

CAN Isolator 3 Click



PID: MIKROE-5785

CAN Isolator 3 Click is a compact add-on board that provides isolated CAN communication. This board features the [MAX14882](#), an isolated CAN transceiver with an integrated transformer driver from [Analog Devices](#). It is galvanically isolated between the device's CAN-protocol controller side (TDX, RDX) and the physical wires of the CAN network (CANH, CANL) cable-side/bus-side of the transceiver. The MAX14882 provides up to 5kVRMS of galvanic isolation for 60 seconds and a continuous working voltage of up to 848VRMS while operating at the maximum high-speed CAN data rate of 1Mbps. Also, one of the most essential features of this board is the possibility of its independent generation of isolated voltage. This Click board™ makes the perfect solution for the development of automation, industrial controls, HVAC, switching gears, and more.

CAN Isolator 3 Click is supported by a [mikroSDK](#) compliant library, which includes functions that simplify software development. This [Click board™](#) comes as a fully tested product, ready to be used on a system equipped with the [mikroBUS™](#) socket.

How does it work?

CAN Isolator 3 Click is based on MAX14882, an isolated CAN transceiver with an integrated transformer driver from Analog Devices. Its features include a wide supply voltage range for the CAN controller interface (3V – 5V), field bus polarity control (POL), an integrated transformer driver for power transfer to the bus side, and an integrated LDO for powering the CAN bus side. The CAN bus controller exceeds the ISO 11898 specifications requirement of -2V to +7V with $\pm 25V$ receiver input common-mode range. Additionally, the CANH and CANL IOs are fault tolerant up to $\pm 54V$ and protected from electronic discharge (ESD) up to $\pm 15KV$ to GNDB on the bus side.

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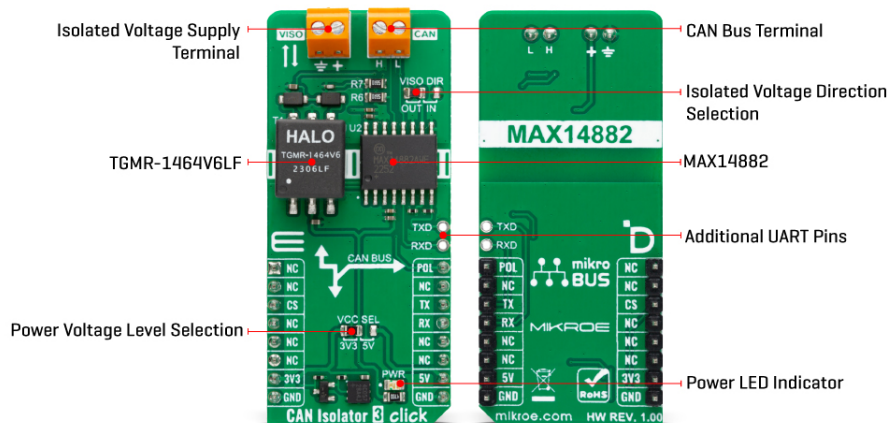
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ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
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ISO 9001: 2015 certification of quality management system (QMS).



CAN Isolator 3 Click is equipped with CAN and VISO terminals, where the VISO terminal can be a bus-side power input or an LDO power output terminal. If used as an LDO power output, you can count up to 5V of VDDDB voltage on this terminal. You can select the input/output direction over the VISO DIR jumper, where the isolated voltage as output (OUT) is set by default. In this default configuration, the reinforced insulation module can supply to the VISO terminal 3.3V or 5V, depending on the selected voltage on the VCC SEL jumper, as the 3.3V is selected by default.

CAN Isolator 3 Click uses a standard UART serial interface to communicate with the host MCU over commonly used UART RX and TX pins. The RX and TX are also available on a separate header for testing purposes. The polarity of the CAN controller can be set over the POL pin with a LOW logic state for normal CANH and CANL operation and HIGH to swap the functions of the CANH and CANL.

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. Also, this 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	CAN
Applications	Can be used for the development of automation, industrial controls, HVAC, switching gears, and more
On-board modules	MAX14882 - isolated CAN transceiver with an integrated transformer driver from Analog Devices
Key Features	Good galvanic isolation, wide supply voltage range for CAN controller interface, field bus polarity control, integrated transformer driver for power transfer to Bus-side, integrated LDO for powering CAN Bus-side, fault protection, VISO terminal can be used as a Bus-side power input or an LDO power output, and more
Interface	UART

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ClickID	Yes
Compatibility	mikroBUS™
Click board size	L (57.15 x 25.4 mm)
Input Voltage	3.3V or 5V

Pinout diagram

This table shows how the pinout on CAN Isolator 3 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikroBUS				Pin	Notes
	NC	1	AN	PWM	16	POL	CAN Polarity
	NC	2	RST	INT	15	NC	
	NC	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
JP2	VISO DIR	Left	Isolated Voltage Direction Selection OUT/IN: Left position OUT, Right position IN

CAN Isolator 3 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3	-	5	V
Insulation Barrier	-	-	5000	V _{rms}
Maximum Duration of Isolation	-	-	60	sec
Data Rate	-	-	1	Mbps
ESD Protection (HBM)	-	±15	-	kV

Software Support

We provide a library for the CAN Isolator 3 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](#).

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Library Description

This library contains API for CAN Isolator 3 Click driver.

Key functions

- canisolator3_generic_write CAN Isolator 3 data writing function.
- canisolator3_generic_read CAN Isolator 3 data reading function.
- canisolator3_set_pol_pin CAN Isolator 3 set polarity function.

Example Description

This example writes and reads and processes data from CAN Isolator 3 Click. The library also includes a function for selection of the output polarity.

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.CANIsolator3

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](#)

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Downloads

[CAN Isolator 3 click example on Libstock](#)

[TGMR-1464V6LF datasheet](#)

[MAX14882 datasheet](#)

[CAN Isolator 3 Click schematic](#)

[CAN Isolator 3 click 2D and 3D files](#)

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