

# KAMAMI

## KAmoDRPi CAN RS485 HAT



Rev. 20231024105719

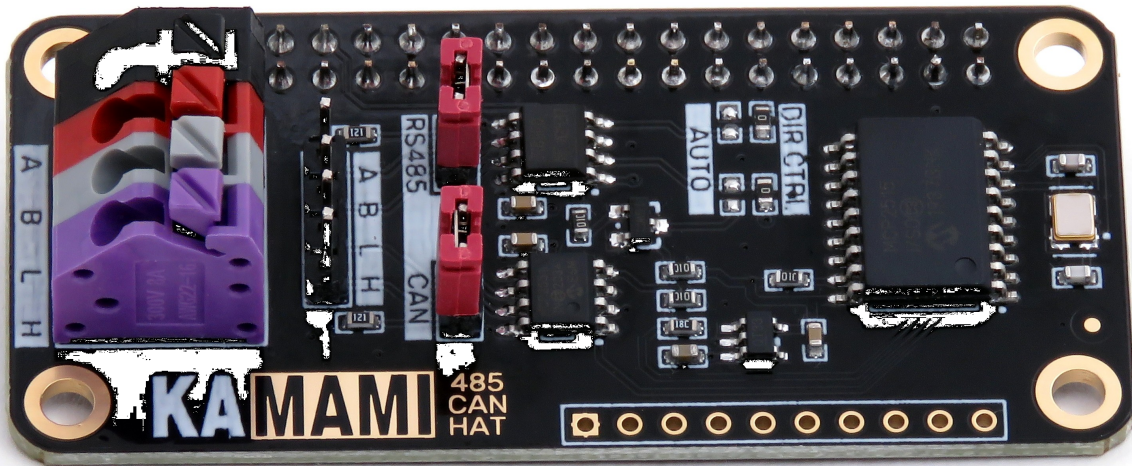
Źródło: [https://wiki.kamamilabs.com/index.php/KAmoDRPi\\_CAN\\_RS485\\_HAT](https://wiki.kamamilabs.com/index.php/KAmoDRPi_CAN_RS485_HAT)

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## Description

[KAmoRPi RS485 CAN HAT](#) is an extension for the Raspberry Pi computer extending its interfaces with RS485 and CAN. The board is equipped with MCP2515 and MCP2551 systems to support the CAN bus, while the conversion of the signal to the levels corresponding to the RS485 bus is the ST3485 system. It allows communication of Raspberry computers with buses used, for example, in automation and vehicles.



## Basic Features and Parameters

- Connector compatible with the 40-pin Raspberry standard
- CAN interface
  - CAN MCP2515 controller controlled by SPI
  - MCP2551 transceiver
- RS485 interface

- ST3485 transceiver (MAX485 compatible)
- Half-duplex transmission
- Automatic detection of transmission direction (direction control possible after two resistors are soldered)
- Signals on the goldpin connectors and terminal strips
- Additional 2,54mm connector, allowing for work with computers like Arduino
- Built-in jumpers for connecting 120 Ohm terminating resistors
- Dimensions: 65mm x 30mm x 20mm

## Standard Equipment

Code	Description
<b>KAmoRPi RS485 CAN HAT</b>	• Assembled and running module
4 x Spacer sleeve 8 x Mounting screw	• Kit for screwing the hat to the Raspberry board

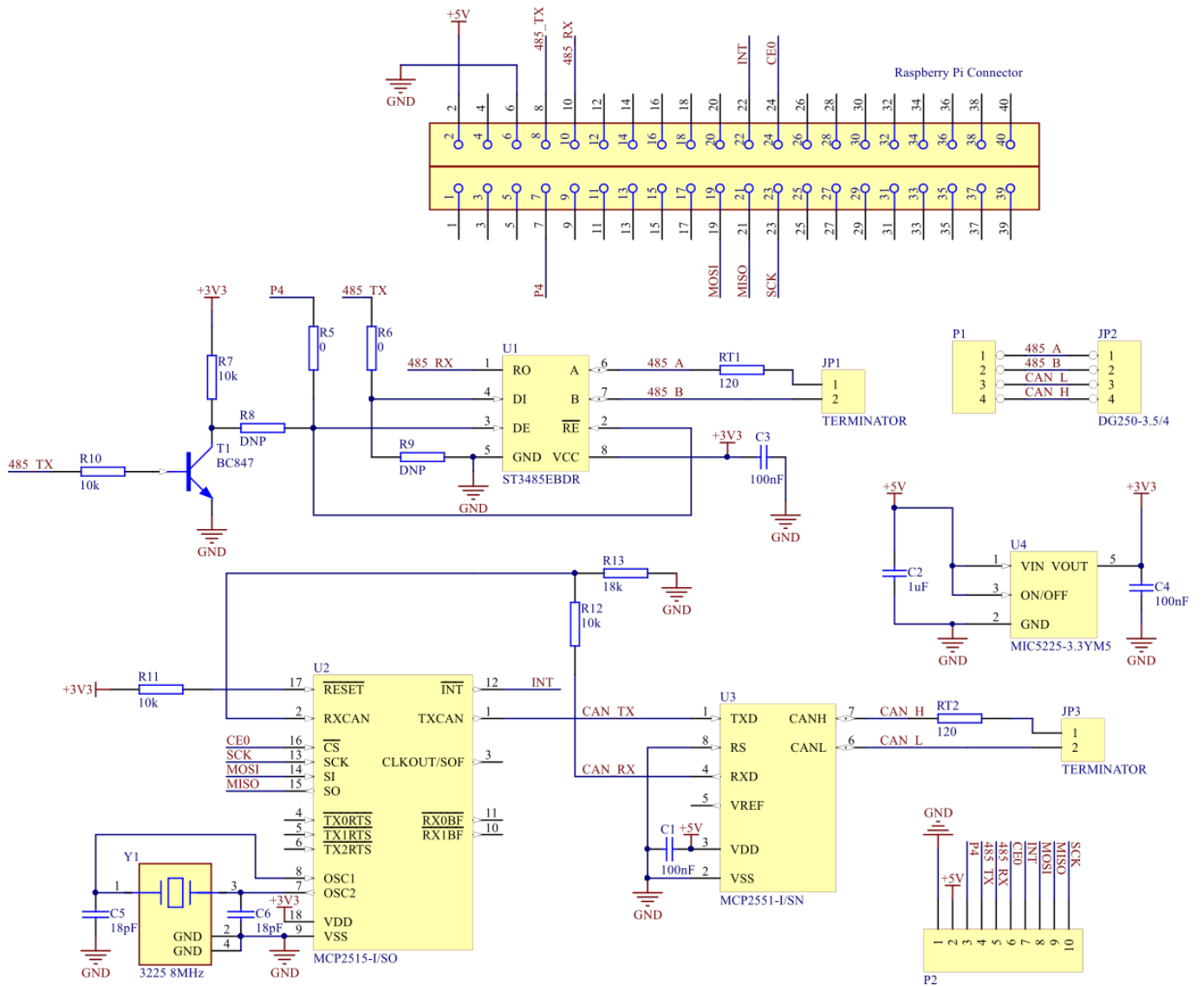
## Raspberry Pi Configuration

To use this hat, you need to properly configure the Raspberry Pi (e.g. by the `sudo raspi-config` command):

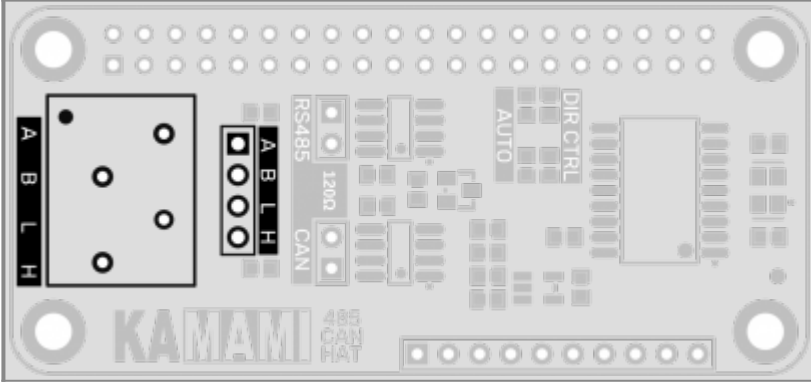
- In order to use the RS485 bus, UART must be turned on with the indication that the system shell should be turned off
- To use the CAN bus, you must enable SPI and add the following line in the `config.txt` file:

```
dtoverlay=mcp2515-can0,oscillator=800000,interrupt=25,spimaxfrequency=100000
```

## Electronic Schematics



## Pin description - bus connectors

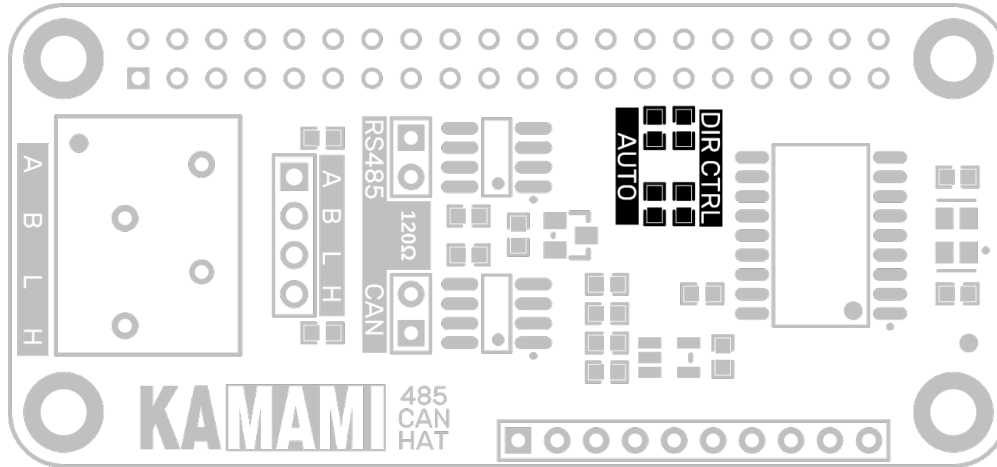
	JP1	Function
	4 (A)	RS485 - inverted signal
	3 (B)	RS485 - non-inverted signal
	2 (L)	CAN Low
	1 (H)	CAN High



## Selecting the operating mode

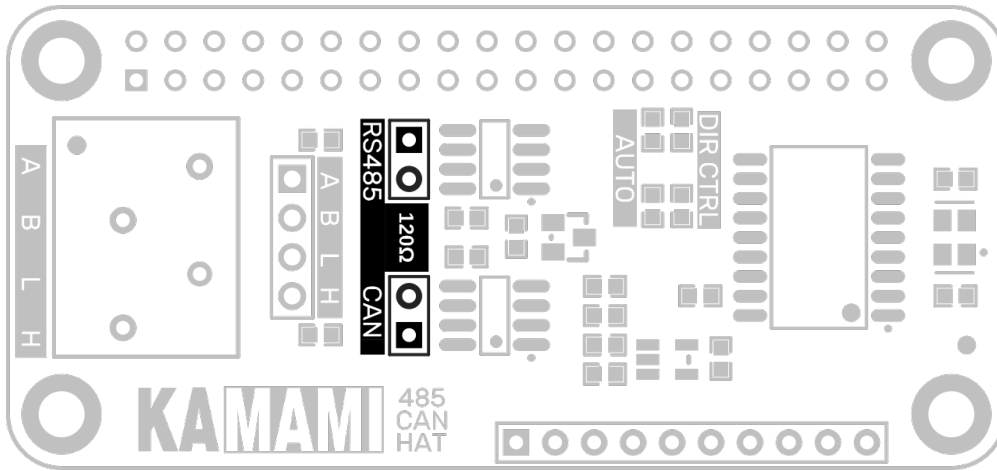
The KAmoRPi RS485 CAN HAT module is equipped with a system that automatically detects the transmission direction. This system, however, is not active; the transmission direction is selected by the GPIO 4 pin state of the Raspberry Pi. In order to save this output, it is possible to switch on the above-mentioned system:

- The jumpers soldered in the DIR CTRL fields (default configuration) mean manual selection of the transmission direction
- Jumpers soldered in AUTO fields mean automatic detection of the transmission direction



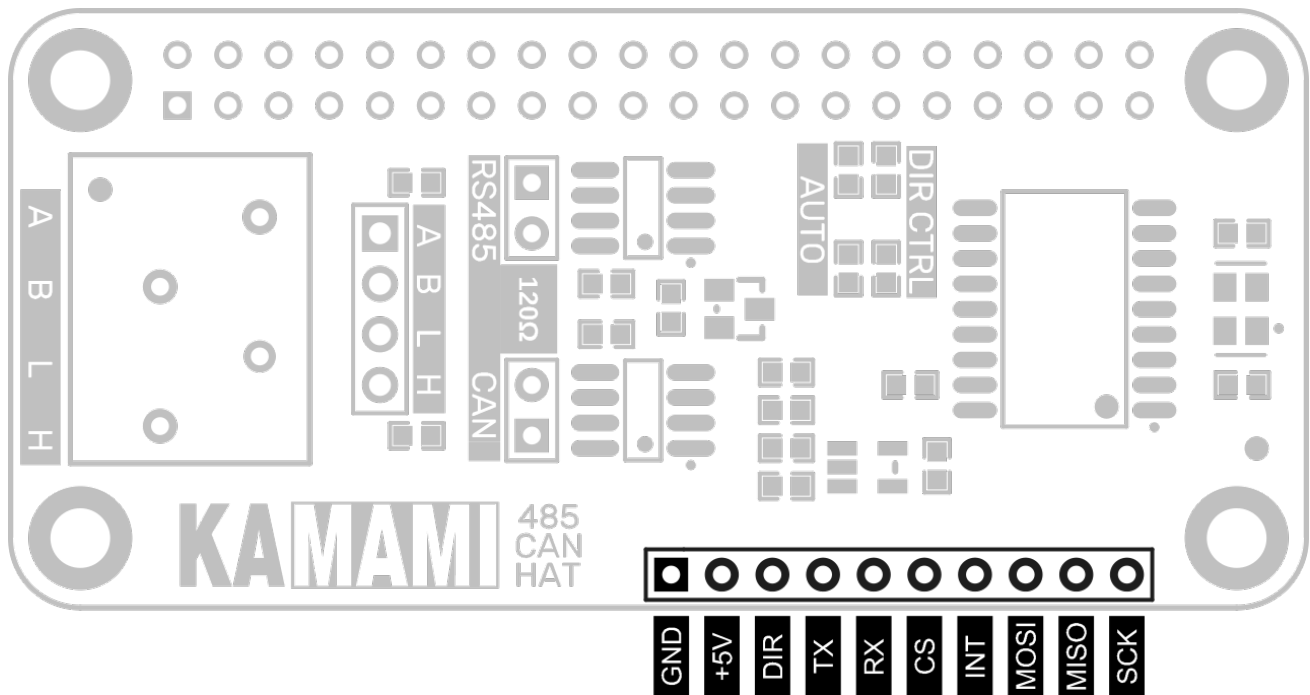
## Terminating resistors

The module is equipped with terminating resistors for both CAN and RS485 buses. These resistors can be disconnected using the following jumpers:



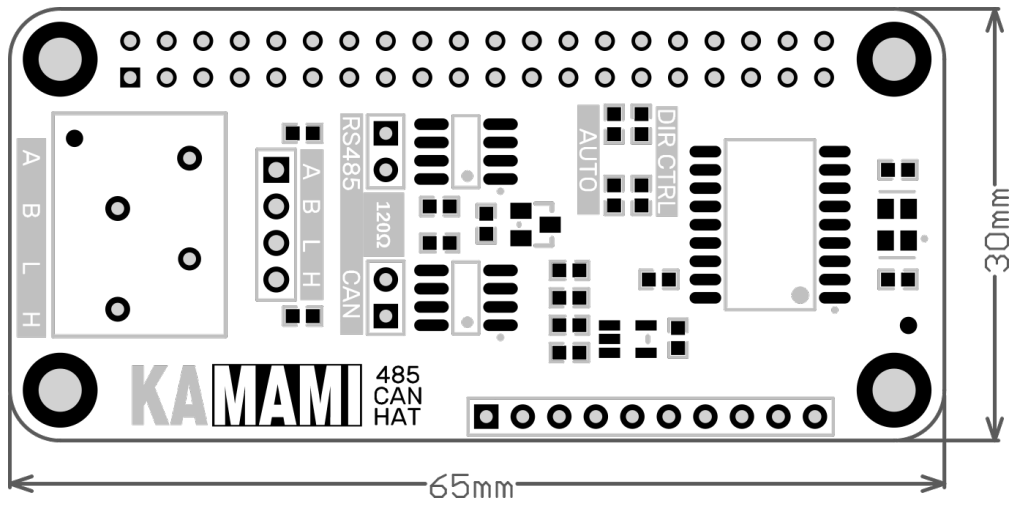
## Additional connector

The module has been equipped with an additional connector that allows it to be connected to computers other than those equipped with a 40-pin connector of the Raspberry standard. The pins of the connector are described on the bottom side of the board.



## External Dimensions

The board has been designed so that the dimensions and mounting holes correspond to the Raspberry Pi Zero board:



## External Links

- [ST3485 datasheet by ST](#)
- [Microchip MCP2515 datasheet](#)
- [Microchip MCP2515 datasheet](#)



Zastrzegamy prawo do wprowadzania zmian bez uprzedzenia.

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