Datasheet
Ardbox Relay

Industrial Shields®
Technical Features

**CONNECTABLE PLC ARDUINO 24Vcc ARDBOX**

**MODEL TYPE:** Arbox Relay

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

**Input rated voltage:** 24Vdc

**Rated Power:** 30 W

**I max.:** 1.5A

**Size:** 100x45x115

**Clock Speed:** 16MHz

**Flash Memory:** 32KB of which 4KB used by bootloader

**SRAM:** 2.5KB

**EEEPROM:** 1KB

**Communications:** I2C, USB, RS485, RS232, SPI

**USB consideration:** Only for uploading or debugging; NOT connected as a serial

**Description:**

- **Expansible Inputs:**
  - **An/Dig Input 10bit (0-10Vcc) - (x2):**
    - Analog Input 10bit (0-10Vcc) - (x2)
    - Input Impedance: 39K
    - Separated PCB ground
    - Rated Voltage: 10Vac
    - I max: 20 mA
    - Galvanic Isolation
    - Rated Voltage: 24 Vdc

- **Digital Input (24Vcc) - (x4):**
  - Digital Input (24Vcc) - (x4)
  - 5 to 24Vdc
  - I min: 2 to 12 mA
  - Galvanic Isolation
  - Rated Voltage: 24 Vdc

- **Interrupt Input HS (24Vcc) - (x4):**
  - Interrupt Input HS (24Vcc) - (x4)
  - 5 to 24Vdc
  - I min: 2 to 12 mA
  - Galvanic Isolation
  - Rated Voltage: 24 Vdc

- **Expandability:**
  - 12 to 24Vdc: Serial Port RS232/RS485

**Description:**

- **Expansible Outputs:**
  - **Digital Isolated Output Relay - (x8):**
    - Digital Isolated Output Relay - (x8)
    - 240Vdc
    - I max 5A
    - Galvanic Isolation
    - Diode protected for Relay
    - I max: 24Vdc: 410 mA

- **Analog Output (0-10Vcc) - (x2):**
  - Analog Output (0-10Vcc) - (x2)
  - 0 to 10Vac
  - I max: 20 mA
  - Separated PCB ground
  - Rated Voltage: 10Vac

**Description:**

- **General Features:**
  - **Power supply voltage:** DC power supply
  - **Operating voltage range:** DC power supply
  - **Power consumption:** DC power supply
  - **External power supply:** Power supply voltage
  - **Power supply voltage:** 24Vdc
  - **Power supply voltage:** 700mA
  - **Insulation resistance:** 20Mohm (min.) +500Vdc between AC terminals and protective earth terminal
  - **Dielectric strength:** +3000VAC at 50/60 Hz for one minute with a leakage current of 10mA max. Between all external AC terminals and protective ground terminal
  - **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:** 390g max

**Technical Features:**

- **Input Rated Voltage:**
  - 0 to 10Vac
  - Rated Voltage: 10Vac
  - I min: 2 to 12 mA
  - Separated PCB ground
  - Galvanic Isolation
  - Rated Voltage: 24 Vdc

- **Output Rated Voltage:**
  - 240Vdc
  - I max: 5A
  - Galvanic Isolation
  - Diode protected for Relay
  - I max: 24Vdc: 410 mA

**Diagram:**

- **Connectable PLC ARDUINO 24Vcc ARDBOX**

- **HS**: Hardware Serial
- **SS**: Software Serial
- **HD**: Half Duplex
- **FD**: Full Duplex

**Diagram Symbols:**

- **Board Details:**
  - Arduino Pin: ARDUINO PIN
  - Connectable Pin: ARDUINO PIN
  - Communication Ports: I2C, USB, RS485, RS232, SPI

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**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.
- 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**

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<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
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<tbody>
<tr>
<td><img src="image1.png" alt="Symbol" /></td>
<td>Indicates that the equipment is suitable for direct current only to identify relevant terminals</td>
</tr>
<tr>
<td><img src="image2.png" alt="Symbol" /></td>
<td>Indicates that the equipment is suitable for alternating current only to identify relevant terminals</td>
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<tr>
<td><img src="image3.png" alt="Symbol" /></td>
<td>To identify the control by which a pulse is started.</td>
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<td><img src="image4.png" alt="Symbol" /></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><img src="image5.png" alt="Symbol" /></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><img src="image6.png" alt="Symbol" /></td>
<td>CE marking indicates that a product complies with applicable European Union regulations</td>
</tr>
<tr>
<td><img src="image7.png" alt="Symbol" /></td>
<td>Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury</td>
</tr>
<tr>
<td><img src="image8.png" alt="Symbol" /></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:

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