USB to 5V UART interface card

UIF is a simple interface for connecting 5V controller cards into modern PC' s. UIF contains FTDI converter chip, which contains most necessary functions for painless interfacing.

* Port update for standard UART's on MCU chips.
* UIF uses USB supply. Optional 5V or 3V3 supply for CPU's.
* B-type USB connector. USB 2.0 up to 3 MBaud.
* Typical UART bus speed from 300 to 115200 Baud.
* IDC-10 type bus connector for 5V controller side.
* LED's: 1) Vbus supply voltage, 2) Busy.
* UART signals: RxD | TxD, optional CTS | RTS handshaking.
* Optional jumpers for selecting supply for UART interface.
* Recommended operational environment -20...+80°C.
* High-quality circuit board 30 x 36 x 12mm, UL, Au flash.

About the FTDI chip FT232RL

The FT232RL is a USB to serial UART interface with the advanced features:
• Single chip USB to asynchronous serial data transfer interface.
• Entire USB protocol handled on the chip. No USB specific firmware programming required.
• Fully integrated 1024 bit EEPROM storing device descriptors and CBUS I/O configuration.
• Fully integrated USB termination resistors.
• Fully integrated clock generation with no external crystal required plus optional clock output selection enabling a glue-less interface to external MCU.
• Data transfer rates from 300 baud to 3 Mbaud (RS422, RS485, RS232).
• 256 byte receive buffer and 128 byte transmit buffer.
• FTDI's royalty-free Virtual Com Port (VCP) and Direct (D2XX) drivers eliminate the requirement for USB driver development in most cases.
• Unique USB FTDIChip-ID™ feature.
• Configurable CBUS I/O pins.
• Transmit and receive LED drive signals.
• FIFO receive and transmit buffers for high data throughput.
• Device supplied pre-programmed with unique USB serial number.
• Supports bus powered and self powered configurations.
• Integrated +3.3V level converter for USB I/O.
• True 5V/3.3V/2.8V/1.8V CMOS drive output and TTL input.
• Configurable I/O pin output drive strength.
• Integrated power-on-reset circuit.
• Fully integrated AVCC supply filtering - no external filtering required.
• UART signal inversion option.
• +3.3V to +5.25V Single Supply Operation.
• Low operating and USB suspend current.
• Low USB bandwidth consumption.
• USB 2.0 Full Speed compatible.

More details on FTDI's web page: http://www.ftdichip.com/.

Power Supply selection

1) USB supply, separate supply for CPU (=default)
   - Jumper J3 connected, jumper J4 open.
2) USB supply, 5V supply for external CPU, max 30 mA.
   - Jumper J3 connected, jumper J4 connected.
3) USB supply, 3V3 supply for external CPU, max 30 mA.
   - Jumper J3 open, jumper J4 connected, wire from 3V3 to J4.

Enable Handshake

Connect jumpers J1 and J2 (default = open). Then the UART's software must also contain support for driving RTS | CTS lines.

On-board LED's

L1 **Vbus** Active when FT232's output is on power.
L2 **Busy** Blinks while there is communication on card.

BUS Connector IDC1

* Flat gable connected into 5V BUS of controller cards.
* Up to 4-8 units may be connected on the same 5V BUS.
* Used with various serial protocols; single UART on each CPU.

IDC10			
1	+5V	+5V	+5V 30mA, separated with J4
2	P3.0	RxD	Serial RX Data, 5V CMOS, pull up
3	P3.1	TxD	Serial TX Data, 5V CMOS, pull up
4	RST	RST	5V Reset Input, trigger level +3.1V
5	P1.6	SCL	I2C Clock, pull up
6	P1.7	SDA	I2C Data, pull up
7	P3.2	CTS	J1 connected only if CTS is needed
8	P3.3	RTS	J2 connected only if RTS is needed
9	P3.4	T0	5V general purpose I/O, pull up
10	GND	GND	Common Ground

Virtual Com Port driver

UIF interface usually needs a Virtual Com Port Driver on PC before use. Each card is delivered with a suitable driver for W2K and up. This driver must be installed into the computer before connecting this device into the USB port. More details on following set-up pages.

UIF Interface Set-up

The FT232RL chip needs to be properly configured before using. Each card is delivered with a suitable set-up and ready for use. The set-up is made with FTDI's MProg program using PC's USB port. More details on following set-up pages.