

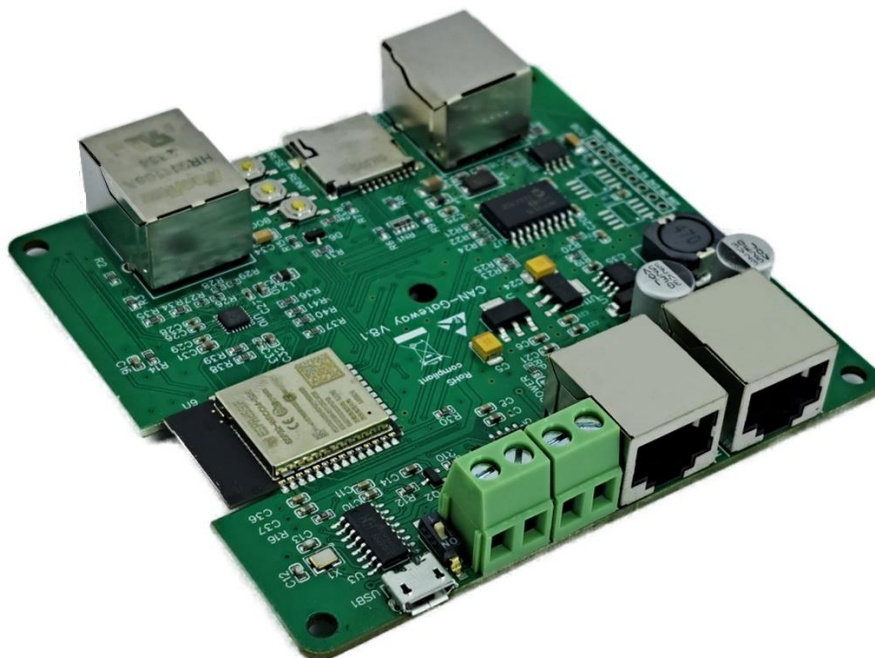
## CAN-Gateway development board

Type: CAN-Gateway development board V8.1

### Manual

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## 1 General description

This product can be used as a development and evaluation board for various purposes. It is based on an ESP32 microcontroller and has the following external interfaces integrated:

- Ethernet (LAN)
- CAN (via 2x RJ45 sockets [pin assignment compatible with CAN-Open Standard] and a screw terminal block)
- Micro SD card slot
- Micro USB
- Placement option for a second CAN bus connection (with an MCP2515 and an SN65VHD230 IC)

Due to these features, this product is particularly suitable for developing and building CAN gateways.

A suitable housing is available as an accessory, which also allows mounting on a top-hat rail.

**Symbols used in this document:**



**Attention!**

Here is a hazard risk pointed out.



**Notice.**

Here an additional important information is included.

## 2 Hazard warnings



This product is intended for use by persons with relevant electrical engineering knowledge and experience. Incorrect or improper use can be dangerous.



This product may only be operated with safety extra-low voltage (SELF) (protection class III).



This product is not a toy! It must be kept out of the reach of children and must not be used as a toy.



Please note the technical data, especially the maximum current carrying capacity. Overloading may result in the destruction of this product and/or a fire.



Only install and connect this product when there is no voltage! Make sure the polarity is correct!



We assume no liability for property damage or personal injury caused by improper use or ignoring of the hazard warnings. In these cases, the warranty claim also expires! For further damages we do not accept liability.



Keep this usage information digitally or printed so you can always access it.



To avoid damage, protect this product from electrostatic discharge.



Any use other than that described in this usage information is not intended and leads to exclusion of warranty and liability.

### 3 Intended use and place of use

This product is intended for development and validation purposes. Commissioning and use must take place indoors where this product is protected from the influence of liquids (including water or rain), direct sunlight, excessive humidity (>70%) and electrically conductive dust or particles. The product must not be used in environments with corrosive or explosive atmospheres, near heat sources or for medical purposes. Installation must not be carried out on actively cooled surfaces in order to avoid condensation forming on or in this product. Installation must not be carried out in a place with easy access for children. Use may only occur in accordance with this usage information.

### 4 Installation

This product is intended for development and validation purposes. Commissioning and use must take place indoors where this product is protected from the effects of liquids including water or rain, direct sunlight, excessive humidity (>70%) and electrically conductive dust or particles. The product must not be used in environments with corrosive or explosive atmospheres, near heat sources or for medical purposes. Installation must not be carried out on actively cooled surfaces in order to avoid condensation forming on or in this product. Installation must not be carried out in a place with easy access for children. Use may only occur in accordance with this usage information.

If you are going to install this product for your development and validation purposes, please follow the following steps:

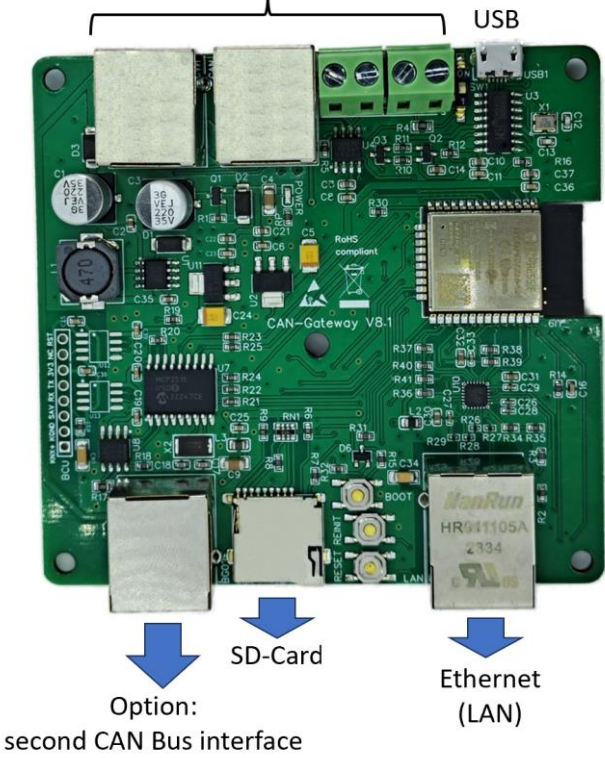
- 1) Program (flash) the development board via USB port
- 2) Install in a housing and screw sufficiently.
- 3) Fasten the CAN gateway firmly (with screws or on a top-hat rail)
- 4) Connect other devices to be connected to this product or screw the corresponding cables to the screw terminals. Please note the specifications in the technical data regarding cable cross-sections, current carrying capacity and torque. Pay attention to the polarity!
- 5) The connected cables must not exert any mechanical stress on this product. If necessary, provide suitable strain relief.

## 5 Example: Integration in an enclosure



## 6 Interfaces

First CAN Bus (2x RJ45, 1x screw terminals)



## 7 Technical data

<b>Type</b>	CAN-Gateway Development Board V8.1
<b>Supply voltage</b>	Über USB: 5V +/- 0,2 V Über CAN-Bus: 10...14 V
<b>Operating temperature</b>	+5°C ... +35 °C
<b>WiFi standard; frequencies</b>	IEEE 802.11 b/g/n; 2.4 GHz
<b>Screw terminals: target torque</b>	0,4 Nm
<b>RoHS</b>	ja
<b>Maximum permanent current carrying capability for CAN path RJ45 to RJ45 (+12V, GND)</b>	3 A

<b>Dimensions</b>	92,5 x 87,5 x 19 mm
<b>Current consumption</b>	Max. 1 A @ 5 V Max. 0,5 A @ 12 V
<b>Storage and transport temperature</b>	-20 °C ... 60 °C
<b>Antenna</b>	integrierte Leiterplatten-Antenne, 3.7 dBi
<b>Screw terminals: cable cross section</b>	0,4 ... 2,5 mm <sup>2</sup> , starr oder flexibel mit Aderendhülse
<b>Weight</b>	60 g

Pin GPIOs (for example for Arduino):

```
// Button
#define REINIT_PIN 34
```

```
// CAN
#define CAN_RX_PIN 35
#define CAN_TX_PIN 5
```

```
// SD CARD
#define SD_HW_DETECTION_PIN 36
#define SD_SS_PIN 33
#define SD_CLK_PIN 14
#define SD_MISO_PIN 2
#define SD_MOSI_PIN 13
```

```
//MCP_CAN
#define MCP_CAN_CLK_PIN 4
#define MCP_CAN_MISO_PIN 32
```

```
#define MCP_CAN_MOSI_PIN 12
```

```
//Ethernet
#define ETH_TXD0_PIN 19
#define ETH_TXD1_PIN 22
#define ETH_TX_EN_PIN 21
#define ETH_RXD0_PIN 25
#define ETH_RXD1_PIN 26
#define ETH_MDC_PIN 23
#define ETH_MDIO_PIN 18
#define ETH_RX_CRS_DV_PIN 27
#define ETH_RESET_PIN 16
#define ETH_CLK_MODE ETH_CLOCK_GPIO17_OUT
#define ETH_POWER_PIN -1
#define ETH_TYPE ETH_PHY_LAN8720
#define ETH_ADDR 1
```

## 8 Disposal



Do not dispose of this product with household waste! Electronic devices must be disposed of at local collection points for waste electronic devices in accordance with the directive on waste electrical and electronic devices.

## 9 Manufacturer

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