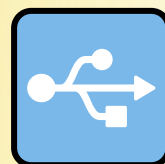# ISO232C
Isolated USB to RS232 Converter

Made for RS232

The fastest isolated converter on market with active outputs: 1 MBit guaranteed!

isolating USB to RS232

Active ±15mA outputs
Short-circuit-proof

isolating • reliable • safe

The RS232 converter for rough environments

Solid and safe with isolation
By its high isolating strength it is especially recommended for critical and harsh environments with potential shift issues.
It decouples your valuable PC from the connected device and protects it against damages caused by ground loops, voltage and current spikes.
No more damages due to defective devices!

Informative
Two bicolor LEDs gives excellent help for easier troubleshooting. Active levels at any pin are shown in blue and dynamic data transfer additionally in red. While the TXD LED cares for the output lines the RXD LED does the same for the inputs. In this way even an unconnected or inactive device can be detected.

Featuring FTDI FT232R processor
By integrating a FT232R chip the converter offers an unique USB serial number for COM Port assignment, parallel read/write of the signal lines like an I/O port (5 inputs, 3 outputs) via bitbang mode and adjustment of non-standard bit rates to realize unusual bit rates.

Recommended tool CleverTerm
CleverTerm is a free terminal program for the serial communication and provides everything you need to communicate via RS232.
CleverTerm supports even non-standardized bit rates and offers extensive input (ascii, hex, mixed) and transmission modes.
It is expandable by own user interfaces to realize automatic data acquisition, data display and repetitive outputs.

Product Features

- High isolation strength
- Data rates up to 1 MBit by high quality line driver/receiver
- All RS232 lines isolated
- Active output by integrated energy transfer
- Short circuit proof and electrostatic protection
- Provides non-standard bit rates
- Two bicolor LEDs for active and dynamic lines state indication
- Rugged housing with UNC screw nuts (PC compatible)
- Supported driver by Windows and Linux
- Made in Germany, three years warranty

Run it on your favorite OS - It's your choice!

Scan/click for this leaflet

Scan/click for CleverTerm

Technical changes and improvements can be done without prior notice.

Windows

1

Automatical driver installation

1. Connect your PC with the Internet.
2. Close all open applications.
3. Plug in the ISO232C converter.
4. Windows 7,8/8.1, 10, 11
   The ISO232C FTDI driver is downloaded and applied automatically.

Manual driver installation

1. Get the driver from the IFTOOLS page.
2. Copy it to the PC with the ISO232C.
3. Execute the setup driver program.
4. Plug in the ISO232C converter.

Alternatively you can obtain the VCP driver from the FTDI site: https://ftdichip.com/drivers/

scan/click for IFTOOLS driver page

Linux

2

Driver is supported by kernel

1. Disconnect all other USB to Serial converters
2. Connect the ISO232C.
   The driver module is loaded automatically by the kernel.
3. Check your device permissions.
   Your user account must be group member of the device group, usually dialout or uccp, see right side.

```
~$ ls -l /dev/ttyUSB*
crw-rw---- 1 root dialout 188, 0 Sep 27 09:57 /dev/ttyUSB0
crw-rw---- 1 root dialout 188, 1 Sep 27 11:48 /dev/ttyUSB1
~$ groups
YOUR_USER_NAME cdrom sudo dip plugdev lpadmin sambashare
~$ sudo addgroup YOUR_USER_NAME dialout
```

1. Open a terminal and input: ls -l /dev/ttyUSB*
2. Read the group of the listed device(s), here dialout
3. Check your group memberships by input: groups
4. If your are not member of the device group, input:
   sudo addgroup YOUR_USER_NAME dialout
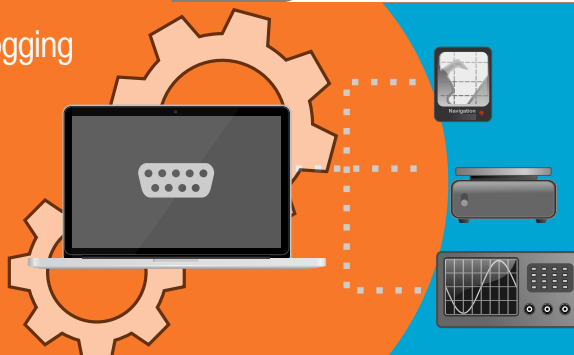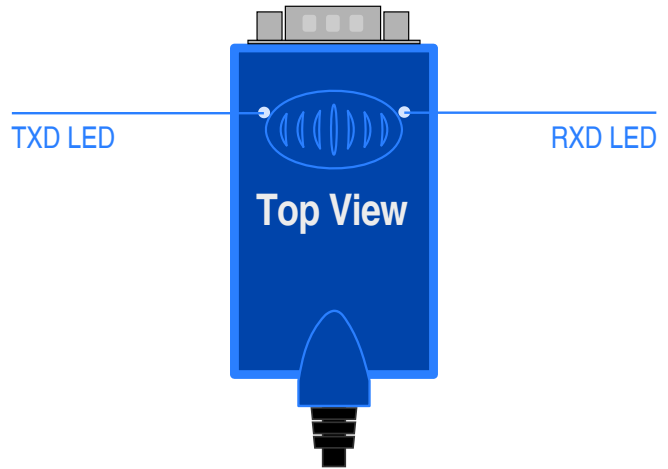5. Logout and login and check your groups again

Windows   # Linux

3

communicating • testing • developing • logging

click/scan for free serial port tools

Technical changes and improvements can be done without prior notice.

ISO232C
Isolated USB to RS232 Converter

Converter
Operation

Made for
RS232

TXD	Meaning
⬤ (grey)	Converter offline or in standby, no active outputs
⬤ (blue)	Converter powered, all outputs pins 3,4,7 active
◑ (blue/pink)	Additional active data transmission on TXD, pin 3

RXD	Meaning
⬤ (grey)	Converter offline/standby, no signal on inputs
⬤ (blue)	Active signal at any of the pins 1,2,6,8,9
◑ (blue/pink)	Additional receiving data on RXD, pin 2

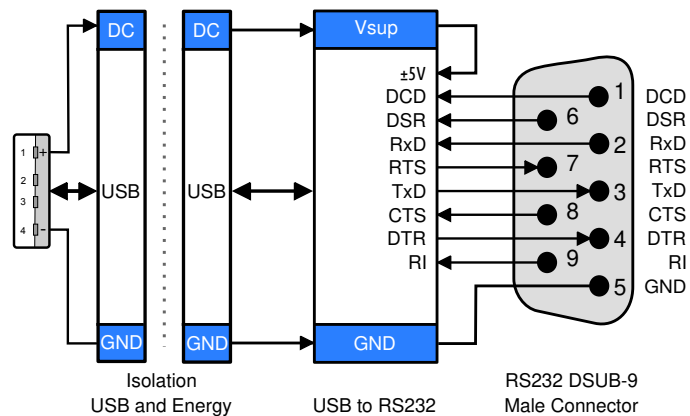TXD LED

Top View

RXD LED

Connection and isolation schematic

Isolation takes place on the USB side, including a power transmission to the RS232 side. And this has a big benefit: The converter behaves like any not isolated RS232 port, all output signals are supplied directly from the USB side via an energy converter and work as expected. An additional power supply for output signals is not necessary!

☞ In contrast to an isolated RS232 to RS232 converter without additional power supply the ISO232C offers full isolation and power for ALL lines - essential when using RTS and DTR.

DC | DC | Vsup
±5V
USB | USB | DCD — 1 DCD
DSR — 6 DSR
RxD — 2 RxD
RTS — 7 RTS
TxD — 3 TxD
CTS — 8 CTS
DTR — 4 DTR
RI — 9 RI
5 GND
GND | GND | GND

Isolation
USB and Energy

USB to RS232

RS232 DSUB-9
Male Connector

Unusual bit rates and baudrate-alias

The ISO232C offers even unusual bit rates - provided the program used supports such. Applications supporting only standard rates can be customized with the free IFTOOLS Baudrate-Aliaser tool. E.g. to turn a selected 38400 in a real 500000 bps, see example on the right.
How can you use this advantage for your own applications?

1. Use a tool supporting unusual bit rates
like the IFTOOLS CleverTerm or luactb Lua interpreter

2. For applications which cannot be changed
use the IFTOOLS baud rate aliasing tool to replace e.g. 38400 in the ISO232C with your desired rate. Then select 38400 in your application connected with the ISO232C to run it with the new bit rate.
The Baudrate Aliaser is free and available for Windows® and Linux.
More information and download click/scan the qrcode on the right.

3. Run older programs with higher bit rates
here too the ISO232C in combination with the Baudrate-Aliaser helps you to connect RS232 devices providing higher bit rates with your favoured or indispensable application.

Baudrate-Aliaser
for Windows® & Linux

Supported converters:
ISO232C
ISO485
ISO485-BOX

or such with FTDI chip:
FT232R, FT232RL
FT2232, FT232B

Visit download page

IFTOOLS Baudrate Aliaser for FTDI Chips
File Edit Help

☑ Save   /dev/ttyUSB0*FTDI*AG0   Undo Restore

This program uses the internal setserial command to change the clock divisor for the 38400 bit rate.

Built-in bitrate to be replaced	38400
New bitrate (alias)	250000
New clock divisor	96
Resulting bitrate	250000
Deviation (%)	0.00%
Create udev rule	☑ Yes

Please note!
The new bitrate (alia...
New bitrate = 2400...
The resulting new bi...
from your required r...

IFTOOLS Baudrate Aliaser for FTDI Chips
File Edit Help

☑ Save   COM4*FTDI*AG0KXD3E   Undo Restore

	Baudrate bps	Clock Divisor	Deviation (%)	Hexdata Sequence
HEADER				
300	300	10000	0.00%	10 27 00 00
600	600	5000	0.00%	88 13 00 00
1200	1200	2500	0.00%	C4 09 00 00
2400	2400	1250	0.00%	E2 04 00 00
4800	4800	625	0.00%	71 02 00 00
9600	9600	312.5	0.00%	38 41 00 00
19200	19200	156.25	0.00%	9C 80 00 00
38400	500000	6	0.00%	06 00 00 00
57600	57692	52	0.16%	34 00 00 00
115200	115384	26	0.16%	1A 00 00 00
230400	230769	13	0.16%	0D 00 00 00
460800	461538	6.5	0.16%	06 40 00 00
921600	923076	3.25	0.16%	03 80 00 00
RESERVED				
14400	14405	208.25	0.04%	D0 80 00 00

```
00000000   11 00 3F 3F 10 27 00 00 88 13 00 00 C4 09 00 00
00000010   E2 04 00 00 71 02 00 00 38 41 00 00 9C 80 00 00
00000020   06 00 00 00 34 00 00 00 1A 00 00 00 0D 00 00 00
00000030   06 40 00 00 03 80 00 00 00 00 00 00 D0 80 00 00
00000040
```

FTDI   AG0KXD3E

Technical changes and improvements can be done without prior notice.

RS232 connection

Data rates	Standard bit rates 300 up to 1Mbps, also unusual bit rates either by Software or baudrate-aliasing and programmable divisor.
Data format	Provides 7 or 8 data bits, 1 or 2 stop bits and parities Odd, Even, Mark, Space, None.
Handshake	Fully assisted hardware (RTS/CTS, DTR/DSR) and X-On/X-Off software handshaking on chip for fastest response times.
RS232 Lines	All output lines with active ±15mA output, ±15kV ESD. Supports the RS232 break command.
Connector	Standard RS232 DSub9 Male Connector with undetachable UNC screw nuts (full PC compatible).

USB PC Side

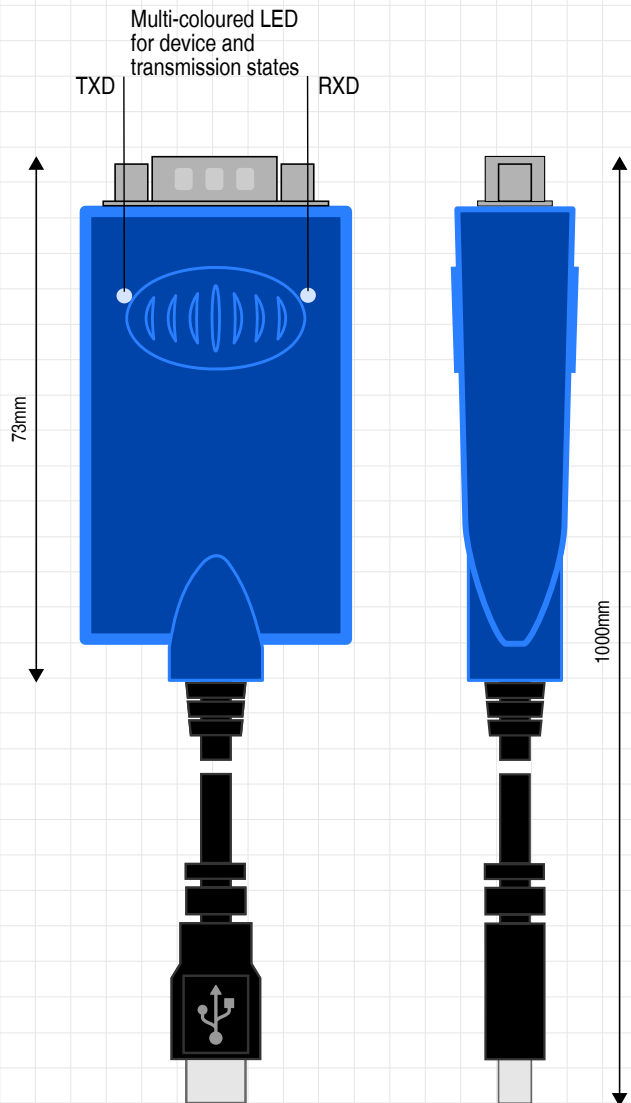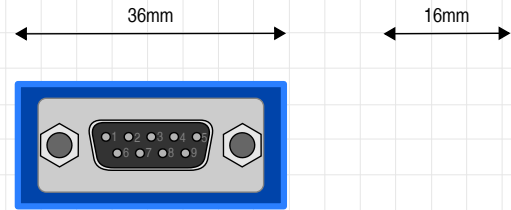|	
Connector	USB Cable about 1 m length with PC compatible type A connection jack and integrated inductance.
USB compatibility	Compatible to USB 1.1/2.0. Absolutely functional with all USB-Interfaces of old and new PCs.

Special features

Isolation	Isolation strength 2500 Vrms 1 minute.
Chipset	FTDI FT232R: Additional functions for high transmission safety, internal data buffer 384 bytes (input 128 bytes, output 256 bytes). Direct controlling of the RS232 lines possible (using bitbang mode).
Status display	Display of the device status (standby, active) and transmission activity separated by transmit and receive line via two multi-colored LEDs.

Supported OS & drivers

Windows	Windows 11, 10, 8/8.1, Windows 7, Vista, Windows XP, (32 and 64 bit, all with Microsoft certified driver).
Linux	Kernel 2.4.x or higher, needed driver (ftdi_sio module) is part of all newer kernels.
Driver access	Via virtual com-ports or USB direct drivers for own applications. Windows: Accessing via COMx, Linux: Device access via /dev/ttyUSBx.

What you get

Content	USB to RS232 converter ISO232C.
Warranty	Made in Germany, 3 years warranty and free product lifetime updates for drivers and software tools.

To the shop scan/click

Available in our Online Shop

Price: 89 €
without tax

36mm   16mm

Multi-coloured LED for device and transmission states

TXD   RXD

73mm

1000mm

Technical changes and improvements can be done without prior notice.