

RS485 8 Click



PID: MIKROE-5752

RS485 8 Click is a compact add-on board that enables communication over an RS485 network. This board features the [THVD1426](#), an RS485 transceiver with auto-direction control and ESD protection from [Texas Instruments](#). The THVD1426 offers bus protection for contact discharge, air gap discharge, fast transient burst, and +/-16V bus fault protection. With its high immunity to IEC Contact Discharge ESD events, the bus pins require no additional system-level protection components. The transceiver works in half-duplex mode with data rates of up to 12Mbps. Additionally, the chip is known for its low power consumption and glitch-free power-up/power-down functionality, which enables hot plug-in capability. This Click board™ makes the perfect solution for the development of industrial and multi-point applications over long cable runs.

How does it work?

RS485 8 Click is based on the THVD1426, an RS485 transceiver with auto-direction control and ESD protection from Texas Instruments. The THVD1426 has one termination resistor over the A/B that can be enabled over the TERM jumper. The RS485 8 Click comes with the SM712, a 600W asymmetrical TVS diode array from Littelfuse, along with the termination resistor. This diode array is designed to protect the RS485 applications with asymmetrical working voltages from -7V up to 12V, thus making it safe from damage due to electrostatic discharge, fast electrical transients, and lightning-induced surges. Both the diode array and the termination resistor are placed near the RS485 screw terminal, with which you can connect the RS485 8 Click to your application's other end.

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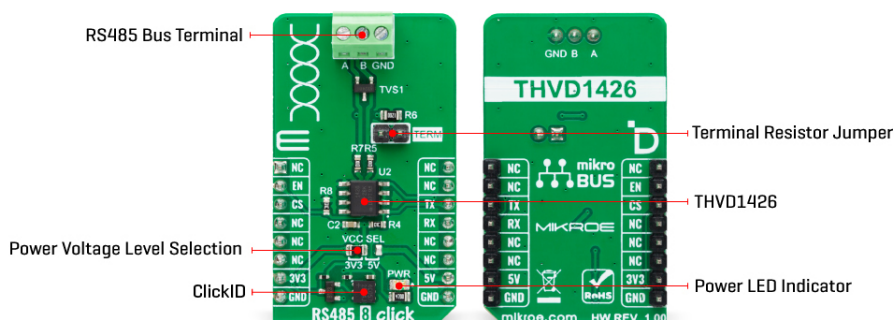
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ISO 27001: 2013 certification of informational security management system.
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RS485 8 Click uses the UART interface to communicate with the host MCU with commonly used UART RX and TX pins. The auto-direction mode on the RS485 8 Click is set by default and disabled with a pull-down resistor. It can be enabled with the logic HIGH state on the EN pin of the mikroBUS™ socket. You can control the driver and receiver using the data input pin RX by enabling the transceiver.

This Click board™ can operate with either 3.3V or 5V logic voltage levels selected via the VCC SEL jumper. This way, both 3.3V and 5V capable MCUs can use the communication lines properly. However, the Click board™ comes equipped with a library containing easy-to-use functions and an example code that can be used, as a reference, for further development.

Specifications

Type	RS485
Applications	Can be used for the development of industrial and multi-point applications over long cable runs
On-board modules	THVD1426 - an RS485 transceiver with auto-direction control and ESD protection from Texas Instruments
Key Features	Highly flexible, selectable power and logic voltage levels, half-duplex mode, optional 120Ω termination resistor jumper on bus pins, 600W asymmetrical diode array on bus pins, bus I/O protection, low power consumption, glitch-free power-up/power-down for hot plug-in capability, protection features, and more
Interface	UART
Feature	ClickID
Compatibility	mikroBUS™
Click board size	M (42.9 x 25.4 mm)
Input Voltage	3.3V or 5V

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Pinout diagram

This table shows how the pinout on RS485 8 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin					Pin	Notes
	NC	1	AN	PWM	16	NC	
Enable	EN	2	RST	INT	15	NC	
ID COMM	CS	3	CS	RX	14	TX	UART TX
	NC	4	SCK	TX	13	RX	UART RX
	NC	5	MISO	SCL	12	NC	
	NC	6	MOSI	SDA	11	NC	
Power Supply	3.3V	7	3.3V	5V	10	5V	Power Supply
Ground	GND	8	GND	GND	9	GND	Ground

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
JP1	VCC SEL	Left	Power/Logic Voltage Level Selection 3V3/5V: Left position 3V3, Right position 5V
J1	TERM	Populated	Termination Resistor Jumper

RS485 8 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3	-	5	V
Data Rate	-	-	12	Mbps
ESD Protection	-	±12	-	kV

Software Support

We provide a library for the RS485 8 Click as well as a demo application (example), developed using MIKROE [compilers](#). The demo can run on all the main MIKROE [development boards](#).

Package can be downloaded/installed directly from NECTO Studio Package Manager (recommended), downloaded from our [LibStock™](#) or found on [Mikroe github account](#).

Library Description

This library contains API for RS485 8 Click driver.

Key functions

- rs4858_generic_write RS485 8 data writing function.
- rs4858_generic_read RS485 8 data reading function.

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- rs485_enable_device RS485 8 enable the device function.

Example Description

This example reads and processes data from RS485 8 clicks. The library also includes a function for enabling/disabling the receiver or driver and data writing or reading.

The full application code, and ready to use projects can be installed directly from NECTO Studio Package Manager (recommended), downloaded from our [LibStock™](#) or found on [Mikroe github account](#).

Other Mikroe Libraries used in the example:

- MikroSDK.Board
- MikroSDK.Log
- Click.RS4858

Additional notes and informations

Depending on the development board you are using, you may need [USB UART click](#), [USB UART 2 Click](#) or [RS232 Click](#) to connect to your PC, for development systems with no UART to USB interface available on the board. UART terminal is available in all MIKROE [compilers](#).

mikroSDK

This Click board™ is supported with [mikroSDK](#) - MIKROE Software Development Kit. To ensure proper operation of mikroSDK compliant Click board™ demo applications, mikroSDK should be downloaded from the [LibStock](#) and installed for the compiler you are using.

For more information about mikroSDK, visit the [official page](#).

Resources

[mikroBUS™](#)

[mikroSDK](#)

[Click board™ Catalog](#)

[Click boards™](#)

[ClickID](#)

Downloads

[RS485 8 click example on Libstock](#)

[THVD1426 datasheet](#)

[RS485 8 click 2D and 3D files](#)

[RS485 8 click schematic](#)

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