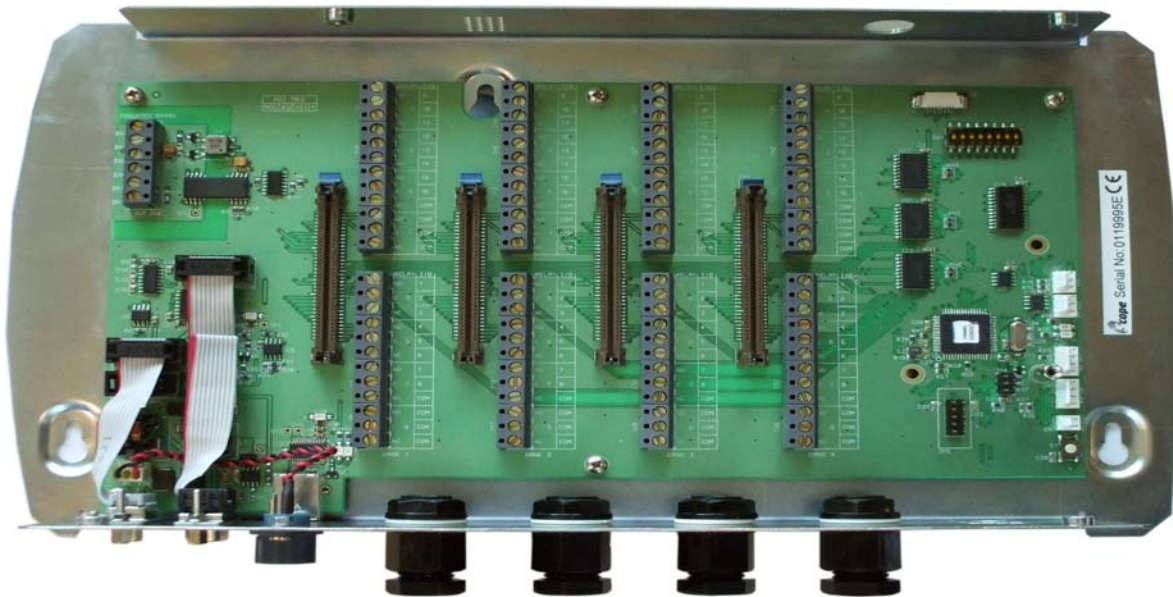




VDI Pro  
Voltage & Dry Contact Interface  
Installation and programming Guide

MODEL VDI MK2



# VDI PRO: VOLTAGE & DRY CONTACT INTERFACE

## PREFACE

### ***Important Installation Information***

It is the purchasers' responsibility to determine the suitability of this equipment and its derivatives for any given application, Scope Communications UK Ltd (Scope) cannot give specific advice in this manual, as each use will require independent evaluation. The suitability of the system for any given application must therefore be decided by the installer and their customer, relative to the application and risk.

The supply of this equipment is governed by Scope's standard terms and conditions of sale, which can be found on the reverse of all order acknowledgements\*, proforma invoices\*, delivery notes, price lists and invoices. Alternatively, these can be provided on request.

\* Faxed proforma invoices and quotations refer to "conditions available upon request".

### ***Important Safety Information***

Scope products are designed to operate safely when installed and used according to general safety practices. The following requirements should be observed at all times.

#### **Do NOT subject this equipment to:**

- Mechanical shock
- Excessive humidity or moisture
- Extremes of temperature
- Corrosive liquids

This equipment is designed for indoor use, unless expressly stated otherwise, and must not be used in classified Hazardous Areas, including areas containing explosive or flammable vapours, unless express authorisation has been given in writing by the manufacturer. If in doubt, consult your local product dealer for further information.

Do not obstruct any slots or openings in the product. These are provided for ventilation to ensure reliable operation of the product and to protect it from overheating.

Only use a damp cloth for cleaning (not liquid or aerosol based cleaners), and ensure that any power is removed from the unit prior to beginning the cleaning operation.

Removal of covers from the equipment must only be undertaken by authorised service personnel, who must ensure that power is isolated prior to removal.

# VDI PRO: VOLTAGE & DRY CONTACT INTERFACE

## Preface

### ***Installation***

Installation must only be undertaken by an Approved contractor, who shall ensure that all work is carried out in compliance with National Wiring Regulations.

### ***No User Serviceable Parts***

Alteration or modification to any part of this equipment, without the prior written consent of the manufacturer, will invalidate all Approvals and Warranties attaching to the equipment. Further liability for the operation of the equipment, under the applicable law, will pass to the user, who will absolve the manufacturer of any further responsibility for its correct operation and use.

### ***Liability***

Scope does not accept liability for any damage or injury, howsoever caused as the result of misuse of this equipment. It is the responsibility of the user to ensure that the equipment is operated in the manner for which it was intended and that it is the correct item of equipment for the required task.

### ***Warranty***

This product is warranted as free from defects of workmanship and materials for a period of one year from the original purchase date. During this time, if there is a defect or malfunction of this product, Scope will, with proof of purchase, repair or replace at its discretion any defective parts, free of charge. This does not include where the adjustments, parts and repair are necessary due to circumstances beyond the control of Scope, including but not limited to fire or other casualty, accident, neglect, abuse, abnormal use or battery leakage damage.

### **WARNING! No User Serviceable Parts**

Alteration or modification to any part of this equipment, without the prior written consent of the manufacturer, will invalidate all manufacturer approvals and warranties. No adjustments can be undertaken except by qualified and licensed persons as authorised by Scope.

This product complies with the essential requirements of the R&TTE Directive 1999/5/EC  
Copies of the Declaration of Conformity covering this product can be obtained from Scope at:  
Quantum House, Steamer Quay, Totnes TQ9 5AL United Kingdom.

Do not discard. At end of life this equipment must be sent to an authorised waste treatment centre. Contact Scope at the above address for further details.



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Identifying USB Comm port

# VDI PRO: VOLTAGE & DRY CONTACT INTERFACE

## Introduction

### Applications

- Nurse call systems
  - Alert monitoring
  - Alarm & Security systems
- Industrial Fire Panels  
Interlock Systems

### Description

The VDI programmable voltage/dry contact interface unit can monitor up to 64 (4 x 16) opto-isolated DC voltage inputs or up to 64 (4 x 16) dry contact inputs, or a combination of both. The unit follows a modular approach with each module capable of handling 16 inputs. A total of 4 modules can be fitted and combinations of different modules can be fitted to suit customer requirements.

Each input can be programmed to perform a variety of alert monitoring tasks and individually tailored via the programming interface. As well as “voltage present” and “voltage absent” conditions, the voltage input modules will recognise 1Hz and 2Hz pulsing inputs. A calibration routine ensures that variances in host systems are catered for. Units can be ganged together to provide more inputs if required.

A variety of connection methods are possible that include USB, RS232, RS485 and if combined with a network card (optional extra) the VDI unit can also be connected to company inter/intra networks. This connectivity and versatility makes the VDI Pro an ideal solution for virtually any security or monitoring requirement.

The unit is designed for operation with the Connexions Mk3 radio paging transmitter. Connection is via the RS232 serial port. Additional VDI units can be daisy-chained together using the RS485 port. An optional Isolated RS485 port (must be specified at time of order) is available for long in-built cable runs of up to 1.5 Km.

The programming utility will run on any PC with current operating systems (Win 98 SE – Windows Vista). Connection to the VDI Pro is via RS232 serial or USB port.



**Caution ! ESD** sensitive device. Anti-static precautions should be used when handling the unit in order to prevent permanent damage

## VDI PRO: VOLTAGE & DRY CONTACT INTERFACE

### Specifications

#### Maximum Ratings

The maximum ratings given below must not be exceeded under any circumstances. Stress exceeding one or more of the limiting values may cause permanent damage to the unit.

#### VDI unit

Power Input: 12 to 24V dc @ 100 mA

No. of inputs: Up to 64 total (4 modules each comprising 16 inputs)

#### VIM Voltage Interface Module

5 to 60V dc trigger voltage

16 inputs per module

States recognised:

Voltage present

Voltage absent

1 Hz pulsed

2 Hz pulsed

#### DCM Dry Contact Module

Input resistance: 100 Ohms max (closed contact resistance of switched device)

16 inputs per module. Volt-free operation only.

States recognised:

Trigger on Open

Trigger on Closed

## VDI PRO: VOLTAGE & DRY CONTACT INTERFACE

### Connection

#### Power

Power is applied via the supplied cable into the 3 way connector on the front of the panel. Nominal voltage input is 12 to 24 Volts dc, 0.1A.

#### RS232

Communication to the PC application software is via the RS232 connector on the rear chassis plate. This RS232 port is also used to connect the VDI unit to the Connexions Mk3 transmitter.

#### RS485

Where more than one VDI unit is required, the first VDI unit is configured as a master and connected to the RS232 port of the Connexions MK3. Subsequent VDI units are configured as slaves and connected to the RS485 port on the master VDI unit.

There also exists a capability for external equipment to connect to the system via an isolated RS485 port. This is an optional fit and must be requested at time of ordering. Please contact our Sales team for further details.

#### USB

The USB connection can be used to connect to the PC application software where PC/Laptops do not have an integral serial port. The USB connection acts as a serial port and users will have to identify which serial port the USB device is connected to. See Appendix B for information on how to do this.

#### Network

An optional network card (ENET) can be added to the unit which allows it to interface to a network system. The Connexions Mk 3 transmitter can then be placed in a different location from the VDI unit, with all messages transferred via the network.

***Note: Configuration cannot be managed via the network interface.***

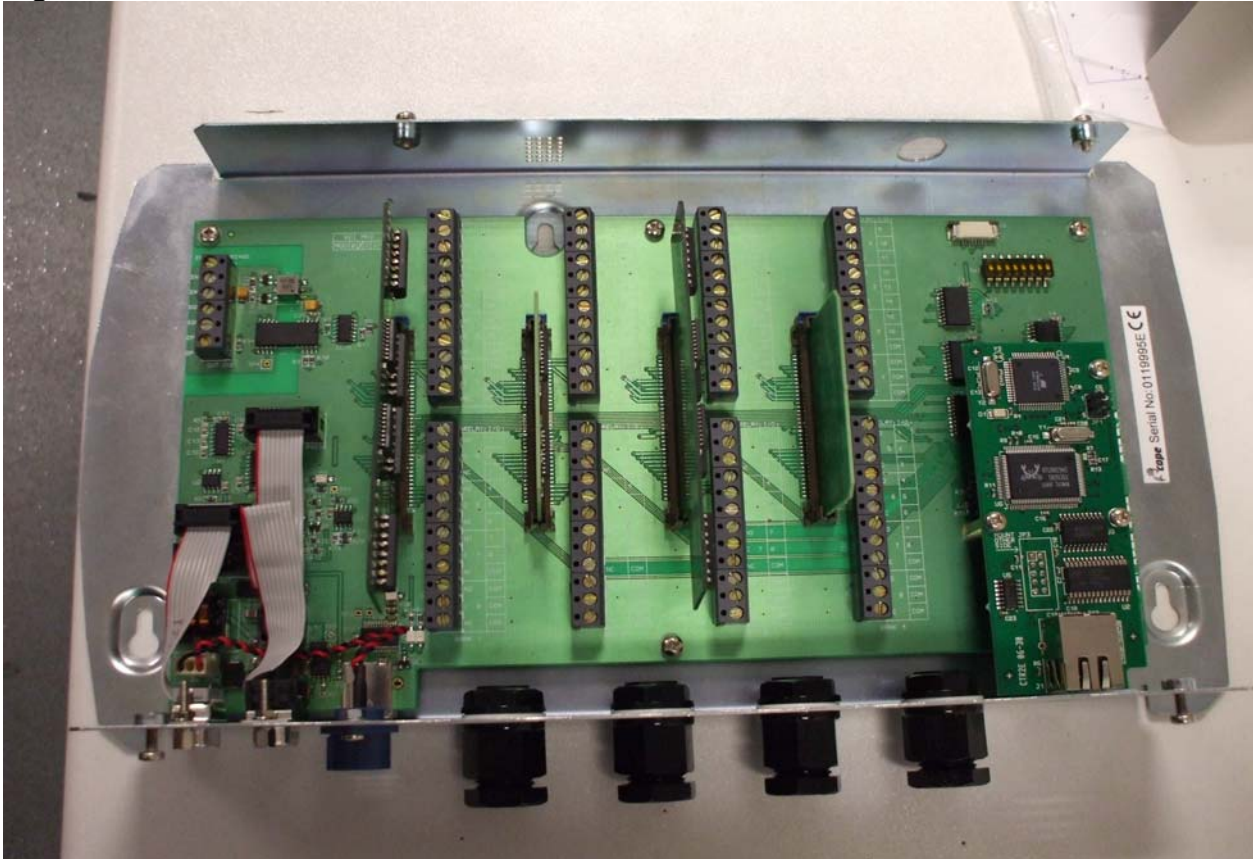
## VDI PRO: VOLTAGE & DRY CONTACT INTERFACE

### Modules

Modules are located in the slots provided on the motherboard, with 16 inputs per module and a maximum of 4 modules. Modules should be located from bank 1 upwards and should be fitted in the orientation as shown below. The modules can only be fitted in this orientation and can consist of any combination of Voltage Interface Modules (VIM) and Dry Contact Modules (DCM).

**Note: VIM modules are for DC voltages only and are polarity sensitive. The ground (0V) input wire must be connected to the Common terminal.**

**Fig 1. VDI board with two VIM & two DCM modules installed**



Wiring to each module is via each bank's terminal blocks as shown in Fig2. Four common terminals are included for each group of eight inputs. When VIM modules are used, the Ground (0V) wires should be connected to the Common terminals. ***Under no circumstances should the module's Common terminals be connected to any other bank's Common terminals as this negates the opto-isolation.*** Each input is identified by its bank and input number.

## VDI PRO: VOLTAGE & DRY CONTACT INTERFACE

Fig 2 Identifying the correct Input and associated terminal block

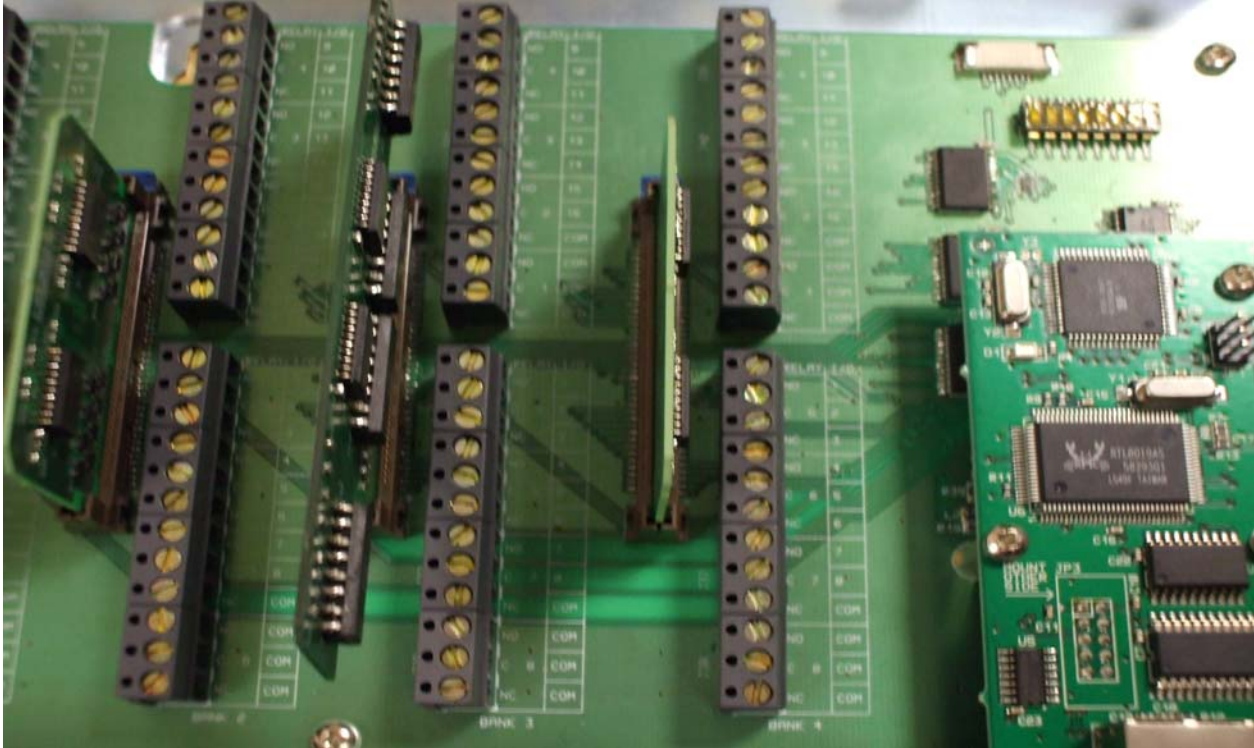
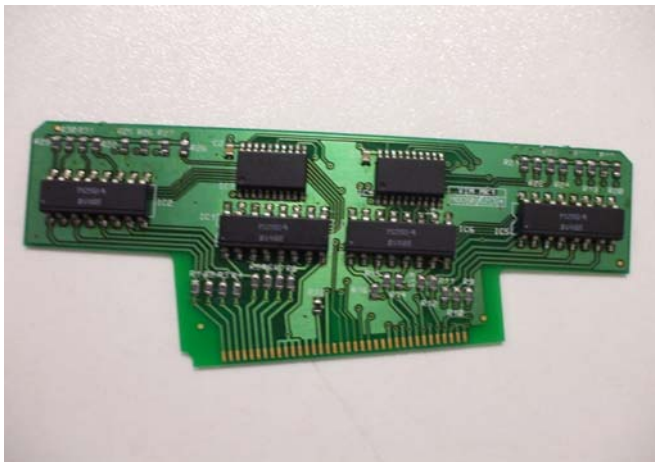


Fig 3 (VIM) Voltage Input Module

Fig 4 (DCM) Dry Contact Module



## Software

### Installation

**Do not connect the VDI unit to a PC until the VDI Pro software and the required USB drivers have been installed on the PC.**

Insert the CD supplied with the unit and allow the auto run function to complete. Select "Install VDI Software" option and allow the software to install. When the installation has finished, select the "Install USB drivers option" and allow the software to install.

## VDI PRO: VOLTAGE & DRY CONTACT INTERFACE

Fig 5 Software installation



Once the software and required drivers have been installed open the application software as shown in Fig 6

Fig 6 Software Start up

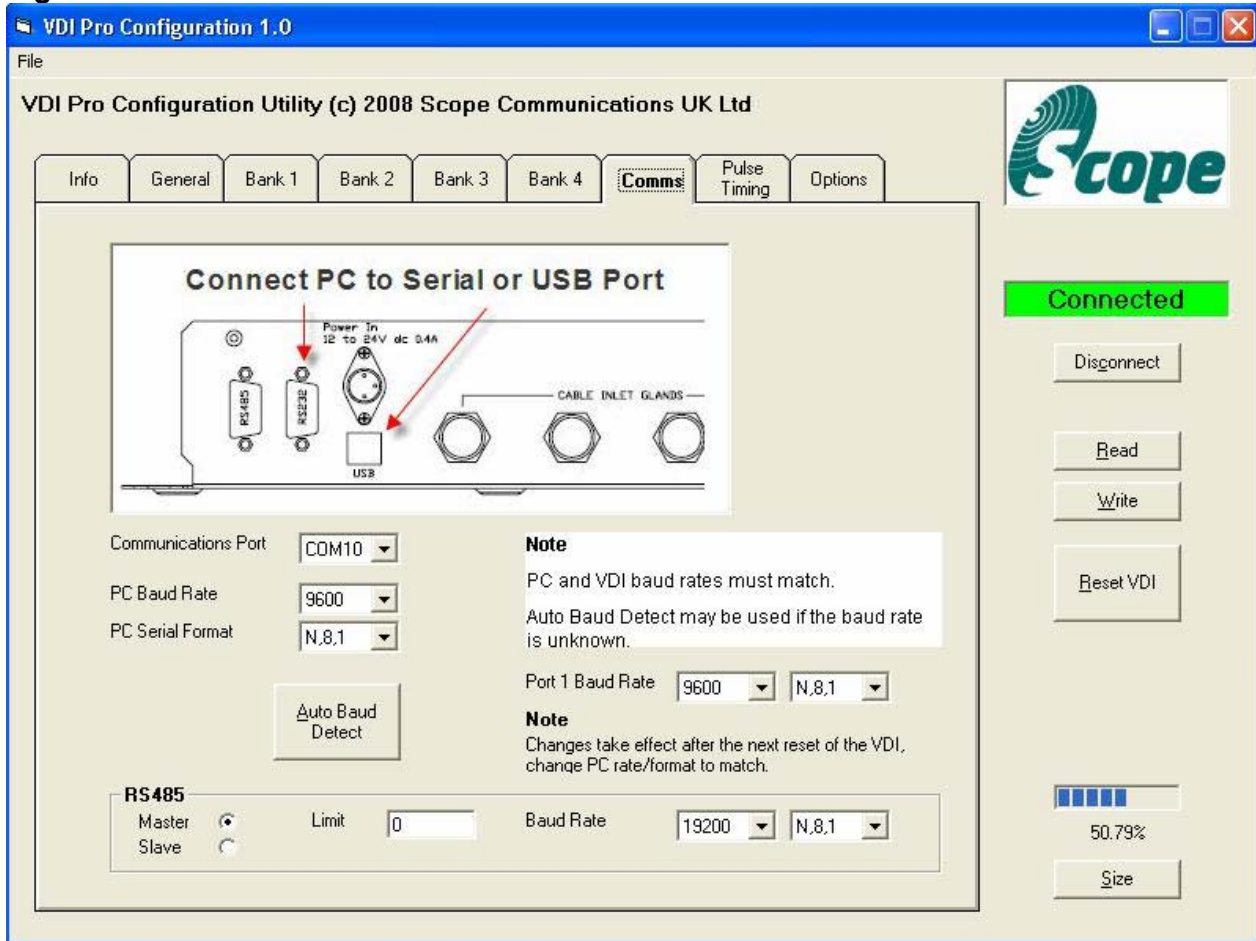


## VDI PRO: VOLTAGE & DRY CONTACT INTERFACE

### Configuration

Select the Comms tab and select the required Communications port, use the **Auto Baud Rate Detect setting** for the communications speed and press the connect button. If the connection is successful the screen will be as shown below. If the device cannot connect to the PC an error message is displayed. Check the connections and check that the right comms port is selected, then try again.

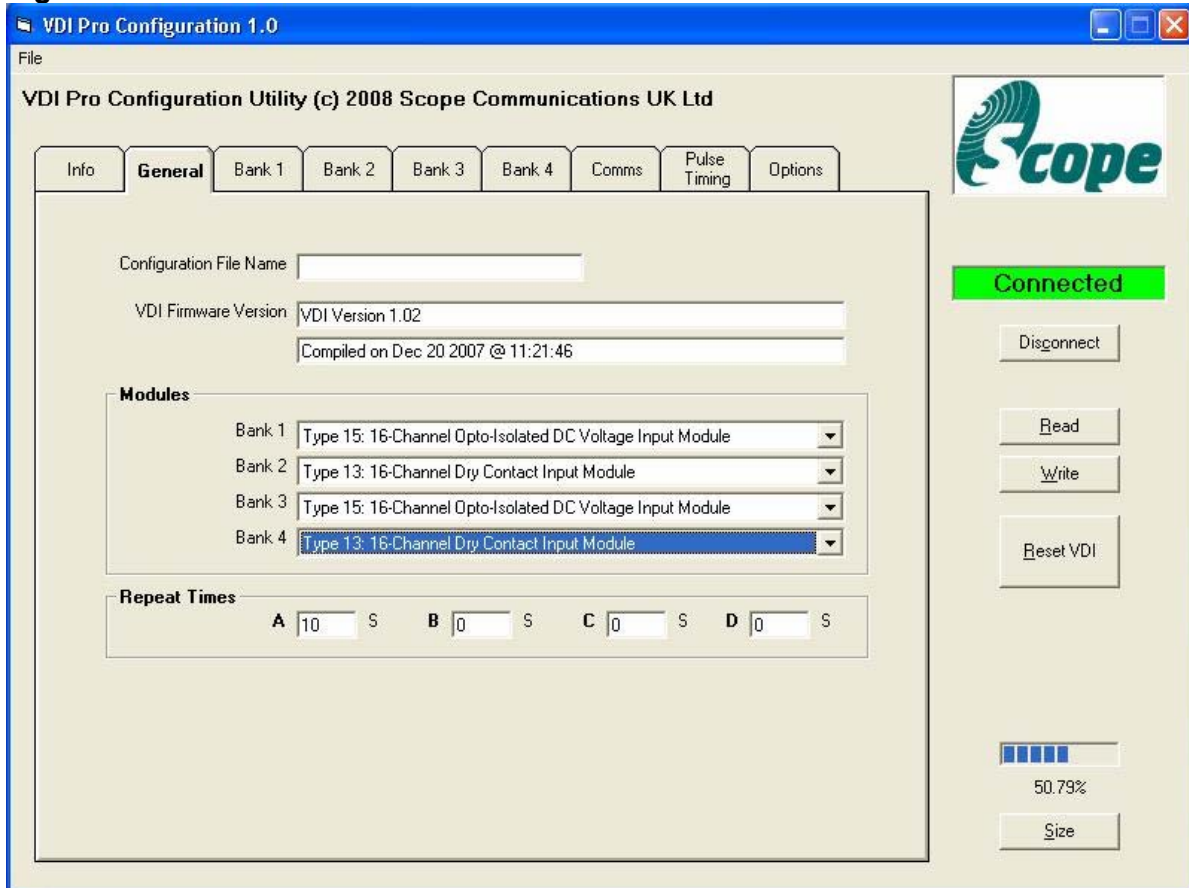
Fig 7 Software Connected



Now select the General Tab and press the Read button the unit will now identify the modules present in the system with all the parameters currently set. Firmware version is also identified as well as the file name associated with these settings. All parameters can be saved into a parameter file if multiple units need to be configured. In the figure below the file name is test.VDI with 2 VIM modules in bank 1 & 3 and 2 DCM modules in 2 & 4. Firmware version is also shown and should be quoted in case of technical assistance. The repeat times are configurable parameters that can be applied to any input if a repeat message is required.

## VDI PRO: VOLTAGE & DRY CONTACT INTERFACE

Fig 8 Modules Identified



Select bank 1 and the configuration parameters for the module inserted are shown as below. This shows the parameters for a VIM module. Note that each input can be configured separately.

Each input can also be configured for 4 conditions

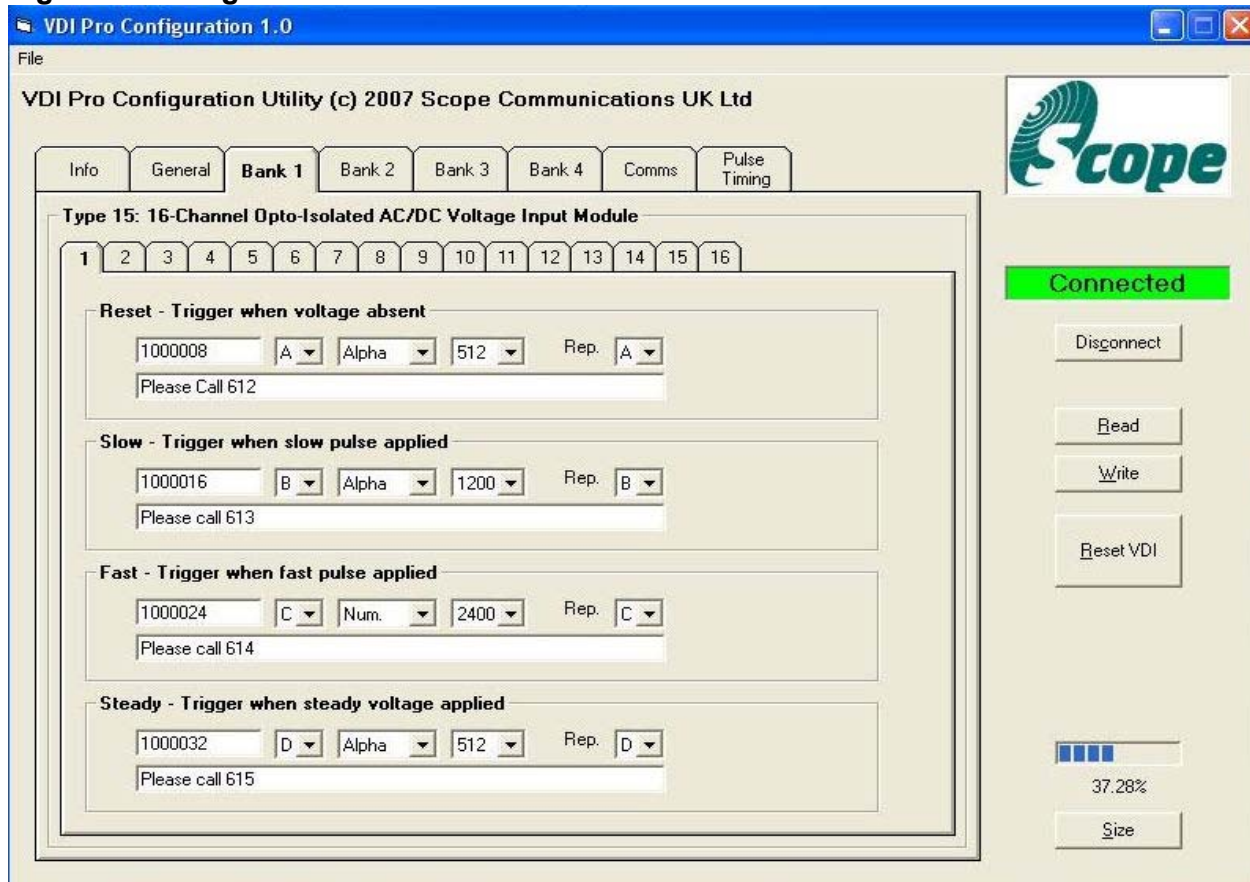
- When no voltage is present
- When voltage is present
- When 1Hz calibrated pulse is present
- When 2 Hz calibrated pulse is present

Each condition has its associated pager number, pager type, baud rate, beep time and repeat timer and message. Messages can be up to 80 characters long.

The 1Hz/2Hz pulse conditions are specific input signals designed for nurse call type systems. In order to make the unit versatile and selective each of these pulse signals can be calibrated on the pulse timing tab. (See section on *Pulse timing for details* ) .

## VDI PRO: VOLTAGE & DRY CONTACT INTERFACE

Fig 9 VIM config Parameters



Select bank 2 and the configuration parameters for the module inserted are shown as below. This shows the parameters for a DCM module. Note that each input can be configured separately.

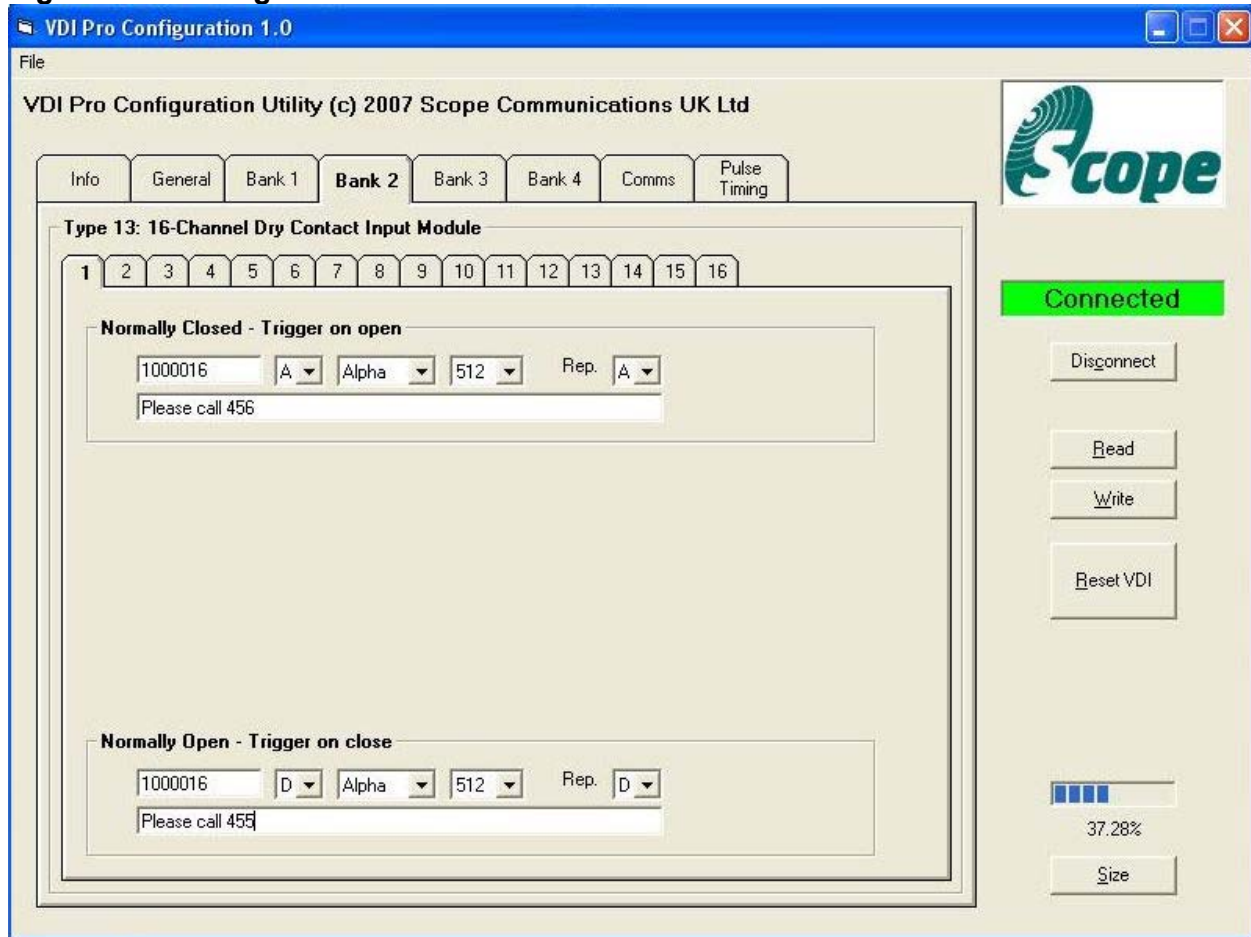
Each input can also be configured for 2 conditions

- Contact Open
- Contact Closed

Each condition has its associated pager number, pager type, baud rate, beep time and repeat timer and message. Messages can be up to 80 characters long.

# VDI PRO: VOLTAGE & DRY CONTACT INTERFACE

Fig 10 DCM config Parameters



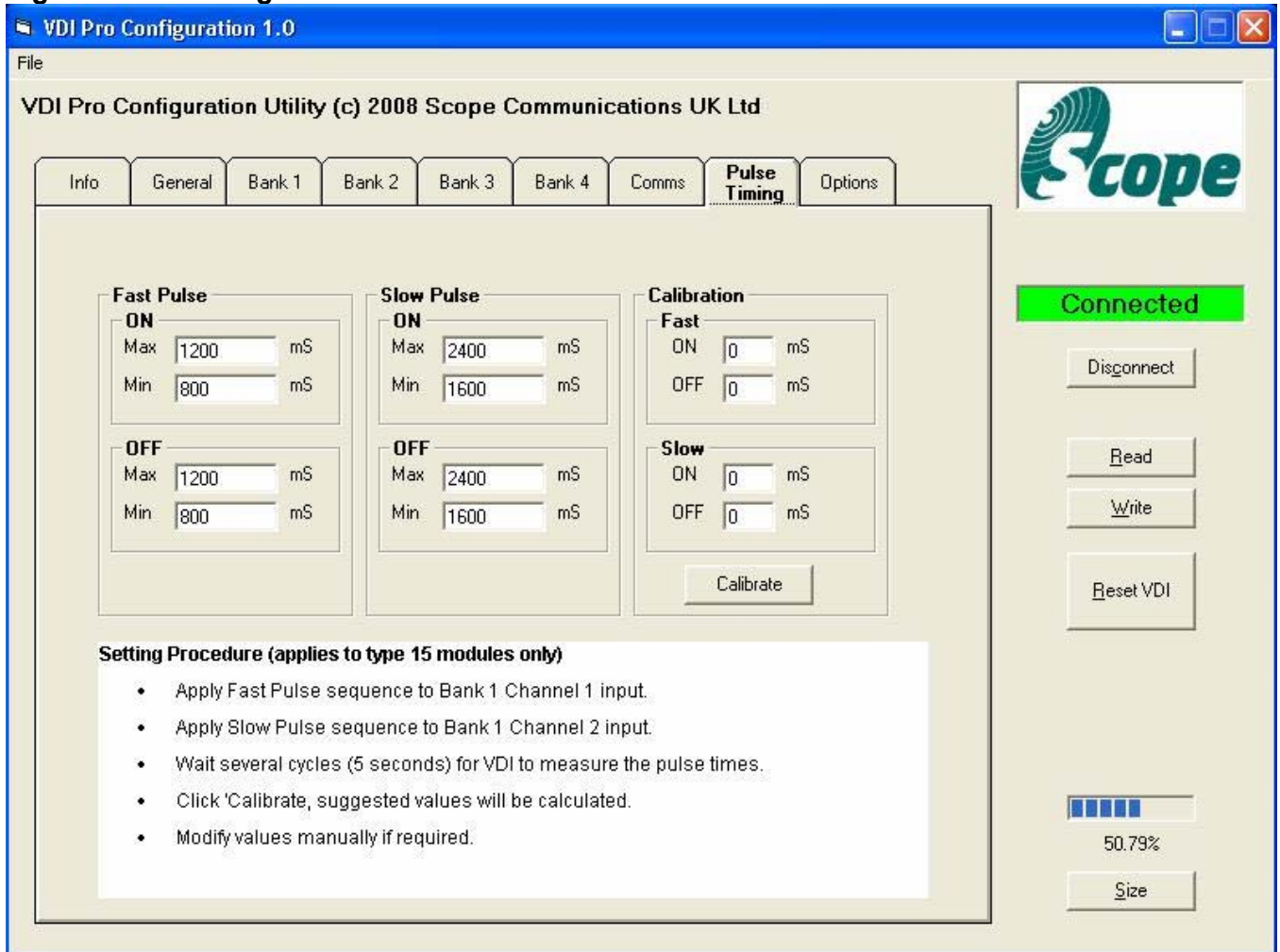
All other banks will show the required parameters for the inserted module. If no module is connected then no configuration parameters are present.

## Calibration

As mentioned earlier, the inputs can be used to monitor specific input frequencies of 1 or 2 Hz. These frequencies can be calibrated by selecting the Pulse Timing tab as shown in Fig 11.

## VDI PRO: VOLTAGE & DRY CONTACT INTERFACE

Fig 11 Pulse Timing



Connect the host equipment and trigger the pulsed inputs. Follow the on-screen instructions.

When all the required parameters have been entered, they can be saved as a file for later recall. To transfer the information into the VDI unit press the Write button.

Wait until the busy sign is removed. Attempting to perform any functions while the device is being read or written to can produce unpredictable results, in cases of uncertainty re write all values to the VDI unit.

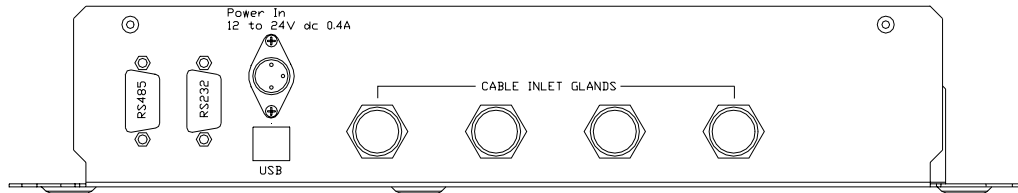
**Note the size value indicates the amount of memory used within the unit. This value will changed depending on the number of messages programmed and the size of each message. The size button can be used to attain a value with the current parameters.**

# VDI PRO: VOLTAGE & DRY CONTACT INTERFACE

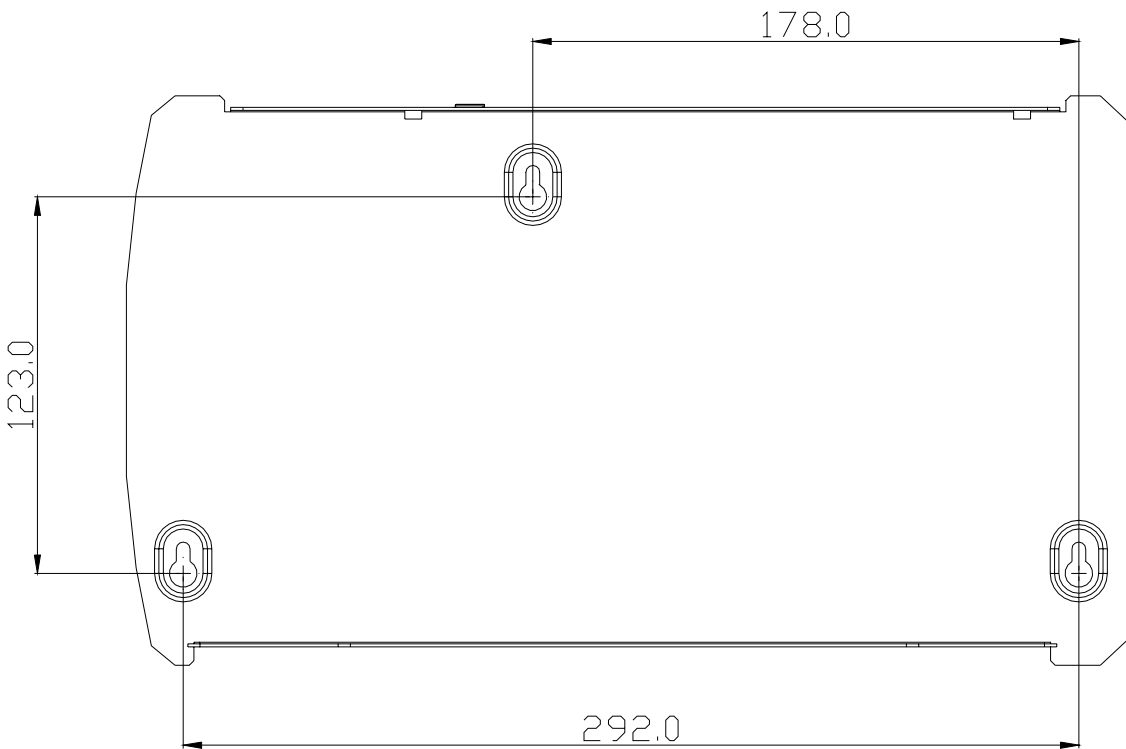
## Appendix A

### Mechanical Drawings

#### Chassis Connections



#### Hole Fixing Positions



All Dim's in mm  
View shown: internal view with lid removed

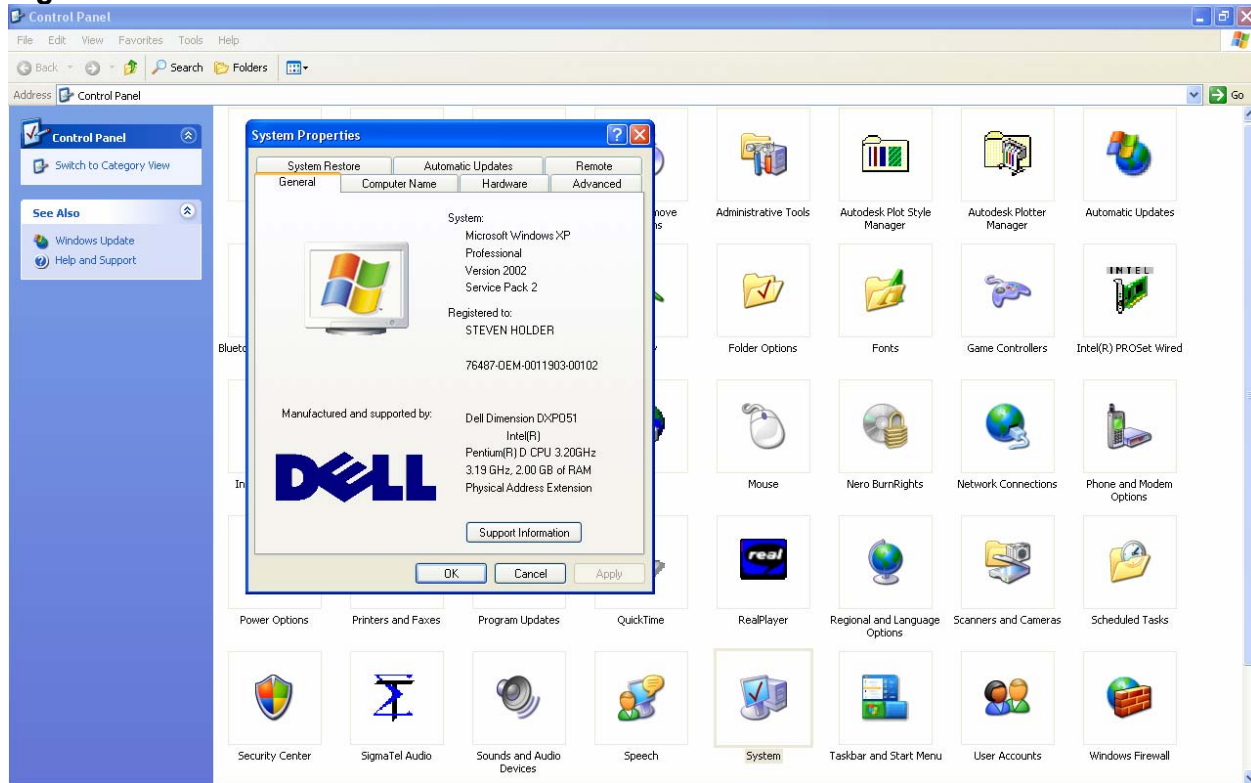
# VDI PRO: VOLTAGE & DRY CONTACT INTERFACE

## Appendix B

### Identifying USB Comm Port

From the main start menu select Settings and Control Panel and double click on the system icon as shown below in Fig C.1

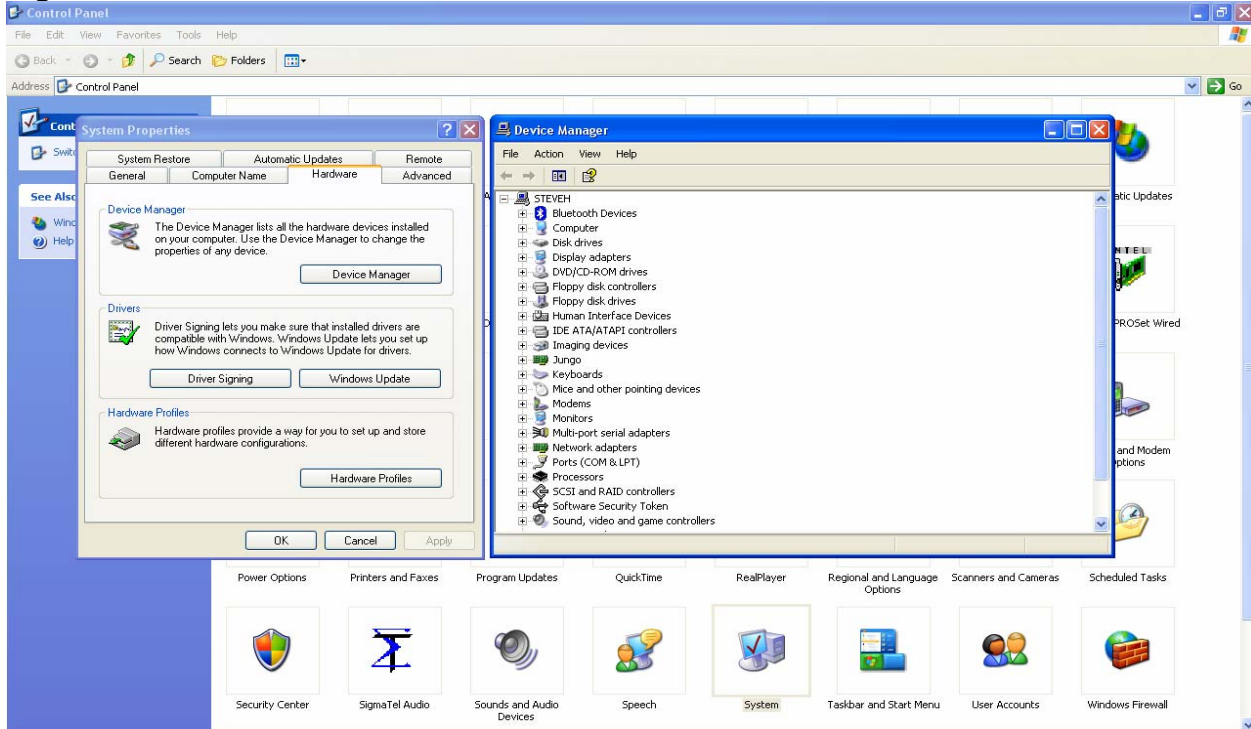
Fig C.1



Select the hardware tab and click the device manager button, the screen should be as shown in Fig C.2 below.

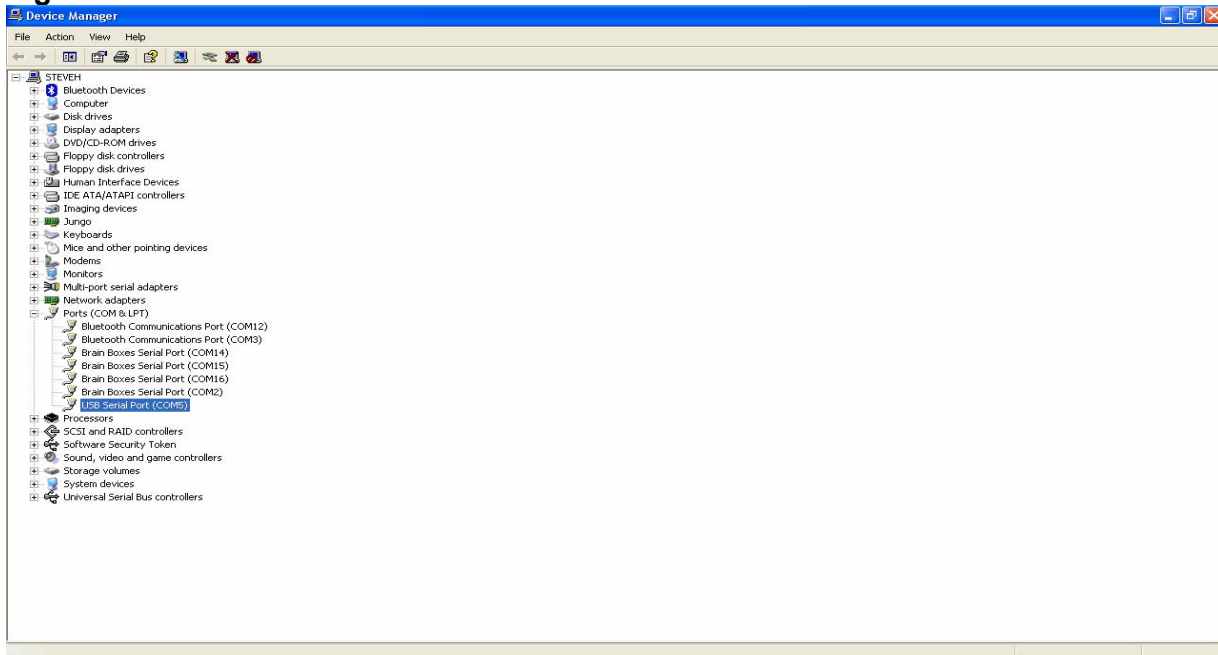
# VDI PRO: VOLTAGE & DRY CONTACT INTERFACE

Fig C.2



Click on the Ports (COM & LPT) to expand the list of com ports currently connected. The USB device is identified as USB Serial Port, the port number is shown in brackets.

Fig C.3



\*\*\*\*\*END OF DOCUMENT\*\*\*\*\*