



Hardware guide

USB - RS232 - Mediacontroller - Translator



EG Declaration of Conformity

The following products

IRTrans USB
IRTrans RS232
IRTrans IR Busmodul
IRTrans Translator / XL
IRTrans Mediacontroller

are confirmed to comply with

DIN EN 55024: 1998 + A1: 2001 + A2: 2003.



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1. IRTrans USB

The IRTrans USB is an infrared (IR) Transceiver with USB PC interface. It can be supplied with power by the USB connection as well as by an external power supply.

It offers the following basic functions:

- Transmit IR
- Receive IR
- 1 output to connect external IR transmitters
- USB interface
- IRTrans 2/3 wire bus
- RS232 interface
- 1 status input

1.1 Connections



IRTrans USB back side

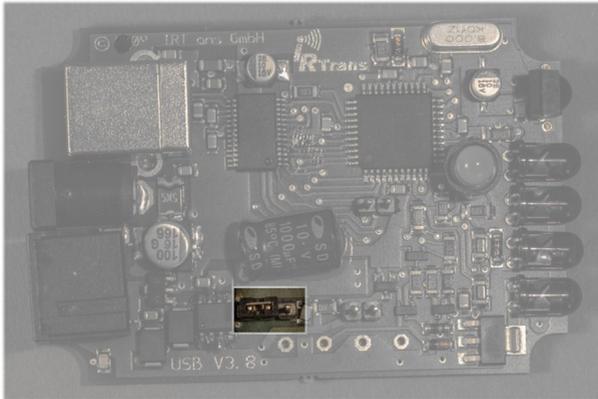
On the back side there are :

- USB connector (USB B connector)
- Connector for external power supply
- MiniDin 8 connector for accesories

On the front side there are 4 IR LEDs next to the IR receiver (ref. picture on page 2).

1.2 Power supply

The IRTrans USB can be supplied by the USB connection. If the PC allows for this the IRTrans USB may be supplied with power during standby as well. This function is normally deactivated because the USB standard only allows for 0,5mA during standby. Some mainboards/PCs however can be configured to power USB devices during standby. To do that please refer to your PC documentation. To supply the IRTrans with standby USB power the jumper shown in the picture must be moved to the right.



Jumper for USB standby power (deactivated position)

For an external power supply there is a 5.5/2.1mm hollow connector. The external power supply should be capable of delivering 8-16V with approximately 100mA per IRTrans Module. The positive lead must be wired to the center terminal.

1.3 USB connection / installing drivers



Before connecting the IRTrans to the PC the software has to be installed.

The IRTrans USB will be connected to the PC by an USB A to B type cable. After connecting the IRTrans driver installation will start automatically.

Windows 2000 / XP / Server 2003 / Vista / 7

IRTrans USB drivers are digitally signed and included in the IRTrans software installer (setup.exe). Furthermore the drivers are available from the Microsoft driver database as well.

Linux

Linux Kernels 2.6.5/2.4.26 include USB drivers in the standard kernel. The following driver packages have to be activated:

- Usbserio
- FTDI_serio
- USB subsystem

These drivers should be configured as modules. If the USB device daemon is running the system recognizes the IRTrans upon connection and will install the correct drivers automatically. There will be entries to the syslog to monitor installation progress. The IRTrans USB will be assigned a device (e.g. /dev/tty/USB0). The device ID will vary according to your system configuration.

Mac

Drivers for Mac OSX 10.4 or later are available on the IRTrans software CD or are downloadable from the website <http://www.irtrans.de/en/>.

2. IRTrans Translator

The IRTrans Translator is based on an IRTrans USB. An integrated command database allows to receive, translate and send IR commands independently. Compared to the IRTrans USB the IRTrans Translator offers the following additional features:

- 128K IR database (sufficient for approx. 1000-1500 commands)
- 2 IR receivers



IRTrans Translator front

2.1 Connections

On the front there are left to right:

- 4 IR LEDs
- Status LED
- 2 IR receivers



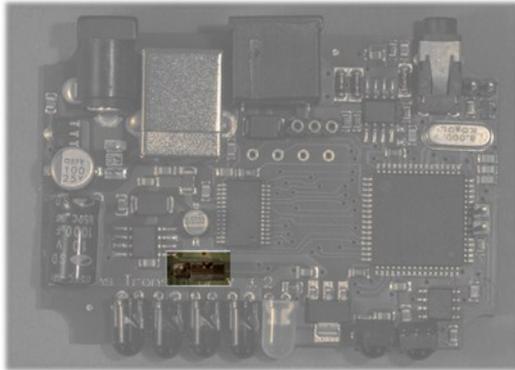
IRTrans Translator back

On the back you will find:

- 3,5mm jack for external receivers
- MiniDin 8 connector for accessories
- USB connector
- Connector for external power supply

2.2 Power supply

The IRTrans USB can be supplied by the USB connection. If the PC allows for this the IRTrans USB may be supplied with power during standby as well. This function is normally deactivated because the USB standard only allows for 0,5mA during standby. Some mainboards/PCs however have can be configured to power USB devices during standby. To do that please refer to your PC documentation. To supply the IRTrans with standby USB power the jumper shown in the picture must be moved to the left.



Jumper for USB standby power

For an external power supply there is a 5.5/2.1mm hollow connector. The external power supply should be capable of delivering 8-16V with approximately 100mA per IRTrans Module. The positive lead must be wired to the center terminal.

2.3 USB connection / installing drivers



Before connecting the IRTrans to the PC the software has to be installed.

The IRTrans USB will be connected to the PC by an USB A to B type cable. After connecting the IRTrans driver installation will start automatically.

Windows 2000 / XP / Server 2003 / Vista / 7

IRTrans USB drivers are digitally signed and included in the IRTrans software installer (setup.exe). Furthermore the drivers are available from the Microsoft driver database as well.

Linux

Linux Kernels 2.6.5/2.4.26 include USB drivers in the standard kernel. The following driver packages have to be activated:

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These drivers should be configured as modules. If the USB device daemon is running the system recognizes the IRTrans upon connection and will install the correct drivers automatically. There will be entries to the syslog to monitor installation progress. The IRTrans USB will be assigned a device (e.g. /dev/tty/USB0). The device ID will vary according to your system configuration.

Mac

Drivers for Mac OSX 10.4 or later are available on the IRTrans software CD or are downloadable from the website <http://www.irtrans.de/en/>.

3. IRTrans RS232

The IRTrans RS232 is an IR Transceiver with RS232 serial interface.

These are the basic features:

- Transmit IR
- Receive IR
- 1 output for external IR transmitter
- 1 input for external IR receivers
- IRTrans 2/3 wire bus
- RS232 interface
- 1 status input

3.1 Connections



IRTrans RS232 front

Left to right:

- 4 IR LEDs
- 1 3,5mm jack for external IR receivers
- Internal IR receiver



IRTrans RS232 back

Left to right:

- RS232 connector
- Power supply connector
- MiniDin8 connector for external accessories

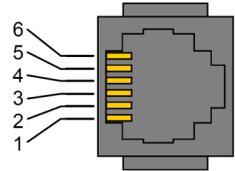
3.2 Power supply

The IRTrans RS232 is powered through a 5.5/2.1mm hollow connector. The external power supply should be capable of delivering 8-16V with approximately 100mA per IRTrans Module. The positive lead must be wired to the center terminal.

3.3 RS 232 Schnittstelle

The IRTrans RS232 uses a 6-pin modular jack for the serial connection. The cable must be wired like this:

Signal	Pin (PC - SubD9)	Pin IRTrans
GND	5	5
RTS	7	4
TxD	3	3
CTS	8	2
RxD	2	1



4. IRTrans Mediacontroller

The IRTrans Mediacontroller is an IRTrans RS232 with additional features:

- 128K IR database (sufficient for approx. 1000-1500 commands)
- PowerOn option built in (ref. chapter 5.4)

5. IRTrans Server Software

The IRTrans server application is not specific to the IRTrans device you are using. Its usage is described by the software handbook. This is a short guide for the first start.

Windows

The setup program copies the entire IRTrans software suite to the hard drive. There will be corresponding entrires to the start menu.

Linux

In Linux the installation script will copy the irtrans software to /usr/local/irtrans. Startup of the IRTrans server is to be carried out in a shell.

The IRTrans server software is capable of scanning USB ports for IRTrans devices but when used with RS232 devices the server must be started with the device ID: „irserver /dev/ttyS0“

Automatically searching for USB devices is accomplished with: „irserver usb“. You may secify a device ID as well when starting the irserver.

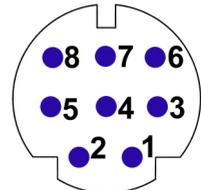
5. Mini DIN 8 connector for external accessories

There is a Mini-DIN 8 connector to plug external accessories into the IRTrans. The following options are available:

- External IR transmitters
- RS232 interface
- Status input
- IRTrans bus
- PowerOn Relay

The pins are assigned as follows:

- 1: GND
- 2: +8-16V power
- 3: Data I/O
- 4: +5V power
- 5: PowerOn Relay (1)
- 6: Output for IR transmitter (anode / +)
- 7: Output for IR Transmitter (cathode / -)
- 8: PowerOn Relay (2)



Mini DIN 8 connector

View from the contact side

5.1 External IR transmitter

There are a variety of external transmitters available for the IRTrans. They are connected to pins 6 and 7 of the Mini-DIN connector

5.1.1 stick on minitransmitter

The minitransmitters can be stucked directly to the IR receiver of the your devices. Please note:

- The transmitter casing is not transparent all the way around. The transmitters will only work when the paper of the sticker is removed.
- Range is limited to 20-30cm (~1ft). The transmitters should be stucked directly to the IR receiver.
- Individual control of multiple external transmitters is not possible with the IRTrans devices covered by this handbook.
- Standard cable length is 1,8m (~6ft). Cables may be extendet to up to 5m (~15ft). Longer cables may cause signal distortions.
- Important: When using external high power transmitters there is a jumper to enable full power. This jumper must be removed when using minitransmitters.

5.1.2 external high power IR transmitters

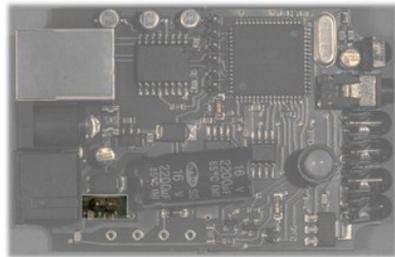
The external high power transmitters are equal to the built in IR LEDs. They are available in a high frequency version as well (455kHz). The high frequency transmitters can be recognised by clear LEDs. High power transmitters can be connected to all of the IRTrans devices.

Cables should not be extended beyond standard length (1,8m~6ft). Longer cables lead to distorted IR signals.

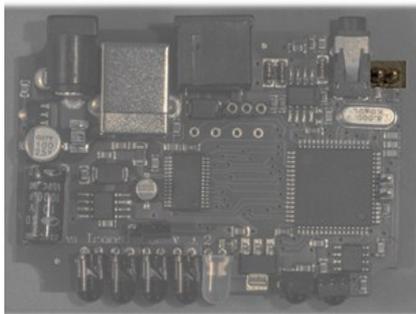
For using external high power transmitters a jumper has to be set inside the IRTrans. The following pictures illustrate the position of this jumper:
The jumper must not be set when using stick on minitransmitters!



IRTrans USB



IRTrans RS232 / Mediacontroller



Translator

5.2 Status input

Using the state input the IRTrans can recognise the state of a device and send different IR codes accordingly. The state input will be configured with the IRTrans software.



Do not exceed 5,0V on the state input!

5.3 IRTrans bus

The IRTrans 2 wire bus is a serial bus that can be controlled by an IRTrans USB or RS232. IRTrans bus modules extend IR coverage to multiple rooms and can be addressed independently through the IRTrans USB / RS232. One bus can be made up of up to 16 IRTrans devices.



When using the IRTrans bus all connected devices have to be powered to avoid communication problems.

There are no special requirements to the cables used for the IRTrans bus. Topology is no constraint as well, even tree topologies are possible.

The IRTrans Bus has been tested with cable lengths up to 30m (100ft). Longer cables may be possible. When connecting different buildings there must be galvanic isolation.

The IRTrans bus uses pins 1 (GND) and 3 (data).

There is the option of using 3 wires and connecting power to the bus modules by using pin 2 (+8-16V). Do not use pin 4 it is not protected against too high current. Also long cable runs lead to a drop in voltage which in turn may cause the bus module not to work correctly.

When using 3 wires only one IRTrans device must be powered by an external power supply. Powering the entire bus by USB is not possible, an external power supply has to be used.



Powering the bus should be accomplished by using the hollow connector of one of the IRTrans modules. This connector is equipped with a fuse to protect the IRTrans bus.

5.4 PowerOn relay

IRTrans devices with the PowerOn option have an additional relay to switch on ATX PCs. The two pin connector of the power on cable has to be connected to the power on pins of your mainboard. The power on connector of the PC case can be connected in turn to the power on cable.



This relay is only capable of switching 24V/500mA. Do not use higher voltages or currents.

