SPECTO TECHNOLOGY

a world of solutions

VWstalker Programmer V2 User Guide

Prepared by: Specto Technology, LLC

Updated on: February 26, 2020

+1 866 925 7737
info@spectotechnology.com
www.spectotechnology.com

Table of Contents

1 Introduction

- NEW: This user guide has been updated to cover the VWstalker Programmer V2 software, which has been revised to work with VWstalker V2 as well as VWstalker V5. The VWstalker Programmer hardware has not changed.

- The VWstalker is a VW to SDI12 interface designed to work with WASP-VW to take readings from the vibrating wire sensors using the zero-crossing method.

- The VWstalker Programmer comprises of the hardware and software tools that allow the users to view and change the following settings of each VWstalker:

  - ✓ Address of the VWstalker
  - ✓ Sweeping frequencies
  - ✓ Excitation voltages

- The VWstalker can also be used to take VW sensor readings for trouble shooting purposes.

2 Components of the VWstalker Programmer

2.1 VWstalker Programmer hardware

- One "Programmer"
- One AC power supply with output of 12 VDC (nominal)
- One USB to serial adapter

2.2 VWstalker Programmer Software

- The custom software - "VWstalker Programmer.exe"
- The software is Windows based and requires .NET Framework 3.5 to run (available for free download from microsoft.com.

3 Connecting the VWstalker Programmer

- Image of VWstalker V5

- Connecting VWstalker to Programmer. Only one VWstalker at a time.

VWstalker Programmer Terminals	Wire Color of VWstalker V2	Wire Color of VWstalker V5 (NEW)
POWER	BROWN	RED and WHITE
GND	WHITE	GREEN
DATA	GREEN	BLACK

- Plug the USB end of the USB to serial adapter into a USB port on the PC. Check the "Device Manager" to find out the number of the COM port assigned to the USB to serial adapter.
- Connect up to 2 x VW sensors to the VWstalker (wiring information is given at the end of this user guide)
- Plug the AC power adapter into an AC power socket

4 VWstalker Wiring Information for Sensors

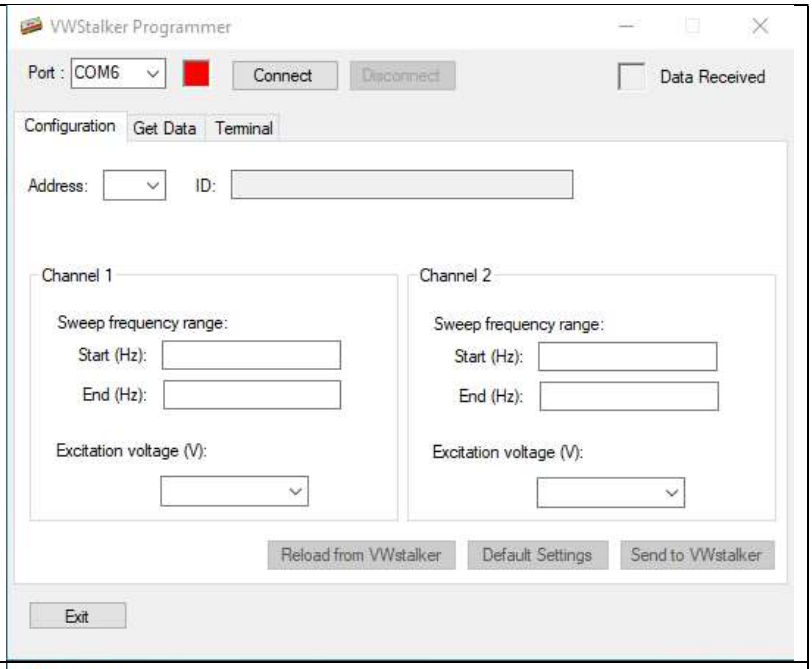
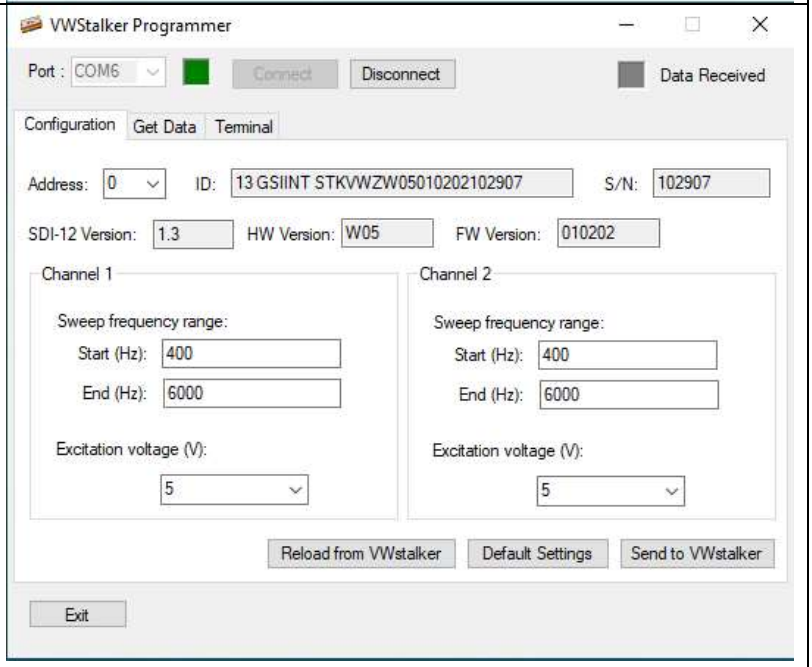
Channel	Sensors	VWstalkerV2 Wire Color	VWStalkerV5 Wire Color
1	Vibrating Wire	BROWN	RED
	GND	WHITE	BLACK
	3K Thermistor	YELLOW	WHITE
	GND	GREEN	GREEN
	Chassis Ground	-	GREEN AND YELLOW
2	Vibrating Wire	ROSE	RED
	GND	GREY	BLACK
	3K Thermistor	RED	WHITE
	GND	BLUE	GREEN
	Chassis Ground	-	GREEN AND YELLOW

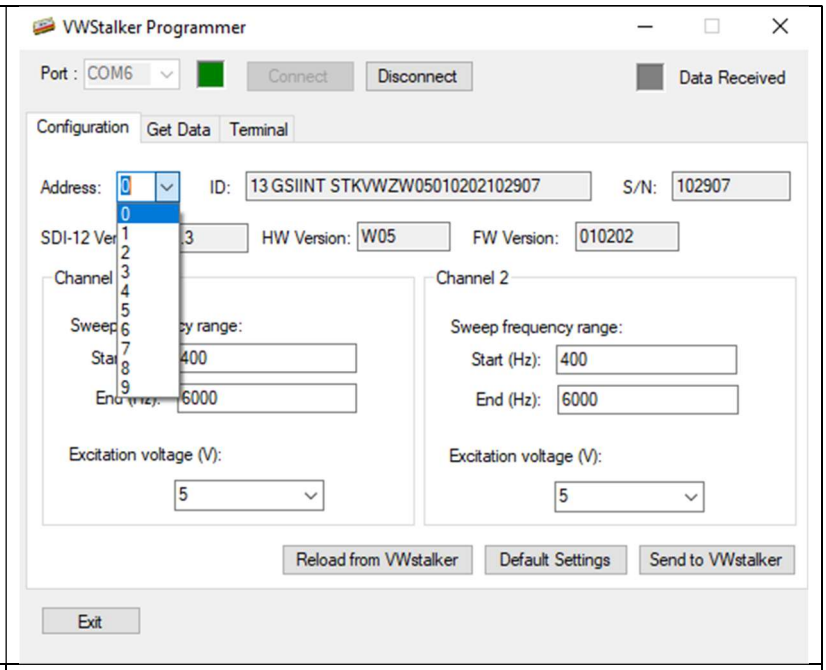
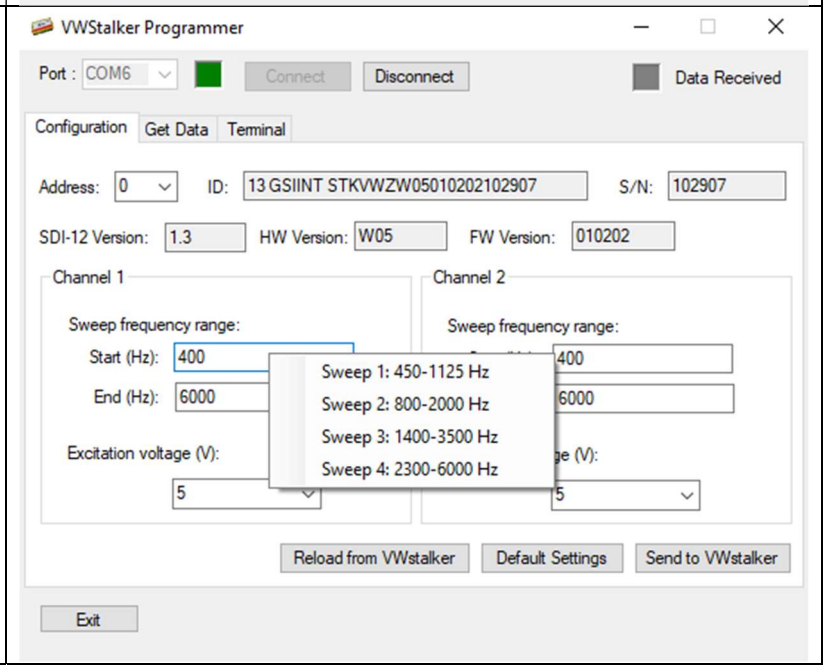
Notes:

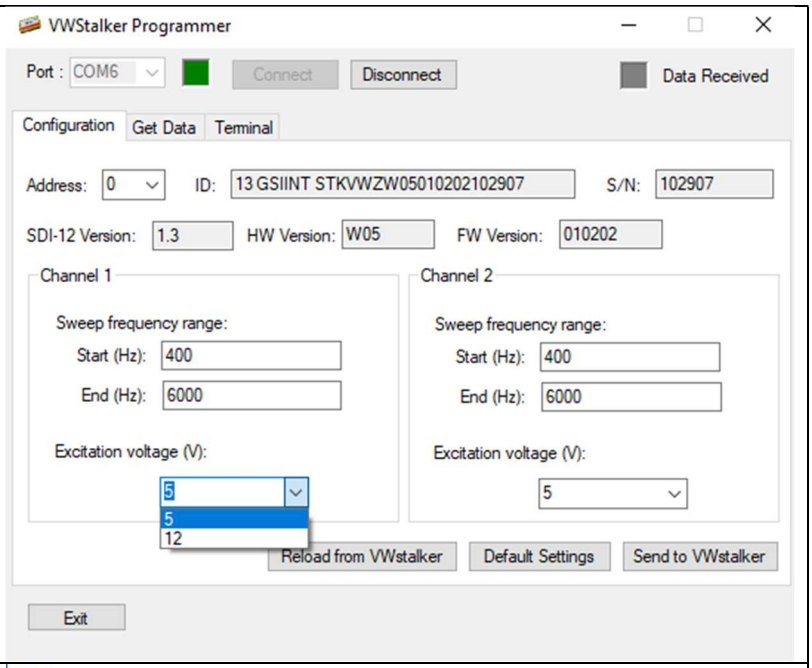
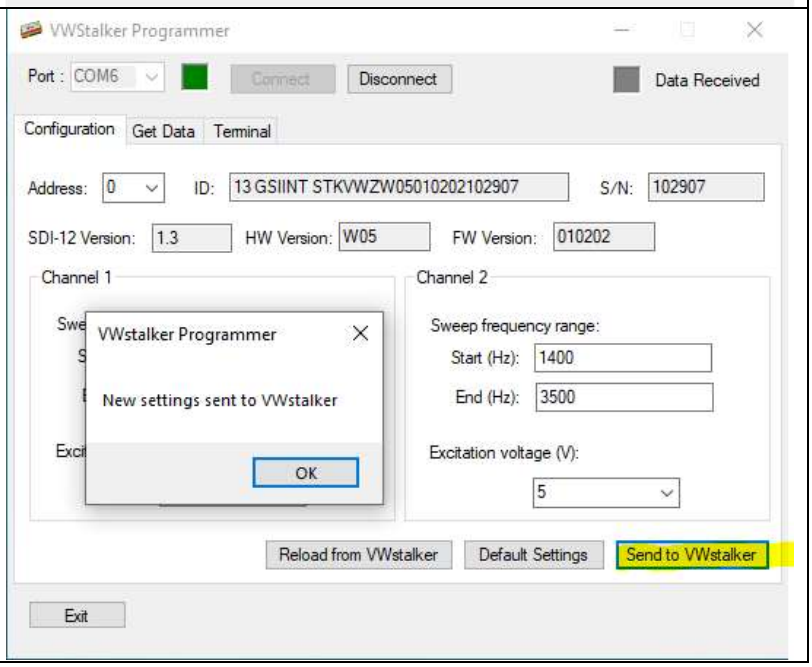
- All GND are connected to the metal back plate of the VWstalker enclosure (Housing Ground)
- Proper grounding of VWstalker housing is recommended to improve reading quality
- VWstalker only works with 3K thermistors

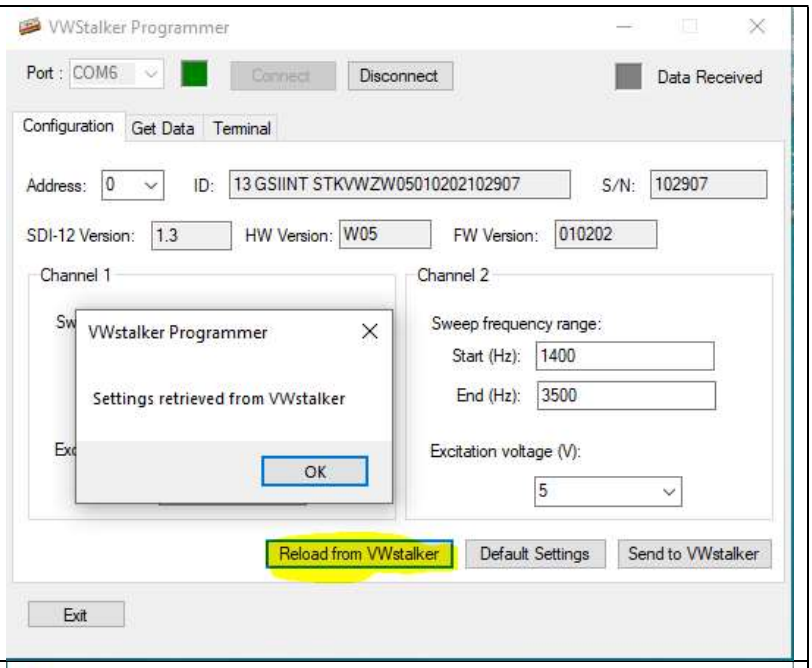
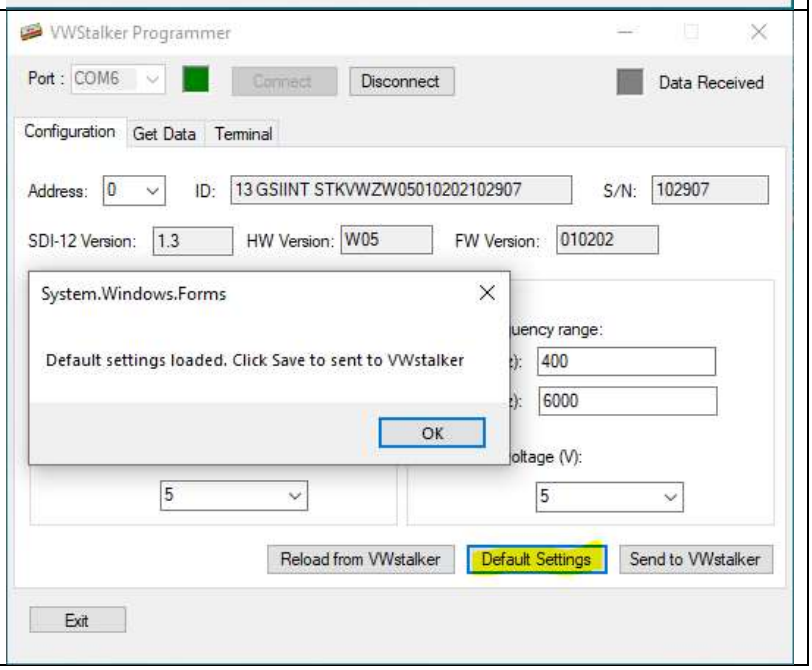
5 Using the VWstalker Programmer

5.1 “Configuration” Tab

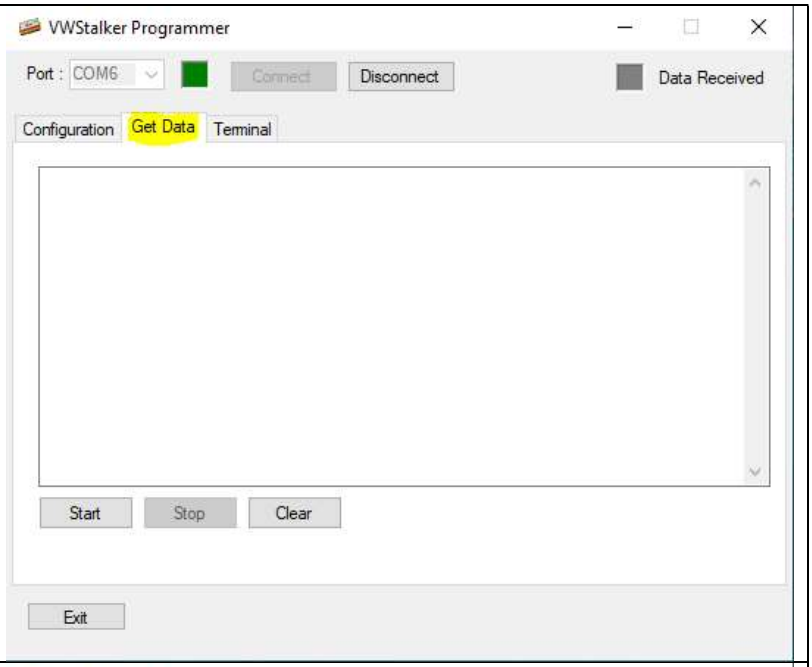
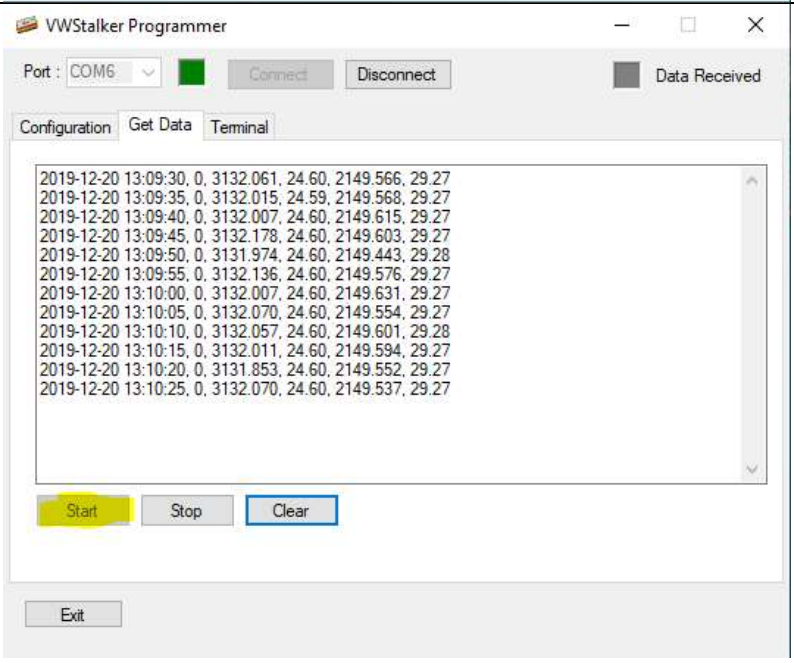
Start up: - Run "VWstalker Programmer.exe" - Go to "Configuration" tab	
Connect to the VWstalker - Select the correct COM port assigned to the USB to serial adapter (see Section 7 for details) - Click "Connect" - The status icon will turn from red to green - The current settings of the VWstalker will be retrieved and displayed, including: • Address • ID (read only) • Serial Number (S/N) • SDI-12 version, • Hardware (HW) version • Firmware (FW) version • Sweep frequency range for channels 1 and 2 • Excitation voltage for channels 1 and 2	

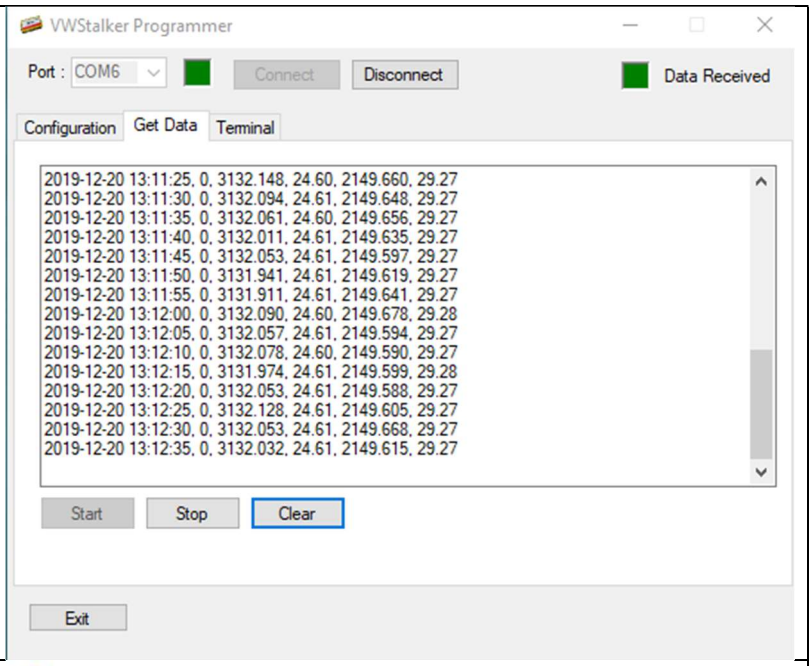
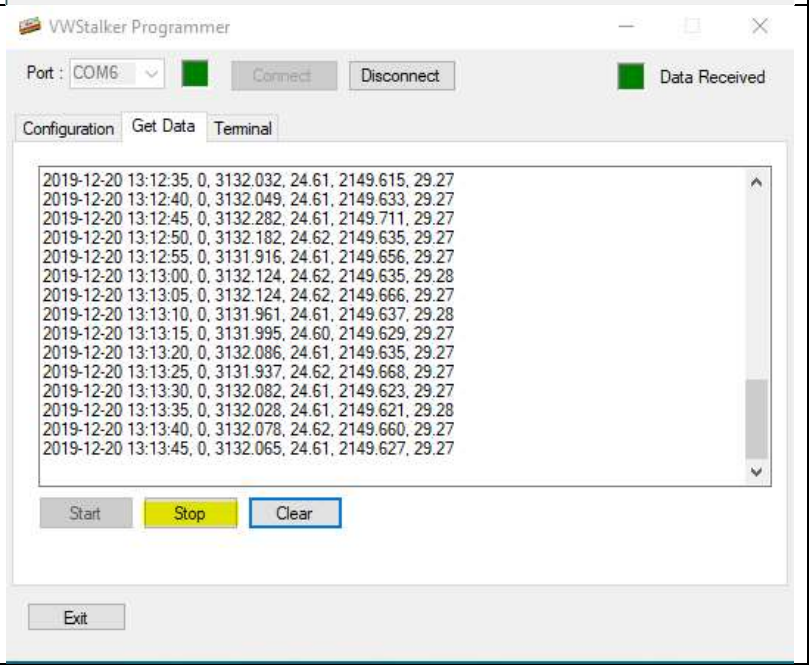
Change the VWstalker's address: - The factory default address is 0 - If change of address is needed, select a new address from the dropdown list between 0 and 9 - The VWstalker Programmer can work with only one VWstalker at a time	
Change sweep frequencies: - The factory default range of sweep frequency is 400 to 6000 Hz for both channels - Click on the start and end frequencies for each channel and edit as necessary - Alternately, right click on the start and end frequencies for each channel and select from 4 pre-defined sweeping ranges	

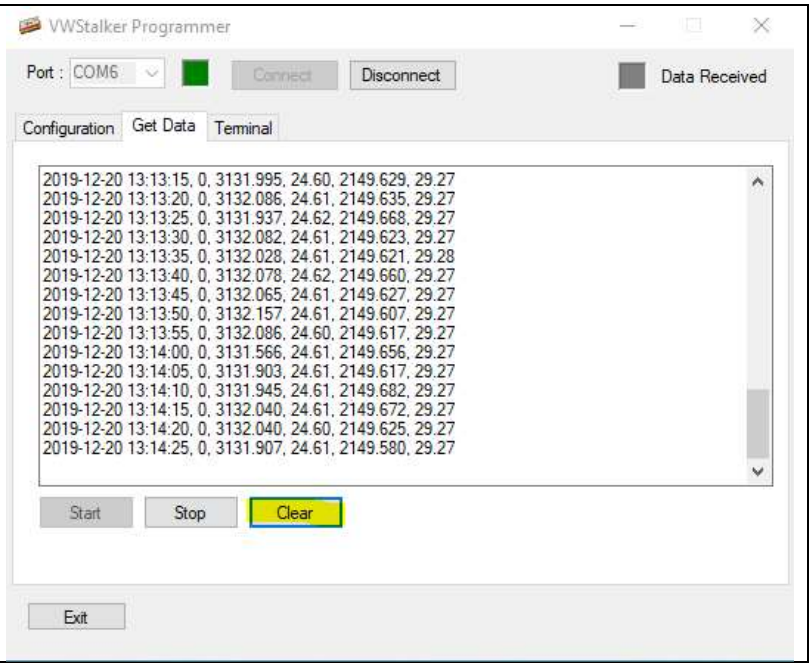
Change excitation voltages: - Select 5V or 12V as excitation voltage for each channel using the dropdown list	
Save the new settings: - When the changes are made, click on "Send to VWstalker" to send the new settings to the VWstalker. - Click “OK” to confirm the new settings has been saved	

Reload settings from VWstalker: - Click "Reload from VWstalker" to reload the current settings from the VWstalker - Click “OK” to confirm the current settings have been reloaded.	
Default settings: - Click "Default Settings" to populate all the fields with factory default values. - Click “OK” to confirm all settings have been set to the factory default values on screen - To return all settings in the VWstalker to factory defaults, click on “Send to VWstalker”.	

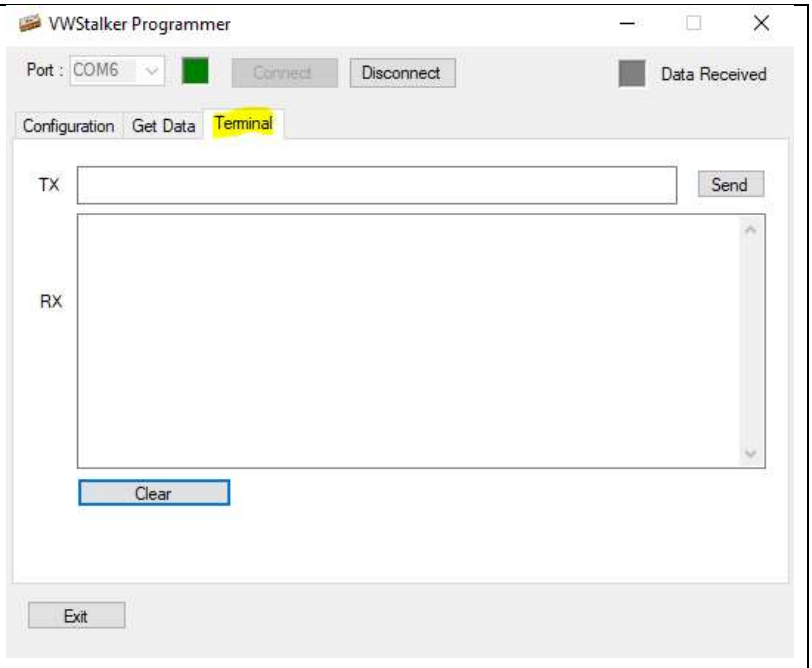
5.2 “Get Data” Tab

Start up: - Run "VWstalker Programmer.exe" - Click "Connect" to connect the VWstalker if not already connected to the VWstalker - Go to "Get Data" tab	
Get Data: - Click "Start" to start taking readings from the VW sensors connected to the VWstalker - New readings will be taken every 5 seconds and displayed in the format below: *TimeStamp,Adr,Hz1,DegC1,Hz2,DegC2* - When no sensors are connected, the Hz reading will be 0 and the temperature reading will be -43	

Get Data: - The screen shot on the right showed valid readings taken from 2 x VW sensors	
Stop Reading: - Click "Stop" to pause taking readings from the VW sensors	

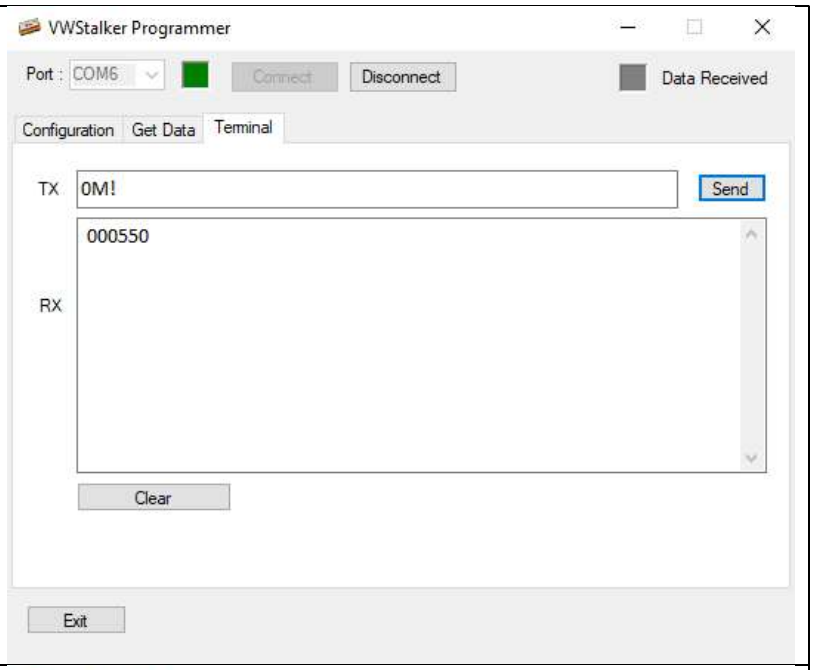
Clear old readings: - Click on "Clear" to delete old readings from the display	

5.3 “Terminal” Tab

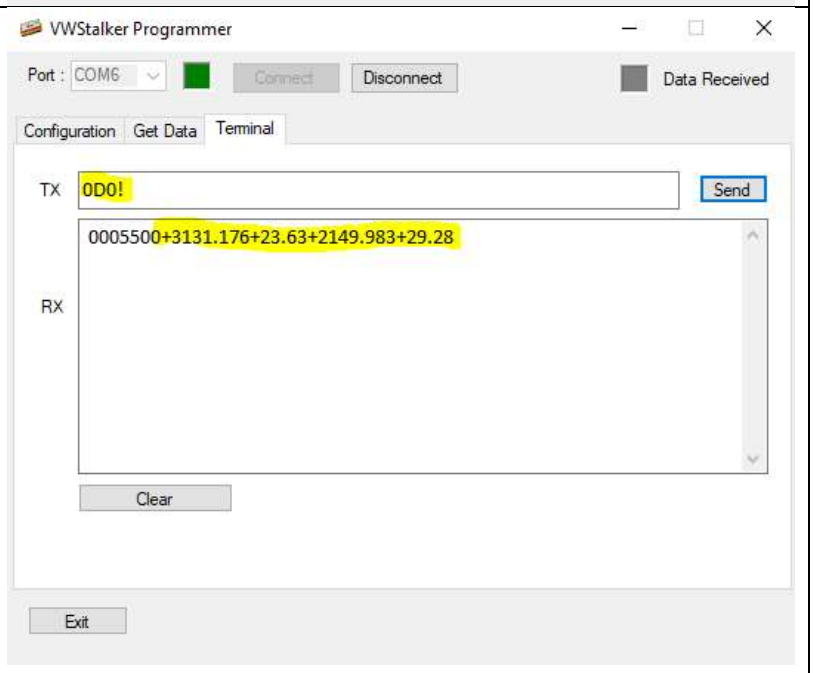
Start up: - Run "VWstalker Programmer.exe" - Click "Connect" to connect the VWstalker if not already connected to the VWstalker - Go to "Terminal" tab	

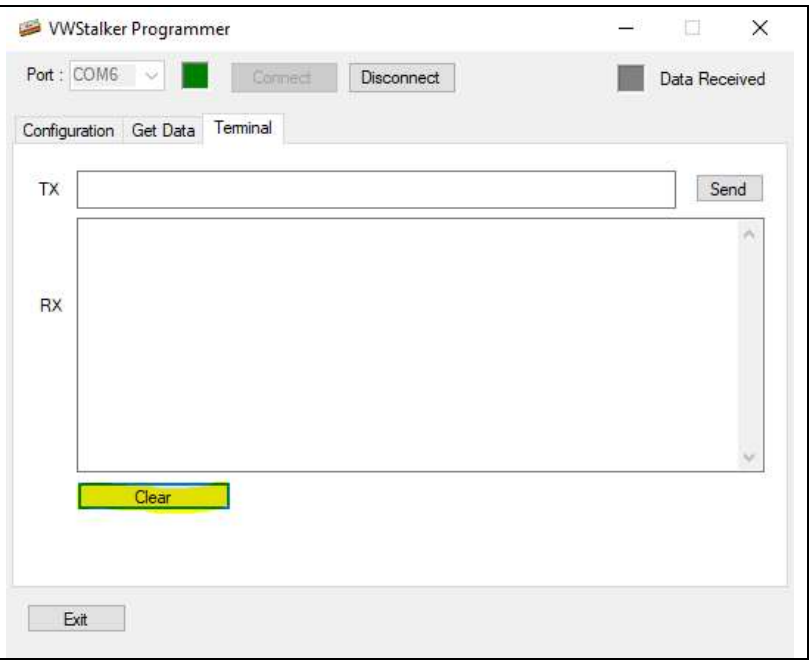
Send a SDI12 Command:

- Type the command in the TX box
- Click "Send" to send the command to VWstalker
- The responses from the VWstalker will be displayed in the RX box
- A list of commands is given at the end of this user guide
- The example on the left shows response to the command of “0M!”



- Delete the previous command and enter a new command
- Click on “Send”
- Response to the new command will be appended in the RX box
- The example on the left shows response to the command of “0D0!”



Delete the contents of TX and RX boxes: - Click on "Clear" to delete the command and responses in the TX and the RX boxes.	

6 List of SDI12 Commands

'a' = address, can be replaced with '?' as an universal address.

Command	Response	Description
a!	a\r\n	Acknowledge active
aI!	013 GSIINT STKVWZW05010202102907	ID containing SDI-12 version, HW version, FW version and S/N
aAb!	b\r\n	Change address a = initial address b = new address
aM! aMC!	a0055\r\n instrument with address returns 2 x VW & 2 x Temp after 40 seconds	Start measurement: instruct an instrument to make measurement
aC! aCC!	a00055\r\n instrument with address returns 17 values after 40 seconds	Start measurement: instruct an instrument to make measurement
aD0!	a+x.x+x.x+x.x+x.x\r\n	• 4 values: VW1, Temp1, VW2, Temp2 • VW1 and VW2 are frequencies in Hz, calculated by zero-crossing method • Temp1 and Temp2 are temperature readings in degrees C
aD1!	a+x.x \r\n	PCB temperature, in C
aXWRREG40003VALd!	aOK\r\n or aERROR\r\n	Set Sensor1 Excitation voltage d : 0- no excitation 5 – 5 V 12- 12V
aXWRREG40004VALd!	aOK\r\n or aERROR\r\n	Set Sensor2 Excitation voltage d : 0- no exciting 5 – 5 V 12- 12V
aXWRREG40005VALd!	aOK\r\n or aERROR\r\n	Set Sensor1 Sweep frequency Fmin in Hz d : frequency in Hz
aXWRREG40006VALd!	aOK\r\n or aERROR\r\n	Set Sensor1 Sweep frequency Fmax in Hz d : frequency in Hz
aXWRREG40007VALd!	aOK\r\n or aERROR\r\n	Set Sensor2 Sweep frequency Fmin in Hz d : frequency in Hz
aXWRREG40008VALd!	aOK\r\n or aERROR\r\n	Set Sensor2 Sweep frequency Fmax in Hz d : frequency in Hz
aXRDREG40003!	ad\n\r	Read Sensor1 Excitation voltage, in V

		d : voltage
aXRDREG40004!	ad\n\r	Read Sensor2 Excitation voltage, in V d : voltage
aXRDREG40005!	ad\n\r	Read Sensor1 Sweep frequency Fmin in Hz d : frequency in Hz
aXRDREG40006!	ad\n\r	Read Sensor1 Sweep frequency Fmax in Hz d : frequency in Hz
aXRDREG40007!	ad\n\r	Read Sensor2 Sweep frequency Fmin in Hz d : frequency in Hz
aXRDREG40008!	ad\n\r	read Sensor2 Sweep frequency Fmax in Hz d : frequency in Hz

7 COM Port Number Look-up

Steps	Screen shot
1. Plug the USB-serial adapter into one of the USB port on the PC 2. Right click on the Window Start icon  3. Select “Device Manager” 4. Expand “Ports (COM & LPT) 5. Locate “UBS Serial Port (COMx) 6. Where x is the COM Port Number. 7. In the example to the right, COM Port number is 6 (COM6).