



INDUSTRIAL SHIELDS

Products Datasheet

The economic automation products

Compact PLC

Small, reliable and flexible controller.

Connectable controller PLC

Communicate with all your applications.

Panel PC

Human machine interface with Linux OS.

According to:

- EN 61010-1 (General Safety requirements).
- EN 61010-2 (Particular requirements for control equipment).
- IEC 60073
- Fully **CE** and **RoHS** certificated
- Short-Circuit, Over Load and ESD protected

- ▣ Safety in industrial applications: new industrial equipment by Industrial Shields provides economical solutions for industrial applications that require flexibility, safety and high performance.



- ✓ Reliable
- ✓ Economic
- ✓ DIN rail mounting
- ✓ Flexible uses
- ✓ Fast programming with internet community

Programmable Controller (PLC)

Ardbox Family.

The most complete compact PLC

NEW VERSION



Input Voltage	24Vdc		
Max. Current	0.5A		
Size	100x45x115		
Clock Speed	16MHz		
Flash Memory	32KB of which 4KB used by bootloader		
SRAM	2.5KB		
EEPROM	1KB		
Communications	USB - I2C ¹ – RS485 – SPI communication ² – Rx,Tx Pins ³		
TOTAL Inputs	10	10	
TOTAL Outputs	10	10	
	Type of signals ⁴		
Analog Input (0-10Vdc) ⁵	6 ⁶	9 ⁶	
Digital Input (24Vdc)	10	10	
Interrupt Input (HS) (24Vdc)	-	1	
	I/Os configurable		
Analog Output (0-10Vdc) ⁷	2	7	
Digital Output (24Vdc)	-	10	
PWM Output (10 or 24Vdc)	-	7	
Relay Output	8	-	
Expandability	I2C max. 127 Elements - RS485 - SPI		
Enclosure Material	ABS self-extinguishing		
Reference	IS.AB18REL.base	IS.AB20AN.base	IS.AB20PNP.base IS.AB20TCH.base

¹ You need to connect a 10k pull up resistance.

² Using MISO,MOSI,SS pins of Arduino You can connect additional modules (GSM,GPRS, ...)

³ Using Rx, Tx Arduino Pins. Rx,Tx is not compatible for RS485

⁴ See product brochure for more details and technical specifications.

⁵ 10 bits (0 to 1023 Value)

⁶ These Analog Input signal can work like digital Inputs (24Vdc)

⁷ 8 bits (0 to 253 value)

Programmable Controller (PLC)

M-Duino Family

The connectable PLC with Ethernet

NEW PRODUCTS

M-Duino 19R IOs



M-Duino 38R IOs



M-Duino 57R IOs



Input Voltage	24Vdc		
Max. Current	0.5A		
Size	100x45x115		
Clock Speed	16MHz		
Flash Memory	256KB of which 8KB used by bootloader		
SRAM	8KB		
EEPROM	4KB		
Communications	Ethernet port -USB - I2C ⁸ – RS485 – SPI communication ⁹ – (3x) Rx,Tx Pins ¹⁰		
TOTAL Inputs	7	14	21
TOTAL Outputs	12	24	36
	Type of signals ¹¹		
Analog Input (0-10Vdc) ¹²	4	8	12
Digital Input (24Vdc)	7	14	21
Interrupt Input (HS) (24Vdc)	2	4	6
Analog Output (0-10Vdc) ¹³	3	6	8
Digital Output (24Vdc)	4	8	12
PWM Output (10 or 24Vdc)	3	6	8
Relay Output (220Vac – 8A)	9	18	27
Expandability	I2C max. 127 Elements - Serial Port RS232 / RS485 (it can connect all Ardbox family products as expand I/Os modules)		
Enclosure Material	ABS self-extinguishing		
Reference	IS.MDuino.19	IS.MDuino.38	IS.MDuino.57

⁸ You need to connect a 10k pull up resistance.

⁹ Using MISO,MOSI,SS pins of Arduino You can connect additional modules (GSM,GPRS, ...)

¹⁰ Using Rx, Tx Arduino Pins. Rx,Tx is not compatible for RS485

¹¹ See product brochure for specifications.

¹² 10 bits (0 to 1023 Value)

¹³ 8 bits (0 to 253 value)

Programmable Controller (PLC)

M-Duino Family

The connectable PLC with Ethernet

M-Duino 21 IOs



M-Duino 42 IOs



M-Duino 58 IOs



Input Voltage	24Vdc		
Max. Current	0.5A		
Size	100x45x115		
Clock Speed	16MHz		
Flash Memory	256KB of which 8KB used by bootloader		
SRAM	8KB		
EEPROM	4KB		
Communications	Ethernet port -USB - I2C ¹⁴ – RS485 – SPI communication ¹⁵ – (3x) Rx,Tx Pins ¹⁶		
TOTAL Inputs	13	26	35
TOTAL Outputs	8	16	22
	Type of signals ¹⁷		
Analog Input (0-10Vdc) ¹⁸	6	12	16
Digital Input (24Vdc)	13	26	36
Interrupt Input (HS) (24Vdc)	2	4	6
Analog Output (0-10Vdc) ¹⁹	3	6	8
Digital Output (24Vdc)	8	16	22
PWM Output (10 or 24Vdc)	3	6	8
Expandability	I2C max. 127 Elements - Serial Port RS232 / RS485 (it can connect all Ardbox family products as expand I/Os modules)		
Enclosure Material	ABS self-extinguishing		
Reference	IS.MDuino.21	IS.MDuino.42	IS.MDuino.58

¹⁴ You need to connect a 10k pull up resistance.

¹⁵ Using MISO,MOSI,SS pins of Arduino You can connect additional modules (GSM,GPRS, ...)

¹⁶ Using Rx, Tx Arduino Pins. Rx,Tx is not compatible for RS485

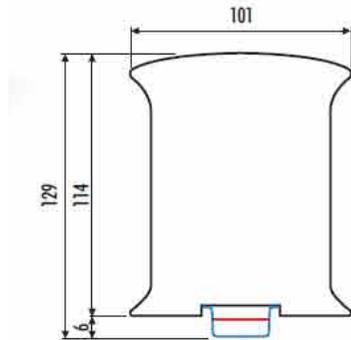
¹⁷ See product brochure for specifications.

¹⁸ 10 bits (0 to 1023 Value)

¹⁹ 8 bits (0 to 253 value)

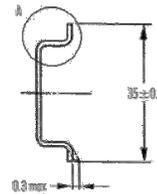
Programmable Controller (PLC)

Dimension PLC:

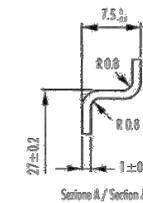


- Ardbox Family: width= 45mm.
- M-Duino 21 IOs: width= 72.5mm.
- M-Duino 42 IOs: width= 100mm.
- M-Duino 58 IOs: width= 127.5mm.

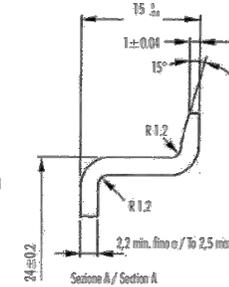
DIN rail mounting:



Profilato a cappelletto TH 35-7,5
Top hat rail TH 35-7,5



Profilato a cappelletto TH 35-15
Top hat rail TH 35-15



CARATTERISTICHE	METODO	UNITA' DI MISURA	BIENDE PC/ABS	
Meccaniche	Resistenza a trazione allo spezzamento	ASTM D638	MPa	65
	Resistenza a trazione a rottura	ASTM D638	MPa	49
	Allungamento a rottura	ASTM D638	%	92
	Modulo di elasticità	ASTM D790	MPa	2084
Termiche	Struttura fond. con intaglio	ISO 1181/14	J/m ²	5.5
	Temperatura di deformazione a flessione	ASTM D1525	°C	114
	Temperatura di rammollo	ASTM D1628	°C	92
Fisiche	Viscosità	ASTM D1772	cp/cm ²	1.21
	Viscosità a 30°C	ASTM D1955	%	0.40/0.6
	Modulo di elasticità a 20°C - 100N	ASTM D1130	cp/10 ⁹	11.2
	Comportamento alla flessione	ASTM D790	mm	0.04
Comportamento alla flessione	Altezza sporgenza (senza di spessore)	0.04	-	V-0 (0.0)
	Spessore	0.04	°C	100

Infine, si riserva il diritto di modificare il materiale con cui realizza i propri prodotti senza obbligo di preavviso.

FEATURES	TEST METHOD	UNITS	BIENDE PC/ABS	
Mechanical test	Resistance to tensile stress at yield	ASTM D638	MPa	65
	Tensile strength	ASTM D638	MPa	49
	Elongation at rupture	ASTM D638	%	92
	Flexural modulus	ASTM D790	MPa	2084
Thermal test	Heat deflection temperature	ISO 1181/14	J/m ²	5.5
	Flexural deformation temperature	ASTM D1525	°C	114
	Softening temperature	ASTM D1628	°C	92
Physical test	Specific gravity	ASTM D792	g/cm ³	1.21
	Modulus at 30°C	ASTM D1955	%	0.40/0.6
	Modulus at 20°C - 100N	ASTM D1130	cp/10 ⁹	11.2
Flame test	Self-extinguishing (thickness in mm)	0.04	-	V-0 (0.0)
	Temperature limit	IEC 6052.1	°C	100

Infine, we reserve any change of the materials without being obliged to forewarn.

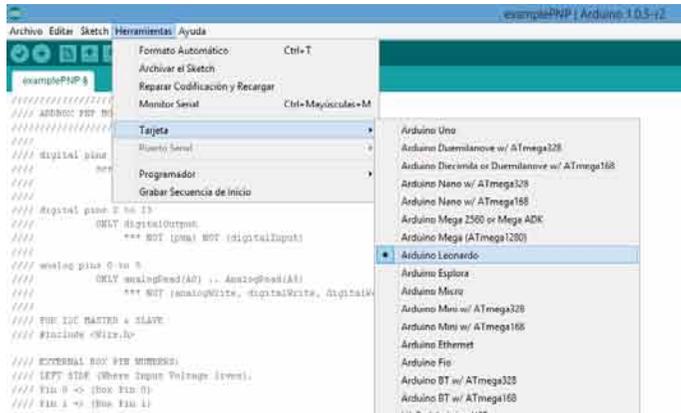


Software Interface:

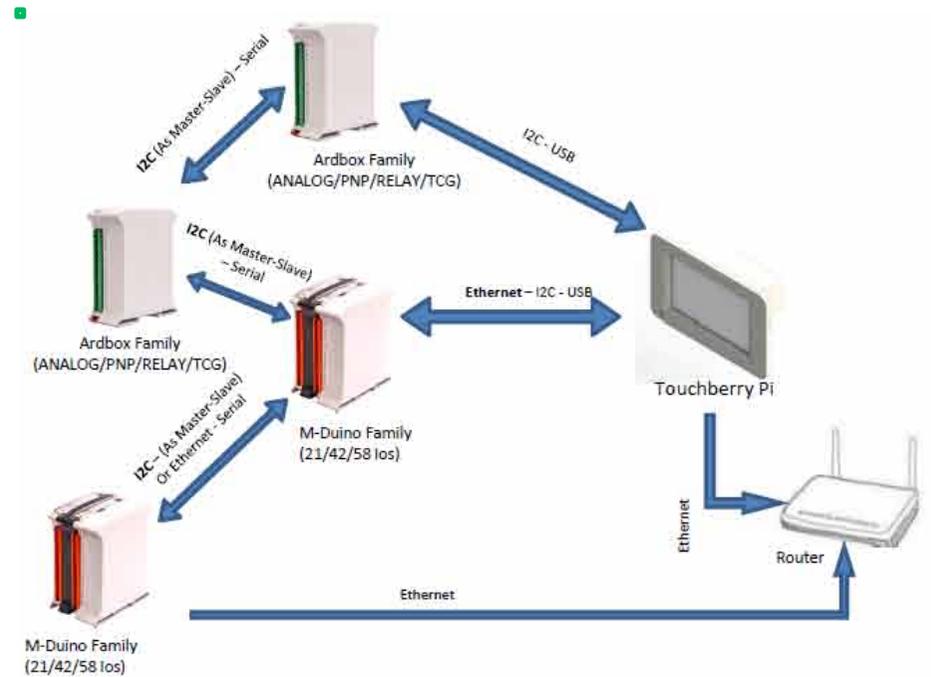
Arduino IDE is compatible for programm these PLCs. You must to download a start code in www.industrialshields.com at product page in “document files” section and then It’s necessary open it with Arduino IDE.

Configuration about Arduino IDE:

All Ardbox PLCs use an Arduino Leonardo and you need to choose these option in Arduino IDE.



Connect all Industrial Shields products



Human Interface (Panel PC)

Panel PC

The connectable PLC with Ethernet

Touchberry PI 10.1"



HummTouch 10.1" Linux



HummTouch 10.1" Android

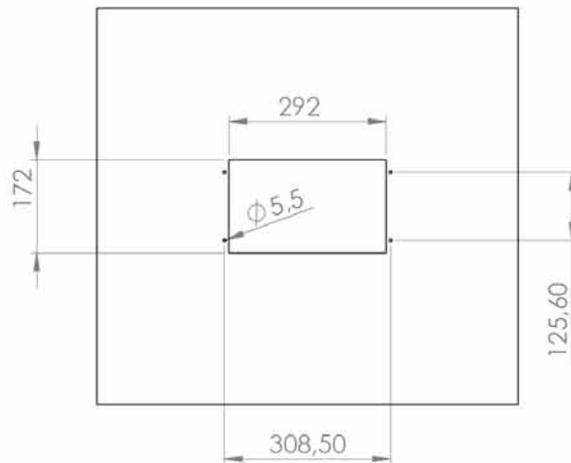


TFT	10.1" Capacitive LVDS, 315n. 170° viewing angle		
Format	16:9, 13bbx/68		
Energy consumption	1.25A – 30W		
Power supply	7 to 24Vdc		
SoC	BroadCom BCM 2835	i.MX6 Dual Lite	
CPU	ARM 11/6JZF-Sa / 700MHz (ARM11 Family)	64 bit, 1GB @ 800Mbps	
GPU	Broadcom VideoCore IV, OpenGL ES 2.0, MPEG-2 and VC-1(license), 1080p30 H. 264/MPEG-4AVC	GC880	
USB	3x 2.0	2x2.0	
Storage	SD / MMC / SDIO slot		
Network connection	I2C (connect up to 127 elements) – Serial port RS232 // RS485 - Ethernet port		
Low level devices	8x GPIO, SPI, I2C, UART	UART, 8GPO, SPI with 2 CS, I2C ²⁰	
Operative system	Linux	Linux	Android
Reference	IS.TBerry.base	IS.THumLin.base	IS.THumAnd.base

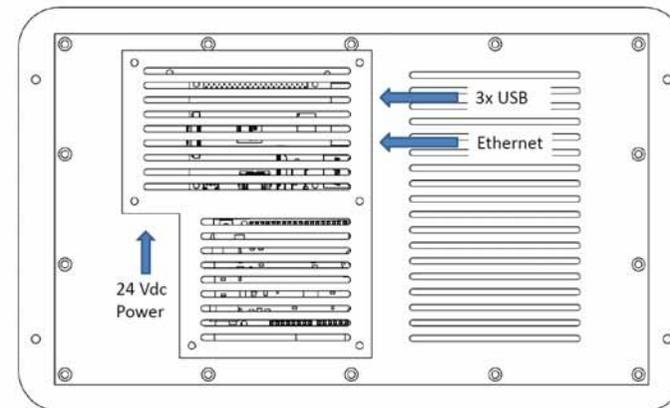
²⁰ Other functions are available via i.MX6 pin muxing

Human Interface (Panel PC)

Mounting surface Touchberry PI 10.1”:



Touchberry Pi



About Industrial Shields:

Boot & Work Corp.
SPAIN

Factory:

Avda. Castell de Barberà 26, nave 9
08210 Barberà del Vallès (Barcelona)

Office:

Carrer Divina Pastora 13-15, Bx3
08143 Manresa (Barcelona)

Tel.+34 635693611

Mail: industrialshields@industrialshields.com