

WATER VELOCITY INDICATOR (DVI-K20)

Instruction Manual



ACCURATE
MEASUREMENT



DURABLE
CONSTRUCTION



EASY TO INSTALL
& MAINTAIN

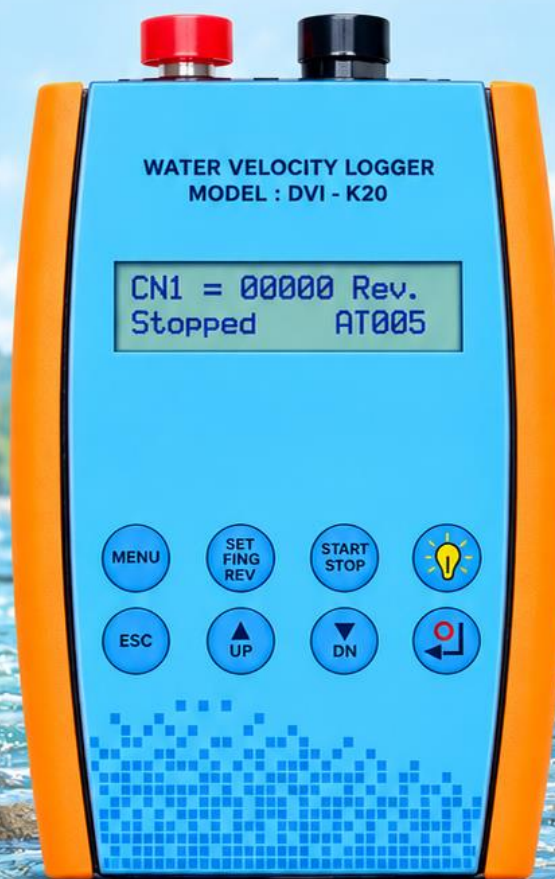


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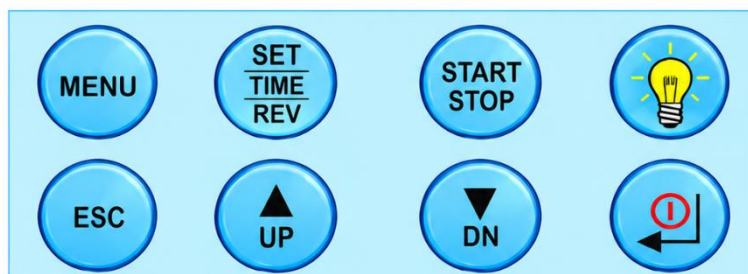
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1. WATER VELOCITY INDICATOR (DVI-K20)

- Portable and user-friendly handheld design.
- 16×2 LCD display with backlight and adjustable contrast.
- Menu-driven operation using a 4×2 keypad for easy navigation.
- Functions as both a Water Velocity Logger and a Revolution-Time Counter.
- Compatible with any pulse-generating water current meter.
- Built-in buzzer for current meter revolution detection and indication.
- Supports calibration equations for up to five different current meters.
- Suitable for current meters with multiple velocity-range calibrations.
- Stores data for up to 8 monitoring sites, each with unique Site IDs.
- Independent programming capability for multiple current meters.
- Large memory capacity with storage for more than 5,000 datasets.
- Automatically records and saves data upon completion of measurements.
- USB connectivity for data transfer to a computer or laptop.
- Data export in MS Excel format for easy analysis and reporting.
- Organizes recorded data according to Site IDs and current meter references.
- Powered by two AA Zinc Carbon batteries, ensuring reliable field operation



2. KEYBOARD DETAILS



KEY

- | | |
|---|--|
|  | This key is used to enter the specific menu followed by UP/DOWN & Enter Key |
|  | This key is used to toggle between Time Mode or Revolution Mode when logger is set to Revolution Counter Mode |
|  | This key is used to Start /Stop the measurement |
|  | This key is used to ON /OFF the Back light of LCD |
|  | This key is Used to escape from any function / menu. |
|  | This key is used to scroll Up any menu or function |
|  | This key is used to scroll Down any menu or function. |
|  | This key has multiple Features as used to switch ON / OFF the logger as well as used as Enter Key to confirm any operation or setting. |

3. OPERATIONAL INSTRUCTIONS DETAILS

**WATER VELOCITY
INDICATOR/LOGGER**

**SET AVG. TIME
ESC UP DN ENTER**

**AVG. TIME=005Secs
ESC UP DN ENTER**

**SELECT CM. NO.
ESC UP DN ENTER**

**SELECTED CM NO.1
ESC UP DN ENTER**

Press  to switch on the Logger after 5 sec of Power up display will restored to last mode selected. Press again  for 5 second to switch OFF the logger.

Press  to **Set Average Time** for measurement. This menu will come first if user has Set only one current meter. If user has Set more than one CM, user has to select current meter no. first (*as described below*) & then Set Average Time. Press  to enter the menu & using   keys set average time in seconds (Up to 99 seconds can be set as per user requirement) press  to Set average time. Press  for next menu or  to exit.

Press  to configure Logger.

First menu: "Select Current Meter No." to which measurement is to be performed. Press  to enter the menu & using   keys scroll the current meter no (Upto 5 current meters equations can be programmed *described later*) press  to select the required current meter. Press  to exit. Once user selected the current meter no. & entered the average time, measurement can be taken by pressing . Record will be saved automatically once measurement is complete.

SET DATE
ESC UP DN ENTER

DD/MM/YYYY
ESC UP DN ENTER

Second Menu: "SET DATE". Press  to enter the menu & using   change the date in DD/MM/YYYY format & Press  for next/save date. Press  for next menu or  to exit.

SET TIME
ESC UP DN ENTER

HH:MM HRS
ESC UP DN ENTER

Third Menu: "SET TIME". Press  to enter the menu & using   change the time in 24 Hrs HH:MM format & Press  for next/save Time. Press  for next menu or  to exit.

SET SITE REF
ESC UP DN ENTER

SITE 1
ESC UP DN ENTER

Forth Menu: "SET SITE REF". Press  to enter the menu & using   change the Site Reference No. (Upto 8 site data can be stored in DVI-K13) Press  to save Site Reference. Press  for next menu or  to exit.

**SELECT MODE ESC
UP DN ENTER**

**REV. COUNTER ESC
UP DN ENTER**

**VELOCITY LOGGER
ESC UP DN ENTER**

Fifth Menu: "SELECT MODE". Press  to

enter the menu & using   scroll between two modes **REV. COUNTER Mode** and **VELOCITY LOGGER Mode** (Modes will be described later in the manual) Press  to save mode. Press  for next menu or  to exit.

**SET NO. OF CM.
ESC UP DN ENTER**

**NUMBER OF CM.= 1
ESC UP DN ENTER**

Sixth Menu: "SET NO. OF CM." This menu will enable user to set for how many numbers of current meters, equations are to be programmed. Press  to enter the menu & using   select numbers of current meters (upto 5 current meters can be programmed) Press  for save mode. Press  for next menu or  to exit.

**NO OF EQ FOR CM1
ESC UP DN ENTER**

**EQNS FOR CM1 = 1
ESC UP DN ENTER**

Seventh Menu: " Number of Equations for Current meter" in this menu user has to enter how many rating equations are to be programmed for a specific current meter (Max. 3 equations can be programmed for a specific current meter). Press  to enter the menu & using   select numbers of equations for a specific Current Meter. Press  for save. Press  for next menu or  to exit.

EQ NO. 1 FOR CM.1
ESC UP DN ENTER

X.XXXX* N + X.XXXX
ESC UP DN ENTER

XX.XX< N <= XX.XX
ESC UP DN ENTER

Eighth Menu: "Equation No x for Current meter x" in this menu user will program the rating equations one by one followed by range (*range for number of revolutions*) for each current meter (*Max. upto 3 EQ for each*

CM). Press  to enter the menu & using   change the digits of equation & press  for next digit. Press  to save the equation. Now enter the range for number of revolutions for that particular equation & soon for all the equations. Press  for next menu or  to exit.

SET BL INTENSITY
ESC UP DN ENTER

INTENSITY = HIGH
ESC UP DN ENTER

SET BL ON TIME
ESC UP DN ENTER

ON TIME = ON
ESC UP DN ENTER

Ninth Menu: "SET Backlight Intensity" in this menu user can set back light intensity to conserve batteries. There are 3 intensity modes "**LOW, MEDIUM, HIGH**". User can set any level as per the light condition.  

Press  to enter the menu & using   change the level. Press  to save. Press  for next menu or  to exit.

Tenth Menu: "SET Backlight On Time" in this menu user can set back light On time to conserve batteries. There are 4 timers "**ON, 30Secs, 20Secs, and 10Secs**". User can set any

timer as per the requirement. Press  to enter the menu & using   change the timer. Press  to save. Press  for next menu or  to exit.

Eleventh Menu: "SET LCD Contrast" in this menu user can set LCD Contrast to make better visibility as per user selection. There are 8 contrast levels from "**0 to 7**". 0 for lowest & 7 for Highest Contrast level. User can set any level as per the requirement.

Press  to enter the menu & using   change the level. Press  to save. Press  for next menu or  to exit.

SET LCD CONTRAST
ESC UP DN ENTER

LCD CONTRAST= 4
ESC UP DN ENTER

KEY TONE ON/OFF?
ESC UP DN ENTER

KEY TONE = ON
ESC UP DN ENTER

CM. TONE ON/OFF?
ESC UP DN ENTER

CM. TONE = ON
ESC UP DN ENTER

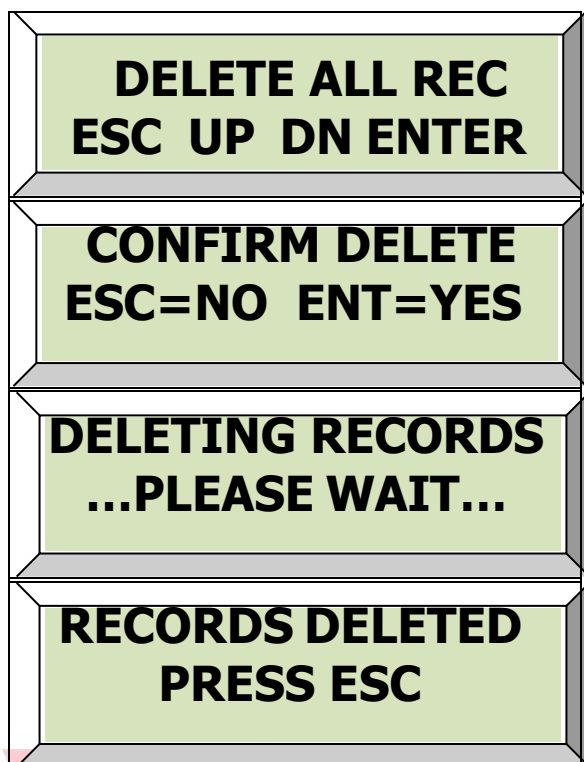
SYS MEMORY TEST?
ESC UP DN ENTER

TESTING MEMORY..
ESC UP DN ENTER

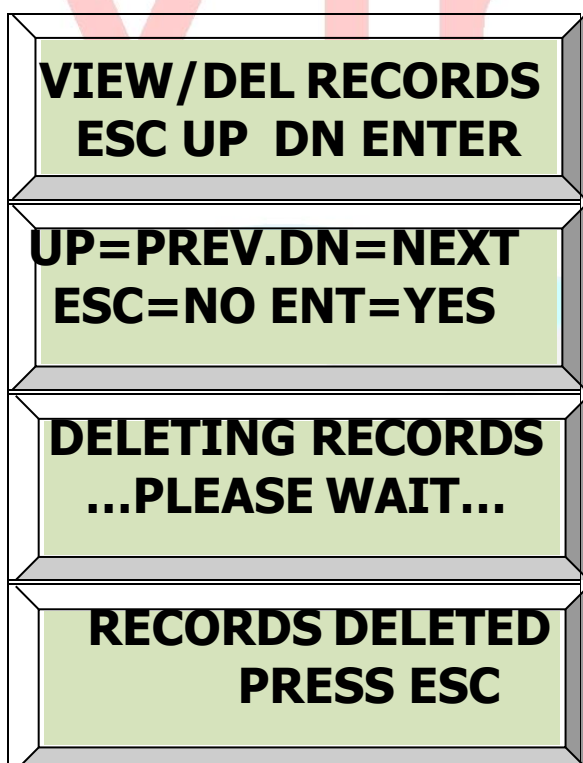
Twelfth Menu: "Key Tone ON/OFF?" in this menu user can set Key tone ON or OFF. This Key-tone confirms the key press, but to conserve battery it can be set to OFF. Press   to enter the menu & using  Select ON or OFF. Press  to save. Press  for next menu or  to exit.

Thirteenth Menu: "Current Meter Tone ON/OFF?" in this menu user can set Current Meter Revolution tone ON or OFF. This CM tone confirms one complete revolution. If set to ON, then after every revolution internal buzzer will beep once, this feature can also helps user to identify whether CM is rotating or not, but to conserve battery it can be set to OFF. Press   to enter the menu & using  Select ON or OFF. Press  to save. Press  for next menu or  to exit.

Fourteenth Menu: "System Memory Test" in this menu user can test the logger memory if asked to do so for testing. Press  to test the memory. If passed then press  then Press  for next menu or  to exit. If not passed contact your dealer & report the problem.



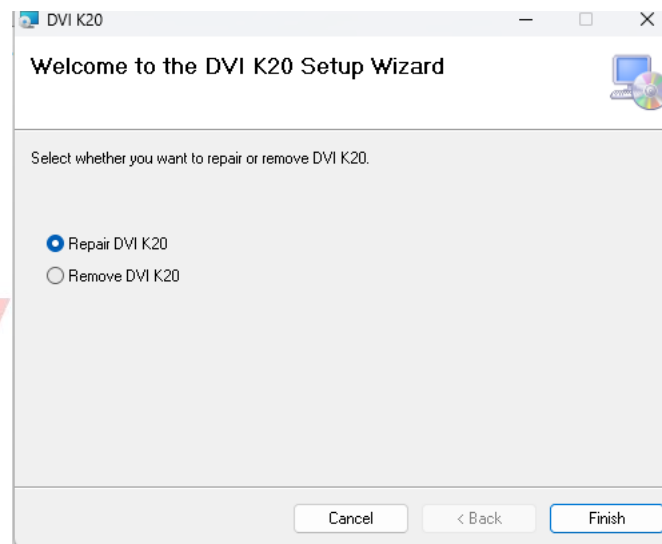
Sixteenth Menu: "Delete all Records" in this menu user can delete all records saved in the logger memory. Press  to enter the menu. Now press  for NO or Press  to confirm delete. Once records are deleted a message will confirm the deletion, then press  then Press  for next menu or  to exit.



Seventeenth Menu: "View / Delete Records" in this menu user view saved record/s as well as can delete any specific record/s saved in the logger memory. Press  to enter the menu. Pressing  will toggle the records view by velocity with record no. or by  date/time with record no. & Pressing  user can view Previous or next record. Now press  exit or Press  twice to confirm delete. Once record deleted a message will confirm the deletion, then press  then Press  for next menu or  to exit.

4. INSTALLATION OF SOFTWARE

To install Virtualware-2020 software to your computer insert the software CD to your computer & RUN Setup.exe to install the software. Following screen will appear

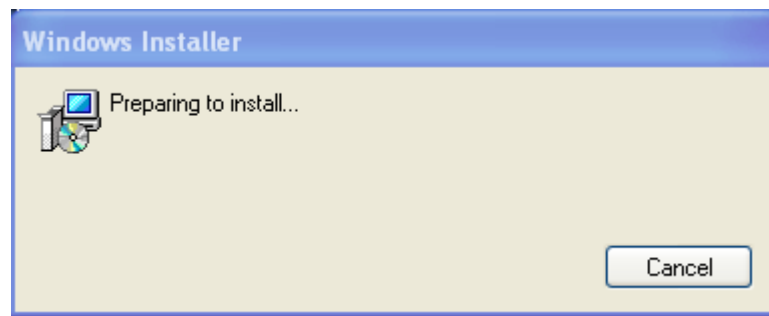


Click Accept to install DotNet component to your computer for software installation.

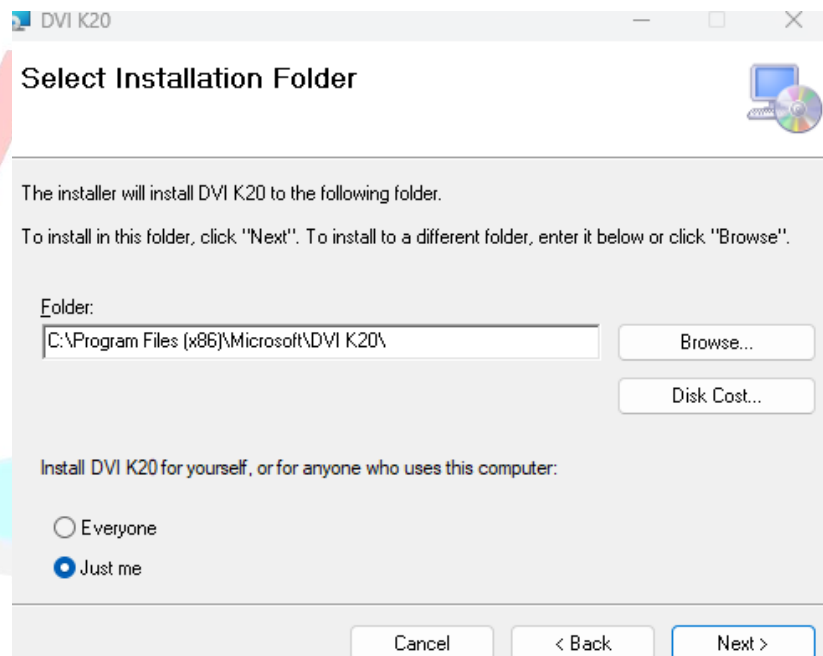


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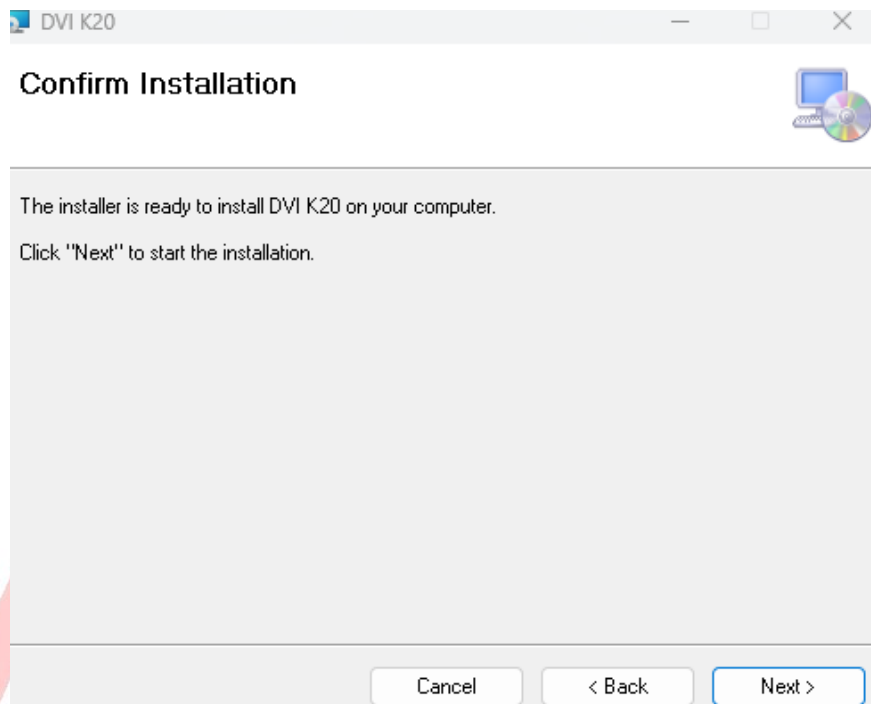
After Reboot of computer following screen will appear.



Click Next to continue



Now click next to start the installation. Following screens will appear.

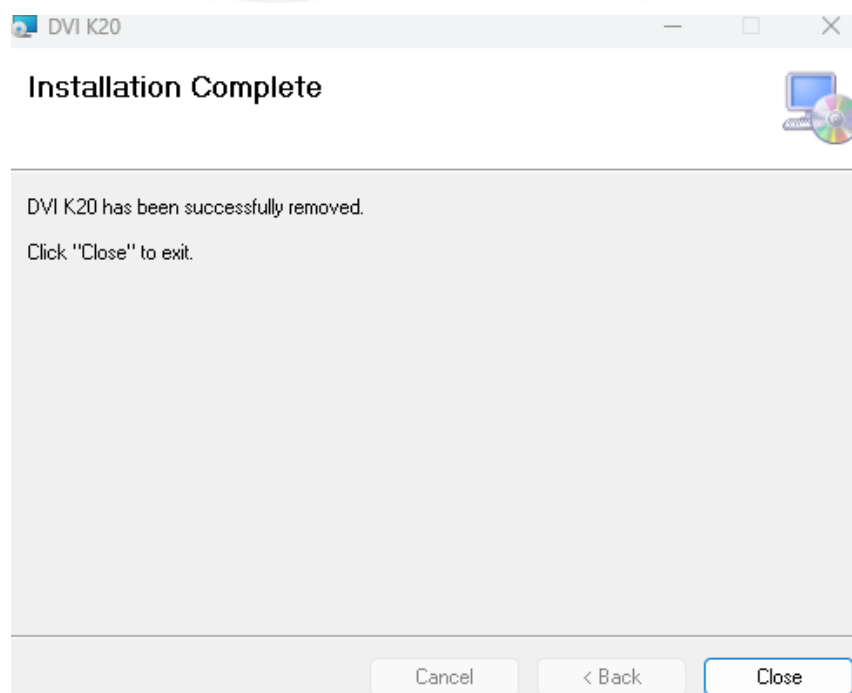


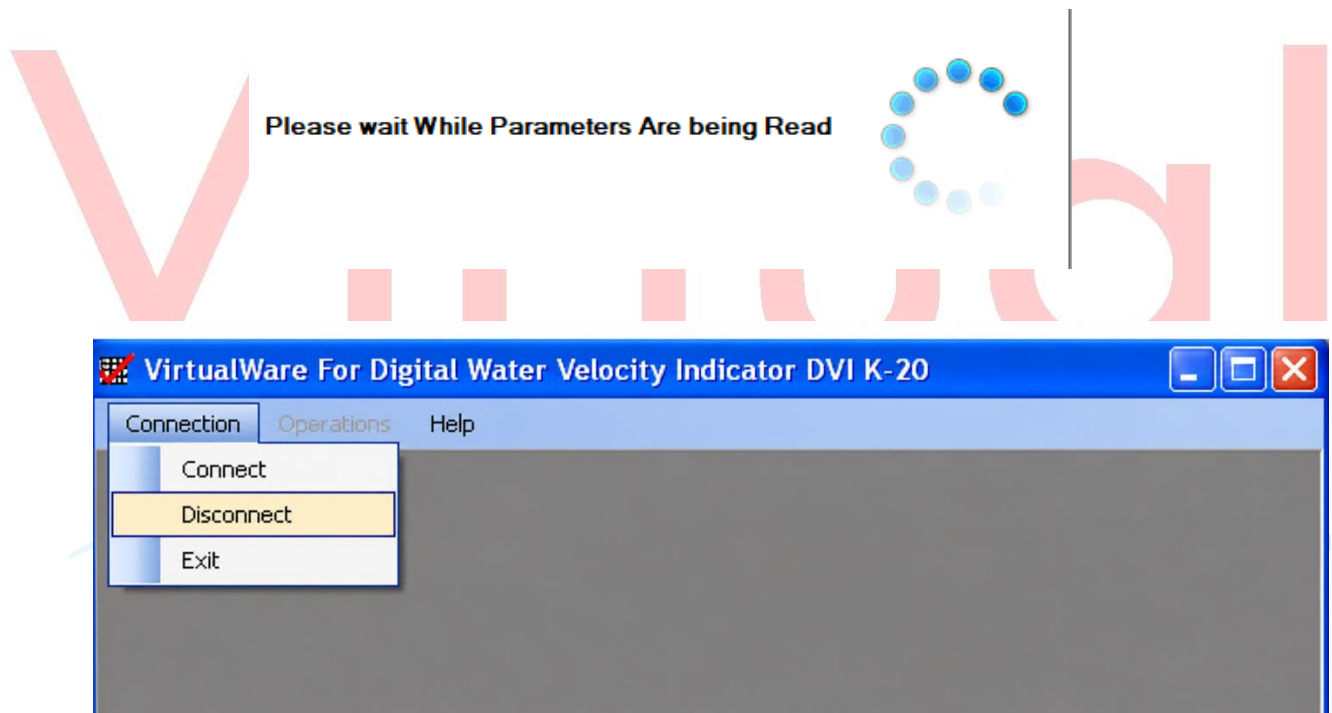
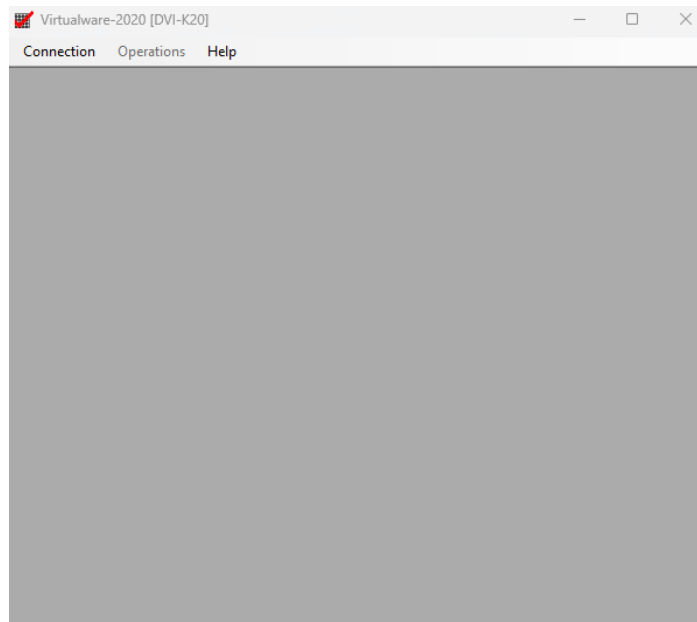
Click Close to finish the installation.

Now install the USB driver for DVI K-20 by executing **USB-SERIAL_Setup.exe** provided in the software CD.

After installation of USB Drivers connect the DVI K-20 to computer with the USB cable provided. Run

"VirtualWare For HID-DVI K-20" icon from desktop following screen will appear





After Connection establishment click Operations Menu to configure **DVI K-20** User will find following submenus in Operation Menu

- 1) **Download Data**
- 2) **Setup Wizard**
- 3) **Setup Working Parameters**
- 4) **Set Date & Time**

Each submenu will be elaborated one by one as the manual proceeds.

5. START A MEASUREMENT

1. Once user programmed the logger as described above measurements can be taken with a few key presses.

2. Select the mode to which measurements are taken.

REV. COUNTER MODE: In this mode user will select the current meter no. first (if

more than one current meters are programmed) by pressing



followed by



& using



keys scroll the current meter no.

Further user has to select TIME mode or Rev. Mode by pressing



following screens will be appeared.

**CM1 Set-Rev.=010
Stopped Time=000**

(In Revolution Mode)

**CM1 Set-Time.=010
Stopped Rev.=000**

(In Time Mode)

In revolution mode, no of revolution has to be programmed & in Time Mode time of measurement has to be programmed using



change the digits & press



for next digit.

1. Connect the both wires of Current meter sensor to the terminals provided on the top of Logger.

2. Lower the Current meter in to the water at the required depth & Press



to start the test. While performing the measurement red circle value will increase to reach the set value & result will shown in Blue Circle value, as per below screens.

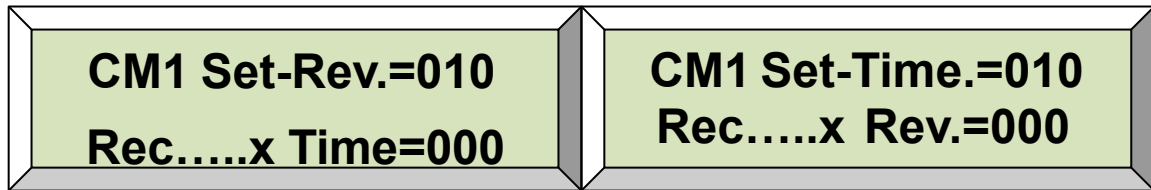
**CM1 Set-Rev.=010
Rev.=xxx Time=000**

(In Revolution Mode)

**CM1 Set-Time.=010
Time=xxx Rev.=000**

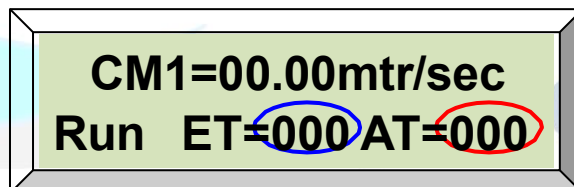
(In Time Mode)

3. Once measurement is done it will automatically saved the result & freeze the display with the result as shown below. To start the test again Press .

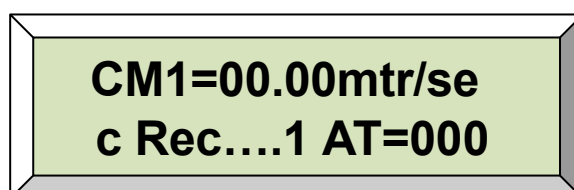


VELOCITY LOGGER MODE

1. In this mode also user will select the current meter no. first (if more than one current meters are programmed) by pressing  followed by  & using   keys scroll the current meter no
2. Then set averaging time as described above. Connect the both wires of Current meter sensor to the terminals provided on the top of Logger.
3. Lower the Current meter in to the water at the required depth & Press  to start the test. While performing the measurement red circle value will show the Average Time (AT) as set earlier & Blue Circle value Elapsed Time (ET).



Once ET Value reaches AT Value, measurement is done it will automatically saved the result & freeze the display with the result as shown below.



To start the test again Press .

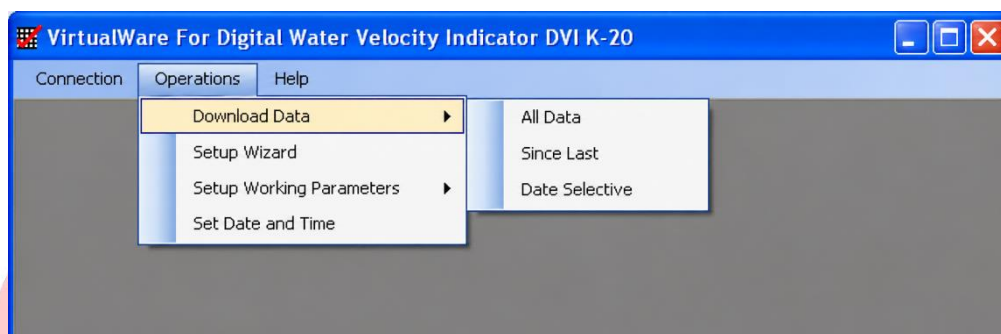
6. DOWNLOAD DATA

To Download the data from DVI K-20 click Download Data Menu expanded to further menus

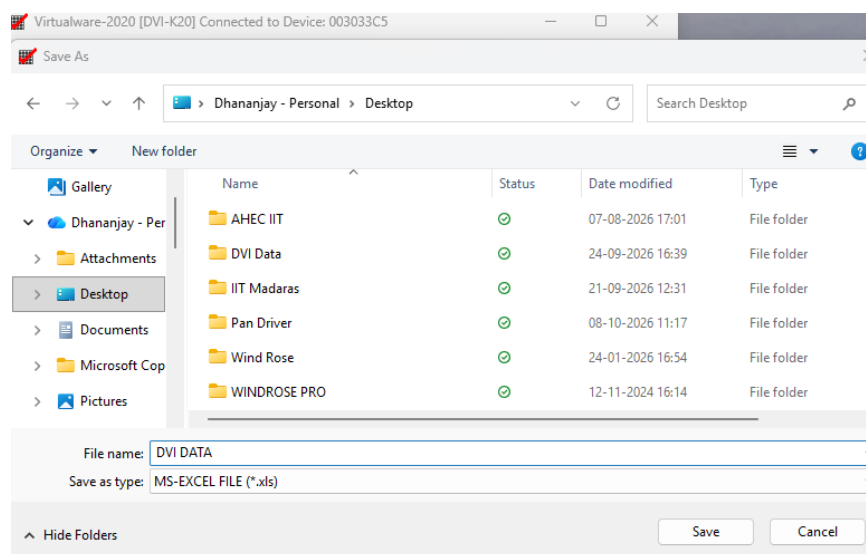
All Data: to download all the data stored in the logger memory

Since Last: to download the data from last download point.

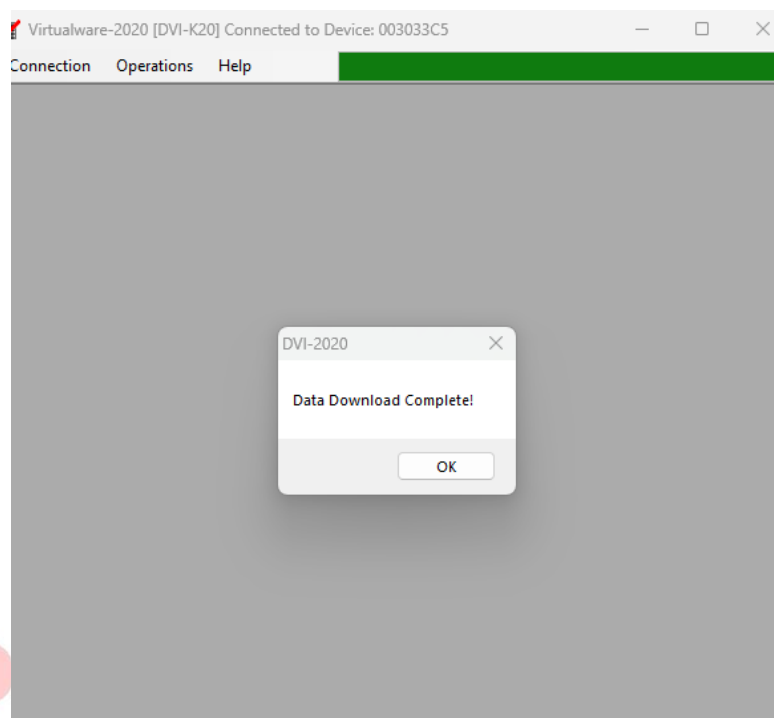
Date Selective: to download the data from the specific interval of dates



Click All Data to download all the data stored in the logger's memory. Following screen will appear. Select the location to save the file & insert a File name to save the data. Click Save to download the data.



While downloading the data from DVI K-20 following screens will appear



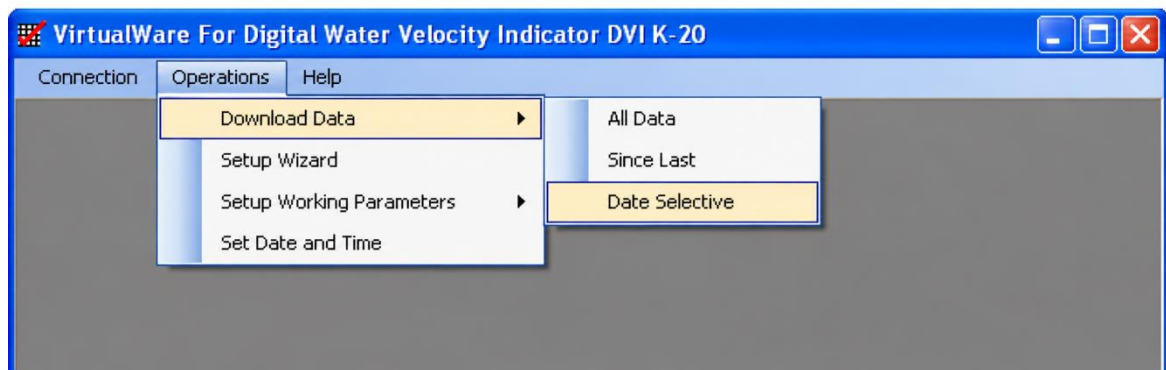
Virtual



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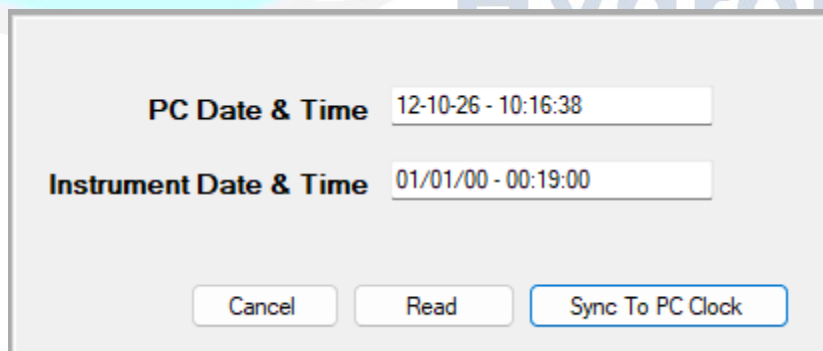
Click **Since Last** to download the data from the last downloaded data point. Same screens will appear to save & downloading data.

Click **Date Selective** to download the data from the specific interval of data



Select Start Date & End Date then Click OK to download the date.

If no data found within that range of date following screen will appear. Select the correct dates & download the data.



7. HOW TO CHANGE BATTERIES

Changing Batteries of DVI K-20 is a very simple process.

First of all turn around the logger & open the battery flap by sliding outside direction as shown below

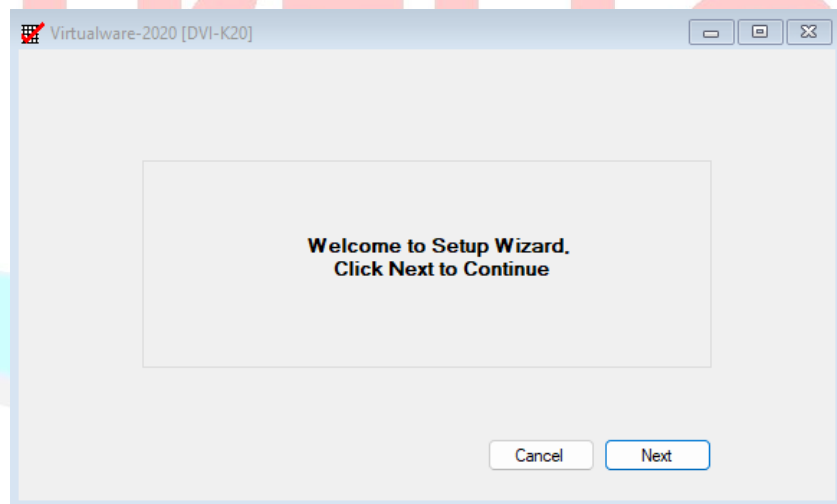
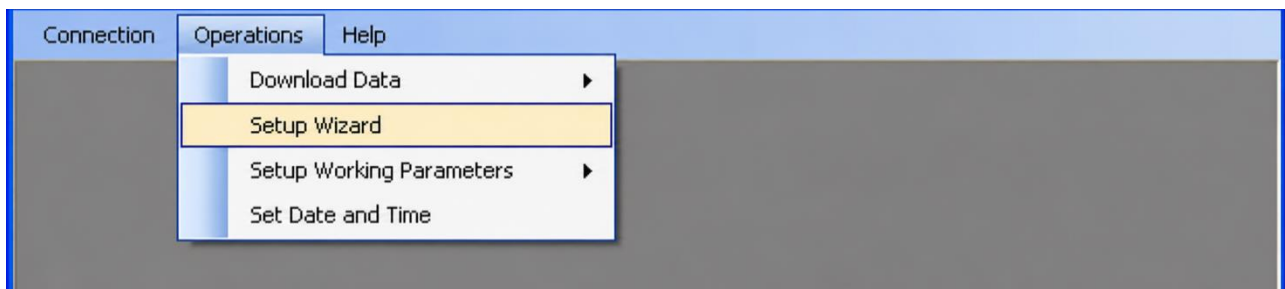


Now Place the batteries as per the polarity given & slide the battery flap in inside direction.

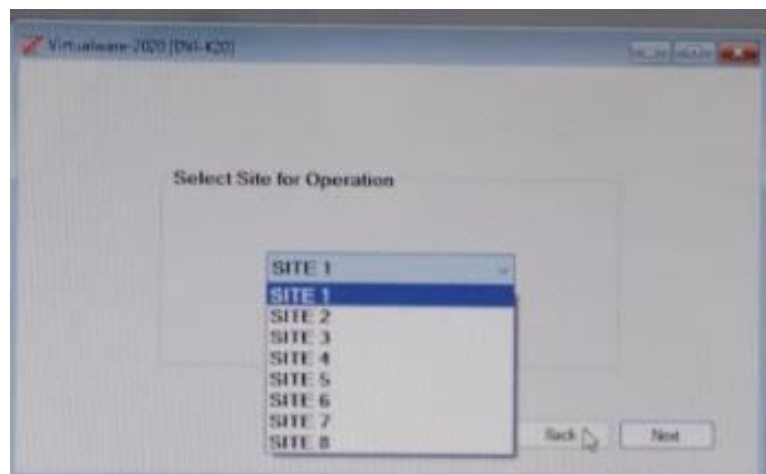


8. SETUP WIZARD

This setup wizard will help the user to configure/program the logger for operations in the field. Click Setup Wizard to enter into setup configuration.

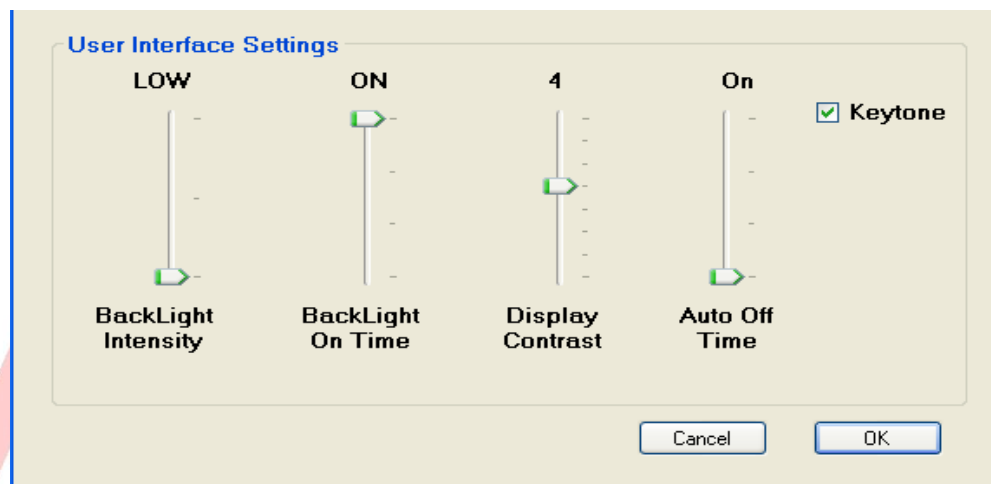


Click Next. First screen will be site Selection. User can Program upto Eight sites for measurement.



User can edit the site name as well by clicking Edit Site Names Button. Following screen will appear.

User can edit site name of his choice. Click OK for home menu. Click Next for programming User interface Settings.



BackLight Intensity: Three level Intensity, LOW, MEDIUM, HIGH

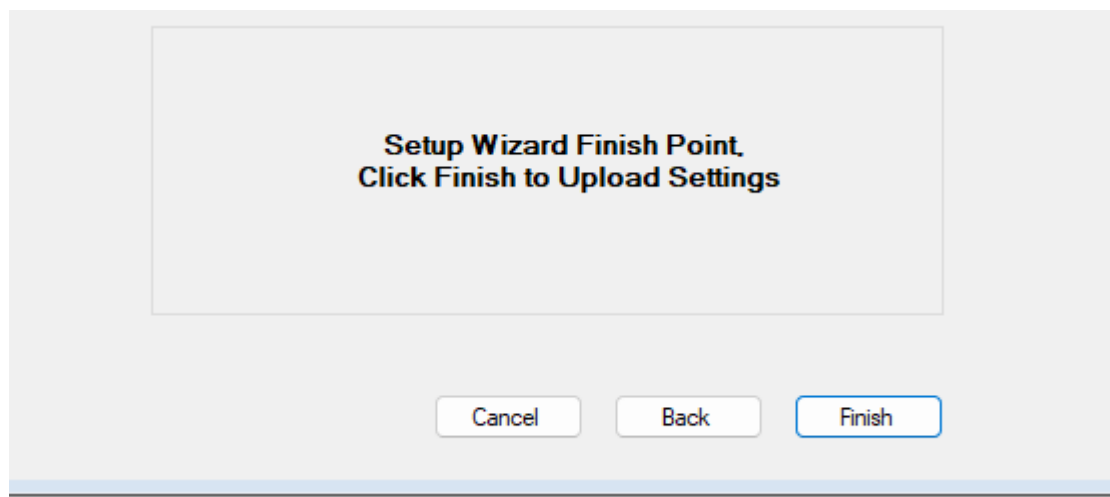
Backlight ON Time: Four level ON time Selection, 10sec, 20sec,

30sec & ON **Display Contrast:** Eight level contrast selection from 0 to 7

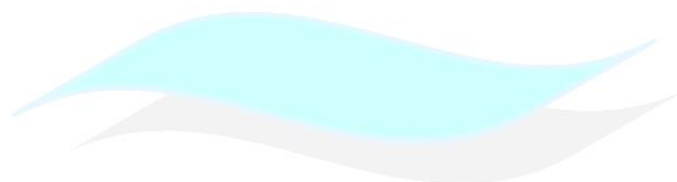
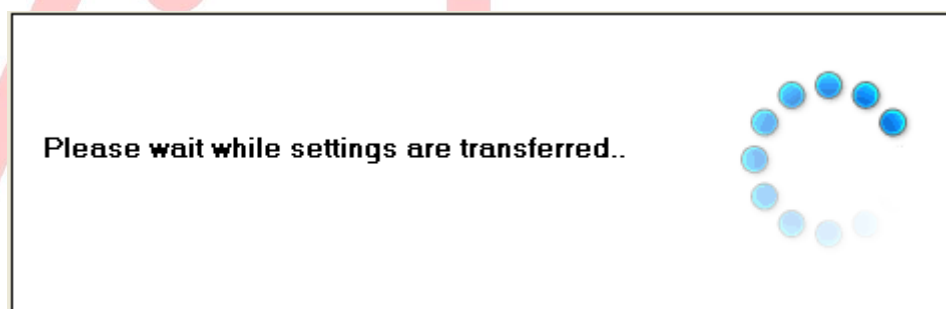
Auto Off Time: Four Levels: Permanent ON or, After 10min, 20min, 30min

Keystone: ON / OFF

Click next to complete the wizard.



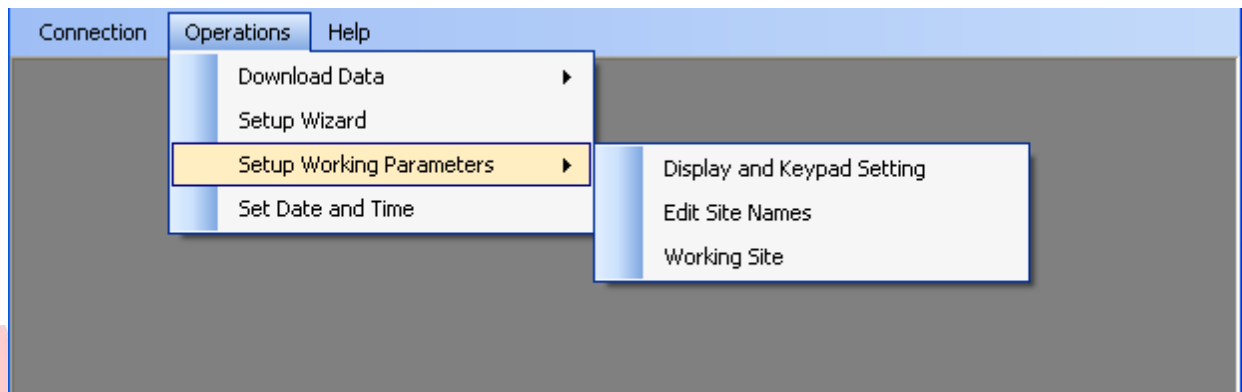
Click Finish to finish & upload the configuration parameters to HHT-K20



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9. SETUP WORKING PARAMETERS

Instead of entering into Setup wizard, user can program parameters separately by entering into setup working parameters in a same way as described earlier.



Setup working parameters Menu expanded to further menus

- 1) **Display & Keypad Setting:** Edit User Interface Parameters.
- 2) **Edit Site Names:** Edit / Change Site Name
- 3) **Working Site:** Site selection

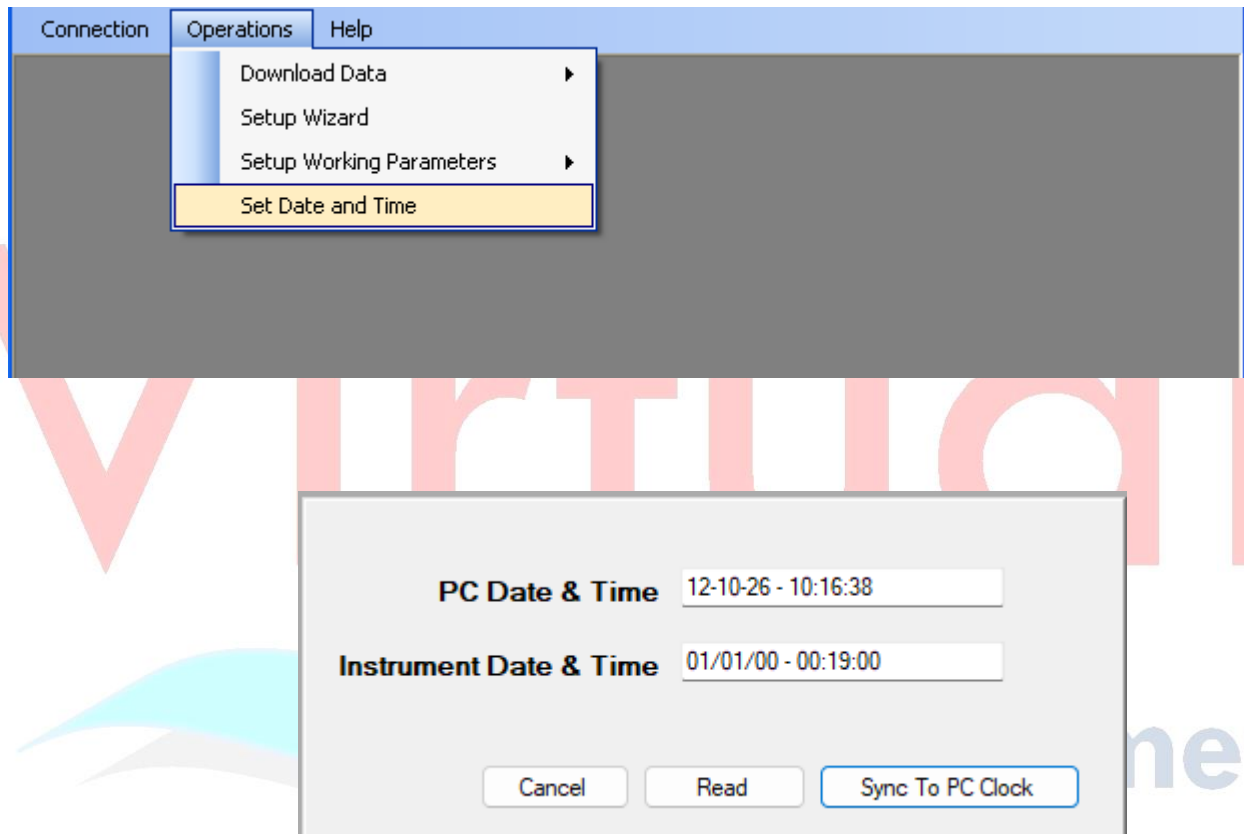
NOTE: Please note that before editing Site name make sure, user has downloaded the previous data otherwise all the previous data will be updated with latest edited site name.

Please wait while settings are transferred..

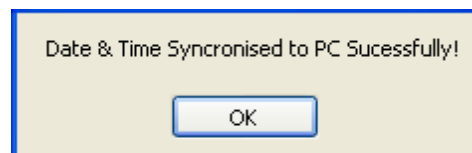


10. SET DATE & TIME

To setup date & time of **DVI K-20** click **Set Date & Time Menu**



This will show the computer date & time as well as HHT-K20 date & time click “Sync To PC Clock” button to set **DVI K-20** date & Time, following screen will appear.



View Help File:

To view help file click view help file button

11. PRECAUTIONS

- Prevent data logger's LCD from direct sunlight.
- Allow about 10–15 seconds time between a switch OFF / ON sequence to allow the internal power supplies to stabilize.

12. MAINTENANCE

- Inspect and clean the Sensor at regular intervals, e.g. every month. Clean any accumulated dust, etc. using soft cloth dampened with water.

13. FACTORY WARRANTY

- This instrument has been extensively tested before dispatch. The instrument is factory warranted for a period of one year from the date of dispatch against component replacement services. No responsibility is however accepted for any consequential damage. The warranty will however be null and void if the instrument is tampered with and effort is made to tamper with the circuits inside.
- As per our quoted years of the date of purchase, i) any replacements for components will be chargeable with the prices at the time of replacement. ii) Factory services, related to replacement executed free of charge by Company.
- This warranty does not cover any form of damage resulting from natural calamities, weathering, accident, misuse, application of incorrect voltage or any use contrary to the operation instruction supplied with the equipment.
- Company will not accept any responsibility for damage arising out of unauthorized modifications or alterations of any nature made to the equipment.
- The company will not accept any responsibility for damage or loss incurred during transit of the equipment.
- This warranty does not cover the cost of transportation of the equipment from the place of installation to the Company.

14. NORMS FOR SITE SELECTION

- The site should be free from any encumbrance.
- Surroundings should be assessed for potential obstructions to selected sensors. Potential sensor contaminants (e.g., water and dust sources) should be identified.
- The site should preferably be located on the same level as the surrounding area of the station.

15. CONDITIONS TO BE AVOIDED

- Obstructions like tall buildings, trees etc.
- Location of the site on the edge of a slope, hillocks, cliff or inside a valley.
- Large industrial heat sources.
- Location near high-tension power lines.
- Rooftops, steep slopes, sheltered hollows, high vegetation, shaded areas or swamps.
- Low places holding standing water after rains.
- Underground obstructions like buried cables or conduits.
- Pollution influence from surrounding farms and towns.

16. LIST OF EQUIPMENTS AVAILABLE WITH

- Automatic Weather Station
- Digital Rainfall Recorder
- Digital Rain Gauge
- Digital Evaporation Rate Recorder
- Automatic Soil Erosion Monitoring System
- Digital Snow Water Equivalent Recorder
- Digital Solar Radiation Recorder (Pyranometer)
- Digital Water Level Recorder
- Digital Water Level Recorder (Pressure Type)
- Digital Water Level Recorder (Ultrasonic Type)
- Water Velocity Indicator with Sensor
- Water Current Meter
- Soil Moisture Indicator with Sensor
- Soil Moisture and Temperature Recorder
- Leaf Wetness, Air Temperature and Humidity Recorder
- Plant Canopy Analyzer
- Suspended Solids Indicator
- Digital Soil Tensiometer
- Soil Infiltrometer
- Water Level Indicator
- Cup Counter Anemometer (Mechanical Type)
- Wind Vane (Mechanical Type)
- Ordinary Rain Gauge

17. OUR MAJOR CLIENT



ISRO



Uranium Corp. of India Ltd



DRDO



Indian Navy



Indian Air Force



Indian Railways



Konkan Railways



Central Water Commission



BHEL



A Maharatna Company
NTPC



NHPC



SJVN



UJVNL



NEEPCO



टीएचडीसी इंडिया लिमिटेड
THDC INDIA LIMITED
THDC



CSIR



ICAR



CBP University



IIT Kharagpur



IIT Guwahati



IIT Kanpur



IIT Bombay



IIT Madras



IIT Roorkee



IIT Delhi



कुचि बिदुवान् वसेत्तु आरों
Moiracl University
Anand Agriculture University



NERIST



Tezpur University



NEHU, Shillong



NIH, Roorkee



Tata Group



Maruti Suzuki Ltd



CSK L University of Agri & Technology
Kanpur

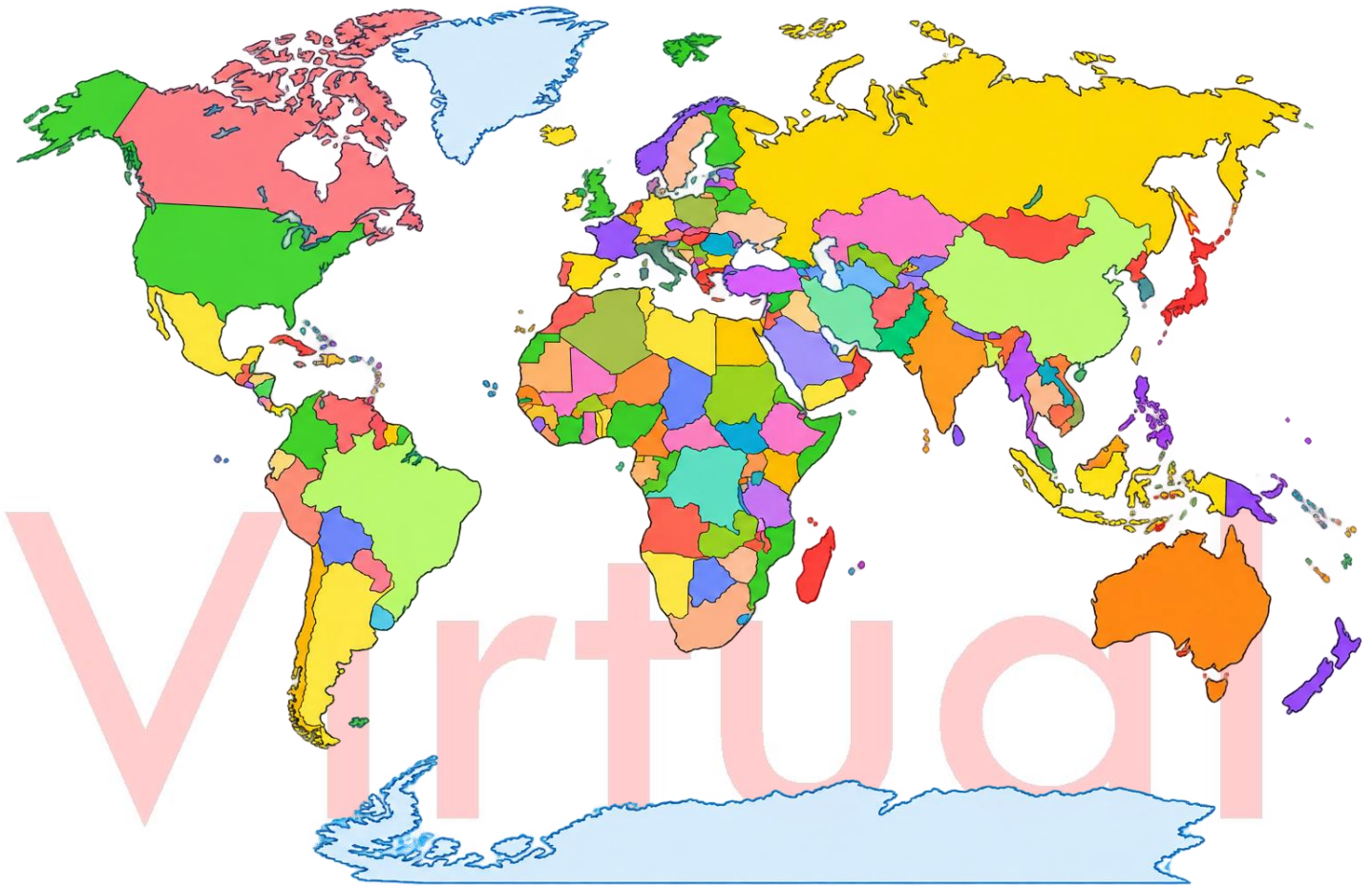


J&K Forest



United Nations

18. OUR GLOBAL FOOTPRINTS



- | | | |
|---------------|------------------|-------------------|
| 1. India | 12. Laos | 23. UAE |
| 2. USA | 13. Yemen | 24. Oman |
| 3. China | 14. Indonesia | 25. Guatemala |
| 4. Russia | 15. Philippines | 26. Iraq |
| 5. Nepal | 16. Mauritius | 27. Saudi Arabia |
| 6. Bhutan | 17. Nigeria | 28. The Nederland |
| 7. Bangladesh | 18. México | 29. Kenya |
| 8. Sri Lanka | 19. South Africa | 30. Germany |
| 9. Myanmar | 20. Oman | 31. Sierra Leone |
| 10. Malawi | 21. Malaysia | 32. Zambia |
| 11. Taiwan | 22. Thailand | |

19. CONTACT DETAILS



Factory: 1105/1, Selampur Rajputana Industrial Estate,
Roorkee – 247667, Uttarakhand, India

Tel: +91 7088772772, **Tel:** +91 9412072697

Email: vhydromet@yahoo.com | **Web:** www.vhydromet.com

Follow us: fb.com/vhydromet | youtube.com/@vhydromet
linkedin.com/company/vhydromet

Our Technology Partner:

Optical sensors 

Optical Sensors Sweden AB
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