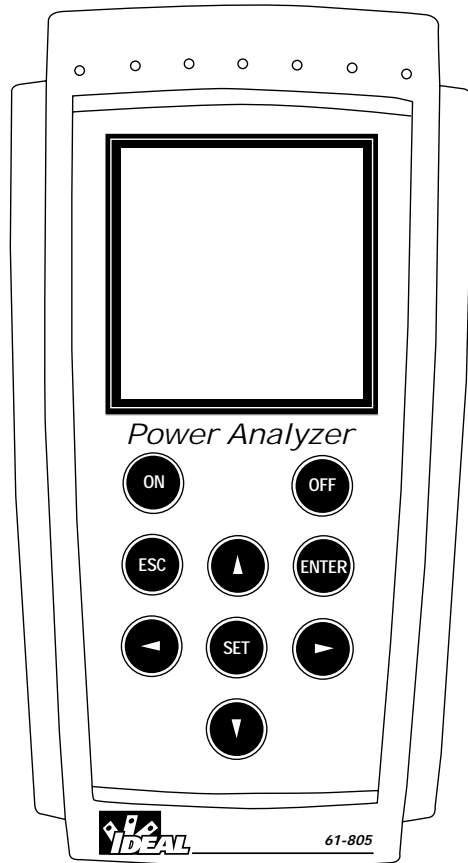


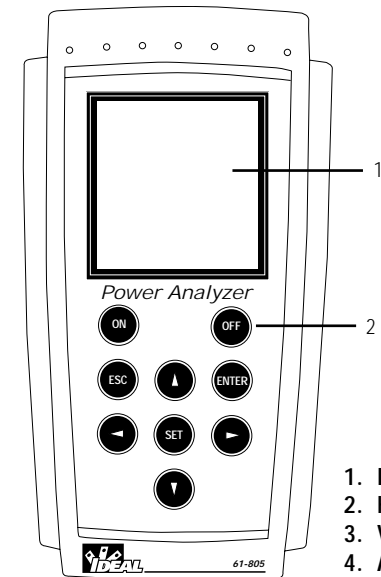
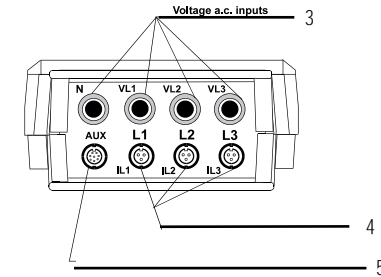


## 800 Series Power Analyzer Energy & Harmonics Program



### WARNING!

- DO NOT UNDER ANY CIRCUMSTANCES EXCEED THESE RATINGS:
  - 500VAC phase-neutral
  - 866VAC phase-phase
- To avoid electrical shock hazards and/or damage to the meter:
  - Do not exceed the voltage ratings for the meter. - Use caution when measuring voltage.
  - Do not use during electrical storms. Electrical storms may result in high voltage. High-energy transients can damage meter and present a dangerous shock hazard.
- Ensure meter is in proper working order before using. Visually inspect meter for damage.
- Never ground yourself when taking electrical measurements. Do not touch exposed metal pipes, outlets, fixtures etc. Keep your body isolated from ground by using dry clothing, rubber shoes, mats, or any other approved insulating material. Keep your fingers behind the finger guards on the probes. Work with others.
- Before breaking a circuit for testing, turn off the power to the circuit. When disconnecting from a circuit, disconnect the hot lead first, then the common lead.
- Disconnect the meter from the circuit before turning off any inductor, including motors, transformers, and solenoids.



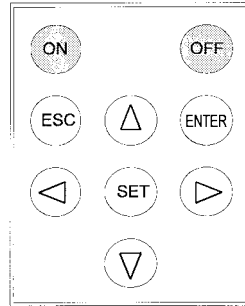
- LCD Display
- Keypad
- Voltage Input Terminals
- Amp Clamp Input Terminals

### LCD Display

160 x 160 pixel display that permits the visualization of measurement values, graphs and waveforms depending on the software program selected.

### Keypad

- ON and OFF buttons to turn the 61-805 on and off.
- ▲, ►, ▼, and ◀ buttons to select among options and move through the menu of the 61-805.
- SET button to access setting options.
- ENTER button to validate a setting option or to program software parameters.
- ESC button to select different displays during operation or to exit menu settings.



### Voltage Input Terminals

- Always use the test leads supplied with the 61-805.
- The maximum phase to neutral voltage is 500VAC.
- The maximum phase to phase voltage is 866VAC.

### Amp Clamp Input Terminals

- The 61-805 comes standard with three 1000AAC Clamp Adapters.
- Clamp adapters with other current ratings are available, and can be ordered through your local IDEAL distributor.
- The primary and secondary transformer ratings are set-up within the menu of the power analyzer. (See page 15.)

### Auxiliary Input

- This connection is used to power the meter, recharge the battery or download data by connecting to the power supply/serial adapter or use to download new software by connecting to a software loader.

### Powering up the 61-805

1. The battery of the Power Analyzer must be charged, or plugged into the power supply prior to start-up. The power supply needs to be plugged into a 120VAC supply at a grounded outlet.
2. Press the ON button on the keypad. The power analyzer introduction screen should appear on the LCD display.
3. After a few seconds the program selection screen appears to choose among the software analysis programs loaded onto the analyzer. Up to four software programs can be loaded onto the power analyzer.
4. Use the arrow buttons to navigate through the selections.
5. Press enter to select the appropriate software program.
6. If a selection is not made within a few seconds, the analyzer will automatically begin the first software program.
7. All software programs have different set-ups and operating parameters. Refer to the manual for the selected software for instructions.

Note: The 61-805 comes standard with the Energy Program. The set-up and operation instructions for this program are located in this manual.

### Recharging the Battery

The battery life of the 61-805 is 4 to 10 hours, depending on the measurement settings selected within the menu. For long term analysis, it is recommended to plug into the power supply/serial adapter. The 61-805 is equipped with an intelligent energy charging system that continuously checks the state of the battery. The charging process stops when the battery is at its maximum charge level, increasing the life of the battery.

1. Plug the power supply in at a grounded outlet.
2. Connect the power supply to the power analyzer.
3. Turn the power analyzer on by pressing the ON button.
4. If the battery is exhausted, the charging process should last at least 3 hours with no interruption.
5. A charging period of 16 hours is advisable in order to completely charge the battery.
6. The 61-805 displays a battery charge indicator on the LCD.

### Auto Display Shutoff

The 61-805 has an auto display shutoff to save power. If no key is pressed for at least 5 minutes, the display automatically shuts off. The analyzer continues to record data, but nothing appears on display. The display will be automatically on when any key is pressed.

### Loading a New Program

IDEAL offers a wide variety of software programs to troubleshoot power quality issues such as harmonics and electrical disturbances. Up to four software programs can be stored and run on a single power analyzer.

1. Before loading new software, check to make sure the 61-805 battery is charged. Loading programs cannot be done when the power supplier is connected to the power analyzer.
2. Turn the meter off.
3. Connect the cartridge to the auxiliary input of the meter.
4. Turn the meter on.
5. Select LOAD PROGRAM with the arrow keys and press the ENTER button to confirm this operation.
6. Select the position to save the program into.
7. The 61-805 will perform a test to ensure that the cartridge has been properly connected.
8. If an un-serialized software cartridge is detected, the program will be loaded. The power analyzer will update the software program cartridge, matching it to the serial number of the 61-805. Each software program cartridge can be used more than once, but only with the matching power analyzer.
9. Once the loading is completed, turn off the power analyzer.
10. If no cartridge was found or a loading mistake occurred, turn off the power, and restart the above loading steps.

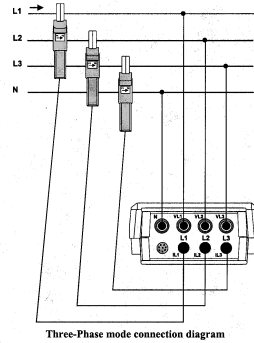
Note: A cartridge will be only valid for the analyzer which the program was for the first time loaded into. Note on the cartridge the serial number of its related 61-805.



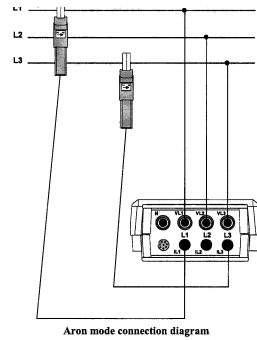
## Connecting to your Electrical System

The 61-805 power analyzer can be configured for three types of electrical systems: three-phase systems, aron systems (rotary input), and single-phase systems. Enclosed are connection diagrams for each of these electrical systems.

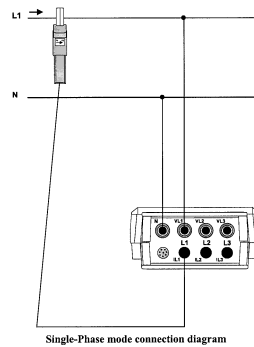
### Three-Phase Mode Connection Diagram



### Aron Mode Connection Diagram



### Single-Phase Mode Connection Diagram



## Operating the Power Analyzer

All measured values, as well as maximum and minimum, can be read on a 160 x 160 pixel, liquid, crystal display. Data is viewed on a variety of screens. Pressing the **[ESC]** key will change the screen view on the power analyzer.

### Base Screen

The base screen appears when the power analyzer first enters the harmonic program.

HARMONICS				
INST	L1	L2	L3	III
Vp-n	220	221	223	221
A				
kW				
kvarL				
kvarC				
P.F.				
Hz				
kVA				
kWh		0.000		
kvarhL		0.000		
kvarhC		0.000		
25 / 10 / 97 17 : 31 : 29				

### INST, MAX or MIN

An indication of the type of data being displayed is shown at the upper right corner: INST (Instantaneous), MAX (Maximum) or MIN (Minimum).

Maximum and minimum values displayed correspond to the maximum and minimum values obtained from the instantaneous values.

### Vp-n (voltage phase to neutral)

Readout of the instantaneous RMS value measured at each phase (L1, L2 & L3) and the average value of the instantaneous values of the three phases (III).

### A (current)

Readout of the instantaneous RMS value measured at each phase (L1, L2 & L3) and the average value of the instantaneous values of the three phases (III).

### kW (active power)

The active power is calculated from instantaneous voltage and current data. The readout gives the instantaneous values of the active power of each phase and also the three phase total instantaneous active power, which is the addition of each phase value.

### kvarL(inductive reactive power)

The inductive reactive power is calculated from instantaneous voltage and current data. The readout gives the instantaneous values of the inductive reactive power of each phase and also the three phase total instantaneous inductive reactive power, which is the addition of each phase value.

### KvarC (capacitive reactive power)

The capacitive reactive power is calculated from instantaneous voltage and current data. The readout gives the instantaneous values of the capacitive reactive power of each phase and also the three phase total instantaneous capacitive reactive power, which is the addition of each phase value.

### P.F. (power factor)

Readout of the power factor of each phase and the three phase average value.

### Hz (frequency)

Readout of the instantaneous value of the frequency.

### KVA (apparent power)

Readout of the three phase total instantaneous apparent power, which is the addition of each phase value.

### KWh, kvarhL, kvarhC (energy measurements)

Readout of active, inductive reactive, and capacitive energy counters from the moment that the energy counters were reset to zero (see section **Error! Reference source not found.**)

### Date and Time

Readout of present time and date.

### Expanded View Screen

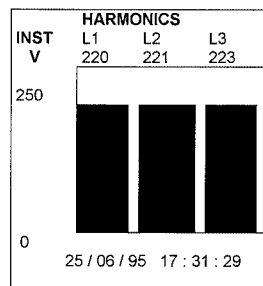
In this view, three parameters of your choice can be displayed in a larger type for easier viewing.

INST	HARMONICS
Vp-n	<b>220</b>
L1	
Vp-n	<b>221</b>
L2	
Vp-n	<b>224</b>
L3	
25 / 06 / 95 17 : 31 : 29	

Only three instantaneous readings may be viewed at once. The parameters can be selected in the display section of the programming menu.

### Bar Graph Screen

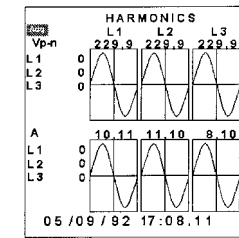
This screen gives a graphic representation of the three phases (L1, L2 & L3) of the selected parameter. The parameter and the bar graph scale can be selected in the display section of the programming menu.



### Oscilloscope Screen

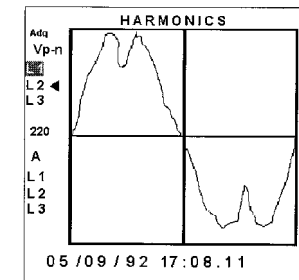
This screen displays the voltage and current wave forms of each phase (L1, L2 & L3).

Both the voltage and the current waveforms of the captured cycle are shown on the screen together with their respective effective values.



- The [▶] & [◀] keys move along the ordinate axis, to display the voltage and current values.
- The [▲] & [▼] keys move up and down the left menu bar to acquire a new wave form, or zoom in on an individual waveform.
  - Select "Adq" and press enter to acquire a new wave form.
  - Select "L1", "L2" or "L3" for either the voltage or current to zoom in on an individual wave form.

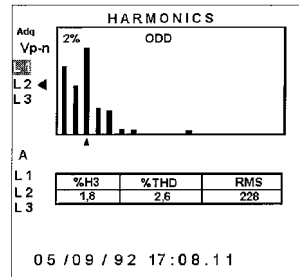
### Zoom View of the Wave Form



This view shows the individual wave form in detail.

- The ◀ indicates the phase of the voltage or current wave form that is being displayed in the zoom view.
- The [▶] & [◀] keys move along the ordinate axis, to display the voltage and current values.
- The [▲] & [▼] keys move up and down the left menu bar to acquire a new wave form, or zoom in on an individual waveform.
  - Select Adq and press enter to acquire a new wave form.
  - Select L1, L2 or L3 for either the voltage or current to zoom in on an individual wave form.

## Harmonic Factorization Screen



In this screen, the harmonic factorization of the signal is displayed in a bar graph.

- The ◀ indicates the phase of the voltage or current wave form that is being displayed in the zoom view.
- The [▶] & [◀] keys move along the ordinate axis, to display the individual harmonic and distortion level in the table.
- The [▲] & [▼] keys move up and down the left menu bar to acquire a new wave form, or zoom in on an individual waveform.
  - Select "Adq" and press enter to acquire a new wave form.
  - Selecting ODD or EVEN switches between even or odd harmonics.
  - Select L1, L2 or L3 for voltage or current to change the selected phase for harmonic factorization.

## Setup Screen

This screen displays the selected setup parameters for the power analyzer.

The screen on the left is the one shown on the analyzer's display. The screen on the right explains the meaning of each term. "A5I Type" will only be shown when a harmonic type file (A5I) is programmed to determine which harmonic file is selected ("Harm. 30" or "Harm. 50")

HARMONICS		HARMONICS	
SETUP		SETUP	
Measure: Triphasic	1/1V 5A	Type of measuring circuit	V.T. ratio C.T. ratio
File: Std-prog. A5M		Name and type of file	
00:15:00 Harm. 50		Recording period Type A51	
Trigger: Auto		Trigger: parameter	
0 0		Max. Value Min. Value	
00/00/92 00:00:00		Trigger: date/time On	
00/00/92 00:00:00		Trigger: date/time Off	
Com: 9600 / No / 8 / 1		Communication parameters	
25/10/97 7:31:29		Present date	

## Warning Messages

Some warning messages can appear at the visualization screens. These messages inform about the 61-805 performance:

- STOP:** The analyzer is not recording data.
- TRIG?:** Trigger conditions are not met. No data is being recorded.
- M. Full:** Memory is full.
- M.Error:** There is an error in the memory. The memory must be formatted. Analyzer's battery status. When only one bar is displayed the battery should be recharged since the analyzer may be off at any moment.

**WARNING MAX 500 V:** The maximum allowable phase to neutral voltage of 500 V has been exceeded during the measuring process. When measuring phase to phase voltages the limit is set at 866 V.

## Programming the 61-805

To access the 61-805 setup options, press the key [SET]. The analyzer prompts for a password, consisting of a key sequence. The user has 15 seconds to enter the correct password, or the analyzer returns to run mode.

**PASSWORD**  
[◀] [SET] [▲] [SET]

Once this password is entered, the analyzer will permit the user to modify any Setup parameters.

All programs have an independent setup. Check the setup to ensure a proper operation, since any modification will only affect the active operation program.

The initial programming menu allows access to the power analyzers setup, display, run, files and clear menus.

**SETUP**  
**DISPLAY**  
**RUN**  
**FILES**  
**CLEAR**

- Select one option with keys [▲] & [▼].
- To access any menu option use [▶] or [ENTER].
- To close the menu press [◀] or [ESC]. If a any setup parameter was changed, a confirmation is requested before closing.

## Setup Menu

The power analyzer can be configured to customize the data collection.

**SETUP**  
▶ **MEASURE**  
**RECORD**  
**COMM**  
**CLOCK**  
**RECALL**

- Press [▲] or [▼] keys to select the sub menu within the setup menu.
- Press [ENTER] to enter the sub menu or [ESC] to exit without modification.

## Measure Submenu

Within the measure submenu, the analyzer can be set up for the configuration and voltage and current levels of the electrical system under test.

<b>MEASURE</b>
➔ CIRCUIT
TR.REL

*Three phase, ARON.  
C.T and V.T ratios.*

- Press [▲] or [▼] keys to select the parameters within the measure submenu.
- Press [ENTER] to select or [ESC] to exit without modification.

### Circuit

Available circuit types are Three phase systems, or ARON systems (rotary input). For single-phase systems, select a three-phase configuration, connect the clamp adapter to L1 and the voltage leads to the N and VL1.

### TR. REL

Select TR.REL to adjust the transformer ratios.

<b>TR.REL :</b>
➔ REL. V
REL. A

*Primary and secondary voltage values  
Primary current value*

- If the voltage is measured directly, set the primary voltage and secondary voltage to 1.
- The current transformers included with the 61-805 have a primary current of 1000A and a secondary voltage of 2V.
- Always use IDEAL clamp adapters specified for the power analyzer.
- Never connect a direct current measurement to the 61-805.

## Record Submenu

The parameters of the data collection are accessed in the record submenu.

<b>RECORD</b>
➔ PERIOD
TRIGGER
NAME
TYPE
PARAM

*hh:mm:ss (1 s to 4 h or 5 s to 4 h) acc. file type  
Level, time  
File name (8 characters)  
File type: standard or special  
Special file parameters*

Press [▼] or [▲] keys to select the parameters within the record submenu.  
Press [ENTER] to select or [ESC] to exit without modification.

### Period

- Each data point stored within the 61-805 consists of the average values measured during the period.
- The recording period can be set to every second 1 second to every four hours for .A5M and .A5T file extensions.
- For harmonic file extensions, .A5I, the recording period can be set from every five seconds to every 4 hours.

## Trigger

The power analyzer can be set up so that values are saved in memory only when certain conditions are met. The two types of trigger conditions are:

<b>TRIGGER</b>
LEVEL
TIME

### Level

- Sets the analyzer up to record data when a selected parameter falls outside a specified range.
- Select the parameter to trigger measurement. (Vp-p, Vp-n, A, kW, kvarL, kvarC, PF, Hz, kVA, Auto (None)).
- Set the maximum value of the range. If the measurement rises above this value, data collection will begin.
- Set the minimum value of the range. If the measurement falls below this value, data collection will begin.
- To void this trigger condition, set the parameter to Auto.

### Time

- Programs a start and stop time for the power analyzer.

TIME .ON
00/00/00 00:00:00

day/month/year hour:minute:second

TIME .OFF
00/00/00 00:00:00

day/month/year hour:minute:second

- To void the time trigger, all values must be zero.

If both the level and time triggers are set, both conditions have to be met for data to be saved. If they are met, the data within the entire period will be stored.

### Name

- Set the file name.
- Maximum of 8 characters (no extension)

NAME
STD-PROG

- A keyboard will appear on the screen to enter a file name.
- Select each character with the arrow keys, [▼], [▲], [▶] or [◀] and press [SET] to validate each character.
- Select "◀" on the keyboard + [SET] to delete a character.
- Press [ENTER] to validate the file name or [ESC] to exit with no modification.
- If the file name and extension already exist in memory, a conformation is requested before overwriting.

### Type

- Select the file type wanted for data recording with the arrow keys, [▼] or [▲].
- Choose from the following file types: Standard, Custom, Harm30 or Harm50.
- A5M Standard file (preset parameters).
- A5T Custom file (user-selected parameters).
- A5I Harmonic file (preset parameters + wave forms). Harm30 captures factorization to the 30th harmonic and Harm50 captures factorization to the 50th harmonic.

Length of data saving records is different as per each file type. Memory autonomy for a 15 min recording period is listed below:

File Type	Extension	Record Length	61-805 1Mb
Standard	A5M	200 bytes	52 days
Custom	A5T	4*no.par+10 bytes	$\frac{1000000-192}{(4*no^2 var+10)*96}$ days
Harm. 30	A5I	1000 bytes	10.4 days
Harm. 50	A5I	1800 bytes	5.9 days

If the file name and extension already exist in memory, a conformation is requested before overwriting.

### Param

- Set the parameters to be saved.
- A table will appear containing the full listing of available parameters.
- Use the arrow keys, [▼], [▲], [▶] or [◀], to navigate through the table.
- Press [SET] to change the state of the parameter from saved or not saved.
- Parameters to be saved are on a black background, and the ones not saved are on a white background.
- By selecting INST (Instantaneous values) and pressing [SET], you can toggle between the instantaneous values, maximum values and minimum values.
- Press [ENTER] to validate the choice or [ESC] to exit with no modification.

Parameters	A5M				A5I			
	L1	L2	L3	III	L1	L2	L3	III
Phase-Neutral Voltage	x	x	x	x	x	x	x	x
Max Phase-Neutral Voltage	x	x	x		x	x	x	
Min Phase-Neutral Voltage	x	x	x		x	x	x	
Current	x	x	x	x	x	x	x	x
Max Current	x	x	x		x	x	x	
Min Current	x	x	x		x	x	x	
Active Power	x	x	x	x	x	x	x	x
Inductive Power	x	x	x	x	x	x	x	x
Capacitive Power	x	x	x	x	x	x	x	x
Power Factor	x	x	x	x	x	x	x	x
Active Energy				x				x
Inductive Energy				x				x
Capacitive Energy				x				x
Frequency	x				x			
Wave form V					x	x	x	
Wave form I					x	x	x	

### Comm Submenu

Within the Comm submenu, the communications parameters for the RS232 connection can be configured.

COMM			
9600	NO	8	1

Baud Parity Length Stop Bits

- Move through the parameters with the left and right arrow keys [▼] or [▲].
- With the up and down keys, [▶] and [◀] change the value of the parameter.
- Press [ENTER] to validate the changes or [ESC] to exit with no modification.

### Clock Submenu

Within the clock submenu, the power analyzers internal clock can be changed.

TIME.ON	
00/00/00	00:00:00

day/month/year hour:minute:second

- Move through the parameters with the left and right arrow keys [▼] or [▲].
- With the up and down keys, [▶] and [◀] change the value of the parameter.
- Press [ENTER] to validate the changes or [ESC] to exit with no modification.

### Recall Submenu

Within the recall submenu, the power analyzers setup can be reset to factory configured parameters.

With the arrow keys, [▶] & [◀], select yes or no, and then press [ENTER].

A confirmation is requested before changes are made.

The "Standard" operation parameters are:

- C.T. Ratio (SET + A) : 5
- V.T. Ratio (SET + V) : 1 / 1
- TRI/ ARON : Three phase (TRIPH).
- Period (SET + PERIOD) : 15 minutes
- TRIGGERS (Time and parameter) : All set to zero
- File name (FILE Name) : STD-PROG
- FILE type : .A5M
- Communication parameters : 9600,No,8,1
- RUN : RUN

### Display Menu

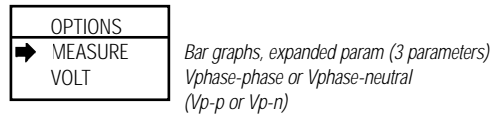
Within the display menu, the power analyzer's display screen can be configured for specific measurement values.

DISPLAY
➔ OPTIONS
CONTRAST

☞ DISPLAY MENU

### Options Submenu

Within the options submenu, you can set up the parameters to be visualized on the screens, and the display contrast.



### Measure

- Set up the parameters to be visualized on display in the bar graph and expanded view screen

### Bar Graph

- Select the measurement parameter to be viewed on the bar graph.
- Scroll through the options with the up and down keys, [▲] or [▼].
- Press [ENTER] to validate selection or [ESC] to exit with no modification.
- Set the scale by selecting the zero scale and full scale measurement values

### Expand

To choose three instantaneous parameters to be bigger-size displayed for a clearer reading.

- Select three measurement parameters to be viewed on the expanded view screen.
- Scroll through the table of options with the up and down keys, [▼] or [▲].
- Press [ENTER] to validate selection or [ESC] to exit with no modification.

### Volt

This submenu permits the user to select the voltage readout in the main visualization screen. It can correspond to the voltage between phases (Vp-p) or between phase and neutral (Vp-n).

- Select with the up and down arrow keys [▼] or [▲].
- Press [ENTER] to validate the choice or [ESC] to exit with no modification.

### Options Submenu

Within this submenu, the contrast of the 61-805 display can be modified.

- Press the [▶] to intensify the display contrast and [◀] to lower the screen contrast.



### Run Menu

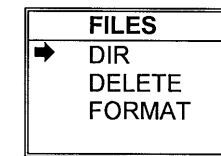
The data collection and logging action of the power analyzer can be enabled or disabled from the run menu.



- Press [▼] or [▲] keys to RUN or STOP data collection.
- Press [ENTER] to validate or [ESC] to exit with no modification.

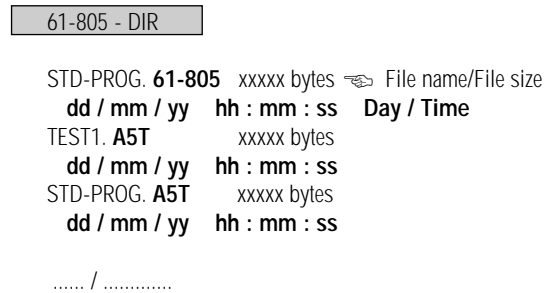
### Files Menu

Up to 1 Meg of data can be stored in the memory of the 61-805. Once full, the power analyzer will cease recording new data, and the display shows: "MEMORY FULL." Old data will not be overwritten.



### DIR (Directory)

This sub menu selection displays a directory of all files saved in memory.

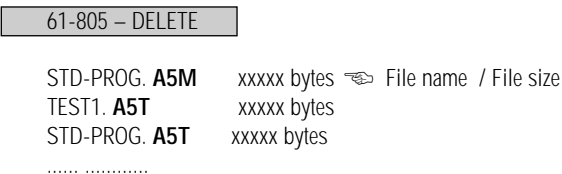


Free bytes: xxxxxxxxxx ➔ Number of free bytes in memory

- The [▼] or [▲] keys scroll up and down through the files in case that all files stored by the power analyzer cannot be shown in only one screen.
- Press [ENTER] or [ESC] to exit.

### Delete

From this submenu, any file can be deleted from the internal memory.



- With the arrow keys, [▼] & [▲], select the file to be deleted.
- Press [ENTER] to confirm selected file erasing. A confirmation is required.
- Press [ESC] to exit without deleting a file.

### Format

This submenu formats the internal memory of the 61-805.

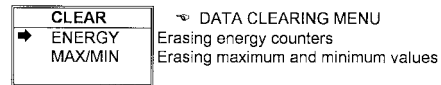


A confirmation is required prior to formatting the internal memory. **Formatting the memory of the power analyzer will delete all stored data.**

**Note:** Do not turn the 61-805 off during the memory format process, the display will show an error message and the process should be redone.

### Clear Menu

The clear menu resets saved parameters within the power analyzer.



### Energy

The power analyzer has several energy counters, which keep their values even after the analyzer is turned off. These values can be reset by selecting the energy submenu and pressing enter.

### MAX/MIN:

The maximum and minimum values are stored by the 61-805, even after the analyzer is turned off. These values can be reset by selecting the MAX/MIN submenu and pressing enter.

### Communications Protocol

#### Demand format

The demand format is: **\$00CCAA.... ch [LF]**  
(example = \$00RV175 )

The answer format is: **\$00AA.... ch [LF]**

\$	Any message starts with this symbol (ASCII-36)
PP	The identification code for the portable AR5 is always 00
CCC	COMMAND
AA	ARGUMENT (decimal-ASCII)
Ch	CHECK-SUM: Check-sum of all the elements forming the message. It is calculated with the decimal addition of all the previous bytes in ASCII and translating the result to hexadecimal. Two digits are taken. example = \$00RVI → 36 + 48 + 48 + 82 + 86 + 73 = 373 373 decimal   175 hexad. CHECK-SUM = 75 → \$00RV175
[LF]	[ LF ] LINE FEED indicates the end of the message (ASCII-10)

### Commands

COMMAND	CONCEPT	QUESTION	ANSWER
VER Read	61-805 version	\$00 VER ch	\$00 4 digits + ch
DIN	Number of files in memory	\$00 DIN ch	\$00 5 digits + ch
DIR	Directory of one file in memory	\$00 DIR + 5 number of the file to be displayed + ch	\$00 + 12 file name ext + 7 num. Bytes + 17 date of file creation + ch
SZC	Ask for a file	\$00 SZC + 12 file name. ext + ch	\$00 initial date + end date +ch The AR5 starts to communicate under Zmodem protocol. \$00 ERR00 + ch 61-805 in Setup menu. \$00 ERR if file does not exist
SZP	Ask for a part of a file	\$00 SZP + 12 file name .ext + initial date + end date ch	\$00 ACK + ch. The 61-805 starts to communicate under Zmodem protocol. \$00 ERR00 + ch. AR5 in Setup menu. \$00 ERR + ch. if file does not exist or initial date > end date
DIF	Consult a file content	\$00 DIF 12 file name.ext + ch	\$00 12 file name.ext + initial date + end date + 6 number bytes ASCII + ch

**Note:** The date format is "DD/MM/AA hh:mm:ss" with a 17 bytes length.

### Communication Wiring

The connection of the PC to the 61-805 must be done through the power supplier set, which needs to be connected to power. Perform the connection using the two wires factory-delivered with the 61-805.

One cable links the 61-805 to the power supplier, and the other cable is a standard RS232 connector.

When starting communication tasks take into account:

- Communication parameters of the 61-805 and the PC must fully coincide.
- Connections must go through the power supply.
- The 61-805 cannot be into the setup menu.

### Communications Software

The 61-805 power analyzer comes complete with a powerful software package, Power Vision, to assist in analyzing the data captured by the power analyzer. See the Power Vision instruction sheet for complete details on the operation of this software.

## Technical Specifications

Supply voltage:

Through an external power supplier set 120 VAC (+10% / -15%)

Frequency: 50...60 Hz

Burden: 8 VA

Operation temperature: 0 / 50 °C

Measuring circuit: THREE PHASE, ARON

Safety: Category II - 600 V, as per EN 61010

### Voltage measurement

Measuring range: 20 to 500 V a.c. (phase-neutral)

20 to 866 V a.c. (between phases) automatic scale adjustment

Other voltages: through suitable voltage transformers

Frequency: 45 to 65 Hz

### Current measurement

Measuring range: see available current clamps

Current transducer ratio: user-programmable

Measurement units: automatic scale adjustment

Built-in clock with rechargeable battery: Date and time

Display: LCD; 160 x 160 pixels

RS-232 output: serial type output

Internal memory: 256 kbytes or 1 Mb according to the model

### Accuracy

Voltage: 0.5 % of readout ± 2 digits

Current 0.5 % of readout ± 2 digits

Active power 1.0 % of readout ± 2 digits

Reactive power 1.0 % of readout ± 2 digits

Measuring conditions to assure accuracy class:

- Errors due to voltage and current transformer not included

- Temperature range: 5 °C to 45 °C

- Power factor: 0.5 to 1

- Measuring rang: between 5 % and 100 %

## Mechanical Characteristics

Case: Portable case.

Dimensions: 220 x 60 x 130 mm

Connection terminals: input/output terminals

Keyboard/ display: in frontal panel

Weight: 0,8 kg.

## RELEVANT STANDARDS

EN 60664, EN 610110, EN 61036, VDE 110, UL 94

### EM EMISSION

- EN 61000-3-2 (1995), Harmonics

- EN 61000-3-3 (1995), Fluctuations de tensión

- EN 50081-2 (1993), Industrial emission

- EN 55011 (1994): Conducted (EN 55022 - Clase B)

- EN 55011 (1994): Radiated (EN 55022 - Clase A)

## Mechanical Characteristics (continued)

### EM IMMUNITY

- EN 50082-2 (1995), Industrial immunity

- EN 61000-4-2 (1995), ESD

- ENV 50140 (1993), EM Radiated field of RF

- EN 61000-4-4 (1995), EFT burst

- ENV 50141 (1993), RF common mode

- EN 61000-4-8 (1995), 50 Hz H-field

- EN 50082-1 (1997), Residential Immunity

- EN 61000-4-5 (1995), Surges

- EN 61000-4-11 (1994), Dips, Interruptions.

(as shown in the test report reference number: 08077IEM.002)

## SAFETY WARNINGS

### Warning

Take into account all installation instructions referred in sections INSTALLATION AND STARTUP, CONNECTION INSTRUCTIONS and TECHNICAL SPECIFICATIONS OF THE ANALYZER.

Note that the instrument should not be operated or powered up while the cover is off. The analyzer has been designed and tested to meet IEC 348 standard and is factory-shipped in proper conditions.