

1 Knowing the Product

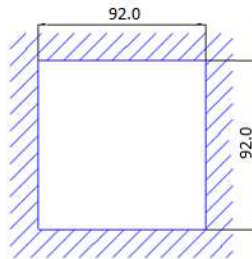


(A)	Mult-K NG	(F)	RS-485 Output
(B)	LCD Display	(G)	Ethernet Output*
(C)	Navigation keys	(H)	Voltage Input
(D)	Side locks	(I)	Current Input
(E)	Power Supply Input		

* Not available for units with Bluetooth communication.

2 Installing the Product

Accomodate the meter on the panel cutout and fasten it using the side locks (D). Panel's cutout dimensions must be 92x92mm.



3 Power Supply Connection

Power Supply signal must be applied to the (E) terminal block. Cabling must be connected in accordance to the power supply option present in the meter.

Selectable AC Voltage (220 or 120 Vac)	
Working Range: 80 to 120%	
220Vac	120Vac
Universal Power Supply	
Working Range: 85 to 265 Vac / 100 to 375Vdc	
<p>(Without Polarity)</p>	



ATTENTION

Pay extreme attention to the type of auxiliary power supply of your meter.

Incorrect cabling connection or applying a voltage signal above the specified limits can damage it severely.

4 Voltage Input Connections

Connect phases and neutral references to the **H** terminal block, using the order described below:

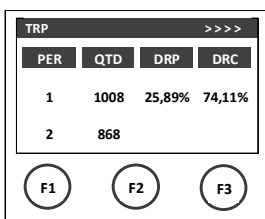
Terminal Description	Signal to be Connected
4 – N	Neutral
3 – Va	Phase 'R'
2 – Vb	Phase 'S'
1 – Vc	Phase 'T'
Measurement Range: 20 to 500Vac Ph-Ph 11,54 to 288,67 Vac Ph-N	

5 Current Input Connections

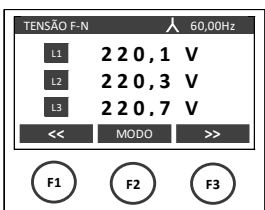
Connect phase references to the **I** terminal block, using the order described below:

Terminal Description	Signal to be Connected
10 – °Ia	CT's S1 - Phase 'R'
9 – Ia	CT's S2 - Phase 'R'
8 – °Ib	CT's S1 - Phase 'S'
7 – Ib	CT's S2 - Phase 'S'
6 – °Ic	CT's S1 - Phase 'T'
5 – Ic	CT's S2 - Phase 'T'
Measurement Range: 20mA to 5Aac (Continuous Overload: up to 7.5Aac)	

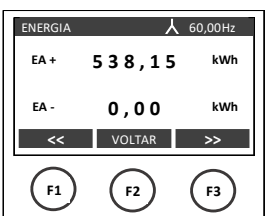
6 Accessing Operation Modes



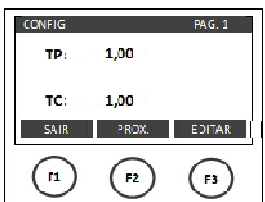
Mult-K NG's Man-Machine Interface is composed of an LCD display and three navigation keys - **F1**, **F2** and **F3**. The navigation keys can assume diverse functions, which are always presented in the lower navigation bar. To access the intended function/command, the user must press the related key. The lower navigation bar will fade after ten seconds of no interaction with the analyzer.



Instantaneous Measurements: Initial and main mode of the analyzer, which allows access to other modes and the checking of **V**, **A**, **W**, **VAr**, **VA**, **PF**, **Hz** and **THD** values. In this mode, use the **<<** and **>>** keys to navigate through the measurement parameters.



Energy Measurements: checking of **kWh+**, **kWh-**, **kVArh+** and **kVArh-** values. To access it, with the analyzer in the main mode, press any key. Then, press repeatedly the **MODO** key until the **ENERGIA** message appears on the right side. After that, press **ENERGIA** key.



Configurations: configuration of constants for PT and CT, connection diagrams, integration time (demand), communication, power quality parameters, and reset commands (energies, demands and voltage measurement campaigns). To access it, with the analyzer in the main mode, press any key.

Then, press repeatedly the **MODO** key

until the **CONFIG** message appears on the right side. After that, press **CONFIG** key.

7 Configurations mode

The following commands will be available when Configurations mode is accessed:

- EDITAR** : Editing of the currently selected parameter.
- PROX.** : Navigates through the pages of the configurations mode.
- ALTERA** : Confirms the changing of the highlighted parameter.
- VOLTAR** : Sends the analyzer back to the prior screen.
- DEC** : Decrements the active digit.
- INC** : Increments the active digit.
- >>** : Navigates through the available options of a selected menu.
- SAIR** : Returns to the main mode, leaving the configurations mode.

Below, menu descriptions and default settings of Mult-K NG:

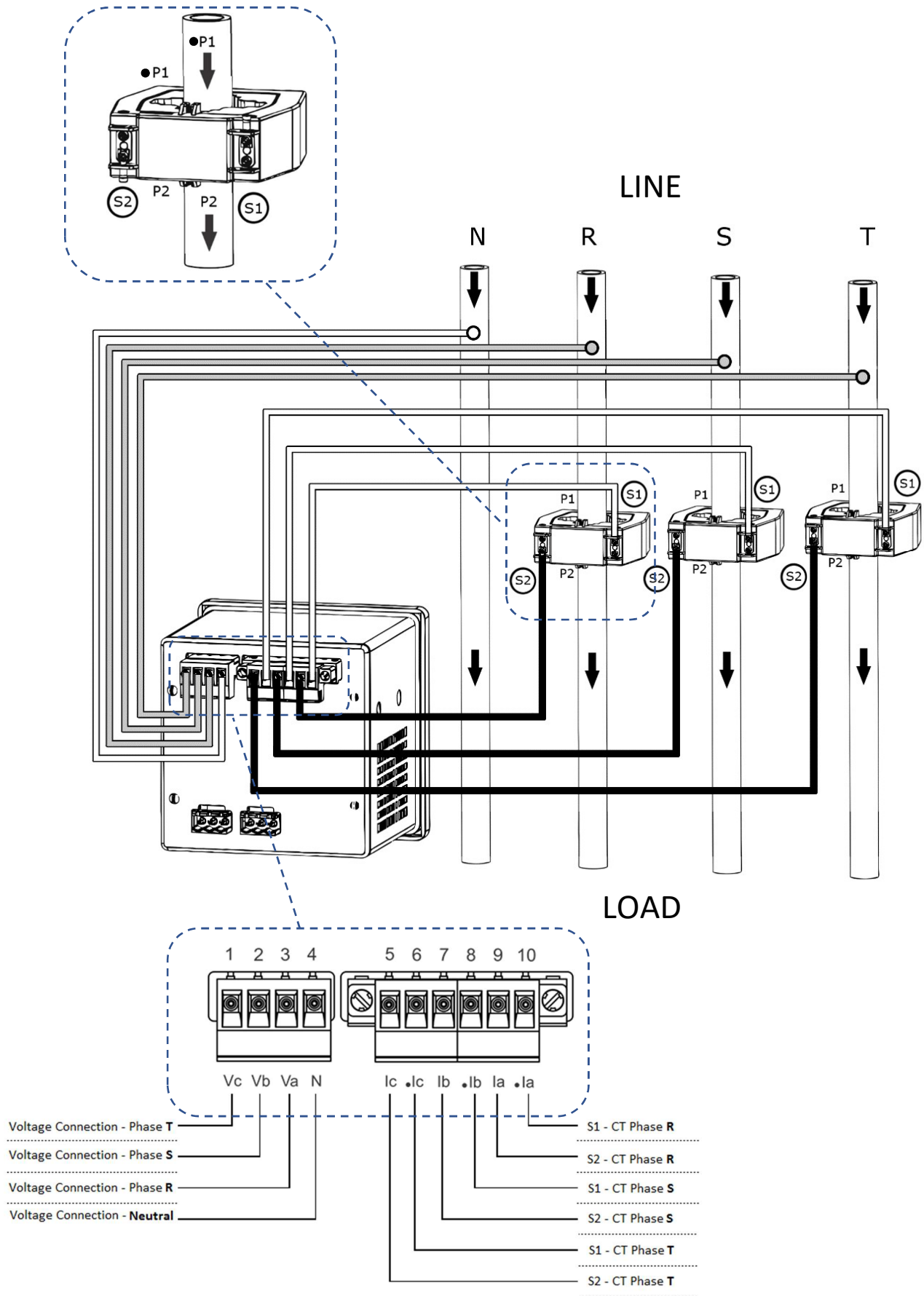
Page	Parameter	Description	Default
1	TP	Potential Transformer Ratio Example: PT -- 440/220V, PT ratio = 0002.00	0001.00
	TC	Current Transformer Ratio Example: CT -- 1000/5A, CT ratio = 0200.00	0001.00
2	TL	Connection Diagram	00
3	TI	Integration time for demand calculation	15
4	Endereço	MODBUS Address	254
	Velocidade	Transmission speed (baud rate)	9600bps
	Formato	Data Format (parity and stop bits)	8N2
5	Idioma	MMI language	Port.
	Cor LCD	Display color mode (normal or reverse)	Normal
6	Contraste	Display contrast	50%
	Relógio	Internal Clock Adjustment	Brazil (UTC-3)
7	Display	Display mode (normal or economical)	Econo.
	Reset	Resets energies and demands values.	
8	Senha	Activates/Deactivates password confirmation for accessing the Configurations mode.	Desab.
	Ed. Senha	Editing of password for accessing configurations mode.	00021
9	Tempo IHM	Display Refreshing time	0.4 seg.
	Agrup.	Grouping method (harmonics)	Group
*	V Nominal	Voltage of the monitored system (SSV – Steady State Voltage)	220 Ph-N
	V ref.	Type of voltage reference (Fixed or Sliding)	Fixed
	F Nominal	Nominal Frequency	60Hz
**	Afundam.	Configuration of upper limit and hysteresis for voltage sag PQ event.	Limit – 90.00% Hyst. – 2.00%
	Elevação	Configuration of upper limit and hysteresis for voltage swell PQ event.	Limit -110.00% Hyst. – 2.00%
	Interrupção	Configuration of upper limit and hysteresis for voltage interruptions PQ event.	Limit – 10.00% Hyst. – 2.00%
11	Modo TRP	Definition of memory recording mode (circular or linear)	CIRC.
***	Adequada	Configuration of limits for adequate voltage	Sup:233.00V Inf: 201.00V
	Precária	Configuration of limits for precarious voltage	Sup:233.00V Inf: 189.00V
13	Iniciar TRP	Start a new SSV measuring campaign	No
	Config. Início	Defines date and time for starting a new SSV measuring campaign.	Desab.
	Parar TRP	Stops the current SSV measuring campaign.	No

* Nominal voltage used as reference value for Steady-State Voltage measuring campaigns (Prodist) and PQ events recording

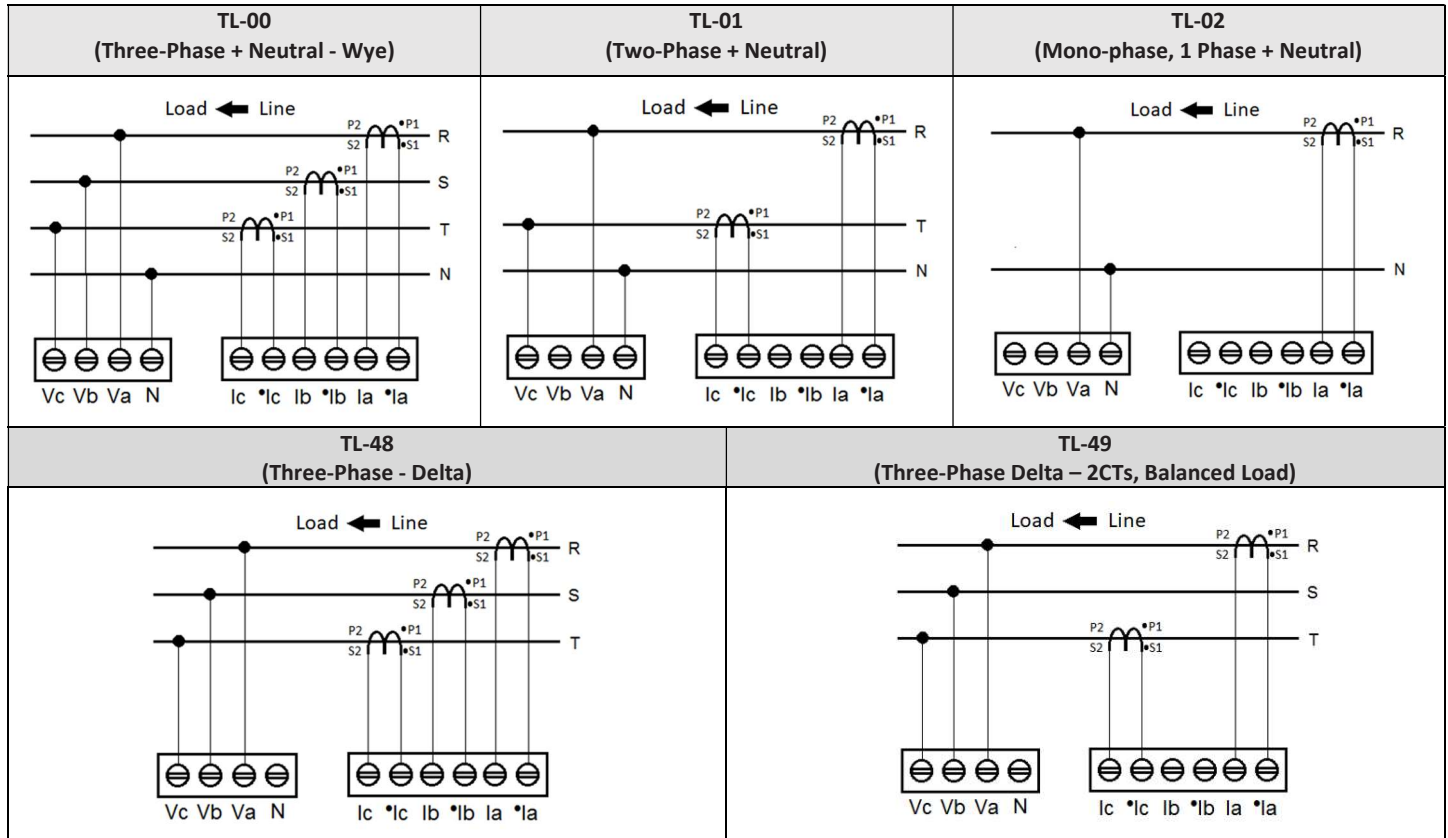
**Configurable limits for PQ events detection (voltage).

*** Configurable limits for SSV Prodist's Module 8 - measuring campaign. Values vary in accordance to nominal voltage tables, which can be consulted in ANEEL's Prodist – Module 8 document.

Connection Diagram Example: CD-00



Connection Diagrams (CD - TL configuration)



FAQ – Frequently Asked Questions

a. Analyzer doesn't turn on

Check if the connection to the terminal block (E) was made as stated in step 3 and also if the voltage magnitude applied is within the working range for meter's power supply.

b. Measurement values seem incorrect

Check if voltage and current connections are corresponding to each other, i.e., each meter's channel with the same reference indication - Example: (Va, Ia* - Ia) - must receive signals from the same phase, as stated in steps 4 and 5. Also check if the polarity of CTs is correct (Correct Installing, Primary side: (LINE) P1 → P2 (LOAD)) | Secondary side, S1 connected to Ix* → S2 connected to Ix).

c. Analyzer doesn't start/record measurement campaign readings

In the MMI, check if ">>>>" is presented in the superior right corner of the screen. This message indicates that the order used to connect the Voltage signals to the (H) terminal block matches the positive phase sequence, commonly known as 'R-S-T'. In case of the "Falt/Inv.Fase" message, check the voltage connections were made as stated in step 4. This message refers to installation errors, such as one or more voltage signals not connected to the (H) terminal block or voltage signals all connected, but using negative phase sequence order. The analyzer will not start the measurement campaign process if the "Falt/Inv. Fase" message is still active. Also, check if the "Iniciar TRP" command was executed and if the "Configurar Inicio" feature is active (using this last command, it is possible to configure Date and Time to start a new measurement campaign process).

d. There is evidence that a PQ Event has occurred but the analyzer did not registered it.

Check if all conditions mentioned in "c" are met and if the nominal voltage is set in accordance to the measured circuit. Nominal voltage configuration must be related to phase-neutral value – for circuits with neutral terminal.

THIS IS A QUICK USER GUIDE, WITH ESSENTIAL INFO FOR CONFIGURING AND INITIAL OPERATION OF THE METER. FURTHER DETAILS CAN BE CHECKED IN THE PRODUCT'S USER MANUAL, ALSO AVAILABLE IN KRON'S WEBSITE: www.kron.com.br.