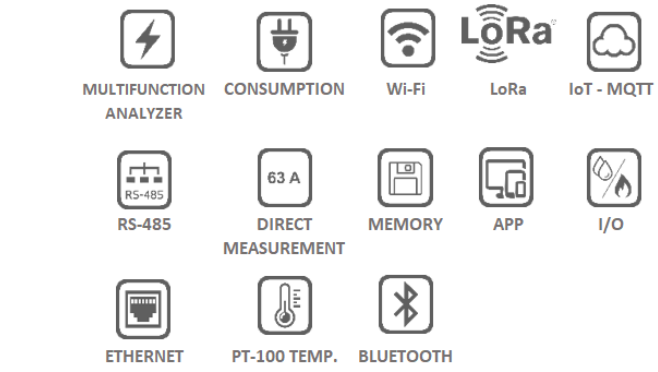
KONECT

Energy Meter and Multifunction Analyzer

Technical Datasheet



FEATURES

- The **Konect** 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. Also available in a configuration intended to directly measure currents up to 63Ac.a, which does not require external current transforms.
- Besides its electrical measurement functions, can be used as a data concentrator, receiving signals generated by other resources's meters/sensors, like water, gas or oil meters, field transducers and PT-100 temperature sensors. Incorporates two digital outputs (relay) for remote commands (ON/OFF).
- Measurement readings can be obtained locally (through an LCD display) or remotely, using RS-485, Ethernet, Bluetooth, Wi-Fi or LoRa interfaces for data communication.
- Suitable for use in IoT and 4.0 Industry solutions, integration via MQTT protocol (Ethernet Output or Wi-Fi connection) or Lora.
- Equipped with mass memory, which allows the recording of a historical database comprising up to 20 electrical parameters, using a minimum registering interval of 1 minute.

APPLICATIONS

- Submetering
- Energy Efficiency
- IoT and 4.0 Industry
- Energy Cogeneration systems (4-quadrant metering, delivered and received power)
- Automation systems
- Analysis of electrical circuits and equipment
- Any application related to energy and electrical parameters measurements.

PRODUCT INFO

ELECTRICAL PARAMETERS - 63

- 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 Background, 35 mm DIN Rail Fastening.
- Technical support via e-mail, telephone, WhatsApp and YouTube videos.

WATER, GAS, OIL, TEMPERATURE, COMMANDS…

- Three digital inputs for concentration of external pulses, generated by other resources meters (like water, gas and oil). Two analog inputs (4-20 mAdc or 0-10Vdc) for collecting signals from field transducers, and one PT-100 input for temperature measurement. Two digital outputs (relay) for remote commands (On/Off).

MASS MEMORY

- Mass memory used to create an internal historical database of the measurements, comprising up to 20 electrical parameters, using a minimum registering interval of 1 minute.

INTERFACES, READINGS & CONFIGURATIONS

- Man Machine Interface (MMI) composed of an LCD display and two navigation keys, allowing local reading and configuration checking.
- RS-485, Ethernet, Bluetooth or Wi-Fi communications.
- MODBUS-RTU, MODBUS-TCP/IP and MQTT protocols.
- Softwares for reading and parameterization: RedeMB (RS-485 and Bluetooth), RedeMB-TCP (Ethernet or Wi-Fi), Android Apps (MQTT/Bluetooth).
- Use in IoT systems and 4.0 Industry, via MQTT Broker. Integration to Dashboards, Apps and other IoT tools.

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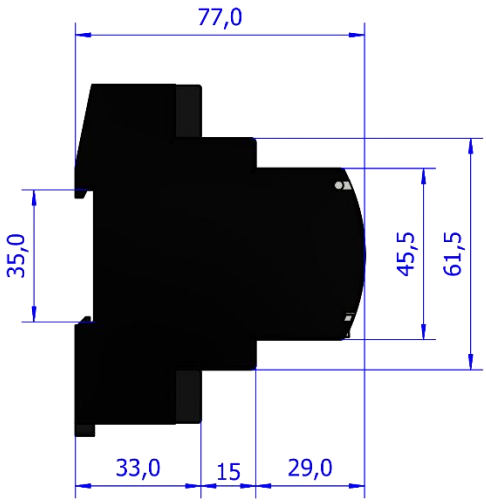
ELECTRICAL GREATNESSES	*Instantaneous*	Voltage (Ph-Ph, Ph-N and 3Ph), Current (Ph, N and 3Ph), Frequency, Active, Reactive and Apparent Power (Ph and 3Ph), Power Factor (Ph and 3Ph), THD-Voltage and Current (Ph until 40 th order)
	Energy	±Active Energy kWh (Consumption and Supply) ±Reactive Energy Varh (Inductive and Capacitive Loads) Active and Apparent Demand (Average and Maximum)
	Maximum and Minimum	Voltage, Current, Powers, Power Factor and THD - (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	63Ac.a. (min 200mAc.a.) 5Ac.a. (min 50mAc.a.) Split-Core 100A | 200A | 300Ac.a (min 2%) Split-Core 600A (1,5…600A) Split-Core 1000Ac.a (1,5 … 1000A) Split-Core 2000A (1,5 … 2000A)
	Frequency – Working Range	50Hz: 42.5 ~ 57.5 Hz | 60Hz: 51~69 Hz
	Connection	Terminal Blocks: Quick coupling terminal (IP-00)
	Maximum Cable to be Used	Current: Orifice for cable passage, max. cable diameter of 9mm (63A and 5A models) Power Supply, Voltage and Split Core connections: 2,5mm²
	Internal Consumption	<0.5VA
POWER SUPPLY	*Voltage*	85-265Vac/100-350Vdc
	Internal Consumption	<10VA
MASS MEMORY (non-volatile)	*Storage Capacity*	2MB (209695 registers for 1 electrical parameter configured)
	Number of recordable parameters | Interval	Up to 20** | From 1 to 540 minutes
ACCURACY at 25°C (77 °F), referred to the full scale	*Voltage, Current, Powers and Power Factors*	0.5%
	Frequency	0.1Hz
	Energies	1.0%
	THD	± 5% * 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, Bluetooth: Modbus-RTU Ethernet: Modbus TCP/IP | MQTT | BacNET/IP Wi-Fi: Modbus TCP/IP | MQTT LoRa: public or private network
	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, 19200, 38400 or 57600bps (configurable) Ethernet: 10/100 Mbits/s
	Data Format	8N1, 8N2, 8E1, 8O1 (configurable for RS-485)
	Addressing	RS-485: 1 to 247 (configurable) Ethernet/Wi-Fi - Modbus TCP/IP: Slave ID, 1 to 255
DISPLAY	*LCD (green)*	8 columns x 2 lines, with backlight.
IoT DATA PUBLISHING	*Data Publishing Interval*	Minimum: 1 minute (resolution in minutes)
	Number of parameters to be published	Up to 20**
I/O	*3 Digital Inputs*	Type: Open Collector |Voltage required: 12~24Vdc Maximum Frequency: 2Hz | Admittable pulse width: 200ms
	2 Digital Outputs	Relay Output, 250V – 2A (Ac or Dc)
	2 Analog Inputs	4~20mAdc and/or 0~10Vdc (defined during the ordering process)
	PT-100	2 or 3 wires , 0 to 150°C (32 to 302°F)
CASE	*Material*	Thermoplastic
	Mass	0.5kg
	Protection Degree	IP-20
ENVIRONMENTAL CONDITIONS	*Operation Temperature*	0 to 60°C (32 to 140°F)
	Storage Temperature	-25 to 60°C (-13 to 140°F)
	Relative Air Humidity	Maximum of 90% (without condensation)
	Temperature Coefficient	50ppm/°C
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

- MODBUS-RTU, MODBUS-TCP/IP protocols, allowing integration to PLCs, master MMIs, data concentrators and supervisory systems.

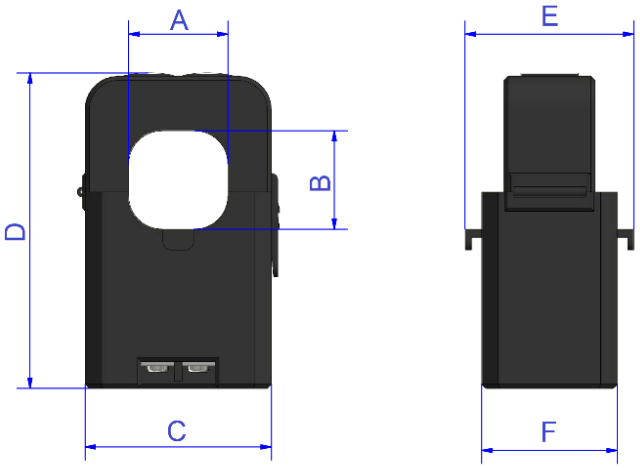
DIMENSIONS

Front View

Side View



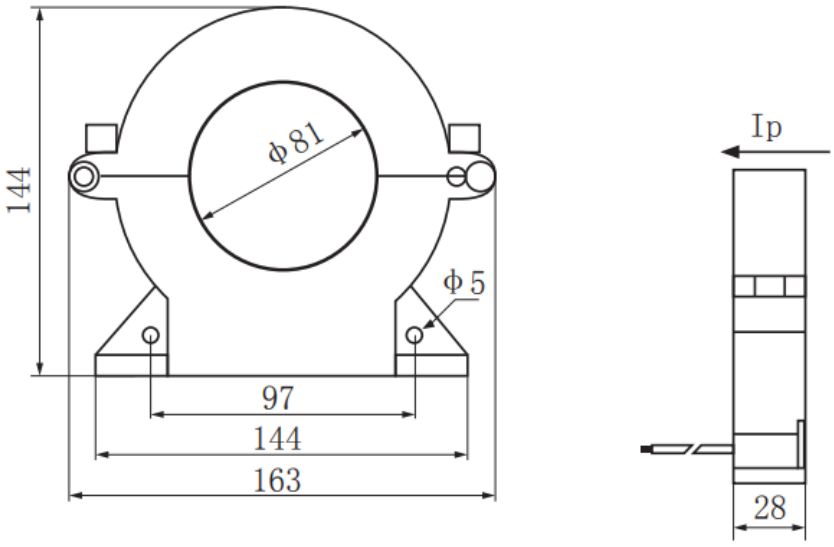
Split Core



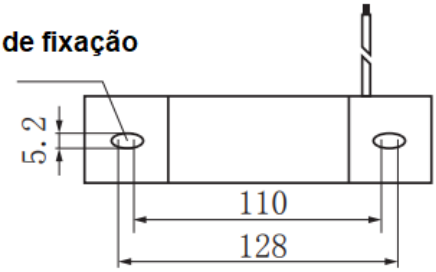
	A	B	C	D	E	F
Model						
100A	16	16	29,5	55	31	31
200, 300A	24	24	45	74,5	34	34
600A	36,0	36,0	56,7	92,6	48,4	39,8

Dimensions in milimeters

1000A, 2000A



Furo de fixação



- *For further information, see User Manual*

How to Specify:

Current Input:

1: Standard, 63Aac direct measurement
2: 5Aac input, (for use with CTs, XXXX/5A)
3: Split Core 100Aac
4: Split Core 200Aac
5: Split Core 300Aac
D: Split Core 600Aac
H: Split Core 1000Aac
I: Split Core 2000Aac

Frequency:

1: 60Hz
2: 50Hz

Analog Inputs 1 and 2:

11: Without Analog Inputs
22: 4~20mAdc + 4~20mAdc
23: 4~20mAdc + 0~10Vdc
32: 0~10Vdc + 4~20mAdc
33: 0~10Vdc + 0~10Vdc

I/O interfaces

1: RS-485
2: RS-485 + Ethernet
3: RS-485 + Ethernet + Digital Outputs
4: RS-485 + Ethernet + Digital Outputs + Digital Inputs/Analog Inputs
5: RS-485 + Ethernet + Digital Outputs + Digital Inputs/Analog Inputs + PT-100
7: RS-485 + Ethernet + Digital Inputs
8: RS-485 + Digital Outputs + Digital Inputs
9: RS-485 + Ethernet + Digital Outputs + Digital Inputs
A: RS-485 + PT-100
B: RS-485 + Digital Inputs
C: RS-485 + Ethernet + Analog Inputs

Communication Protocol /Special Feature

0: MODBUS-RTU
4: MODBUS TCP/IP *
6: BacNET IP **
7: Wi-Fi*** + Bluetooth + Modbus-RTU + MODBUS TCP/IP (RS-485 + Ethernet)
8: Wi-Fi*** + Bluetooth + Modbus-RTU (for 'RS-485' models, units without Ethernet)
A: LoRa****
B: LoRa – Antenna with Extension ****

* For Ethernet. RS-485 uses Modbus-RTU protocol.
** The Bacnet Ip version must be equipped with an Ethernet output. The RS-485 output uses the Modbus-RTU protocol. Please contact technical support for details of the final application.
*** From June, 2021 onwards, all Konect models with Bluetooth feature also incorporate Wi-Fi communicaction.
**** Modbus RTU for RS-485 output and Modbus TCP for Ethernet output as an option.

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

Standard Model: (Example)

Z314815 1 2 2 11 4

Konect {63Aac -Direct Measurement} {Frequency - 50Hz} {RS-485 + Ethernet} {Without Analog Inputs} {Modbus-TCP/IP Protocol}

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