TECHBASE
WE MAKE CONNECTIONS. SIMPLE

Moduino series

UNLEASH THE **TRUE POTENTIAL**
OF **INDUSTRIAL IoT**

INDUSTRIAL IoTReady

Bluetooth™

Wi Fi™

Lte
NarrowBand IoT

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.

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

ver. 2005261200

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SPECIFICATION

INDUSTRIAL IoTReady

BATTERY READY

ModuinoX7

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 ~ 70°C, humidity 5 ~ 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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