

# Moduino series

## **Energy-efficient ESP32-based Industrial Controller**

**Moduino** is a lightweight, but powerful energy-efficient and fully capable automation controller series - an industrial computer for remote data control and management, equipped with latest **ESP32** compute module, wide range of serial, digital and analog inputs/outputs and wireless communication interfaces.

This cost effective solution is perfect for end-point devices. Moduino is powered by **ultra-low power Dual-Core Tensilica LX6 240 MHz** processor with **8MB pSRAM** and **16MB SPI flash** memory on-board. Integrated Wi-Fi/BLE modem and extra wireline/wireless interfaces make the Moduino micro-computer a versatile addition to Industrial IoT solutions offered by TECHBASE company.

**Moduino** devices can easily work remotely with existing **ModBerry gateway** for data accumulation and monitoring, to perform specific actions before sending the data to cloud services. The Moduino-ModBerry installation can work as standalone Ecosystem (for example via MQTT), providing fog-computing to any installation.

### **END-POINT SENSORS**

The Moduino device is a comprehensive end-point controller for variety of sensors located throughout any installation. It fully supports temperature and humidity sensors and new ones are currently developed, e.g. accelerometer, gyroscope, magnetometer, etc.

### **SOFTWARE & OS**

Use of **ESP32-WROVER** compute module adds the support for **real-time operating systems** (compared to most Raspberry Pi based Linux and Windows OS versions), and openness of the Espressif's platform to Moduino industrial automation controller. Thanks to **enormous community of ESP32 and Arduino users and developers**, the Moduino can now adapt existing software solutions, tools and programming environments. for example:

- / MicroPython
- / Arduino (C++)
- / ESP-IDF (Espressif IoT Development Framework)
- / Zephyr Project (scalable RTOS)
- / Mongoose OS
- / etc.

# OF INDUSTRIAL IOT



## Moduino series FEATURES



#### **ESP32 MODULE**

Energy-efficient compute module with real-time OS support incl. Zephyr Project, MicroPython, Arduino, etc.



#### **BATTERY POWERED**

**Moduino X7** can be battery powered, making it perfect for remote installations and scattered objects monitoring



#### WIRELESS COMMUNICATION

Optional SMA antenna connectors allows the **Moduino** device to increase the effective range of Wi-Fi / Bluetooth module and additional communication interfaces, e.g. LoRa, NarrowBand-IoT



#### **END-POINT SENSORS**

Full support of temperature, humidity, pressure, accelerometer & light sensors with new ones in development, e.g. gyroscope, magnetometer, etc.



#### **SMALL SIZE**

Dimensions of the device allows the use in limited space and difficult industrial environments





## **SPECIFICATION**



#### **BATTERY READY**

## Moduino X7

Chipset: ESP32-WROVER

**Processor:** Dual-Core Tensilica LX6 240 MHz

RAM: 8 MB pSRAM

Memory: 4 / 8 / 16 MB SPI Flash, microSD slot

RTC: Built-in, Hardware Watchdog

Serial Ports: 1x RS-232

1x RS-232/485

Inputs: 2x DI/AI +3x DI/AI (optional)

**4x AI** (0-20mA 18bit)

Outputs: 3x DO Open Collector + 2x DO Open Collector (optional)

Ethernet: 1x Ethernet (RJ45 connector) (optional)

**Wi-Fi:** 802.11b/g/n 16mbps

Bluetooth: Bluetooth v4.2 BR/EDR and Bluetooth Low Energy (BLE)

Wireless modem: Narrowband LTE categories M1/NB1, Global-Band LTE CAT-M1/NB-IoT1 (optional)

or Semtech LoRa transceiver SX1272, LoRaWAN stack, Class A and C devices (optional)

GPS: GNSS (GPS, GLONASS, BeiDou) (optional)

Screen: OLED 0.96" 128x64 (optional)

Ext. antenna: 1x / 2x (optional) SMA female antenna connectors for wireless modems

**Power supply:** 6~30 V DC (depending on configuration)

Battery: Battery ready power support

SuperCapacitors (optional)

**Working cond.:** -0 ~ 60°C, humidity 5 ~ 95% RH (no condensation)

Extended temp. range: -40  $^{\circ}$  70°C, humidity 5  $^{\circ}$  95% RH (no condensation) (optional)

Casing: ABS (default), DIN rail mount

**Dimensions: ABS (6M):** 90 x 106 x 32 mm (LxWxH)



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Specifications is subject to change without public notice. Some of the features are optional. Technical parameters should be confirmed in the order details.



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