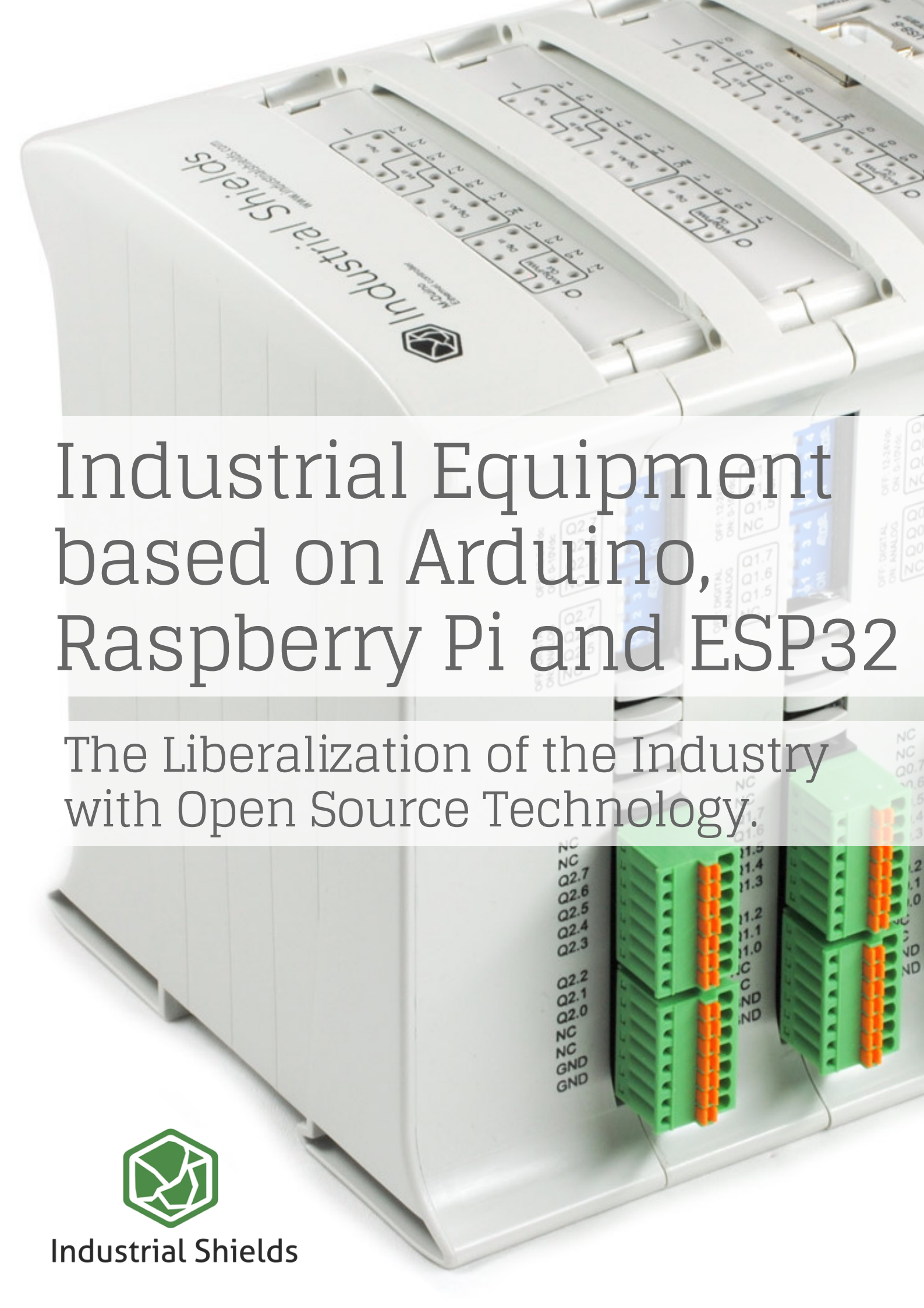


Industrial Equipment based on Arduino, Raspberry Pi and ESP32

The Liberalization of the Industry with Open Source Technology.

Industrial Shields

10 IOS

10 IOS Digital Module with ESP32

- **10 GPIOs**
- **RS485 - Ethernet - WiFi**

Original **ESP32** included

10 IOS Relay Module with ESP32

- **10 GPIOs**
- **10 Relay Output**
- **RS485 - Ethernet - WiFi**

10 IOS Digital Module with Arduino

- **10 GPIOs**
- **RS485 - Ethernet**

Original **Arduino Nano** included

10 IOS Relay Module with Arduino

- **10 GPIOs**
- **10 Relay Output**
- **RS485 - Ethernet**

ARDBOX

Also Available with:
GPRS
WiFi & Bluetooth LE

Original **Arduino Leonardo** included

PLC Arduino Ardbox
20 I/Os Analog HF +

10 Inputs:
· (2x) Digital Optoisolated Inputs (5-24Vdc)
· (8x) 10 bit Analog Inputs (0-10V) | Digital (5-24Vdc) Inputs configurable by software
· (1x) Interrupt (5-24Vdc). "Can work like Digital (5-24Vdc)"

10 Outputs:
· (3x) Digital Optoisolated Outputs (5-24Vdc)
· (7x) Analog (0-10Vdc) and Digital / PWM Isolated (5-24Vdc)

PLC Arduino Ardbox
20 I/Os RELAY HF +

10 Inputs:
· (2x) Digital Optoisolated Inputs (5-24Vdc)
· (8x) 10 bit Analog Inputs (0-10V) | Digital (5-24Vdc) Inputs configurable by software
· (1x) Interrupt (5-24Vdc). "Can work like Digital (5-24Vdc)"

8 Outputs:
· (8x) Relay (220Vac-5A)

Industrial Protocols

RS485 · RS232 · SPI · I2C · Modbus RTU

EEPROM 1KB | SRAM 2.5 KB | Flash 32 KB | CPU Speed 16 MHz

REFERENCE LIST - 10IOS

		Communications								Inputs / Outputs						
Reference	Description	Serial TTL (UART)	I2C	SPI	RS232	RS485 Half / Full	Ethernet	Wi-Fi & BLE	GPRS / GSM	Digital Inputs	Analog Inputs	Interrupt Inputs	Digital Outputs	Analog Outputs	Relay Outputs	In / Out 5Vdc
013001000100	10 I/O's Digital Module - CPU	-	-	-	-	x1	x1	-	-	x10 GPIOS		-	-	-	-	-
013002000100	10 I/O's Digital Module - CPU ESP32	-	-	-	-	x1	x1	x1	-	x10 GPIOS		-	-	-	-	-
013001000200	10 I/O's Relay Module - CPU	-	-	-	-	x1	x1	-	-	x10		-	-	-	x10	-
013002000200	10 I/O's Relay Module - CPU ESP32	-	-	-	-	x1	x1	x1	-	x10		-	-	-	x10	-

REFERENCE LIST - ARDBOX

		Communications								Inputs / Outputs						
Reference	Description	Serial TTL (UART)	I2C	SPI	RS232	RS485 Half / Full	Ethernet	Wi-Fi & BLE	GPRS / GSM	Digital Inputs	Analog Inputs	Interrupt Inputs	Digital Outputs	Analog Outputs	Relay Outputs	In / Out 5Vdc
IS.AB20AN.HF+	PLC Arduino ARDBOX Analog 20	-	x1 n.1	x1	x1 n.2	x1 n.3	-	-	-	x2	x8 n.4	x1 n.5	x3	x7 n.6	-	x2 n.7
IS.AB20REL.HF+	PLC Arduino ARDBOX Relay 20	-	x1 n.8	x1	x1 n.9	x1 n.10	-	-	-	x2	x8 n.4	x1 n.5	-	-	x8	x2 n.7
006001001200	PLC Arduino ARDBOX Analog & GPRS 20	-	x1 n.1	-	x1 n.2	x1 n.3	-	-	x1 n.14	x2	x8 n.4	x1 n.5	x3	x7 n.6	-	x1 n.15
006001001300	PLC Arduino ARDBOX Relay & GPRS 20	-	x1 n.8	-	x1 n.9	x1 n.10	-	-	x1 n.14	x2	x8 n.4	x1 n.5	-	-	x8	x1 n.15
007001001200	PLC Arduino ARDBOX Analog WiFi & BLE 20	-	x1 n.1	-	x1 n.2	x1 n.3	-	x1 n.17	-	x2	x8 n.4	x1 n.5	X3	x7 n.6	-	x2 n.7
007001001300	PLC Arduino ARDBOX Relay WiFi & BLE 20	-	x1 n.8	-	x1 n.9	x1 n.10	-	x1 n.17	-	x2	x8 n.4	x1 n.5	-	-	x8	x2 n.7

n.1: 1 Input & 1 Digitial Out are lost | n.2: 2 Inputs & 2 Relay are lost | n.3: 2 Inputs & 2 Digital Outputs & 2 Analog Outputs are lost | n.4: From the (Xx) Digital, (Yx) can be configured as Analog (Xx = Total Digital In, Yx = Number of Analog In) | n.5 : From the (Xx) Digital, (Zx) can be configured as Interrupt (Xx = Total Digital In, Zx = Number of Interrupt pins) | n.6: If using RS-232 or RS-485 (x2) Analog Output are lost | n.7 : If using pin 2 and pin 3, (x2) In are lost | n.8: 1 Inputs & 1 Relay are lost | n.9: 2 Inputs & 2 Relay are lost | n.10: 2 Inputs & 2 Relay are lost | n.11: USB Only meant for uploading or debugging, not always connected as serial in a project! | n.12: 2 Inputs are lost | n.13: If using Serial 1. GPRS/GSM not available | n.14: If using GPRS/GSM, Serial 1 is not available | n.15: Pin 2 is used as GPRS/GSM Module Reset, DON'T USE! | n.16: If using Serail 1, WiFi & BLE are not available | n.17: If using WiFi & BLE, Serial 1 is not available | n.18: Flat ribbon cable with 40-pin IDC connector is required to connect to Raspberry Pi Internal (Not included).

ETHERNET

M-DUINO

M-DUINO PLUS

- Plus SECURITY
- Plus PROTECTION
- Plus ESD improvement
- Modbus RTU
  - Half-duplex
  - Full-duplex
- Modbus TCP
- RTC
- MicroSD socket

M-DUINO PLC Arduino 19R

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

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

RS485
RS232
SPI
TTL
I2C

Original **Arduino Mega** included

ARDUINO

Ethernet
TCP / IP
Modbus RTU
Modbus TCP

Industrial Standard Communications

M-DUINO PLC Arduino 38AR

19 Inputs:
· (9x) Digital Optoisolated (5-24Vdc)
· (10x) Analog (0-10Vdc, 10bit) / 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, 8 bit) / Digital (5-24Vdc) / PWM Isolated (5-24Vdc)
· (8x) Relay (220Vac-5A).

M-DUINO PLC Arduino 38R

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

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

ETHERNET

M-DUINO

M-DUINO PLC Arduino 50RRA

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

28 Outputs:
· (4x) Digital Optoisolated (5-24Vdc)
· (8x) Analog (0-10Vdc, 8 bit) / Digital (5-24Vdc) / PWM Isolated (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) configurables by software
· (6x) Interrupt (5-24Vdc). "Are part of the Digital inputs (5-24Vdc)"

28 Outputs:
· (5x) Digital Optoisolated (5-24Vdc).
· (8x) Analog (0-10Vdc, 8 bit) / Digital (5-24Vdc) / PWM Isolated (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), configurable by software
· (6x) Interrupt (5-24Vdc). "Are part of the Digital inputs (5-24Vdc)"

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

Industrial Standard Communications

RS485 - RS232 - SPI - TTL - I2C
Ethernet - TCP / IP - Modbus RTU / TCP

Original **Arduino Mega** included

EEPROM 4 KB | SRAM 8 KB
Flash 256 KB | CPU Speed 16 MHz

ARDUINO

M-DUINO PLC Arduino 57R

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

31 Outputs:
· (8x) Analog (0-10Vdc, 8 bit) / Digital (5-24Vdc) / PWM Isolated (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) configurable by software
· (6x) Interrupt (5-24Vdc). "Are part of the Digital inputs (5-24Vdc)"

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

M-DUINO PLC Arduino 58

36 Inputs:
· (20x) Digital Optoisolated (5-24Vdc).
· (16x) Analog (0-10Vdc) / Digital (5-24Vdc) configurable by software
· (6x) Interrupt (5-24Vdc). "Are part of the Digital inputs (5-24Vdc)"

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

REFERENCE LIST – ETHERNET PLC

		Communications								Inputs / Outputs						
Reference	Description	Serial TTL (UART)	I2C	SPI	RS232	RS485 Half / Full	Ethernet	Wi-Fi & BLE	GPRS / GSM	Digital Inputs	Analog Inputs	Interrupt Inputs	Digital Outputs	Analog Outputs	Relay Outputs	In / Out 5Vdc
IS.MDuino.21+	M-DUINO PLC Arduino 21	x2 n.11	x1 n.12	x1	x1	x1	x1	-	-	x7	x6 n.4	x2 n.5	x5	x3	-	x2 n.7
IS.MDuino.42+	M-DUINO PLC Arduino 42	x2 n.11	x1 n.12	x1	x1	x1	x1	-	-	x14	x12 n.4	x4 n.5	x10	x6	-	x2 n.7
IS.MDuino.58+	M-DUINO PLC Arduino 58	x2 n.11	x1 n.12	x1	x1	x1	x1	-	-	x20	x16 n.4	x6 n.5	x14	x8	-	x2 n.7
IS.MDuino.19R+	M-DUINO PLC Arduino 19R	x2 n.11	x1 n.12	x1	x1	x1	x1	-	-	x2	x4 n.4	x2 n.5	x0	x3	x8	x2 n.7
IS.MDuino.38R+	M-DUINO PLC Arduino 38R	x2 n.11	x1 n.12	x1	x1	x1	x1	-	-	x4	x8 n.4	x4 n.5	x0	x6	x16	x2 n.7
IS.MDuino.57R+	M-DUINO PLC Arduino 57R	x2 n.11	x1 n.12	x1	x1	x1	x1	-	-	x6	x12 n.4	x6 n.5	x0	x8	x23	x2 n.7
IS.MDuino.38AR+	M-DUINO PLC Arduino 38AR	x2 n.11	x1 n.12	x1	x1	x1	x1	-	-	x9	x10 n.4	x4 n.5	x5	x6	x8	x2 n.7
IS.MDuino.53ARR+	M-DUINO PLC Arduino 53ARR	x2 n.11	x1 n.12	x1	x1	x1	x1	-	-	x11	x14 n.4	x6 n.5	x5	x8	x15	x2 n.7
IS.MDuino.57AAR+	M-DUINO PLC Arduino 57AAR	x2 n.11	x1 n.12	x1	x1	x1	x1	-	-	x16	x16 n.4	x6 n.5	x10	x8	x7	x2 n.7
IS.MDuino.54ARA+	M-DUINO PLC Arduino 54ARA	x2 n.11	x1 n.12	x1	x1	x1	x1	-	-	x15	x14 n.4	x6 n.5	x9	x8	x8	x2 n.7
IS.MDuino.50RRA+	M-DUINO PLC Arduino 50RRA	x2 n.11	x1 n.12	x1	x1	x1	x1	-	-	x10	x12 n.4	x6 n.5	x4	x8	x16	x2 n.7

n.4: From the (Xx) Digital, (Yx) can be configured as Analog (Xx = Total Digital In, Yx = Number of Analog In) | n.5 : From the (Xx) Digital, (Zx) can be configured as Interrupt (Xx = Total Digital In, Zx = Number of Interrupt pins) | n.7 : If using pin 2 and pin 3, (x2) In are lost | n.11: USB Only meant for uploading or debugging, not always connected as serial in a project! | n.12: 2 Inputs are lost.

ARDBOX GPRS M-DUINO

PLC ARDUINO ARDBOX & GPRS

Original **Arduino Leonardo** included

Equipment based on the Arduino technology designed for a professional use. It also contains several communication ports which provide more flexibility and control.

The GPRS/GSM family offers the possibility to expand up to 127 modules through I2C, which means that you can have until 7100 Inputs / Outputs in Master-Slave connections, additionally to sensors, etc…

M-DUINO PLC ARDUINO GPRS

Original **Arduino Mega** included

EEPROM 4 KB | SRAM 8 KB
Flash 256 KB | CPU Speed 16 MHz

Industrial Standard Communications

RS485 - RS232 - SPI - TTL - I2C
Ethernet - TCP / IP - Modbus RTU / TCP

ARDBOX WIFI M-DUINO

PLC ARDUINO ARDBOX WiFi & BLE

Original **Arduino Leonardo** included

The WiFi and Bluetooth integrated module consists in a single 2.4 GHz Wi-Fi and Bluetooth combo chip designed with the TSMC ultra-low-power 40 nm technology.

It is designed to achieve the best power and RF performance, showing robustness, versatility and reliability in a wide variety of applications and power scenarios.

MDUINO PLC ARDUINO WiFi & BLE

Original **Arduino Mega** included

Some applications are:

- Generic Low-power IoT Sensor Hub
- Generic Low-power IoT Data Loggers
- Mesh Network.

It is designed for Internet-of-Things (IoT) applications.

For all those projects that require wireless, our range of Wi-Fi PLC (programmable logic controllers) is a great solution.

It is an ideal automation solution for remote monitoring, diagnostics and control.

Those PLC can directly work with humidity sensors, water level sensors, pressure transducers, flow sensors, etc.

It can be used as an access point to create the wireless network infrastructure, such as bridge to connect computers in the network.

REFERENCE LIST - GPRS PLC

		Communications								Inputs / Outputs						
Reference	Description	Serial TTL (UART)	I2C	SPI	RS232	RS485 Half / Full	Ethernet	Wi-Fi & BLE	GPRS / GSM	Digital Inputs	Analog Inputs	Interrupt Inputs	Digital Outputs	Analog Outputs	Relay Outputs	In / Out 5Vdc
006001000200	M-DUINO PLC Arduino GPRS 21	x1 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x6	x6 n.4	x1 n.5	x5	x3	-	x1 n.7
006001000400	M-DUINO PLC Arduino GPRS 42	x1 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x11	x12 n.4	x1 n.5	x10	x6	-	x1 n.7
006001000600	M-DUINO PLC Arduino GPRS 58	x1 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x17	x16 n.4	x3 n.5	x14	x8	-	x1 n.7
006001000100	M-DUINO PLC Arduino GPRS 19R	x1 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x1	x4 n.4	x1 n.5	x0	x3	x8	x1 n.7
006001000300	M-DUINO PLC Arduino GPRS 38R	x1 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x1	x8 n.4	x1 n.5	x0	x6	x16	x1 n.7
006001000500	M-DUINO PLC Arduino GPRS 57R	x1 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x3	x12 n.4	x3 n.5	x0	x8	x23	x1 n.7
006001000700	M-DUINO PLC Arduino GPRS 38AR	x1 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x6	x10 n.4	x2 n.5	x5	x6	x8	x1 n.7
006001000800	M-DUINO PLC Arduino GPRS 57AAR	x1 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x13	x16 n.4	x3 n.5	x10	x8	x7	x1 n.7
006001000900	M-DUINO PLC Arduino GPRS 50RRA	x1 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x7	x12 n.4	x3 n.5	x4	x8	x16	x1 n.7
006001001000	M-DUINO PLC Arduino GPRS 53ARR	x1 n.13	x2 n.12	x1	x1	x1	x1	-	x1 n.14	x8	x14 n.4	x3 n.5	x5	x8	x15	x1 n.7
006001001100	M-DUINO PLC Arduino GPRS 54ARA	x1 n.13	x2 n.12	x1	x1	x1	x1	-	x1 n.14	x12	x14 n.4	x3 n.5	x9	x8	x8	x1 n.7
006001001200	PLC Arduino ARDBOX Analog & GPRS 20	-	x1 n.1	-	x1 n.2	x1 n.3	-	-	x1 n.14	x2	x8 n.4	x1 n.5	x3	x7 n.6	-	x1 n.15
006001001300	PLC Arduino ARDBOX Relay & GPRS 20	-	x1 n.8	-	x1 n.9	x1 n.10	-	-	x1 n.14	x2	x8 n.4	x1 n.5	-	-	x8	x1 n.15

n.1: 1 Input & 1 Digital Out are lost | n.2: 2 Inputs & 2 Relay are lost | n.3: 2 Inputs & 2 Digital Outputs & 2 Analog Outputs are lost | n.4: From the (Xx) Digital, (Yx) can be configured as Analog (Xx = Total Digital In, Yx = Number of Analog In) | n.5 : From the (Xx) Digital, (Zx) can be configured as Interrupt (Xx = Total Digital In, Zx = Number of Interrupt pins). They are counted as Digital Inputs. | n.6: If using RS-232 or RS-485 (x2) Analog Output are lost | n.7 : If using pin 2 and pin 3, (x2) In are lost | n.8: 1 Inputs & 1 Relay are lost | n.9: 2 Inputs & 2 Relay are lost | n.10: 2 Inputs & 2 Relay are lost | n.11: USB Only meant for uploading or debugging, not always connected as serial in a project! | n.12: 2 Inputs are lost | n.13: If using Serial 1. GPRS/GSM not available | n.14: If using GPRS/GSM, Serial 1 is not available | n.15: Pin 2 is used as GPRS/GSM Module Reset, DON'T USE!

REFERENCE LIST – WIFI PLC

		Communications								Inputs / Outputs						
Reference	Description	Serial TTL (UART)	I2C	SPI	RS232	RS485 Half / Full	Ethernet	Wi-Fi & BLE	GPRS / GSM	Digital Inputs	Analog Inputs	Interrupt Inputs	Digital Outputs	Analog Outputs	Relay Outputs	In / Out 5Vdc
007001000200	M-DUINO PLC Arduino WiFi & BLE 21	x1 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x7	x6 n.4	x2 n.5	x5	x3	-	x2 n.7
007001000400	M-DUINO PLC Arduino WiFi & BLE 42	x1 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x14	x12 n.4	x4 n.5	x10	x6	-	x2 n.7
007001000600	M-DUINO PLC Arduino WiFi & BLE 58	x1 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x20	x16 n.4	x6 n.5	x14	x8	-	x2 n.7
007001000100	M-DUINO PLC Arduino WiFi & BLE 19R	x1 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x2	x4 n.4	x2 n.5	x0	x3	x8	x2 n.7
007001000300	M-DUINO PLC Arduino WiFi & BLE 38R	x1 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x4	x8 n.4	x4 n.5	x0	x6	x16	x2 n.7
007001000500	M-DUINO PLC Arduino WiFi & BLE 57R	x1 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x6	x12 n.4	x6 n.5	x0	x8	x23	x2 n.7
007001000700	M-DUINO PLC Arduino WiFi & BLE 38AR	x1 n.13	x2 n.12	x1	x1	x1	x1	x1 n.14	-	x9	x10 n.4	x4 n.5	x5	x6	x8	x2 n.7
007001000800	M-DUINO PLC Arduino WiFi & BLE 57AAR	x1 n.13	x2 n.12	x1	x1	x1	x1	x1 n.14	-	x16	x16 n.4	x6 n.5	x10	x8	x7	x2 n.7
007001000900	M-DUINO PLC Arduino WiFi & BLE 50RRA	x1 n.13	x2 n.12	x1	x1	x1	x1	x1 n.14	-	x10	x12 n.4	x6 n.5	x4	x8	x16	x2 n.7
007001001000	M-DUINO PLC Arduino WiFi & BLE 53ARR	x1 n.13	x2 n.12	x1	x1	x1	x1	x1 n.14	-	x11	x14 n.4	x6 n.5	x5	x8	x15	x2 n.7
007001001100	M-DUINO PLC Arduino WiFi & BLE 54ARA	x1 n.13	x2 n.12	x1	x1	x1	x1	x1 n.14	-	x15	x14 n.4	x6 n.5	x9	x8	x8	x2 n.7
007001001200	PLC Arduino ARDBOX ANALOG WiFi & BLE 20	-	x1 n.1	-	x1 n.2	x1 n.3	-	x1 n.14	-	x2	x8 n.4	x1 n.5	x3	x7 n.16	-	x2 n.7
007001001300	PLC Arduino ARDBOX RELAY WiFi & BLE 20	-	x1 n.8	-	x1 n.9	x1 n.10	-	x1 n.14	-	x2	x8 n.4	x1 n.5	-	-	x8	x2 n.7

n.1: 1 Input & 1 Digital Out are lost | n.2: 2 Inputs & 2 Relay are lost | n.3: 2 Inputs & 2 Digital Outputs & 2 Analog Outputs are lost | n.4: Can be used as Analog/Digital | n.5 : From the (Xx) Digital, (Zx) can be configured as Interrupt (Xx = Total Digital In, Zx = Number of Interrupt pins) | n.6: If using RS-232 or RS-485 (x2) Analog Output are lost | n.7 : If using pin 2 and pin 3, (x2) In are lost | n.8: 1 Inputs & 1 Relay are lost | n.9: 2 Inputs & 2 Relay are lost | n.10: 2 Inputs & 2 Relay are lost | n.11: USB Only meant for uploading or debugging, not always connected as serial in a project! | n.12: 2 Inputs are lost | n.13: If using Serial 1. GPRS/GSM not available | n.14: If using GPRS/GSM, Serial 1 is not available | n.15: Pin 2 is used as GPRS/GSM Module Reset, DON'T USE! | n.16: Analog Outputs belong to Digital Outputs

LORA

The Ardbox Arduino PLC Range and the M-Duino range, both with LoRa technology, will allow you to work with this wireless communication system, the versatility of the Arduino board and this all-in-one solution in an industrial PLC with up to 58 Inputs and Outputs.

ARDBOX PLC Range

Original **Arduino Leonardo** included

M-DUINO PLC Range

Original **Arduino Mega** included

Same inputs and outputs, communication protocols, but with dedicated features for specialized markets, requirements or solutions.

DALI

Digital Addressable Lighting Interface

Dali is used in building automation to control individual lights and lighting groups.

Integrating this feature in the Arduino PLC allows you to control huge range of lighting areas and at the same time it is an easily growing system.

It maximizes flexibility by adjusting lighting control to have the optimal conditions for rational consumption.

ARDBOX PLC

Original **Arduino Leonardo** included

M-DUINO PLC

Original **Arduino Mega** included

Same inputs and outputs, communication protocols, but with dedicated features for specialized markets, requirements or solutions.

REFERENCE LIST – LORA PLC (EU & USA)

		Communications								Inputs / Outputs						
Reference	Description	Serial TTL (UART)	I2C	SPI	RS232	RS485 Half / Full	Ethernet	LoRa	GPRS / GSM	Digital Inputs	Analog Inputs	Interrupt Inputs	Digital Outputs	Analog Outputs	Relay Outputs	In / Out 5Vdc
015001000200	M-DUINO PLC ARDUINO LoRa 21	x2 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x6	x6 n.4	x1 n.5	x5	x3	-	x1 n.7
015001000400	M-DUINO PLC ARDUINO LoRa 42	x2 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x13	x12 n.4	x3 n.5	x10	x6	-	x1 n.7
015001000600	M-DUINO PLC ARDUINO LoRa 58	x2 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x19	x16 n.4	x5 n.5	x14	x6	-	x1 n.7
015001000100	M-DUINO PLC ARDUINO LoRa 19R	x2 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x1	x4 n.4	x1 n.5	x0	x3	x8	x1 n.7
015001000300	M-DUINO PLC ARDUINO LoRa 38R	x2 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x3	x8 n.4	x3 n.5	x0	x6	x16	x1 n.7
015001000500	M-DUINO PLC ARDUINO LoRa 57R	x2 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x5	x12 n.4	x5 n.5	x0	x6	x23	x1 n.7
015001000700	M-DUINO PLC ARDUINO LoRa 38AR	x2 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x8	x10 n.4	x3 n.5	x5	x6	x8	x1 n.7
015001000800	M-DUINO PLC ARDUINO LoRa 57AAR	x2 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x15	x16 n.4	x5 n.5	x10	x6	x7	x1 n.7
015001000900	M-DUINO PLC ARDUINO LoRa 50RRA	x2 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x9	x12 n.4	x5 n.5	x4	x6	x16	x1 n.7
015001001000	M-DUINO PLC ARDUINO LoRa 53ARR	x2 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x10	x14 n.4	x5 n.5	x5	x6	x15	x1 n.7
015001001100	M-DUINO PLC ARDUINO LoRa 54ARA	x2 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x14	x14 n.4	x5 n.5	x9	x8	x8	x1 n.7
015001001200	PLC ARDUINO ARDBOX ANALOG LoRa 20	-	x1 n.1	-	x1 n.2	x1 n.3	-	x1 n.14	-	x1	x7 n.4	-	x3	x6 n.6	-	-
015001001300	PLC ARDUINO ARDBOX RELAY LoRa 20	-	x1 n.8	-	x1 n.9	x1 n.10	-	x1 n.14	-	x1	x7 n.4	-	-	-	x7	-

n.1: 1 Input & 1 Digitial Out are lost | n.2: 2 Inputs & 2 Relay are lost | n.3: 2 Inputs & 2 Digital Outputs & 2 Analog Outputs are lost | n.4: From the (Xx) Digital, (Yx) can be configured as Analog (Xx = Total Digital In, Yx = Number of Analog In) | n.5 : From the (Xx) Digital, (Zx) can be configured as Interrupt (Xx = Total Digital In, Zx = Number of Interrupt pins) | n.6: If using RS-232 or RS-485 (x2) Analog Output are lost | n.7 : If using pin 2 and pin 3, (x2) In are lost | n.8: 1 Inputs & 1 Relay are lost | n.9: 2 Inputs & 2 Relay are lost | n.10: 2 Inputs & 2 Relay are lost | n.11: USB Only meant for uploading or debugging, not always connected as serial in a project! | n.12: 2 Inputs are lost | n.13: If using Serial 1. LoRa not available | n.14: If using LoRa, Serial 1 is not available | n.15: Pin 2 is used as GPRS/GSM Module Reset, DON'T USE!

REFERENCE LIST – DALI EHTERNET PLC

		Communications								Inputs / Outputs						
Reference	Description	Serial TTL (UART)	I2C	SPI	RS232	RS485 Half / Full	Ethernet	Wi-Fi & BLE	GPRS / GSM	Digital Inputs	Analog Inputs	Interrupt Inputs	Digital Outputs	Analog Outputs	Relay Outputs	In / Out 5Vdc
004001000200	M-DUINO PLC Arduino DALI 21	x1 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x7	x6 n.4	x2 n.5	x5	x3	-	x2 n.7
004001000400	M-DUINO PLC Arduino DALI 42	x1 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x12	x12 n.4	x2 n.5	x10	x6	-	x2 n.7
004001000600	M-DUINO PLC Arduino DALI 58	x1 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x18	x16 n.4	x4 n.5	x14	x8	-	x2 n.7
004001000100	M-DUINO PLC Arduino DALI 19R	x1 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x2	x4 n.4	x2 n.5	x0	x3	x8	x2 n.7
004001000300	M-DUINO PLC Arduino DALI 38R	x1 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x4	x8 n.4	x4 n.5	x0	x6	x16	x2 n.7
004001000500	M-DUINO PLC Arduino DALI 57R	x1 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x6	x12 n.4	x6 n.5	x0	x8	x23	x2 n.7
004001000700	M-DUINO PLC Arduino DALI 38AR	x1 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x9	x10 n.4	x4 n.5	x5	x6	x8	x2 n.7
004001000800	M-DUINO PLC Arduino DALI 57AAR	x1 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x14	x16 n.4	x4 n.5	x10	x8	x7	x2 n.7
004001000900	M-DUINO PLC Arduino DALI 50RRA	x1 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x10	x12 n.4	x6 n.5	x4	x8	x16	x2 n.7
004001001000	M-DUINO PLC Arduino DALI 53ARR	x1 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x11	x14 n.4	x6 n.5	x5	x8	x15	x2 n.7
004001001100	M-DUINO PLC Arduino DALI 54ARA	x1 n.13	x1 n.12	x1	x1	x1	x1	x1 n.14	-	x15	x14 n.4	x6 n.5	x9	x8	x8	x2 n.7
004001001200	PLC Arduino Ardbox Analog & DALI 20	-	x1 n.1	-	x1 n.2	x1 n.3	-	x1 n.14	-	x2	x8 n.4	-	x3	x7 n.6	-	x2 n.7
004001001300	PLC Arduino Ardbox Relay & DALI 20	-	x1 n.8	-	x1 n.9	x1 n.10	-	x1 n.14	-	x2	x8 n.4	-	-	-	x8	x2 n.7

n.1: 1 Input & 1 Digitial Out are lost | n.2: 2 Inputs & 2 Relay are lost | n.3: 2 Inputs & 2 Digital Outputs & 2 Analog Outputs are lost | n.4: From the (Xx) Digital, (Yx) can be configured as Analog (Xx = Total Digital In, Yx = Number of Analog In) | n.5 : From the (Xx) Digital, (Zx) can be configured as Interrupt (Xx = Total Digital In, Zx = Number of Interrupt pins) | n.6: If using RS-232 or RS-485 (x2) Analog Output are lost | n.7 : If using pin 2 and pin 3, (x2) In are lost | n.8: 1 Inputs & 1 Relay are lost | n.9: 2 Inputs & 2 Relay are lost | n.10: 2 Inputs & 2 Relay are lost | n.11: USB Only meant for uploading or debugging, not always connected as serial in a project! | n.12: 2 Inputs are lost | n.13: If using Serial 1. WiFi not available | n.14: If using WiFi, Serial 1 is not available | n.15: Pin 2 is used as GPRS/GSM Module Reset, DON'T USE!

10 IOS MODULE

Original **ESP32** included

10 IOS Digital Module with ESP32

- **10 GPIOs**
- **I2C - RS485 - Ethernet - WiFi**

10 IOS Relay Module with ESP32

- **10 GPIOs**
- **10 Relay Outputs**
- **I2C - RS485 - Ethernet - WiFi**

Industrial Protocols

RS485 · RS232 · SPI · I2C · Modbus RTU

EEPROM 1KB | SRAM 2.5 KB | Flash 32 KB | CPU Speed 16 MHz

REFERENCE LIST – 10IOS

		Communications								Inputs / Outputs						
Reference	Description	Serial TTL (UART)	I2C	SPI	RS232	RS485 Half / Full	Ethernet	Wi-Fi & BLE	GPRS / GSM	Digital Inputs	Analogue inputs	Interruption Inputs	Digital Outputs	Analogue Outputs	Relay Outputs	Input / Output 5Vdc
013001000100	10 I/Os Digital Module - CPU	-	x1	-	-	x1	x1	-	-	x10 GPIOS		-	-	-	-	-
013002000100	10 I/Os Digital Module - CPU ESP32	-	x1	-	-	x1	x1	x1	-	x10 GPIOS		-	-	-	-	-
013001000200	10 I/Os Relay Module - CPU	-	x1	-	-	x1	x1	-	-	x10	-	-	-	-	x10	-
013002000200	10 I/Os Relay Module - CPU ESP32	-	x1	-	-	x1	x1	x1	-	x10	-	-	-	-	x10	-

ESP32 PLC

Original board included

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)".

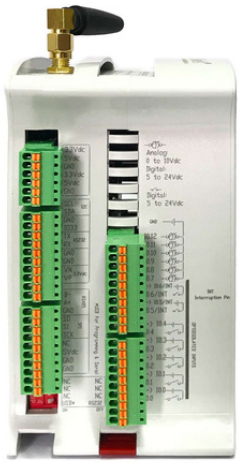
11 Outputs:
· (3x) Analog (0-10Vdc, 12bit) / Digital (5-24Vdc) / PWM Isolated (5-24Vdc)
· (8x) Relay (220Vac - 5A)

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



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)

Industrial Standard Communications

ESP32 SRAM 512 KB | CPU Speed 160/240 MHz

WiFi - Bluetooth LE
RS485 - Serial Port - SPI - TTL - I2C
Ethernet - TCP / IP - Modbus RTU / TCP

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)

REFERENCE LIST - ESP32 PLC

		Communications									Inputs / Outputs						
Reference	Description	Serial TTL (UART)	I2C	SPI	RS232	RS485 Half / Full	Ethernet	Wi-Fi & BLE	VN/VP	GPRS / GSM	Digital Inputs	Analog Inputs	Interruption inputs	Digital Outputs	Analog Outputs	Relay Outputs	Inputs / Outputs 3.3Vdc
034001000200	ESP32 PLC 21	x2 n.11	x1 n.12	x1	x1	x1	x1	x1	x1	opt. n.13	x7	x6 n.4	x2 n.5	x5	x3	-	x1
034001000400	ESP32 PLC 42	x2 n.11	x1 n.12	x1	x1	x1	x1	x1	x1	opt. n.13	x14	x12 n.4	x4 n.5	x10	x6	-	x1
034001000600	ESP32 PLC 58	x2 n.11	x1 n.12	x1	x1	x1	x1	x1	x1	opt. n.13	x21	x16 n.4	x6 n.5	x15	x9	-	x1
034001000100	ESP32 PLC 19R	x2 n.11	x1 n.12	x1	x1	x1	x1	x1	x1	opt. n.13	x2	x4 n.4	x2 n.5	x0	x3	x8	x1
034001000300	ESP32 PLC 38R	x2 n.11	x1 n.12	x1	x1	x1	x1	x1	x1	opt. n.13	x4	x8 n.4	x4 n.5	x0	x6	x16	x1
034001000500	ESP32 PLC 57R	x2 n.11	x1 n.12	x1	x1	x1	x1	x1	x1	opt. n.13	x6	x12 n.4	x6 n.5	x0	x9	x24	x1
034001000700	ESP32 PLC 38AR	x2 n.11	x1 n.12	x1	x1	x1	x1	x1	x1	opt. n.13	x9	x10 n.4	x4 n.5	x5	x6	x8	x1
034001000800	ESP32 PLC 57AAR	x2 n.11	x1 n.12	x1	x1	x1	x1	x1	x1	opt. n.13	x16	x16 n.4	x6 n.5	x10	x9	x8	x1
034001000900	ESP32 PLC 50RRA	x2 n.11	x1 n.12	x1	x1	x1	x1	x1	x1	opt. n.13	x11	x12 n.4	x6 n.5	x5	x9	x16	x1
034001001000	ESP32 PLC 53ARR	x2 n.11	x1 n.12	x1	x1	x1	x1	x1	x1	opt. n.13	x11	x14 n.4	x6 n.5	x5	x9	x16	x1
034001001100	ESP32 PLC 54ARA	x2 n.11	x1 n.12	x1	x1	x1	x1	x1	x1	opt. n.13	x16	x14 n.4	x6 n.5	x10	x9	x8	x1

n.4: From (Xx) Digital, (Yx) can be configured as Analog (Xx = Total Digital Input, Yx = Number of Analog Inputs) | n.5 : From (Xx) Digital, (Zx) can be configured as Switch (Xx = Total Digital Inputs, Zx = Number of Switch pins) | n.11 : USB only for uploading or debugging, not always connected as serial in a project! : If pin 2 and pin 3 are used, (x2) Inputs are lost | n.11: USB only for charging or debugging, not always connected as serial in a project! | n.12: 2 Inputs are lost. | n.13: optional

Powered by **Raspberry Pi**

PLC RASPBERRY

Raspberry PLC

By using Raspberry Pi PLCs along with the right sensors and control elements, you can quickly implement dedicated industrial automation systems capable of meeting the requirements for a wide range of operations in industrial environments.

Raspberry & GPRS PLC

PANEL PC

Original **Raspberry Pi** included

Panel PCs for industrial environment using Linux or Android

TFT
10.1" TouchScreen LVDS, 315 nits, 170º viewing angle.
Format 16:9, 1280x720.

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

Integrated Storage
SD /MMC / SDIO slot.

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

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

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

LAN connectivity
10/100 Ethernet (RJ-45)

CPU

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

Tinker Board
Rockchip Quad-Core RK3288

SOFTWARE

Linux **Android**
You can choose among these three Operating Systems to boot the Panel PC.

Depending on the requirements and/or needs of your installation, you have the flexibility to select the option that best suits your project.

Original **Raspberry Pi**

Choose the processor
That fits your project

Original **Tinker Board**

TinkerTouch 7"

Panel PC based on TinkerBoard (ASUS), encasing a 7" TouchScreen.
From 12 to 24Vdc
10x GPIOs Optoisolated (5-24Vdc) configurable.
1x RS485-RS232* - 1x Serial TTL - 1x I2C - 1x SPI - RTC (Real Time Clock)
UPS included

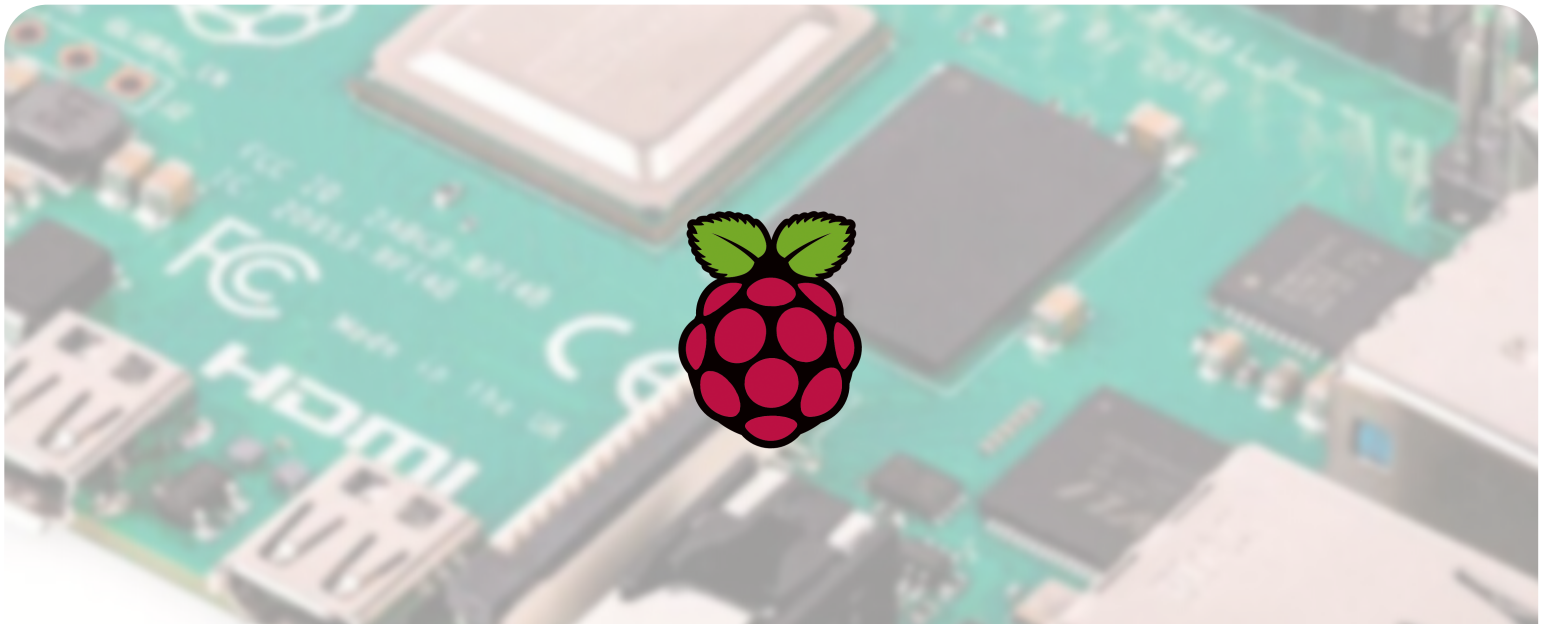
REFERENCE LIST – RASPBERRY PI PLC

		Communications								Inputs / Outputs						
Reference	Description	Serial TTL (UART)	I2C	SPI	RS232	RS485 Half / Full	Ethernet	Wi-Fi & BLE	GPRS / GSM	Digital Inputs	Analog Inputs	Interrupt Inputs	Digital Outputs	Analog Outputs	Relay Outputs	In / Out 5Vdc
01200X000000	Raspberry PLC CPU	x1 n.13	x1 n.12	x1	-	x1	x2	x1	-	-	-	-	-	-	-	-
01200X000200	Raspberry PLC 21	x1 n.13	x1 n.12	x1	-	x1	x2	x1	-	x7	x6 n.4	x2 n.5	x5	x3	-	-
01200X000400	Raspberry PLC 42	x1 n.13	x1 n.12	x1	-	x1	x2	x1	-	x14	x12 n.4	x4 n.5	x10	x6	-	-
01200X000600	Raspberry PLC 58	x1 n.13	x1 n.12	x1	-	x1	x2	x1	-	x21	x16 n.4	x6 n.5	x14	x9	-	-
01200X000100	Raspberry PLC 19R	x1 n.13	x1 n.12	x1	-	x1	x2	x1	-	x2	x4 n.4	x2 n.5	x0	x3	x8	-
01200X000300	Raspberry PLC 38R	x1 n.13	x1 n.12	x1	-	x1	x2	x1	-	x4	x8 n.4	x4 n.5	x0	x6	x16	-
01200X000500	Raspberry PLC 57R	x1 n.13	x2 n.12	x1	-	x1	x2	x1	-	x6	x12 n.4	x6 n.5	x0	x9	x24	-
01200X000700	Raspberry PLC 38AR	x1 n.13	x2 n.12	x1	-	x1	x2	x1	-	x9	x10 n.4	x4 n.5	x5	x6	x8	-
01200X000800	Raspberry PLC 57AAR	x1 n.13	x2 n.12	x1	-	x1	x2	x1	-	x16	x16 n.4	x6 n.5	x10	x9	x8	-
01200X000900	Raspberry PLC 50RRA	x1 n.13	x2 n.12	x1	-	x1	x2	x1	-	x11	x12 n.4	x6 n.5	x4	x9	x16	-
01200X001000	Raspberry PLC 53ARR	x1 n.13	x2 n.12	x1	-	x1	x2	x1	-	x11	x14 n.4	x6 n.5	x5	x9	x16	-
01200X001100	Raspberry PLC 54ARA	x1 n.13	x1 n.1	x1	-	x1 n.3	x2	x1	-	x16	x14 n.4	x6 n.5	x9	x9	x8	-

n.1: 1 Input & 1 Digitial Out are lost | n.2: 2 Inputs & 2 Relay are lost | n.3: 2 Inputs & 2 Digital Outputs & 2 Analog Outputs are lost | n.4: From the (Xx) Digital, (Yx) can be configured as Analog (Xx = Total Digital In, Yx = Number of Analog In) | n.5 : From the (Xx) Digital, (Zx) can be configured as Interrupt (Xx = Total Digital In, Zx = Number of Interrupt pins) | n.6: If using RS-232 or RS-485 (x2) Analog Output are lost | n.7 : If using pin 2 and pin 3, (x2) In are lost | n.8: 1 Inputs & 1 Relay are lost | n.9: 2 Inputs & 2 Relay are lost | n.10: 2 Inputs & 2 Relay are lost | n.11: USB Only meant for uploading or debugging, not always connected as serial in a project! | n.12: 2 Inputs are lost | n.13: If using Serial 1. WiFi not available | n.14: If using WiFi, Serial 1 is not available | n.15: Pin 2 is used as GPRS/GSM Module Reset, DON'T USE!

XXXXX2XXXXXX	Raspberry Pi 4B 2GB RAM Included
XXXXX3XXXXXX	Raspberry Pi 4B 4GB RAM Included
XXXXX4XXXXXX	Raspberry Pi 4B 8GB RAM Included
XXXXXXXXXXXXF*	Additional FAN

Powered by **Raspberry Pi**



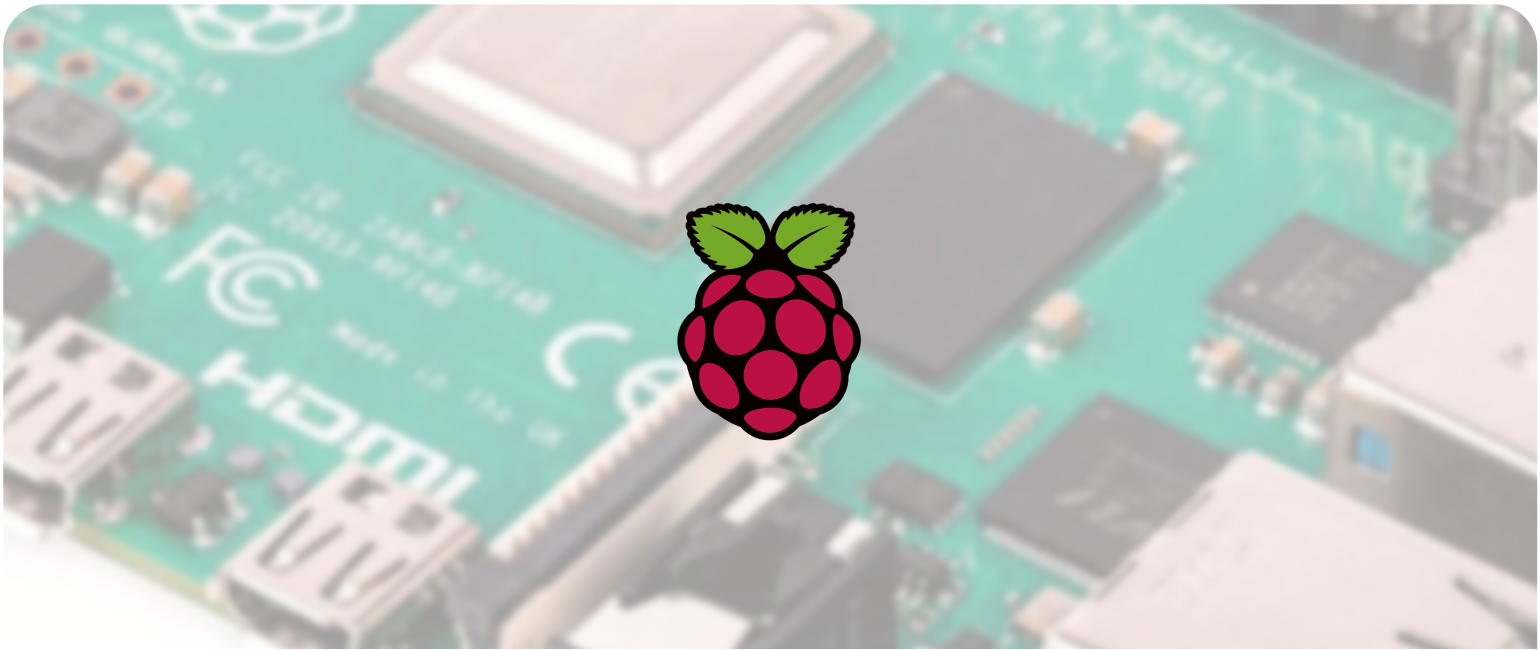
REFERENCE LIST – RASPBERRY PI & GPRS PLC

		Communications								Inputs / Outputs						
Reference	Description	Serial TTL (UART)	I2C	SPI	RS232	RS485 Half / Full	Ethernet	Wi-Fi & BLE	GPRS / GSM	Digital Inputs	Analog Inputs	Interrupt Inputs	Digital Outputs	Analog Outputs	Relay Outputs	In / Out 5Vdc
01600X000200	Raspberry PLC GPRS 21	x1 n.13	x1 n.12	x1	-	x1	x2	x1	x1	x7	x6 n.4	x2	x5	x3	-	-
01600X000400	Raspberry PLC GPRS 42	x1 n.13	x1 n.12	x1	-	x1	x2	x1	x1	x14	x12 n.4	x4	x10	x6	-	-
01600X000600	Raspberry PLC GPRS 58	x1 n.13	x1 n.12	x1	-	x1	x2	x1	x1	x20	x16 n.4	x5	x14	x9	-	-
01600X000100	Raspberry PLC GPRS 19R	x1 n.13	x1 n.12	x1	-	x1	x2	x1	x1	x2	x4 n.4	x2	x0	x3	x8	-
01600X000300	Raspberry PLC GPRS 38R	x1 n.13	x1 n.12	x1	-	x1	x2	x1	x1	x4	x8 n.4	x4	x0	x6	x16	-
01600X000500	Raspberry PLC GPRS 57R	x1 n.13	x1 n.12	x1	-	x1	x2	x1	x1	x5	x12 n.4	x5	x0	x9	x24	-
01600X000700	Raspberry PLC GPRS 38AR	x1 n.13	x2 n.12	x1	-	x1	x2	x1	x1	x9	x10 n.4	x4	x5	x6	x8	-
01600X000800	Raspberry PLC GPRS 57AAR	x1 n.13	x2 n.12	x1	-	x1	x2	x1	x1	x15	x16 n.4	x5	x10	x9	x8	-
01600X000900	Raspberry PLC GPRS 50RRA	x1 n.13	x2 n.12	x1	-	x1	x2	x1	x1	x10	x12 n.4	x5	x4	x9	x16	-
01600X001000	Raspberry PLC GPRS 53ARR	x1 n.13	x2 n.12	x1	-	x1	x2	x1	x1	x10	x14 n.4	x5	x5	x9	x16	-
01600X001100	Raspberry PLC GPRS 54ARA	x1 n.13	x2 n.12	x1	-	x1	x2	x1	x1	x15	x14 n.4	x5	x9	x9	x8	-

n.1: 1 Input & 1 Digitial Out are lost | n.2: 2 Inputs & 2 Relay are lost | n.3: 2 Inputs & 2 Digital Outputs & 2 Analog Outputs are lost | n.4: From the (Xx) Digital, (Yx) can be configured as Analog (Xx = Total Digital In, Yx = Number of Analog In) | n.5 : From the (Xx) Digital, (Zx) can be configured as Interrupt (Xx = Total Digital In, Zx = Number of Interrupt pins) | n.6: If using RS-232 or RS-485 (x2) Analog Output are lost | n.7 : If using pin 2 and pin 3, (x2) In are lost | n.8: 1 Inputs & 1 Relay are lost | n.9: 2 Inputs & 2 Relay are lost | n.10: 2 Inputs & 2 Relay are lost | n.11: USB Only meant for uploading or debugging, not always connected as serial in a project! | n.12: 2 Inputs are lost | n.13: If using Serial 1. WiFi not available | n.14: If using WiFi, Serial 1 is not available | n.15: Pin 2 is used as GPRS/GSM Module Reset, DON'T USE!

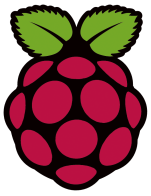
XXXXX2XXXXXX	Raspberry Pi 4B 2GB RAM Included
XXXXX3XXXXXX	Raspberry Pi 4B 4GB RAM Included
XXXXX4XXXXXX	Raspberry Pi 4B 8GB RAM Included
XXXXXXXXXXXXF*	Additional FAN

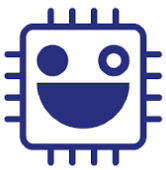
Powered by **Raspberry Pi**



REFERENCE LIST - PANEL PC

CPU	Reference	Description	Single Board Computer (SBC) Microcontroller	RAM (GB)	Total GPIOs	Ethernet communication 10/100 Gbps Ethernet (RJ-45)	Wi-Fi & BLE (Bluetooth Low Energy)	Bluetooth	USB ports	Operative Systems	Storage	Serial TTL (UART) communication	RS-232 communication	Half/Full Duplex RS-485 communication	SPI external port communication	RTC (Real Time Clock NOTE: I2C port used. See pinout modification)	µSD included (16GB)	UPS icluded	Power Supply Voltage (Vdc) Range	Operating Temperture C	Operating Relative Humidity % (no condensation)	Resolution
Raspberry Pi	003002000100	Touchberry PI 10.1 4B (Panel PC Industrial EMC Aluminum - Raspberry PI 4B Included + µSD Card with Raspbian)	Raspberry Pi 4 Model B	2 GB	-	X1	WiFi 802.11 b/g/n/ac	5.0 BLE	2x 2.0 3x 3.0	-	Micro SD (TF) card slot	-	-	-	-	-	-	-	12/24 Vdc	0-40°C	10-90%	1280 x 720
	003002000200	Touchberry PI 10.1 4B (Panel PC Industrial EMC Aluminum - Raspberry PI 4B Included + 16Gb µSD Card without OS)	Raspberry Pi 4 Model B	2 GB	-	X1	WiFi 802.11 b/g/n/ac	5.0 BLE	2x 2.0 3x 3.0	-	Micro SD (TF) card slot	-	-	-	-	-	X1	-	12/24 Vdc	0-40°C	10-90%	1280 x 720
	003002000300	Touchberry PI 10.1 4B (Panel PC Industrial EMC Aluminum - Raspberry PI 4B Included)	Raspberry Pi 4 Model B	2 GB	-	X1	WiFi 802.11 b/g/n/ac	5.0 BLE	2x 2.0 3x 3.0	Linux	Micro SD (TF) card slot	-	-	-	-	-	X1	-	12/24 Vdc	0-40°C	10-90%	1280 x 720
	003002000400	Touchberry PI 10.1 4B UPS (Panel PC Industrial EMC Aluminum - Raspberry PI 4 B Included + µSD Card with Raspbian - UPS included)	Raspberry Pi 4 Model B	2 GB	-	X1	WiFi 802.11 b/g/n/ac	4.0 EDR	2x 2.0 3x 3.0	Linux	Micro SD (TF) card slot	-	-	-	-	-	X1	X1	12/24 Vdc	0-40°C	10-90%	1280 x 720
	003002000500	Touchberry PI 10.1 4B UPS & RTC & RS485 (Panel PC Industrial EMC Aluminum - Raspberry PI 4 B Included + µSD Card with Raspbian - UPS,RTC,RS485 functions included)	Raspberry Pi 4 Model B	2 GB	-	X1	WiFi 802.11 b/g/n/ac	5.0 BLE	2x 2.0 3x 3.0	Linux	Micro SD (TF) card slot	-	-	X1	-	X1	X1	X1	12/24 Vdc	0-40°C	10-90%	1280 x 720
	003002400100	TouchBerry PI 7" - 10 Configurable I/Os - RS485 - RS232 - UPS Included (Raspberry Pi 4B)	Raspberry Pi 4 Model B	2 GB	X10	X1	WiFi 802.11 b/g/n/ac	5.0 BLE	2x 2.0 3x 3.0	Linux	Micro SD (TF) card slot	X1	X1	X1	X1	-	X1	X1	12/24 Vdc	0-40°C	10-90%	800x 400
Asus	003001100100	TinkerTouch S 10.1 (Panel PC Industrial, Aluminum enclosure, EMC compliance - ASUS Quad-Core, 2GB, 16Gb eMMC + MicroSD slot - LINUX)	ASUS Tinker Board	2 GB	-	X1	WiFi 802.11 b/g/n	4.0 EDR	4x 2.0	Linux	Micro SD MMC SDIO slot	-	-	X1	-	-	X1	-	12/24 Vdc	0-40°C	10-90%	1280 x 720
	003001100200	TinkerTouch S 10.1 (Panel PC Industrial, Aluminum enclosure, EMC compliance - ASUS Quad-Core, 2GB, 16Gb eMMC +MicroSD slot - ANDROID)	ASUS Tinker Board	2 GB	-	X1	WiFi 802.11 b/g/n	4.0 EDR	4x 2.0	Android	Micro SD MMC SDIO slot	-	-	X1	-	-	X1	-	12/24 Vdc	0-40°C	10-90%	1280 x 720
	003001200100	TinkerTouch S 10.1 UPS (Panel PC Industrial, Aluminum enclosure, EMC compliance - ASUS Quad-Core, 2GB, 16Gb eMMC + MicroSD slot - UPS function included - LINUX)	ASUS Tinker Board	2 GB	-	X1	WiFi 802.11 b/g/n	4.0 EDR	4x 2.0	Linux	Micro SD MMC SDIO slot	-	-	-	-	-	X1	X1	12/24 Vdc	0-40°C	10-90%	1280 x 720
	003001200200	TinkerTouch S 10.1 UPS (Panel PC Industrial, Aluminum enclosure, EMC compliance - ASUS Quad-Core, 2GB, 16Gb eMMC +MicroSD slot - UPS function included - ANDROID)	ASUS Tinker Board	2 GB	-	X1	WiFi 802.11 b/g/n	4.0 EDR	4x 2.0	Android	Micro SD MMC SDIO slot	-	-	-	-	-	X1	X1	12/24 Vdc	0-40°C	10-90%	1280 x 720
	003001300100	TinkerTouch S 10.1 UPS & RTC & RS485 (Panel PC Industrial, Aluminum enclosure, EMC compliance - ASUS Quad-Core, 2GB, 16Gb eMMC + MicroSD slot - UPS,RTC,RS485 functions included - LINUX)	ASUS Tinker Board	2 GB	-	X1	WiFi 802.11 b/g/n	4.0 EDR	4x 2.0	Linux	Micro SD MMC SDIO slot	-	-	-	-	X1	X1	X1	12/24 Vdc	0-40°C	10-90%	1280 x 720
	003001300200	TinkerTouch S 10.1 UPS & RTC & RS485 (Panel PC Industrial, Aluminum enclosure, EMC compliance - ASUS Quad-Core, 2GB, 16Gb eMMC + MicroSD slot - UPS, RTC, RS485 functions included - ANDROID)	ASUS Tinker Board	2 GB	-	X1	WiFi 802.11 b/g/n	4.0 EDR	4x 2.0	Android	Micro SD MMC SDIO slot	-	-	-	-	X1	X1	X1	12/24 Vdc	0-40°C	10-90%	1280 x 720
	003001400100	TinkerTouch 7" - 10 Configurable I/Os - RS485 - RS232 - UPS Included - Linux installed into eMMC	ASUS Tinker Board	2 GB	X10	X1	WiFi 802.11 b/g/n	4.0 EDR	4x 2.0	Linux	Micro SD MMC SDIO slot	X1	X1	X1	X1	-	X1	X1	12/24 Vdc	0-40°C	10-90%	800x 400





LIBRARIES, COMMUNICATIONS, PROTOCOLS

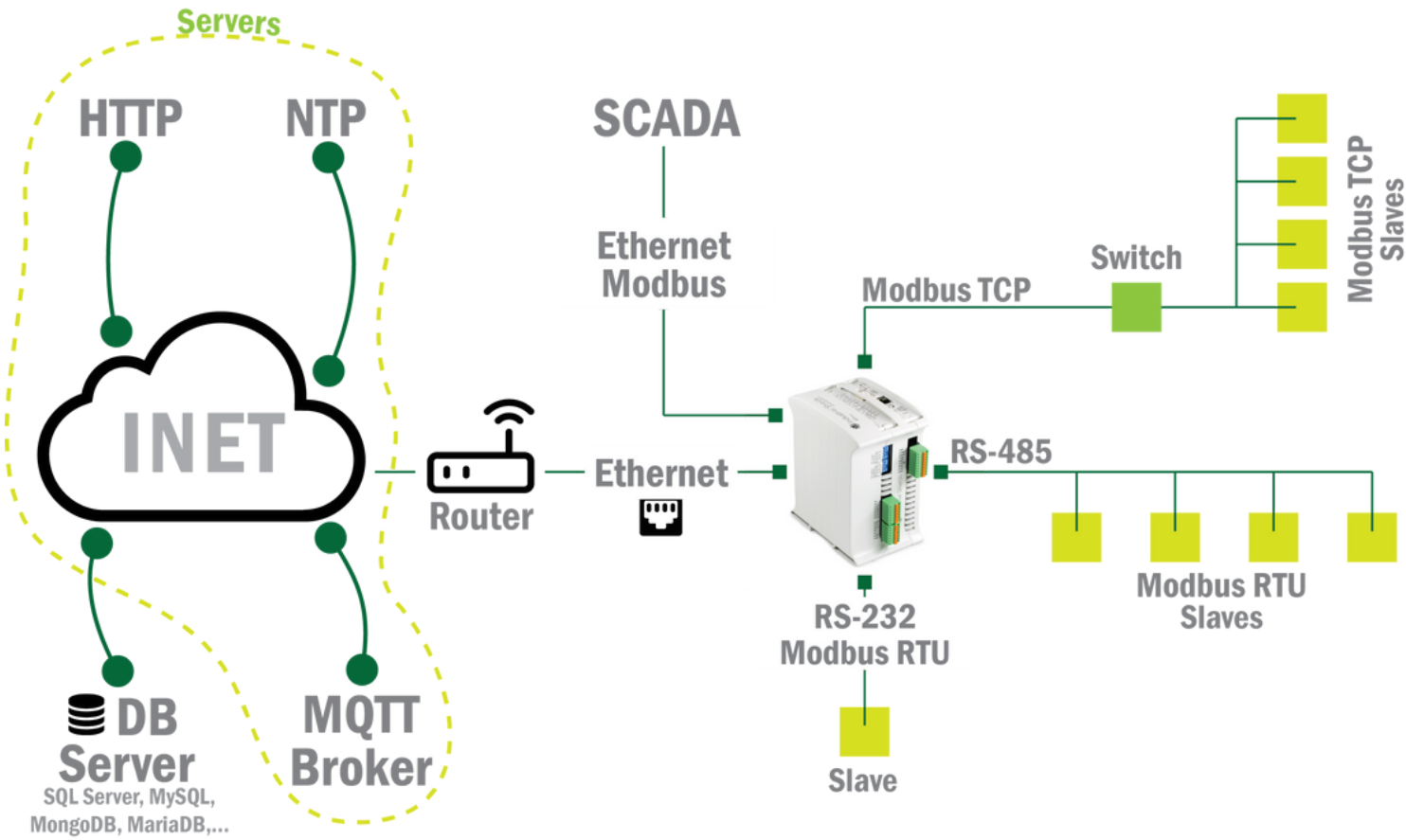
Available Libraries in our Blog and GitHub

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
4- Transport	Data Base			TCP				UDP									
3- Network				IP													
2- Data Link				Ethernet / WiFi					RS-485			RS-232			TTL/ SPI	I2C	One Wire
1- Physical				GPRS					Serial UART								

https://github.com/IndustrialShields

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

With our PLC's you can communicate using several protocols like RS-232, RS-485, Modbus TCP, or using ethernet, etc.
It's possible to send and receive information from several server types (HTTP, NTP, MQTT) or DB Servers.



POWER SUPPLY

Din RAIL Power Supply 120W

· AC-DC, 120W, 1 Output 5A at 24Vdc

Din RAIL Power Supply 180W

· AC-DC, 180W, 1 Output 7.5A at 24Vdc

Din RAIL Power Supply 240W

· AC-DC, 240W, 1 Output 10A at 24Vdc

Din RAIL Power Supply 30W

· AC-DC, 30W, 1 Output 2.5A at 12Vdc

Din RAIL Power Supply 30W

· AC-DC, 30W, 1 Output at 24Vdc

Din RAIL Power Supply 50W

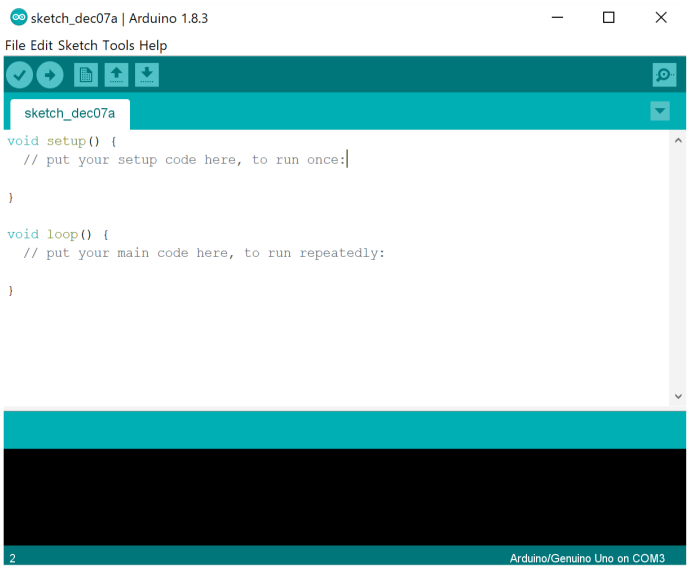
· AC-DC, 50W, 1 Output at 24Vdc

SOFTWARE

Arduino IDE is the Original platform to program Arduino boards

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

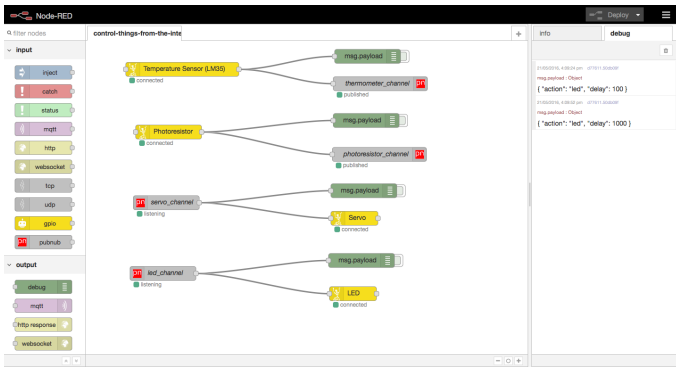
- Free software licenses
- Standard Libraries available
- Documentation and examples available, ready to use
- Industrial Shields libraries available to facilitate the programming of our PLCs



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



Our PLCs can be programmed with all software platforms compatible with Arduino IDE.

Electron · Codebender · Stino · Eclipse · Visual Studio · Gedit · Komodo Edit · MariaMole · Zeus · Atmel Studio · AVR-GCC · CodeBlocks · ROBOTC for Arduino · Xcode · ArduinoDroid · Notepad++ · Programino · and more...

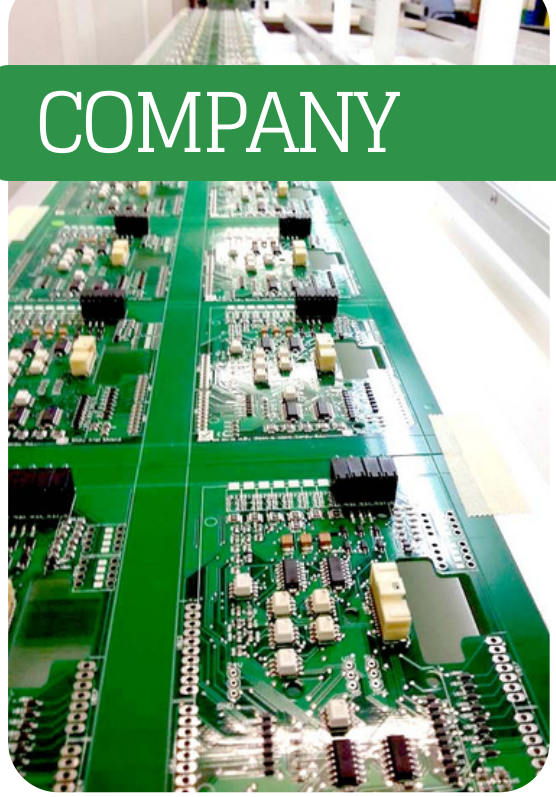
Our Panel PCs can work with Linux and Android which means that, if your team has enough knowledge, you can create a custom applications for the Panel PCs. You will have more flexibility to fit the needs of your installation or application.

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.

Industrial Shields, designs, produces and markets the range of products based on **Open Source Hardware**.



Bigdata
Cloud Computing
Flexible Hardware
Industrial Internet of Things

Boot & Work Corp. S.L. is a company committed to the promotion, development, manufacture and sale of products based on Open Source technology to liberalize the industrial sector and boost the growth of its customers.

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.

The balance between **quality and cost is very important** for us and therefore for the market, using Open Source solutions we can provide more specifications at a better price.

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

Industrial Shields is convinced with a focus on **Industry 4.0 and the Internet of Things**.

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

EVOLVING

2007-2010

Through the IEEE-UNEDsb we started to know Arduino and used it to manufacture machinery as a prototype. We created the first Shields for industrial use for machinery in the labelling sector and automatic production lines.

2012

Boot & Work Corp. is created with the aim of standardizing a product based on Open Source technology for use in industrial environments.

2013

Boot & Work Corp wins the award for the best Innovative company in Barberà del Valles.
First prototype units.
The Ardbox is coming.

2014

We created the Industrial Shields brand from where we started to market a first basic family of products. First unit sold online to Lybia.

2015

Industrial Shields has commercialized equipment based on Open Source technology to more than 20 countries.

2016

5 distributors in different countries (UK, Germany, USA, Mexico and Italy) and more than 500 customers in all types of industrial sectors.

2017

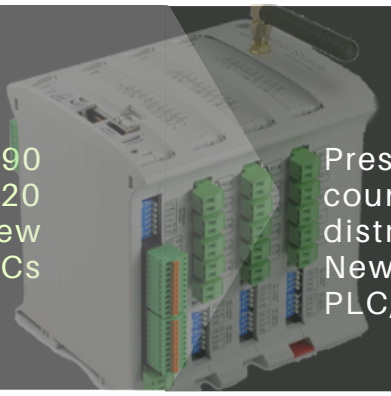
We have over 17 distributors in 15 countries from all continents and have reached more than 75 countries.

2018

International trade shows in Barcelona, Paris and Bangalore. Investment in improving facilities, quality processes, industrial certifications.

2019

Presence in over 90 countries, more than 20 distributors worldwide. New products developments, PLCs with WiFi and GPRS/GSM.

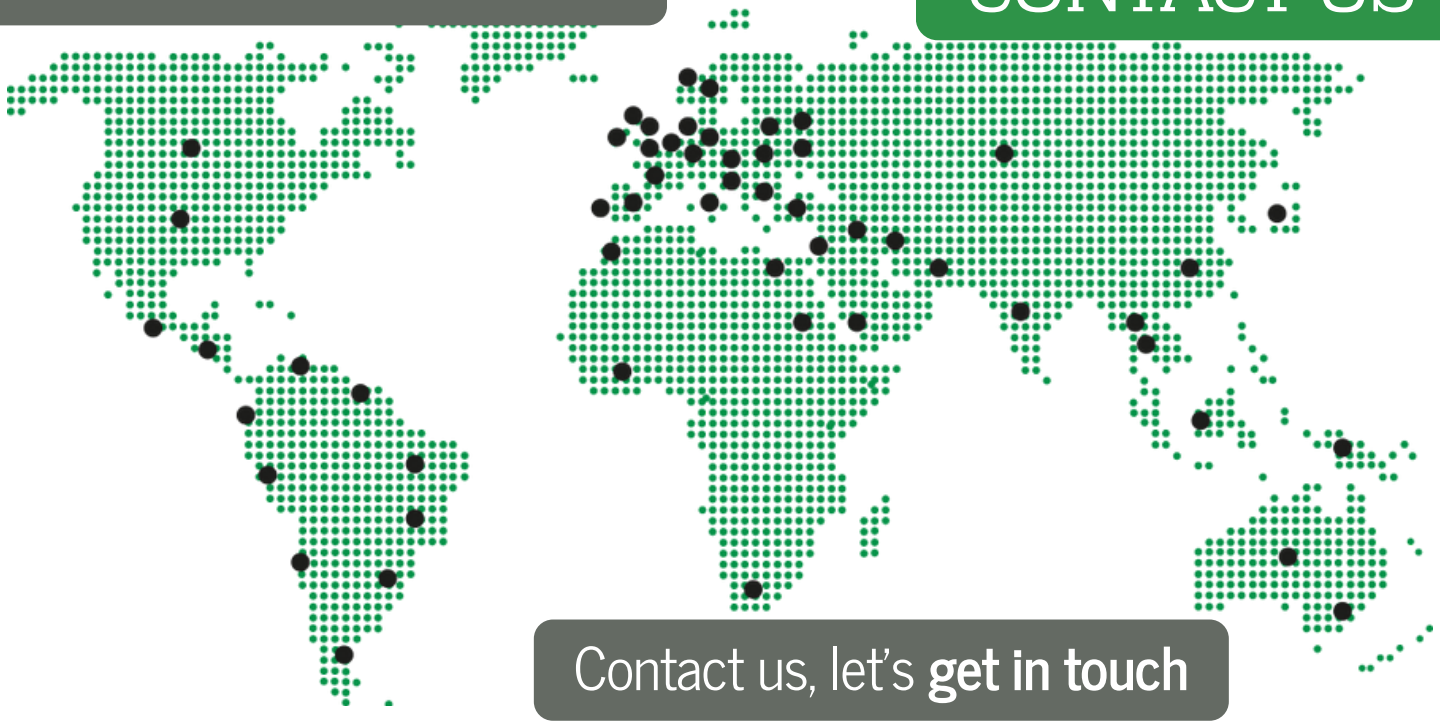


2020

Presence in more than 100 countries, more than 40 distributors around the world. New developments: Raspberry PLC, Dali PLC, LoRa PLC.

Presence in more than 100 **countries**

CONTACT US



Contact us, let's **get in touch**

Industrial Shields has been working worldwide through distributors, or in direct contact with customers. We have been working since 2016 with major market players who are selling our products on their websites.

Our **sales, technical and support team** will assist you by phone, email, Skype; or by using the ticket system or chatting directly on our website.

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

Camí del Grau, 25
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Spain

industrialshields@industrialshields.com

Tel: (+34) 938 760 191

www https://www.industrialshields.com