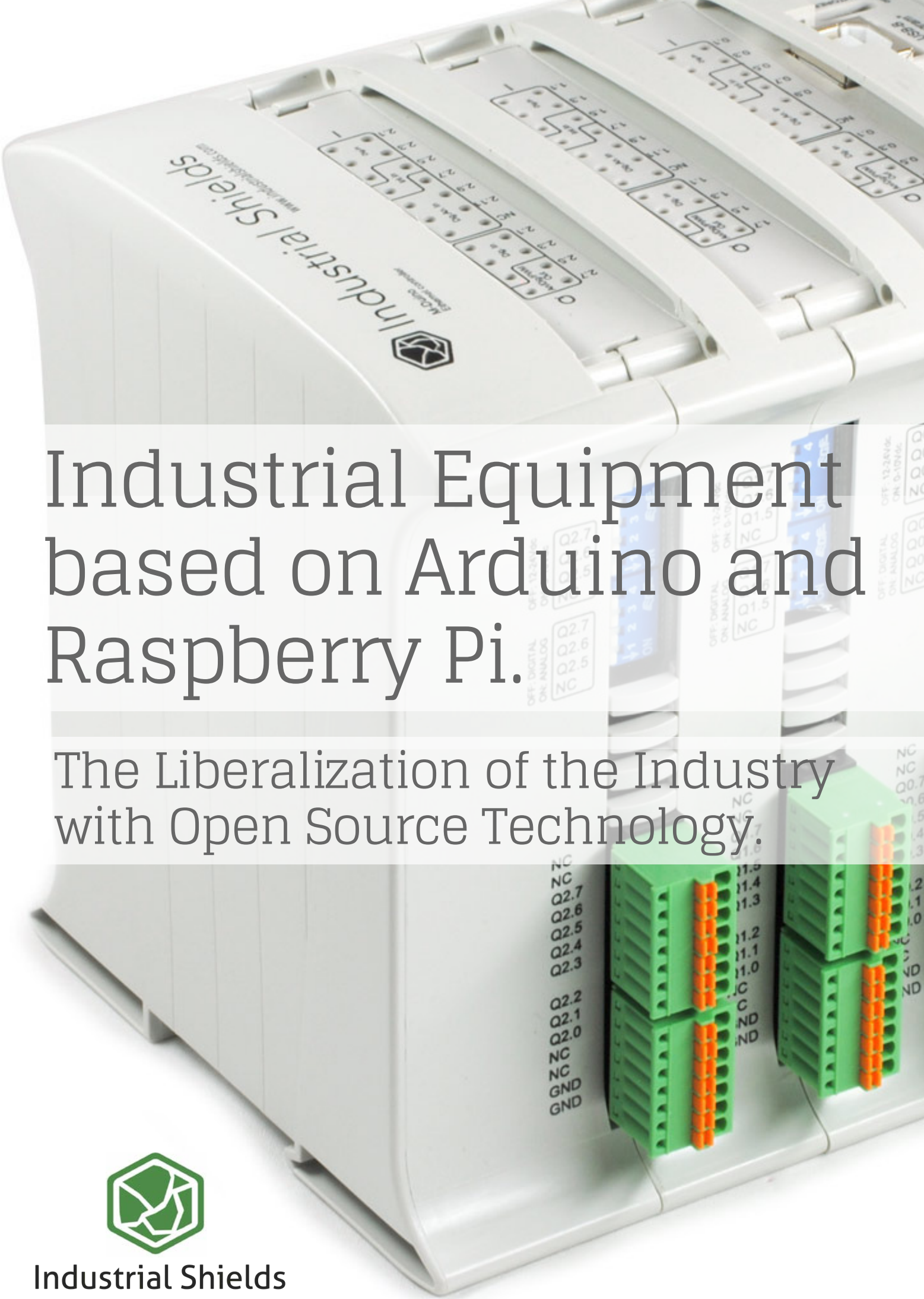

Industrial Equipment based on Arduino and Raspberry Pi.

The Liberalization of the Industry with Open Source Technology.

Industrial Shields

MDUINO PLUS

M-DUINO

ETHERNET PLC

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

PLC Arduino 19R I/Os
Relay / Analog / Digital PLUS

6 Inputs:
· (4x) Analog (0-10Vdc, 10bit) / Digital (7-24Vdc) configurables by software
· (2x) Interrupt (7-24Vdc). "Can work like Digital (24Vdc)"

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

PLC Arduino 21 I/Os
Analog / Digital PLUS

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

8 Outputs:
· (8x) Digital Isolated (5-24Vdc)/ (3 of which) PWM Isolated (3 of which) Analog (0-10Vdc) configurable by switch

RS485
RS232
SPI
TTL
I2C

Original **Arduino Mega** included

ARDUINO

Ethernet
TCP / IP
Modbus RTU
Modbus TCP

Industrial Standard Communications

PLC Arduino 38AR I/Os
Relay / Analog / Digital PLUS

19 Inputs:
· (10x) Analog (0-10Vdc, 10bit) / Digital (7-24Vdc) configurables by software
· (4x) Interrupt (7-24Vdc). "Can work like Digital (24Vdc)"
· (5x) Isolated Digital (7-24Vdc)

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

PLC Arduino 38R I/Os
Analog / Digital /Relay PLUS

12 Inputs:
· (8x) 10 bit - Analog (0-10Vdc) / Digital (7-24Vdc) configurable by software
· (4x) Interrupt (24Vdc). "Can work like Digital (24Vdc)"

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

PLC Arduino 42 I/Os
Analog / Digital PLUS

26 Inputs:
· (12x) Analog (0-10Vdc) / Digital (7-24Vdc) , configurable by software
· (14x) Digital Isolated (7-24Vdc).

16 Outputs:
·(16x) Digital Isolated (5-24Vdc)/ (6 of which) PWM, configurable by software
·(6 of which) Analog (0-10Vdc), configurable by switch

M-DUINO

ETHERNET PLC

PLC Arduino 50RRA I/Os
Relay / Analog / Digital PLUS

22 Inputs:
· (12x) Analog (0-10Vdc, 10bit) / Digital (7-24Vdc) configurables by software
· (10x) Digital Isolated (7-24Vdc). (6 of which are Interrupt)

36 Outputs:
· (16x) Relay (220Vac-5A)
· 8x) Analog (0-10Vdc, 8bit) / Digital (5-24Vdc)
· (12x) Digital (5-24Vdc)

PLC Arduino 53ARR I/Os
Relay / Analog / Digital PLUS

25 Inputs:
· (14x) Analog (0-10Vdc, 10 bit) / Digital (7-24Vdc) configurables by software
· (5x) Digital (7-24Vdc).
· (6x) Interrupt (7-24Vdc). "Can work like Digital 24Vdc"

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

PLC Arduino 54ARA I/Os
Relay / Analog / Digital PLUS

29 Inputs:
· (14x) Analog (0-10Vdc, 10 bit) / Digital (7-24Vdc) , configurable by software
· (9x) Digital Isolated (7-24Vdc).
· (6x) Interrupt (7-24Vdc). "Can work like Digital (24Vdc)"

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

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

PLC Arduino 57R I/Os
Relay / Analog / Digital PLUS

18 Inputs:
· (12x) Analog (0-10Vdc, 10 bit) / Digital (7-24Vdc) configurable by software
· (6x) Interrupt (5-24Vdc) "Can work like Digital (24Vdc)".

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

PLC Arduino 57AAR I/Os
Analog / Digital PLUS

32 Inputs:
· (16x) Analog (0-10Vdc, 10bit) / Digital (7-24Vdc) configurable by software
· (6x) Interrupt (5-24Vdc). "Can work like Digital (24Vdc)"
· (10x) Isolated Digital (5-24Vdc)

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

PLC Arduino 58 I/Os
Analog / Digital PLUS

36 Inputs:
· (16x) Analog (0-10Vdc) / Digital (7-24Vdc) configurable by software
· (20x) Digital Isolated (7-24Vdc).

22 Outputs:
· (22x) Digital Isolated (5-24Vdc)/ (8 of which) PWM configurable by software
· (8 of which) Analog (0-10Vdc)

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 Input	Analog Input	Interrupt Input	Digital Output	Analog Output	Relay Output	In/Out 5Vdc
IS.MDuino.21+	M-DUINO PLC Arduino Ethernet 21 I/Os Analog/Digital PLUS	x2 n.11	x1 n.12	x1	x1	x1	x1	-	-	x13	x6 n.4	x2 n.5	x8	x3	-	x6 n.7
IS.MDuino.42+	M-DUINO PLC Arduino Ethernet 42 I/Os Analog/Digital PLUS	x2 n.11	x1 n.12	x1	x1	x1	x1	-	-	x26	x12 n.4	x4 n.5	x16	x6	-	x6 n.7
IS.MDuino.58+	M-DUINO PLC Arduino Ethernet 58 I/Os Analog/Digital PLUS	x2 n.11	x1 n.12	x1	x1	x1	x1	-	-	x36	x16 n.4	x6 n.5	x22	x8	-	x6 n.7
IS.MDuino.19R+	M-DUINO PLC Arduino Ethernet 19R I/Os Analog/Digital PLUS	x2 n.11	x1 n.12	x1	x1	x1	x1	-	-	x6	x4 n.4	x2 n.5	x3	x3	x8	x6 n.7
IS.MDuino.38R+	M-DUINO PLC Arduino Ethernet 38R I/Os Analog/Digital PLUS	x2 n.11	x1 n.12	x1	x1	x1	x1	-	-	x12	x8 n.4	x4 n.5	x6	x6	x16	x6 n.7
IS.MDuino.57R+	M-DUINO PLC Arduino Ethernet 57R I/Os Analog/Digital PLUS	x2 n.11	x1 n.12	x1	x1	x1	x1	-	-	x18	x12 n.4	x6 n.5	x8	x8	x23	x6 n.7
IS.MDuino.38AR+	M-DUINO PLC Arduino Ethernet 38AR I/Os Analog/Digital PLUS	x2 n.11	x2 n.12	x1	x1	x1	x1	-	-	x19	x10 n.4	x4 n.5	x11	x6	x8	x6 n.7
IS.MDuino.53ARR+	M-DUINO PLC Arduino Ethernet 53ARR I/Os Analog/Digital PLUS	x2 n.11	x2 n.12	x1	x1	x1	x1	-	-	x25	x14 n.4	x6 n.5	x13	x8	x15	x6 n.7
IS.MDuino.57AAR+	M-DUINO PLC Arduino Ethernet 57AAR I/Os Analog/Digital PLUS	x2 n.11	x2 n.12	x1	x1	x1	x1	-	-	x32	x16 n.4	x6 n.5	x18	x8	x7	x6 n.7
IS.MDuino.54ARA+	M-DUINO PLC Arduino Ethernet 54ARA I/Os Analog/Digital PLUS	x2 n.11	x2 n.12	x1	x1	x1	x1	-	-	x29	x14 n.4	x6 n.5	x17	x8	x8	x6 n.7
IS.MDuino.50RRA+	M-DUINO PLC Arduino Ethernet 50RRA I/Os Analog/Digital PLUS	x2 n.11	x2 n.12	x1	x1	x1	x1	-	-	x22	x12 n.4	x6 n.5	x20	x8	x16	x6 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 a serial in a project! | ***n.12***: 2 Inputs are lost

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 Input	Analog Input	Interrupt Input	Digital Output	Analog Output	Relay Output	In/Out 5Vdc
006001000200	M-DUINO PLC Arduino Ethernet & GPRS 21 I/Os Analog/Digital PLUS	x2 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x13	x6 n.4	x2 n.5	x8	x3	-	x6 n.7
006001000400	M-DUINO PLC Arduino Ethernet & GPRS 42 I/Os Analog/Digital PLUS	x2 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x26	x12 n.4	x4 n.5	x16	x6	-	x6 n.7
006001000600	M-DUINO PLC Arduino Ethernet & GPRS 58 I/Os Analog/Digital PLUS	x2 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x36	x16 n.4	x6 n.5	x22	x8	-	x6 n.7
006001000100	M-DUINO PLC Arduino Ethernet& GPRS 19R I/Os Analog/Digital PLUS	x2 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x6	x4 n.4	x2 n.5	x3	x3	x8	x6 n.7
006001000300	M-DUINO PLC Arduino Ethernet & GPRS 38R I/Os Analog/Digital PLUS	x2 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x12	x8 n.4	x4 n.5	x6	x6	x16	x6 n.7
006001000500	M-DUINO PLC Arduino Ethernet & GPRS 57R I/Os Analog/Digital PLUS	x2 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x18	x12 n.4	x6 n.5	x8	x8	x23	x6 n.7
006001000700	M-DUINO PLC Arduino Ethernet & GPRS 38AR I/Os Analog/Digital PLUS	x2 n.13	x2 n.12	x1	x1	x1	x1	-	x1 n.14	x19	x10 n.4	x4 n.5	x11	x6	x8	x6 n.7
006001000800	M-DUINO PLC Arduino Ethernet & GPRS 53ARR I/Os Analog/Digital PLUS	x2 n.13	x2 n.12	x1	x1	x1	x1	-	x1 n.14	x25	x14 n.4	x6 n.5	x13	x8	x15	x6 n.7
006001000900	M-DUINO PLC Arduino Ethernet & GPRS 57AAR I/Os Analog/Digital PLUS	x2 n.13	x2 n.12	x1	x1	x1	x1	-	x1 n.14	x32	x16 n.4	x6 n.5	x18	x8	x7	x6 n.7
006001001000	M-DUINO PLC Arduino Ethernet & GPRS 54ARA I/Os Analog/Digital PLUS	x2 n.13	x2 n.12	x1	x1	x1	x1	-	x1 n.14	x29	x14 n.4	x6 n.5	x17	x8	x8	x6 n.7
006001001100	M-DUINO PLC Arduino Ethernet & GPRS 50RRA I/Os Analog/Digital PLUS	x2 n.13	x2 n.12	x1	x1	x1	x1	-	x1 n.14	x22	x12 n.4	x6 n.5	x20	x8	x16	x6 n.7
006001001200	PLC ARDUINO ARDBOX 20 I/Os ANALOG HF MODBUS & GPRS	-	x1 n.1	-	x1 n.2	x1 n.3	-	-	x1 n.14	x10	x6 n.4	x2 n.5	x10	x5 n.6	-	x2 n.15
006001001300	PLC ARDUINO ARDBOX 20 I/Os RELAY HF MODBUS & GPRS	-	x1 n.8	-	x1 n.9	x1 n.10	-	-	x1 n.14	x10	x6 n.4	x2 n.5	-	x2 n.6	x8	x2 n.15

n.1: 1 In. & 1 Dig. Out are lost | ***n.2***: 2 In & 2 Relays are lost | ***n.3***: 2 In. & 2 Dig. Out & 2 An. Out. 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 Out are lost | ***n.7***: If using pin 2 and pin 3, (x2) In are lost | ***n.8***: 1 In. & 1 Relay are lost | ***n.9***: 2 In. & 2 Relay are lost | ***n.10***: 2 In. & 2 Relay are lost | ***n.11***: USB Only meant for uploading or debugging, not always connected as a serial in a project! | ***n.12***: 2 Inputs are lost | ***n.13***: If using Serial 1, GPRS/GSM is 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 Input	Analog Input	Interrupt Input	Digital Output	Analog Output	Relay Output	In/Out 5Vdc
007001000200	M-DUINO PLC Arduino Ethernet & WiFi & Bluetooth LE 21 I/Os Analog/Digital PLUS	x2 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x13	x6 n.4	x2 n.5	x8	x3	-	x6 n.7
007001000400	M-DUINO PLC Arduino Ethernet & WiFi & Bluetooth LE 42 I/Os Analog/Digital PLUS	x2 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x26	x12 n.4	x4 n.5	x16	x6	-	x6 n.7
007001000600	M-DUINO PLC Arduino Ethernet & WiFi & Bluetooth LE 58 I/Os Analog/Digital PLUS	x2 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x36	x16 n.4	x6 n.5	x22	x8	-	x6 n.7
007001000100	M-DUINO PLC Arduino Ethernet & WiFi & Bluetooth LE 19R I/Os Analog/Digital PLUS	x2 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x6	x4 n.4	x2 n.5	x3	x3	x8	x6 n.7
007001000300	M-DUINO PLC Arduino Ethernet & WiFi & Bluetooth LE 38R I/Os Analog/Digital PLUS	x2 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x12	x8 n.4	x4 n.5	x6	x6	x16	x6 n.7
007001000500	M-DUINO PLC Arduino Ethernet & WiFi & Bluetooth LE 57R I/Os Analog/Digital PLUS	x2 n.13	x1 n.12	x1	x1	x1	x1	-	x1 n.14	x18	x12 n.4	x6 n.5	x8	x8	x23	x6 n.7
007001000700	M-DUINO PLC Arduino Ethernet & WiFi & Bluetooth LE 38AR I/Os Analog/Digital PLUS	x2 n.13	x2 n.12	x1	x1	x1	x1	-	x1 n.14	x19	x10 n.4	x4 n.5	x11	x6	x8	x6 n.7
007001000800	M-DUINO PLC Arduino Ethernet & WiFi & Bluetooth LE 53ARR I/Os Analog/ Digital PLUS	x2 n.13	x2 n.12	x1	x1	x1	x1	-	x1 n.14	x25	x14 n.4	x6 n.5	x13	x8	x15	x6 n.7
007001000900	M-DUINO PLC Arduino Ethernet & WiFi & Bluetooth LE 57AAR I/Os Analog/ Digital PLUS	x2 n.13	x2 n.12	x1	x1	x1	x1	-	x1 n.14	x32	x16 n.4	x6 n.5	x18	x8	x7	x6 n.7
007001001000	M-DUINO PLC Arduino Ethernet & WiFi & Bluetooth LE 54ARA I/Os Analog/ Digital PLUS	x2 n.13	x2 n.12	x1	x1	x1	x1	-	x1 n.14	x29	x14 n.4	x6 n.5	x17	x8	x8	x6 n.7
007001001100	M-DUINO PLC Arduino Ethernet & WiFi & Bluetooth LE 50RRA I/Os Analog/ Digital PLUS	x2 n.13	x2 n.12	x1	x1	x1	x1	-	x1 n.14	x22	x12 n.4	x6 n.5	x20	x8	x16	x6 n.7
007001001200	PLC ARDUINO ARDBOX 20 I/Os ANALOG HF MODBUS & WiFi & Bluetooth LE	-	x1 n.1	-	x1 n.2	x1 n.3	-	-	x1 n.14	x10	x6 n.4	x2 n.5	x10	x5 n.6	-	x2 n.15
007001001300	PLC ARDUINO ARDBOX 20 I/Os RELAY HF MODBUS & WiFi & Blue-tooth LE	-	x1 n.8	-	x1 n.9	x1 n.10	-	-	x1 n.14	x10	x6 n.4	x2 n.5	-	x2 n.6	x8	x2 n.15

n.1: 1 In. & 1 Dig. Out are lost | ***n.2***: 2 In & 2 Relays are lost | ***n.3***: 2 In. & 2 Dig. Out & 2 An. Out. 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 Out are lost | ***n.7***: If using pin 2 and pin 3, (x2) In are lost | ***n.8***: 1 In. & 1 Relay are lost | ***n.9***: 2 In. & 2 Relay are lost | ***n.10***: 2 In. & 2 Relay are lost | ***n.11***: USB Only meant for uploading or debugging, not always connected as a serial in a project! | ***n.12***: 2 Inputs are lost | ***n.13***: If using Serial 1, GPRS/GSM is 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 Serial 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).

ARDBOX

PLC Arduino Ardbox 20 I/Os Analog HF

10 Inputs:
· (10x) Digital (7-24Vdc).
· (6x)of 10x, Analog (0-10Vdc) configurable by Switch

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

ARDUINO

Original **Arduino Leonardo** included

PLC Arduino Ardbox 20 I/Os RELAY HF

10 Inputs:
· (10x) Digital (7-24Vdc).
· (6x)of 10x, Analog (0-10Vdc) configurable by Switch

8 Outputs:
· (8x) Relay (220Vac-5A)

GPRS

GPRS/SIM Controller 19R

6 Inputs
· (4x) Analog (0-10Vdc, 10bit) / Digital (5-24Vdc) configurables by software
· (2x) Interrupt Inputs (5-24Vdc).
"Can work like Digital (24Vdc)"

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

Industrial Protocols

RS485 · RS232 · SPI · I2C · Modbus RTU

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

PANEL PC

Panel PC's for industrial environment using Linux, Android or Windows 10 IoT OSs.

TFT
10.1" TouchScreen LVDS, 315 nits, 170º viewing angle.
Format 16:9, 1366x768.

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
8x GPIO , SPI , I2C , UART

LAN connectivity
10/100 Ethernet (RJ-45)

CPU

RaspberryPi B3 +
Quad-core A53 (ARMv8) 64-bit @ 1.4GHz

Tinker Board
Rockchip Quad-Core RK3288

SOFTWARE

Linux **Android** **Windows 10 IoT**

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

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

Original **Raspberry Pi3** included

Choose the processor
That fits your project

Original **Tinker Board** included

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 - ARDBOX

		Communications								Inputs / Outputs						
Reference	Description	Serial TTL (UART)	I2C	SPI	RS232	RS485 Half/Full	Ethernet	Wi-Fi &BLE	GPRS/GSM	Digital Input	Analog Input	Interrupt Input	Digital Output	Analog Output	Relay Output	In/Out 5Vdc
IS.AB20AN.HF+	PLC Arduino ARDBOX 20 I/Os Analog HF Modbus (RS485 configured by default)	-	x1 n.1	x1	x1 n.2	x1 n.3	-	-	-	x10	x6 n.4	x2 n.5	x10	x7 n.6	-	x3 n.7
IS.AB20REL.HF+	PLC Arduino ARDBOX 20 I/Os Relay HF Modbus (RS485 configured by default)	-	x1 n.8	x1	x1 n.9	x1 n.10	-	-	-	x10	x6 n.4	x2 n.5	-	x2 n.6	x8	x3 n.7
006001001200	PLC ARDUINO ARDBOX 20 I/Os ANALOG HF MODBUS & GPRS	-	x1 n.1	-	x1 n.2	x1 n.3	-	-	x1 n.14	x10	x6 n.4	x2 n.5	x10	x2 n.6	-	x2 n.15
006001001300	PLC ARDUINO ARDBOX 20 I/Os RELAY HF MODBUS & GPRS	-	x1 n.8	-	x1 n.9	x1 n.10	-	-	x1 n.14	x10	x6 n.4	x2 n.5	-	x2 n.6	x8	x2 n.15
007001001200	PLC ARDUINO ARDBOX 20 I/Os ANALOG HF MODBUS & WiFi & BLUETOOTH LE	-	x1 n.1	-	x1 n.2	x1 n.3	-	x1 n.17	-	x10	x6 n.4	x2 n.5	x10	x2 n.6	x8	x3 n.7
007001001300	PLC ARDUINO ARDBOX 20 I/Os RELAY HF MODBUS & WiFi & BLUETOOTH LE	-	x1 n.8	-	x1 n.9	x1 n.10	-	x1 n.17	-	x10	x6 n.4	x2 n.5	-	x2 n.6	x8	x3 n.7

n.1: 1 In. & 1 Dig. Out are lost | ***n.2***: 2 In & 2 Relays are lost | ***n.3***: 2 In. & 2 Dig. Out & 2 An. Out. 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 Out are lost | ***n.7***: If using pin 2 and pin 3, (x2) In are lost | ***n.8***: 1 In. & 1 Relay are lost | ***n.9***: 2 In. & 2 Relay are lost | ***n.10***: 2 In. & 2 Relay are lost | ***n.11***: USB Only meant for uploading or debugging, not always connected as a serial in a project! | ***n.12***: 2 Inputs are lost | ***n.13***: If using Serial 1, GPRS/GSM is 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 Serial 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).

REFERENCE LIST – PANEL PC

			Communications								Inputs / Outputs	
CPU	Reference	Description	Serial TTL (UART)	I2C	SPI	RS232	RS485 Half/Full	Ethernet	Wi-Fi &BLE	GPRS/GSM	Digital Input	Digital Output
NO CPU	IS.TBENCL.10.1AL	Panel PC 10.1" Industrial EMC Aluminum - No CPU included	x1 n.18	x1 n.18	x1 n.18	-	x1	x1	x1	-	x26 GPIO n.18	
Raspberry PI	003000300100	TouchBerry PI 7" - 10 Configurable I/Os - RS485 - RS232 - UPS Included	x1 n.18	x1 n.18	x1 n.18	-	x1	x1	x1	-	x26 GPIO n.18	
	IS.TBENCL.10.1AL_RPIB3_X	Touchberry PI 10.1 B3+ (Panel PC Industrial EMC Aluminum - Raspberry PI B3 Included)	x1 n.18	x1 n.18	x1 n.18	-	x1	x1	x1	-	x26 GPIO n.18	
	IS.TBENCL.10.1AL_RPIB3_16SD	Touchberry PI 10.1 B3+ (Panel PC Industrial EMC Aluminum - Raspberry PI B3 Included + 16Gb µSD Card without OS)	x1 n.18	x1 n.18	x1 n.18	-	x1	x1	x1	-	x26 GPIO n.18	
	IS.TBENCL.10.1AL_RPIB3_16LSD	Touchberry PI 10.1 B3+ (Panel PC Industrial EMC Aluminum - Raspberry PI B3 Included + µSD Card with Raspbian)	x1 n.18	x1 n.18	x1 n.18	-	x1	x1	x1	-	x26 GPIO n.18	
	003000100100	Touchberry PI 10.1 B3+ UPS (Panel PC Industrial EMC Aluminum - Raspberry PI B3 Included + µSD Card with Raspbian - UPS included)	x1 n.18	x1 n.18	x1 n.18	-	x1	x1	x1	-	x26 GPIO n.18	
	003000200100	Touchberry PI 10.1 B3+ UPS & RTC & RS485 (Panel PC Industrial EMC Aluminum - Raspberry PI B3 Included + µSD Card with Raspbian - UPS,RTC,RS485 functions included)	x1 n.18	x1 n.18	x1 n.18	-	x1	x1	x1	-	x26 GPIO n.18	
Asus	003001400100	TinkerTouch 7" - 10 Configurable I/Os - RS485 - RS232 - UPS Included - Linux installed into eMMC	x1 n.18	x1 n.18	x1 n.18	-	x1	x1	x1	-	x26 GPIO n.18	
	003001400200	TinkerTouch 7" - 10 Configurable I/Os - RS485 - RS232 - UPS Included - Android Installed into eMMC	x1 n.18	x1 n.18	x1 n.18	-	x1	x1	x1	-	x26 GPIO n.18	
	003001100100	TinkerTouch S 10.1 (Panel PC Industrial, Aluminum enclosure, EMC compliance - ASUS Quad-Core, 2GB, 16Gb eMMC+MicroSD slot - LINUX)	x1 n.18	x1 n.18	x1 n.18	-	x1	x1	x1	-	x26 GPIO n.18	
	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)	x1 n.18	x1 n.18	x1 n.18	-	x1	x1	x1	-	x26 GPIO n.18	
	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)	x1 n.18	x1 n.18	x1 n.18	-	x1	x1	x1	-	x26 GPIO n.18	
	003001100200	TinkerTouch S 10.1 (Panel PC Industrial, Aluminum enclosure, EMC compliance - ASUS Quad-Core, 2GB, 16Gb eMMC+MicroSD slot - ANDROID)	x1 n.18	x1 n.18	x1 n.18	-	x1	x1	x1	-	x26 GPIO n.18	
	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)	x1 n.18	x1 n.18	x1 n.18	-	x1	x1	x1	-	x26 GPIO n.18	
	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)	x1 n.18	x1 n.18	x1 n.18	-	x1	x1	x1	-	x26 GPIO n.18	

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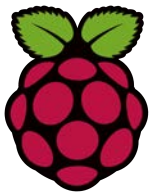
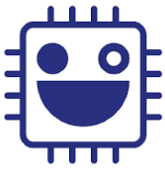




LIBRARIES, COMMUNICATIONS, PROTOCOLS

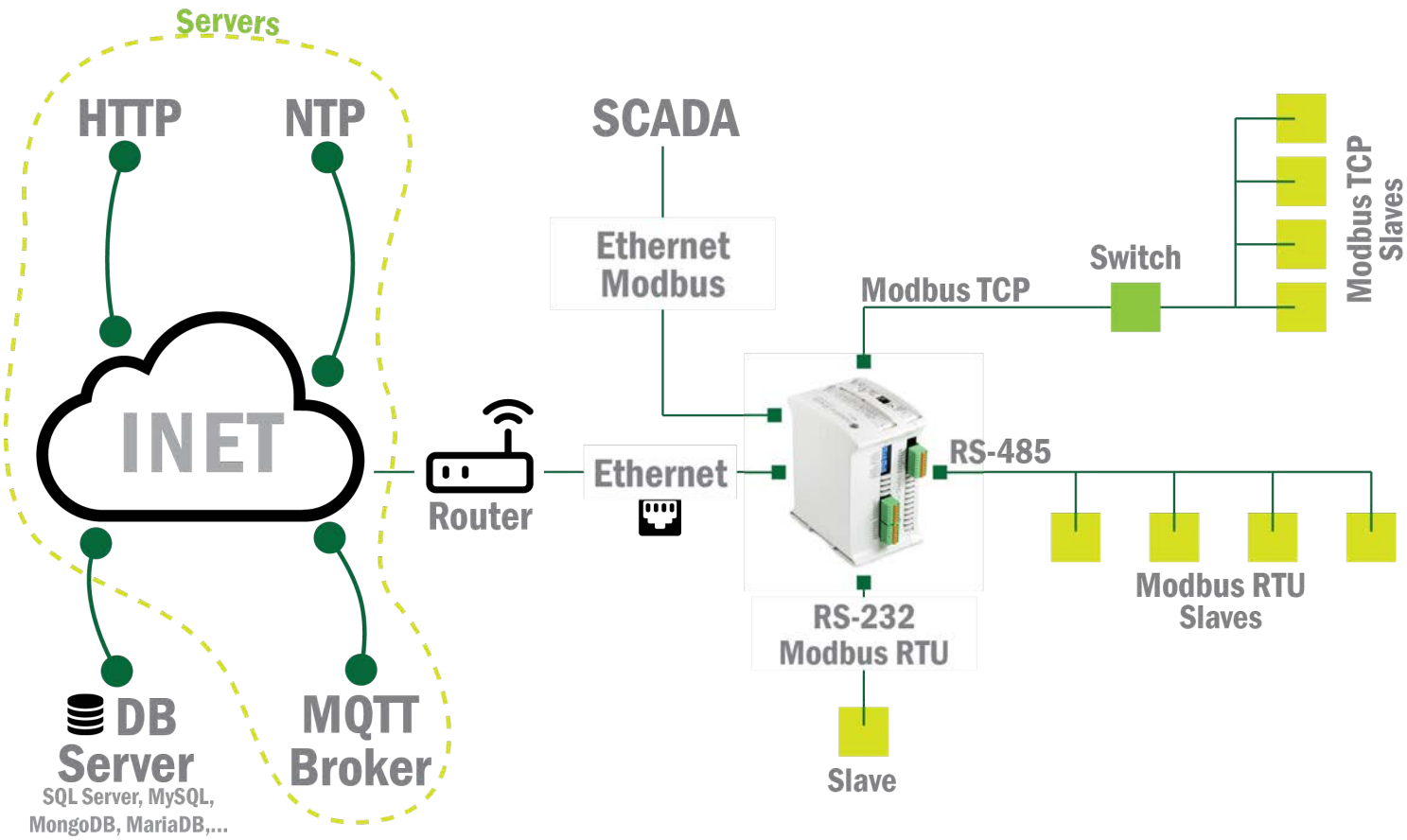
Available Libraries in our Blog and GitHub

Application Layer	MySQL / SQL Server (Data Base)	SimpleComm	Modbus TCP	MQTT	http	Raw Data	NTD	Raw Data	Modubs RTU	SimpleComm	Raw Data	Modubs RTU	SimpleComm	Sensor Data	Sensor Data	Sensor Data
4. TRANSPORT	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.



OPEN MOTE

OpenMote B is a Super LOW consumption mote for the IoT aplications. It is the reference for the IETF 6TiSCG Working Group and is supported by all the Open Source 6TiSCH implementation in Contiki and OpenWSN projects.

- **High Autonomy (>10 years*)**
- **Less than 50µA Consumption**
- **USB Interface**

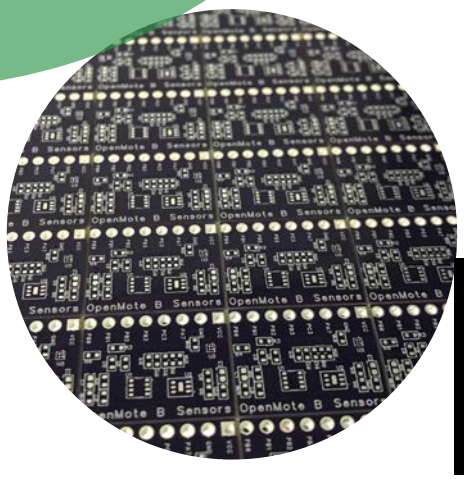
Main Features
· Ti CC2538 SoC (512kb Flash 32kb RAM)
· Atmel AT86RF215 SubGHz Radio (868/915MHz)
· Supports all IEEE802.15.4g modulations
· Simultaneous dual radio Operation

Programming
· Programming over BSL
· Supported in Contiki and OpenWSN for experimentation
· JTAG and OCD compliant
· USB Interface

OPEN MOTE

Tech Features

Technical characteristics:
· Temperature sensor, Humidity sensor, Pressure sensor, Luminosity sensor
· 4x Leds indicators
· 2xAA Battery placeholder
· 2.4GHz SMA Antenna
· SubGHz SMA Antenna



OpenMote B
OpenMote B is a Raspberry compatible IoT harware in compliance with the standard IEEE802.15.4g and it can be programmed by Open Source platforms.

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

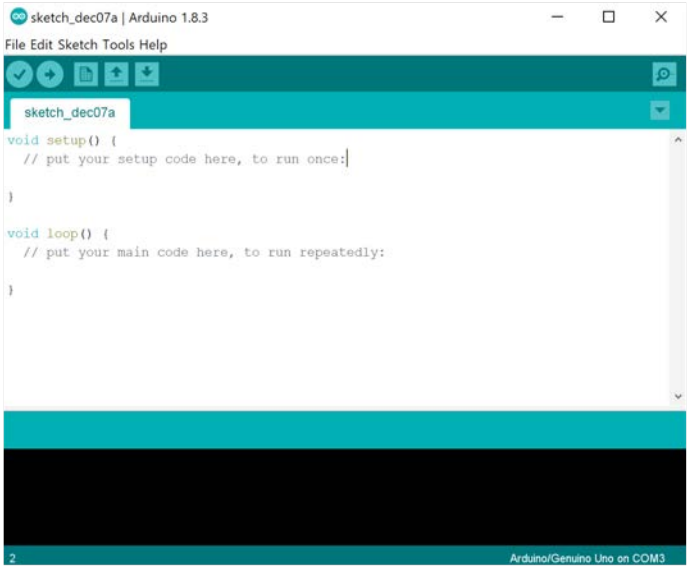
POWER SUPPLY

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 PLC's



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 wire together flows using nodes.
- Online debugging aplication

Our PLC's 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...

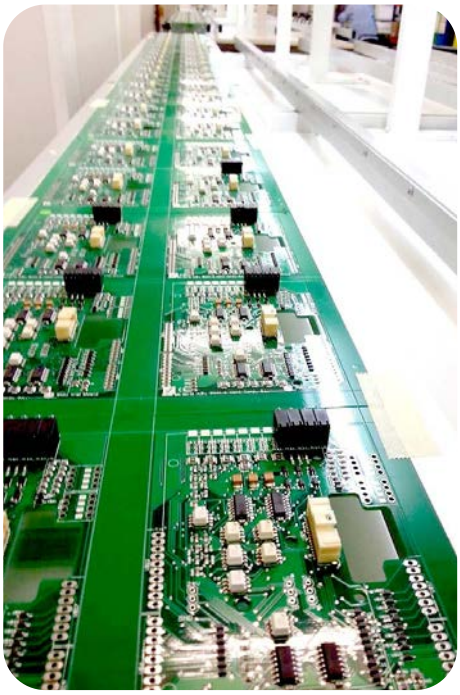
Our Panel PC's can work with Linux and Android, it means that If your team have knowledge enough you can create a custom applications for the Panel PC's. You have more flexibility to fit the needs of your installation or application.

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 its 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 selling of products based on Open Source technology to liberalize the industrial sector and boost the growth of its customers.

Our company's goal is to provide low cost solutions for automation in industrial environments.

The **Open Source Hardware** solutions are still not 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 so for the market, using Open Source solutions we can provide more specifications at a better price.

Even more, the Open Source solutions are **more flexible and accessible** than the standard industrial solutions, and furthermore, **the software is free of licences**.

Industrial Shields are convinced with a perspective focused on **Industry 4.0 and the Internet of Things**.

QUALITY

Expecting final auditory

Incompliance 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

Through the IEEE-UNEDsb we started to know Arduino and we used it to manufacture machinery as a prototype.

2010

We created the first Shields for industrial use for machinery of the labeling sector and automatic production lines.

2012

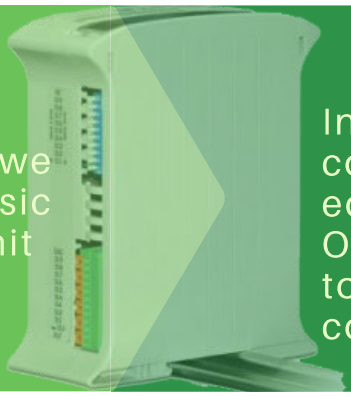
Boot & Work Corp. is created with the objective of standardizing a product based on Open Source technology for use in industrial environments.

2013

Boot & Work Corp wins the award for the best Innovative company in Barberá 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 clients in industrial sectors of all kinds.

2017

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

2018

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

2019

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

Presence in more than **90 countries**

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

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

Our **commercial, technical and support team** will assist you by phone, email, skype; or using the ticket system or chat directly in our website.

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

Fabrica del Pont 1-11
(Recinte industrial del Pont Vell)
Sant Fruitós de Bages 08272 (Barcelona)
Spain

Tel: (+34) 938 760 191

industrialshields@industrialshields.com

https://www.industrialshields.com

CONTACT WITH US