KAMAMI

KAmod RS232H-ALL

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Źródło: https://wiki.kamamilabs.com/index.php?title=KAmod_RS232H-ALL

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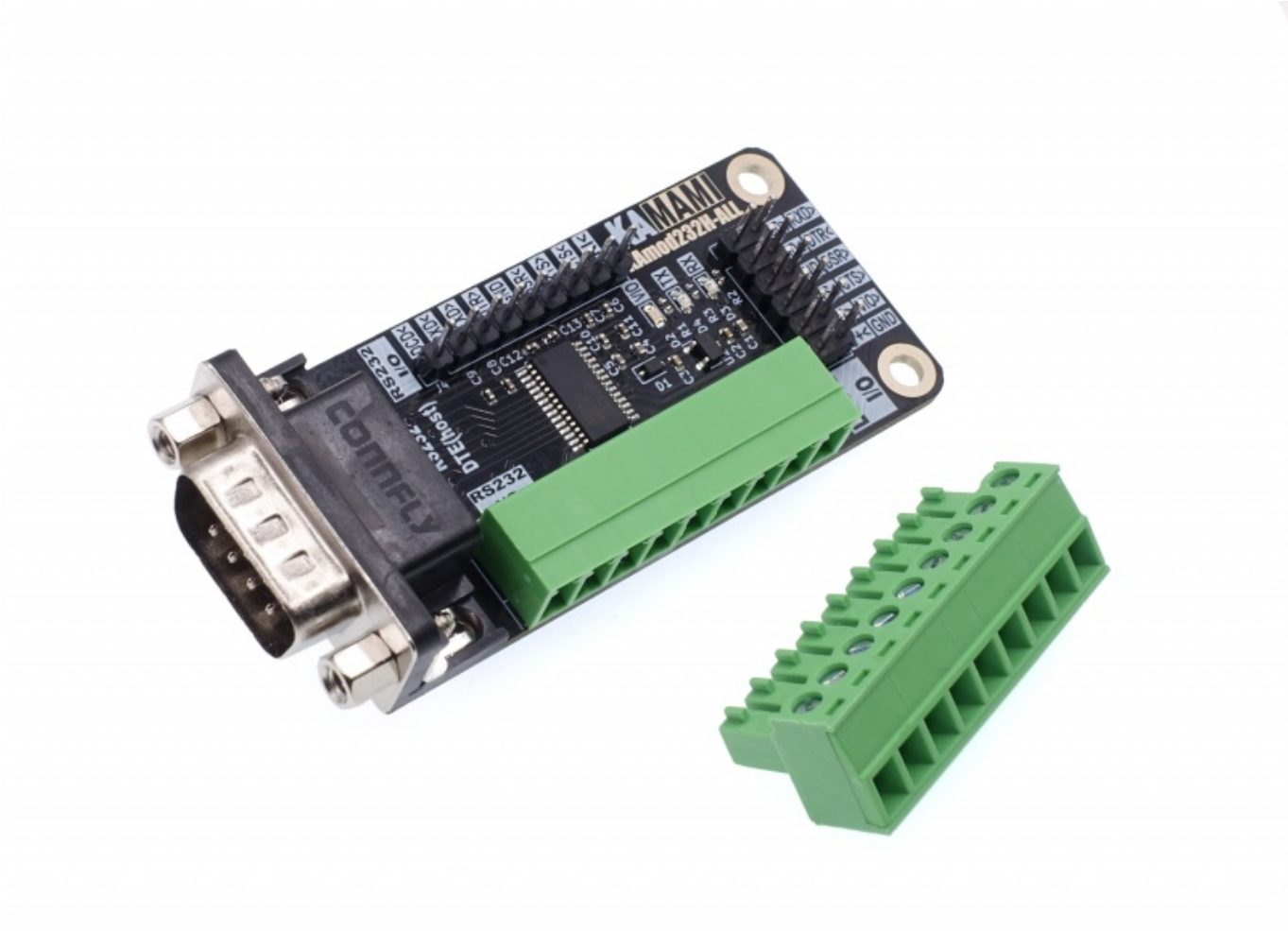
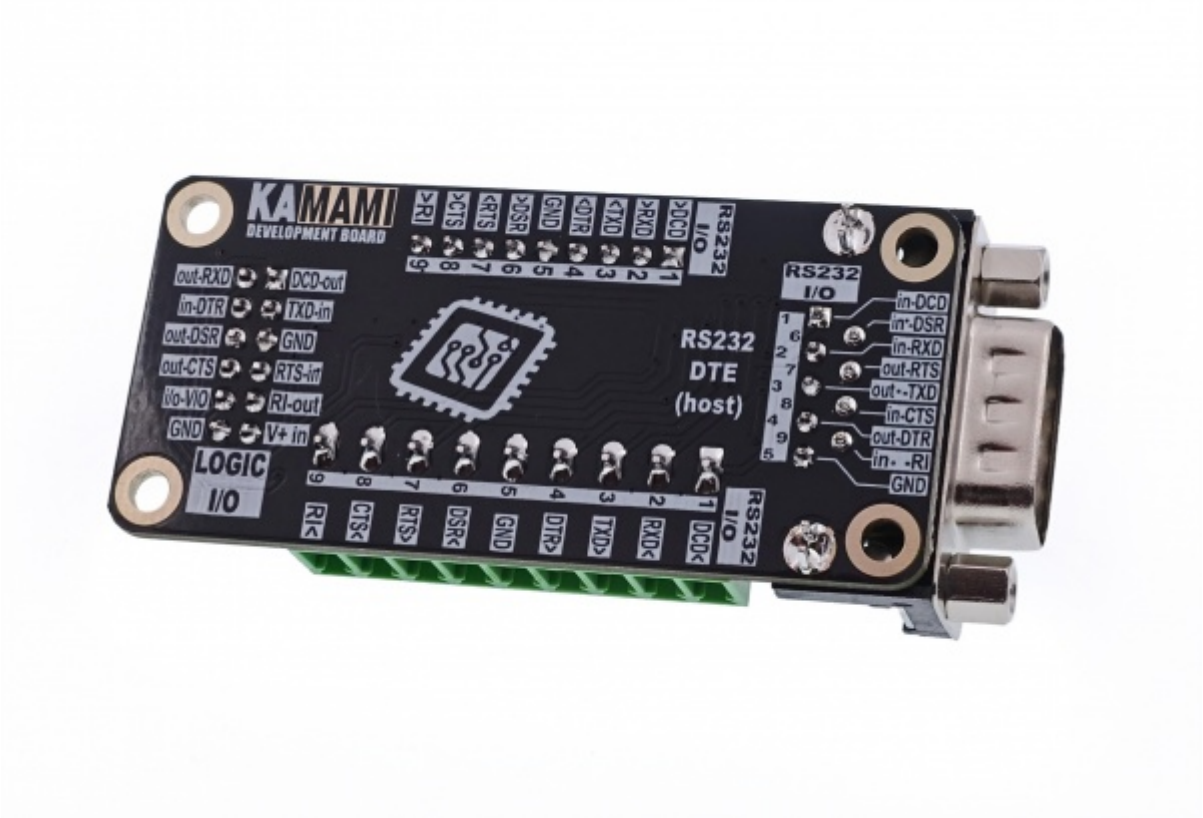
Description

KAmod RS232H-ALL is a converter of the RS232 standard to the TTL standard, which contains all the RS232 interface signals: RXD, TXD, DTR, DSR, RTS, CTS, DCD and RI. The direction of signal conversion is assigned in such a way that it corresponds to the DTE/Host type device (master device, TXD is the RS232 signal output, RXD is the RS232 signal input). The converter can operate at a voltage of 3...5.5 V on the TTL side. The board has a standard DB9 connector, a Phoenix MC 3.81 connector for easy connection of non-standard wiring, and 2.54 mm goldpins for easy connection to evaluation boards.





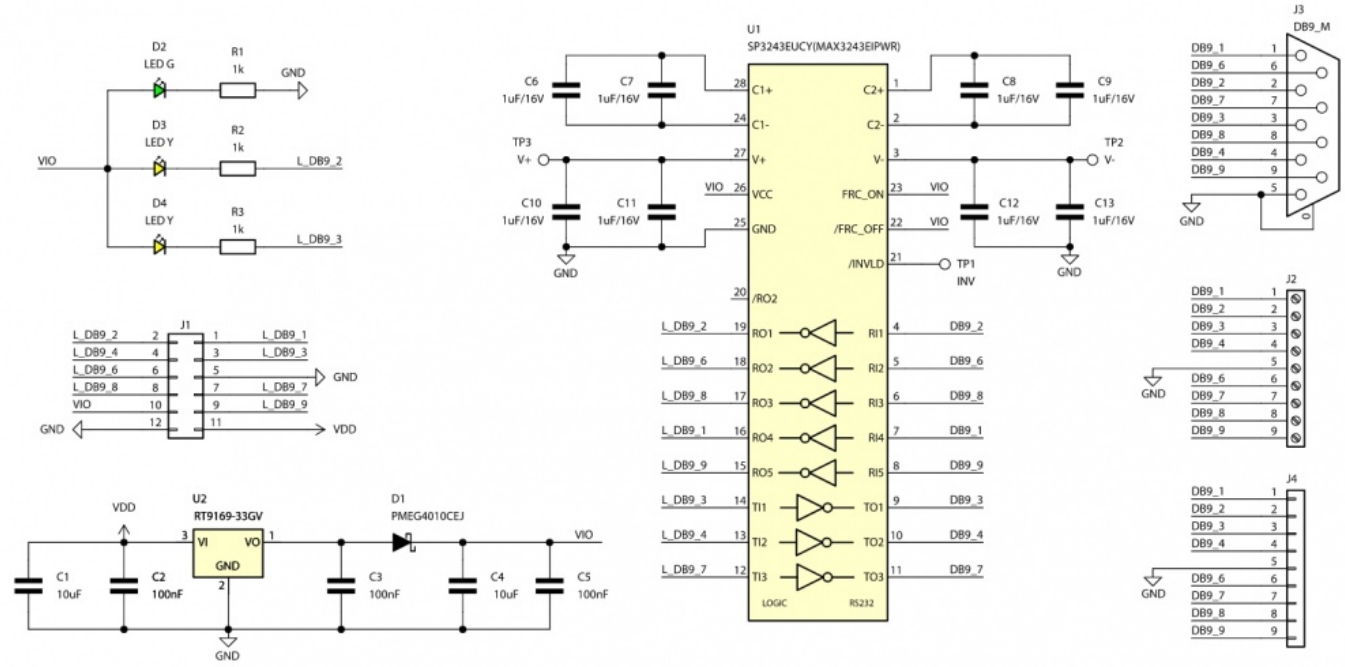
Basic parameters

- RS232 to TTL standard converter, containing all 8 signals
- Based on MAX3243/SP3243
- Voltage on TTL side 3...5.5 V
- Maximum transmission speed: 250 kbps
- ESD protection up to 15kV HBM on RS232 side
- Signal conversion direction assigned in such a way that it corresponds to the master device, type DTE/Host (TXD is RS232 output, RXD is RS232 input)
- Standard connector DB9 (D-SUB 9) male
- Phoenix MC 3.81 connector for easy connection of non-standard cabling on the RS232 side
- 2.54 mm goldpins on the RS232 side for easy connection to evaluation boards and measurements
- Power supply 3...5.5 V, approx. 20 mA
- Board dimensions 65x30 mm (72x30 with DB9 connector), height approx. 17 mm

Standard equipment

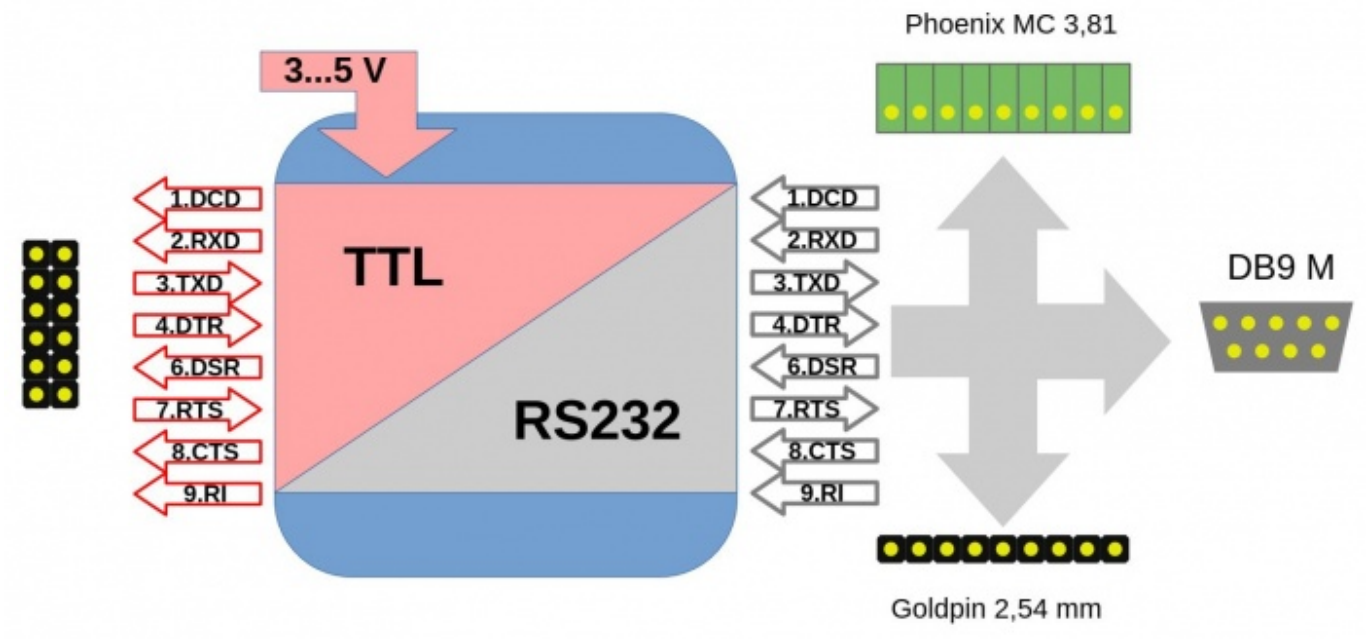
Code	Description
KAmod RS232H-ALL	Assembled and launched module

Electrical diagram

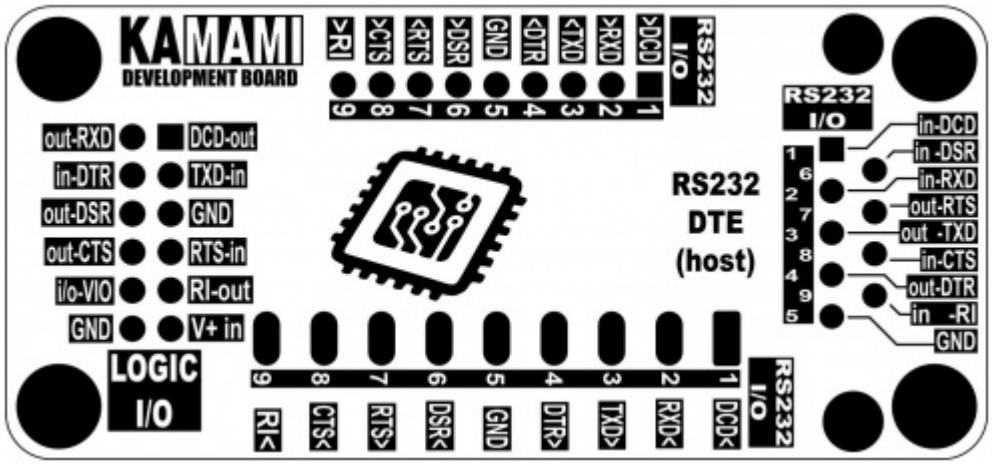


Functional diagram

The RS232 standard is used for digital communication in serial mode, and because in addition to the data transfer lines it contains lines for controlling and controlling communication, it provides a stable connection resistant to interference. The voltages on the RS232 interface lines have values from ±7 V to ±15 V, therefore connection to a classic TTL digital system, whose signals take values of 0/3.3 V or 0/5 V requires the use of an appropriate converter, such as KAmod RS232H-ALL. The direction of signal conversion for all 8 signals is assigned in such a way that it corresponds to the master device - DTE/Host. The functional diagram shows which signals act as inputs and which as outputs on the TTL and RS232 sides.



On the converter board, on the lower description layer, there are precise markings for each signal on each connector:

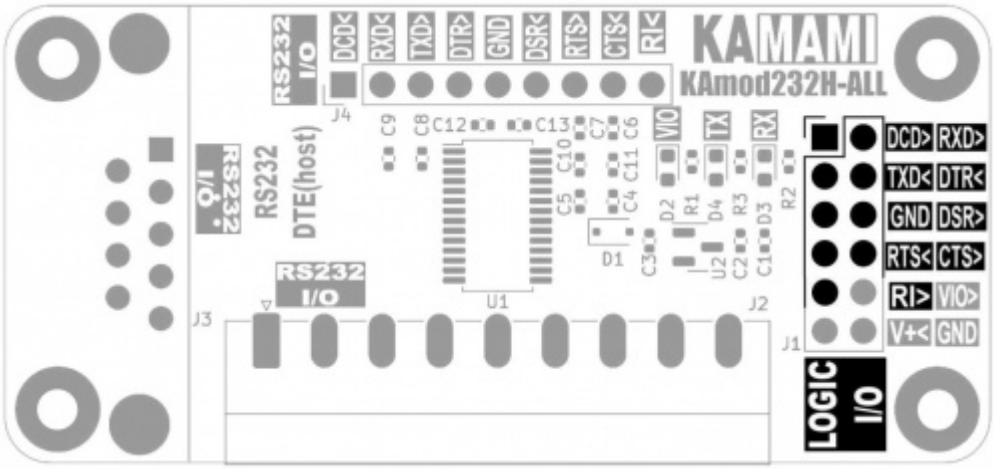


TTL connector (LOGIC I/O)

Connector	Function
LOGIC I/O 2x6 goldpin pins, 2.54 mm	• All RS232 interface signals adapted to the TTL standard are led out

The LOGIC I/O connector allows you to connect the KAmod RS232H-ALL converter with any digital system operating with a voltage of 3...5.5 V.
The functions of the individual pins are as follows:

- pin no. 1 - TTL output; DCD signal - Data Carrier Detect (signal detecting the carrier wave by the modem);
- pin no. 2 - TTL output; RXD signal - Receive Data Line (data stream received from RS232, sent to DTE/Host);
- pin no. 3 - TTL input; TXD signal – Transmit Data Line (data stream input from DTE/Host);
- pin no. 4 - TTL input; DTR signal – Data Terminal Ready (readiness of DTE/Host for further cooperation with DCE/Modem);
- pin no. 5 - ground, GND;
- pin no. 6 - TTL output; DSR signal – Data Set Ready (readiness of DCE/Modem for further cooperation with DTE/Host);
- pin no. 7 - TTL input; RTS signal – Request To Send (request to transmit data reported by DTE/Host);
- pin no. 8 - TTL output; CTS signal – Clear To Send (readiness to transmit reported by DCE/Modem - confirms receipt of RTS signal);
- pin no. 9 - TTL output; RI signal – Ring Indicator ("bell" signal).



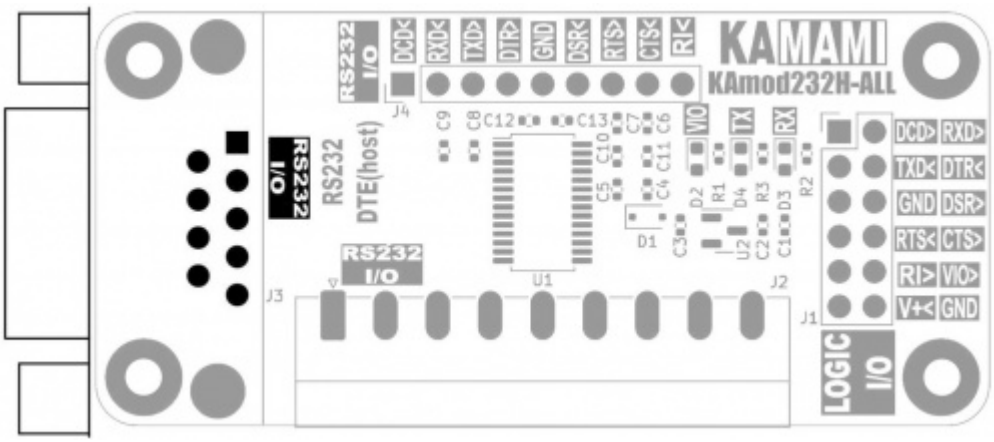
RS232 connector type DB9

Złącze	Funkcja
DB9 (D-SUB 9)	* Wyprowadzone wszystkie sygnały interfejsu RS232 w odpowiadającym mu standardzie napięciowym

The DB9 RS232 connector, also known as D-SUB 9, is a typical connector used to implement the RS232 interface. The DTE device, or master device (most often a PC), is equipped with a male DB9 connector. The KAmod RS232H-ALL converter also includes a male connector.

The functions of the individual pins are as follows:

- pin 1 - RS232 input; DCD - Data Carrier Detect signal (signal that the modem detects the carrier wave);
- pin 2 - RS232 input; RXD - Receive Data Line signal (received data stream, sent from the DCE/modem);
- pin 3 - RS232 output; TXD signal – Transmit Data Line (data stream from DTE/Host);
- pin no. 4 - RS232 output; DTR signal – Data Terminal Ready (readiness of DTE/Host for further cooperation with DCE/Modem);
- pin no. 5 - ground, GND;
- pin no. 6 - RS232 input; DSR signal – Data Set Ready (readiness of DCE/Modem for further cooperation with DTE/Host);
- pin no. 7 - RS232 output; RTS signal – Request To Send (request to transmit data reported by DTE/Host);
- pin no. 8 - RS232 input; CTS signal – Clear To Send (readiness to transmit reported by DCE/Modem - confirms receipt of RTS signal);
- pin no. 9 - RS232 input; RI signal – Ring Indicator ("bell" signal).



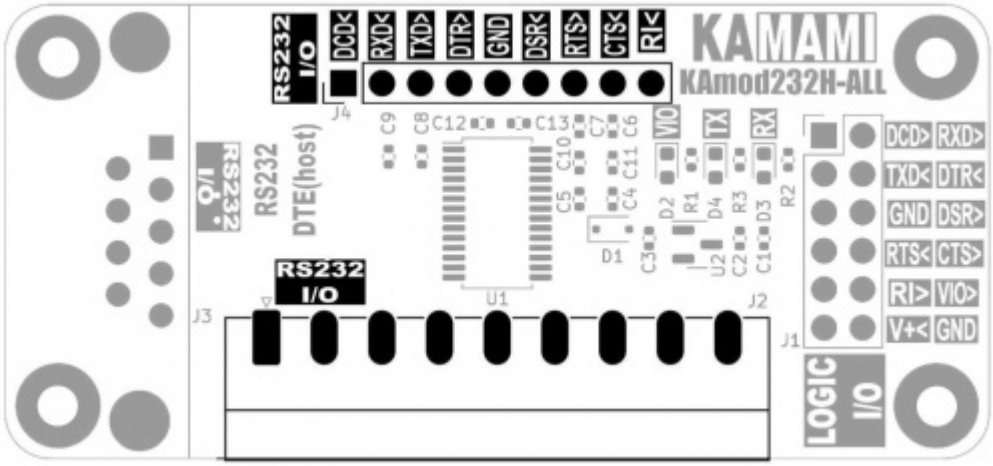
Additional RS232 connectors

Złącze	Funkcja
Phoenix MC 3,81 mm **Goldpin 1x9 2,54 mm**	• Wyprowadzone wszystkie sygnały interfejsu RS232 w odpowiadającym mu standardzie napięciowym

Additional connectors enable easy connection of the KAmod RS232H-ALL converter in non-standard solutions:

- Phoenix MC 3.81 mm connector enables easy connection of cables,
- Goldpin 1x9 2.54 mm connector facilitates connection of contact and evaluation boards.

The pin numbers of both connectors correspond to the pin numbers of the DB9 connector. Detailed markings can be found on the converter board.

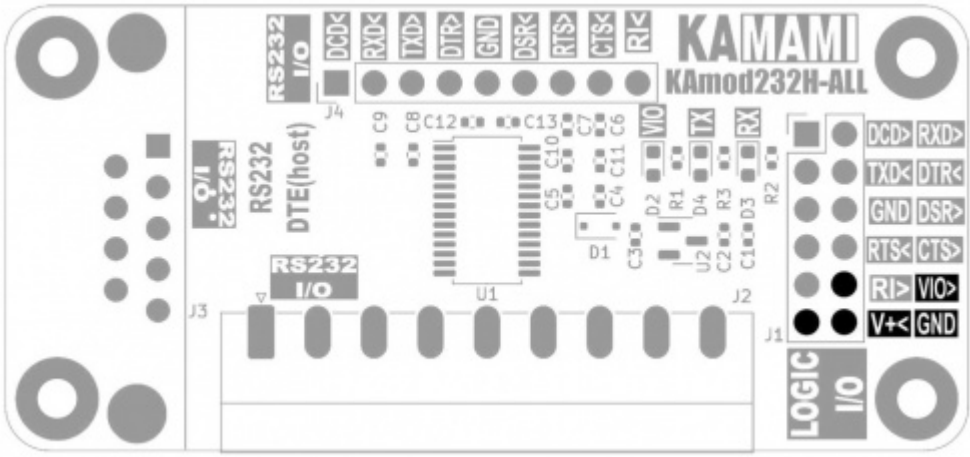


Power

Connector	Function
LOGIC I/O 2x6 goldpin pins, 2.54 mm	• 3...5.5 V power input • Optional 3 V power output

The LOGIC I/O connector contains pins that supply power to the KAmod RS232H-ALL converter

- pin no. 10 – VIO; voltage input from the range of 3...5.5 V, which will correspond to logical "1" for all signals on the LOGIC I/O connector;
- pin no. 11 – V+; allows you to connect a 4.5...5.5 V power supply, which goes to the 3 V voltage regulator built into the converter. The signals on the LOGIC I/O connector with a logical level of "1" will then have a voltage of 3 V, and a voltage of 3 V will be available on the VIO pin, with a current of up to 20 mA;
- pin no. 12 - ground, GND.

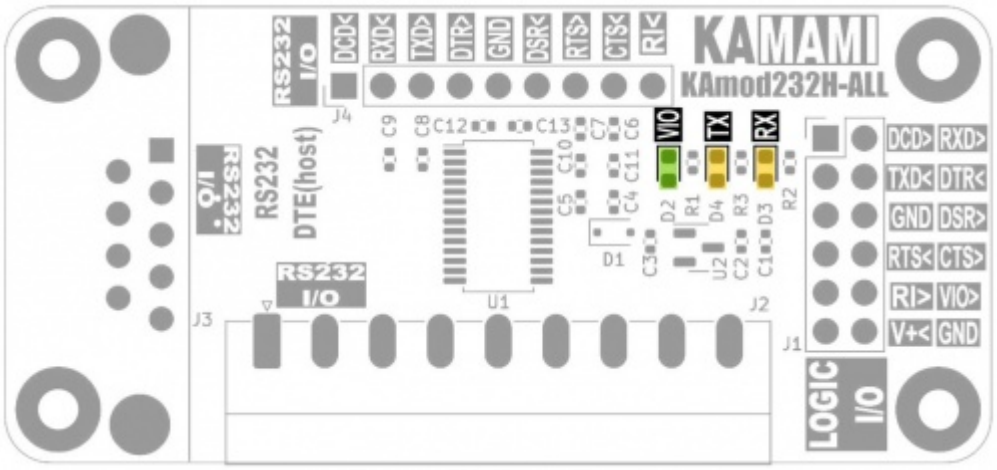


Power and communication signaling

TYPE	Function
VIO	• VIO – signaling correct power supply
TX	• TX – signaling data transmission to the converter
RX	• RX – signaling data reception from RS232

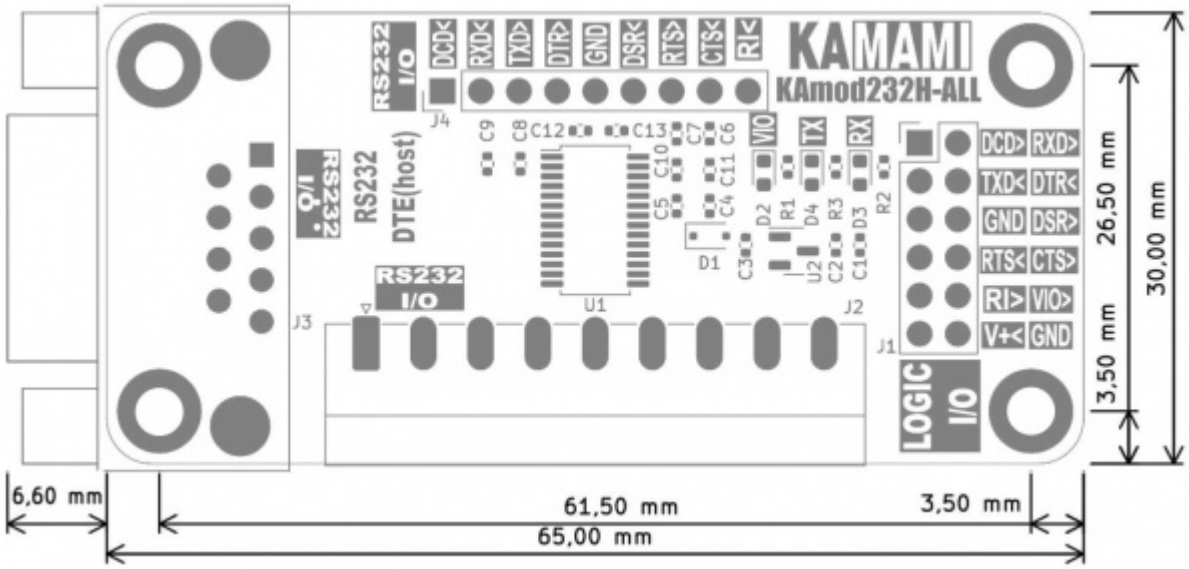
The LED marked **VIO** indicates the presence of the converter's power supply voltage. In the case of connecting a 5 V power supply to the V+ contact, the diode also indicates the operation of the 3 V voltage regulator.

The **TX** and **RX** diodes flash to indicate the occurrence of active states on the data lines to the converter (TXD) and from the converter (RXD). Flashing diodes do not guarantee that the data is in the correct form. The active state on digital inputs/outputs is the logical state "L", i.e. voltage close to 0 V.



Dimensions

The dimensions of the KAmod RS232H-ALL converter are 65x30 mm and 72x31 with the DB9 connector). The height of the module is approx. 17 mm. The diameter of the mounting holes is 3.2 mm and their arrangement is shown in the drawing.



Links

- SP3243 datasheet
- MAX3243 datasheet

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