



### FEATURES

- The **Mult-K NG** is a Power Quality Analyzer, conceived for measuring and recording campaigns of Steady-State Voltage, which procedures are stated in the ANEEL's PRODIST - Module 8, a Brazilian standard. Calculations of the electrical parameters are performed in accordance to the ABNT NBR IEC 61000-4-30 - **Class S**, IEC61000-4-7 (harmonics) and IEC 61000-4-15 (flicker) standards.
- 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 an LCD display) or remotely, using the RS-485 or Ethernet outputs for communication.
- Includes multifunction analyzer features, like measurements of active and reactive energies and calculation of active and apparent demands.

### APPLICATIONS

- Steady-State Voltage campaigns – PRODIST Module 8.
- Determination of load profiles/historical behavior of electrical circuits
- Power Quality evaluations, statistics and reports
- Submetering and Energy Efficiency
- Energy Cogeneration systems (4-quadrant metering, delivered and received power)
- Analysis of electrical circuits and equipments
- Any application related to energy and electrical parameters measurements



POWER  
QUALITY



MULTIFUNCTION  
ANALYZER



CONSUMPTION



AGGREGATION  
MEMORY



LCD



RS-485



ETHERNET

### PRODUCT INFO

#### PRODIST – MODULE 8 – REV. 11 – POWER QUALITY

- Steady-State Voltage (measurement campaign)
- SSV histograms
- DRP (precarious values) and DRC (critical values)
- Short-Term Voltage Variations (classification of PQ events - Sag, Swell, Interruptions)
- Impact factor calculation
- Frequency variations, with recording of minimum and maximum values
- Voltage unbalance
- Voltage fluctuations (PST- Flicker)
- Voltage and Current THD (total, even, odd and multiples of third order) and Harmonics
- Percentile values for voltage unbalance, flicker and THD

#### INSTALLATION

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

#### PQ EVENTS AND AGGREGATIONS RECORDING

- Contains specific non-volatile memories to record voltage events and aggregated parameters

#### INTERFACES, READINGS & CONFIGURATIONS

- Man Machine Interface (MMI) composed of an LCD display and three navigation keys, allowing local reading and setting/checking of configuration parameters
- RS-485 and Ethernet communications
- Softwares for reading and configuring: RedeMB (RS-485) and RedeMB-TCP(Ethernet)
- MODBUS-RTU,MODBUS-TCP/IP protocols, allowing integration to PLCs, master MMIs, data concentrators and supervisory systems

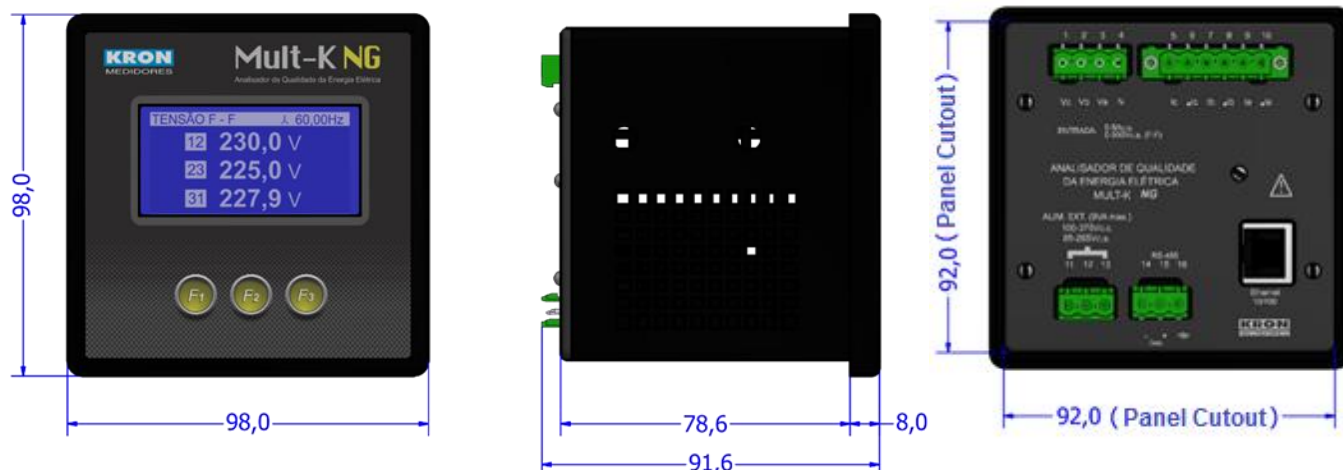
#### CONNECTION DIAGRAMS

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

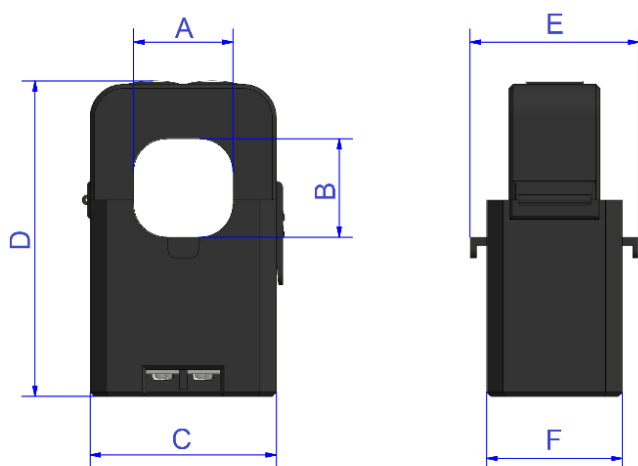
<b>ELECTRICAL GREATNESSES</b>	<i>Instantaneous</i>	Voltage (Ph-Ph, Ph-N and 3Ph), Current (Ph, N and 3Ph), Frequency, Active, Reactive and Apparent Power (Ph and 3Ph), Power Factor, Displacement Power Factor (Ph and 3Ph), THD-Voltage and Current (Ph until 40 <sup>th</sup> order), Angles between phases (Voltage and Current), Pinst
	<i>Energy</i>	±Active Energy kWh (Consumption and Supply) ±Reactive Energy Varh [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 and Displacement Power Factor (Ph and 3Ph) and THD
<b>POWER QUALITY</b>	<i>Standard</i>	Prodist - Module 8, Revision 11
	<i>PQ Parameters</i>	Steady-State Voltage (Measurement Campaign – 1008 Readings) Harmonics, Voltage and Current (Ph until 40 <sup>th</sup> order) THD, TEHD, TOHD and TTHD, Voltage and Current (Ph) Short-Term Voltage Variations (PQ events - Sag, Swell, Interruptions) Voltage unbalance (%), PST and PLT (Flicker), Impact Factor (PQ events)
	<i>PQ events recording (duration)</i>	Minimum of 1 cycle (16,66 milliseconds)
<b>MEASUREMENTS AND INPUT INFO</b>	<i>Samples per Cycle</i>	128
	<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   1A: 20mA to 1Aac Split-Core: 100A   200A   300Aac (minimum: 2% of nominal value)
	<i>Frequency – Working Range</i>	50Hz: 42.5 to 57.5 Hz   60Hz: 51 to 69 Hz
	<i>Connection</i>	Quick coupling terminal or Lug Terminal (IP-00)
	<i>Maximum Cable to be Used</i>	2,5mm <sup>2</sup> for power supply and measurement inputs
<b>POWER SUPPLY</b>	<i>Internal Consumption</i>	<0.5VA
	<i>Voltage</i>	Standard: 85-265Vac/100-375Vdc Optional: 110/220Vac (80 to 120% of nominal value)
	<i>Internal Consumption</i>	< 10 VA
<b>AGGREGATION MEMORY (non-volatile)</b>	<i>Storage Capacity</i>	2MB (Maximum of 4 SSV measurement campaigns, 1008 readings each)
	<i>Recording Interval/Recording modes</i>	10minutes (Class S – 10 minutes aggregations)   Circular (FIFO) or Linear
	<i>294 parameters (In accordance to Prodlist - Module 8)</i>	<b>Voltage</b> = V1, V2, V3 (also Min.,Max.)   Hz (Min., Max)   Voltage unbalance (%)   THD, TEHD(even), TOHD(odd), TTHD (triplens) - V1, V2, V3(%)   Harmonics V1, V2,V3 (%) – 2nd to 40th order   PST and PLT (Phases 1, 2 and 3)   Number of PQ events over a measurement campaign – MVV, TVV and LVV <b>Current</b> = I1, I2, I3 (also Min.,Max.)   THD, TEHD(even), TOHD(odd), TTHD (triplens) - I1,I2,I3(%)   Harmonics I1,I2,I3 (%) – 2nd to 40th order <b>Powers</b> = Displacement PF - DPF1,DPF2,DPF3 and DPF0   P1, P2, P3 and P0   Q1, Q2, Q3 and Q0   S1, S2, S3 and S0
<b>ACCURACY at 25°C (77 °F), referred to the full scale</b>	<i>Voltage and Power Factors</i>	0.5%
	<i>Current, Powers and Energies</i>	1.0%
	<i>Frequency</i>	±0.05Hz
	<i>THD and Harmonics</i>	± 5% * tests based on references described in <b>Table 4 - item 4.6.2 of ANEEL Prodlist resolution - Module 8, Revision 7 and in Table 1, item 5.3 of IEC 61000-4-7 - 2002-08</b>
<b>COMMUNICATION</b>	<i>Connection/Protocol</i>	RS-485: Modbus-RTU   Ethernet: Modbus TCP/IP
	<i>RS-485 Cabling</i>	Shielded cables, with at least two twisted pairs (2x24 AWG), minimum section of 0.25mm <sup>2</sup> and characteristic impedance of 120ohms
	<i>Transmission Speed</i>	RS-485: 9600, 19200, 38400 or 57600bps (configurable)   Ethernet: 10/100 Mbits/s
<b>DISPLAY</b>	<i>Adressing   Data Format (RS-485)</i>	1 to 247 (configurable)   8N1, 8N2, 8E1 or 8O1 (configurable)
	<i>LCD (blue)</i>	128x64 pixels, with backlight
<b>CASE</b>	<i>Material</i>	Thermoplastic
	<i>Mass</i>	0.5kg
	<i>Protection Degree</i>	IP-40 for front panel and IP-20 for enclosure
<b>ENVIRONMENTAL CONDITIONS</b>	<i>Temperature</i>	Operation: 0 to 60°C (32 to 140°F)   Storage: -25 to 70°C (-13 to 158°F)
	<i>Maximum Altitude</i>	1000 meters
	<i>Relative Air Humidity</i>	Maximum of 90% (without condensation)
	<i>Temperature Coefficient</i>	50ppm / °C
<b>STANDARDS</b>	<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 61000-4-7 IEC 61000-4-8 IEC 61000-4-11 IEC 61000-4-15 IEC 61000-4-30 "Class S" CISPR 11

- For further information, see User Manual

### DIMENSIONS

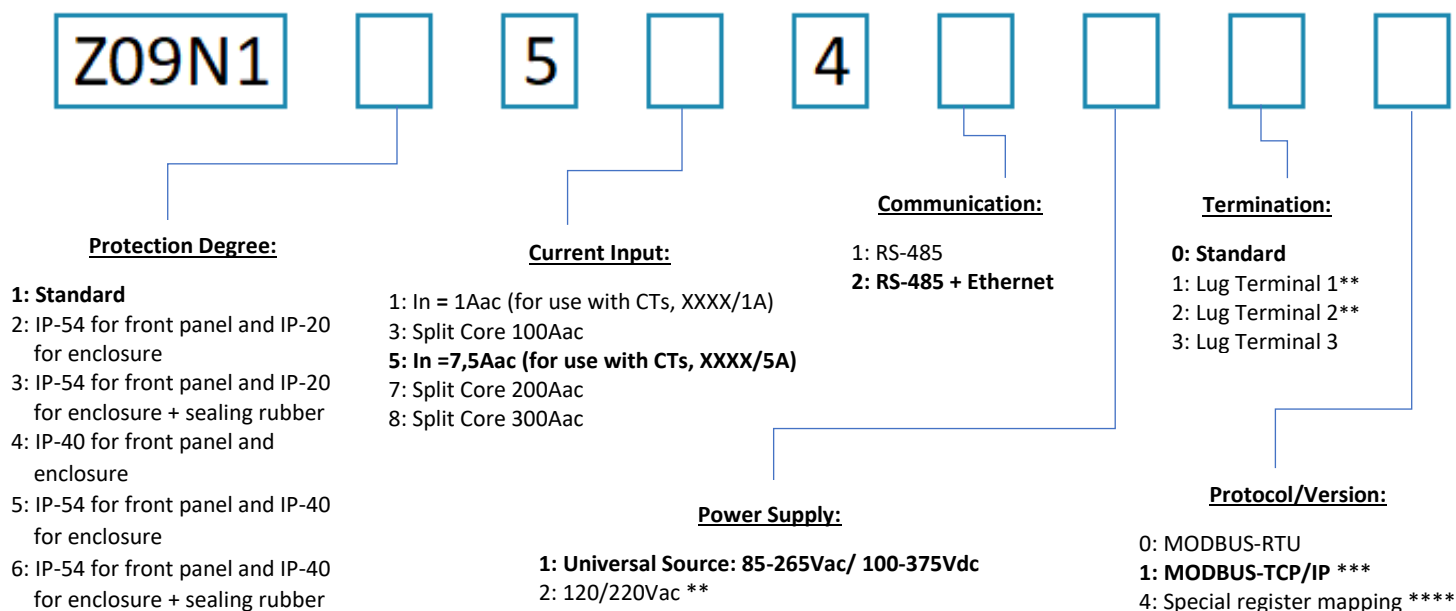


### Split Core



	A	B	C	D	E	F
<b>Model</b>						
<b>100A</b>	16	16	29,5	55	31	31
<b>200, 300A</b>	24	24	45	74,5	34	34

### How to Specify:



\*\* Not applicable for units with Ethernet output.

\*\*\* Only for units equipped with Ethernet output (Includes Modbus-RTU protocol for RS-485).

\*\*\*\* Version with special register mapping for communication, data encoded in UINT and INT standards, 12 and 16 bits, using the "0x03 - Read Holding Register" function for reading info; this feature is also associated to the inclusion of the aggregation memory and, consequently, the accordance to the requirements of Prodist in its current revision.

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

**Standard Model:** (Example)

**Z09N1 1 5 5 4 2 1 0 1**

Mult-K NG {Protection Degree - Standard} {Current Input 7,5A} {RS-485 + Ethernet} {Universal Source} {Termination - Standard} {Modbus-TCP/IP Protocol}

©2021 Kron Instrumentos Ltda - The information contained in this technical sheet is subject to changes without previous notice.

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.

**Kron Instrumentos Elétricos Ltda.**

Rua Alexandre de Gusmão, 278 - São Paulo, SP | Brasil

Phone: 55 (11) 5525-2000 | www.kron.com.br | suporte@kron.com.br | vendas@kron.com.br