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## RELIABLE OPEN SOURCE INDUSTRIAL HARDWARE

Supply Voltage

24 Vdc

I2C

I/Os

Digital
Analog
Relay

open source hardware

# Open Source PLCs and Panel PCs


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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

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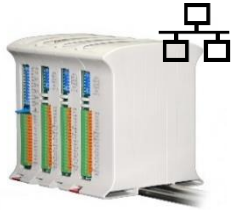
| | |
|---|---|
| Relay Analog Digital |    |
| Analog Digital |    |
| Analog |  |
| Relay |  |

| I/Os | 18 | 19 | 20 | 21 | 38 | 42 | 57 | 58 |
|---|---|---|---|---|---|---|---|---|

**Programmed with Arduino IDE based on Processing.**

# Open source Panel PC range overview

Android

GNU LINUX

GNU LINUX (RASPBIAN)

1Gbyte SDRAM

1Gbyte SDRAM

512 MB SDRAM

Raspberry PI based

HummingBoard based

**All Panel PCs have enough I/Os to avoid having to incorporate a PLC**

# PLC ARDBOX PLC 18 I/Os RELAY(Arduino Leonardo based)

**24Vdc**
Input Voltage

**18 I/Os ***
(8x) Digital inputs
(8x) Relay output
*See details

**Compact**
DIN rail mounting

**Safety**
Industrial communications

**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

**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.

Click here for more details

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# PLC M-DUINO 19R I/Os Relay/Analog/Digital (Arduino Mega based)

| | |
|---|---|
| **12 - 24Vdc**<br>Input Voltage | **19 I/Os**<br>Relay, Digital, Analog, PWM |
| **Relay**<br>220Vac - 8A | **Safety**<br>Industrial communicatons |

**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[1] 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

# PLC ARDBOX 20 I/Os Analog (Arduino Leonardo based)

**12- 24Vdc**
Input Voltage

**20 I/Os**
Digital, Analog, PWM

**Compact**
DIN rail mounting

**Safety**
Industrial communications

**Technical Specifications**
**Inputs/ Outputs (20 I/Os)**
**10 Inputs:**
(9x) Analog (0-10Vdc) / Digital (24Vdc) Inputs, configurable by jumpers[1]
(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

**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.

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# PLC M-DUINO 21 I/Os Analog/Digital (Arduino Mega based)

| | |
|---|---|
| **24Vdc**<br>Input Voltage | **21 I/Os**<br>Digital, Analog, PWM |
| **Connect**<br>Ethernet | **Safety**<br>Industrial communicatons |

**Modular PLC**

This is the first equipment based on the Arduino technology designed for a professional use. This PLC has 21I/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.

**Technical Specifications**
**Input/Output (21 I/Os)**
**13 Input:**
(6x) Analogic/digital which are configurable by Jumpers and software[1]
(5x) Digital PNP.
(2x) Digital Interrupt.
**8 Output:**
(3x) Digital/analogic/PWM configurable by Jumpers and software[1].
(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

**Click here for more details**

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# PLC M-DUINO 38R I/Os Relay/Analog/Digital (Arduino Mega based)

| | |
|---|---|
| **12-24Vdc**<br>Input Voltage | **38 I/Os**<br>Relay, Digital, Analog, PWM |
| **Connect**<br>Ethernet | **Safety**<br>Industrial communicatons |

**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.

**Click here for more details**

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# PLC M-DUINO 42 I/Os Analog/Digital (Arduino Mega based)

**24Vdc**
Input Voltage

**42 I/Os**
Digital, Analog, PWM

**Connect**
Ethernet

**Safety**
Industrial communicatons

**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.

**Technical Specifications**
**Input/Output (42 I/Os)**
**26 Input:**
(12x) Analogic/digital which are configurable by Jumpers and software[1]
(10x) Digital.
(4x) Int. Digital
**6 Output:**
(6x) Digital/analogic/PWM configurable by Jumpers and software[1].
(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

**Click here for more details**

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# PLC M-DUINO 57R I/Os Relay/Analog/Digital (Arduino Mega based)

| | |
|---|---|
| **12 - 24Vdc**<br>Input Voltage | **57R /Os**<br>Relay, Digital, Analog, PWM |
| **Connect**<br>Ethernet | **Safety**<br>Industrial communicatons |

**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 Arbdox and the Touchberry Pi with instantaneous connection.

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# PLC M-DUINO 58 I/Os Analog/Digital (Arduino Mega based)

**24Vdc**
Input Voltage

**58 I/Os**
Digital, Analog, PWM

**Connect**
Ethernet

**Safety**
Industrial communicatons

**Technical Specifications**
**Input/Output (58 I/Os)**
**36 Input:**
(16x) Analogic/digital which are configurable by Jumpers and software[1]
(14x) Digital.
(6x) Interrupt Digital.
**22 Output:**
(8x) Digital/analogic/PWM configurable by Jumpers and software[1].
(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

**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.

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Click here for more details

# TOUCHBERRY PI 10.1"(Raspberry PI based)

| | |
|---|---|
| **Panel PC**<br>10.1" | **Linux**<br>Linux Operation system |
| **Com**<br>With ethernet, USB, I2C | **GPIOs**<br>Available different input/output signals |

**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...

**Technical Specifications**
**(Raspberry PI type B+ Included)**
**TFT**
10.1" Capacitive LVDS, 315 nits, 170ºviewing 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)**
512MiB (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)

**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 avaliable

**Technical Specifications**
**TFT**
10.1” Capacitive LVDS, 315 nits, 170ºviewing 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)

**Panel PC**
10.1"

**Android**
Android Operation system

**64bits**
With ethernet, USB, I2C

**GPIOs**
8 GPIOS avaliable

**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...

**Technical Specifications**
**TFT**
10.1" Capacitive LVDS, 315 nits, 170ºviewing 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

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Panel meters


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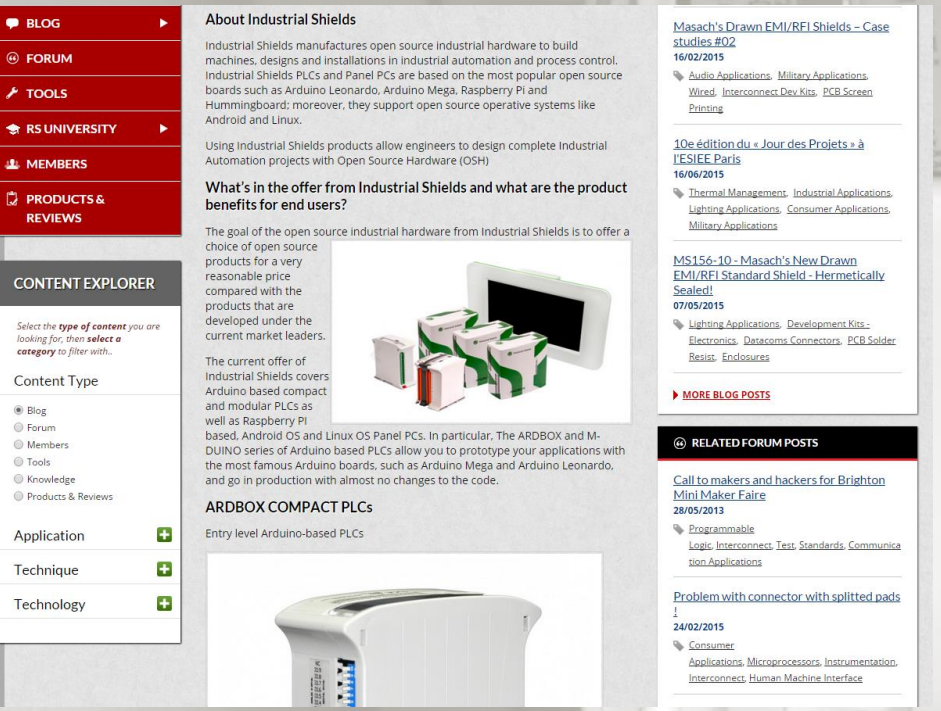
DESIGNSPARK

# All you need to fully exploit the power of Industrial Shields products in 1 page

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