Datasheet
10 I/Os Digital Module CPU ESP32

Industrial Shields

Technical Features PLC 10 I/Os DIGITAL MODULE - ESP32

MODEL TYPE	10 I/Os
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	External: 240 MHz Internal: 8 MHz
Flash Memory	4 MB
SRAM	4 MB
PSRAM	2 MB
Communications	USB - RS485 - ETHERNET - WiFi (2.4 - 2.5GHz) - BLE (2.402-2.480 GHz)

A ZONE

General Features

Power supply voltage	DC power supply	12 to 24Vdc
Operating voltage range	DC power supply	11.4 to 25.4Vdc
Power consumption	DC power supply	30 VAC MAX.
External power supply	Power supply voltage	24Vdc
	Power supply voltage	300Ma
Insulation resistance		20MΩ 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 10mA max. Between all the external AC terminals and the protective ground terminal.
Shock resistance		80m/s2 in the X, Y and Z direction 2 times each.
Ambient temperature (operating)		0° to 60℃
Ambient humidity (operating)		10% to 90% (no condensation)
Ambient environment (operating)		With no corrosive gas
Ambient temperature (storage)		-20° to 60℃
Power supply holding time		2ms min.
Weight		350g max.

ⓘ INPUTS (x10)

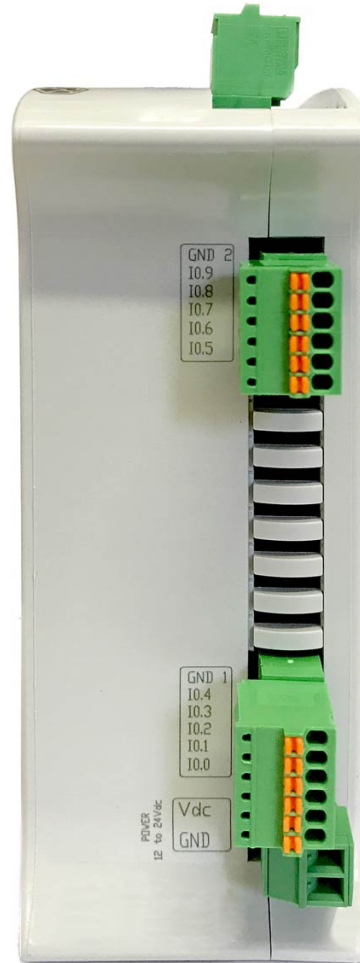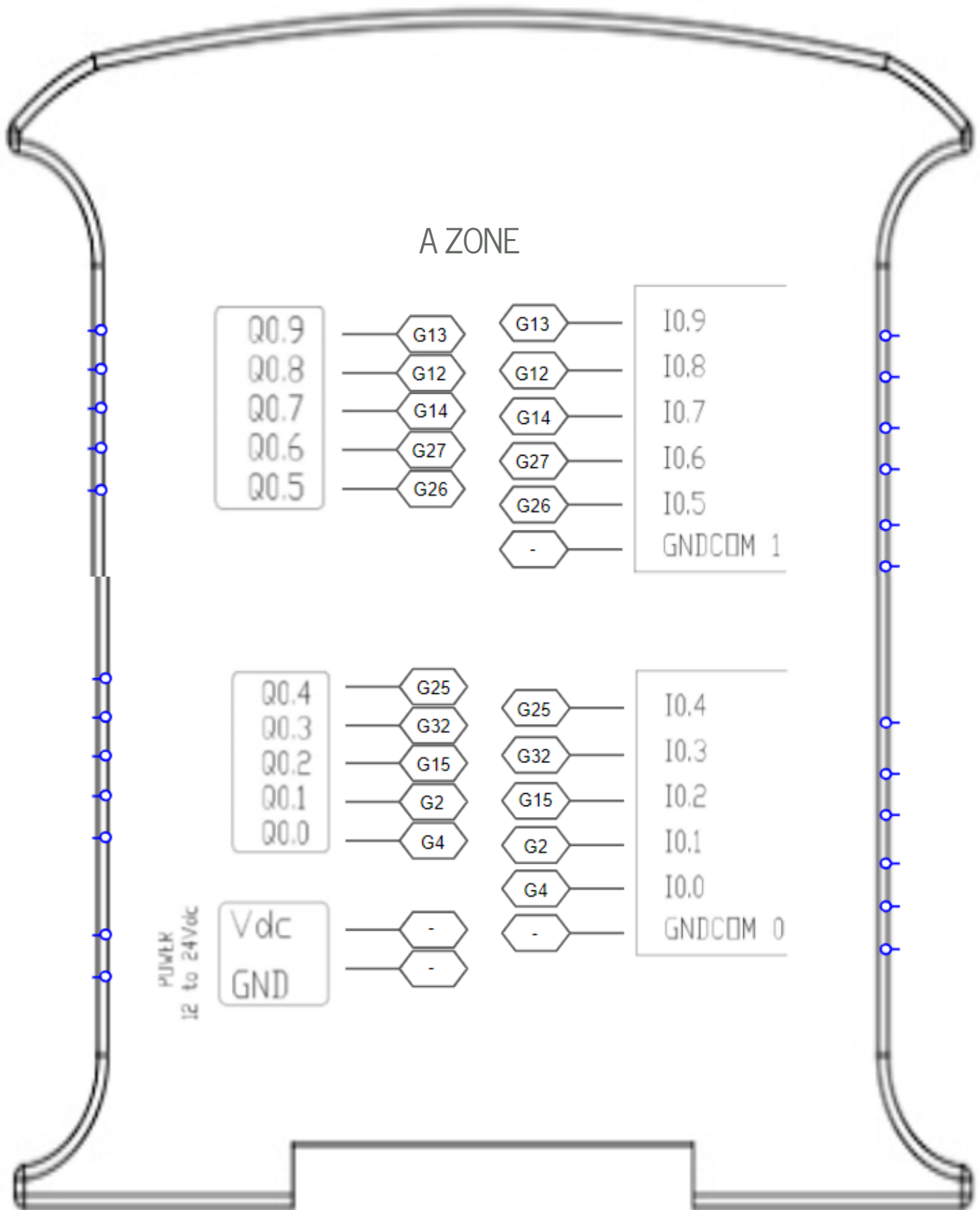| Dig Input 10bit (0-10Vcc) - (x16)	0 to 3.3 to 24 Vdc Input Impedance: 27K Separated PCB ground Rated Voltage: 10Vac 220 Vac (3 – 48 Vdc) Input Impedance: 54K Rated Voltage: 220 VAc I min: 2 to 12 mA Opto-isolation Rated Voltage: 24 Vdc Antipolarity + Overcurrent (220 Ac)

ⓘ OUTPUTS (x10)

Digital Isolated Output - (x10)	24 Vdc (23,2 Vdc) I max: 300mA Opto-isolation Rated Voltage: 24 Vdc Imax 24 Vdc: 1 A

Expandability

ModbusRTU with RS485: 32 elements

A ZONE

Q0.9	— G13	G13 —	I0.9
Q0.8	— G12	G12 —	I0.8
Q0.7	— G14	G14 —	I0.7
Q0.6	— G27	G27 —	I0.6
Q0.5	— G26	G26 —	I0.5
		- —	GNDCOM 1

Q0.4	— G25	G25 —	I0.4
Q0.3	— G32	G32 —	I0.3
Q0.2	— G15	G15 —	I0.2
Q0.1	— G2	G2 —	I0.1
Q0.0	— G4	G4 —	I0.0

PWR
12 to 24Vdc

| Vdc | — - | - — | GNDCOM 0 |
| GND | — - | | |

Performance Specifications

CPU	ESPRESSIF ESP-WROOM-32U
Control method	Stored program method
I/O control method	Combination of the cyclic scan and immediate refresh processing methods.
Programming language	Arduino IDE. Based on wiring (Wiring is an Open Source electronics platform composed of a programming language. "similar to the C")
Microcontroller	ESP32
	http://arduino.cc/en/Tutorial/HomePage

Install Arduino IDE and the Industrial Shields boards

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

▬▬▬	Indicates that the equipment is suitable for direct current only; to identify relevant terminals
∼	Indicates that the equipment is suitable for alternating current only; to identify relevant terminals
⊓	To identify the control by which a pulse is started.
⏚	To identify an earth (ground) terminal in cases where neither the symbol 5018 nor 5019 is explicitly required.
⊗	To identify the switch by means of which the signal lamp(s) is (are) switched on or off.
CE	CE marking indicates that a product complies with applicable European Union regulations
⚠	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury
⚡	To indicate hazards arising from dangerous voltages

Technical Support

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