KAMAMI

KAmod USB RS485 ISO

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Źródło: https://wiki.kamamilabs.com/index.php?title=KAmod_USB_RS485_ISO

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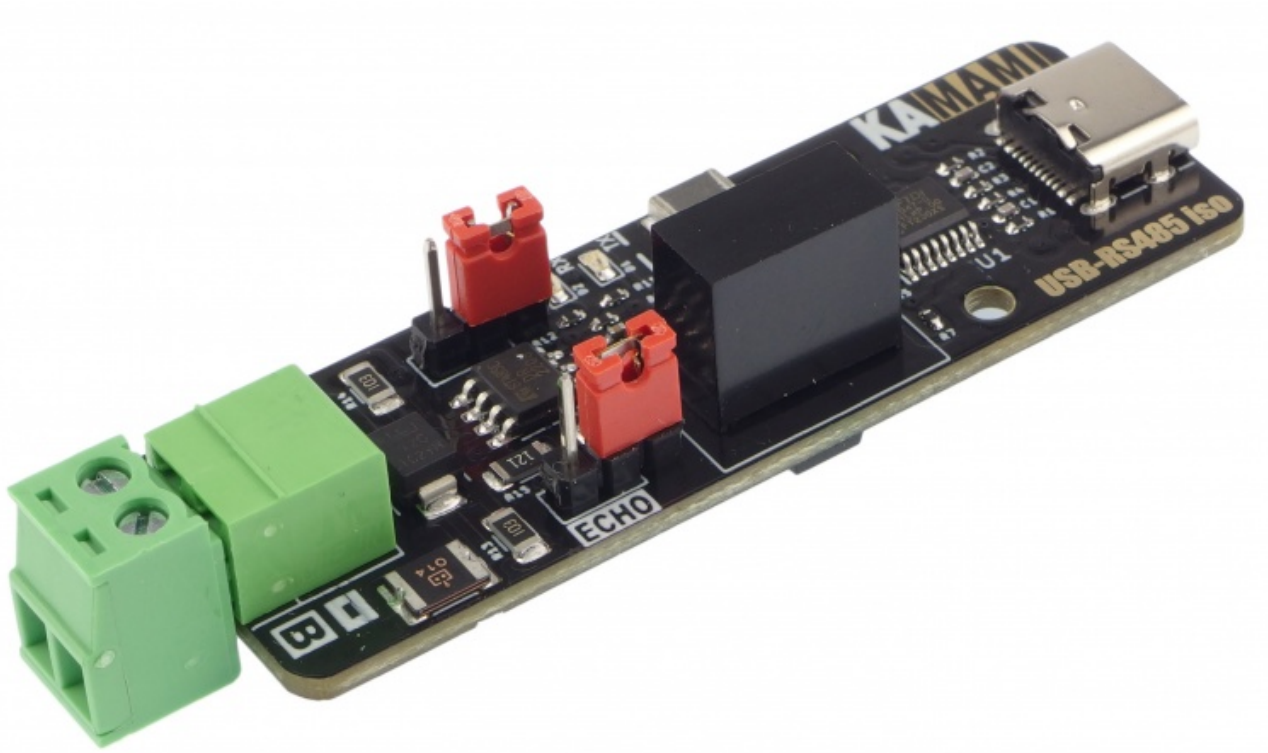
Description

KAmodUSB RS485 ISO is an RS485 bus transceiver controlled from the USB interface. On the USB interface side, an FT230 system compatible with the USB 2.0 standard and a USB-C connector are used. On the RS485 bus side, an ST485 system is used, which supports up to 64 devices on the bus and is connected via circuits providing galvanic separation. Additionally, the module is equipped with overvoltage protection on the RS485 bus lines and allows the connection of a 120 Ω resistance acting as an RS485 bus terminator.

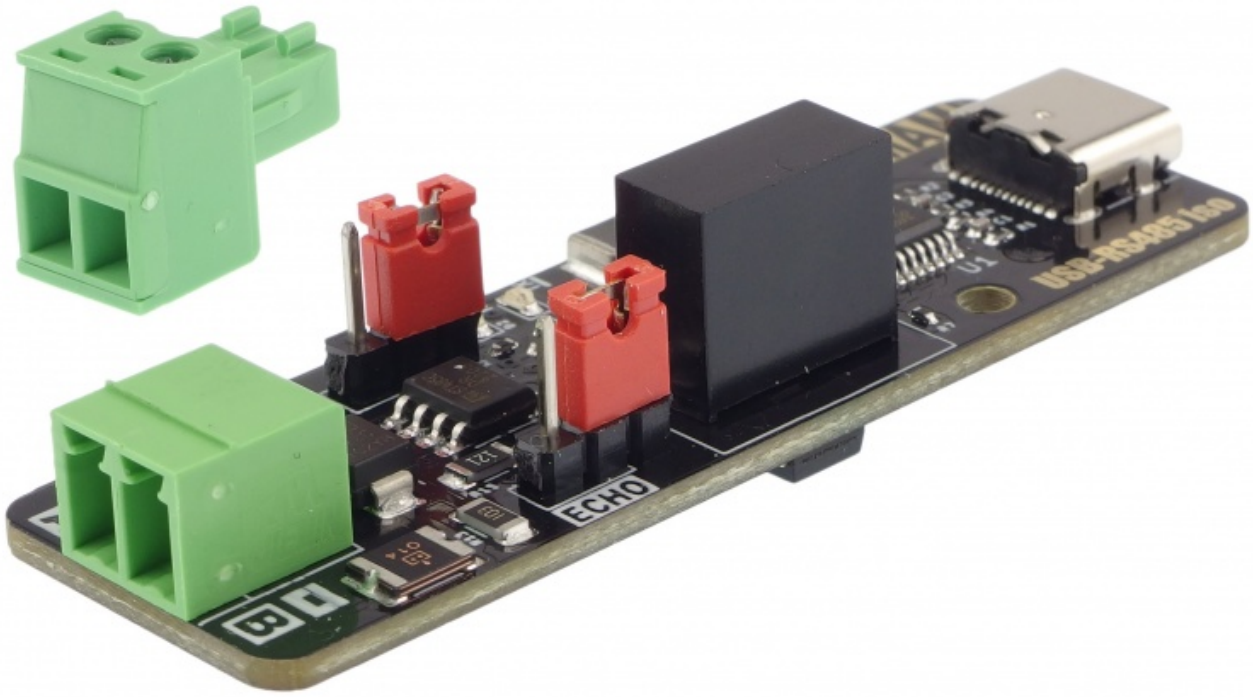


Basic features and parameters

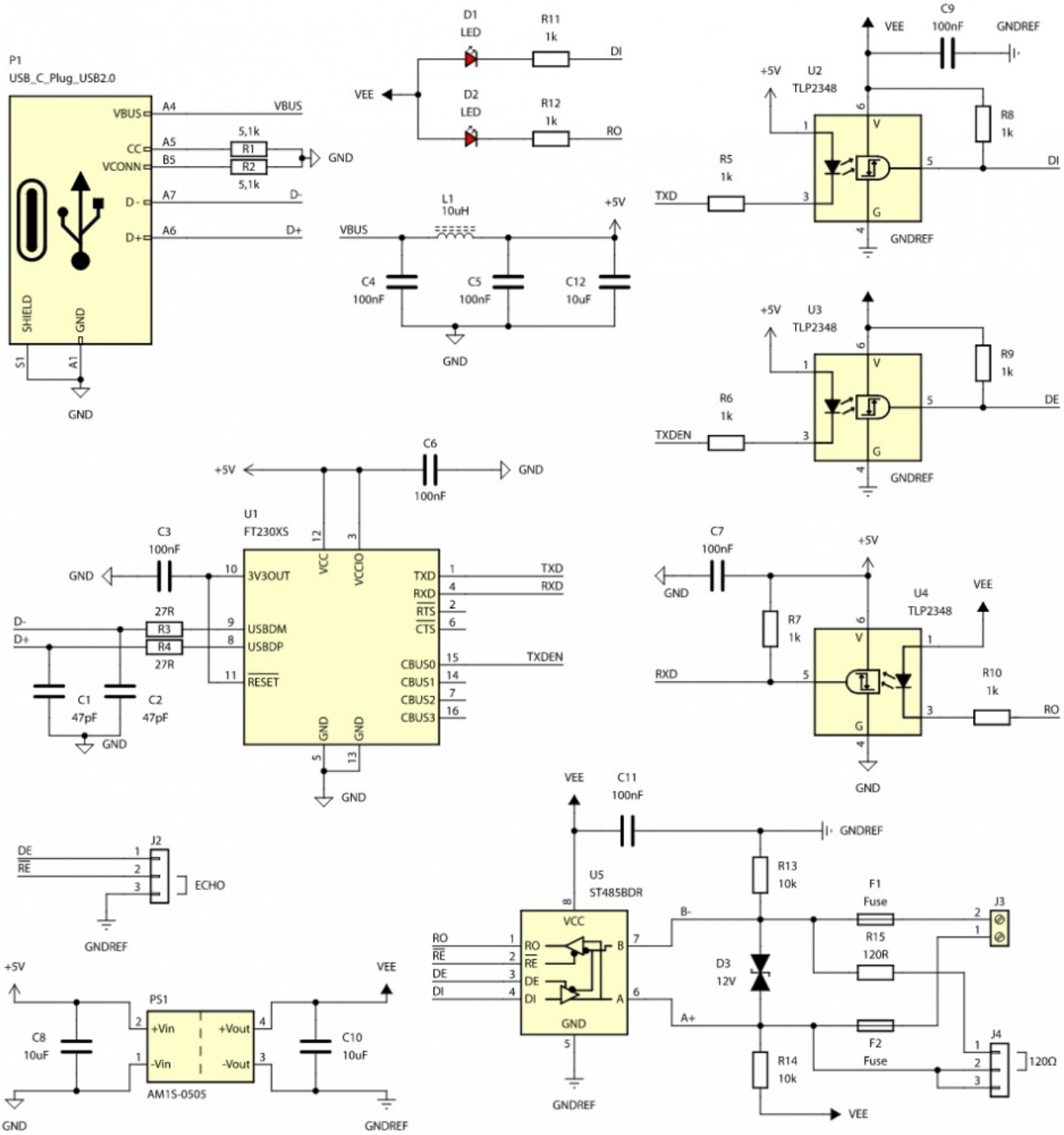
- RS485 bus transceiver module controlled from USB interface
- FTDI FT230 USB controller
- USB-C type USB connector
- Virtual serial port drivers for Win, Linux and Mac
- ST485 RS485 bus transceiver
- Half-duplex communication
- Transmission speed – max 1 Mbps
- Number of modules connected to the bus – max 64
- Data transmission/reception signalling – LED diodes
- Connected 120 Ω resistance (bus terminator)
- Allows to enable ECHO function – transmission and simultaneous tracking of transmission correctness
- Galvanic isolation up to 1 kV
- Protection surge on RS485 bus lines
- RS485 bus connector type Phoenix Contact MC 3.81 mm
- 5 V power supply via USB-C connector, max current consumption 100 mA
- Max current consumption 100 mA
- Mounting holes with a diameter of 2.5 mm
- Dimensions: 61 mm x 20 mm x 15 mm

Standard equipment

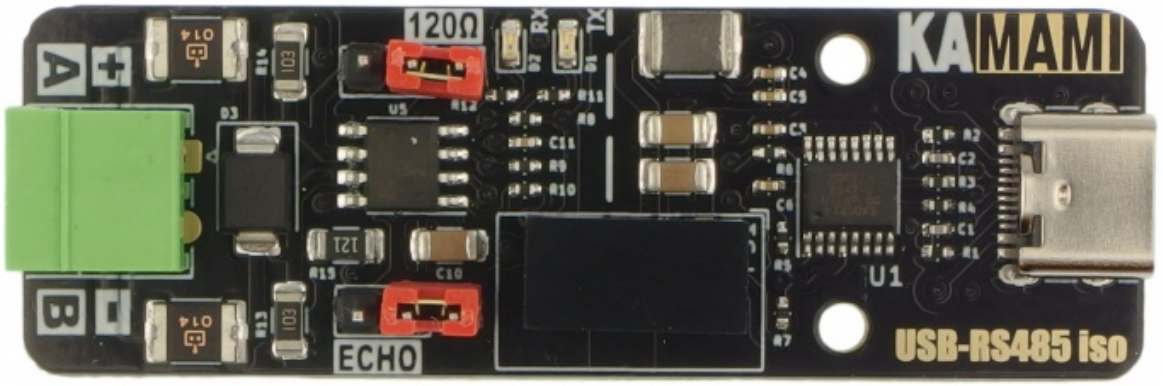
Code	Description
KAmod USB RS485 ISO	• Assembled and started module



Electrical diagram



Pinout



USB

Connector type	Function
USB-C	• Supplies 5V • Used to transfer data to and from the RS485 bus • Emulates a serial COM port

J2 (goldpin 1x3, 2.54 mm pitch)

Connector type	Function
Goldpin + jumper	• Jumper on pins 1-2: data reception from the RS485 bus is blocked while data is being transmitted to the bus • Jumper on pins 2-3: ECHO function active, data from the RS485 bus is always received, also while data is being transmitted to the bus

J3 (Phoenix Contact MC 3.81 mm)

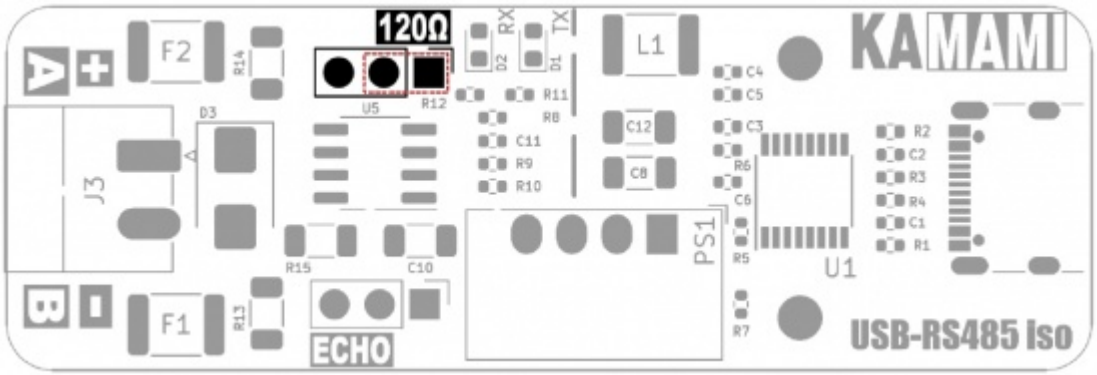
Pin number	Designation	Function
1	A, +	RS485 transceiver **positive** output/input recessive state A>B, dominant state A<B
2	B, -	RS485 transceiver **negative** output/input recessive state A>B, dominant state A<B

J4 (goldpin 1x3, 2.54 mm raster)

Connector type	Function
Goldpin + jumper	• Jumper on pins 1-2: 120 Ω resistor connected to RS485 line • Jumper on pins 2-3 (or no jumper): RS485 lines without connected resistor

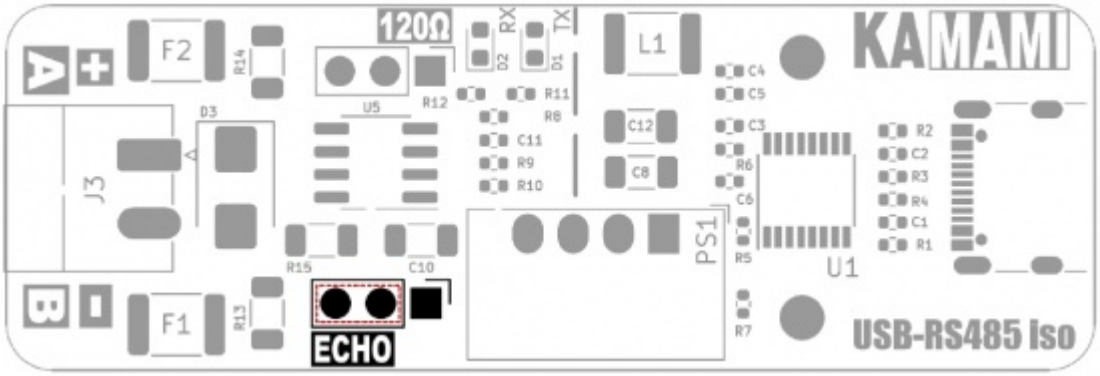
Bus terminator

The module allows you to connect a 120 Ω resistor to the RS485 bus line, acting as a so-called bus terminator. This solution should only be used when the module is located at one of the ends of the RS485 bus. The function is active when the jumper is located on pins 1-2 **J4**.



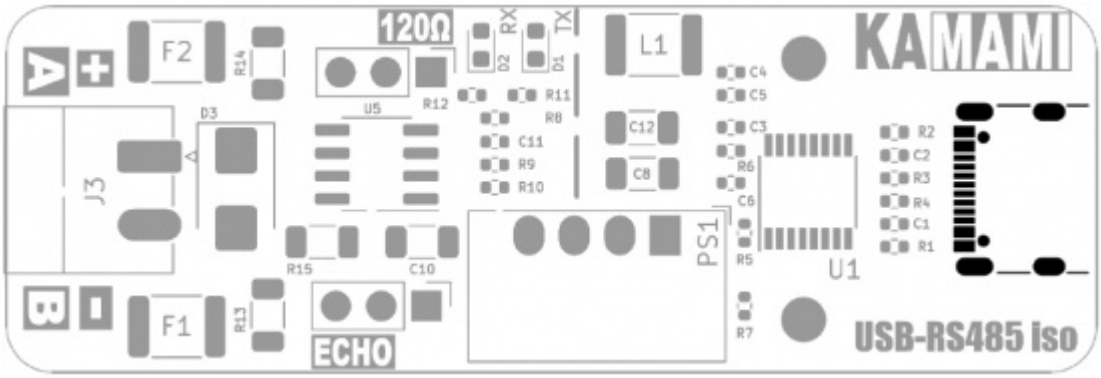
ECHO function

The RS485 bus transceiver operates in Half-duplex mode, which means that at one moment either data is being transmitted to the bus or data is being read from the bus. **KAmodUSB RS485 ISO** allows for tracking the correctness of the transmission. Then the data sent to the module is sent to the bus and at the same time data can be read from the bus - the so-called loopback. The function is active when the jumperand is located on pins 2-3 of **J2**, marked **"ECHO"**. If the jumper is in the opposite position, then during data transmission to the bus, reception is blocked, it is activated automatically after the transmission is completed.



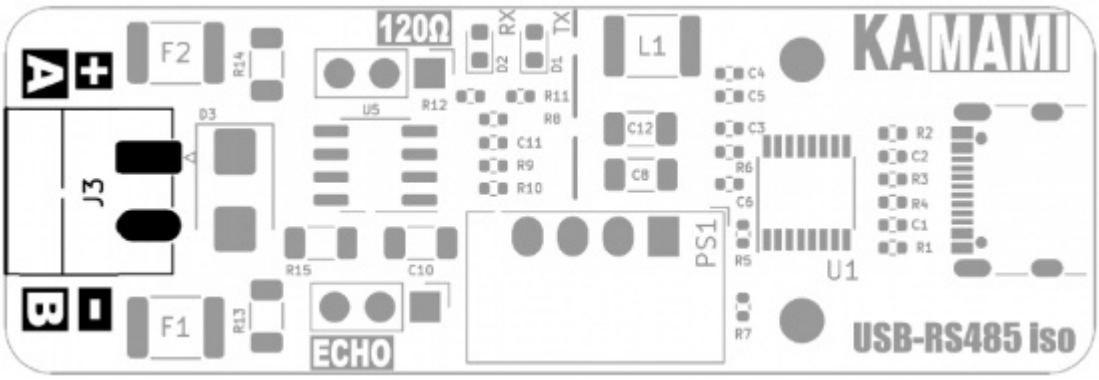
Module power supply and data transfer

The module power supply is supplied via the USB-C connector. The same connector allows the device to be connected to a computer and data transmission and reception. The used FT230 USB controller is detected by the computer's operating system as a serial port (COM).



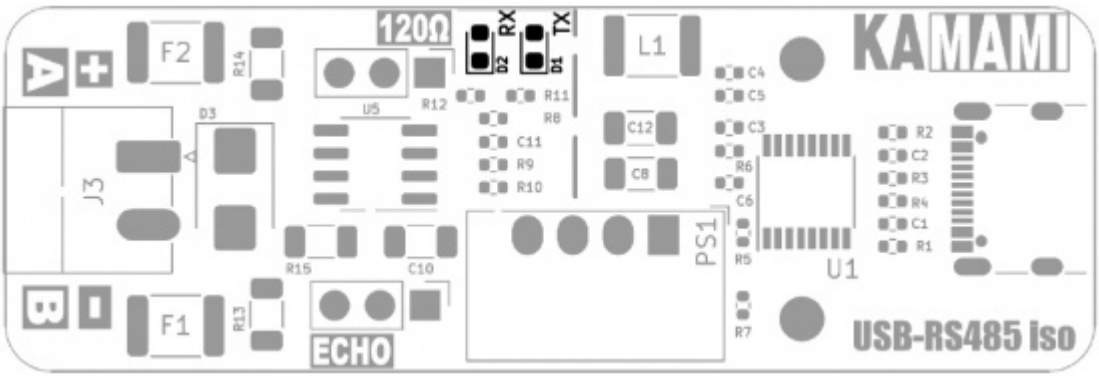
RS485 bus connector

The module is equipped with a Phoenix Contact MC 3.81 mm RS485 bus connector. It provides easy assembly of cables and allows for quick connection/disconnection.

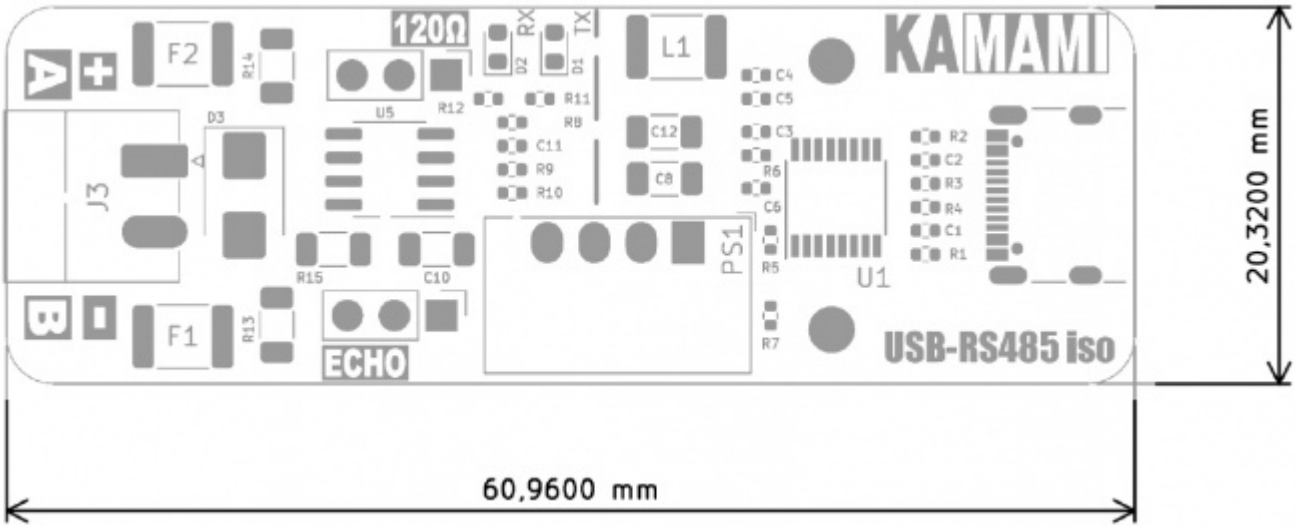


Sending/receiving signaling

The module signals the sending/receiving of data to/from the RS485 bus using miniature LED indicators, marked on the board as TX and RX, respectively.



Dimensions


120Ω
RX
TX
L1
KAMAMI
F2
F1
J3
U5
U1
PS1
ECHO
USB-RS485 iso
20,3200 mm
60,9600 mm

External links

- ST485 datasheet by ST
- FT230XS datasheet by FTDI *FTDI Drivers

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