Open Source PLCs and Panel PCs

RELIABLE OPEN SOURCE INDUSTRIAL HARDWARE

Supply Voltage
24 Vdc

I/Os
Digital
Analog
Relay
Now it’s possible!

From prototype to industrialisation with Open Source hardware

You have never been so free to develop your innovative projects
Open source PLC range (Arduino based) overview

Programmed with Arduino IDE based on Processing.
Open source Panel PC range overview

All Panel PCs have enough I/Os to avoid having to incorporate a PLC.
PLC ARDBOX PLC 18 I/Os RELAY (Arduino Leonardo based)

**Technical Specifications**

**Inputs/Outputs (18 I/Os)**
- **8 Inputs:**
  - (6x) Digital (24Vdc) Inputs, configurable by software.
  - (2x) Interrupt Input (24Vcc).
- **8 Outputs:**
  - (8x) Relay outputs (220Vac - 5A)
  - 2 Digital Input/output (5Vcc).

**Communications**
- (1x) USB port (type B).
- (1x) I2C port. (Allows you to connect several modules: I/Os, PLC Ardbox, sensors, ...).
- (1x) Serial port.

**Other specifications:**
- Power: 30W
- Flash memory: 32kB of which 0.5kB used by boot loader.
- SRAM: 2kB
- EEPROM: 1kB
- Clock Speed: 16MHz

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**Arduino-based PLC**

It has 18 digital inputs / outputs. ARDBOX product family offers the possibility of communication between two computers using I2C obtaining a master-slave connection.

**Instant connection and programming**

The ARDBOX PLC, as it uses an Arduino LEONARDO, lets you program it through the USB. This feature lets it an immediate access in order to program, maintain and prepare it for its set up. It lets you to control your equipment without no limits.

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Click here for more details
PLC M-DUINO 19R I/Os Relay/Analog/Digital (Arduino Mega based)

Technical Specifications
M-DUINO compact PLC, 12 - 24Vdc and 19 I/Os and Ethernet.

Input/Output (19 I/Os)
7 Input:
(4x) 10bit --- Analog (0---10Vdc) / Digital (24Vdc) Inputs, configurable by software
(1x) Digital Input (24Vdc).
(2x) Interrupt Input (24Vdc). "Can work like Digital Input (24Vdc)"

12 Output:
(9x) Relay outputs (220Vac --- 8A)
(3x) 8bit --- Analog (0---10Vdc)

Communications
(1x) Ethernet Port.
(1x) USB port,
(3x) Serial ports. Using RX,TX pins
(1x) I2C Bus using SDA, SCL pins of Arduino. (Allows you to connect several modules: I/Os, PLC Ardbox, sensors, ...You need to connect an additional 10k pull up resistance),
(1x) RS485 port
(1x) SPI external port (Using MOSI,MISO, SS pins of Arduino)

Modular PLC
This is the first equipment based on the Arduino technology designed for a professional use. This PLC has 19I/Os. It also contains several communication systems which provide more flexibility and control. The M-DUINO 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...

Instantaneous connection and coding
The PLC M-DUINO is programmed through the USB ports. This offers and immediate access to program, maintain and control. Also you can continuously monitor the status for all the variables, inputs, outputs, etc. It is compatible with the Ardbox and the Touchberry Pi with instantaneous connection.

Click here for more details
Arduino based PLC
It has 20 digital inputs / outputs (including 9 analog / digital inputs configurable by software, and 7 digital / analog output configurable with jumpers). ARDBOX product family offers the possibility of communication between two computers using I2C obtaining a master-slave connection.

Instant connection and programming
The ARDBOX PLC, as it uses an Arduino LEONARDO, lets you program it through the USB. This feature lets it an immediate access in order to program, maintain and prepare it for its set up. It lets you to control your equipment without no limits.

Technical Specifications

**Inputs/ Outputs (20 I/Os)**

10 Inputs:
(9x) Analog (0-10Vdc) / Digital (24Vdc) Inputs, configurable by jumpers
(1x) Digital inputs PNP (24Vdc).

10 Outputs:
(7x) Digitals (24Vdc) / Analog (0-10Vdc) / PWM (24Vdc) outputs, configurable by jumpers.
(3x) Digital PNP outputs.

Communications
- (1x) USB port (type B).
- (1x) Serial port.(using USB port)

Other Specifications:
Pot: 30W
Flash memory: 32kB of which 0.5kB used by boot loader.
SRAM: 2kB
EEPROM: 1kB
Clock Speed: 16MHz
PLC M-DUINO 21 I/Os Analog/Digital (Arduino Mega based)

Technical Specifications
Input/Output (21 I/Os)
13 Input:
- (6x) Analog/digital which are configurable by Jumpers and software
- (5x) Digital PNP.
- (2x) Digital Interrupt.

8 Output:
- (3x) Digital/analogic/PWM configurable by Jumpers and software.
- (5x) Digital PNP.

Communications
- (1x) Ethernet Port.
- (1x) USB port (type B).
- (1x) I2C port. (Lets you add additional modules: I/Os, other PLC Ardbox, sensors, ...).
- (4x) Serial ports.(RS232, RS485)
- (1x) Modbus Bus.*

Other Technical specs:
Max power consumption: 1.2A
Flash Memory:
256kB (8kB are used for the boot loader)
SRAM: 8kB
EEPROM: 4kB
Clock Speed: 16MHz

Modular PLC
This is the first equipment based on the Arduino technology designed for a professional use. This PLC has 21 I/Os. It also contains several communication systems which provide more flexibility and control. The M-DUINO 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...

Instantaneous connection and coding
The PLC M-DUINO is programmed through the USB ports. This offers and immediate access to program, maintain and control. Also you can continuously monitor the status for all the variables, inputs, outputs, etc. It is compatible with the Ardbox and the Touchberry Pi with instantaneous connection.
PLC M-DUINO 38R I/Os Relay/Analog/Digital (Arduino Mega based)

Technical Specifications
M-DUINO compact PLC, 12 - 24Vdc and 38 I/Os and Ethernet.

Input/Output (38 I/Os)
14 Input:
(8x) 10bit --- Analog (0---10Vdc) / Digital (24Vdc) Inputs, configurable by software
(2x) Digital Input (24Vdc).
(4x) Interrupt Input (24Vdc). "Can work like Digital Input (24Vdc)"

24 Output:
(18x) Relay outputs (220Vac --- 8A)
(6x) 8bit --- Analog (0---10Vdc)

Communications
(1x) Ethernet Port.
(1x) USB port,
(3x) Serial ports. Using RX,TX pins
(1x) I2C Bus using SDA, SCL pins of Arduino. (Allows you to connect several modules: I/Os, PLC Ardbox, sensors, ...You need to connect an additional 10k pull up resistance),
(1x) RS485 port
(1x) SPI external port (Using MOSI,MISO, SS pins of Arduino)

Modular PLC
This is the first equipment based on the Arduino technology designed for a professional use. This PLC has 42I/Os. It also contains several communication systems which provide more flexibility and control. The M-DUINO 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...

Instantaneous connection and coding
The PLC M-DUINO is programmed through the USB ports. This offers and immediate access to program, maintain and control. Also you can continuously monitor the status for all the variables, inputs, outputs, etc. It is compatible with the Ardbox and the Touchberry Pi with instantaneous connection.
PLC M-DUINO 42 I/Os Analog/Digital (Arduino Mega based)

**Technical Specifications**

**Input/Output (42 I/Os)**
- **26 Input:**
  - (12x) Analogic/digital which are configurable by Jumpers and software¹
  - (10x) Digital.
  - (4x) Int. Digital
- **6 Output:**
  - (6x) Digital/analogic/PWM configurable by Jumpers and software¹.
  - (10x) Digital PNP.

**Communications**
- (1x) Ethernet Port.
- (1x) USB port (type B).
- (1x) I2C port. (Lets you add additional modules: I/Os, other PLC Ardbox, sensors, ...).* 
- (4x) Serial ports. (RS232, RS485)*
- (1x) Mod Bus.*

**Other Technical specs:**
- Max power consumption: 1.2A
- Flash Memory: 256kB (8kB are used for the boot loader)
- SRAM: 8kB
- EEPROM: 4kB
- Clock Speed: 16MHz

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**Modular PLC**
This is the first equipment based on the Arduino technology designed for a professional use. This PLC has 42I/Os. It also contains several communication systems which provide more flexibility and control. The M-DUINO 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...

**Instantaneous connection and coding**
The PLC M-DUINO is programmed through the USB ports. This offers and immediate access to program, maintain and control. Also you can continuously monitor the status for all the variables, inputs, outputs, etc. It is compatible with the Ardbox and the Touchberry Pi with instantaneous connection.
PLC M-DUINO 57R I/Os Relay/Analog/Digital (Arduino Mega based)

**Technical Specifications**
M-DUINO compact PLC, 12 - 24Vdc and 19 I/Os and Ethernet.

**Input/Output (57 I/Os)**

**21 Input:**
- (12x) 10bit --- Analog (0---10Vdc) / Digital (24Vdc) Inputs, configurable by software
- (3x) Digital Input (24Vdc).
- (6x) Interrupt Input (24Vdc). “Can work like Digital Input (24Vdc)"

**36 Output:**
- (27x) Relay outputs (220Vac --- 8A)
- (9x) 8bit --- Analog (0---10Vdc)

**Communications**
- (1x) Ethernet Port.
- (1x) USB port,
- (3x) Serial ports. Using RX,TX pins
- (1x) I2C Bus using SDA, SCL pins of Arduino. (Allows you to connect several modules: I/Os, PLC Ardbox, sensors, ...You need to connect an additional 10k pull up resistance),
- (1x) RS485 port
- (1x) SPI external port (Using MOSI,MISO, SS pins of Arduino)

**Modular PLC**
This is the first equipment based on the Arduino technology designed for a professional use. This PLC has 58I/Os. It also contains several communication systems which provide more flexibility and control. The M-DUINO 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...

**Instantaneous connection and coding**
The PLC M-DUINO is programmed through the USB ports. This offers and immediate access to program, maintain and control. Also you can continuously monitor the status for all the variables, inputs, outputs, etc. It is compatible with the Ardbox and the Touchberry Pi with instantaneous connection.
PLC M-DUINO 58 I/Os Analog/Digital (Arduino Mega based)

**Technical Specifications**

**Input/Output** (58 I/Os)

- **36 Input:**
  - (16x) Analogic/digital which are configurable by Jumpers and software
  - (14x) Digital.
  - (6x) Interrupt Digital.
- **22 Output:**
  - (8x) Digital/analogic/PWM configurable by Jumpers and software.
  - (14x) Digital PNP.

**Communications**

- (1x) Ethernet Port.
- (1x) USB port (type B).
- (1x) I2C port. (Lets you add additional modules: I/Os, other PLC Ardbox, sensors, ...).
- (4x) Serial ports. (RS232, RS485)
- (1x) Mod Bus.*

**Other Technical specs:**

- Max power consumption: 1.2A
- Flash Memory: 256kB (8kB are used for the boot loader)
- SRAM: 8kB
- EEPROM: 4kB
- Clock Speed: 16MHz

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**Modular PLC**

This is the first equipment based on the Arduino technology designed for a professional use. This PLC has 58I/Os. It also contains several communication systems which provide more flexibility and control. The M-DUINO 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...

**Instantaneous connection and coding**

The PLC M-DUINO is programmed through the USB ports. This offers and immediate access to program, maintain and control. Also you can continuously monitor the status for all the variables, inputs, outputs, etc. It is compatible with the Ardbox and the Touchberry Pi with instantaneous connection.

Click here for more details
TOUCHBERRY PI 10.1" (Raspberry PI based)

Panel PC
10.1"

Linux
Linux Operation system

Com
With ethernet, USB, I2C

GPIOs
Available different input/output signals

Technical Specifications
(Raspberry Pi type B+ Included)
TFT
10.1" Capacitive LVDS, 315 nits, 170º viewing angle,
Format
16:9, 1366x768,
SoC
BroadCom BCM 2835 (CPU+GPU+DSP+SDRAM+USB)
CPU
ARM 1176JZF-S a 700MHz (ARM11 family)
GPU
Broadcom VideoCore IV, OpenGL ES 2.0, MPEG-2 y VC-1 (with licence), 1080p30 H.264/MPEG-4 AVC
Memory (SDRAM)
512MB (shared with the GPU)
USB 2.0 ports
2x (hub USB)
Data storage
SD / MMC / SDIO slot
Network Connectivity
10/100 Ethernet (RJ-45)
Low level devices
8x GPIO, SPI, I2C, UART
Energy consumption
1.25A - 30W
Power supply
24Vdc
Operative system
GNU/Linux (Raspbian)

Touch Screen based on Raspberry Pi incorporating a 10.1" capacitive Touch Screen
The first panel PC Linux with 10.1" which uses a Raspberry Pi for industrial environment.

Operative System and instantaneous configuration
This Panel PC mounts and GNU/Linux OS in its SD card. It has all types of connections: Ethernet, USB, I2C, SPI Serial TTL…

Control your device status
Using the Ethernet port you can control from your desk all the parameters, data, input, output of your devices and equipment. Additionally this PC panel has as enough I/Os to avoid having to incorporate a PLC on simple automation and control designs.

Connectivity
With TOUCHBERRY PI you can connect all the Industrial Shields devices in order to obtain a complete industrial control all your equipment, machinery, installations, etc…

Click here for more details
HummTOUCH 10.1" Linux (HummingBoard based)

Panel PC

- 10.1”

Linux

- Linux Operation system

64bits

- With ethernet, USB, I2C

GPIOs

- 8 GPIOs available

Technical Specifications

TFT
- 10.1” Capacitive LVDS, 315 nits, 170º viewing angle,

Format
- 16:9, 1366x768,

CPU
- i.MX6 Dual Lite, 64bit, 1GB @ 800Mbps

GPU
- GC880

Memory (SDRAM)
- 1Gbyte

USB 2.0 ports
- 2x (via hub USB)

Video in
- MIPI CSI connector (to connect RPF camera module)

Data storage
- SD / MMC / SDIO slot

Network Connectivity
- 10/100 Ethernet (RJ-45)

Low level devices
- 8x GPIO, SPI, I2C, UART

Energy consumption
- 1.25A - 30W

Power supply
- 24Vdc (5.5x2.5 Jack)

Operative system
- GNU/Linux

Touch Screen based on LINUX OS incorporating a 10.1” capacitive Touch Screen
The first panel PC Linux with 10.1” which uses a 64bits CPU for industrial environment.

Operative System and instantaneous configuration
This Panel PC mounts and GNU/Linux OS in its SD card. It has all types of connections: Ethernet, USB, I2C, SPI Serial TTL…

Control your device status
Using the Ethernet port you can control from your desk all the parameters, data, input, output of your devices and equipment. Additionally this PC panel has as enough I/Os to avoid having to incorporate a PLC on simple automation and control designs.

Connectivity
With PANEL PC you can connect all the Industrial Shields devices in order to obtain a complete industrial control all your equipment, machinery, installations, etc…

Click here for more details
HummTOUCH 10.1" Android (HummingBoard based)

Technical Specifications
TFT
10.1" Capacitive LVDS, 315 nits, 170º viewing angle,
Format
16:9, 1366x768,
CPU
i.MX6 Dual Lite, 64bit, 1GB @ 800Mbps
GPU
GC880
Memory (SDRAM)
1Gbyte
USB 2.0 ports
2x (via hub USB)
Video in
MIPI CSI connector (to connect RPF camera module)
Data storage
SD / MMC / SDIO slot
Network connectivity
10/100 Ethernet (RJ-45)
Low level devices
8x GPIO, SPI, I2C, UART
Real time clock
Not available - see accessories
Energy consumption
1.25A - 30W
Power supply
24Vdc (5.5x2.5 Jack)
Operative system
ANDROID

Touch Screen based on ANDROID OS incorporating a 10.1" capacitive Touch Screen
The first panel PC Android with 10.1" which uses a 64bits CPU for industrial environment.

Operative System and instantaneous configuration
This Panel PC mounts and Android OS in its SD card. It has all types of connections: Ethernet, USB, I2C, SPI Serial TTL…

Control your device status
Using the Ethernet port you can control from your desk all the parameters, data, input, output of your devices and equipment. Additionally this PC panel has as enough I/Os to avoid having to incorporate a PLC on simple automation and control designs.

Connectivity
With PANEL PC you can connect all the Industrial Shields devices in order to obtain a complete industrial control all your equipment, machinery, installations, etc...

Click here for more details
All you need to fully exploit the power of Industrial Shields products in 1 page

About Industrial Shields
Industrial Shields manufactures open source industrial hardware to build machines, designs and installations in industrial automation and process control. Industrial Shields PLCs and Panel PCs are based on the most popular open source boards such as Arduino Leonardo, Arduino Mega, Raspberry Pi and Hummingboard; moreover, they support open source operating systems like Android and Linux.

Using Industrial Shields products allows engineers to design complete industrial automation projects with Open Source Hardware (OSH).

What’s in the offer from Industrial Shields and what are the product benefits for end users?
The goal of the open source industrial hardware from Industrial Shields is to offer a choice of open source products for a very reasonable price compared with the products that are developed under the current market leaders.

The current offer of Industrial Shields covers Arduino based compact and modular PLCs as well as Raspberry Pi based, Android OS and Linux OS based PLCs. In particular, the ARBOX and M-PLINO series of Arduino based PLCs allow you to prototype your applications with the most famous Arduino boards, such as Arduino Mega and Arduino Leonardo, and go in production with almost no changes to the code.

ARBOX COMPACT PLCs
Entry-level Arduino-based PLCs

- Software download
- Application examples
- Code sharing
- Tutorials
- Official dedicated forum
- Q&A
- Videos