Datasheet
M-Duino 19R+ GPRS

Industrial Shields®
Technical Features

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

**MODEL TYPE**

- M-Duino

**Input Voltage**

- 12 to 24Vdc (Fuse protection, 25A Polarity protection)

**Input rated voltage**

- 24Vdc

**Rated Power**

- 30 W

**I max.**

- 15A

**Size**

- 101x70.1x119.5

**Clock Speed**

- 16MHz

**Flash Memory**

- 256KB of which 8KB used by bootloader

**SRAM**

- 8KB

**EEPROM**

- 4KB

**Communications**


**USB consideration?**

- Only for uploading or debugging. NOT connected as a serial cannot be working in a final application

**General Features**

- **I2C - 127 elements - Serial Port RS232/RS485**

**INPUTS (x5)**

- **(x4) - An/Dig Input 10bit (0-10Vcc)**
  - 0 to 10Vac: Input Impedance 39K
  - Separated PC board
  - Rated Voltage: 10Vac
  - I max: 2 to 12 mA
  - Galvanic Isolation
  - Rated Voltage: 24 Vac

- **(x0) - Digital Isolated Input (24Vcc)**
  - 7 to 24Vac: I min: 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 24Vac: I min: 2 to 12 mA
  - Galvanic Isolation
  - Rated Voltage: 24 Vdc

**Outputs (x11)**

- **(x3) - Analog Output 8bit (0-10Vcc)**
  - 0 to 10Vac: I max: 20 mA
  - Separated PC board
  - Rated Voltage: 10Vac

- **(x0) - Digital Isolated Output (24Vcc)**
  - 5 to 24Vac: I max: 70 mA
  - Galvanic Isolation
  - Diode protected for Relay
  - Rated Voltage: 24 Vdc

- **(x3) - PWM Isolated Output (24Vac)**
  - 5 to 24Vac: I max: 70 mA
  - Galvanic Isolation
  - Diode protected for Relay
  - Rated Voltage: 24 Vdc

- **(x8) - Digital Isolated Output Relay**
  - 220V Vac
  - I max: 5A
  - Galvanic Isolation
  - Diode protected for Relay
  - I max: 24Vac: 410 mA

**Min. Clock Speed**

- 16MHz

**Max. Clock Speed**

- 40MHz

**Memory**

- 128K (SRAM)

**I/Os**

- 48 (Analog)

**Max. Power Consumption**

- 15W

**Max. Current**

- 5A

**Power supply voltage**

- DC power supply

**Operating voltage range**

- DC power supply

**Power consumption**

- DC power supply

**External power supply**

- Power supply voltage

**Insulation resistance**

- 20MO min at 500Vac between the AC terminals and the protective earth terminal.

**Dielectric strength**

- 2300 VAC at 50/60 Hz for one minute with a leakage current of 3mA max.

**Shock resistance**

- 80m/s² in the X, Y and Z direction

**Ambient temperature (operating)**

- 0º to 60ºC

**Ambient humidity (operating)**

- 10% to 90% (no condensation)

**Ambient environment (operating)**

- With no corrosive gas

**Ambient temperature (storage)**

- -20º to 60ºC

**Power supply holding time**

- 2ms min.

**Weight**

- 465g max.

**Bill of Materials**

- Original Arduino Mega included

**Technical Features DataSheet Rev. 20230420**
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

**Warnings**

- 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.

**Symbology**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
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<tbody>
<tr>
<td></td>
<td>Indicates that the equipment is suitable for direct current only; to identify relevant terminals</td>
</tr>
<tr>
<td>~</td>
<td>Indicates that the equipment is suitable for alternating current only; to identify relevant terminals</td>
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<tr>
<td></td>
<td>To identify the control by which a pulse is started.</td>
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<tr>
<td></td>
<td>To identify an earth (ground) terminal in cases where neither the symbol 5018 nor 5019 is explicitly required.</td>
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<tr>
<td></td>
<td>To identify the switch by means of which the signal lamp(s) is (are) switched on or off.</td>
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<tr>
<td>CE</td>
<td>CE marking indicates that a product complies with applicable European Union regulations</td>
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<tr>
<td>!</td>
<td>Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury</td>
</tr>
<tr>
<td>!</td>
<td>To indicate hazards arising from dangerous voltages</td>
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**Technical Support**

You can contact with us using the best channel for you.

- support@industrialshields.com
- www.industrialshields.com
- Visit our Blog, Forum or Ticketing system
- Use our chat service
- Check the user guides
- Visit our Channel