Datasheet
M-Duino 54ARA+
DALI

Industrial Shields®
**Technical Features**

**MODEL TYPE**
- M-Duo

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

**Input rated voltage**
- 24Vdc

**Rated Power**
- 30 W

**I max.**
- 1.5A

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

**Clock Speed**
- 16MHz

**Flash Memory**
- 256KB of which 8KB used by bootloader

**SRAM**
- 8KB

**EEPROM**
- 4KB

**Communications**
- 5V, Ethernet, USB, RS485, RS232, SPI, Max3232, Max485, W5500, DALI

**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 25.6Vdc

**Power consumption**
- DC power supply 30 W MAX

**External power supply**
- Power supply voltage 24Vdc

**Power supply voltage**
- 700Ma

**Insulation resistance**
- 20MO 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 20mA max. Between all the external AC terminals and the protective ground terminal

**Shock resistance**
- 80m/s² in the X, Y and Z direction

**Ambient temperature (operating)**
- 0º to 60º C

**Ambient humidity (operating)**
- 10% to 90% (no condensation)

**Ambient environment (operating)**
- With no corrosive gas

**Ambient temperature (storage)**
- -20º to 60º C

**Power supply holding time**
- 2ms min

**Weight**
- 597g max

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**INPUTS (x27)**

- **An/Dig Input 10bit**
  - (0-10Vcc) - (x14)
  - 0 to 10Vac
  - Input Impedance: 39K
  - Separated PCB ground
  - Rated Voltage: 10Vac
  - 7 to 24Vdc
  - 1mA to 12 mA
  - Galvanic Isolation
  - Rated Voltage: 24 Vdc

- **Digital Isolated Input**
  - (24Vcc) - (x5)
  - 7 to 24Vdc
  - 1mA to 12 mA
  - Galvanic Isolation
  - Rated Voltage: 24 Vdc

- **Interrupt Isolated Input**
  - (24Vcc) - (x4)
  - The Interrupt isolated Inputs can also work as Digital isolated Inputs

**OUTPUTS (x25)**

- **Analog Output 8bit**
  - (0-10Vcc) - (x6)
  - 0 to 10Vac
  - 1mA to 20 mA
  - Separated PCB ground
  - Rated Voltage: 10Vac

- **Digital Isolated Output**
  - (24Vcc) - (x6)
  - 5 to 24Vdc
  - 1mA to 70 mA
  - Galvanic Isolation
  - Diode protected for relay
  - Rated Voltage: 24 Vdc

- **Digital Isolated Output Relay**
  - (x8)
  - 220V Wa
  - 1mA to 5A
  - Galvanic Isolation
  - Diode protected for relay
  - Rated Voltage: 24 Vdc

- **PWM Isolated Output 8bit (24Vcc)**
  - (x4)
  - 5 to 24Vdc
  - 1mA to 70 mA
  - Galvanic Isolation
  - Diode protected for relay
  - Rated Voltage: 24 Vdc

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**Model: M-Duo 54 64A + DALI**

**DataSheet Rev. 20230424**
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.

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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>
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<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>
</tr>
<tr>
<td>↘️</td>
<td>To identify an earth (ground) terminal in cases where neither the symbol 5018 nor 5019 is explicitly required.</td>
</tr>
<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
- Check the user guides
- Visit our Channel