

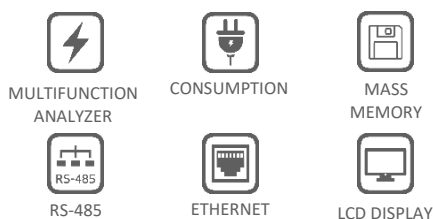


FEATURES

- The **Mult-K Grafic** is an instrument conceived to measure electrical parameters in AC systems, such as energy consumption, current, voltage and others.
- Applicable either on low, mid or high voltage, mono-phase, two-phase or three-phase systems, since it is possible to program the potential and/or current transformer ratios and the connection diagrams.
- Measurement readings can be obtained locally (through a customizable LCD display) or remotely, using RS-485 or Ethernet outputs.
- Equipped with mass memory, which allows the recording of a historical database comprising up to 10 electrical parameters, using a minimum registering interval of 1 minute.

APPLICATIONS

- Submetering
- Energy Efficiency
- Energy Cogeneration systems (4-quadrant metering, delivered and received power)
- Automation systems
- Analysis of electrical circuits and equipment
- Analog Instrument Substitution
- Any application related to energy and electrical parameters measurements



PRODUCT INFO

ELECTRICAL PARAMETERS – 101

- Includes current, voltage, frequency, energy consumption, energy demand, active, reactive and apparent powers, power factor and other parameters.

CONNECTION DIAGRAMS

- Mono-Phase, Two-Phase or Three-Phase systems (configurable)

INSTALLATION

- Panel's Door
- Technical support via e-mail, telephone, WhatsApp and YouTube videos

MASS MEMORY

- Mass memory used to create an internal historical database of the measurements, comprising up to 10 electrical parameters, using a minimum registering interval of 1 minute

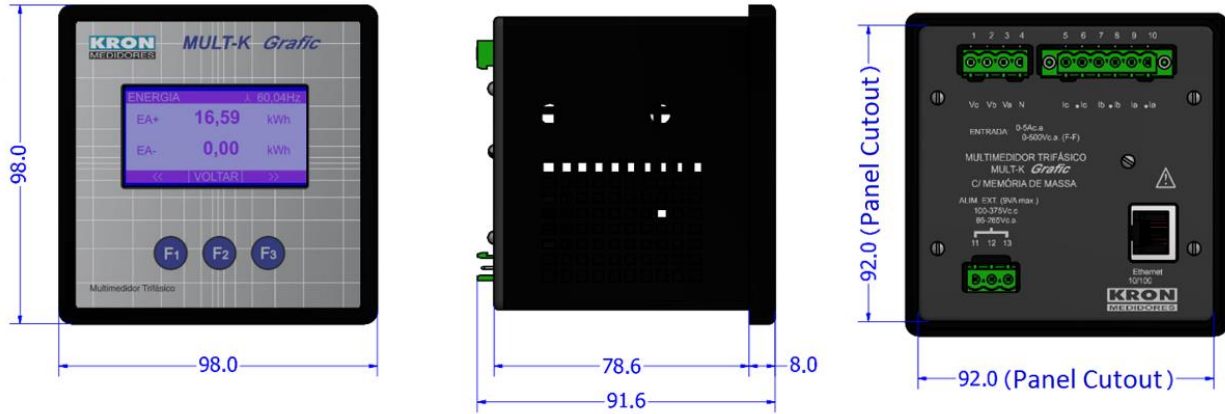
INTERFACES, READINGS & CONFIGURATIONS

- Man Machine Interface (MMI) composed of a customizable LCD display and three navigation keys, allowing local reading and configuration. The user can personalize up to three screens, applying up to three different display patterns
- RS-485 or Ethernet communications
- Softwares for reading and parameterization: RedeMB (RS-485) or RedeMBTCP (Ethernet)
- Modbus-RTU/Modbus-TCP protocols, allowing integration to PLCs, master MMIs, supervisory systems and data concentrators.
- It may include pulse output as an option, for remote reading of active or reactive inductive energy, using wired connection to external device inputs (CLPs, mechanical counters, etc.)

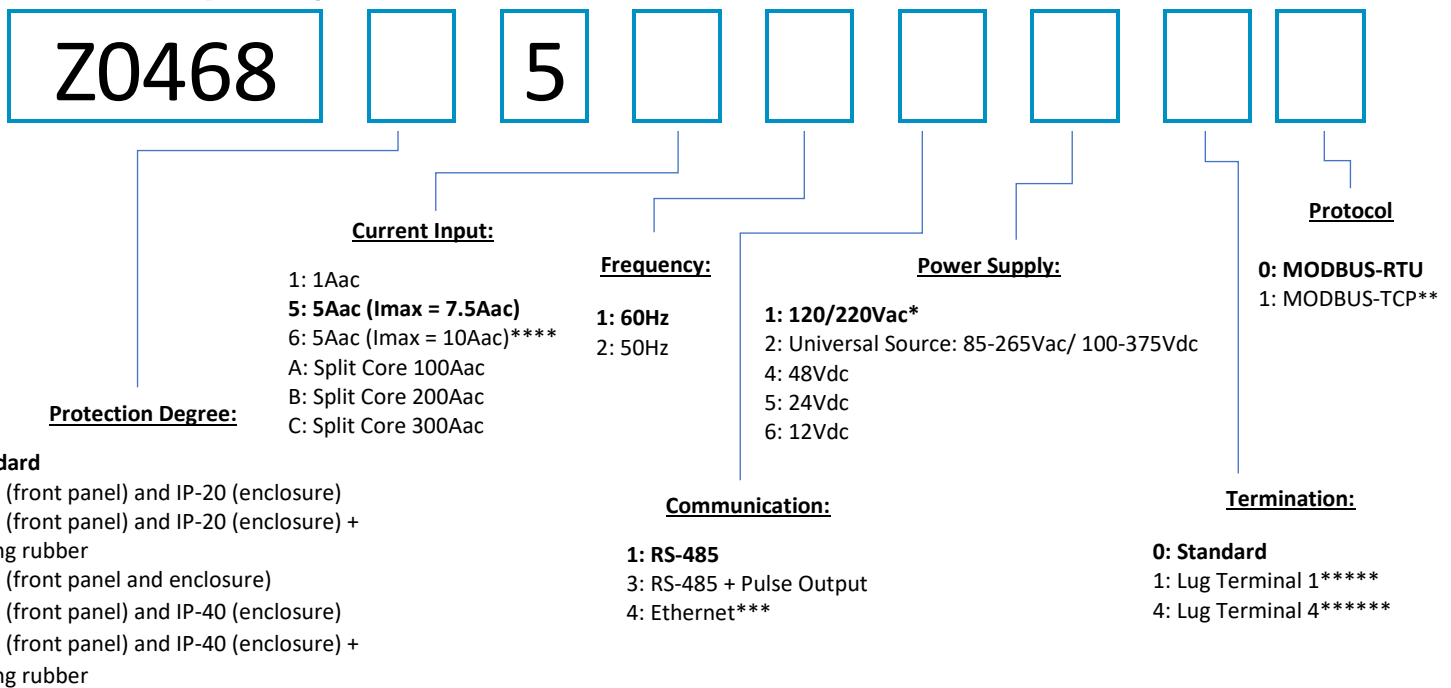
ELECTRICAL GREATNESSES	<i>Instantaneous</i>	Voltage (Ph-Ph, Ph-N and 3Ph), Current (Ph, N and 3Ph), Frequency, Active, Reactive and Apparent Power (Ph and 3Ph), Power Factor (Ph and 3Ph), THD-Voltage and Current (Ph until 31 st order)
	<i>Energy</i>	±Active Energy kWh (Consumption and Supply) ±Reactive Energy kVARh [Inductive (+) and Capacitive (-) Loads] Active and Apparent Demand (Last and Maximum)
	<i>Maximum and Minimum</i>	Voltage(Ph-Ph, Ph-N and 3Ph), Current (Ph, N and 3Ph), Frequency, Active, Reactive and Apparent Power (Ph and 3Ph), Power Factor (Ph and 3Ph) and THD
MEASUREMENTS AND INPUT INFO	<i>Connections Diagrams</i>	Three-Phase (Star or Delta), Two-phase and Single-Phase
	<i>Voltage – Working Range</i>	20 to 500Vac (Ph-Ph) [1.5 Vmax. overload (1s)]
	<i>Current – Working Range</i>	Standard: 20mA to 7.5Aac Imáx.10 A: 50mA to 10Aac Split-Core: 100A 200A 300Aac (minimum: 2% of nominal value)
	<i>Frequency – Working Range</i>	44 to 72 Hz
	<i>Connection</i>	Quick coupling terminal or Lug Terminal (IP-00)
	<i>Maximum Cable to be Used</i>	2.5mm ² for power supply and measurement inputs 1.5mm ² for pulse output
	<i>Internal Consumption</i>	< 0.5VA
POWER SUPPLY	<i>Voltage</i>	85 265Vac/100-375Vdc 110/220Vac (80 to 120% of nominal value) 12Vdc (90 to 120% of nominal value) 24Vdc (80 to 120% of nominal value) 48Vdc (80 to 120% of nominal value)
	<i>Internal Consumption</i>	< 10VA
	<i>Storage Capacity</i>	512kB (58,236 registers for 1 electrical parameter configured)
MASS MEMORY (non-volatile)	<i>Recordable parameters / Interval</i>	Number: Up to 10 Configurable, from 1 to 540 minutes
	<i>Voltage, Current and Powers</i>	0.2%
ACCURACY at 25°C (77 °F), referred to the full scale	<i>Frequency</i>	0.1Hz
	<i>Power Factor and Energies</i>	0.5%
	<i>THD</i>	< 3%
	<i>Connection/Protocol</i>	RS-485 - Modbus RTU Ethernet 10/100 - Modbus TCP/IP
COMMUNICATION	<i>RS-485 Cabling</i>	Shielded cables, with at least two twisted pairs (2x24 AWG), minimum section of 0.25mm ² and characteristic impedance of 120ohms
	<i>Transmission Speed</i>	9600, 19200, 38400 or 57600bps (configurable)
	<i>Data Format</i>	8N1, 8N2, 8E1 or 8O1 (configurable)
	<i>Addressing</i>	1 to 247 (configurable)
	<i>LCD (blue)</i>	128x64 pixels, with backlight
DISPLAY	<i>Custom Screens</i>	Number of Screens: Up to 3 Patterns: 3 distinct patterns (1, 3 or 6 instantaneous measurements)
	<i>Parameters</i>	Positive Active Energy and Positive Reactive Energy (inductive load)
PULSE OUTPUT	<i>Type</i>	Open Collector Voltage required (external source): 12 to 24 Vdc Pulse width: 200ms Maximum Current: 1mA Maximum Frequency: 1Hz
	<i>Material</i>	Thermoplastic
CASE	<i>Mass</i>	0.5kg
	<i>Protection Degree</i>	IP-40 for front panel and IP-20 for enclosure
	<i>Temperature</i>	Operation:0 to 60°C (32 to 140°F) Storage: -25 to 60°C (-13 to 140°F)
ENVIRONMENTAL CONDITIONS	<i>Relative Air Humidity</i>	Maximum of 90% (without-condensation)
	<i>Temperature Coefficient</i>	50ppm/°C
	<i>Electrical Parameters</i>	IEC 61000-4-2 IEC 61000-4-3 IEC 61000-4-4 IEC 61000-4-5 IEC 61000-4-6 IEC 61000-4-8 IEC 61000-4-11 CISPR 11
STANDARDS		

- For further information, see User Manual

DIMENSIONS



How to Specify:



* Not applicable for models with lug terminals ** Only for models with Ethernet output *** Provided exclusively with universal source
 **** Provided exclusively with Lug Terminal 1 and RS-485 output ***** Lug Terminal 1 is only applicable in models with RS-485 output
 ***** Lug Terminal 4 is only applicable in models with In = 5Aac (Imax = 7.5Aac) or Split Core sensors and Ethernet output

The bold signaled items indicate the standard options, which have higher stock availability.

Standard Model: (Example)

Z04 6 8 1 5 5 2 1 1 0 0

Mult-K Grafic {Protection Degree - Standard} {Current Input 5Aac} {Frequency 50Hz} {RS-485 output} {Power Supply 110/220Vac} {Termination - Standard} {Modbus-RTU - Protocol}

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 For correct utilization of the product, the User Manual must be consulted before its installation or operation.
 Some items presented here may be optional, being necessary the correct product specification by their code.

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