KONECT GRAFIC

Energy Meter and Multifunction Analyzer

Technical Datasheet

MULTIFUNCTION ANALYZER | CONSUMPTION | Wi-Fi | LoRa | IoT - MQTT

RS-485 | ETHERNET | MEMORY | APP | I/O

DISPLAY LCD | ALARMS | TIME OF DAY MEASUREMENTS AND MULTI-TARIFF

FEATURES

- The **Konect Grafic** is a Multimeter for electrical quantities designed for three-phase, two-phase, and single-phase alternating current (AC) systems, with panel door installation.
- Applicable for measurements at low, medium, or high voltage, through the programming of connection schemes and the ratios of Voltage and Current Transformers.
- Also applicable in **IoT (Internet of Things) and Industry 4.0** systems, as it allows integration with various platforms such as Amazon AWS, Microsoft Azure, TagoIO, among others.
- Communication through **Wi-Fi connections (MQTT and Modbus TCP), Ethernet (MQTT and Modbus TCP), Bluetooth (Modbus RTU), LoRa (LoRaWAN), and RS-485 (Modbus RTU).** Data can be made available locally or remotely, through software, apps, mobile phones, tablets, dashboards, supervisory systems, or web platforms.
- Features a data concentrator function, gathering information from other devices such as water, gas, and oil meters. It includes a digital relay output for sending commands in control systems (ON/OFF).
- Equipped with mass memory for recording of a historical database comprising up to 20 electrial parameters, using a minimum interval of 1 minute.
- Alarm and consumption control function with relay activation and logging, facilitating the load curve survey.
- Power fail alarm records the meter shutdown times

APPLICATIONS

- IoT, Industry 4.0, and Automation Systems
- Energy Efficiency and Cost Allocation
- Energy Cogeneration Systems (measurement in all four quadrants)
- Analysis of Circuits and Electrical Equipment
- Any application involving measurement of electrical parameters

PRODUCT INFO

ELECTRICAL PARAMETERS (104 parameters)

- Includes current, voltage, frequency, energy consumption, demands, powers (active, reactive, and apparent), power factor, and others.

CONNECTION DIAGRAMS

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

INSTALLATION

- Painel Door
- Technical support via e-mail, telephone, WhatsApp and YouTube videos.

MASS MEMORY

- Mass Memory for generating a history of the behavior of up to 20 parameters, with minimum intervals of 1 minute between recordings. Can be used with buffering capabilities

TIME-OF-USE MEASUREMENT AND MULTI-TARIFF

- Measurement of energy and demand during peak hours, off-peak hours, and reserved periods

ALARMS

- Load Curve Assessment
- Consumption Control
- *Power Fail* (Electrical Failure)

INTERFACES, READINGS & CONFIGURATIONS

- HMI composed of a display (LED) and navigation keys, allowing local reading and configurations.
- Data outputs through Ethernet, RS-485, Bluetooth, Wi-Fi, and LoRa.
- Protocols: MODBUS-RTU, MODBUS-TCP/IP, MQTT, and LoRaWAN protocols.
- Free software for reading and configuration: RedeMB (RS-485 and Bluetooth), RedeMB-TCP (Ethernet and Wi-Fi), Android system App (MQTT and Bluetooth).
- Application in IoT and Industry 4.0 systems, connection to MQTT Broker. Integration with Dashboards, Apps, and other IoT tools.
- Integration with PLCs, external HMIs, supervisory systems, and concentrators (Modbus-RTU/Modbus-TCP).

WATER, GAS, OIL, COMMANDS....

- Up to 3 digital inputs for external pulse concentration, generated by input meters (such as water, gas). Up to 2 digital relay outputs for sending commands (On/Off).

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ELECTRICAL GREATNESSES	*Instantaneous*	Voltage (Ph-Ph, Ph-N, and 3Ph), Current (Ph, N, and 3Ph), Frequency, Active Power (Ph and 3Ph), Apparent Power (Ph and 3Ph), Reactive Power (Ph and 3Ph), Power Factor (Ph and 3Ph).
	Energy	±Active Energy kWh (Consumption and Supply, Single-phase and Three-phase) ±Reactive Energy kVARh [Inductive (+) and Capacitive (-) Loads, Single-phase and Three-phase] Apparent Energy kVAh (Single-phase and Three-phase) Demand for Active, Reactive, and Apparent Power (Last and Maximum) Current Demand (Last and Maximum)
	Maximum and Minimum	Voltage, Current, Powers, Power Factor(Ph and 3F)
MEASUREMENTS AND INPUT INFO	*Connections Diagrams*	Three-Phase (Star and Delta), Two-phase and Single-Phase
	Voltage – Working Range	20 to 500Vac (Ph-Ph) (1.5 Vmax overload (1s))
	Current – Working Range	5A: 0,05 a 7,5A 100A: 0,3 a 100A (Split-Core) 300A: 0,3 a 300A (Split-Core) 600A: 0,3 a 600A (Split-Core) 1000A: 1,5 a 1000A (Split-Core) 2000A: 1,5 a 2000A (Split-Core)
	Frequency – Working Range	45~65 Hz
	Connection	Terminal Blocks: Quick coupling terminal (IP-00)
	Maximum Cable to be Used	2.5mm² for power supply, voltage measurement, inputs, and output
	Internal Consumption	< 0,5VA
POWER SUPPLY	*Voltage*	85-265Va.c./100-350Vd.c.
	Internal Consumption	< 10VA
ACCURACY at 25°C (77 °F), referred to the full scale	*Voltage and Frequency*	0,5%
	Current, Powers, Power Factor and Energies	0.5% for measurement (5A working Range model) 1% for measurement on Split Core
SAMPLING	*Samples per Cycle*	256
	measurement interval	600ms
COMMUNICATION	*Connection/Protocol*	Wi-Fi and Ethernet: Modbus-TCP & MQTT RS-485 e Bluetooth: Modbus RTU LoRa: LoRaWAN (LA915-928A)
	RS-485 Cabling	Shielded cables, with at least two twisted pairs (2x24 AWG), minimum section of 0.25mm² and characteristic impedance of 120ohms.
	Transmission Speed	RS-485: 9600 or 19200 (configurable) Ethernet: 10/100 Mbits/s
	Addressing/ Data Format	1 a 247 | 8N1, 8N2, 8E1 or 8O1 (configurable)
IoT DATA PUBLISHING AND MASS MEMORY	*Data storage and publication interval*	Minimum 1 minute (resolution only in minutes)
	Quantity	Up to 20 variables*
	Memory capacity	16MB
I/O	*Up to 3 Digital Inputs*	Type: Open Collector |Voltage required: 12~24Vdc Maximum Frequency: 2Hz | Admittable pulse width: 200ms
	Up to 2 Digital Outputs	Relay Output, 250V – 2A (Ac or Dc)
DISPLAY	*LCD*	128x64 pixels with backlight
CASE	*Material*	Thermoplastic
	Mass	0,5 Kg
	Protection Degree	IP-40
ENVIRONMENTAL CONDITIONS	*Operation Temperature*	Operation: -10 a 60 °C (14 to 140°F) | Storage : -25 a 60 °C (-13 to 140°F)
	Relative Air Humidity	Maximum of 85% (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 61000-4-8 IEC 61000-4-11 CISPR 11
	Wi-Fi	IEE 802.11 b, g, n |Anatel Certification - 02152-20-11541
	LoRa	Anatel Certification - 05658-18-08488

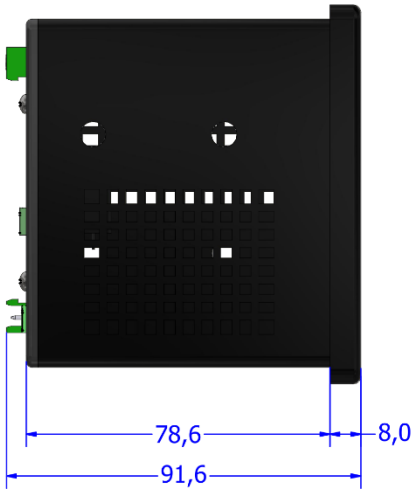
20 variables for communication via Wi-Fi or Ethernet and 10 parameters for LoRa.

- ***For further information, refer to the Technical Manual.***

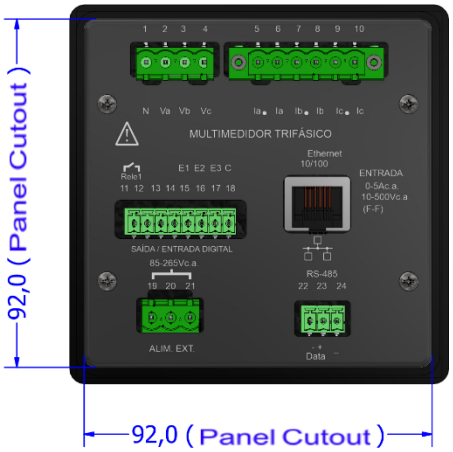
DIMENSIONS

Front View

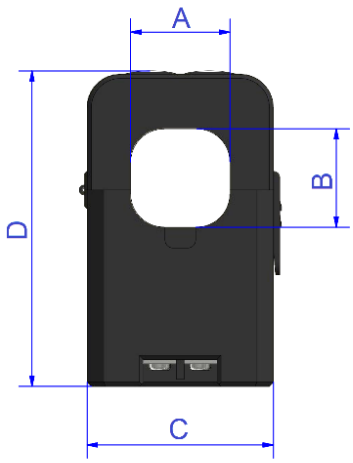
Side View

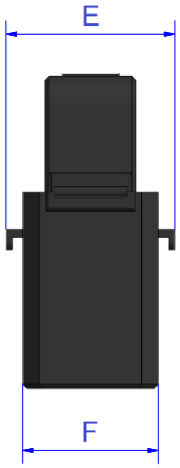


Panel Cutout



Split Core

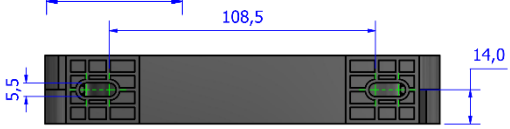


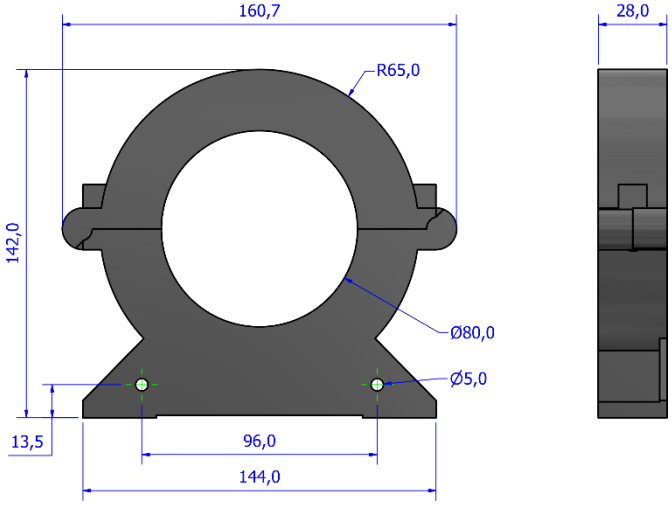


	A	B	C	D	E	F
Model						
100A	16	16	29,5	55	31	31
200, 300A	24	24	45	74,5	34	34
600A	36,0	36,0	56,7	92,6	48,4	39,8

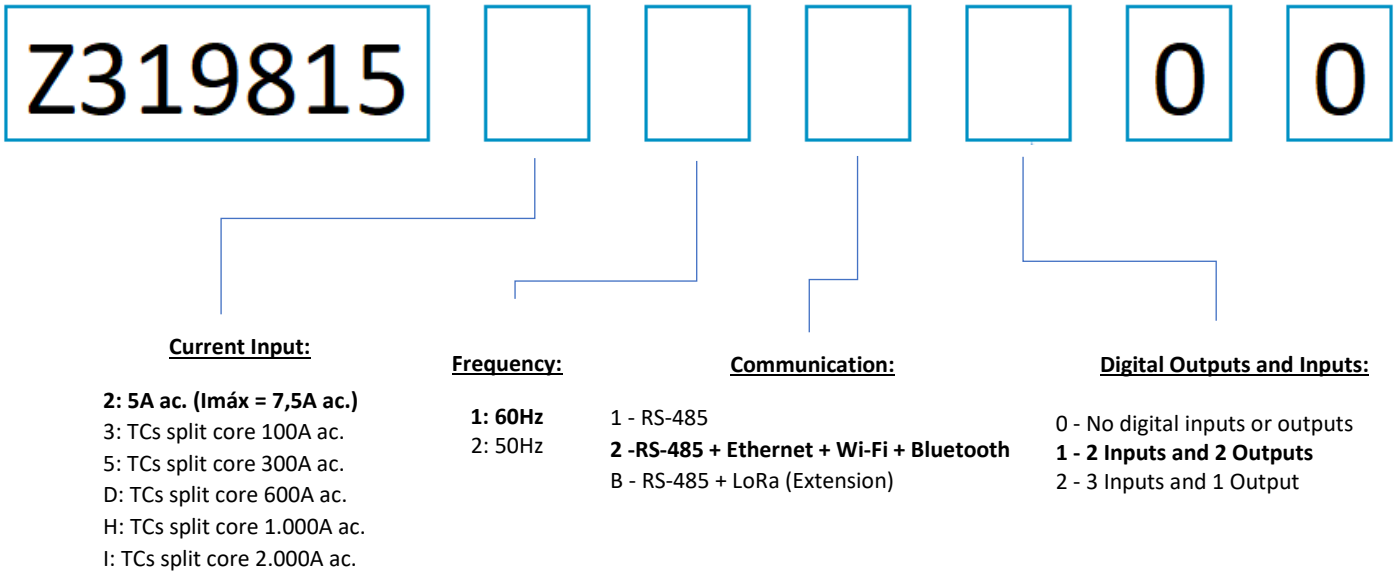
Dimensions in milimeters

1000A, 2000A





How to Specify:



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

Standard Model: (Example)

Z319815 2 1 2 1 0 0

Konect Grafic {5A ac} {Frequency 60Hz} {Communication RS-485 + Ethernet + Wi-Fi + Bluetooth} {2 Digital Inputs and 2 Digital Outputs}

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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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