



VW HUB2

User Manual

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INTRODUCTION

SYSTEM DESCRIPTION

Things You Need to Know about VW HUB2

VW HUB2 is a simple portable VW sensor data logger comprising 2 channels in a water jet proof enclosure. When stand-alone power system is running low and recording data becomes slow, VW HUB2 can provide a quick and easy implementation of the program. VW HUB2 is a low power consumption device. The device is designed to survive on two D-cell batteries for 12 months of work. The 4 MB built-in memory is capable of storing above 50,000 records.

VW HUB2 is applicable to slope engineering with water-level indicators and water pressure meters, load cells, structural crack meters and slip displacement gages, and many other instruments.

FEATURES

- Large internal memory of 4 MB
- IP65 (dust-tight and water jet proof) rated rugged, die-cast aluminum enclosure
- Low power requirement, 2xD batteries last at least a year at a reading rate of 1/hour
- Easy configuration and firmware upgrade via mini-USB to USB cable
- True USB interface; Data is downloaded by drag-and-drop from VW HUB2 to PC or laptop hard drive
- Reads with full sweep frequency range (450 to 6000 Hz) or any user definable range
- All electronics sealed to protect from static and water damage

BENEFITS

- Reads all types of commercially available VW sensors
- Ideal for rugged and damp environments
- Allows data collection immediately after sensor installation
- Fast setup and download time
- Versatile and economical

SPECIFICATIONS

Number of instruments: 2 channels

Resolution: 0.01 Hz

Temperature resolution: 0.1 °C

Box Size: 12x12x8 cm

WARRANTY

Please refer to our terms and conditions of sale for warranty information.

DISPOSAL

How to get rid of the VW HUB2

Products marked with Taiwan's recycling symbol  are subject to the following disposal rules:

- This product is designated for separate collection at an appropriate collection point
- Do not dispose of as household waste
- For more information, contact Sanlien or the local authority in charge of waste management

Hardware Materials

What you need to start

VW HUB2

A VW HUB2 as described in the introduction section.



VW SENSOR and CABLE

Any type of commercially available VW type sensors:

- VW rebar strain gauge
- VW spot weldable strain gauge



USB CABLE

The USB cable is a type A male connector on one end and a Mini-B 5 pin male on the other. The length of the cable varies as needed.



PC or LAPTOP

Any PC or laptop with USB port.

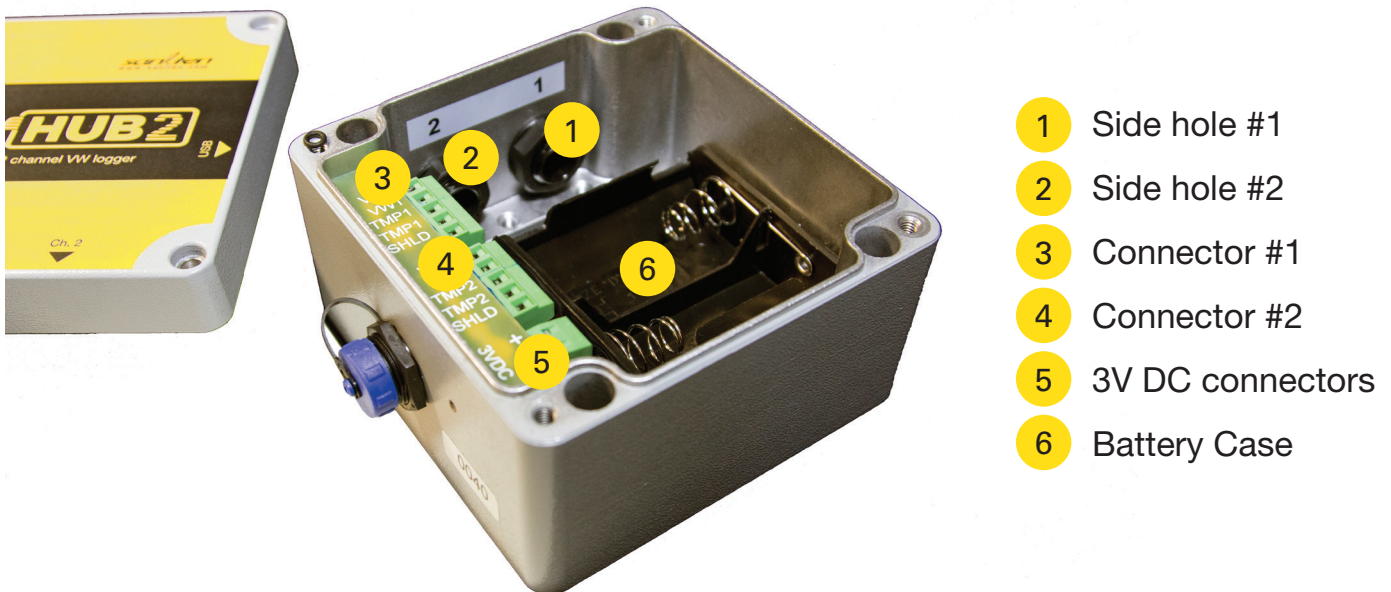


VW HUB2 COMPONENTS

The VW HUB2 has 6 components:

- 1) Side hole #1: For cable #1 from sensor #1 to connector #1
- 2) Side hole #2: For cable #2 from sensor #2 to connector #2
- 3) Connector #1: For connection of cable #1
- 4) Connector #2: For connection of cable #2
- 5) 3V DC connectors: For connection of external power source cable
- 6) Battery Case: For insertion of the 2xD cell batteries

TIPS: Side holes #1 and #2 can also be used for external power source cables.

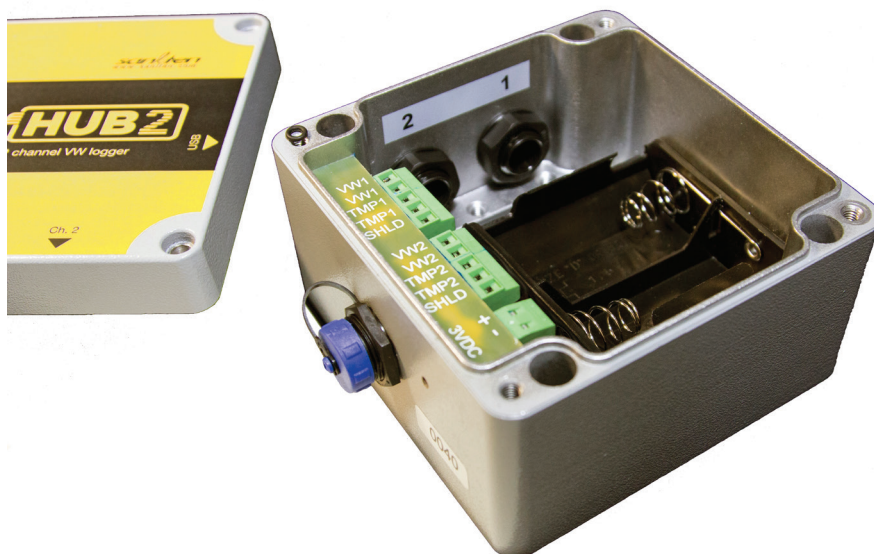


How to Operate



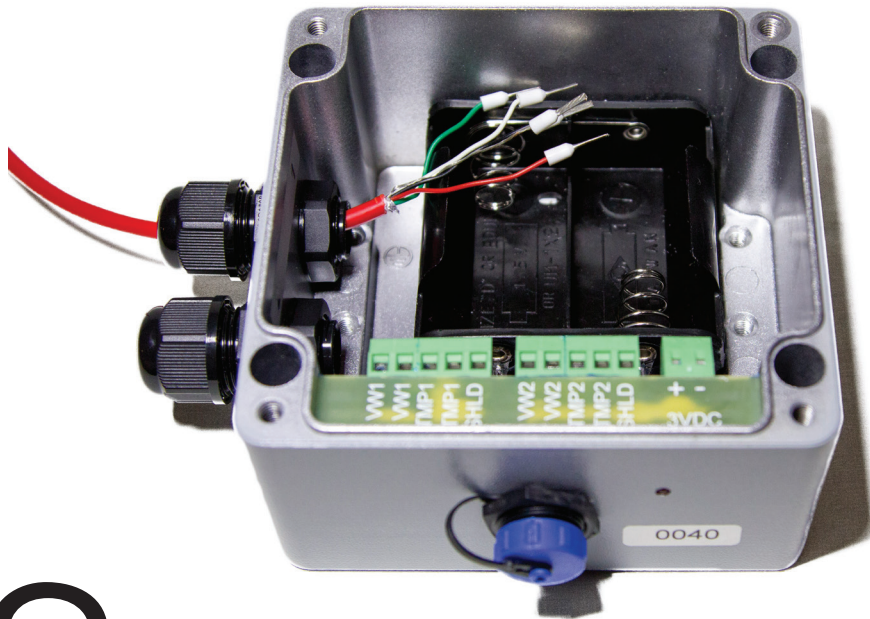
1

Use a screwdriver to unscrew the fasteners of the cover and open the lid.



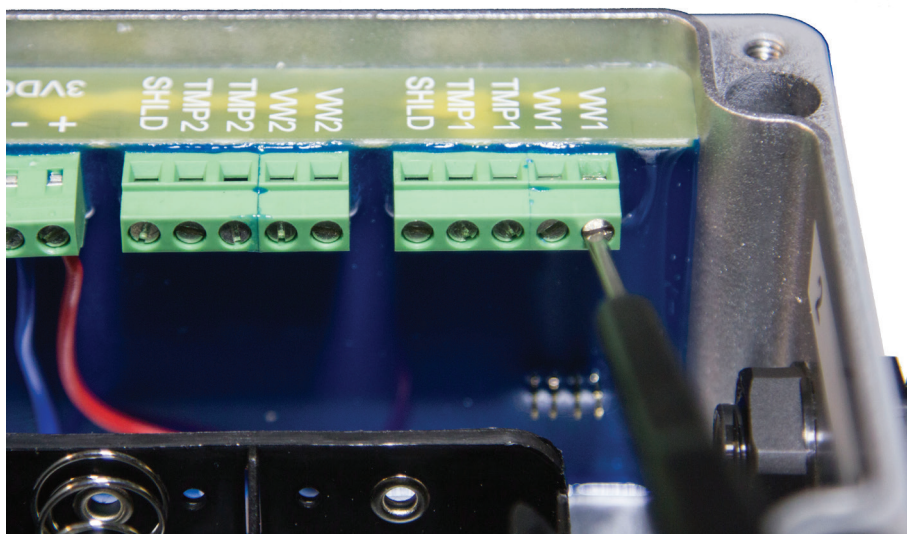
2

Check the components as showed in the previous section.



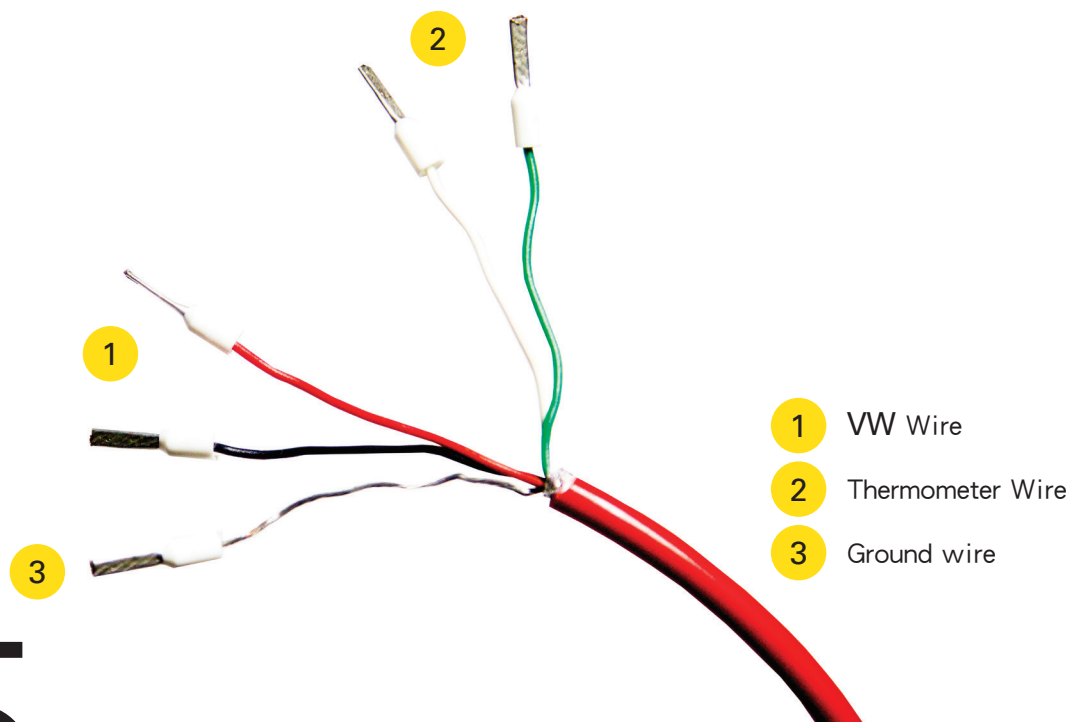
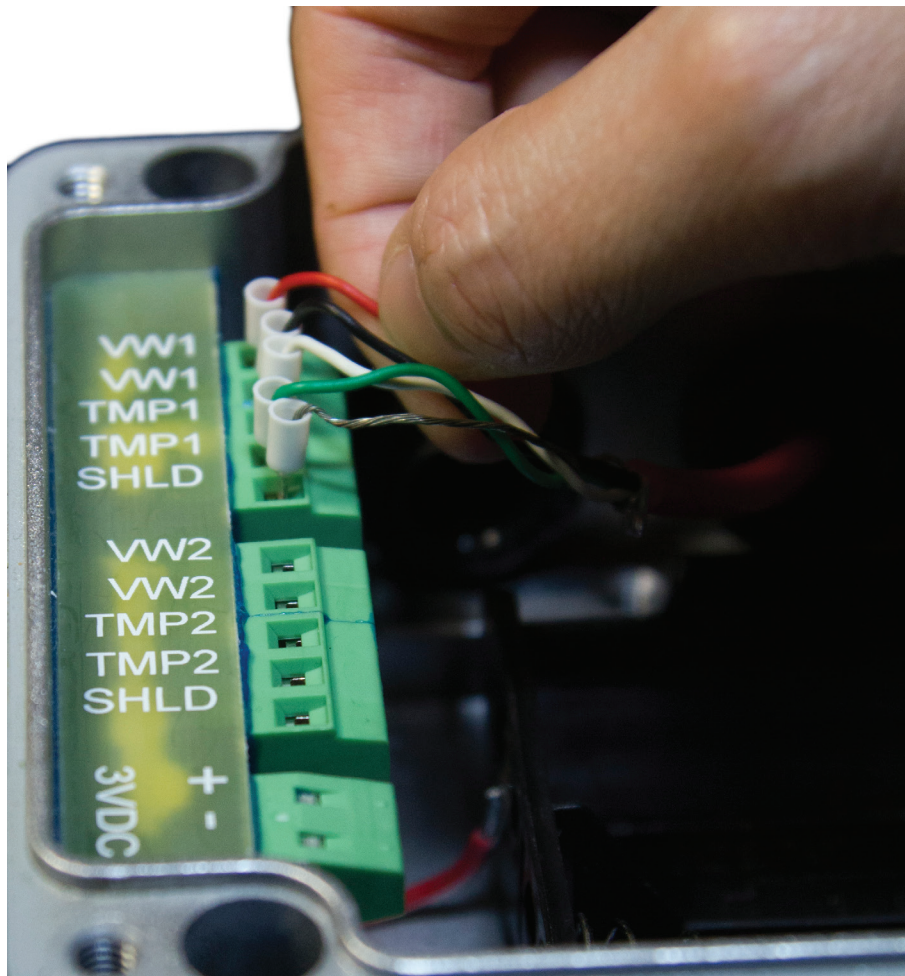
3

Loosen the side hole and insert the VW sensor cable from the outside.



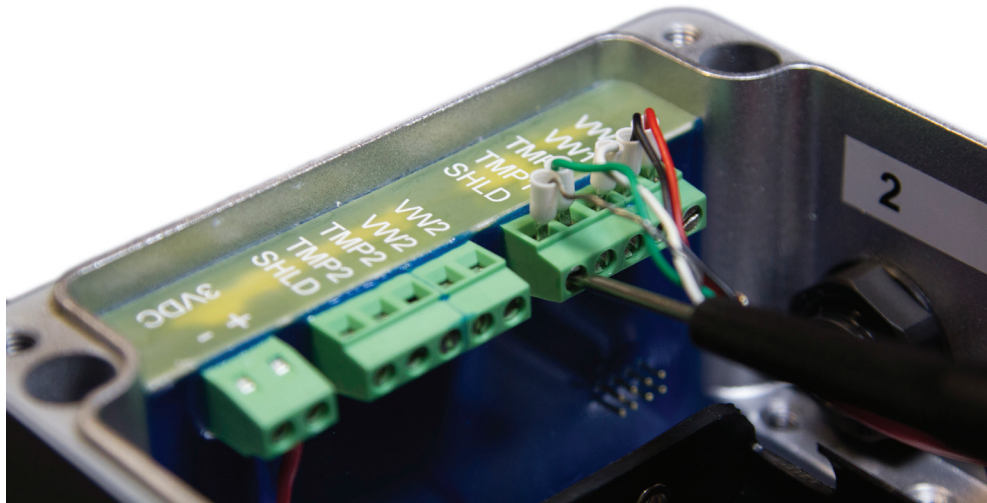
4

Loosen the screws of the connector.



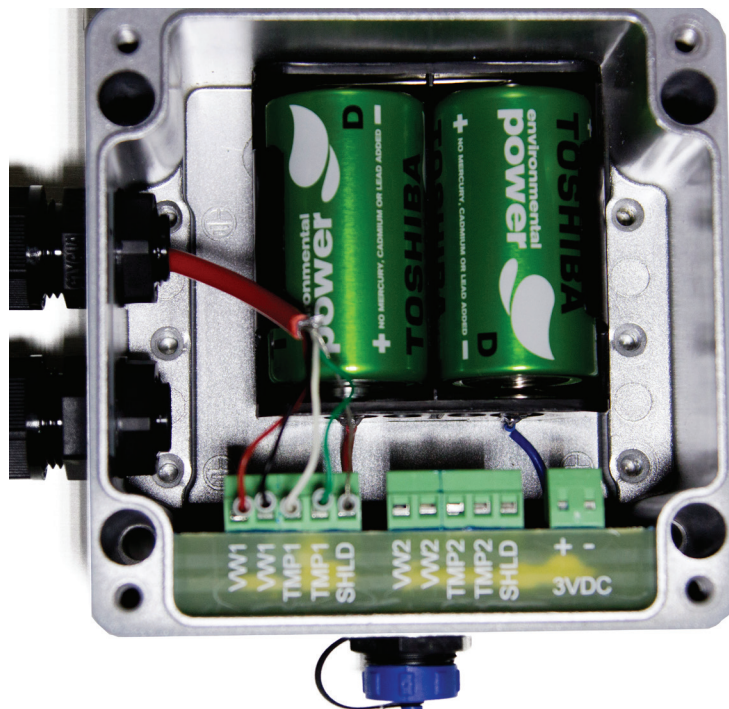
5

- I. The 2 VW sensor wires into the VW1 connector holes (regardless of order).
- II. The 2 thermometer wires into the Tmp1 connector holes (regardless of order).
- III. The grounding wire into the Shld connector hole.



6

Tighten the connector screws and make sure all wires are well fixed.



7

Install the 2xD cell batteries in the battery case.



8

Screw the lid back on, close any unused side hole, and remove the front blue cap to open the mini-B 5 pin female connector.



9

Connect the USB cable to the blue capped port of the VW HUB2 and to the USB port of your computer.



10

If everything is operating according to procedure, there should be a bright red LED light next to the blue capped connector. Check for that red light.

The LED Light:

- It blinks every 8 seconds.
- It is constant when the device is scanning VW sensors.
- It is constant when the USB port is being used.

BATTERY MAINTENANCE

The VW HUB2 is powered by 2xD cell batteries. The VW HUB2 battery status can be logged at regular intervals to monitor the battery levels, avoiding loss of power and therefore loss of data by ensuring you replace the batteries in a timely manner.

When replacing the batteries, make sure to run all the start-up tests to ensure that the VW HUB2 is fully functioning.

Battery life is dependent on the following factors:

- Upload frequency
- Battery type
- Sensor reading frequency
- Ambient temperature

Sanlien advise that with both channels active, the VW HUB2 will last for six months operating on a 1 hour scan interval and a twice daily upload.

WARNINGS

- 1- Take care to insert the batteries with the correct polarity, ensuring +/- on the batteries corresponds with +/- on the battery case.
- 2- Please be aware that this is for the VW HUB2 and not for any sensors attached to it. Please refer to the manual for your sensor for further information.

BATTERY Q&A

What is the expected battery life of the device at a typical monitoring interval?

E.g. How long will Alkaline batteries typically last logging hourly?

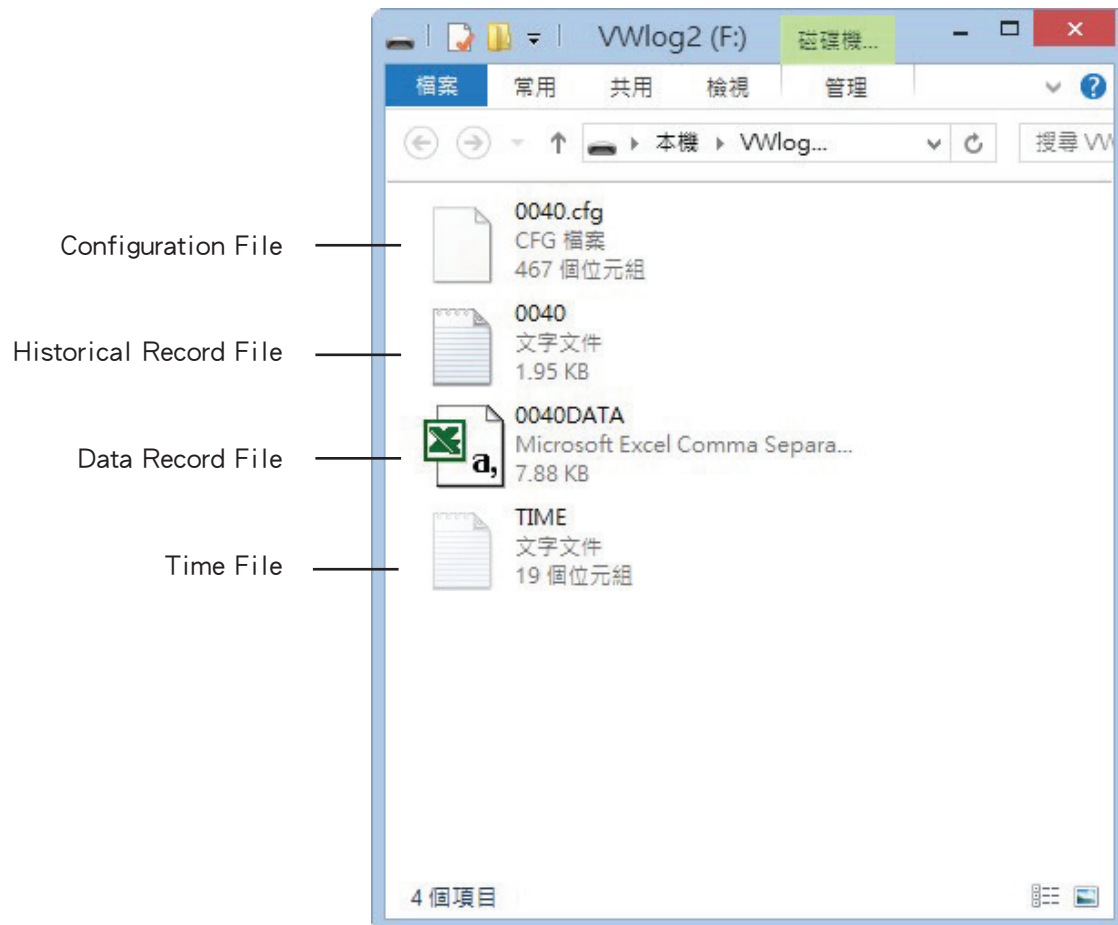
Logging hourly, the expected battery life of the device should be around 6 months.

What must I avoid to prevent breaking the config/csv file?

Make sure your USB cable is always connected to your computer while editing the config/csv file. If you disconnected the USB cable during the process of editing, you may break the files.

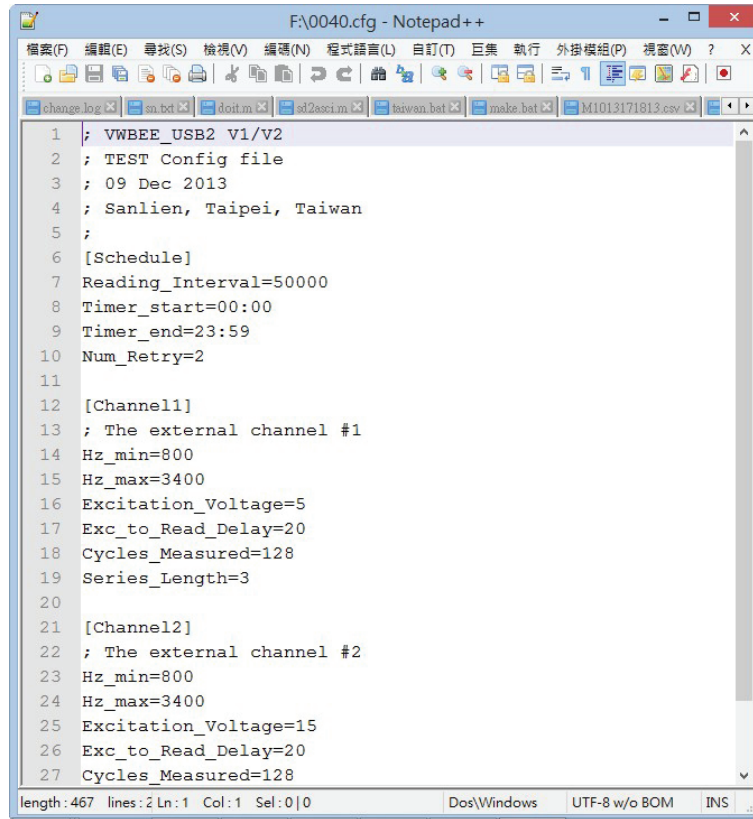
Software Setup

After completion of the hardware setup, turn on the computer. VW HUB2 will be incorporated in the computer as VW log (G:) containing 4 files:



CONFIGURATION/CSV FILE

Open the Configuration File  0040 reads as follow:



```

F:\0040.cfg - Notepad++
檔案(F) 編輯(E) 尋找(S) 檢視(V) 編碼(N) 程式語言(L) 自訂(T) 巨集 執行 外接模組(P) 視窗(W) ? X
change.log x sn.bat x doirm x d2ascim x taiwan.bat x make.bat x M1013171813.csv x
1 ; VWBEE_USB2 V1/V2
2 ; TEST Config file
3 ; 09 Dec 2013
4 ; Sanlien, Taipei, Taiwan
5 ;
6 [Schedule]
7 Reading_Interval=50000
8 Timer_start=00:00
9 Timer_end=23:59
10 Num_Retry=2
11
12 [Channel1]
13 ; The external channel #1
14 Hz_min=800
15 Hz_max=3400
16 Excitation_Voltage=5
17 Exc_to_Read_Delay=20
18 Cycles_Measured=128
19 Series_Length=3
20
21 [Channel2]
22 ; The external channel #2
23 Hz_min=800
24 Hz_max=3400
25 Excitation_Voltage=15
26 Exc_to_Read_Delay=20
27 Cycles_Measured=128
length: 467 lines: 2 Ln: 1 Col: 1 Sel: 0|0 Dos/Windows UTF-8 w/o BOM INS

```

[Schedule]
Reading_Interval=300 _____ Reading interval (second)
Timer_start=00:00 _____ Start time
Timer_end=23:59 _____ Finish time
Num_Retry=0 _____ Number of trials

[Channel1] _____ Channel system #1
; The external channel #1
Hz_min=800 _____ Minimum frequency
Hz_max=3400 _____ Maximum frequency
Excitation_Voltage=5 _____ Voltage excitation varies from 5 to 15
Exc_to_Read_Delay=20
Cycles_Measured=128
Series_Length=3

[Channel2] _____ Channel system #2
; The external channel #2
Hz_min=800
Hz_max=3400
Excitation_Voltage=5
Exc_to_Read_Delay=20
Cycles_Measured=128
Series_Length=3

HISTORICAL RECORD FILE

Open the Historical Record File



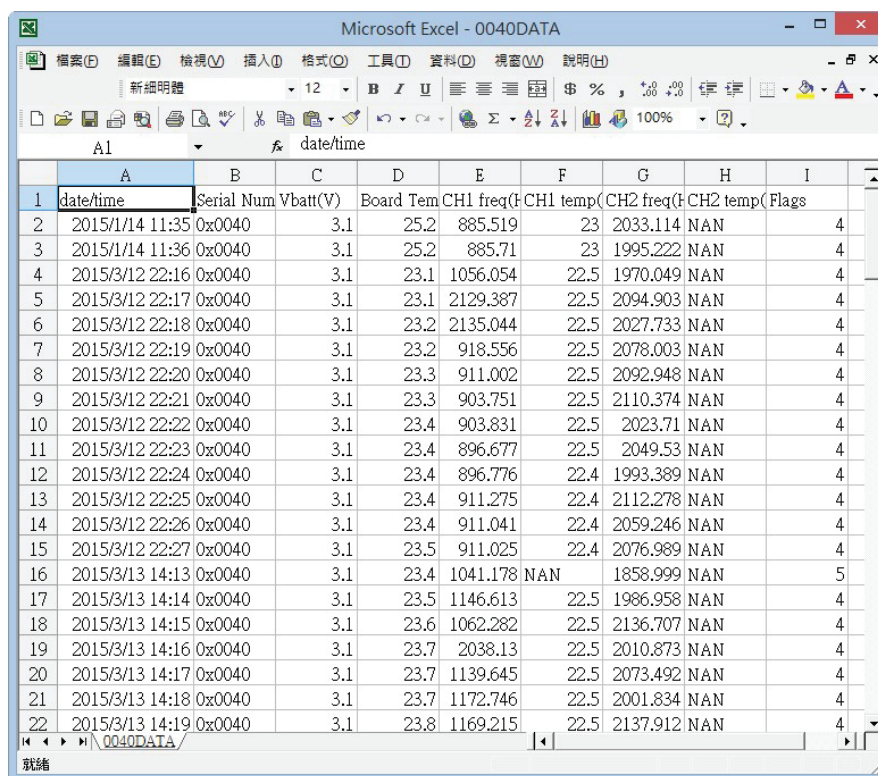
0040 reads as follow:

```

1 2012-01-01 00:00:00 disk has been formatted
2 2012-01-01 00:00:00 timefile has been created
3 2012-01-01 00:00:00 an error during config file reading
4 2012-01-01 00:00:01 Power ON. Firmware info: V1.11 / 2014 Nov 05
5 2012-01-01 00:00:06 an error during config file reading
6 2012-01-01 00:00:15 an error during config file reading
7 2012-01-01 00:00:24 an error during config file reading
8 2012-01-01 00:00:33 an error during config file reading
9 2012-01-01 00:01:09 an error during config file reading
10 2012-01-01 00:01:09 Power ON. Firmware info: V1.11 / 2014 Nov 05
11 2012-01-01 00:01:14 an error during config file reading
12 2012-01-01 00:01:14 Power ON. Firmware info: V1.11 / 2014 Nov 05
13 2012-01-01 00:02:03 an error during config file reading
14 2012-01-01 00:02:03 Power ON. Firmware info: V1.11 / 2014 Nov 05
15 2012-01-01 00:02:24 an error during config file reading
16 2012-01-01 00:02:43 Time has been changed. New time: 2014-12-16 17:58:30
17 2014-12-20 17:31:00 Power ON. Firmware info: V1.11 / 2014 Nov 05
18 2014-12-20 17:31:48 Power ON. Firmware info: V1.11 / 2014 Nov 05
19 2014-12-20 17:32:48 Power ON. Firmware info: V1.11 / 2014 Nov 05
20 2014-12-30 13:30:27 Power ON. Firmware info: V1.11 / 2014 Nov 05
21 2014-12-30 16:45:06 Power ON. Firmware info: V1.11 / 2014 Nov 05
22 2015-01-06 18:05:53 Power ON. Firmware info: V1.11 / 2014 Nov 05
23 2015-01-14 03:59:40 Power ON. Firmware info: V1.11 / 2014 Nov 05
24 2015-01-14 04:00:24 config file has been changed
25 2015-01-14 11:00:57 Time has been changed. New time: 2015-01-14 11:00:57
26 2015-01-14 11:30:40 Power ON. Firmware info: V1.11 / 2014 Nov 05
27 2015-01-14 11:34:39 config file has been changed
  
```

DATA RECORD FILE

Open the Data Record File  0040DATA reads as follow:



	A	B	C	D	E	F	G	H	I
	date/time	Serial Num	Vbatt(V)	Board Tem	CH1 freq(Hz)	CH1 temp(°C)	CH2 freq(Hz)	CH2 temp(°C)	Flags
1	2015/1/14 11:35	0x0040	3.1	25.2	885.519	23	2033.114	NAN	4
2	2015/1/14 11:36	0x0040	3.1	25.2	885.71	23	1995.222	NAN	4
3	2015/3/12 22:16	0x0040	3.1	23.1	1056.054	22.5	1970.049	NAN	4
4	2015/3/12 22:17	0x0040	3.1	23.1	2129.387	22.5	2094.903	NAN	4
5	2015/3/12 22:18	0x0040	3.1	23.2	2135.044	22.5	2027.733	NAN	4
6	2015/3/12 22:19	0x0040	3.1	23.2	918.556	22.5	2078.003	NAN	4
7	2015/3/12 22:20	0x0040	3.1	23.3	911.002	22.5	2092.948	NAN	4
8	2015/3/12 22:21	0x0040	3.1	23.3	903.751	22.5	2110.374	NAN	4
9	2015/3/12 22:22	0x0040	3.1	23.4	903.831	22.5	2023.71	NAN	4
10	2015/3/12 22:23	0x0040	3.1	23.4	896.677	22.5	2049.53	NAN	4
11	2015/3/12 22:24	0x0040	3.1	23.4	896.776	22.4	1993.389	NAN	4
12	2015/3/12 22:25	0x0040	3.1	23.4	911.275	22.4	2112.278	NAN	4
13	2015/3/12 22:26	0x0040	3.1	23.4	911.041	22.4	2059.246	NAN	4
14	2015/3/12 22:27	0x0040	3.1	23.5	911.025	22.4	2076.989	NAN	4
15	2015/3/13 14:13	0x0040	3.1	23.4	1041.178	NAN	1858.999	NAN	5
16	2015/3/13 14:14	0x0040	3.1	23.5	1146.613	22.5	1986.958	NAN	4
17	2015/3/13 14:15	0x0040	3.1	23.6	1062.282	22.5	2136.707	NAN	4
18	2015/3/13 14:16	0x0040	3.1	23.7	2038.13	22.5	2010.873	NAN	4
19	2015/3/13 14:17	0x0040	3.1	23.7	1139.645	22.5	2073.492	NAN	4
20	2015/3/13 14:18	0x0040	3.1	23.7	1172.746	22.5	2001.834	NAN	4
21	2015/3/13 14:19	0x0040	3.1	23.8	1169.215	22.5	2137.912	NAN	4

Column A: Date Time

Column C: Battery voltage

Column D: VW Bee board temperature

Column E: Channel #1 frequency

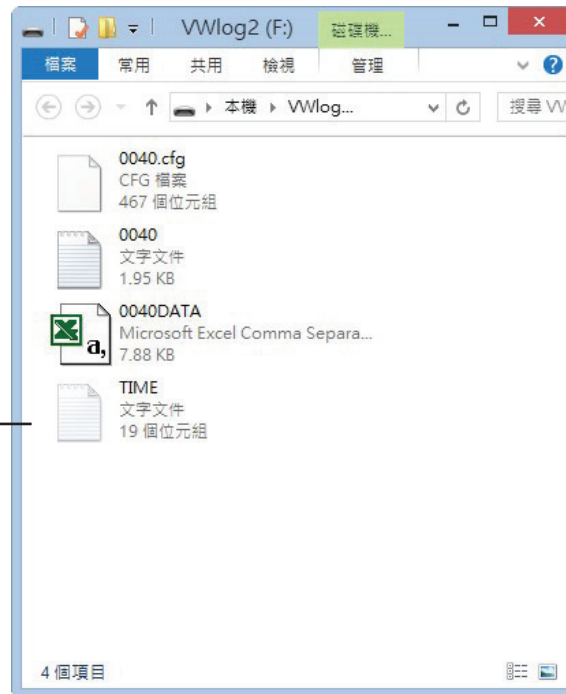
Column F: Channel #1 temperature

Column G: Channel #2 frequency

Column H: Channel #2 temperature

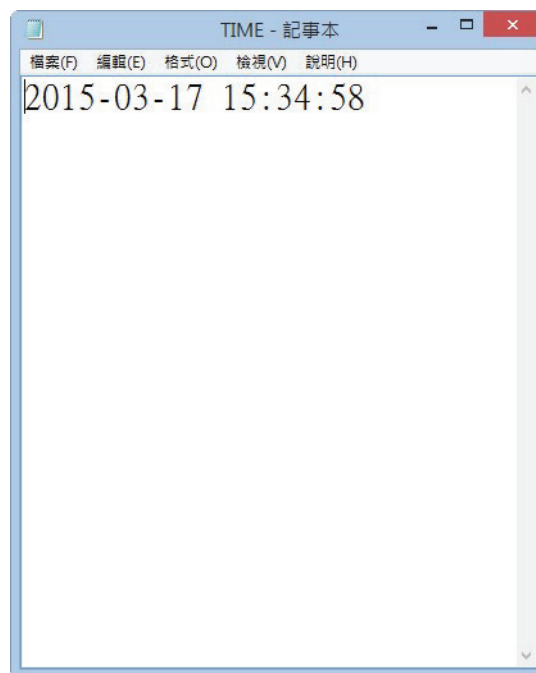
How to set up time

Time File



1

Open time file.



2

The time figures will be clearly visible. Edit time.

MEMORY Q&A

How to delete data and free up memory (without breaking the config/csv)?
Just delete the CSV file, VW HUB2 will generate another CSV file.

What will the logger do when the memory becomes full? Does it wrap data?
In other words, does it replace the oldest data with new data, or does it stop logging?
If the memory becomes full, the logger will overwrite the previous data. It will replace the oldest data.

How much memory the device has before it becomes full?
VW HUB2 contains a large internal memory of 4 MB, enabling storage of up to 50,000 readings per channel which equates to 5 years of data sampling at hourly intervals.

What is the recommended way of collecting data (cutting or copying) from the config/csv on the device?
Copying from the CSV file is recommended.

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