



Arduino Opta

PRO Business Unit

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Product Overview

Arduino Opta is a secure, easy-to-use **micro PLC with Industrial IoT capabilities**. Designed in partnership with Finder, leading industrial and building automation device manufacturer, it allows professionals to scale up automation projects while taking advantage of the open and widely known Arduino ecosystem. Thanks to its computing power, Arduino Opta enables a wide range of **real-time control, monitoring** and **predictive maintenance** applications.

Quickly put it to work, leveraging the many **available software libraries**. The onboard **secure element** ensures **over-the-air firmware updates** and **remote control** via the Arduino Cloud or third-party services.

Arduino Opta is available in **three variants**:

- **Opta Lite**: onboard Ethernet and USB-C ports
- **Opta RS485**: onboard Ethernet and USB-C ports, plus RS485 connectivity
- **Opta WiFi**: onboard Ethernet and USB-C ports, plus RS485 and Wi-Fi/Bluetooth® Low Energy



Target Customers

Target Audience: Automation systems installers, System Integrators, Machine Builders, Manufacturing Companies.

Customer need	Target	Value	Use Cases
Boost Production Automation through secure industry 4.0 control system	<ul style="list-style-type: none"> Manufacturing plants Machinery operations Industrial automation Utilities Logistic hubs 	<ul style="list-style-type: none"> Remote programming and operation Productivity improvement Arduino Implementation easiness and code portability Add Industry 4.0 capabilities on industrial equipment Process optimization, cycle time and minimize return from field KPI tracking, accurate data logging Enforce security through X.509 certificates Retrofit existing installations with a minimal effort 	<ul style="list-style-type: none"> Compressors actuation in painting lines Flow circulation management and liquids drainage control in water treatment plants Threshold level monitoring and tanks automated refill Temperature control steadiness in low temperature meat cooking systems (sous vide) or in industrial blast chillers Weight/Vision-based smart packaging automated line Lean manufacturing automated production lines Implement predictive maintenance on existing machinery
Smart and reliable management of electrical loads	<ul style="list-style-type: none"> Airports Shopping malls Exhibitions Underground city parkings Facility management professionals Smart Cities infrastructure providers Corporations 	<ul style="list-style-type: none"> Intelligent energy management and power consumption optimization Security lights automatic activation User experience improvement Add physical security by means of access control Speed up access grant procedures 	<ul style="list-style-type: none"> Baggage carousels self motion triggered by weight detection/vision systems Automatic activation of lights triggered by presence detection in underground parkings or isolated areas Car parking barriers automatic actuation Toll payment gates bar remote control Vehicle access control
Improve environmental comfort and life quality in home and industrial buildings	<ul style="list-style-type: none"> HVAC systems Industrial conditioning/chilling Home automation Smart buildings 	<ul style="list-style-type: none"> Easiness of implementation and of integration in case of later upgrades Dashboards winsome design Alarms setting 	<ul style="list-style-type: none"> Air quality monitoring and ozone treatment CO2, PM detection and air filtering Temperature and humidity control automation Energy monitoring and management with machine learning algorithms Control home appliances by preset scenarios and cloud access Prevention of sensitive goods deterioration and cool chain certification Support eco sustainability and low footprint building Improve quality of life with domotics implementation

Benefits

- Easy and fast software development, starting from ready-to-use Arduino sketches, tutorials and libraries
- Optional support for standard IEC 61131-3 PLC languages
- Fieldbus integration via Modbus TCP (Ethernet) and Modbus RTU (serial RS485)
- Seamless IIoT connectivity (Ethernet/Wi-Fi/Bluetooth® Low Energy)
- Real-time remote monitoring via intuitive Arduino Cloud dashboards or third-party services
- Security at the hardware level thanks to onboard secure element and compliance with X.509 Standard
- Secure OTA firmware updates and cloud device management
- High power relay switching (4 x 2.3 kW)
- Reliable by design, thanks to industrial certifications and Finder's expertise in switching technology
- Easy DIN rail installation



Technical Specs

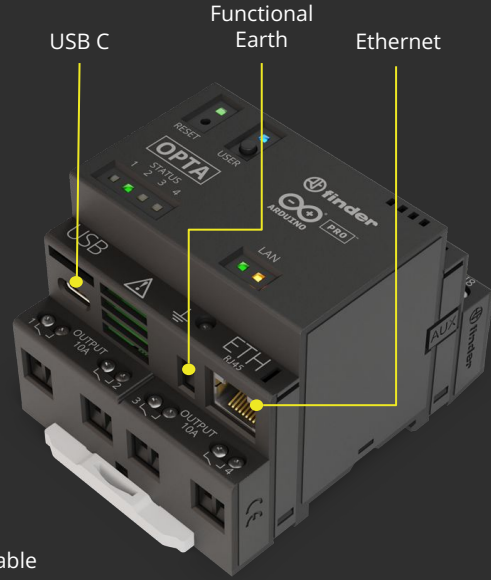
Input	8x configurable digital / analog (0-10V) input	Output	4x relays (250 V AC - 10 A)
Processor	STM32H747XI Dual ARM® Cortex®: <ul style="list-style-type: none"> • Cortex -M7 core up to 480 MHz • Cortex -M4 core up to 240 MHz 	Programming languages	<ul style="list-style-type: none"> • Arduino programming language via IDE • IEC-61131-3 as option: <ul style="list-style-type: none"> ○ Ladder Diagram (LD) ○ Function Block Diagram (FBD) ○ Sequential Function Chart (SFC) ○ Structured Text (ST) ○ Instruction List (IL)
Connectivity	<ul style="list-style-type: none"> • Support 10/100 Ethernet (TCP/IP or Modbus TCP) • USB-C • Wi-Fi + Bluetooth® Low Energy (Opta WiFi only) • RS485 half duplex (Opta RS485 and Opta WiFi only) 	Security	ATECC608B Secure element
Memory	1MB RAM (programming) 2MB internal + 16MB Flash QSPI	Supply voltage	12...24 V DC
RTC	Typical 10 days power retention at 25°C NTP sync available through ethernet	Operating Temperature	-20 °C to +50 °C (-4°F to 122°F)
IP protection	IP20	Certifications	cULus listed, ENEC, CE



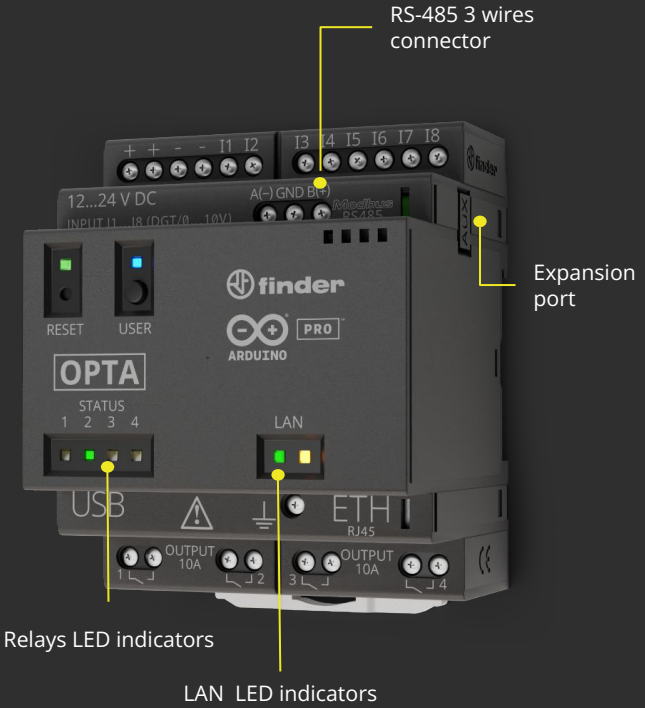
Technical Specs



Top View



Side Down view



Perspective View



Applications Examples

INDUSTRIAL AUTOMATION

- **Conveyor belt management**

By integrating a load cell or a vision system, Arduino Opta can manage overall flow of goods in manufacturing. For example, within an automated bottling line, it can ensure the appropriate amount of liquid is present within each container. Moreover, it can verify each box contains the desired amount of bottles.

- **Gathering time information for automated labelling**

Arduino Opta can perform clock synchronization via Network Time Protocol (NTP) and automatically interact with production line printers to get such information on product's package.

- **Real-time monitoring in manufacturing**

Production data can be visualized locally via an HMI or even by connecting to the Arduino Opta via Bluetooth® Low Energy. The simplicity of Arduino Cloud allows to remotely display custom dashboards; this product is also compatible with other major Cloud providers.

- **Automated Anomaly Detection**

Its computing power allows the Arduino Opta to deploy Machine Learning algorithms that are capable to learn when a process is drifting from its usual behavior on the production line.

- **Tank management**

Arduino Opta is capable of gathering information from many connected sensors to determine a tank's content threshold; it can then actuate the pumps via modbus TCP through the Ethernet port or modbus RTU through the RS485 terminal block. The operation of the pumps, inlet and outlet gate valves can be triggered upon thresholds levels or actuated on demand and the overall status can be constantly monitored via cloud.

Applications Examples

BUILDING AUTOMATION

- **Intelligent roller blinds management**

By network interaction, Arduino Opta can leverage people's quality of life by controlling home and office appliances. Actuate roller blinds, sun shields or irrigation systems in a smart, configurable and adaptive way. Thanks to the RTC and NTP, Opta allows to configure preset scenarios and to set calendar based events considering holidays and winter/summer time changes as well as weekly routines.

- **Energy monitoring and optimization**

It's now easy to analyze consumption patterns and plan a device operation to achieve energy savings. Thanks to the powerful STM32H7 microcontroller and onboard connectivity, Arduino Opta can leverage machine learning algorithms and allows the user to monitor energy consumption remotely.

- **Smart sun shields operation**

Arduino Opta can automate the operation of sun shields, triggering events based on information gathered from a weather station or inputs from rain/sun/wind sensors. It can be configured with routines and can interact with cloud for status monitoring or appliances remote control.

- **HVAC systems control**

Arduino Opta is ideal to easily interact with HVAC (Heating, Ventilation, and Air Conditioning) systems. It can actuate on-demand ventilation and filtering processes upon the guidance of AI algorithms. Opta is capable of taking decisions based on data patterns generated by air quality sensors, like CO2 and PM (Particulate Matter), temperature and humidity sensors.



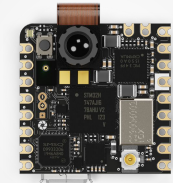
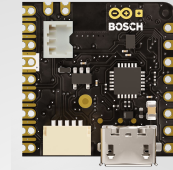
Pricing



Product Name	Opta WiFi	Opta RS485	Opta Lite
SKUs	AFX00002	AFX00001	AFX00003
Connectivity	<ul style="list-style-type: none">• Ethernet• USB-C• RS485• Wi-Fi• Bluetooth® Low Energy	<ul style="list-style-type: none">• Ethernet• USB-C• RS485	<ul style="list-style-type: none">• Ethernet• USB-C
Barcode	7630049203457	7630049203167	7630049203549
Availability	January 2023		

Related Products

- Power supply (e.g. Finder 78.12)
- Nicla Sense ME
- Nicla Vision
- HMIs
- Industrial sensors
- Arduino Cloud for Business



IoT CLOUD

Support



DOCUMENTATION

Getting started, Datasheets libraries and user manuals
docs.arduino.cc



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