Mult-K NG AQE 02

Power Quality Analyzer (For installing in Light Poles)

Technical Datasheet


POWER SUPPLY


LIGHT POLE


MULTIFUNCTION ANALYZER


SPLIT-CORE


CONSUMPTION


AGGREGATION MEMORY


LCD


USB

FEATURES

- The **Mult-K NG AQE 02** 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, IEC610000-4-7 (harmonics) and IEC 61000-4-15 (flicker) standards.
- Designed for installing in Light Poles, the Mult-K NG AQE 02 is provided with: Flexible Rogowski clamps, for current measuring up to 3000 Aac, Split Core transformers, for current measuring up to 600Aac and Alligator clips for voltage measuring.
- Measurement readings can be obtained locally (through an LCD display) or remotely, using the RS-485 output for communication.
- Includes multifunction analyzer features, like measurements of active and reactive energies and calculation of active and apparente demands.

APPLICATIONS

- Steady-State Voltage campaigns – PRODIST Module 8
- Determination of load profiles/historical behavior of electrical circuits
- Power Quality evaluations, statistics and reports
- Analysis of electrical circuits and equipments
- Any application related to energy and electrical parameters measurements

PRODUCT INFO

PRODIST – MODULE 8 – REV. 10 – POWER QUALITY

- Steady-State Voltage (measument 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

- For installing in Light Poles
- IP-65 (outdoor use)
- Flexible Rogowski sensors and Split Core transformers for Current measuring
- Alligator Clips for Voltage measuring
- 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, essential informations for power quality analysis

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 communication
- Software for reading and configuring: RedeMB
- MODBUS-RTU protocol, allowing integration to PLCs, master MMIs, data concentrators and supervisory systems

CONNECTION DIAGRAMS

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

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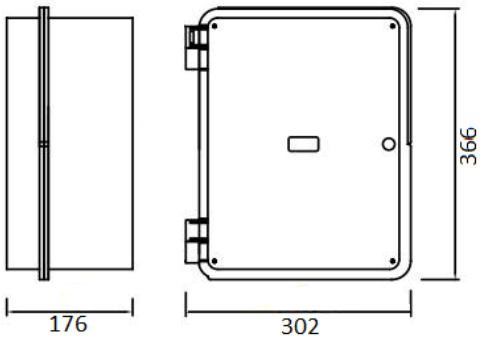
ELECTRICAL GREATNESSES	*Instantaneous*	Voltage (Ph-Ph, Ph-N and 3Ph), Current (Ph, N and 3Ph), Frequency, Active, Reactive and Apparent Power (Ph and 3Ph), Power Factor, Displacement Power Factor (Ph and 3Ph), THD-Voltage and Current (Ph until 40 th order), Angles between phases (Voltage and Current), Pinst
	Energy	±Active Energy kWh (Consumption and Supply) ±Reactive Energy Varh [Inductive (+) and Capacitive (-) Loads] Active and Apparent Demand (Last and Maximum)
	Maximum and Minimum	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
POWER QUALITY	*Standard*	Prodist - Module 8, Revision 11
	PQ Parameters	Steady-State Voltage (Measurement Campaign – 1008 Readings) Harmonics, Voltage and Current (Ph until 40 th 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)
	PQ events recording (duration)	Minimum of 1 cycle (16,66 miliseconds)
	Samples per Cycle	128
MEASUREMENTS AND INPUT INFO	*Connections Diagrams*	Three-Phase (Star or Delta), Two-phase and Single-Phase
	Voltage – Working Range	60 to 280Vac [1.5 Vmax overload (1s)]
	Current – Working Range	1 ~ 100% of sensor's nominal current Rogowski (In): 1000, 2000 or 3000Aac | Split Core (In): 10, 100, 200 or 600Aac
	Frequency – Working Range	50Hz: 42.5 to 57.5 Hz | 60Hz: 51 to 69 Hz
	Connection/cable length	Voltage: Alligator Clips (Dolphin type) - 2 meters long Current: Split Core - 1.5 meters long , Rogowski - 2 meters long
	Cabling – ID/Color Representation	Voltage: Blue - Va White - Vb Red - Voltage Vc Black - Neutral Current sensors: Each sensor has a phase identification label attached to its body
	Internal Consumption	< 10 VA
AGGREGATION MEMORY (non-volatile)	*Storage Capacity*	2MB (maximum of 4 SSV measurement campaigns, 1008 readings each)
	Recording Interval /Recording modes	10minutes (Class S – 10 minutes aggregations) | Circular (FIFO) or Linear
	294 parameters (In accordance to Prodist - Module 8)	**Voltage** = 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 **Current** = I1, I2, I3 (also Min.,Max.) | THD, TEHD(even), TOHD(odd), TTHD (triplens) - I1,I2,I3(%)| Harmonics I1,I2,I3 (%) – 2nd to 40th order **Powers** = Displacement PF - DPF1,DPF2,DPF3 and DPF0 | P1, P2, P3 and P0 | Q1, Q2, Q3 and Q0 | S1, S2, S3 and S0
POWER SUPPLY	*Voltage*	Self-powered (signal obtained from measurement circuit): 60 to 280Vac
ACCURACY at 25°C (77 °F), referred to the full scale	*Voltage*	0.5% (usually 0.2%)
	Current, Powers and Energies	Analyzer: ± 1.0% | Current Sensors: ± 1.0%
	Power Factors	Analyzer: ± 1.0% | Current Sensors: ± 1.0%
	Energies	Analyzer: <= 1.0% | Current Sensors: ± 1.0%
	Frequency	±0.05Hz
	THD and Harmonics	Voltage: ±5.0%|Current: ±5.0% + 1% (current sensors) * tests based on references described in **Table 4 - item 4.6.2 of ANEEL Prodist resolution - Module 8, Revision 7 and in Table 1, item 5.3 of IEC 61000-4-7 - 2002-08.**
COMMUNICATION	*Connection/Protocol*	RS-485/USB: Modbus RTU
	Transmission Speed	9600, 19200, 38400 or 57600bps (configurable)
	Adressing /Data Format	1 to 247 (configurable) | 8N1, 8N2, 8E1 or 8O1 (configurable)
DISPLAY	*LCD (blue)*	128x64 pixels, with backlight
CASE	*Material/Mass*	Thermoplastic | 5Kg
	Protection Degree	Case: IP-65 | Current sensors: IP-20 | Voltage Clips: CAT III
ENVIRONMENTAL CONDITIONS	*Temperature*	Operation: 0 to 60°C (32 to 140°F) | Storage: -25 to 70°C (-13 to 158°F)
	Maximum Altitude	1000 meters
	Temperature Coefficient	50ppm/°C
	Relative Air Humidity	Maximum of 90% (without condensation)
STANDARDS	*Electrical Parameters*	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 "Classe S" CISPR 11

- *For further information, see User Manual*

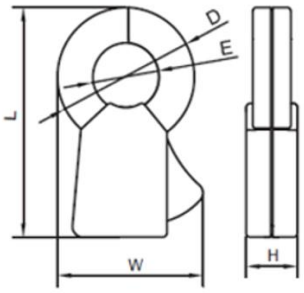
DIMENSIONS

Mult-K NG AQE



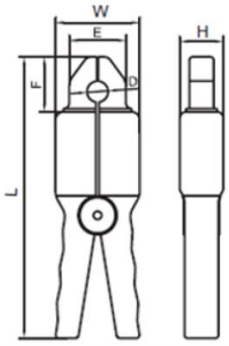
Current Sensors – Split Core

KR-10 (0,1 -10A ac), KR-100 (1 - 100 A ac)



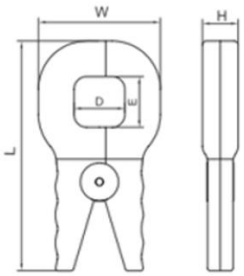
Currents up to 100Aac				
L	W	H	D	E
87	50	19,5	52	25

KR-200 (2 - 200A ac)



Currents up to 200Aac					
L	W	H	D	E	F
180	52	27	20	42	40,2

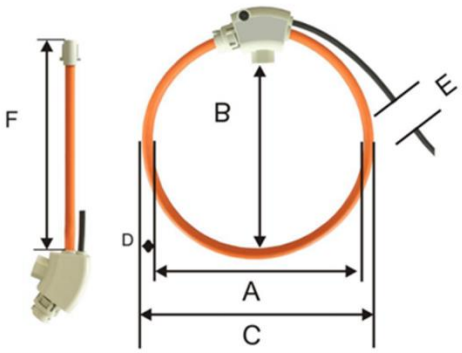
KR - 400 (4 - 400A ac), KR-600 (6 - 600A ac)



Currents up to 600Aac				
L	W	H	D	E
183	96	24	60	60

Current Sensors – Rogowski clamps

1000/2000/3000A a.c.



	A	B	C	D	E	F
Dimensions in mm	210	200	226	8	2000	665

Dimensions in milimeters

NOTES:

- The split core's internal diameter and its opening space have the same dimensions.
- It is possible to supply the analyzer with 1 of the flexible sensor options simultaneously to 1 of the split core options; please consult technical support if you are interested in this configuration.
- The current sensors option must be defined during the ordering process.

How to Specify:

Current Sensors

52: 10Aac, Split Core
5E: 100Aac, Split Core
5F: 200Aac, Split Core
5G: 600Aac, Split Core

60: 1000Aac, Flexible Sensor
70: 2000Aac, Flexible Sensor
80: 3000Aac, Flexible Sensor

62: 10Aac, Split Core + 1000Aac, Flexible Sensor
6E: 100Aac, Split Core + 1000Aac, Flexible Sensor
7E: 100Aac, Split Core + 2000Aac, Flexible Sensor
8E: 100Aac, Split Core + 3000Aac, Flexible Sensor

Data Recording

3: E-31 -> Subdivided Memory **

5: E-33 -> Aggregation Memory

Communication

1: RS-485 to USB cable (standard item, always provided)
4: USB cable + GPRS modem*
5: USB cable + RS-485 to Ethernet converter*

** Ordering upon consultation, please contact technical support*
*** This model contains a special algorithm for memory management, using 'area' divisions to record data. It also includes an OLED display and their measurements are performed in accordance to the procedures described in Prodist - module 8, up to Revision 7. For further information, please contact*

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

Standard Model: (Example)

Z11NP1 6E 5 1 100
Mult-K NG AQE 02 {100Aac Split Core + 1.000Aac, Flexible Sensor, Ø = 200mm } {Aggregation Memory} {RS-485 to USB cable}

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