# OMICRON® IoT solutions



# Kontrolog

## IoT SYSTEM FOR REAL-TIME MONITORING AND CONTROL

## For LoRaWan™, Sigfox, and Wi-Fi Networks

## Description

Easily configurable device, designed for remote and real-time control and monitoring of different processes in application fields such as industry, agriculture, water quality, among others. It is offered with WEB IoT monitoring platform support and can be connected to a touch screen HMI for local visualization and configuration.

## FEATURES

HMI touch screen for the visualization of:
- Measurements of the 5 input sensors.
- Consumed electric current and AC voltage.
- Battery level.
- Configuration of the alarm limits.
- Configuration of the outputs.
- Graphical record of each variable for up to 48 hours.
- Among others.

5 Analog/Digital Inputs:
　　　Analog: 4-20 mA / 0-10V.
　　　Digital: Dry contact.

Current transformer input for AC current measurement.
1 Input for battery 6/12 VDC, also DC supply voltage is measured.
Power Supply 110/220 VAC input, also AC supply voltage is measured.
1 RS-485 Input for Modbus RTU (Master on network) which can read up to 5 external sensors.
4/5 Relay outputs and/or 1 analog output 4-20mA
Input impedance 4-20mA :: 150 ohm.

## ORDERING INFORMATION

| | |
|---|---|
| P/N:<br>KL9.3-SL41-USA<br>KL9.3-SL41-EU<br>KL9.3-W41 | Kontrolog 9.3 Sigfox/WiFi/LoRaWAN, 5 analog or digital inputs / 3 inputs for measurement of power supply variables / One RS485 input / 4 relay outputs / One 4-20mA analog output |
| P/N:<br>KL9.2-SL50-USA<br>KL9.2-SL50-EU<br>KL9.2-W50 | Kontrolog 9.3 Sigfox/WiFi/LoRaWAN, 5 analog or digital inputs / 3 inputs for measurement of power supply variables / One RS485 input / 5 relay outputs |
| KL-LCD4.3 | HMI Touch screen. Full HD, 4.3". |
| KL-CT30A<br>KL-CT50A<br>KL-CT100A | Current transformer<br>30 A / 50 A / 100 A |
| KL-CH6V | Battery charger: 6V, 0.2 A |
| KL-CAB6V | IP67 plastic cabinet.<br>With 6V / 4.5Ah battery. |
| KL-IN-ADAP | Adapter modules for analog inputs<br>0-10V / 4-20 mA |

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# INPUT CHARACTERISTICS

| Parameter | Description |
|---|---|
| Analog / Digital Inputs | 5 configurable A/D inputs for:<br>● 10k NTC Thermistors.<br>● Ambient Temperature and Humidity Sensors.<br>● Analog inputs 4-20 mA / 0-10 VDC (See wiring diagram)<br>● Dry contact digital inputs.<br>● Digital pulse counter.<br>● Frequency meter (Input 5 only, up to 20kHz) |
| AC current sensor | Current transformer input for AC current measurement. |
| RS-485 connector | For Modbus RTU (Master on the network) |
| Input impedance | 150 ohms :: 4-20 mA |

# OUTPUT CHARACTERISTICS

| Parameter | Value | Unit |
|---|---|---|
| Max. switching current for relays 1 and 2 | 12 | A |
| Max. switching current for other relays | 3 | A |
| Max. switching voltage for the relays | 240 | VAC, 50/60 Hz |
| Analog current output (Only for model KL9.3) | 4-20 | mA |
| Built-in internal alarm | An internal audible alarm is automatically activated when any detected variable; current or voltage, exceeds the user-set limits; an AC interruption is detected; or a digital input remains active for a considerable time. | |

# POWER REQUIREMENTS

| Parameter | Value | Unit |
|---|---|---|
| Maximum operating current | 0.2 | A |
| Maximum input AC voltage | 250 | VAC, 50/60 Hz |
| Maximum input DC voltage | 15 | VDC |
| Nominal AC voltage | 110 - 220 | VAC, 50/60 Hz |
| Nominal DC voltage | 6 - 12 ±0.1 | VDC |

# CONTROL CHARACTERISTICS

| Parameter | Description |
|---|---|
| Programmable control methods | ● ON/OFF<br>● PID.<br>● Timers.<br>● Remote activation.<br>● Pulse counter.<br>● Digital input tracing. |
| Configuration method | Configuration using the HMI screen options, or remote configuration functions through the WEB IoT platform. |

# WIRELESS COMMUNICATION SPECIFICATIONS

| Device Type | Standard | Note |
|---|---|---|
| Wi-Fi® | Wi-Fi® (IEEE 802.11) 2.4 GHz. WPA2 encryption. | Stores the configuration data for up to 3 networks. |
| Sigfox/ LoRaWAN USA | Sigfox, RC2 902 - 905Mhz / RC4 920 - 923Mhz, 22dBm ERP<br>LoRaWAN, US902-928, AU915-928 | Zone 2 (USA, Mexico, Brazil) and Zone 4 (Latin America, Australia). |
| Sigfox/ LoRaWAN EU | Sigfox, RC1 868MHz<br>LoRaWAN, EU863-870 | Zone 1 (Europe). |

# RECOMMENDED OPERATING CONDITIONS

| Operating Conditions | Value | Units |
|---|---|---|
| **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) |
| **Ambient Operating Humidity** | 60 ± 25 | % R.H./Non condensable |

| Standars | Protection Type |
|---|---|
| **IEC 60529/ EN 60529 Standard** | **IP40** Indoor use only |
| **UL94-V0** | UL94-V0 plastic for high flammability rating (most flame retardant). |

# POSSIBLE APPLICATIONS

| Application | Related sensors |
|---|---|
| Measurement of industrial Signals: **Industrial Applications** | <ul><li>Temperature and humidity.</li><li>Pressure and flow.</li><li>Analog Signals: 4-20 mA / 0-10 V for different types of sensors and transmitters.</li><li>Digital Modbus RTU signals.</li><li>CO, CO2, O2, transmitters.</li><li>Digital (dry contact signals).</li></ul> |
| **Security surveillance** in systems such as: power generation plants, telecommunication stations, ATMs, water treatment plants. | <ul><li>Temperature and humidity.</li><li>Remote activation.</li><li>Door opening.</li><li>Detection of equipment activity.</li><li>Hourmeters.</li><li>Fuel tank levels.</li><li>Battery status levels.</li></ul> |
| Measurement of variables in **precision agriculture** | <ul><li>Remote activation of pumps and irrigation systems.</li><li>Measurement of soil or water variables.</li><li>Equipment status monitoring.</li></ul> |

# WIRING DIAGRAMS

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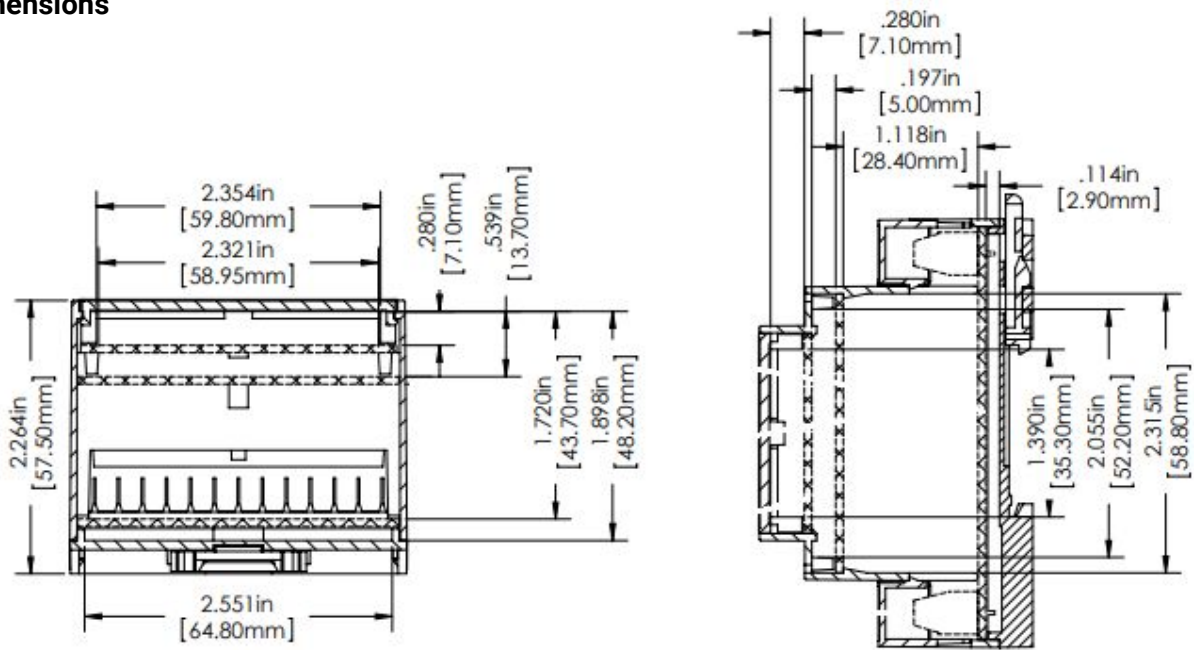
**Note:** The Kontrolog has additional modules to adapt the sensor inputs to the inputs received by the device. They can be ordered with the device at the moment of purchase.
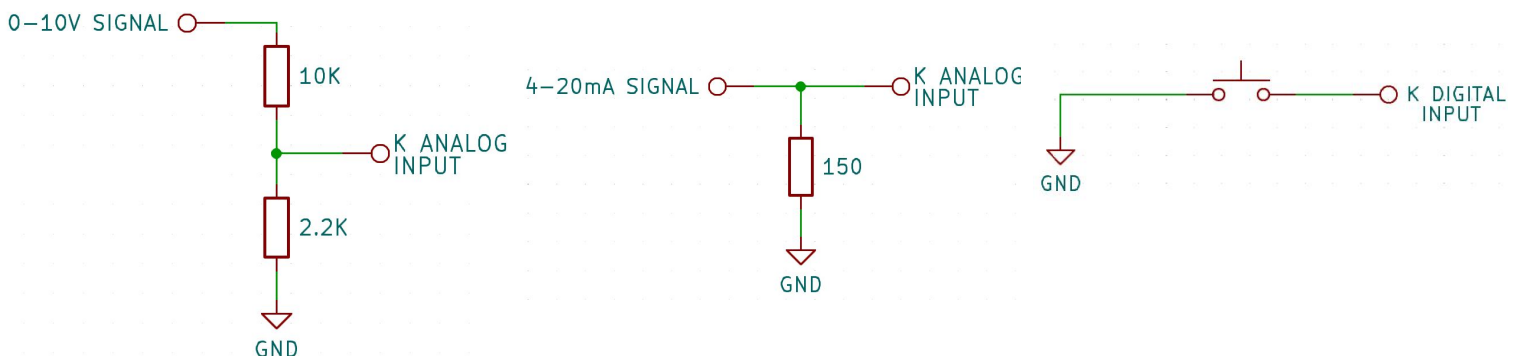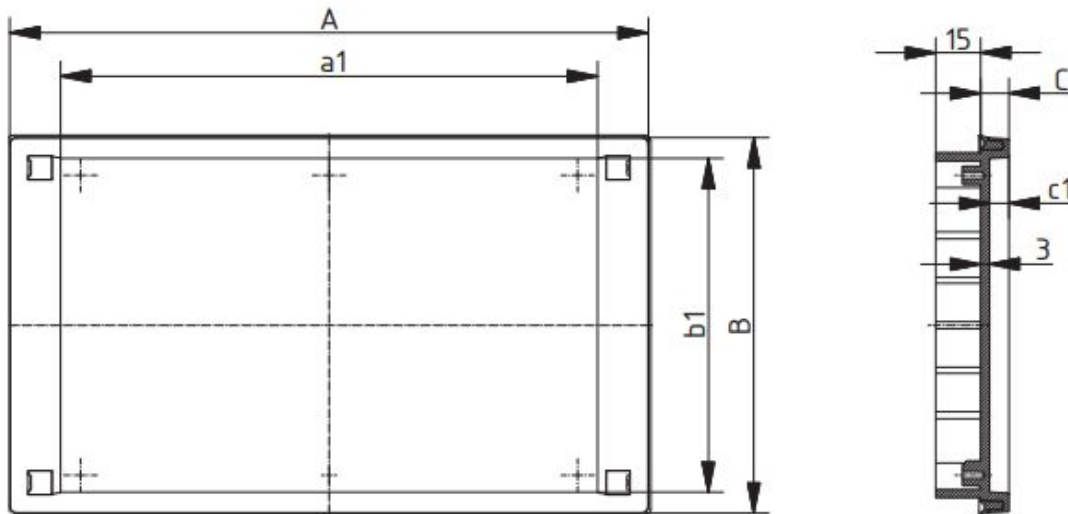


Resistance values in ohms.

# DIMENSIONS

**Main Unit Dimensions**



Material: PC/ABS (UL94V-0).
**Total weight:** 210g, without accessories and sensors attached.
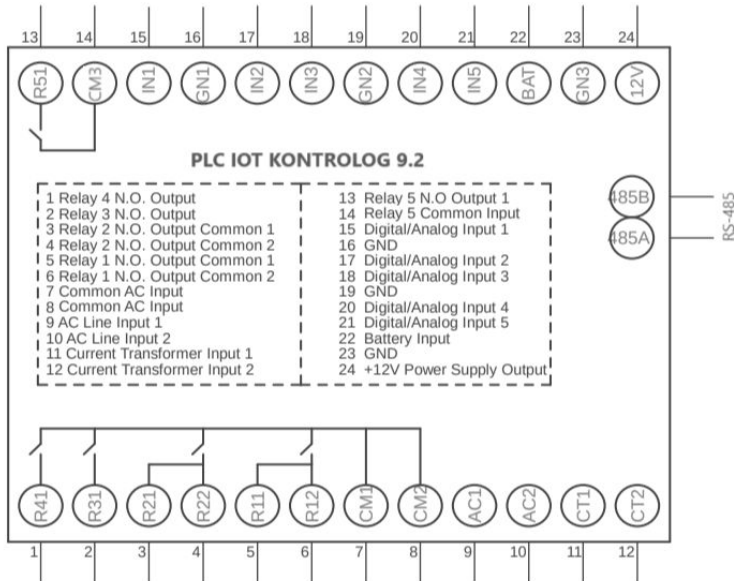
**Panel dimensions for the touchscreen**



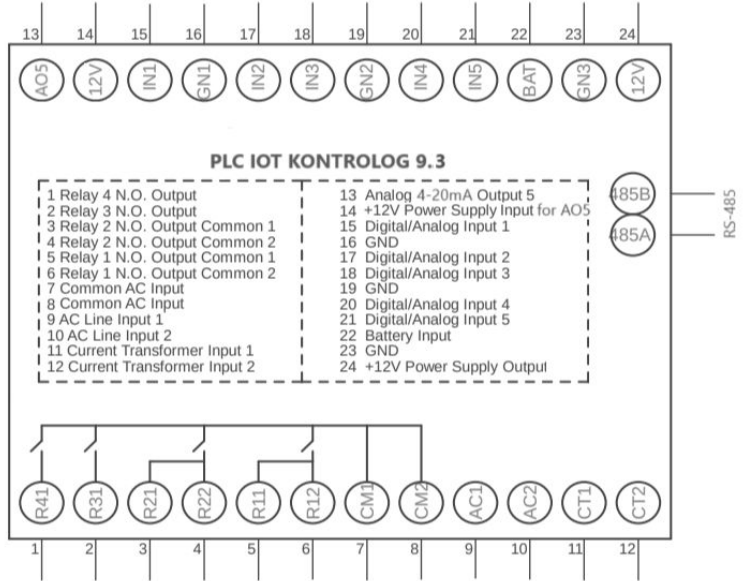Material: ABS (IP54). A=166mm B=106mm C=9.5mm a1=131.3mm b1=92.3mm c1=6.5mm.
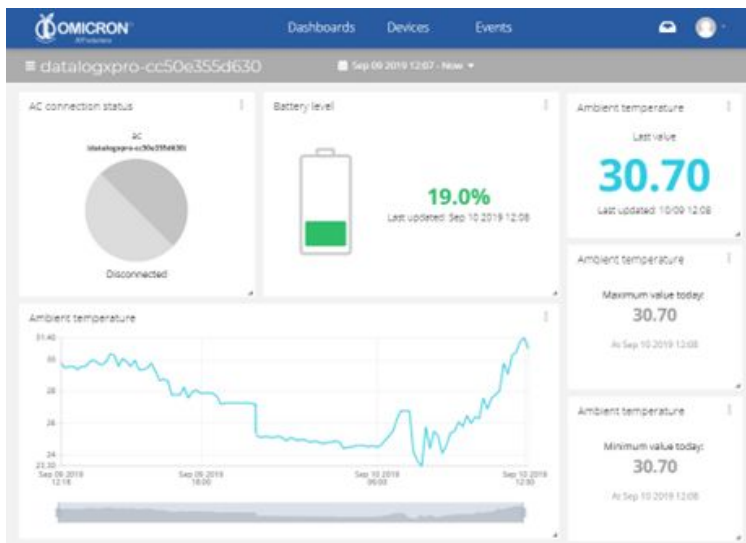**Total weight:** 165g.

# CONNETIONS SCHEMATIC

**Kontrolog 9.2**



**Kontrolog 9.3**



# WEB PLATFORM AND SERVICES



**Kontrolog devices are offered with the IoT Centriomega® WEB monitoring platform.**

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

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