SWISS TIMING

User's Manual

INT131

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CAUTION

❑ **Protect the equipment against splashing, rain and excessive sun rays.**

❑ **Never use the device if it is damaged or insecure.**

❑ **Do not open the case; there is nothing that needs servicing inside it. Nevertheless, if the case must be opened, you must call for some qualified personnel. The power supply cable must be disconnected before opening the case.**

❑ **The information contained within this document may be modified without warning.**

❑ **Swiss Timing LTD cannot be held responsible for errors within this document nor for any subsequent nor consequential damages (including loss of profit) arising from its provision, nor performance or use of products described herein, which will be covered by another guarantee, contract or other legal document.**

❑ **During the transport of all Swiss Timing equipment delivered with a reusable carry case, the said case should be used at all times. This is imperative to limit the damage, such as shocks or vibration that can be caused to the units during transport.**

The same cases should also be used when returning equipment to Swiss Timing for repair. Swiss Timing reserves the right to refuse all guarantee if this condition is not fulfilled.

 This symbol indicates that this product should not be disposed with household waste. It has to be returned to a local authorized collection system. By following this procedure you will contribute to the protection of the environment and human health. The recycling of the materials will help to conserve natural resources (valid in the EU member states and in any countries with corresponding legislation).

TABLE OF CONTENTS

1   INTRODUCTION

The INT131 allows you to connect 2 RS232 and 2 RS422/485 serial devices to systems using a USB interface. With data format auto detecting and baud rate auto switching function, INT131 is able to automatically detect the data flow and switch the direction of the data lines as well as to automatically configure RS422/485 signals to any baud rate without external switch setting. Equipped with 3000VDC of isolation and internal surge-protection on each data line, INT131 gives the host computer and module itself entirely protection from destructive voltage spikes and danger of unregulated voltages input. INT131 also features a high-speed 115.2 Kb/s transmission rate, and supports various O.S.

1.1   Features

- Full compliance with the USB V1.0, 1.1 and 2.0.
- Expand to 2 standard RS232 ports and 2 RS422/485 ports.
- System gets 4 standard RS232 port when the INT131 converter is plugged in.
- 256 bytes buffer for upstream and downstream data flow.
- Auto direction flow control on RS-485.
- Automatically switch signal RS422 and RS485.
- Support 3000V DC isolation protection in RS422/485 side.
- All RS422/485 signals provide surge protection and over current protection.
- Power/TXA/RXA/TXB/RXB mode LED indicator.
- Direct power from USB port and external power.
- Driver support: 98/ME/2000/XP/CE3.0, and Linux, and Mac OS.

1.2   Specitifation

- Power input voltage: DC +10V to +30V or USB port power support.
- Input: USB 1.1 or 2.0 protocol.
- Output:
    - Dual Port RS232 signal: RS-232 - TX, RX, RTS, CTS, DTR, DSR, DCD, RI.
    - Dual Port RS422 signal: Full-duplex wires (Optionally Powered).
- Cable: USB type A to type B.
- Format: Asynchronous data with any combination of bits, parity, stop
    - Parity type: None, odd, even mark, space.
    - Stop bits: 1, 1.5, 2; Data bit: 5, 6, 7, 8.
- Communication speed: from 1.2K to 115.2Kbps auto-switching.
- RS422/485 line protection: against surge, short circuit, and voltage peak.
- Distance: Up to 4000ft (1250M).
- Signal LED: Power on, TX, RX.
- External power supply: standard external DC adapter item no. 3418.910.
- External power consumption: 1.5W.
- Internal USB bus power consumption: 220mA.
- Isolation Voltage: 3000V DC.
- Electromagnetic Compatibility: CE.
- Operating environment: -20 to 65℃.
- Storage temperature: -20 to 65℃.
- Dimension: 198mm X 84mm X 30mm.

- Weight: 450g.
- Humidity: 10-90% non-condensing.

2 HARDWARE DESCRIPTION

The following information is provided to give the user an understanding of how to connect the INT131 to the USB and serial device. A review of the switch settings and the functionality of the LED's are also provided.
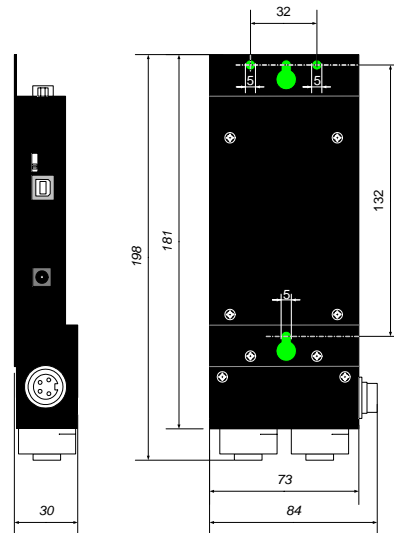
2.1 Panel layout

Power Switch
USB Connector

Power Input
Swiss Timing
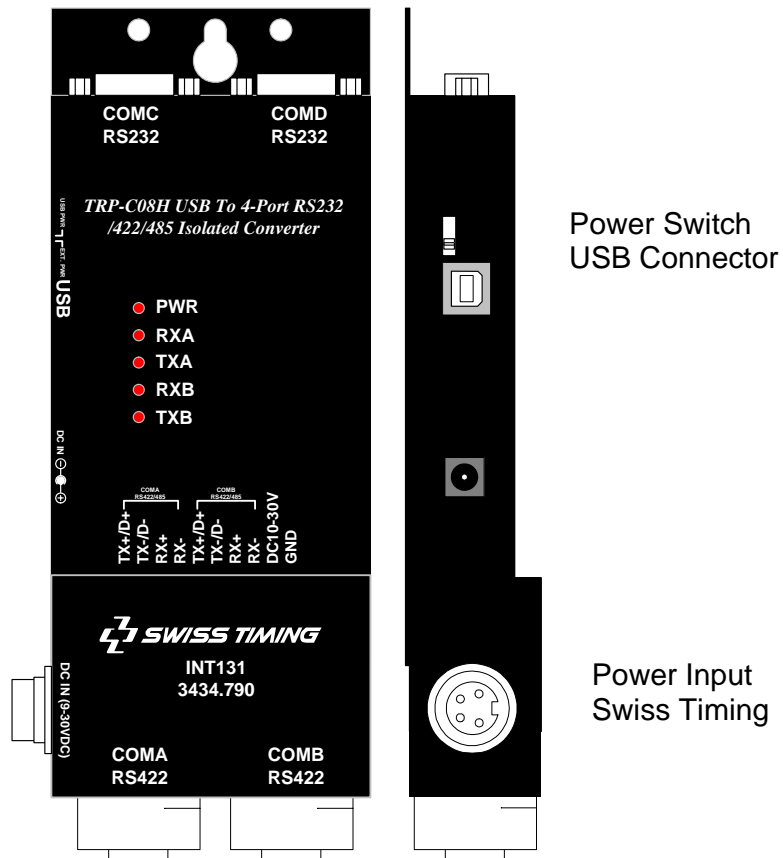
2.2 LED indicator

PWR LED: System is ready.
RXA LED: COM-A Receiving.
TXA LED: COM-A Transmitting.
RXB LED: COM-B Receiving.
TXB LED: COM-B Transmitting.

2.3 Wall fixing

Rear view

Fixation with M4 screws

2.4 Serial connection

The INT131 has two DB-9 male and two 4-wire RS422/485 connectors. The RS232 serial port is configured as a DTE (data terminal equipment) device. All PC COM ports are DTE ports. A null modem cable is required to make a connection between the COM port on a PC and the INT131 serial port. A straight through cable is required to connect the INT131 serial port to a DCE device.

2.5 Power connection

2.5.1 USB Bus power

Direct power input from USB port, if the system USB port can offer <u>current 220mA</u>!
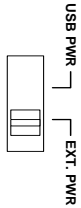
2.5.2 External power

The INT131 has a four pins power connector. It accepts 10-30VDC/500mA power supply. When power is correctly supplied the PWR LED will start lighting to indicate the system is up and running. Do not use the power jack connector.
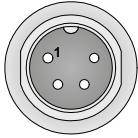
2.6 USB connection

The INT131 has a USB B-Type connector that is fully compliant with USB 1.1, 1.0 and USB 2.0, the full rate speed up to 12Mbps.

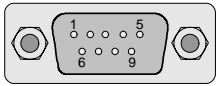## 2.7 Power switch

USB PWR

EXT. PWR

A power selection dipswitch allows the INT131 to be switched to USB power or External power. When this switch is moved in the UP position (USB PWR), the INT131 uses the own bus power of the USB; in the down position (EXT. PWR) it uses an external power input.
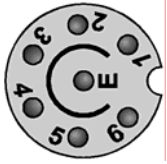
2.8 DC IN Pin configuration (Ext. PWR)

DC IN	Tuchel metallic 4p male
	1 : Power Input 10-30VDC 2 : GND 3 : not used 4 : not used.

2.9 RS232 Pin configuration (COMC and COMD)

COMC & COMD	Sub-d 9p male
	1 : DCD 2 : RXD 3 : TXD 4 : DTR 5 : GND 6 : DSR 7 : RTS 8 : CTS 9 : RI

2.10 RS422/485 Pin configuration (COMA and COMB)

COMA & COMB	Tuchel 7p Female
	1 : Power output 10-30VDC 2 : Power output 10-30VDC 3 : TX- 4 : TX+ 5 : RX- 6 : RX+ 7 : GND

3   SOFTWARE

1. Power on your computer and boot to Windows.
2. Put the driver CD in the CD-ROM then run the PL-2303 driver (See *Fig.1* and *2*)
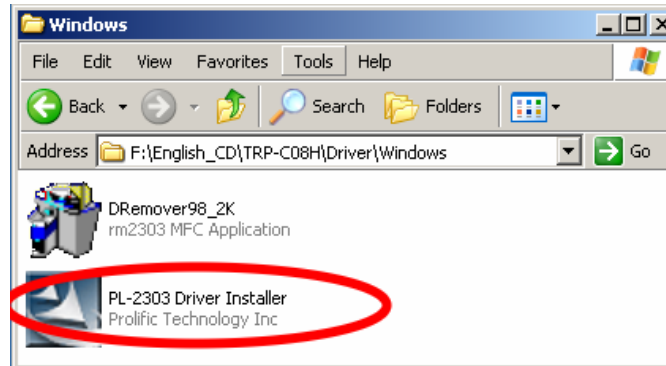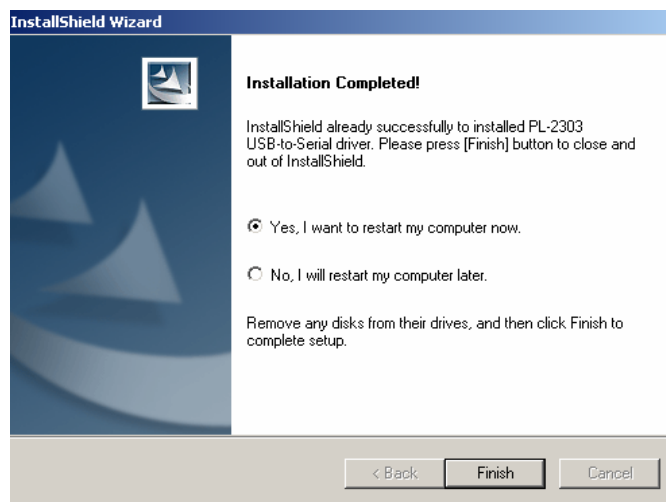

Fig. 1

Fig. 2

3. Connect INT131 with your computer by USB cable.
4. Windows will audo detect four "new USB devices" and start **InstallShield** Wizard (See *Fig.3*)

Fig. 3

5. After driver installation, please follow the below process to verify whether the device was properly installed. Click Start – Setting -- Control panel -- double click system icon – Hardware Device Manager -- Double click on ports (COM&LPT) (See *Fig. 4*).
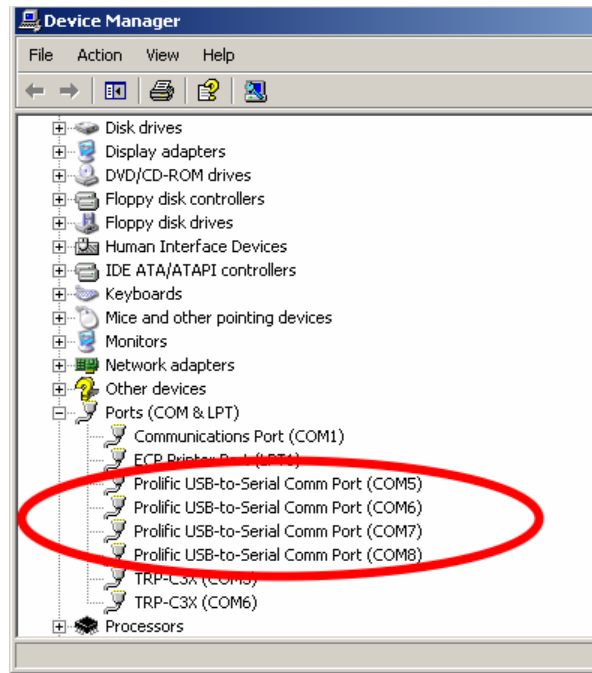

Fig. 4

6. If the device has been correctly installed, you may see 4 ports new COM devices listing. This means Windows has assigned the device to the COM# port.

*There could be a difference in the port numbers of the Device Manager window, as the PL2303 driver will auto assign a COM number from your system.

4   OPTIONS

Use the **DRemover98_2k to remove INT131 driver.** Double click **DRemover98_2k.** If INT131 driver software has already been installed, the modify, repair or remove the program window will appear, then select "Remove" to clean INT131 driver completely.
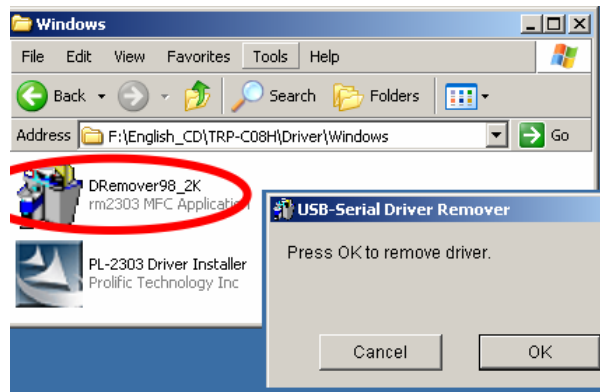
It is necessary to update the driver when INT131 adds new features or functions. Use the **DRemover98_2k to remove old version INT131 driver.** Double click **DRemover98_2k.** If an older version of the INT131 driver software existed in the system, the modify, repair or remove the program window will appear, then select "Remove" to clean INT131 driver completely. Once the software has been removed, install the new software.