

# Moduino X3

with M-Bus Slave



## Energy-efficient **ESP32-based** Industrial Automation 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, serial, digital and analog inputs/outputs, M-Bus Slave 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 up to **8MB pSRAM** and up to **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.



## END-POINT SENSORS

The Moduino device is a comprehensive end-point controller for variety of input/outputs located throughout any installation. e.g. serial ports, digital inputs, relays, temperature and humidity sensors, 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.

## Moduino<sup>series</sup> FEATURES



### ESP32 MODULE

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



### WIRELESS COMMUNICATION

Optional SMA antenna connectors allows the **Moduino** device to increase the effective range of Wi-Fi / Bluetooth module



### 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



## COST-EFFECTIVE & WIRELESS INDUSTRIAL IoT



## Moduino X3

Chipset:	ESP32-WROVER
Processor:	Dual-Core Tensilica LX6 240 MHz, RTC
RAM:	8 MB pSRAM
Flash:	4 / 8 / 16 MB SPI
SD card:	microSD slot (optional)

RS-232/485:	T1	1x RS-232 or 1x RS-485	T4	1x M-Bus Slave
Inputs:	T2	2x DI (surge protection: 30VDC) or 2x AI (0 ~ 10VDC)	T3	2x DIO OPTO
Outputs:	T2	2x DO Open Collector (surge protection: 30VDC) max. 500mA, peak min. 600W	T3	2x DO, typical max current 50mA or 2x AO 10bit

Wi-Fi:	802.11b/g/n 16mbps
Bluetooth:	Bluetooth v4.2 BR/EDR and Bluetooth Low Energy (BLE)
Ext. antenna:	SMA female antenna connectors (optional)

Power supply:	6~30 V DC (depending on configuration)
Casing:	ABS (default) or Aluminum (optional), DIN rail mount
Working cond.:	-40 ~ 70°C, humidity 5 ~ 95% RH (no condensation)
Dimensions:	ABS (4M): 90 x 71 x 32 mm (LxWxH) Aluminum: 95 x 73 x 41 mm (LxWxH)



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