

NETWORK ANALYZER

LCA



DISPLAY WITH MORE THAN 30 PARAMETERS

MEASURING OF THE HARMONIC DISTORTION.
(THD V and I)

4 QUADRANTS MEASUREMENT.

TRUE R.M.S.

MAX-MINIMUM VALUES

RS485 / RS232 SERIAL LINE

2 PULSE-CONTACT-ALARM OUTPUTS

| ELECTRICAL PARAMETERS | TOTAL | L1 | L2 | L3 | Max min |
|--|-------|----|----|----|---------|
| Line Voltage (V) | | X | X | X | X |
| Phase Voltage (V) | | X | X | X | (1) |
| Line Current (A) | | X | X | X | X |
| Active Power (P) | X | X | X | X | X |
| Reactive Power (Q) | X | X | X | X | X |
| Apparent Power (S) | X | X | X | X | X |
| Power Factor (cos φ) | X | X | X | X | X |
| Frequency (Hz) | X | | | | X |
| THD in current (A) | | X | X | X | |
| THD in voltage (V) | | X | X | X | |
| Active Positive Energy (E+) | X | | | | |
| Active Negative Energy (E-) | X | | | | |
| Inductive React. Energy (E _L) | X | | | | |
| Capacitive React. Energy (E _C) | X | | | | |

The LCA is an instrument capable of measuring the whole parameters of an electrical line, from the voltage and current signals of it. Additionally, it permits the measuring of the harmonic distortion.

MODELS

| | |
|--------|----------------------------|
| LCA-B | Basic |
| LCA-BA | Isolated, basic |
| LCA-C | Isolated, RS485, 2 Relays. |

PROGRAMMING

The following parameters of the equipment can be programmed by the keyboard or by the serial line (*):

- *Terminal identity code.
- *Primary voltage.
- *Primary current.
- *Relays operating mode

The configuration can be modified having the units linked in the communication network.

PULSE-CONTACT-ALARM OUTPUTS. (Available in LCA-C version)

The following modes can be selected:

- 1) The measured (E_{p+}) active and (E_{q+}) reactive energy can be sent by pulses through two free potential contacts.
- 2) Both contacts outputs can be activated from the computer or PLC.
- 3) Pulse outputs can be used as alarm contacts in maximum or minimum function.

DISPLAY/ KEYBOARD

A specific lighted LCD display has been developed to show more than 30 electrical parameters, by sequential pages selected by the up and down key.

The meter has 5 keys to select the parameters in the display and to program it.

(1) Only by the serial line

▪ **SERIAL PORT. (Available in LCA-C version)**

The equipment has a serial port, with a programmable baud rate between 300 and 19.200 bps, according to the standard RS-485. The standard baud rate is 9600 bps, with 8 data bits, without parity and 1 bit of stop. It permits the transmission of the measuring value to a PC.

The connection is done to 2 wires. The communication protocol is MODBUS RTU. The standard configuration permits to connect up to 32 equipment in one line.

▪ **MAX.-MIN. VALUES**

Provides the max. and min. values of the following parameters: V_{12} , V_{23} , V_{31} , I_1 , I_2 , I_3 , P_1 , P_2 , P_3 , P , Q , S , Power factor and Frequency.

▪ **TECHNICAL FEATURES**

INPUTS

3 Ph. 4 w. unbalanced.

Nominal Voltage (U_n) 100,110,230 or 400V.
 Burden 1 mA per phase.
 Measuring range 0 + 120 % U_n .

Nominal Current (I_n) 1 or 5 A.
 Burden 0,2 VA per phase.
 Measuring range 0 + 120 % I_n .
 Frequency 50 or 60 Hz.

(*) The LCA-C and LCA-BA are supplied with isolation in the current inputs.

DOUBLE AUXILIARY SUPPLY

Alternative current 63,5/110 or 230/400 V.
 Burden 3 VA
 Working range 70 + 120 % U_n

SERIAL LINE. (available in LCA-C version)

Standard RS485
 Connection to 2 wires.
 Standard baud rate 9.600 bps.
 Maximum length of net per line: 1250 m. without repeater
 Max. number of item per line 32

(Optionally serial line by RS232).

OUTPUT CONTACTS. (available in LCAM-C version)

Number of outputs 2
 Type relay N.O. 250V, 3A

ACCURACY

Class 0,5 in general
 1 for E_a , S and $\cos \phi$.
 2 for E_r

CONSTRUCTIVE FEATURES

Display with lighting
 Enclosure Modular by DIN rail
 Size 6 modules, 105 x 90 mm.
 Plug-in type input/output connections
 Max. wire section. 2,5 mm²
 Weight 0,35 kg.
 Protection degree IP54 (in the front)
 IP20 (in the rear)
 Protection class 2 IEC 1010
 Security Category III

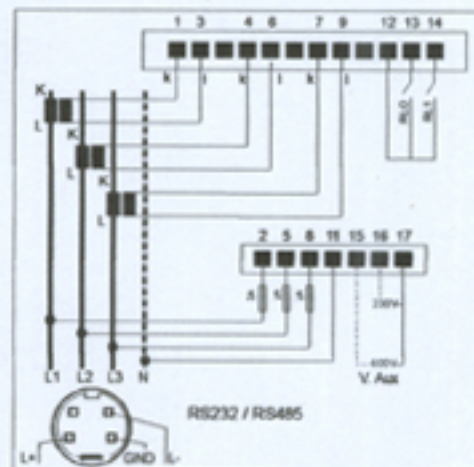
ACCESORIOS

Current transformers x/5 or x/1A.
 Converters RS 232/485. Models IFR1, IFRA y IFR4.
 Repeater RS 485.

OPTIONAL SOFTWARE

Communication Software.
 SACIgest.

CONNECTIONS DIAGRAM



S.A. DE CONSTRUCCIONES INDUSTRIALES

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NETWORK ANALYZER

LBA



■ SERIAL PORT (available in LBA-C version)

The equipment has a serial port, with a programmable baud rate between 300 and 19.200 bps, according to the standard RS-485. The standard baud rate is 9600 bps, with 8 data bits, no parity and 1 stop bit. It allows the transmission of the measuring value to a PC or PLC.

The connection is done on 2 wires half duplex. The communication protocol can be MODBUS RTU.

The standard configuration permits to connect up to 30 equipment in one line.

■ PULSE-CONTACT-ALARM OUTPUTS.

(available in LBA-C version)

The following modes can be selected:

- (1) Pulse outputs can be used as alarm contacts in maximum or minimum function.
- (2) Contacts outputs can be activated from the computer or PLC.

■ DISPLAY/ KEYBOARD

A specific LED display has been developed to show more electrical parameters, by sequential pages selected by the up and down key.

The meter has 5 keys to select the parameters in the display and to program it.

■ TECHNICAL FEATURES

| | |
|-----------------------|----------------------|
| INPUTS | |
| Nominal Voltage (Un). | 100,110,230 or 400V. |
| Burden | 1 mA per phase. |
| Measuring range | 0 + 120 % Un. |
| | |
| Nominal Current (In). | 1 or 5 A. |
| Burden | 0,25 VA per phase. |
| Measuring range | 0 + 120 % In. |
| | |
| Frequency | 50 + 70 Hz. |
| | |
| Operating temperature | -10 to 60°C |
| Storage temperature | -40 to 75°C |

DOUBLE AUXILIARY SUPPLY

| | |
|---------------------|------------------|
| Alternative current | 110,230 or 400V. |
| Burden | 3 VA |
| Working range | 70 + 120 % Un |

- 4 QUADRANT MEASUREMENT.
- TRUE R.M.S.
- LARGE LED DISPLAY.
- RS485 / RS232 SERIAL LINE

The LBA is an instrument capable of measuring the whole parameters of an electrical line, from the voltage and current signals.

| ELECTRICAL PARAMETERS | TOTAL | L1 | L2 | L3 |
|-----------------------|-------|----|----|----|
| Line Voltage (Ph-N) | | X | X | X |
| Line Voltage (Ph-Ph) | | X | X | X |
| Line Current (A) | X(*) | X | X | X |
| Active Power P | X | | | |
| Reactive Power Q | X | | | |
| Apparent Power S | X | | | |
| Power Factor (cos φ) | X | | | |
| Frequency | X | | | |
| Active Energy (Ea) | X | | | |
| React. Energy (Er) | X | | | |

■ PROGRAMMING

The following parameters of the equipment can be programmed by the keyboard or by the serial line :

- *Terminal identity code.
- *Primary voltage.
- *Primary current.

The configuration can be modified having the units linked in the communication network.

■ MODELS

| | |
|--------|----------------------|
| LBA-B | BASIC |
| LBA-BA | ISOLATED, BASIC |
| LBA-C | FULL ISOLATED, RS485 |

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 e-mail : sacnic@ccp.es



SERIAL LINE (available in LBA-C version)

| | |
|---------------------------------|--------------------------|
| Standard | RS485 |
| Connection | 2 wires half duplex. |
| Standard baud rate | 9.600 bps. |
| Maximum length of net per line: | 1250 m. without repeater |
| Máx. number of item per line | 30 |

STANDARDS

| | |
|---|-----|
| Pollution degree 2 IEC 1010 | |
| Installation category | III |
| EN 61036, EN 50081, EN 50082, DIN 43864 | |

ACCURACY

| | |
|-------|--|
| Class | 0,25 for U,I 1 for E, S and cos phi |
|-------|--|

DIELECTRIC STRENGTH

2600 Volt for one minute
100 Amp for one sec, 400 Amp for 0.5 sec

CONSTRUCTIVE FEATURES

| | |
|---------------------------------------|---|
| Display | LED |
| Mounting | panel board |
| Size | 110 x 110 mm. |
| Plug-in type input/output connections | |
| Max. wire section. | 2,5 mm ² |
| Weight | 0,4 kg. |
| Protection degree | IP52 (in the front) IP50 (in the rear) |

ACCESSORIES

Current transformers x/5 or x/1A.
Converters RS 232/485.
Repeater RS 485.

IN SERIAL PORT (available in LBA-C version)
The equipment has a serial port, with a programmable baud rate between 9600 and 19.200 bps, according to the standard RS-485. The standard baud rate is 9600 bps, with 8 data bits, no parity and 1 stop bit. It allows the transmission of the measuring values to a PC or PLC. The connection is done via 2 wires half duplex. The communication protocol can be MODBUS RTU. The standard configuration permits to connect up to 30 equipment in the line.

IN PULSE-CONTACT ALARM OUTPUTS

(available in LBA-C version)
The following modes can be selected:
(1) Pulse outputs can be used as alarm contacts in maximum or minimum functions.
(2) Contacts output can be activated from the computer or PLC.

IN DISPLAY/KEYBOARD

A special LCD display has been developed to show most electrical parameters, by sequential pages selected by the ten navigation keys.
The cursor has 3 keys to select the parameters in the display and to program it.

IN TECHNICAL FEATURES

| | |
|------------------------------|---------------------|
| INPUTS | |
| Nominal Voltage (lin) | 100,110,230 or 400V |
| burden | 1 mA per phase |
| Measuring range | 0 - 120 % Un |
| Nominal Current (lin) | |
| burden | 0,25 VA per phase |
| Measuring range | 0 - 120 % In |
| Frequency | 50 - 70 Hz |
| Operating temperature | -10 to 60 °C |
| Storage temperature | -40 to 75 °C |

DOUBLE AUXILIARY SUPPLY

| | |
|---------------------|-----------------|
| Alternative current | 110,230 or 400V |
| burden | 3 VA |
| Measuring range | 0 - 120 % Un |

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IN PROGRAMMING
The following parameters of the equipment can be programmed by the keyboard or by the serial line:

- *Terminal identity code
- *Primary voltage
- *Primary current

The configuration can be modified having the unit linked in the communication network.