OMICRON®
IoT solutions

FEATURES

✔ Based on ESP32.
✔ Open-source C++ code.
✔ USB-C programming port or 5VDC power supply.
✔ Multiple Communication Protocols: Sigfox/LoRaWAN/WiFi/RS-485/BLE/USB/ UART/I2C/SPI/1-wire, etc.
✔ Graphical HMI interface for:
- · Interactive graphical programming.
- · Alarm configuration.
- · Input and output configurations.
- · Visualization of:
  - ○ Inputs status.
  - ○ Output status.
  - ○ DC supply voltage.
  - ○ Graphic records of the variables.

✔ Integration to WEB IoT platform.
✔ Alarms:
- · Built-in audible alarm.
- · External Alarms: SMS, e-mail, Telegram, Voice, with Integration to IoT Platform.

✔ 2 Analog/Digital Inputs:
- · Analog: 4-20mA / 0-10V.
- · Digital: Dry contact.

✔ 2 Relay type Outputs 12A@120-240VAC.
✔ 4 GPIO pins available for user programming.
✔ 1 RS-485 input for Modbus RTU (master on the network) for reading external sensors.
✔ Possibility of Connection to Expansion Modules for more inputs and outputs.
✔ Power supply:
- · DC supply or by external battery (Optional) 12 - 24 VDC.
- · DC supply voltage measurement.

KONTROLOG MINI

IOT PLC FOR REMOTE AND REAL-TIME CONTROL AND MONITORING

For LoRaWAN™, Sigfox, and Wi-Fi Networks

Description

PLC IoT device with user adaptable functionalities: No-Code, Low-Code and Full-Code, thanks to its graphical and intuitive programming through HMI interface for local configuration and its open-source code feature in C++ for user customization.

Designed for the control and monitoring of different processes in applications such as home automation, smart agriculture, industry, energy management, DIY projects, among others.

ORDERING INFORMATION

P/N:	
P/N: KL-MINI	Kontrolog MINI WiFi, Sigfox/LoRaWAN/BLE/USB, 2 analog or digital inputs / 1 VDC / 1 RS485 port / 2 relay control outputs / 4 GPIOs
KL-IN-ADAP	0-10V / 4-20 mA analog input adaptation modules

INPUT CHARACTERISTICS

Parameter	Description
Analog/digital inputs	2 A/D inputs configurable for: - 10K NTC thermistor. - Ambient temperature and humidity sensor. - Analog input 4-20 mA / 0-10 VDC (see connection diagram). - Digital input by dry contact. - Digital pulse counter.
GPIO inputs	4 general purpose I/O pins: I2C, SPI, 1-wire, etc.
RS-485 connector	Modbus RTU (master on the network) for reading external sensors.
Input impedance	150 ohms :: 4-20 mA.

OUTPUT CHARACTERISTICS

Parameter	Value	Unit
Max. switching current for relays	12	A
Max. switching voltage for relays	240	VAC, 50/60 Hz
Built-in internal alarm	A programmable internal audible alarm, which is automatically activated when any detected variable or voltage exceeds user-set limits.	
Built-in visual indicators	The device has two LEDs that indicate output and communication statuses.	

CONTROL CHARACTERISTICS

Parameter	Description
Programmable control methods	• ON/OFF. • PID. • Timers. • Remote activation. • Pulse counter. • Input following.
Configuration method	Configuration using HMI interface options, remote configuration via WEB IoT platform (Optional), or programming via USB-C cable.

POWER REQUIREMENTS

Parameter	Value	Unit
Maximum operating current	0.2	A
Maximum DC input voltage	28	VDC
Nominal DC voltage	12 - 24 ±0.1	VDC

WIRELESS COMMUNICATION SPECIFICATIONS

| Device type	Standard	Note
Wi-Fi™	IEEE 802.11 b/g/n; 2.4 GHz; HT20/40; up to 150 Mbps	Stores configuration data for up to 10 networks.
Sigfox/ LoRaWAN USA	Sigfox, RC2 902 - 905Mhz / RC4 920 - 923Mhz, 22dBm ERP LoRaWAN, USA902-928, AU915-928	Zone 2 (USA, Mexico, Brazil) and Zone 4 (Latin America and Australia).
Sigfox/ LoRaWAN EU	Sigfox, RC1 868MHz LoRaWAN, EU863-870	Zone 1 (Europe).

RECOMMENDED OPERATING CONDITIONS

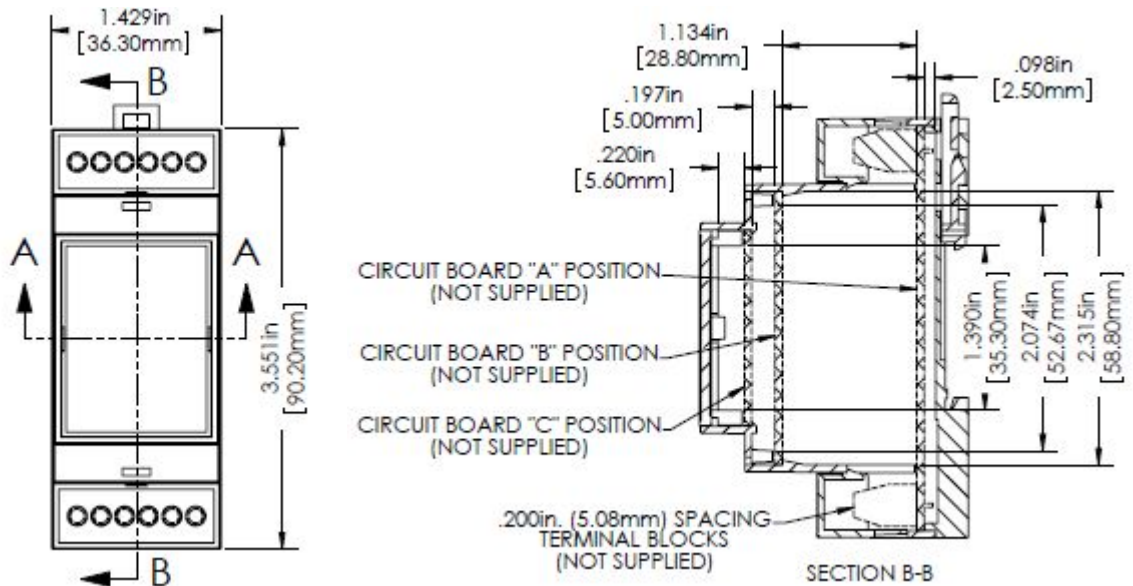| Operating Conditions	Value	Unit
Storage temperature	20 (68) – 45 (113)	°C (°F)
Storage ambient humidity	60 ± 25	% R.H./Non-condensable
Operating temperature	0 (32) – 45 (113)	°C (°F)
Operating ambient humidity	60 ± 25	% R.H./Non-condensable
Standard	Type of protection	
IEC 60529/ EN 60529	**IP40** For indoor use only	
UL94-V0	Plastic UL94-V0 for high flammability	

CONNECTION DIAGRAMS

The following diagrams indicate the adaptations to be made to the input signal from the sensors. **Note:** The Kontrolog has additional modules to adapt the sensor inputs to the inputs received by the device. They can be ordered with the device at the time of purchase.
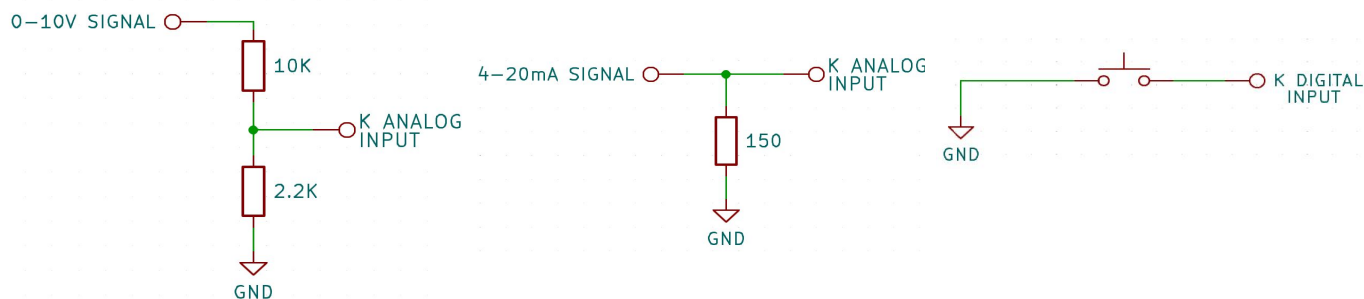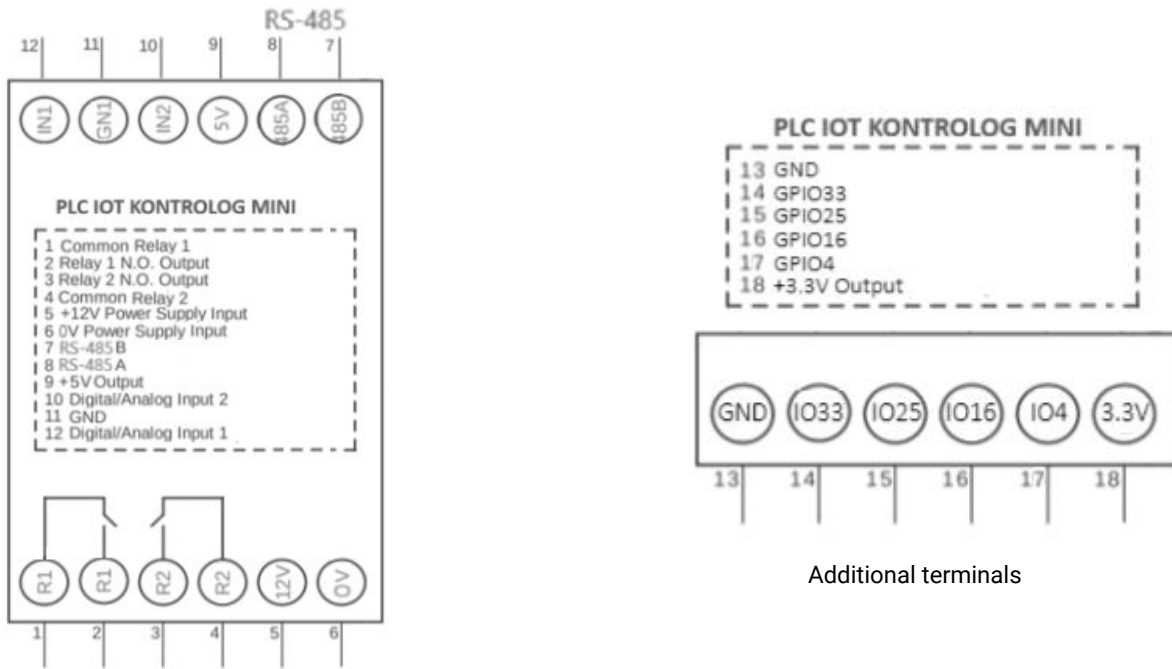

Value of the resistors in ohms.

DIMENSIONS

Main Unit Dimensions

Material: PC/ABS (UL94V-0).

SCHEMATIC CIRCUIT DIAGRAM

Base PCB terminals

PLC IOT KONTROLOG MINI

1 Common Relay 1
2 Relay 1 N.O. Output
3 Relay 2 N.O. Output
4 Common Relay 2
5 +12V Power Supply Input
6 0V Power Supply Input
7 RS-485 B
8 RS-485 A
9 +5V Output
10 Digital/Analog Input 2
11 GND
12 Digital/Analog Input 1

PLC IOT KONTROLOG MINI

13 GND
14 GPIO33
15 GPIO25
16 GPIO16
17 GPIO4
18 +3.3V Output

Additional terminals

PLATFORM AND WEB SERVICES

Kontrolog-MINI devices are offered with the Centriomega® IoT web monitoring platform.

Users can access Omicron's platform via PC, Smartphone or Tablet, to perform:

➔ Remote monitoring and visualization of current measurements, output status and sensor variable records, in graphs and data tables, for up to 2 years.
➔ Remote configuration of device parameters.
➔ Alarm management for out-of-range variables, battery levels and AC power failure.
➔ Add comments to logs.
➔ Set alarm limits, alarm events and notifications by email, SMS, voicemail, Telegram messaging service or via webhooks.