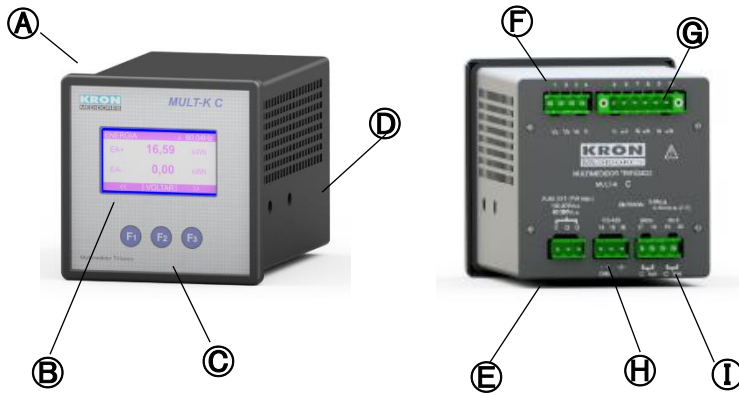


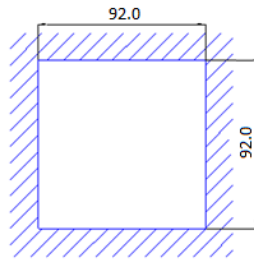
## 1 Knowing the Product



|     |                    |     |                        |
|-----|--------------------|-----|------------------------|
| (A) | Mult-K C           | (F) | Voltage Input          |
| (B) | Display LCD        | (G) | Current Input          |
| (C) | Navigation keys    | (H) | RS-485 output          |
| (D) | Side locks         | (I) | Relay Outputs (Alarms) |
| (E) | Power Supply Input |     |                        |

## 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:<br>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 **F** terminal block, using the order described below:

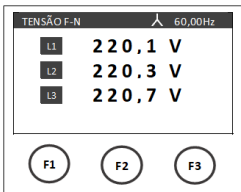
| Terminal Description  | Signal do be Connected |
|---|------------------------|
| 4 – N   | Neutral                |
| 3 – Va  | Phase 'R'              |
| 2 – Vb  | Phase 'S'              |
| 1 – Vc  | Phase 'T'              |
| Measurement Range: 20 to 500Vac Ph-Ph<br>11,54 to 288,67 Vac Ph-N | 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

## 5 Current Input Connections

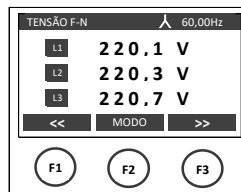
Connect phase references to the **C** terminal block, using the order described below:

| Terminal Description   | Signal do 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<br>(Continuous Overload: up to 7.5Aac) |                        |

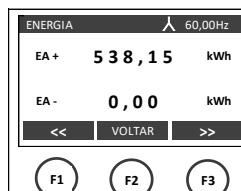
## 6 Accessing Operation Modes



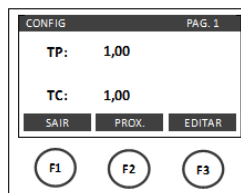
Mult-K C's Man-Machine Interface is composed of an LCD display and three navigation keys - **F1**, **F2** and **F3**. The navigation keys can assume diverse functions, which are always presented in the lower navigation bar. To access the intended function/command, the user must press the related key. 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 and reset commands (energies, demands), alarm conditions and custom screens. To access it, with the analyzer in the main mode, press any key.

## 7 Configurations mode

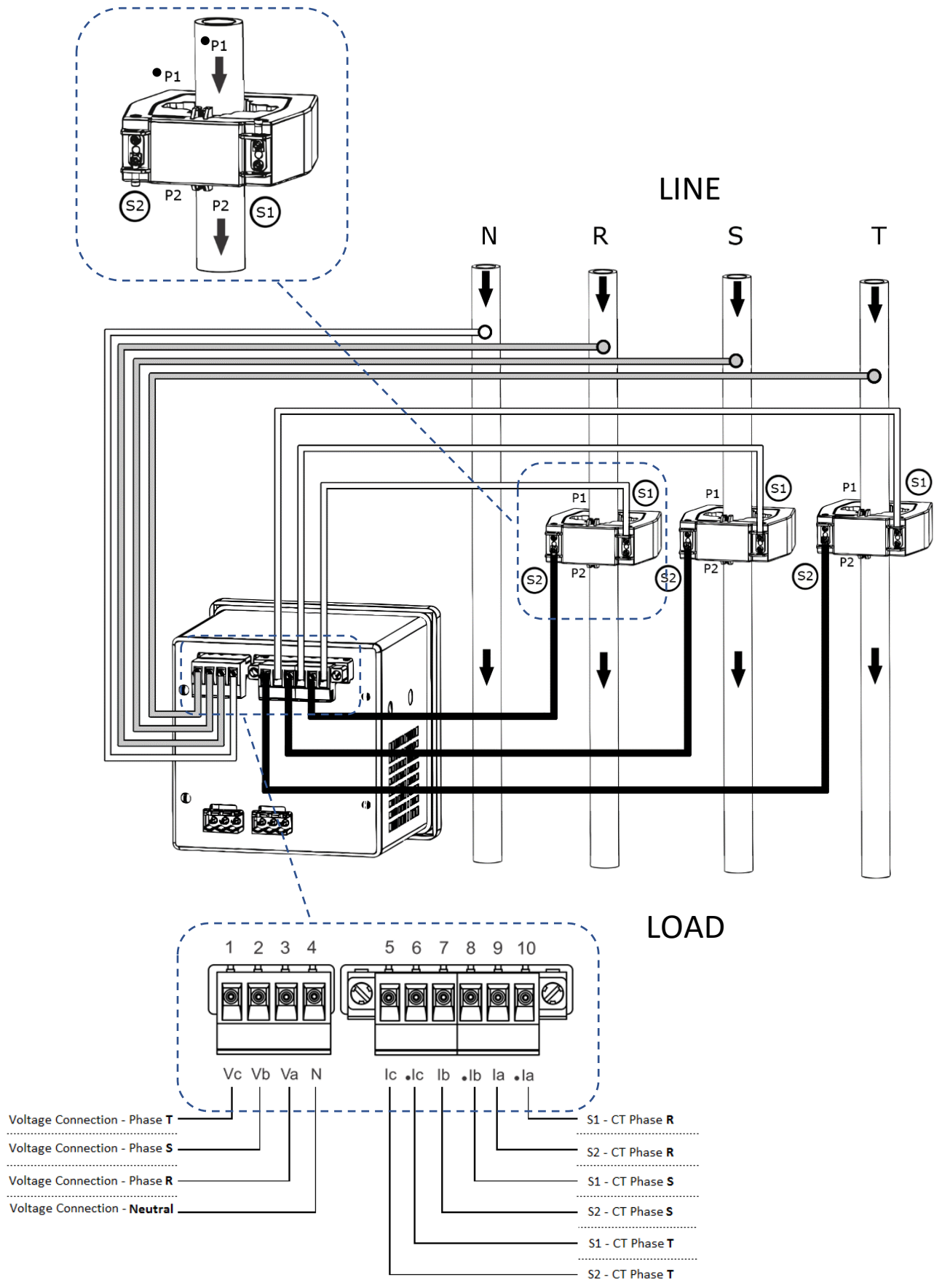
The following commands will be available when Configurations mode is accessed:

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

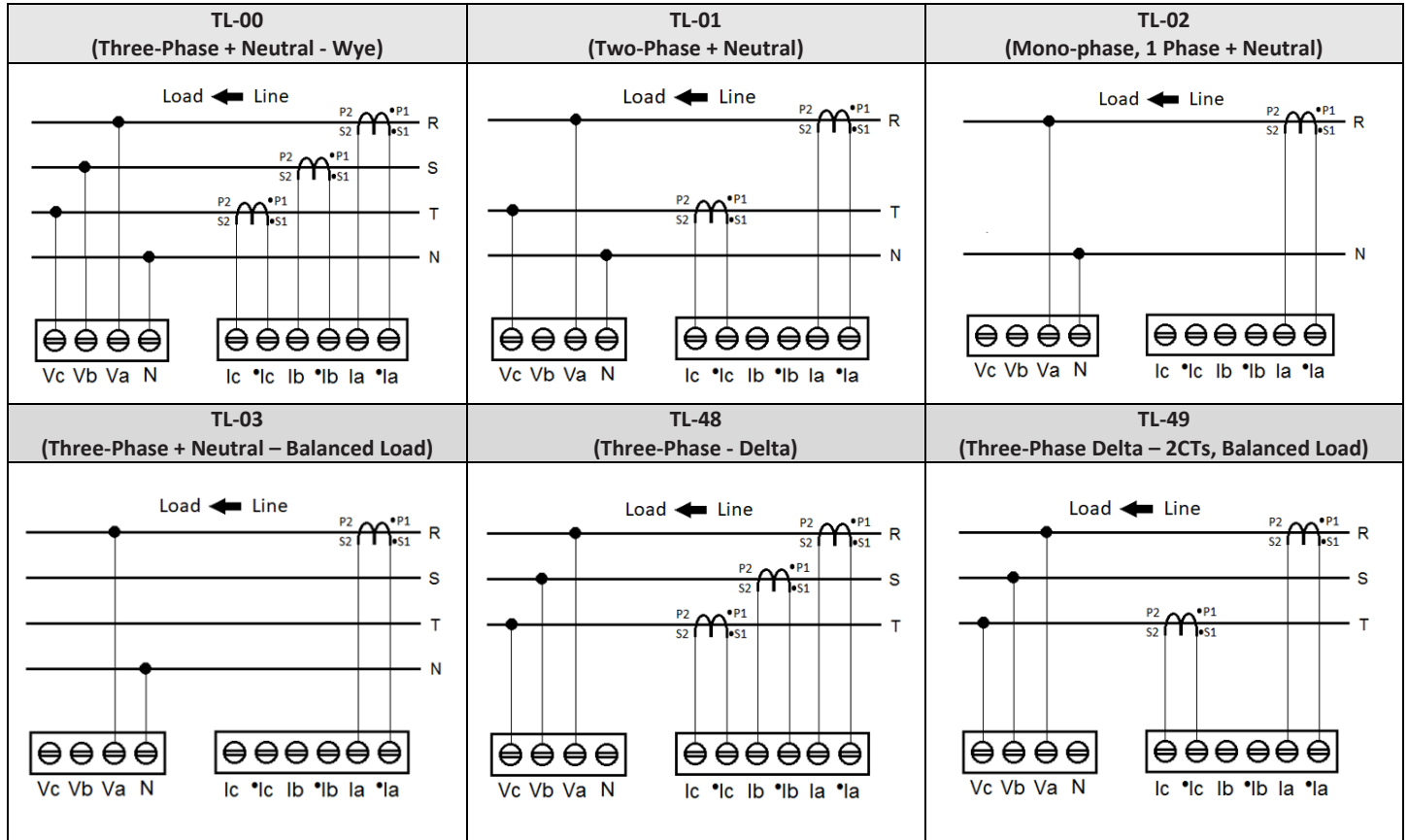
Below, menu descriptions and default settings of Mult-K C:

| Page | Parameter             | Description   | Default              |
|------|-----------------------|---|----------------------|
| 1    | TP                    | Potential Transformer Ratio<br>Example: PT -- 440/220V, PT ratio = 0002.00  | 0001,00              |
|      | TC                    | Current Transformer Ratio<br>Example: CT -- 1000/5A, CT ratio = 0200.00   | 0001,00              |
| 2    | TL                    | Connection Diagram<br>Definition of the connection diagram that will be used by the meter as a reference for parameter calculations, according to the measured circuit (Star, Delta, single-phase, two-phase, etc).   | 0<br>(Star – 3Ph +N) |
|      | TI                    | Integration time for demand calculation   | 15                   |
| 3    | Endereço              | MODBUS Address  | 254                  |
|      | Velocidade<br>Formato | Transmission speed (baud rate)<br>Data Format (parity and stop bits)  | 9600bps<br>8N2       |
| 4    | Idioma                | MMI language  | Port.                |
|      | Cor LCD<br>Contraste  | Display color mode (normal or reverse)<br>Display Contrast  | Normal<br>50%        |
| 5    | SuperV                | Configurations of patterns and conditions for electrical parameters supervision (alarms), counting of start-ups and operation hours. Allows the definition of delay time and minimum frequency to enable the supervision algorithm, definition of parameters supervised and alarm limits, hysteresis, relay activation delay times, programming of operating mode for relay outputs – NO or NC - and type of network voltage for parameters supervision (Phase-Phase or Phase-Neutral). | Alarms disabled      |
|      | Rst Alm               | Alarm Reset Command   | Disabled             |
|      | Custom                | Configuration of custom screens. Up to three custom screens can be defined, using three distinct patterns (with 1, 3 or 6 parameters each).   | Disabled             |
| 6    | Reset                 | Resets energies and demands values.   | No                   |
|      | Senha                 | Activates   Deactivates password confirmation for accessing the Configurations mode.  | Disabled             |
|      | Ed. Senha             | Editing of password for accessing configurations mode.  | 00021                |
| 7    | Backlight             | Display mode (normal or economical)   | Econo                |

## Connection Diagram Example – TL-00



## Connection Diagrams (CD - TL configuration)



## FAQ– Frequently Asked Questions

### a. The Mult-K C 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. The Mult-K C is already configured, but the supervision function is not working.

Check if there is a voltage signal applied to the Va terminal (Va - 3). To work, the supervision mode depends on the application of voltage in the aforementioned terminal, for activation of relay outputs. The voltage applied to the Va input must be higher than 11 Vac (Ph-N) / 20 Vac (Ph-Ph). Also check if the configured delay frequency is higher than the measured value. If the configured value is minor than the measured frequency, the Mult-K C won't start the supervision mode.

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](http://www.kron.com.br).