Datasheet
M-Duino 54ARA+
WiFi & BLE

Industrial Shields®
## Technical Features

**MODEL TYPE**
M-Duino HF WiFi & BLE

**Input Voltage**
12 to 24Vdc (Fuse protection (2.5A) Polarity protection)

**Input rated voltage**
24Vdc

**Rated Power**
30 W

**I max.**
15A

**Size**
101x119.3x119.5

**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

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply voltage</td>
<td>DC power supply 12 to 24Vdc</td>
</tr>
<tr>
<td>Operating voltage range</td>
<td>DC power supply 11.4 to 25Vdc</td>
</tr>
<tr>
<td>Power consumption</td>
<td>DC power supply 30 W MAX</td>
</tr>
<tr>
<td>External power supply</td>
<td>Power supply voltage 24Vdc</td>
</tr>
<tr>
<td>Power supply voltage</td>
<td>Insulation resistance 20MO at 500Vdc between AC terminals and protective earth terminal</td>
</tr>
<tr>
<td>Dielectric strength</td>
<td>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</td>
</tr>
<tr>
<td>Shock resistance</td>
<td>380m/s2 in the X, Y and Z direction 2 times each</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>597g max</td>
</tr>
</tbody>
</table>

### Inputs (x29)

- **An/Dig Input 10bit (0-10Vcc) - (4x4)**
  - 0 to 10Vac
  - Input Impedance: 39K
  - Separated PCB ground
  - Rated Voltage: 10Vac: 7 to 24Vdc
  - 1 max: 2 to 12 mA
  - Galvanic Isolation
  - Rated Voltage: 24Vdc

- **Digital Isolated Input (24Vac) - (6x)**
  - 7 to 24Vdc: 1 max: 2 to 12 mA
  - Galvanic Isolation
  - Rated Voltage: 24Vdc

- **Interrupt Isolated Input HS (24Vac) - (6x)**
  - 7 to 24Vdc: 1 max: 2 to 12 mA
  - Galvanic Isolation
  - Rated Voltage: 24Vdc

### Outputs (x25)

- **Analog Output 8bit (0-10Vcc) - (6x)**
  - 0 to 10Vac
  - 1 max 20mA
  - Separated PCB ground
  - Rated Voltage: 10Vac

- **Digital Isolated Output (24Vac) - (6x)**
  - 5 to 24Vdc: 1 max: 70mA
  - Galvanic Isolation
  - Diode Protected for Relay
  - Rated Voltage: 24Vdc

- **Digital Isolated Output Relay - (6x)**
  - 220V Vac
  - 1 max: 5A
  - Galvanic Isolation
  - Diode protected for Relay
  - Rated Voltage: 24Vdc

- **PWM Isolated Output 8bit (24Vac) - (6x)**
  - 5 to 24Vdc: 1 max: 70mA
  - Galvanic Isolation
  - Diode Protected for Relay
  - Rated Voltage: 24Vdc

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**DataSheet Rev. 20230425**
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.
- 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.
- 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>
</tr>
</thead>
<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>
</tr>
<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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<td></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>
</tr>
</tbody>
</table>

**Technical Support**

You can contact us using the best channel for you:

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