Datasheet
M-Duino 38R+ GPRS

Industrial Shields®
### Technical Features

**CONECTABLE PLC ARDUINO 24Vcc M-DUINO**

#### MODEL TYPE
M-Duino

#### General Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply voltage</td>
<td>DC power supply</td>
</tr>
<tr>
<td>Operating voltage range</td>
<td>DC power supply</td>
</tr>
<tr>
<td>Power consumption</td>
<td>DC power supply</td>
</tr>
<tr>
<td>External power supply</td>
<td>Power supply voltage</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>20MO min.</td>
</tr>
<tr>
<td>Dielectric strength</td>
<td>2300 VAC at 50/60 Hz</td>
</tr>
<tr>
<td>Shock resistance</td>
<td>800nS in 2/3 in the X, Y and Z direction</td>
</tr>
<tr>
<td>Ambient temperature (operating)</td>
<td>0º to 60ºC</td>
</tr>
<tr>
<td>Ambient humidity (operating)</td>
<td>10% to 90% (no condensation)</td>
</tr>
<tr>
<td>Ambient environment (operating)</td>
<td>With no corrosive gas</td>
</tr>
<tr>
<td>Ambient temperature (storage)</td>
<td>-20º to 60ºC</td>
</tr>
<tr>
<td>Power supply holding time</td>
<td>2ms min.</td>
</tr>
<tr>
<td>Weight</td>
<td>552g max.</td>
</tr>
</tbody>
</table>

#### INPUTS (x11)

- **(x8) - Analog/Digital Input 10bit (0-10Vcc)**
  
  0 to 10Vcc, Input Impedance: 39K
  
  Separated PCB ground
  
  Rated Voltage: 10Vcc
  
  I max: 2 to 12 mA
  
  Galvanic Isolation
  
  Rated Voltage: 24Vdc

- **(x3) - Digital Isolated Input (24Vcc)**
  
  7 to 24Vdc
  
  I max: 2 to 12 mA
  
  Galvanic Isolation
  
  Rated Voltage: 24Vdc

  * The Interrupt isolated Inputs can also work as Digital isolated Inputs

#### OUTPUTS (x22)

- **(x6) - Analog Output 8bit (0-10Vcc)**
  
  0 to 10Vcc
  
  I max: 20 mA
  
  Separated PCB ground
  
  Rated Voltage: 10Vcc

- **(x3) - Digital Isolated Output (24Vcc)**
  
  5 to 24Vdc
  
  I max: 70 mA
  
  Galvanic Isolation
  
  Diode Protected for Relay
  
  Rated Voltage: 24Vdc

- **(x6) - PWM Isolated Output 8bit (24Vcc)**
  
  5 to 24Vdc
  
  I max: 20 mA
  
  Galvanic Isolation
  
  Diode Protected for Relay
  
  Rated Voltage: 24Vdc

- **(x16) - Digital Isolated Output Relay**
  
  220V Vac
  
  I max: 5A
  
  Galvanic Isolation
  
  Diode protected for Relay
  
  Imax 24Vdc: 410 mA

#### Expandability

DC - 127 elements - Serial Port RS232/RS485

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Original Arduino Mega included
The steps to follow to install our equipment’s to Arduino IDE are:

• Open the Arduino IDE, versión 1.8.0 or superior. If you don’t have it yet, you can download here https://www.arduino.cc/en/Main/Software .

• Press the “Preferences” option to “File” menu and open the preferences window.

• In the text box “Additional boards manager URLs”, add the direction: http://apps.industrialshields.com/main/arduino/boards/package_industrialshields_index.json

• Close the preferences window with the “OK” button.

• Click on “Tools” menu, and open the “Boards” submenu, and click the “Boards Manager” option, to open the Boards Manager window.

• Search “industrialshields” to the search filter and select to the list and click “Install”

• 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...

To get more information: https://www.industrialshields.com/first-steps-with-the-industrial-arduino-based-plc-s-and-the-panel-pc-s-raspberry-pi-based#boards

Unused pins should not be connected. Ignoring the directive may damage the controller.

Before using this product, it is the responsibility of the user to read the product’s User Guide and all accompanying documentation.

Industrial Shields PLCs must be powered between 12Vdc and 24Vdc. If a higher voltage is supplied to the equipment can suffer irreversible damage.

Maintenance must be performed by qualified personnel familiarized with the construction, operation, and hazards involved with the control.

Maintenance should be performed with the control out of operation and disconnected from all sources of power.

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.

Inside the housing, 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.

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.

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.

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