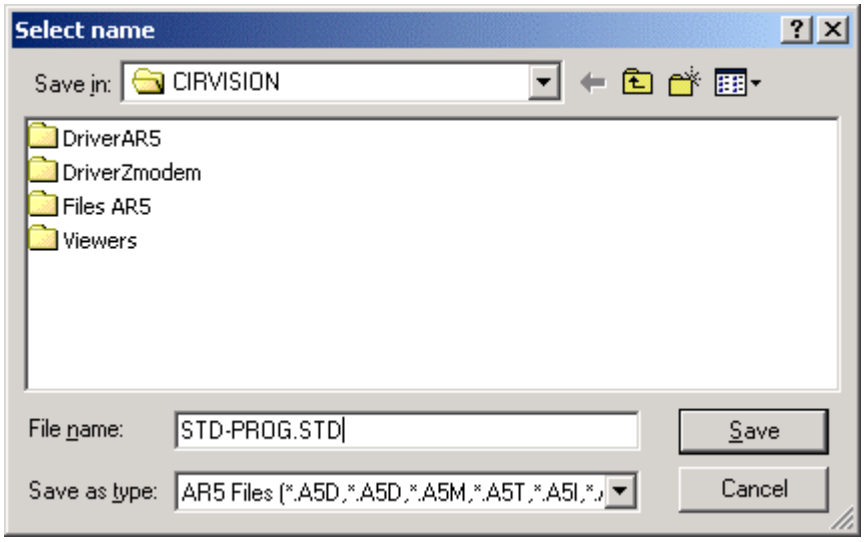
The software permits the user to visualize both real-time current measurements and the clamp status.



4.4.- Reading files

The option for reading files permits the user to retrieve data stored in the CPL internal memory. To complete this action, just click the button “download” in the setup screen.

Then the standard Window’s dialog to rename the file and select the saving directory will appear in screen.

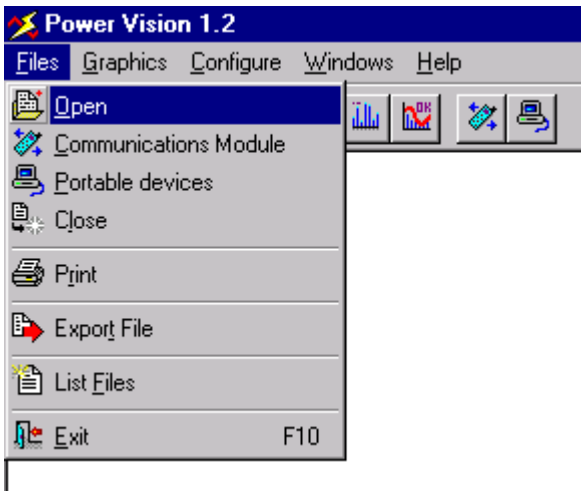


The recording file can also been deleted if desired. Once the clamp memory if full, any recording action will be finished unless the memory is manually deleted or the clamp setup is modified, this former action can sometimes cause the memory to be deleted.

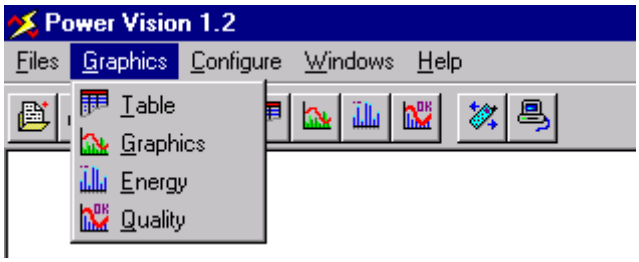
4.5.- Graphs and Tables.

The software permits the user to get a current-time representation, with the indication of the instantaneous value at the point the cursor is placed on, together with the maximum and minimum value recorded within the file.

First of all, the user must open the file to be analyzed, by using the option “Open” in the “File” main menu.



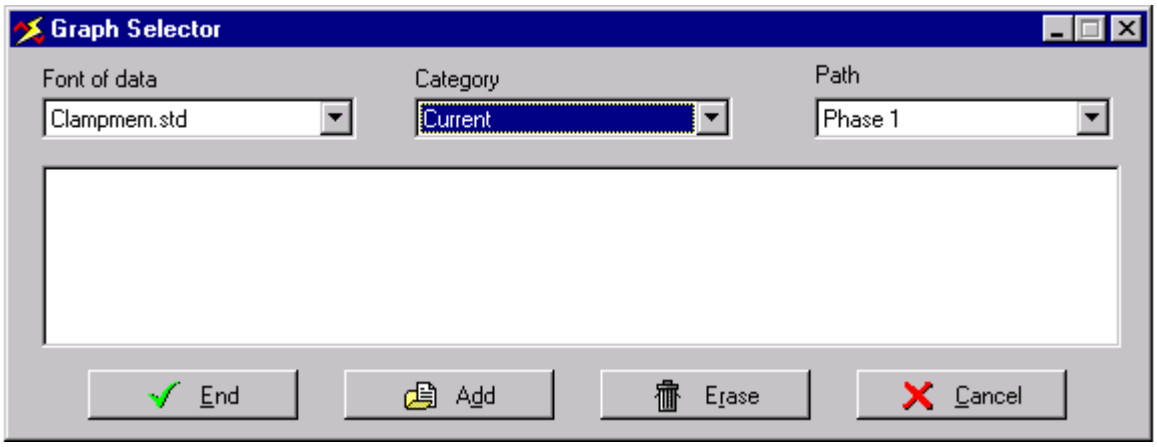
Once the file is open, then its analysis (graphs or tables) is enabled through the options attached in the “Graphics” pull-down menu.



This file only is valid to carry out “Tables” and “Graphics” options, other options will be disabled.

Graphics:

When this option is selected, the user can choose the active file to be analyzed as well as the parameter/s to be displayed.

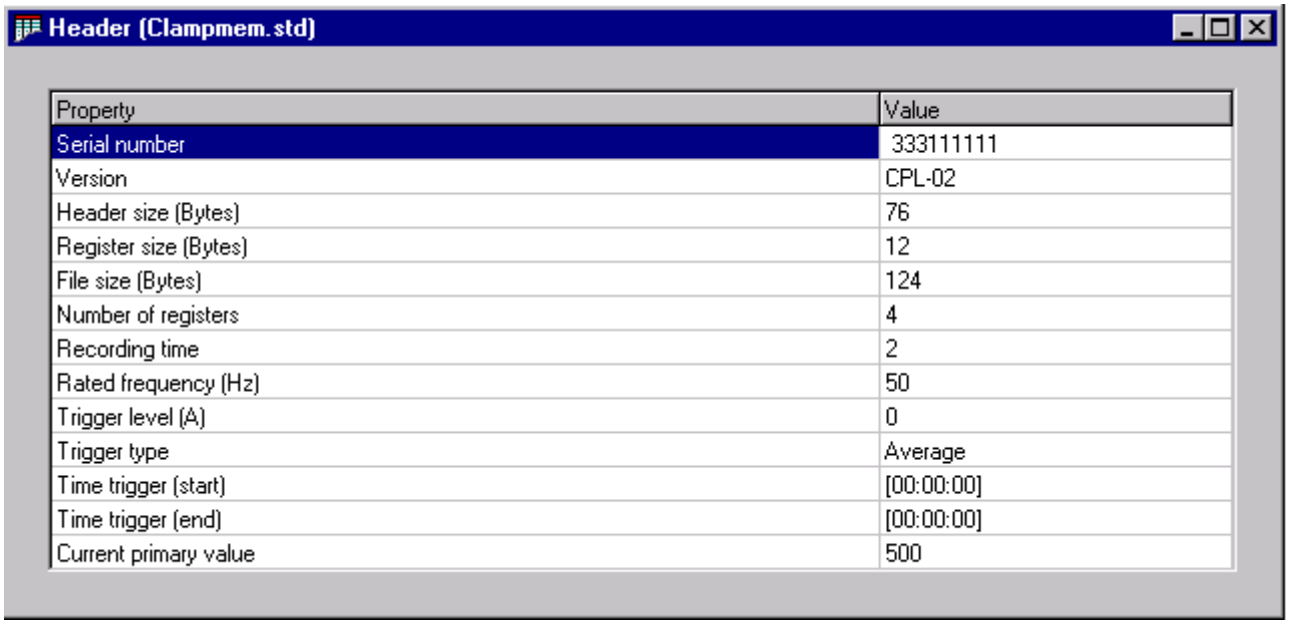


Any parameter to be displayed in the same graph (complex graph) must be added to the list, and, when completed, then click “End” to get the graphical representation of selected parameters.

Tables:

Diverse kinds of tables are available for their election when opening the option “Tables”:

- Header table: this table shows the main specifications of the CPL clamp which has recorded the analyzed file, together with additional information about the file itself.



Property	Value
Serial number	333111111
Version	CPL-02
Header size (Bytes)	76
Register size (Bytes)	12
File size (Bytes)	124
Number of registers	4
Recording time	2
Rated frequency (Hz)	50
Trigger level (A)	0
Trigger type	Average
Time trigger (start)	[00:00:00]
Time trigger (end)	[00:00:00]
Current primary value	500

- Value table: this kind of table show the different values recorded by CPL clamp. According to the previous selection of data recording options, this table can involve maximum, minimum or/and average values.

4.6.- Exporting files.

The software for data management of the CPL clamp, delivers the option of exporting values recorded by the clamp to a text format. This action is done by the option “Export”.

Once this operation is completed, the text file can be opened by any appropriate software.

5.- SPECIFICATIONS

Power supply circuit:

	By external power supply set:		230 V a.c. ±15 %
	Self-supply	:	I > 15% In
	Frequency	:	50 ... 60 Hz
Measuring:	Measuring range	:	1% to 100% In
Memory:			
	Internal memory	:	128kbytes
	Memory type	:	Linear
Accuracy class:			
	Current	:	1% of readout ±2 digits
Safety:	Class III 640V (self-supply), EN-61010		
Standards : EN 60664, VDE 0110, UL 94, EN 60801, EN 61000, EN-61010-1			

6.- SAFETY CONSIDERATIONS

The user should take into account all installation instructions referred in sections CONNECTION INSTRUCTIONS (Section 1.2.-) of this manual.

Note that with the instrument powered on, the terminals could be dangerous to touching and cover opening actions or elements removal may allow accessing dangerous parts.

7.- MAINTENANCE

CPL ammeter clamps do not require any special maintenance. Before any adjustment, replacement, maintenance or repairing operation is carried out, the instrument must be disconnected from any power supply source.

When any protection failure is suspected to exist, the instrument must be immediately put our of service.

8.- TECHNICAL SERVICE

For any inquiry about the instrument performance or whether any failure happens, contact to CIRCUTOR’s technical service.

CIRCUTOR S.A. - After-sales service
c / Lepanto , 49
08223 - TERRASSA
Tel: + 34 93 745 29 00 / Fax: + 34 93 745 29 14

E-mail : central@circutor.es