# Datasheet M-Duino 21+ GPRS



#### Technical Features CONECTABLE PLC ARDUINO 24Vcc M-DUINO

MODEL TYPE	M-Duino
Input Voltage	12 to 24Vdc (Fuse protection (2.5A) Polarity protection)
Input rated voltage	24Vdc
Rated Power	30 W
l max.	1.5A
Size	101x70.1x119.5
Clock Speed	16MHz
Flash Memory	256KB of which 8KB used by bootloader
SRAM	8KB
EEPROM	4KB
Communications	Ethernet, GPRS/GSM, USB, 12C, Serial TTL, , RS-232, RS-485 (HD-FD), SPI, RTC, µSD Socket.
USB consideration!	Only for uploading or debugging. NOT connected as a serial Cannot be working in a final application

#### **General Features**

Power supply voltage	DC power supply	12 to 24Vdc
Operating voltage range	DC power supply	11.4 to 25.4Vdc
Power consumption	DC power supply	30 W MAX.
External power supply	Power supply voltage	24Vdc
	Power supply voltage	700Ma
Insulation resistance	20MΩ min.at 500Vdc between the AC terminals and the protective earth terminal.	
Dielectric strength	2.300 VAC at 50/60 Hz for one minute with a leakage current of 10mA max Between all the external AC terminals and the protective ground terminal.	
Shock resistance	80m/s2 in the X, Y and Z 2 times each.	direction
Ambient temperature (operating)	0° to 60°C	
Ambient humidity (operating)	10% to 90% (no condensa	tion)
Ambient environment (operating)	With no corrosive gas	
Ambient temperature (storage)	-20° to 60°C	
Power supply holding time	2ms min.	
Weight	465g max.	

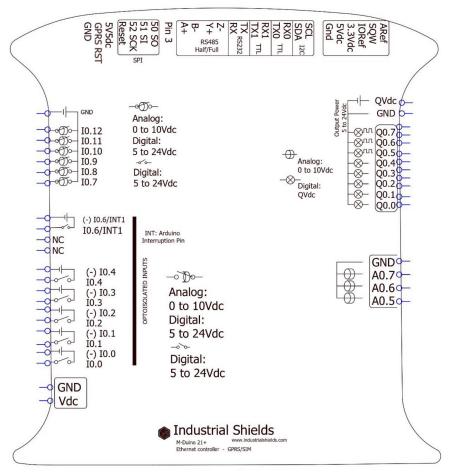


(x6) - An/Dig Input 10bit (0-10Vcc)	0 to 10Vac Input Impedance: 39K Separated PCB ground Rated Voltage: 10Vac 7 to 24Vdc I min: 2 to 12 mA Galvanic Isolation Rated Voltage: 24 Vdc
(x5) - Digital Isolated Input (24Vcc)	7 to 24Vdc I mir: 2 to 12 mA Galvanic Isolation Rated Voltage: 24 Vdc
(x1) - Interrupt isolated Input HS (24Vcc) * • The Interrupt Isolated Inputs can also work as Digital Isolated Inputs	7 to 24Vdc I mir. 2 to 12 mA Galvanic Isolation Rated Voltage: 24 Vdc
Expandability	
12C - 127 elements - Serial Port RS	232/RS485

I2C - 127 elements - Serial Port RS232/RS485

#### OUTPUTS (x8)

(x3) - Analog Output 8bit (0-10Vcc)	0 to 10Vac I max 20 mA Separated PCB ground Rated Voltage: 10Vac
(x5) - Digital Isolated Output (24Vcc)	5 to 24Vdc I max 70 mA Galvanic Isolation Diode Protected for Relay Rated Voltage: 24Vdc
(x3) - PWM Isolated Output 8bit (24Vcc) • The PWM outputs can also work as Digital outputs	5 to 24Vdc I max. 70 mA Galvanic Isolation Diode Protected for Relay Rated Voltage: 24Vdc







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# Industrial Shields

## Performance Specifications

Arduino Board	Arduino Mega2560
Control method	Stored program method
I/O control method	Combination of the cyclic scan and immediate refresh processing methods.
Programming language	Arduino IDE. Based on wiring (Wiring is an Open Source electronics platform composed of a programming language. "similar to the C")
Microcontroller	ATmega2560

http://arduino.cc/en/Tutorial/HomePage



Install Arduino IDE and the Industrial Shields boards	Warnings
The steps to follow to install our equipment's to Arduino IDE are:	Unused pins should not be connected. Ignoring the directive may damage the controller.
• Open the Arduino IDE, versión 1.8.0 or superior. If you don't have it yet , you can download here	Before using this product, it is the responsibility of the user to read the product's User Guide and all accompanying documentation.
<ul><li>https://www.arduino.cc/en/Main/Software .</li><li>Press the "Preferences" option to "File" menu and open the</li></ul>	Industrial Shields PLCs must be powered between 12Vdc and 24Vdc. If a higher voltage is supplied to the equipment can suffer irreversible damage.
<ul><li>In the text box "Additional boards manager URLs", add the</li></ul>	Maintenance must be performed by qualified personnel familiarized with the construction, operation, and hazards involved with the control.
direction: http://apps.industrialshields.com/main/arduino/boards/package_	Maintenance should be performed with the control out of operation and disconnected from all sources of power.
<ul><li>industrialshields_index.json</li><li>Close the preferences window with the "OK" button.</li></ul>	The Industrial Shields Family PLCs are Open Type Controllers. It is required that you install the M-Duino PLC in a housing, cabinet, or electric control room. Entry to the housing, cabinet, or electric control room should be limited to authorized personnel.
• Click on "Tools" menu, and open the "Boards" submenu, and click the "Boards Manager" option, to open the Boards Manager window.	Inside the housting, cabinet or electric control room, the Industrial Shields PLC must be at a minimum distance from the rest of the components of a minimum of 25 cm, it can be severely damaged.
Search "industrialshields" to the search filter and select to the list and click "Install"	Failure to follow these installation requirements could result in severe personal injury and/or property damage. Always follow these requirements when installing M-Duino family PLCs.
• Close the "Boards Manager". Once it is performed that steps, you are available to select each PLC that you wish to work on "Tools" - > "Boards" : M-Duino	In case of installation or maintenance of the M-Duino please follow the instructions marked in the Installation and Maintenance section on the User Guide.

Do not disconnect equipment when a flammable or combustible

atmosphere is present. Disconnection of equipment when a flammable or combustible atmosphere is present may cause a fire or explosion which could result in death, serious injury and/or property damage.

To get more information:

https://www.industrialshields.com/first-steps-with-the-industrialarduino-based-plc-s-and-the-panel-pc-s-raspberry-pi-based#boards

## Symbology

Symbology	Technical Support
Indicates that the equipment is suitable for direct current only; to identify relevant terminals	You can contact with us using the best channel for you:
$\sim$ Indicates that the equipment is suitable for alternating current only; to identify relevant terminals	support@industrialshields.com
To identify the control by which a pulse is started.	www.industrialshields.com
To identify an earth (ground) terminal in cases where neither the symbol 5018 nor 5019 is explicily required.	Visit our Blog, Forum orTicketing system
To identify the switch by means of which the signal lamp(s) is (are) switched on or off.	34 644 927 900
CE marking indicates that a product complies with applicable European Union regulations	Use our chat service
Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury	Check the user guides
To indicate hazards arising from dangerous voltages	Visit our Channel