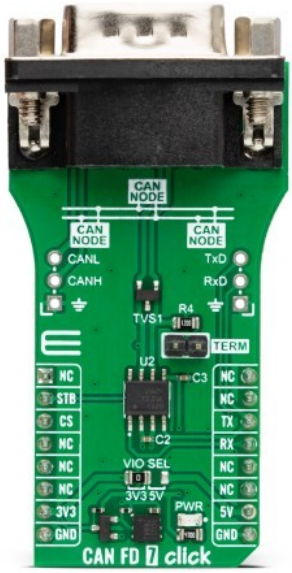
MIKROELEKTRONIKA D.O.O, Batajnički drum 23, 11000 Belgrade, Serbia
VAT: SR105917343 Registration No. 20490918
Phone: + 381 11 78 57 600 Fax: + 381 11 63 09 644 E-mail: office@mikroe.com
www.mikroe.com

# CAN FD 7 Click







PID: MIKROE-5888

**CAN FD 7 Click** is a compact add-on board that contains a CAN transceiver that supports both CAN and CAN FD protocols. This board features the TCAN1462, an automotive fault-protected CAN FD transceiver from Texas Instruments. It is a high-speed Controller Area Network (CAN) transceiver that meets the ISO 11898-2:2016 high-speed CAN specification and the CiA 601-4 signal improvement capability (SIC) specification. The CAN FD (flexible data rate) with SIC feature allows the applications to operate at 2Mbps, 5Mbps, or much higher in large networks with multiple unterminated stubs. This Click board™ makes the perfect solution for the development of automotive gateways, advanced driver assistant systems (ADAS), body electronics and lighting, hybrid, electric and powertrain systems, and more.

CAN FD 7 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.

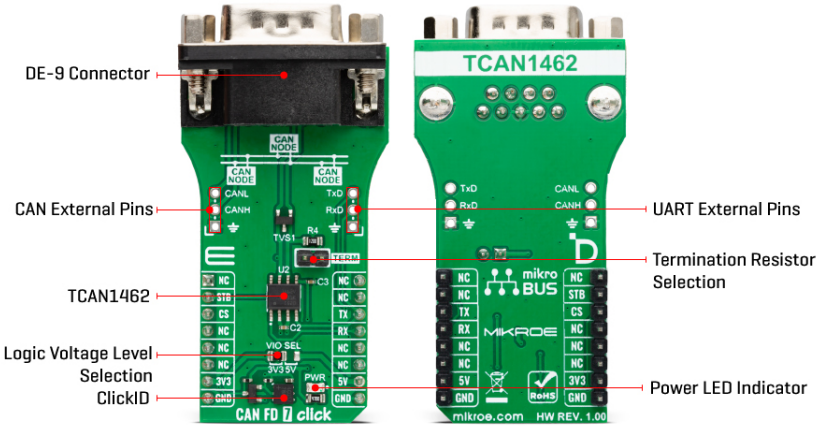
## How does it work?

CAN FD 7 Click is based on the TCAN1462, an automotive fault-protected CAN FD transceiver from Texas Instruments. The transceiver is data rate agnostic, making it backward compatible for supporting classical CAN applications while also supporting CAN FD networks up to 8 Mbps. It actively improves the bus signal by reducing ringing effects in complex topologies, enabling higher throughput. In addition, the transceiver has a much tighter bit of timing symmetry, which provides a larger timing window to sample the correct bit and enables error-free communication in large complex star networks where ringing and bit distortion are inherent. It also has a passive behavior when unpowered and supports a hot plug, with power up or down glitch-free operation. As for protection, the transceiver features IEC ESD protection, under-

Mikroe produces entire development toolchains for all major microcontroller architectures.
Committed to excellency, we are dedicated to helping engineers bring the project development up to speed and achieve outstanding results.
ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.
ISO 9001: 2015 certification of quality management system (QMS).

MIKROELEKTRONIKA D.O.O, Batajnički drum 23, 11000 Belgrade, Serbia
VAT: SR105917343 Registration No. 20490918
Phone: + 381 11 78 57 600 Fax: + 381 11 63 09 644 E-mail: office@mikroe.com
www.mikroe.com

voltage, thermal shutdown, TXD dominant state timeout, and more.




This Click board™ comes equipped with the industry-standard DE-9 connector, making interfacing with the CAN bus simple and easy. Besides, the user can connect the CAN signals directly through the CAN External header located on the board's left edge (unpopulated by default). The same goes for the UART signals over the TXD/RXD header. The termination 120Ω resistor labeled TERM allows CAN termination to the bus, which you can disable.

CAN FD 7 Click uses a standard UART interface to communicate with the host MCU with commonly used UART RX and TX pins. Besides the normal mode, the transceiver has standby mode support, which puts the transceiver in ultra-low current consumption mode, which, upon receiving a valid wake-up pattern (WUP) on the CAN bus, signals to the microcontroller through the RXD pin. The MCU can then put the device into normal mode using the standby mode STB input pin.

This Click board™ can operate with either 3.3V or 5V logic voltage levels selected via the VIO 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 automotive gateways, advanced driver assistant systems (ADAS), body electronics and lighting, hybrid, electric, and power-train systems, and more |
| On-board modules | TCAN1462 - automotive fault-protected CAN FD transceiver from Texas Instruments |
| Key Features | CAN FD transceiver, meets the requirements of ISO 11898-2:2016, and CiA 601-4 standards, high data rate in large networks with multiple unterminated stubs, standby mode supporting the remote wake-up request, passive behavior when unpowered, several |

Mikroe produces entire development toolchains for all major microcontroller architectures.
Committed to excellency, we are dedicated to helping engineers bring the project development up to speed and achieve outstanding results.

ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.

ISO 9001: 2015 certification of quality management system (QMS).

MIKROELEKTRONIKA D.O.O, Batajnički drum 23, 11000 Belgrade, Serbia
VAT: SR105917343 Registration No. 20490918
Phone: + 381 11 78 57 600 Fax: + 381 11 63 09 644 E-mail: office@mikroe.com
www.mikroe.com

| | |
|---|---|
| | protection features, and more |
| Interface | UART |
| 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 FD 7 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 | NC | |
| Standby Mode Control | **STB** | 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 | VIO SEL | Left | Logic Level Voltage Selection 3V3/5V: Left position 3V3, Right position 5V |
| J1 | VIO SEL | TERM | Unpopulated Termination Resistor Selection |

## CAN FD 7 Click electrical specifications

| Description | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Supply Voltage | - | 5 | - | V |
| CAN FD Data Rate | - | - | 8 | Mbps |

## Software Support

We provide a library for the CAN FD 7 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

Mikroe produces entire development toolchains for all major microcontroller architectures.
Committed to excellency, we are dedicated to helping engineers bring the project development up to speed and achieve outstanding results.

ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.

ISO 9001: 2015 certification of quality management system (QMS).

MIKROELEKTRONIKA D.O.O, Batajnički drum 23, 11000 Belgrade, Serbia
VAT: SR105917343 Registration No. 20490918
Phone: + 381 11 78 57 600 Fax: + 381 11 63 09 644 E-mail: office@mikroe.com
www.mikroe.com

This library contains API for CAN FD 7 Click driver.

Key functions

- canfd7_generic_write CAN FD 7 data writing function.
- canfd7_generic_read CAN FD 7 data reading function.
- canfd7_set_stb_pin CAN FD 7 set STB pin function.

**Example Description**

This example writes and reads and processes data from CAN FD 7 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.CANFD7

**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

Mikroe produces entire development toolchains for all major microcontroller architectures.
Committed to excellency, we are dedicated to helping engineers bring the project development up to speed and achieve outstanding results.

ISOQAR REGISTERED
UKAS MANAGEMENT SYSTEMS
ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.
TÜV SÜD ISO 9001
ISO 9001: 2015 certification of quality management system (QMS).

MIKROELEKTRONIKA D.O.O, Batajnički drum 23, 11000 Belgrade, Serbia
VAT: SR105917343 Registration No. 20490918
Phone: + 381 11 78 57 600 Fax: + 381 11 63 09 644 E-mail: office@mikroe.com
www.mikroe.com

CAN FD 7 click example on Libstock

TCAN1462-Q1 datasheet

CAN FD 7 click 2D and 3D files

CAN FD 7 click schematic

Mikroe produces entire development toolchains for all major microcontroller architectures.
Committed to excellency, we are dedicated to helping engineers bring the project development up to speed and achieve outstanding results.

ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.

ISO 9001: 2015 certification of quality management system (QMS).