Industrial Equipment based on Arduino, Raspberry Pi and ESP32

Open Source Hardware Infinite Possibilities

Industrial Shields®

ARDBOX

Original **Arduino Leonardo**

ARDUINO

Ardbox PLC Arduino 20 I/Os Analog HF +

10 Inputs:
· (2x) Digital optoisolated inputs (5-24Vdc)
· (8x) Analog (0-10Vdc, 10 bit) | Digital (5-24Vdc), software configurable
· (1x) Interrupt (5-24Vdc). "Part of the digital inputs" (5-24Vdc)

10 Outputs:
· (3x) Opto-isolated digital (5-24Vdc)
· (7x) Analog (0-10Vdc) y Digital / Isolated PWM (5-24Vdc)

Ardbox PLC Arduino 20 I/Os RELAY HF +

10 Inputs:
· (2x) Digital optoisolated inputs (5-24Vdc)
· (8x) Analog (0-10Vdc, 10 bit) | Digital (5-24Vdc), software configurable
· (1x) Interrupt (5-24Vdc). "Part of the digital inputs", (5-24Vdc)

8 Outputs:
· (8x) Relay (220Vac-5A)

The family of Arduino-based PLCs offers the possibility to expand up to 127 modules via I2C, which means it can have up to 7100 I/Os in "Master-Slave" connections, in addition to sensors, etc.

GPRS | LoRa | WIFI

Industrial Protocols
RS485 · RS232 · SPI · I2C · Modbus RTU

M-DUINO

The M-Duino range offers multiple communication options. From LoRa for IoT solutions, to DALI for lighting solutions in Smart Rural or Smart City projects, to other types of wireless communications such as WiFi or GPRS, which adapt to all kinds of industrial or professional needs.

M-DUINO PLC Arduino 19R

6 Inputs:
· (2x) Digital optoisolated inputs (5-24Vdc)
· (4x) Analog (0-10Vdc, 10bit) / Digital (5-24Vdc), software configurable
· (2x) Interrupt (5-24Vdc). "Part of the digital inputs" (5-24Vdc)

11 Outputs:
· (3x) Analog (0-10Vdc, 8 bit) / Digital (5-24Vdc) / Isolated PWM (5-24Vdc)
· (8x) Relay (220Vac-5A)

M-DUINO PLC Arduino 21

13 Inputs:
· (7x) Digital optoisolated (5-24Vdc)
· (6x) Analog (0-10Vdc, 10bit) / Digital (5-24Vdc), software configurable
· (2x) Interrupt (5-24Vdc). "Part of the digital inputs" (5-24Vdc)

8 Outputs:
· (5x) Digital optoisolated (5-24Vdc)
· (3x) Analog (0-10Vdc, 8 bit) / Digital (5-24Vdc) / Isolated PWM (5-24Vdc)

M-DUINO PLC Arduino 38AR

19 Inputs:
· (9x) Digital optoisolated (5-24Vdc)
· (10x) Analog (0-10Vdc, 10bit) / Digital (5-24Vdc), software configurable
· (4x) Interrupt (5-24Vdc). "Part of the digital inputs" (5-24Vdc)

19 Outputs:
· (5x) Digital optoisolated (5-24Vdc)
· (6x) Analog (0-10Vdc, 8 bit) / Digital (5-24Vdc) / Isolated PWM (5-24Vdc)
· (8x) Relay (220Vac-5A).

M-DUINO

Original **Arduino Mega** included

M-DUINO PLC Arduino 38R

12 Inputs:
· (4x) Digital optoisolated (5-24Vdc)
· (8x) Analog (0-10Vdc, 10bit) / Digital (5-24Vdc), software configurable
· (4x) Interrupt (5-24Vdc)."Part of the digital inputs" (5-24Vdc)

22 Outputs:
· (6x) Analog (0-10Vdc, 8 bit) / Digital (5-24Vdc) / Isolated PWM (5-24Vdc)
· (16x) Relay (220Vac-5A)

M-DUINO PLC Arduino 42

26 Inputs:
· (14x) Digital optoisolated (5-24Vdc)
· (12x) Analog (0-10Vdc, 10bit) / Digital (5-24Vdc), software configurable
· (4x) Interrupt (5-24Vdc). "Part of the digital inputs" (5-24Vdc)

22 Outputs:
· (10x) Digital optoisolated (5-24Vdc)
· (6x) Analog (0-10Vdc, 8 bit) / Digital (5-24Vdc) / Isolated PWM (5-24Vdc)

M-DUINO PLC Arduino 50RRA

22 Inputs:
· (10x) Digital optoisolated (5-24Vdc)
· (12x) Analog (0-10Vdc, 10bit) / Digital (5-24Vdc), software configurable
· (6x) Interrupt (5-24Vdc). "Part of the digital inputs" (5-24Vdc)

28 Outputs:
· (4x) Digital optoisolated (5-24Vdc)
· (8x) Analog (0-10Vdc, 8 bit) / Digital (5-24Vdc) / Isolated PWM (5-24Vdc)
· (16x) Relay (220Vac-5A)

M-DUINO PLC Arduino 53ARR

25 Inputs:
· (11x) Digital optoisolated (5-24Vdc)
· (14x) Analog (0-10Vdc, 10bit) / Digital (5-24Vdc), software configurable
· (6x) Interrupt (5-24Vdc). "Part of the digital inputs" (5-24Vdc)

28 Outputs:
· (5x) Digital optoisolated (5-24Vdc).
· (8x) Analog (0-10Vdc, 8 bit) / Digital (5-24Vdc) / Isolated PWM (5-24Vdc)
· (15x) Relay (220Vac-5A)

M-DUINO PLC Arduino 54ARA

29 Inputs:
· (15x) Digital optoisolated (5-24Vdc).
· (14x) Analog (0-10Vdc, 10 bit) / Digital (5-24Vdc), software configurable
· (6x) Interrupt (5-24Vdc). "Part of the digital inputs" (5-24Vdc)

25 Outputs:
· (9x) Digital optoisolated (5-24Vdc)
· (8x) Analog (0-10Vdc, 8 bit)/Digital (5-24Vdc)/ Isolated PWM (5-24Vdc)
· (8x) Relay (220Vac-5A)

M-DUINO PLC Arduino 57R

18 Inputs:
· (6x) Digital optoisolated (5-24Vdc)
· (12x) Analog (0-10Vdc, 10 bit)/ Digital (5-24Vdc), software configurable
· (6x) Interrupt (5-24Vdc). "Part of the digital inputs" (5-24Vdc)

31 Outputs:
· (8x) Analog (0-10Vdc, 8 bit) / Digital (5-24Vdc) / Isolated PWM (5-24Vdc).
· (23x) Relay (220Vac - 5A).

M-DUINO PLC Arduino 57AAR

32 Inputs:
· (16x) Digital optoisolated (5-24Vdc)
· (16x) Analog (0-10Vdc, 10bit) / Digital (5-24Vdc), software configurable
· (6x) Interrupt (5-24Vdc). "Part of the digital inputs" (5-24Vdc)

25 Outputs:
· (10x) Digital optoisolated (5-24Vdc)
· (8x) Analog (0-10Vdc, 8 bit) / Digital (5-24Vdc) / Isolated PWM
· (7x) Relay (220Vac-5A)

The M-Duino family offers multiple protocols and communication options.

LoRa

DALI
Digital Addressable Lighting Interface

Wi Fi

GPRS

M-DUINO PLC Arduino 58

36 Inputs:
· (20x) Digital optoisolated (5-24Vdc).
· (16x) Analog (0-10Vdc) / Digital (5-24Vdc), software configurable
· (6x) Interrupt (5-24Vdc). "Part of the digital inputs" (5-24Vdc)

22 Outputs:
· (14x) Digital optoisolated (5-24Vdc)
· (8x) Analog (0-10Vdc, 8 bit) /Digital (5-24Vdc) / Isolated PWM (5-24Vdc)

ESP32 PLC

ESPRESSIF

ESP32 SRAM 512 KB | CPU Speed 160/240 MHz

ESP32 PLC 14

· (x4) Digital Outputs 12/24 Vdc
Can also act as Digital Inputs 3.3 to 24Vdc)
· (x1) Relay Output 48Vdc at 3A max / 220VAC at 5A max
· (x2) Analog Inputs (0-10Vdc/4-20mA)
· (x2) Analog Inputs (0-10Vdc)
(Can also act as Digital Inputs 3.3 to 24Vdc)
· (x3) Digital Inputs (3.3 to 24Vdc)

ESP32 PLC 19R

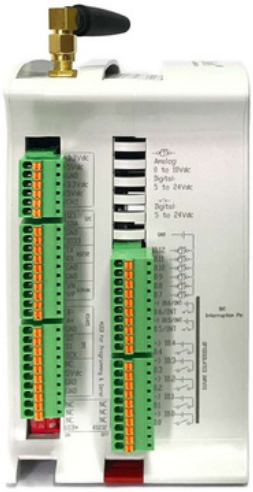
6 Inputs:
· (2x) Digital optoisolated (5-24Vdc)
· (4x) Analog (0-10Vdc, 11bit) / Digital (5-24Vdc) configurables by software
· (2x) Interrupt (5-24Vdc). "Are part of the Digital inputs (5-24Vdc)".

11 Outputs:
· (3x) Analog (0-10Vdc, 12bit) / Digital (5-24Vdc) / PWM Isolated (5-24Vdc)
· (8x) Relay (220Vac - 5A)

ESP32 PLC 21

13 Inputs:
· (7x) Digital optoisolated (5-24Vdc)
· (6x) Analog (0-10Vdc, 11bit) / Digital (5-24Vdc) configurables by software
· (2x) Interrupt (5-24Vdc). "Are part of the Digital inputs (5-24Vdc)".

8 Outputs:
· (5x) Digital optoisolated (5-24Vdc)
· (3x) Analog (0-10Vdc, 12bit) / Digital (5-24Vdc) / PWM Isolated (5-24Vdc)



Ethernet
WiFi
Bluetooth LE
TCP / IP
Modbus RTU
Modbus TCP
RS485
Serial Port
SPI
TTL
I2C
OPTIONAL:
4G
LoRa
Dali
GSM-GPRS
CAN
GPS

Industrial Standard Communications

ESP32 PLC 38AR

19 Inputs:
· (9x) Digital optoisolated (5-24Vdc)
· (10x) Analog (0-10Vdc, 11bit) / Digital (5-24Vdc) configurables by software
· (4x) Interrupt (5-24Vdc). "Are part of the Digital inputs (5-24Vdc)".

19 Outputs:
· (5x) Digital optoisolated (5-24Vdc)
· (6x) Analog (0-10Vdc, 12bit) / Digital (5-24Vdc) / PWM Isolated (5-24Vdc)
· (8x) Relay (220Vac-5A).

ESP32 PLC 38R

12 Inputs:
· (4x) Digital optoisolated (5-24Vdc)
· (8x) Analog (0-10Vdc, 11bit) / Digital (5-24Vdc) configurables by software
· (4x) Interrupt (5-24Vdc). "Are part of the Digital inputs (5-24Vdc)"

22 Outputs:
· (6x) Analog (0-10Vdc, 12bit) / Digital (5-24Vdc) / PWM Isolated (5-24Vdc)
· (16x) Relay (220Vac - 5A)

ESP32 PLC 42

26 Inputs:
· (14x) Digital optoisolated (5-24Vdc)
· (12x) Analog (0-10Vdc, 11bit) / Digital (5-24Vdc) configurables by software
· (4x) Interrupt (5-24Vdc). "Are part of the Digital inputs (5-24Vdc)".

16 Outputs:
· (10x) Digital optoisolated (5-24Vdc)
· (6x) Analog (0-10Vdc, 12bit) / Digital (5-24Vdc) / PWM Isolated (5-24Vdc)

ESP32 PLC

ESP32 PLC 50RRA

23 Inputs:
· (11x) Digital optoisolated (5-24Vdc)
· (12x) Analog (0-10Vdc, 11bit) / Digital (5-24Vdc) configurables by software
· (6x) Interrupt (5-24Vdc). "Are part of the Digital inputs (5-24Vdc)"

30 Outputs:
· (5x) Digital optoisolated (5-24Vdc)
· (9x) Analog (0-10Vdc, 12bit) / Digital (5-24Vdc) / PWM Isolated (5-24Vdc)
· (16x) Relay (220Vac-5A)

ESP32 PLC 53ARR

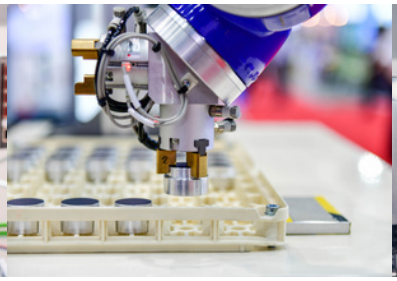
25 Inputs:
· (11x) Digital optoisolated (5-24Vdc)
· (14x) Analog (0-10Vdc, 11bit) / Digital (5-24Vdc) configurables by software
· (6x) Interrupt (5-24Vdc). "Are part of the Digital inputs (5-24Vdc)"

30 Outputs:
· (5x) Digital optoisolated (5-24Vdc).
· (9x) Analog (0-10Vdc, 12bit) / Digital (5-24Vdc) / PWM Isolated (5-24Vdc)
· (16x) Relay (220Vac-5A)

ESP32 PLC 54ARA

30 Inputs:
· (16x) Digital optoisolated (5-24Vdc)
· (14x) Analog (0-10Vdc, 11bit) / Digital (5-24Vdc) configurables by software
· (6x) Interrupt (5-24Vdc). "Are part of the Digital inputs (5-24Vdc)"

27 Outputs:
· (10x) Digital optoisolated (5-24Vdc)
· (9x) Analog (0-10Vdc, 12bit) / Digital (5-24Vdc) / PWM Isolated (5-24Vdc)
· (8x) Relay (220Vac-5A)



ESP32 PLC 57R

18 Inputs:
· (6x) Digital optoisolated (5-24Vdc)
· (12x) Analog (0-10Vdc, 11bit) / Digital (5-24Vdc) configurables by software
· (6x) Interrupt (5-24Vdc). "Are part of the Digital inputs (5-24Vdc)"

33 Outputs:
· (9x) Analog (0-10Vdc, 12bit) / Digital (5-24Vdc) / PWM Isolated (5-24Vdc)
· (24x) Relay (220Vac - 5A).

ESP32 PLC 57AAR

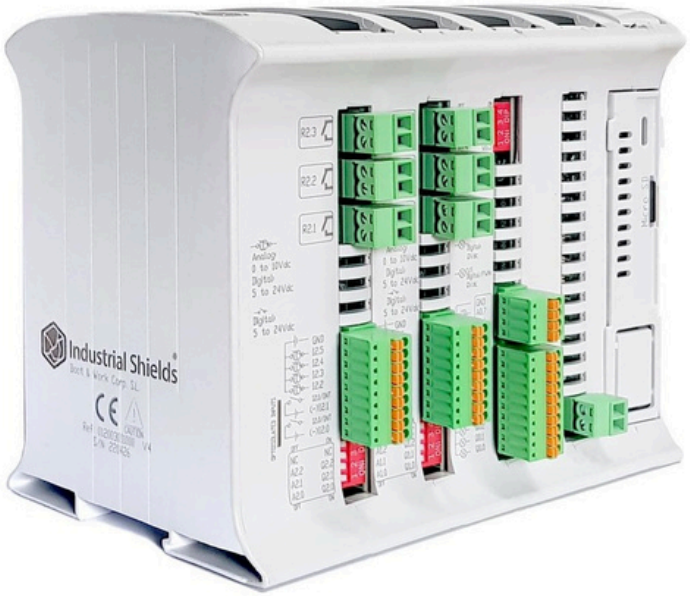
32 Inputs:
· (16x) Digital optoisolated (5-24Vdc)
· (16x) Analog (0-10Vdc, 11bit) / Digital (5-24Vdc) configurables by software
· (6x) Interrupt (5-24Vdc). "Are part of the Digital inputs (5-24Vdc)"

27 Outputs:
· (10x) Digital optoisolated (5-24Vdc)
· (9x) Analog (0-10Vdc, 12bit) / Digital (5-24Vdc) / PWM Isolated (5-24Vdc)
· (8x) Relay (220Vac - 5A)

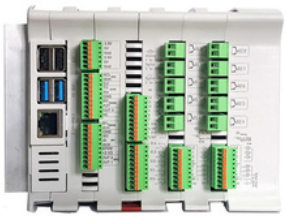
ESP32 PLC 58

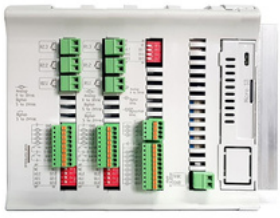
37 Inputs:
· (21x) Digital optoisolated (5-24Vdc)
· (16x) Analog (0-10Vdc, 11bit) / Digital (5-24Vdc) configurables by software
· (6x) Interrupt (5-24Vdc). "Are part of the Digital inputs (5-24Vdc)"

24 Outputs:
· (15x) Digital optoisolated (5-24Vdc)
· (9x) Analog (0-10Vdc, 12bit) / Digital (5-24Vdc) / PWM Isolated (5-24Vdc)



RASPBERRY PLC





The Raspberry Pi PLC offers enhanced processing speed, diverse communication options, and robust data and OS security.

- ·UPS – UNINTERRUPTED POWER SUPPLY
- ·MULTI-PROCESS
- ·HIGH PROCESSING SPEED
- ·MULTIPLE CONNECTIVITY, MULTIPLE OPTIONS
- ·RTC -REAL-TIME CLOCK

Raspberry PLC 19R

6 Inputs:
• (4x) Analog (0-10Vdc) / Digital (5-24Vdc) software configurable
• (2x) Digital optoisolated

11 Outputs:
· (3x) Analog (0-10Vdc) / Digital (5-24Vdc)
· (8x) Relay (220Vac - 5A)
· (2x) Interrupt (5-24Vdc).

Raspberry PLC 21

13 Inputs:
· (6x) Analog (0-10Vdc) / Digital (5-24Vdc) software configurable
· (7x) Digital (5-24Vdc)

8 Outputs:
· (5x) Digital (5-24Vdc).
· (3x) Analog (0-10Vdc) / Digital (5-24Vdc).

Powered by **Raspberry Pi**

With the power of Linux

Raspberry PLC 38AR

19 Inputs:
· (10x) Analog (0-10Vdc) / Digital (5-24Vdc) software configurable
· (8x) Digital (5-24Vdc)

19 Outputs:
· (5x) Digital (5-24Vdc).
· (6x) Analog (0-10Vdc) / Digital (5-24Vdc).
· (8x) Relay (220Vac - 5A)

Raspberry PLC 38R

12 Inputs:
· (8x) Analog (0-10Vdc) / Digital (5-24Vdc) software configurable
· (4x) Digital (5-24Vdc)

6 Outputs:
· (6x) Analog (0-10Vdc) / Digital (5-24Vdc)
· (16x) Relay (220Vac - 5A)
· (4x) Interrupt (5-24Vdc).

Raspberry PLC 42

26 Inputs:
· (12x) Analog (0-10Vdc) / Digital (5-24Vdc) software configurable
· (14x) Digital (5-24Vdc)

16 Outputs:
· (10x) Digital (5-24Vdc).
· (6x) Analog (0-10Vdc) / Digital (5-24Vdc)

Raspberry PLC 50RRA

25 Inputs:
· (14x) Analog (0-10Vdc) / Digital (5-24Vdc) software configurable
· (11x) Digital (5-24Vdc)

27 Outputs:
· (5x) Digital (5-24Vdc).
· (9x) Analog (0-10Vdc) / Digital (5-24Vdc)
· (16x) Relay (220Vac-5A)

Raspberry PLC 53ARR

25 Inputs:
· (14x) Analog (0-10Vdc) / Digital (5-24Vdc) software configurable
· (11x) Digital (5-24Vdc)

36 Outputs:
· (5x) Digital (5-24Vdc)
· (9x) Analog (0-10Vdc) / Digital (5-24Vdc)
· (16x) Relay (220Vac-5A)
· (6x) Interrupt (5-24Vdc)

Raspberry PLC 54 ARA

32 Inputs:
· (16x) Analog (0-10Vdc) / Digital (5-24Vdc) software configurable
· (16x) Digital (5-24Vdc)

33 Outputs:
· (10x) Digital (5-24Vdc)
· (9x) Analog (0-10Vdc) / Digital (5-24Vdc)
· (8x) Relay (220Vac-5A)
· (6x) Interrupt (5-24Vdc)

Raspberry PLC 57 AAR

32 Inputs:
· (16x) Analog (0-10Vdc) / Digital (5/24Vdc) software configurable
· (16x) Digital (5-24Vdc)

30 Outputs:
• (10x) Digital (5-24Vdc)
· (9x) Analog (0-10Vdc) / Digital (5-24Vdc)
· (8x) Relay (220Vac - 5A)
· (8x) Interrupt (5-24Vdc)

Raspberry PLC 57R

18 Inputs:
· (12x) Analog (0-10Vdc) / Digital (7-24Vdc) software configurable
· (6x) Digital (5-24Vdc)

33 Outputs:
· (9x) Analog (0-10Vdc) / Digital (7-24Vdc).
· (24x) Relay (220Vac - 5A)

Raspberry PLC 58

39 Inputs:
· (18x) Analog (0-10Vdc) / Digital (5-24Vdc) software configurable
· (21x) Digital (5-24Vdc)

24 Outputs:
· (9x) Analog (0-10Vdc) / Digital (5-24Vdc).
· (15x) Digital (5-24Vdc)

Powered by Raspberry Pi

GateBerry

Available with or without Raspberry Pi

GateBerry

Industrial **gateway** Powered by Raspberry Pi and Linux

GateBerry combines the robustness of industrial hardware with the flexibility of **Linux** and the power of **Raspberry Pi**.

Designed for:

✅ Data acquisition
✅ Monitoring
✅ Communication

A compact, powerful gateway with standard and optional communication boards.

Enjoy also power protection and reliability for your **Raspberry Pi. GateBerry** adds the UPS that ensures uninterruptible power supply and protects your data.

Special cooler to keep the Raspberry Pi best performance.

Features:

Robust electrical protection

Guarantees a stable power supply, preventing hardware damage.

Optional Raspberry Pi package

For your convenience, UPSafePI is available in two variants: with or without Raspberry Pi.

Easy installation and configuration

UPSafePI has been designed with ease of use in mind.

Versatile connectivity

With UPSafePI, you can say goodbye to annoying power outages.

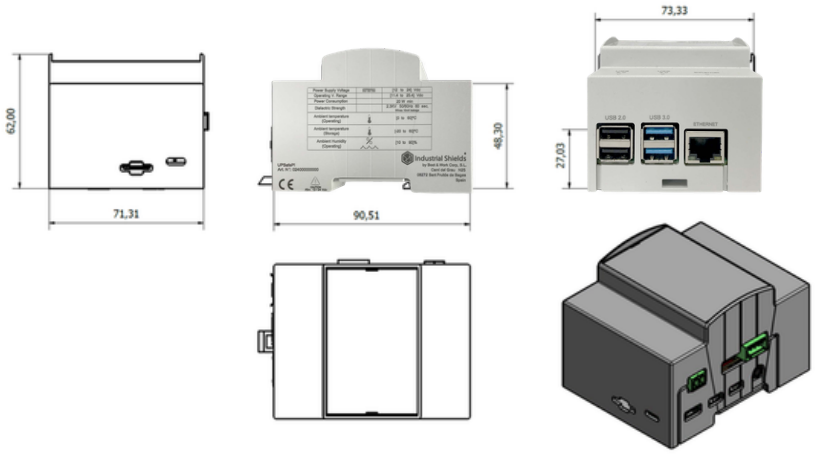
Long battery life

Equipped with a high capacity rechargeable battery.

Seamless energy continuity

UPSafePI offers several connectivity options, such as USB, Ethernet and GPIO ports.

Overall measurements of the device



For your professional solutions with Raspberry Pi, **GateBerry** is your reliable partner.

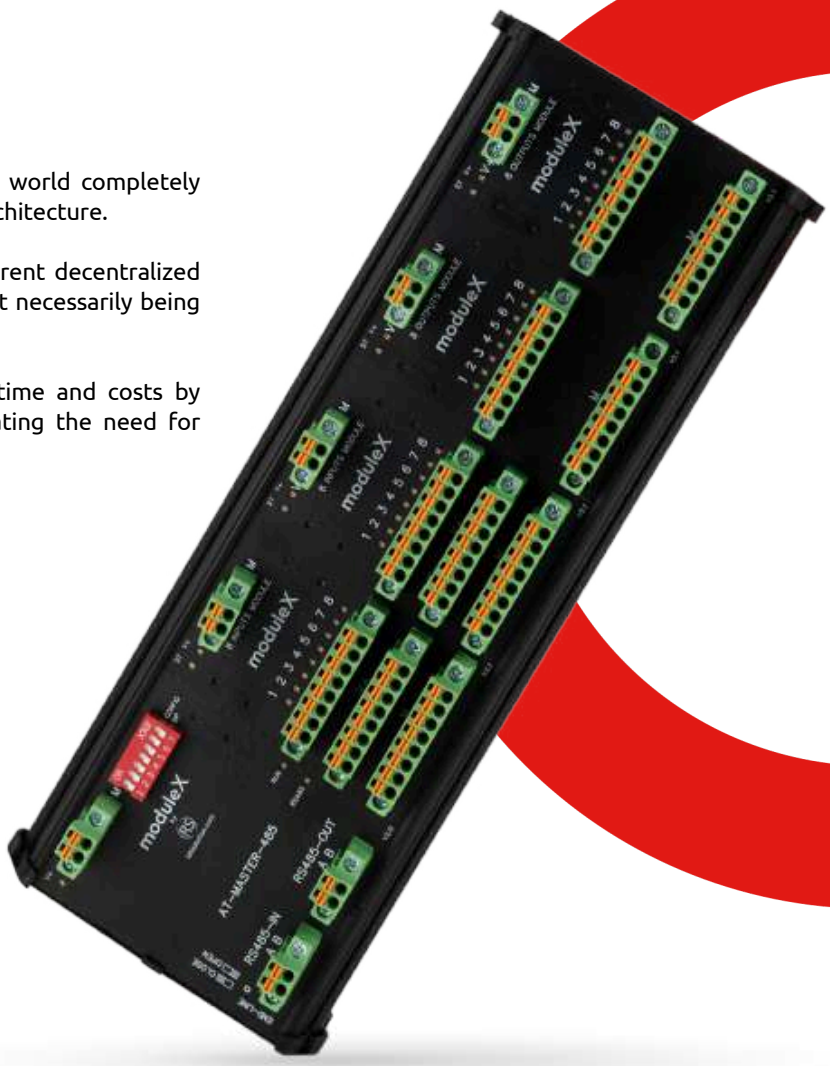
moduleX

Expansion I/O Module

ModuleX is an expansible I/O platform for industrial world completely designed and developed to implement a distributed architecture.

The main asset of ModuleX is its ability to have different decentralized clusters along the automation line or machine, without necessarily being confined to a single cabinet.

Last but not least, this solution helps reduce both time and costs by allowing direct wiring to secondary modules, eliminating the need for distribution blocks.



- **Expandable I/O Module**
- **Optional on DIN rail**
- **Distributed I/O architecture**
- **Daisy-chain connection**
- **Automatic configuration**

Board type:

MX-master485

Master module compatible with all PLCs with Modbus-RTU capabilities on the market.

The master module can handle up to 16 secondary modules, forming an I/O cluster, and up to 16 clusters can be connected on the same RS485 bus.

moduleX

Features:

PLUG & PLAY

No software configuration is required; the master can be connected through 2 wires to any device with an RS485.

MODULAR

A cluster consists of 1 master device that can handle up to 16 slave modules. By adding or removing modules, the master self-configures dynamically, eliminating the need for intervention by an expert technician for reconfiguration.

DISTRIBUTED

The RS485 bus can be extended from each master, reaching up to 16 distributed clusters within a facility. This allows for up to 2048 digital I/O points.

SIMPLIFIED WIRING

In a traditional electrical panel, I/O modules or PLCs are wired to distribution terminals, to which sensors and actuators are then connected. Our modules eliminate this step for installers by providing power distribution terminals for direct wiring. This results in significant space, time, and cost savings.

SPEED

Each cluster achieves a refresh rate of 10 mSec for 128 I/O points!.

4 MODULES AVAILABLE

DIGITAL

MX-8DI: 8 digital inputs
MX-8DO: 8 digital outputs

8 digital inputs

8 digital outputs

4 analog outputs

4 analog inputs

ANALOG

MX-4AI: 4 analog inputs
MX-4AO: 4 analog outputs

WIS IoT Open-Source micro-controller based on **Arduino MKR1010 / ESP32**

Transform your industrial processes with the power of IoT. Our open-source micro-controller offers unparalleled versatility and connectivity for your most demanding applications.

The **WIS micro-controller** combines the benefits of the **Open Source Hardware** to provide a reliable and customizable solution for your industry. Elevate your industrial operations with the latest in IoT technology.

Description

Device IOs: 4 DI, 4 DO, 4 AI (0-10V) or DI (selectable), 1 AO and 2
Multifunction pins directly connected to microprocessor.
Available with **LoRa/LoRaWAN, Narrow Band, LTE, 4G, GPRS**
Communication Interfaces: RJ45, RS485 Half Duplex (or UART), I2C and SPI.
Communication Protocols: Wi-Fi and Bluetooth.
Others: RTC, EEPROM, ATECCX08 (cryptographic chipset), µSD interface and Reset Button.

Specifications

CPU

CPU Type: Arduino MKR1010 (ARM Cortex - M0 32-bit SAMD21)
Espressif ESP32-WROOM-32UE
Clock Speed
MKR1010: 32.768 kHz (RTC), 48 MHz (Processor)
ESP32: 40 MHz (Processor)q
Memory
MKR1010 - SAMD21: 256kB Flash, 32kB SRAM
ESP32: 448kB ROM, 520kB SRAM

Right face

Top

Inputs/Outputs

Digital Inputs

Input Voltage, High > 5 V DC (max. 24 V DC)
Input Voltage, Low < 3,3 V DC
Imin. 2 mA (at 5 V DC input) -12mA (at 24 V DC input)
Number of **Digital Inputs** 4 + 4* (Use Analogue Inputs as Digital Inputs)
Reverse Polarity Protection Yes
Galvanic Isolation Yes
Status Led Yes (only on 4 pure Digital Inputs, not Analog ones)

Analog Inputs

Input Range 0 to 10 V DC
Type of Inputs Referenced Single Ended (all analog inputs share the same common reference on the device)
Input Impedance 39 kΩ
Number of analogue inputs 4
Digital Input usage Analog Inputs can be used as digital Input Signals (max. 24 V DC)
Resolution ADC 12 bits maximum

Digital Outputs

Output Voltage, High Vin -1,0V
Input Voltage, Low GND (Supply Ground)
Imax 70 mA
Protection Diode
Number of Digital Outputs 4
Galvanic Isolation Yes
Status Led Yes

Analog Outputs

Output Range 0 to 10 V DC
Output Reference Referenced Single Ended (analog output share the same common reference on the device)
Imax 10 mA
Number of Analog Outputs 1
Resolution DAC 10 bits maximum

Communications

LoRa/LoRaWAN
RN2483 - low-power long-range RF technology-based transceiver module
Radio Region --> Europe
Key Features: Embeds LoRaWAN™ Class A protocol stack.
Sub-GHz, 433/868 MHz
European R&TTE Directive

NB Narrow Band
Based on the SARA-R4 Series, an ultra-compact LTE Cat M1/NB1, and EGPRS mo
Radio Region --> multi-regional coverage with data up to 1200 kbit/s.

External Buses Available
Ethernet, I2C, SPI, RS485 half-duplex or UART

Wireless communications
Bluetooth and Wi-Fi

Left face

Front

Connection Data

Wire Connection Cross Section AWG, min - max AWG 24 - AWG 14
Solid, min H05(07) V-U, min – max 0,2 mm2 - 1,5 mm2
Stranded, min H07 V-R, min – max 0,2 mm2 - 2,5 mm2
Flexible, min H05(07) V-K, min – max 0,2 mm2 - 2,5 mm2
w. plastic collar ferrule, DIN 46228 pt.4, min - max 0,25 mm2 - 2,5 mm2
Ethernet Interface RJ45 Female Socket
USB (Programming Interface) Micro-USB Type B Female Socket
External antenna connections SMA Female
Other µSD Interface, Reset Button, Real Time Clock (CR1220 Battery not included)

Back

Multifunction Pins

Voltage Operation 3,3 V / 5 V directly connected to Micro-controller pins
Voltage selection Configurable via DIP switches
Signal functions Digital Input, Digital Output, Interrupts, PWM
Imax (when configured as Output) <7 mA

Voltage Out Pins

5 V pin 5 V DC for sensor Power Supply (1 A max.)
3.3 V pin 3.3 V DC for sensor Power Supply (300 mA max.)
GND pins Common reference in all GND pins (Vin-)

Power Supply

Voltage Range (Vin) 11,4V DC to 25,4 V DC
Max Power 30 W
Insulation Resistance 20 MΩ min. at 500 V DC between AC terminals and protective ground terminals
Dielectric strength 2.300 V AC at 50/60 Hz for one minute with a leakage current of 10 mA max. between all the external AC terminals and the protective ground terminal.
Power supply holding time 2 ms min.

Directives

RoHS
EN 50581
LVD
EN 61010-1, EN 61010-2-201
EMC
IEC 61000-6-1, IEC 61000-6-2, IEC 61000-6-3, IEC 61000-6-4
RED
EN 301 489-1, EN 301 489-52, EN 301 489-3, EN 301 489-17, EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, EN 301 908-1, EN 301 908-2, EN 301 908-13, EN 301 511
Safety
IEC62311

Marking

CE UKCA

Powered by Raspberry Pi

PANEL PC

Panel PC with Linux for industrial environment

Available in 7”, 10.1” & 18.5”

TFT
10.1" TouchScreen LVDS, 900 nits, 170° viewing angle.
Format 16:9, 1280x720.

Video in
MIPI CSI connector which lets you install an RPF camera module.

Integrated Storage
SD

Power supply
12Vdc to 24Vdc (5.5x2.5 Jack)

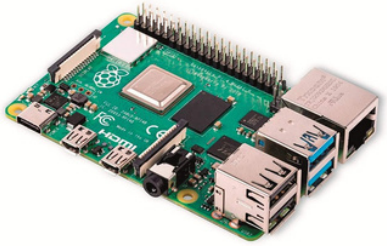
Low level devices
10x GPIOs , SPI , I2C , UART

Current consumption
2.5A (12Vdc) // 1,25A (24Vdc)

LAN connectivity
1GB 1000 Base-T Ethernet

CPU

Raspberry Pi
Quad-core A53 (ARMv8)
64-bit @ 1.4GHz



SOFTWARE

Linux

This Panel PC is based on GNU/Linux Raspberry Pi OS installed on an SD card.
It has many interfaces built in: Ethernet, USB, ...

Using the Ethernet port you can remotely control all parameters, data and inputs/outputs of your control system.

RTC & UPS included

I/O and CONECTIONS

5x optoisolated digital outputs (5-24Vdc)
3x optoisolated digital inputs (5-24Vdc)
2x analog inputs (4-20mA)
2x analog/digital inputs (5-24Vdc for digital) (0-10Vdc for analog)
1x Serial TTL-RS232* - 1x RS485 (half-full duplex) - 1x I2C - 1x SPI

LIBRARIES, COMMUNICATIONS, PROTOCOLS

Available Libraries in our Blog and GitHub

Application Layer	MySQL	SQL Server	SimpleComm	Modbus TCP	MQTT	http	Raw Data	NTD	Raw Data	Modbus RTU	SimpleComm	Raw Data	Modbus RTU	SimpleComm	Sensor Data	Sensor Data	Sensor Data
	Data Base																
4- Transport	TCP							UDP									
3- Network	IP																
2- Data Link	Ethernet/WiFi/LTE/4G								RS-485			RS-232			TTL/ SPI	I2C	One Wire
1- Physical	GPRS								Serial UART								

https://github.com/Industrial-shields

https://www.industrialshields.com/blog/industrial-shields-blog-1

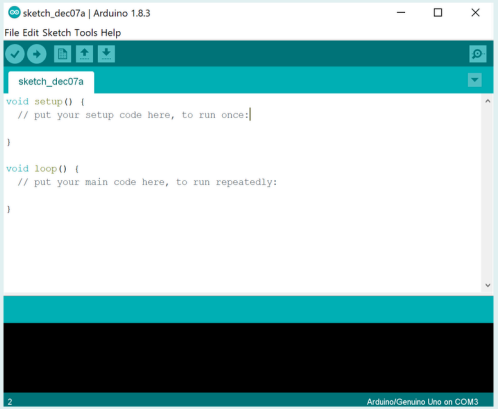
With our PLCs you can communicate using various protocols such as RS-232, RS-485, Modbus TCP, or using Ethernet, etc. It is possible to send and receive information from various types of server (HTTP, NTP, MQTT) or database servers.

SOFTWARE

Arduino IDE is the Original platform to program Arduino boards

Our Arduino based PLCs use Original Arduino boards assembled inside all devices:

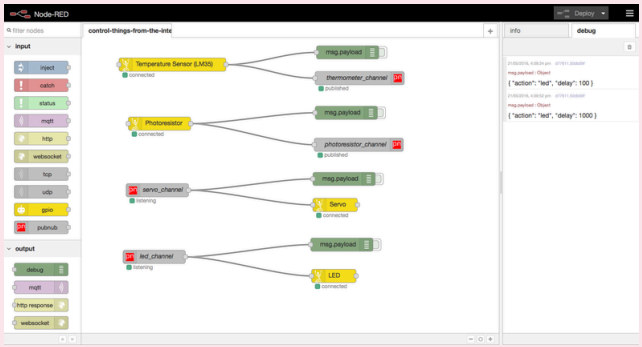
- Free software licenses
- Standard Libraries available
- Documentation and examples available, ready to use
- Industrial Shields libraries available to facilitate the programming of our PLCs



NodeRED. Platform to develop Apps, Servers, Dashboards and more.

Node-Red is a programming tool for wiring together hardware devices, APIs and online services in new and interesting ways. It is very intuitive, easy and fast-programming. It is an excellent tool for working graphically.

- It provides a browser-based editor that makes it easy to connect flows using nodes
- Online debugging aplication.



COMPANY

Industrial Shields was born in October 2012 from the hand of an engineer, who, searching for a more flexible PLC equipment and a better price, decided to develop his own solution using **Open Source Hardware**.

Therefore **Industrial Shields** is the brand that provides **Open Source Hardware** for industrial use, including all design and safety required, combining the best of two worlds.

The aim of our company is to provide low-cost solutions for automation in industrial environments.

Open Source Hardware solutions are not yet widely introduced in the industrial sector, it is a growing market and we are its pioneers.

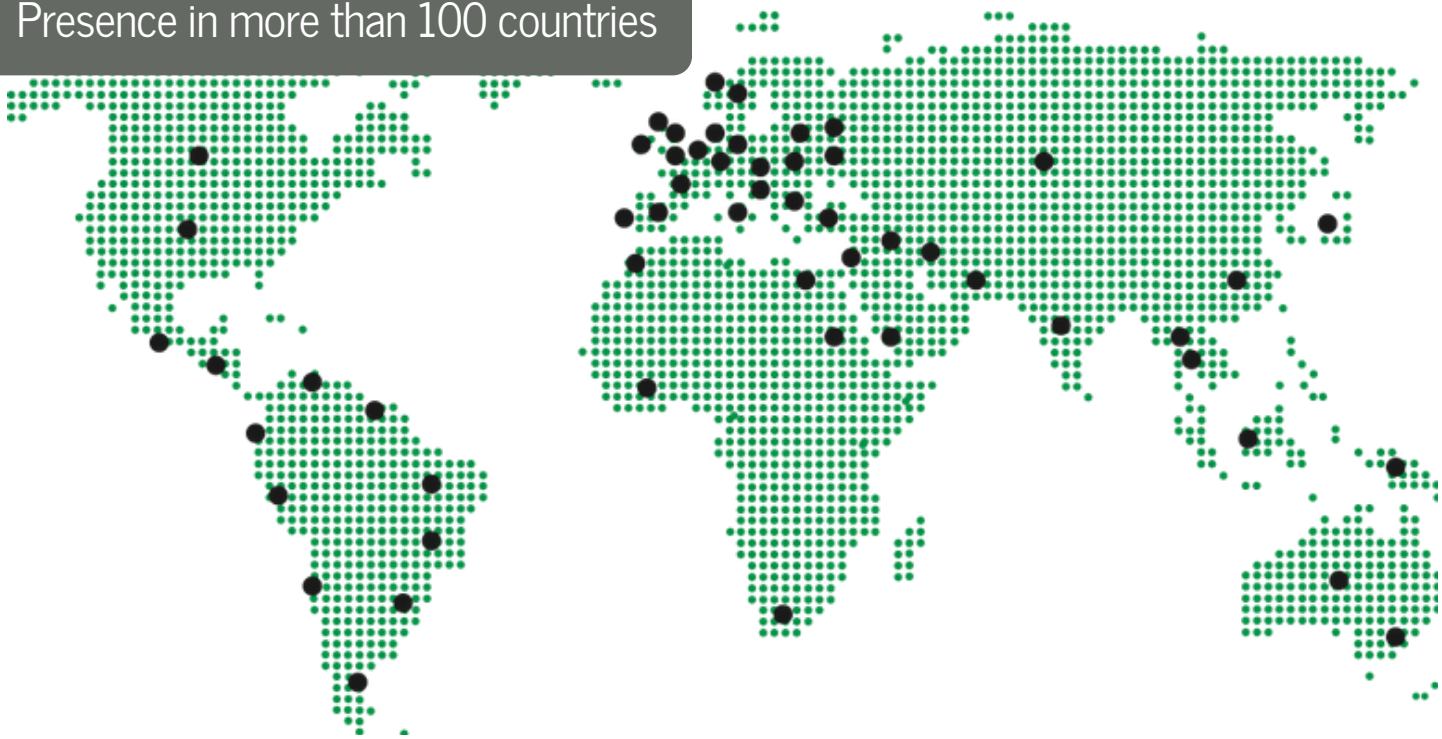
In addition, the Open Source solutions are **more flexible and accessible** than standard industrial solutions and, furthermore, **the software is license free.**

QUALITY

In compliance with:
EN61010-1 | EN61010-2-201 | EN61131-2:2007 (Clause 8: Zone A/B EMC and clause 11:LVD) | EN61000-6-4:2007 + A1 2011 (Emissions) | EN 61000-6-2:2005 (Inmunity) | EMC: FCC Part 15

RoHS COMPLIANT

Presence in more than 100 countries



Our **sales**, **technical and support team** will advise you during the needs definition phase and for the implementation of your project.

Get in touch with us. We are here, glad to help and support you.

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