KS-Box 65

Smart Energy Meter

Technical Datasheet

FEATURES

- The **KS-Box 65** is a smart energy meter conceived to provide electrical parameters info to cloud computing systems, Industry 4.0 and general **IoT** applications, since it can be integrated to various cloud based platforms, such as *Amazon AWS, Microsoft Azure, TagoIO* and many 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. Supplied with split core sensors for AC current measurement, four different nominal currents are available – 5, 100, 300, 600, 1000 or 2000A (selection during the ordering process)
- Allows communication through Wi-Fi (MQTT and Modbus TCP), LoRa (LoRaWan) or RS-485 (Modbus-RTU) connections. Measurement readings can be obtained either locally or remotely, using apps for smartphones/tablets, dashboards, supervisory softwares or web based systems
- 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. Incorporates one digital output (relay) for remote commands (ON/OFF).

MULTIFUNCTION ANALYZER · CONSUMPTION · Wi-Fi · LoRa · IoT – MQTT

RS-485 · MEMORY · SPLIT-CORE · TC - RJ-12 · I/O

APP

APPLICATIONS

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

PRODUCT INFO

ELECTRICAL PARAMETERS – 52

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

CONNECTION DIAGRAMS

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

INSTALLATION

- Plug & Play – Easy installation, with non-invasive current sensors (Split-Core) and RJ-12 connection
- Panel´s Background
- Technical support via e-mail, telephone, WhatsApp and YouTube videos

MEMORY

- FRAM memory, which stores configurations and measurement values, acting as an MQTT buffer when connection to the cloud server is lost.

INTERFACES, READINGS & CONFIGURATIONS

- RS-485, Wi-Fi or LoRa communications
- Modbus-RTU/TCP, MQTT or LoRaWan protocols
- Softwares for reading and parameterization: RedeMB (RS-485), RedeMB-TCP and Kron-Fi (Wi-Fi); Android Apps (MQTT)
- Use in IoT systems and 4.0 Industry, via MQTT Broker. Integration to Dashboards, Apps and other IoT tools
- MODBUS-RTU,MODBUS-TCP/IP protocols, allowing integration to PLCs, master MMIs, data concentrators and supervisory systems

WATER, GAS, OIL, TEMPERATURE, COMMANDS...

- Two digital inputs for concentration of external pulses, generated by other resources meters (like water, gas and oil). One digital output (relay) for remote commands (On/Off)

SMART LED

- SMART LEDS which inform installation, communication and operation conditions

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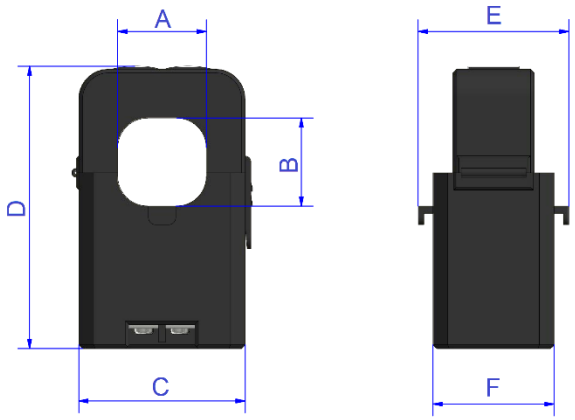
ELECTRICAL GREATNESSES	*Instantaneous*	Voltage (Ph-Ph, Ph-N and 3Ph), Current (Ph and 3Ph), Frequency, Active, Reactive and Apparent Power (Ph and 3Ph), Power Factor (Ph and 3Ph),
	Energy	± Active Energy kWh (Consumption and Supply, Ph* and 3Ph) ± Reactive Energy kVarh [Inductive(+) and Capacitive (-) Loads, Ph* and 3Ph] Apparent Energy kVAh (Ph* and 3Ph) Active, Reactive and Apparent Demand (Last and Maximum) Current Demand (Last and Maximum)
MEASUREMENTS AND INPUT INFO	*Connections Diagrams*	Three-Phase (Star or Delta), Two-phase and Single-Phase
	Voltage – Working Range	20 to 500Vac (Ph-Ph) [1.5Vmax overload (1s)]
	Current – Working Range (Split Core)	**5A:** 0.05 to 5A **600A:** 0.3 to 600A **100A:** 0.3 to 100A **1000A:** 1.5 to 1000A **300A:** 0.3 to 300A **2000A:** 1.5 to 2000A
	Frequency – Working Range	45 to 65Hz
	Connection	RJ-12 for Current Sensors Terminal Blocks: Quick coupling terminal (IP-00)
	Maximum Cable to be Used	Power Supply, Voltage and I/O connections: 2,5mm²
	Internal Consumption	< 0.5VA
POWER SUPPLY	*Voltage*	60-280Vac/100-350Vdc
	Internal Consumption	< 10VA
ACCURACY at 25°C (77 °F), referred to the full scale	*Voltage and Frequency*	0.5%
	Current, Powers, Power Factors and Energies	1.0%
COMMUNICATION	*Connection/Protocol*	Wi-Fi: Modbus-TCP & MQTT RS-485: 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: 9600bps
	Adressing/Data Format	1 to 247 | 8N1, 8N2, 8E1 or 8O1 (configurable for RS-485)
IoT DATA PUBLISHING	*Data Publishing Interval*	Minimum: 1 minute (resolution in minutes)
	Number of parameters to be published	Up to 20**
FRAM MEMORY	*Configurations*	Number of start-ups, PT and CT ratios, Connection Diagrams. Modbus Adressing Network Configurations (LAN) IoT: Data publishing interval and parameters to be published, SNTP and MQTT Broker
	*Buffer (Parameters)***	20 param. - 21 blocks | 19 param. - 22 blocks | 18 param. - 23 blocks 17 param. - 24 blocks | 16 param. - 25 blocks | 15 param. - 27 blocks 14 param. - 28 blocks | 13 param. - 30 blocks | 12 param. - 32 blocks 11 param. - 35 blocks | 10 param. - 38 blocks | 9 param. - 41 blocks 8 param. - 45 blocks | 7 param. - 50 blocks | 6 param. - 57 blocks 5 param. - 65 blocks | 4 param. - 76 blocks | 3 param. - 91 blocks 2 param. - 113 blocks | 1 param. - 151 blocks
I/O	*2 Digital Inputs*	Type: Open Collector |Voltage required: 12~24Vdc Maximum Frequency: 2Hz | Admittable pulse width: 200ms
	1 Digital Output	Relay Output, 250V – 2A (Ac or Dc)
DISPLAY	*LCD*	2 lines, 20 characters
CASE	*Material*	Thermoplastic
	Mass	0,325 Kg
	Protection Degree	IP-20
ENVIRONMENTAL CONDITIONS	*Temperature*	Operation: -10 to 50°C (14 to 122°F) | Storage: -25 to 50 °C (-13 to 122°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 - 00038-18-10990

*Features included in firmware version 1.5.
** Wi-Fi: Up to 20 parameters | Lora: Up to 10 parameters

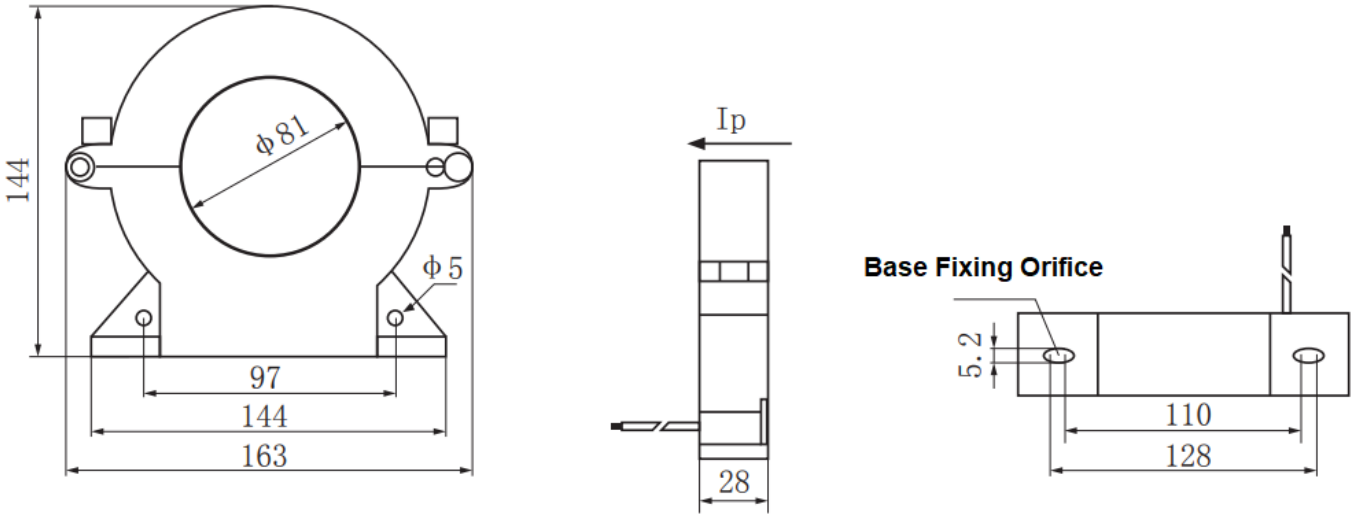
- *For further information, see User Manual*

DIMENSIONS

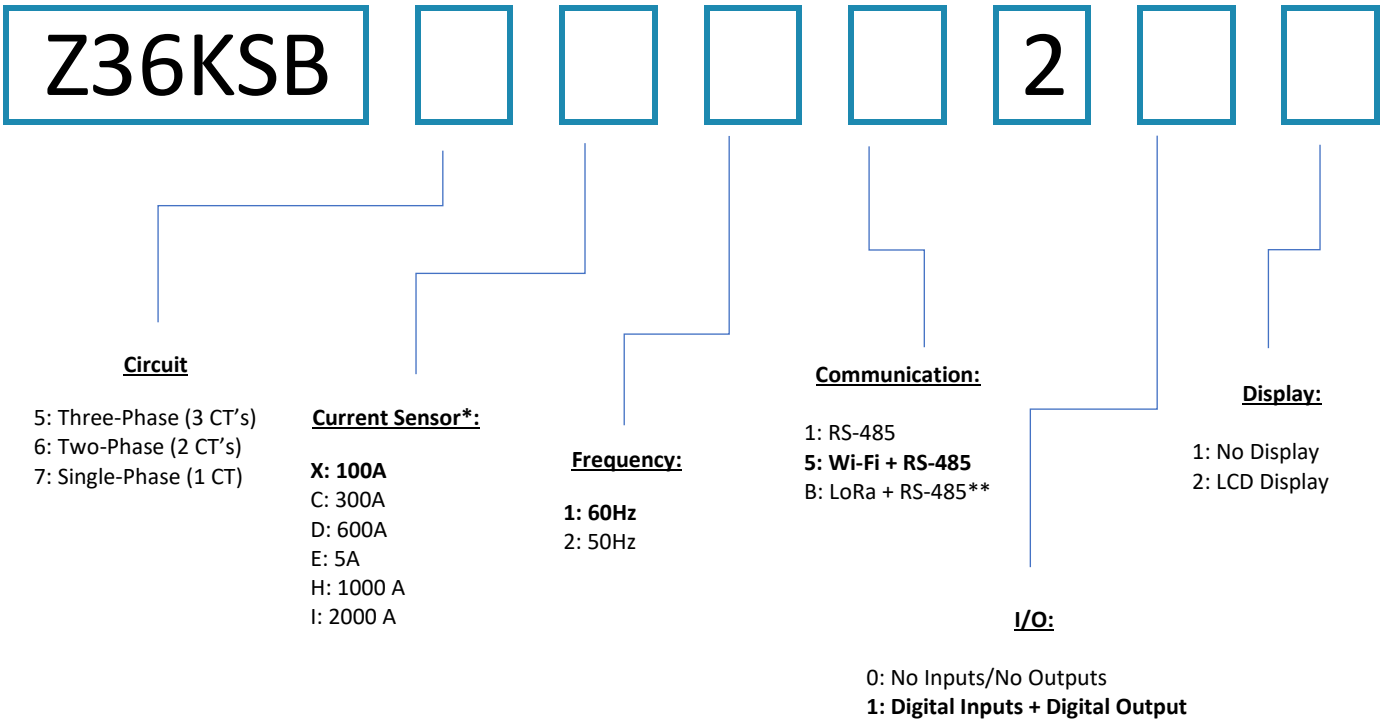


	A	B	C	D	E	F
Model						
5A	12,7	12,7	32,1	56,9	-------	21,1
100A	12,7	12,7	32,1	56,9	-------	21,1
300A	23,5	24,0	44,4	76,3	41,5	33,3
600A	36,0	36,0	56,7	92,6	48,4	39,8

1000A, 2000A



How to Specify:



**For other nominal currents or case formats, please contact technical support*
***Ordering upon consultation, please contact technical support*

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

Standard Model: (Example)

Z36KSB 5 X 2 5 2 1 2
KS-Box 65 {Three-Phase} {Split Core 100A} {Frequency 50Hz} {Wi-Fi and RS-485} {Digital Inputs + Digital Output} {Display}

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