SNG96-C NETWORK ANALYZER

INSTRUCTION MANUAL

The SNG96-C model is a digital device, able to measure some of the all variables associated with an electrical line, as is shown in the following table. It accepts the three current and three voltages signals in a 4-wire configuration. It is also possible to use it in 3 wire configurations, using two or three current transformers.

MEASURED VALUE		TOTAL	L1	L2	L3	Max / Min	Max Demand
Line/phase Voltage	V		X	X	X		
Line Current	A		X	X	X		X
Neutral current							
Active Power	P	X					
Reactive Power	Q	X					
Apparent Power	S	X					
Power Factor	PF	X					
Frequency	Hz	X					
% THD current							
% THD Voltage							
Active Energy Pos.	Ep+	X					
Active Energy Neg.	Ep-	X					
React. Energy Inductive	E_{rL}						
React. Energy Capacitive	E_{rC}						

Main characteristics of the unit are:

-RS485 COMMUNICATION PORT
- LCD 128x64 DISPLAY, WITH BACKLIGHT
- TRUE RMS V AND I MEASUREMENT
- MAXIMUM DEMAND
- 4 QUADRANT MEASUREMENT
- DIN SIZE 96x96.
- DETACHABLE SCREW CONNECTORS
- PROGRAMMABLE THROUGH FRONT KEYS.

OPERATING INSTRUCTIONS.

1.- KEYBOARD.

Five keys are provided:

Key1	Key2	Key3	Key4	Key5
Down/RESET	**Up/PROG**	**Shift/MAX**	**ENTER/MD**	**P**

Each key has different function depending on the mode selected.
The MAX and MD keys have no effect in this equipment.
Only have functionality in programming mode.

2.- DISPLAY.

A graphical LCD 128x64 dots is used. The information is shown through pages, grouping similar measurements, normally in four lines each.

The energy counters can be reset using the keyboard. Pressing the P + Down Keys together show the password screen. Validate the password and the energy counters shall be reset.

3.- WORKING MODES.

3.1.- INDICATION MODE.

This is the normal functioning of the device. When is powered up after resetting, the display shows the first page. Pressing Up or Down keys changes to the following or last pages. The order is as follows:

Page	Line1	Line2	Line3	Line4
1/8	Voltage	V12	V23	V31
2/8	Voltage	V1	V2	V3
3/8	Current	I1	I2	I3
4/8	Power	P	Q	S
5/8	Power factor & frequency	PF	F	
6/8	Max. Dem.	M1	M2	M3
7/8	Energy P	Ep+	Ep-	
8/8	Energy Q	Eq+	Eq-	

3.3.- MAXIMUM DEMAND MODE.

The maximum demand is calculated as the mean value reached during the time specified. Three values are shown, one per current phase, indicating the maximum from the last resetting of the values. The refresh time between changes in the display is 1 minute. The minimum period is 5 minutes.
To reset the values, press simultaneously P and RESET, and, input the password. See next chapter "4.- Programming mode", to know how to enter the password.

4.- PROGRAMMING MODE.

To enter in this mode, press P and PROG. The information appears also in pages. The device asks for the password. The ENTER key selects the position to be changed. Each number can be changed pressing UP or DOWN. To accept the value, press ENTER.

Once in the Prog. Menu the following pages can be selected.

Page 1 Apr CT ratio (Ipr)
Page 2 MD period Select time
Page 3 Password Change password
Page 4 B_light Select the delay time to switch off the backlight in seconds. (0 for always ON).
Page 5 Com1 Communication Setup: Device address, Baud rate, Data format

The selected page is showed in reverse video. To accept the digits and change between different values, press the ENTER key. To exit or back to the previous digit, press the Shift/MAX key.
To finish, press again P and Down key.
The default password is 0000. Be careful if the password is changed, and do not forget it, as no programming is allowed if the correct password is not entered.

4.1.- LCD CONTRAST ADJUST.

To change the LCD contrast it is necessary to do the next steps:

- Press the P key and at the same time press the Enter Key for more than 3 seconds. A screen asking for password is showed.
- Enter the password. In this case is fixed to the value 0002. Press the Enter Key to validate the password.
- Press the Enter key to select the contrast value. Use the Up and Down keys to change the value between 0 to 9. A good value is 4. To increase the contrast, select from 5 to 9. To decrease the contrast, select from 3 to 0. The defect value is 4. Press the Enter key to validate the new value or press the Shift key to avoid the change.
- At last, to exit from this mode, press the P key and at the same time press the Down Key.

ACCURACY

Parameter	Operating Range	Accuracy
Voltage	20-120%	0,3%Read+0,3%FS
Current	1-120%	0,3%Read+0,3%FS
Act.energy	5-120 %	0,5% Read
React.energy	5-120 %	1% Read

ENVIRONMENTAL

Operating Temp	-10/70 ªC
Storage Temp	-20/85 ªC
RH	up to 95% non condensing
Ventilation	Not required.
Protection degree	Front IP54. Back IP20

CONNECTIONS

Detachable connectors. Max. 2,5 mm wire.
No protection is included. It must be provided by the user, by means of a disconnecting device or fuses not higher than 2 amps rating, both for measuring inputs and Aux. Supply.

TECHNICAL FEATURES

INPUT

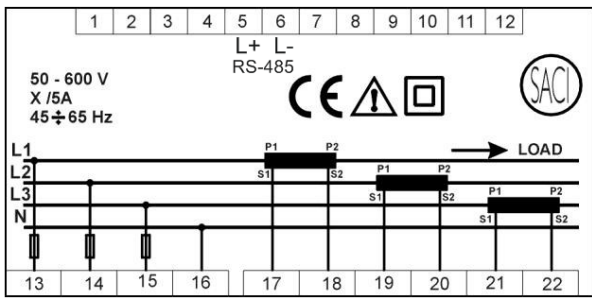
Nominal voltage	400 V AC. Phase-Phase.
Burden	1 mA per phase
Measuring range	50 – 600 V AC phase to phase

Nominal current	5 A
Burden	0,3 VA per phase
Measuring range	0-120 % In

Frequency	50-60 Hz

Auxiliary supply	Self-supplied
Consumption	< 4 VA

Overload:	2In permanent, 20In 1s. 1,2Vn permanent, 2Vn 10 s.



DIMENSIONS

Device:	96x96x61 mm

Allow additional clearance in the backside of 30 mm for connections.

Weight:	0,4 kg.

S.A. DE CONSTRUCCIONES INDUSTRIALES
15 Aragoneses St. - Alcobendas 28108 Madrid. SPAIN.
Tel.: +34-91-519.02.45 Fax. : +34-91-416.96.46
http://www.saci.es email : saci@saci.es