

MATRIX Labs MATRIX Creator MATRIX.C1.EU Manual

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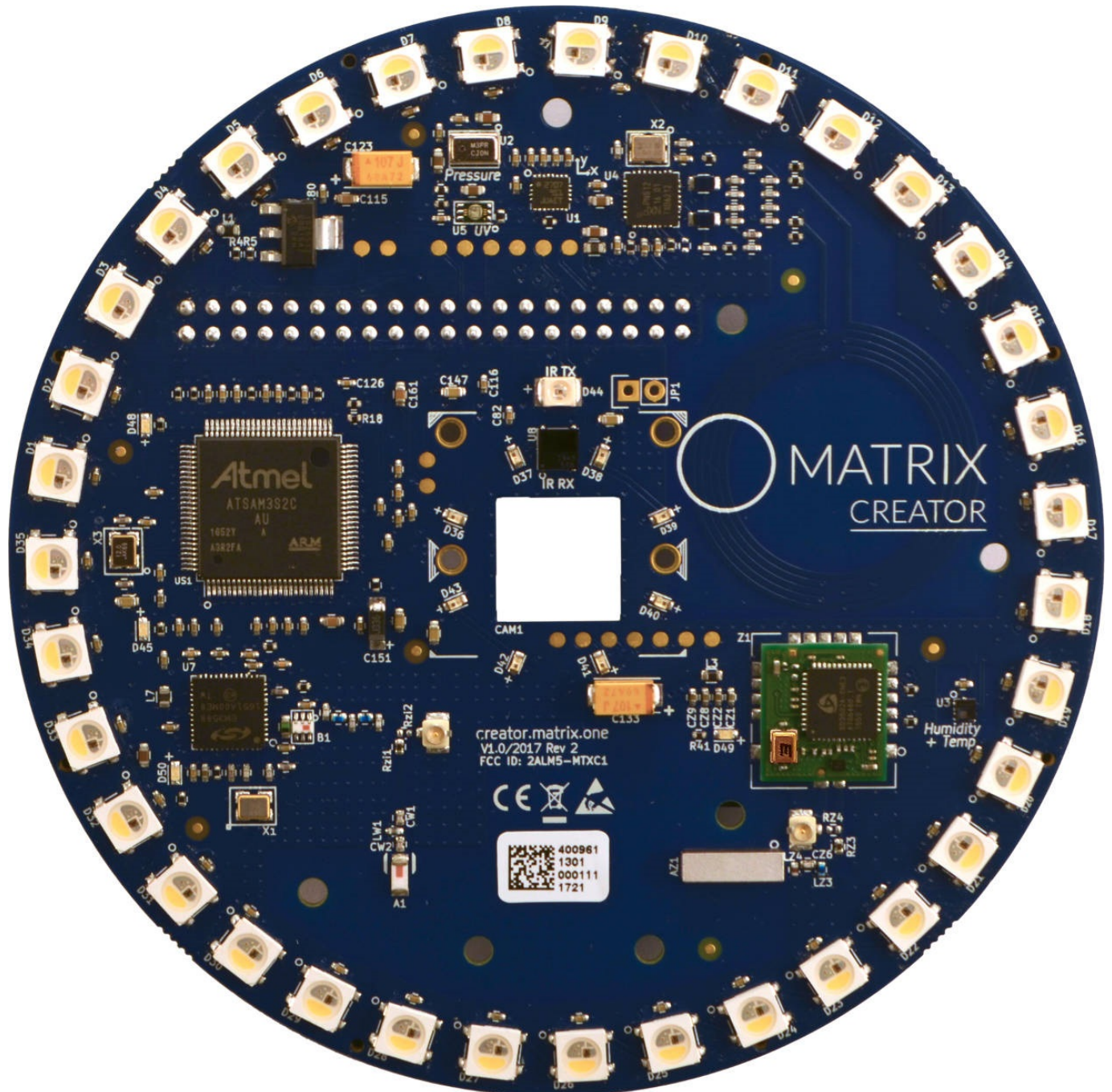
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MATRIX Labs

MATRIX Creator

SKU: MATRIX.C1.EU



Quickstart

This is a

Hardware Device
for
CEPT (Europe).

To run this device please connect it to your mains power supply.

To add this device to your network execute the following action:

MATRIX Creator is a Z-Wave Plus Hardware Platform Product. It provides communication with the Z-Wave SerialAPI running on the Z-Wave module in the MATRIX Creator. Refer to Sigma design Z-Wave Specification (<http://zwavepublic.com/specifications>) and developer resources (<http://zwavepublic.com/developer>).

Please refer to the

[Manufacturers Manual](#) for more information.

Important safety information

Please read this manual carefully. Failure to follow the recommendations in this manual may be dangerous or may violate the law.

The manufacturer, importer, distributor and seller shall not be liable for any loss or damage resulting from failure to comply with the instructions in this manual or any other material.

Use this equipment only for its intended purpose. Follow the disposal instructions.

Do not dispose of electronic equipment or batteries in a fire or near open heat sources.

What is Z-Wave?

Z-Wave is the international wireless protocol for communication in the Smart Home. This device is suited for use in the region mentioned in the Quickstart section.

Z-Wave ensures a reliable communication by reconfirming every message (**two-way communication**) and every mains powered node can act as a repeater for other nodes (**meshed network**) in case the receiver is not in direct wireless range of the transmitter.



This device and every other certified Z-Wave device can be **used together with any other certified Z-Wave device regardless of brand and origin** as long as both are suited for the same frequency range.

If a device supports **secure communication** it will communicate with other devices secure as long as this device provides the same or a higher level of security. Otherwise it will automatically turn into a lower level of security to maintain backward compatibility.

For more information about Z-Wave technology, devices, white papers etc. please refer to www.z-wave.info.

Product Description

MATRIX Creator is a Raspberry Pi development board with an IoT-ready platform that lets users build computer vision, home automation, robotics, and other custom hardware solutions. From a hardware perspective, MATRIX Creator is an all inclusive solution, consolidating an ultraviolet sensor, pressure sensor, 3D accelerometer, 3D gyroscope, 3D magnetometer, humidity sensor, 8 MEMs microphone array, a temperature sensor, 35 RGBW LEDs array, as well as a Xilinx Spartan 6 FPGA and an Atmel ARM Cortex M3 microcontroller. Connectivity and communication standards are equally abundant, consisting of Z-Wave, NFC, IR RX/TX, 2 ADC Channels, 17 digital GPIOs, SPI, I2C, UART.<https://creator.matrix.one/>

Prepare for Installation / Reset

Please read the user manual before installing the product.

In order to include (add) a Z-Wave device to a network it **must be in factory default state**. Please make sure to reset the device into factory default. You can do this by performing an Exclusion operation as described below in the manual. Every Z-Wave controller is able to perform this operation however it is recommended to use the primary controller of the previous network to make sure the very device is excluded properly from this network.

Reset to factory default

This device also allows to be reset without any involvement of a Z-Wave controller. This procedure should only be used when the primary controller is inoperable.

Please use this procedure only when the network primary controller is missing or otherwise inoperable. Factory reset should be done by software. Please refer to the documentation (<https://matrix-io.github.io/matrix-documentation/API/zwave/>)

Safety Warning for Mains Powered Devices

ATTENTION: only authorized technicians under consideration of the country-specific installation guidelines/norms may do works with mains power. Prior to the assembly of the product, the voltage network has to be switched off and ensured against re-switching.

Inclusion/Exclusion

On factory default the device does not belong to any Z-Wave network. The device needs to be **added to an existing wireless network** to communicate with the devices of this network. This process is called **Inclusion**.

Devices can also be removed from a network. This process is called **Exclusion**. Both processes are initiated by the primary controller of the Z-Wave network. This controller is turned into exclusion respective inclusion mode. Inclusion and Exclusion is then performed doing a special manual action right on the device.

Inclusion

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Exclusion

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Quick trouble shooting

Here are a few hints for network installation if things dont work as expected.

1. Make sure a device is in factory reset state before including. In doubt exclude before include.
2. If inclusion still fails, check if both devices use the same frequency.
3. Remove all dead devices from associations. Otherwise you will see severe delays.
4. Never use sleeping battery devices without a central controller.
5. Dont poll FLIRS devices.
6. Make sure to have enough mains powered device to benefit from the meshing

Association – one device controls an other device

Z-Wave devices control other Z-Wave devices. The relationship between one device controlling another device is called association. In order to control a different device, the controlling device needs to maintain a list of devices that will receive controlling commands. These lists are called association groups and they are always related to certain events (e.g. button pressed, sensor triggers, ...). In case the event happens all devices stored in the respective association group will receive the same wireless command, typically a 'Basic Set' Command.

Association Groups:

Group Number Maximum Nodes Description

1	5	Z-Wave Plus Lifeline
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Special Operations as Z-Wave Controller

As long as this device is not included into a Z-Wave network of a different controller it is able to manage its own Z-Wave network as primary controller. As a primary controller the device can include and exclude other devices in its own network, manage associations, and reorganize the network in case of problems. The following controller functions are supported:

Inclusion of other devices

Communication between two Z-Wave devices only works if both belong to the same wireless network. Joining a network is called inclusion and is initiated by a controller. The controller needs to be turned into the inclusion mode. Once in this inclusion mode the other device needs to confirm the inclusion – typically by pressing a button.

If current primary controller in your network is in special SIS mode this and any other secondary controller can also include and exclude devices.

To become primary a controller have to be resetted and then include a device.

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Exclusion of other devices

The primary controller can exclude devices from the Z-Wave network. During exclusion the relationship between the device and the network of this controller is terminated. No communication between the device and other devices still in the network can happen after a successful exclusion. The controller needs to be turned into the exclusion mode. Once in this exclusion mode the other device needs to confirm the exclusion – typically by pressing a button.

Attention: Removing a device from the network means that it is turned back into factory default status. This process can also exclude devices from it's previous network.

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Technical Data

Hardware Platform	ZM5202
Device Type	Hardware Device
Network Operation	Hardware Device
Firmware Version	HW: 0 FW: ERROR
Z-Wave Version	6.71.01
Certification ID	ZC10-17095776
Color	Blue
Sensors	Acceleration X-AxisAcceleration Y-AxisAcceleration Z-AxisAir TemperatureAtmospheric PressureBarometric PressureHumidityLoudnessLuminanceRotationUltraviolet Index
Firmware Updatable	Updatable by Consumer via Internet
Frequency	XXfrequency
Maximum transmission power	XXantenna

Explanation of Z-Wave specific terms

- **Controller** — is a Z-Wave device with capabilities to manage the network.
Controllers are typically Gateways, Remote Controls or battery operated wall controllers.
- **Slave** — is a Z-Wave device without capabilities to manage the network.
Slaves can be sensors, actuators and even remote controls.
- **Primary Controller** — is the central organizer of the network. It must be a controller. There can be only one primary controller in a Z-Wave network.
- **Inclusion** — is the process of adding new Z-Wave devices into a network.
- **Exclusion** — is the process of removing Z-Wave devices from the network.
- **Association** — is a control relationship between a controlling device and a controlled device.
- **Wakeup Notification** — is a special wireless message issued by a Z-Wave device to announce that it is able to communicate.
- **Node Information Frame** — is a special wireless message issued by a Z-Wave device to announce its capabilities and functions.