Shock Recorder

IMPAK-02

User's Manual

[Rev2.7E]

SANTEST CO., LTD.

■Safety Precautions　(Read these before using) ■

When using the SANTEST equipment, thoroughly read this manual. Also pay careful attention and handle the module properly.

Please note CAUTION.　Concerned precautions are described.
If not carried out properly, the equipment might be damaged.

CAUTION

- ●Do not touch the terminals while power on. Doing so may cause malfunctioning.
- ●Do not disassemble or modify.
- ●Never drop on floor or earth.
- ●Do not pull the cable when detach the USB cable.
- ●Use this module under the specified environment described in this document.

1 OUTLINE

The **IMPAK-02** is a compact data logger for mechanical shock. All functioning parts, such as 3 axes sensor, signal conditioner, memory and battery are installed in an aluminum enclosure. It can use typically for about 30 days. After recording, the data is downloaded to your PC via USB and visualized using the utility software **ViewPak-02.** Moreover, it is possible to handle the data by other software.

2 SPECFICATIONS

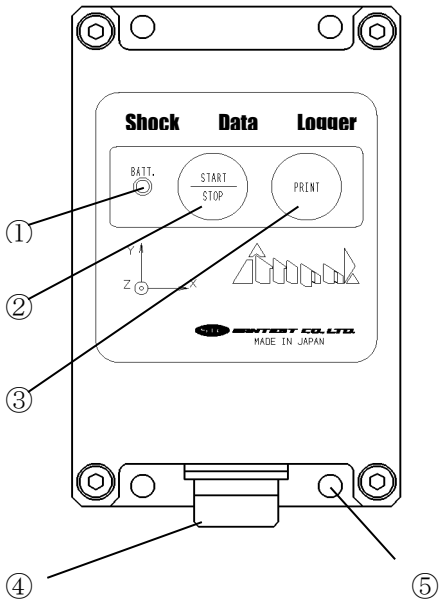
Range	16G （cross axis sensitivity：1%）
Axes	X、Y、Z
Storage capacity	1,000,000 (time stamp and XYZ magnitude of shock)
Resolution	0.1G
Accuracy	±0.2G
Frequency response	0 ～ 1,600Hz
Detection level	0.5G ～ 14.9G
Warning level	0.5G ～ 14.9G
Record interval	1 s／5s／10s／1min／10min／30min/ 60min
Sampling frequency	3200／1600／800／400／200／100／50／25 Hz ※Cutoff frequency is automatically set up (Sampling frequency)/2
Storage memory	1GB(Flash memory)
Interface	USB
Transfer rate	50data／s（std.）
Battery	Ni-MH AAA×2
Max. record time （1shock/min.）※1	30 days (Logging mode+ Sleep mode sum total time)
	60 days with an auxiliary battery (IPK-02-BAT-2M-2A3)
Temperature range	－30 ～60 ℃ （0 ～40 ℃ when charging） ➢ Operation limit temperature
	－5 ～45 ℃ （0 ～40 ℃ when charging） ➢ Recommended operating temperature ※2
Weight	410g
Protection	IP63
	IP67(with water proof cap)

※1 This data may vary depending on the ambient temperature.

※2 The temperature can be expected to operate continuously for 30 days on a full charge.

3 NAME & FUNCTION

3 - 1 Front Panel



① LAMP

Show condition of system or battery

■ **Battery**

Green : Full Yellow : 90% ～15% Red : less than 15%

■ **Condition**

Mode	Operation	LED
Enter Log mode	Press [START／STOP] continuously for 3s	Flash on Red once
Quit Log mode	Press [START／STOP] continuously for 3s	Flash on Red twice
Display Status	Log mode: Flash LED Sleep mode: Press [PRINT] for 1s to light up.	Green : 100～90% Yellow : 90～15% Red : less than 15%
Charge	Charging Complete	Flash on yellow Green
Print	Press [PRINT] continuously for 3s	Green
Reset Gravity	Press [START/STOP] and [PRINT] simultaneously for 3s in succession.	Flash 2 times

② START／STOP button　(Measurement start/stop)

In manual mode, when press this button, recording will start or stop alternately. Press the button for 3 seconds, then red lamp flashes once and it starts recording. Press the button for 3 seconds again, stop recording and red lamp flashes twice.

Operation should take after 1 second later from last operation.

Record（Logging mode）

Start recording. If detect shock exceed detecting level, data will be stored in the memory with time stamp. Lamp will flash on every 2 seconds during logging mode.

Standby（Sleep mode）

Stop recording. Lamp will turn off to suppress a consumption of the battery.

Note1)　If set timer, [START／STOP] button becomes invalid.

Note2)　The [START/STOP] button is disabled while connected to a PC.

Note3)　If you press the [PRINT] button at the same time, the gravity correction will be executed.

③ PRINT button(Print report)

This is only valid while on sleep mode.

Press this button for 1s to display the remaining battery life in LED color..

Press and hold this button for 3 seconds to print a simple report of the impact recording.

Press and hold this button and the [START/STOP] button simultaneously for 3 seconds to perform gravity correction.

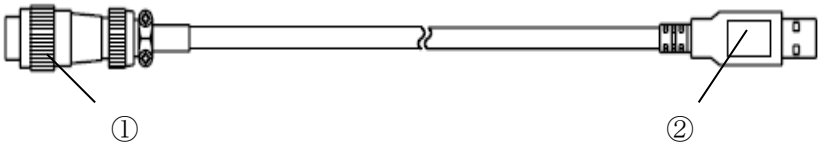
④ EXTERNAL CONNECTOR

Connect to PC or Printer.

⑤ MOUTING HOLE

Bolt holes (M5) for attaching the main unit to the object to be measured.　For processing dimensions, see Chapter 8.

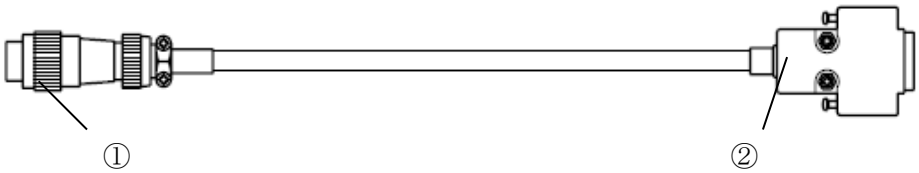
3 - 2　USB CABLE（Accessory）



① Connect to IMPAK-02

② Connect to USB of PC.

3 - 3　Printer cable（Option）



① Connect to IMPAK-02

② Connect to printer (Dsub9P)

Pin number	Signal
3	TXD
5	GND

Do not connect to other pins.

4 Installation

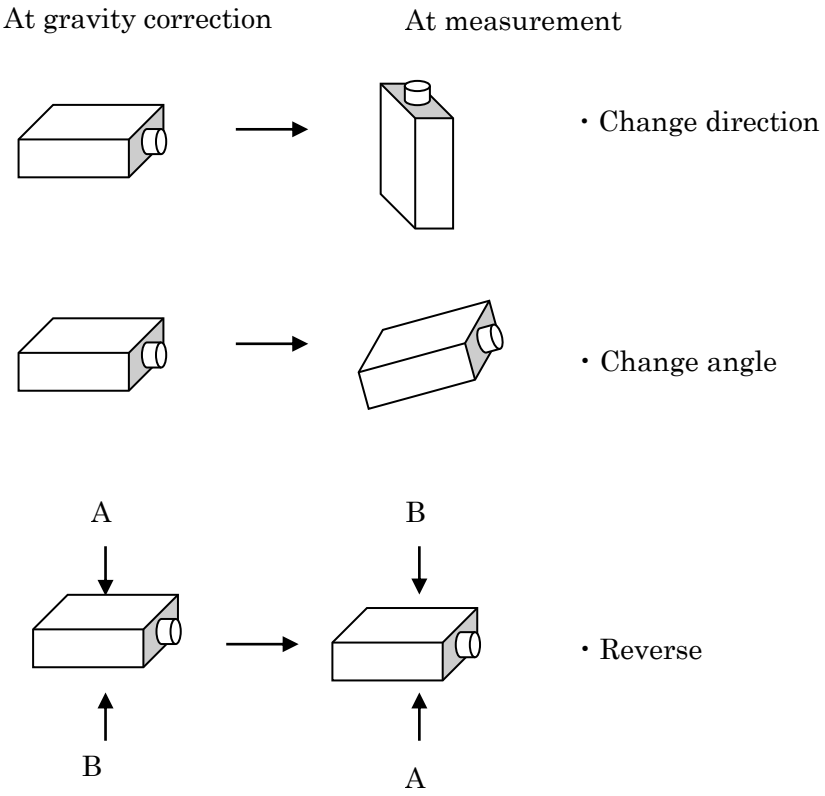
If not installed correctly, accurate recording will not be possible.

IMPAK-02 is affected by gravity (tilt). For accurate shock recording, please pay attention to the following points when installing and operating the instrument.

Refer to Chapter 5-4 about "Reset gravity"

- Fix surely with four bolts.
- Never change your posture after gravity correction.

Bad case



5 Record

5-1 Charge

Before recording、you have to charge the battery for about 3 hours. When you connect USB cable to your PC, charging will be started automatically.
While charging it, the yellow lamp on the front lights momentarily. If charge is completed, the color of lamp changes green.
Note) Battery performance is deteriorated by many times charge/discharge.

CAUTION

- Never turn off power of the PC before disconnect the USB cable.
- Make sure to disconnect the USB cable after complete charging.

5-2 Configuration

First of all, you have to install the utility software ViewPak-02. You can edit all of parameters of IMPAK-02. It explains in detail in Chapter 6 & 7.

5-3 Install

Fix surely with four bolts. An accurate measurement cannot be done in an easy fixation with adhesive tape.

5-4 Gravity correction

After completing the settings, disconnect the USB cable from PC.
Gravity correction cannot be performed with the connection intact.

Gravity correction is to measure the data of gravitational acceleration as a correction value in order to eliminate the effect of gravitational acceleration on the sensor and measure only the impact that is truly received.

There are two ways to do this

[Confirmation]
Normally, use ② automatic correction below.
Manual correction in ① is effective only in limited situations.

① Do it manually （use only for limited purposes.）
This is a gravity correction that is manually operated by the inspector.
It is not necessary to do this except in special cases.

② Do automatically (recommend)
This is done automatically when logging starts.
The same applies to timer start and START/STOP button start.
Usually, this is used.

In the case of ②, gravity correction is automatically performed at the start of measurement regardless of the starting conditions.
The inspector does not need to do anything in particular.

To perform ①, press the START/STOP button and the PRINT button simultaneously for 3 s.
After 3 s, the indicator lamp will blink yellow twice to indicate that the gravity correction is complete.
（This can be done at any time by the inspector, but cannot be done when the PC is connected or in logging mode.）

Note1)
When gravity correction is performed manually, automatic correction at start is not performed.
Note2)
To clear the gravity correction value, you need to send the setting data.
When manual gravity correction is being performed, please perform gravity correction again after sending the setting data.

5－5　Record

Recording will start or stop at time you make configuration in timer. In manual operation of Start/Stop, by pressing [START/STOP] button for 3 seconds starts recording, and subsequently by pressing [START/STOP] button for 3 seconds stops recording.

5-6　Save data

After it records, you can save data to your PC. It explains in detail in Chapter 7.

5-7　Print report

At the sleep mode, it's possible to print all data stored in a memory by pressing [PRINT] button for 3 seconds.　When [PRINT] button is again pressed for 3 seconds during printing, printing is interrupted.
We recommend to use the printer PD-22 made by CITIZEN.
Specifications are:

- Code　　:　　ASCII
- Interface　:　　RS-232C
- Receive buffer :　64KB or over
- Baud rate　:　　9600 bps

5-8　Status　(Battery condition)

The lamp lights momentarily every two seconds during recording.　The lamp lights twice when [PRINT] button is pushed in the sleep mode.　Also, color of lamp shows battery power.

Green　→ Enough power
Yellow → Battery power is Medium
Red　　→ Battery power is low

Status color indication is only a guide line for battery condition. (Full-charge of battery always recommended before measuring.)

5-9　Maximum data number

Maximum data numbers to be stored in IMPAC are 1,000,000 (one data includes 3-axes mechanical shock and event occurred time). After 1,000,000, no more data will be saved. （Only while the battery is operating.）

In case that many shocks are to be expected, an external auxiliary battery unit is recommended.

5-10　Recording Time

The battery can be used continuously for about 30 days on a single full charge of the built-in rechargeable battery.

(Total time in Logging mode+ Sleep mode combined.)

This is a rough estimate assuming one impact at an interval of one per minute.

The continuous operating period varies depending on the operating conditions.

Please use an optional external power supply to extend the continuous operating period.

5-11　Life time

The battery life would be about 400 cycles(charge/discharge). When you like to replace battery for new one, please consult factory.

5-12　Reset

This section explains how to reset IMPAK.

(The data which were saved and the setting are not guaranteed when you reset it. Please go as the last means of the return)

1. Push START／STOP button and PRINT button simultaneously
2. Three seconds later, lamp flashes twice in yellow. Furthermore, for another two seconds, please continue pushing the two buttons.

(= For about 5 seconds, continue pushing the two buttons.)

3. At this point in time, the lamp flashes in yellow once (0.5 seconds).
4. Reset was finished.

5-13　Calibration

We recommend re-calibration every 5 years.

6 Configuration

Before recording, you have to edit configuration data by the utility software ViewPak-02. The detail of parameters is as follows.

6 - 1 Detecting level

The shock signals in X, Y, and Z axis are compared with pre-set detecting level. If the shock either of X, Y or Z axis exceeds the detecting level, shock data of the three axes is recorded in a memory. Set by the numerical value directly. Unit is [G].

6 - 2 Warning level

If the shock exceeds the warning level, shock data of the 3 axes is recorded in a memory. The warning mark attaches on the graph. Set by the numerical value directly. Unit is [G]. And asterisk mark attaches to the report.

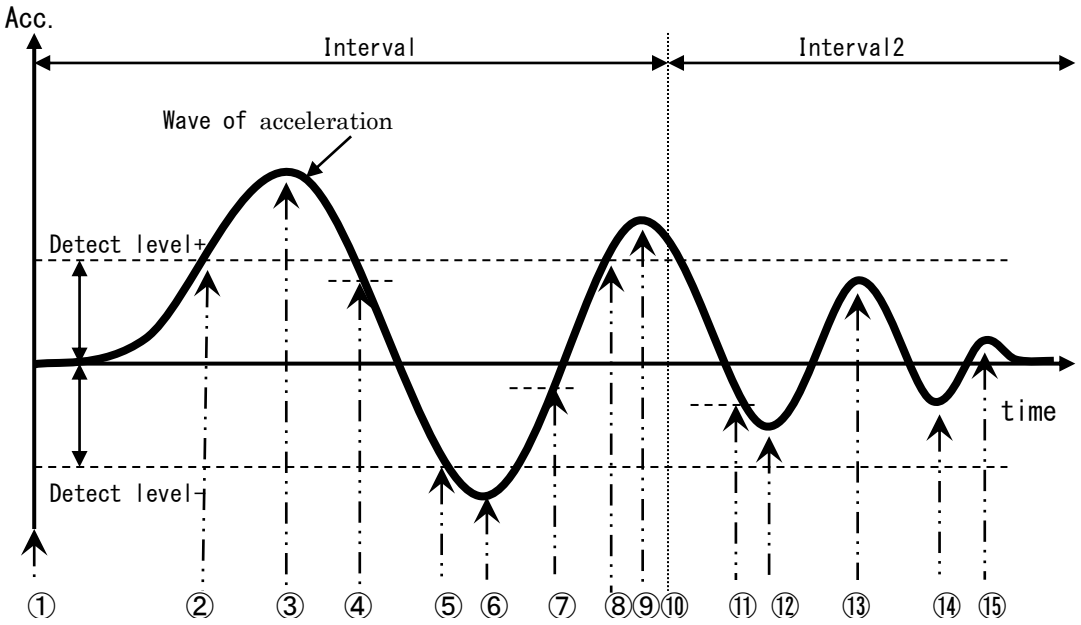
6 - 3 Record interval

The IMPAK-02 stores the peak of shock value in a certain of interval. Even if two or more peaks are detected, only one peak data during the interval is preserved. Finding peak or maximum value of the shock data is done using RMS value of 3 axes.

The RMS value is calculated by the following equation.

$$\text{RMS value} = \sqrt{X^2 + Y^2 + Z^2}$$

The figure below shows the operation of IMPAK-02 when the shock is recorded.



This wave of acceleration has 7 peaks. (③ ⑥ ⑨ ⑫ ⑬ ⑭ and ⑮)

① Reset initial value.

② Detect a first wave and start analysis. The analysis of the shape of waves is executed by the set sampling frequency.

③ First peak

④ Detect the end of first wave. Save peak value of point ③**.** And reset a peak value.

⑤ Detect a second wave and start analysis again.

⑥ Second peak

⑦ Detect the end of second wave. Save peak value of point⑥ **.** And reset a peak value. Next compare ③ and ⑥ value. Value of ③ is bigger than value of ⑥. Then the value of ③ is left as a peak.

⑧ Detect a third wave and start analysis again.

⑨ Third peak.

⑩ End of interval. Because the analysis continues, the third peak saves as an initial value at the following interval. Value of ③ is preserved as a peak value at intervals 1 with time.

⑪ Detect the end of third wave.

⑫ ～ ⑮ Those wave do not exceed detecting level.

6-4 Sampling rate

The bandwidth of measurement can be adjusted by changing sampling rate.

Sampling rate (Hz)	Cutoff freq. or Bandwidth (Hz)
3200	1600
1600	800
800	400
400	200
200	100
100	50
50	25
25	12.5

Magnitude of the shock is measured in terms of acceleration. Amplitude and frequency of mechanical shock (or vibration) decides the level of acceleration. When the frequency is high even if amplitude is small, a bigger acceleration is shown. When the frequency is low even if amplitude is big, a lower acceleration is shown. So it is important to select appropriate bandwidth for your application.

6-5 Warning time

IMPAK-02 has an alarm output. When the shock exceeding alarm level is detected, IMPAK-02 outputs alarm signal.

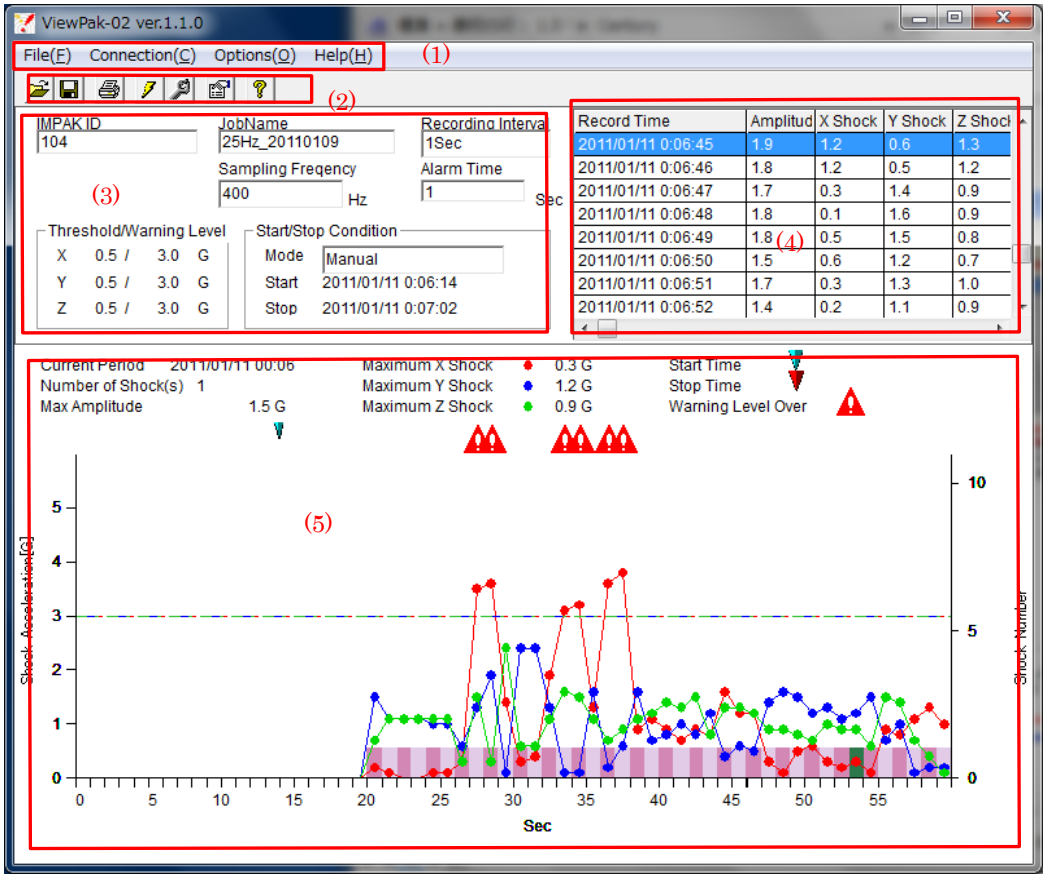
Warning time means a time turning on output signal. If set 0, an alarm signal is invalid. (Unit is second) Output circuit is an open drain.

Refer to Chapter8 about pin allocation.

7 ViewPak-02

Utility software ViewPak-02 is used for data preservation, data analysis, and configuration of IMPAK-02. This chapter explains how to use ViewPak-02.

7 - 1 Main screen

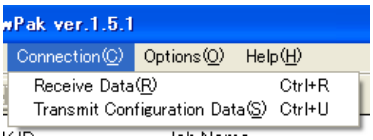


(1)Menu	Menu of command。
(2)Toolbar	Short cut icon often used
(3)Setting fields	Parameters send to IMPAK-02
(4)Data table	List of shock data
(5)Graph	Graphical representation of shock data

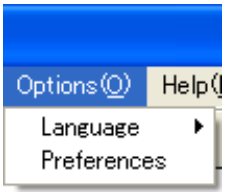
7 - 2　Function

7 - 2 - 1　Menu

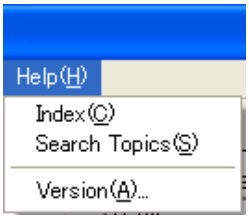
Open	Open file
Save	Store shock data and configuration data
Export	Save all data to CSV file.
Print	Print configuration data, shock data and graph.
Quit	Quit VIEWPAK-02



Receive data	Get shock data and configuration data form IMPAK-02
Transmit configuration data	Send configuration data to IMPAK-02



Language	Change language of display
Preferences	Open dialog to edit options



Index	Contents of help
Search Topics	The item including the key letter is retrieved.
Version	Version of software and system information of PC

7-2-2 Toolbar

Short cut icon often used

(1) Open : Open file
(2) Save : Save configuration data and shock data to PC
(3) Print : Print configuration data and shock data
(4) Receive data : Get configuration data and shock data form IMPAK-02
(5) Set configuration : Send configuration data to IMPAK-02
(6) Setting : Edit parameters
(7) Help : Open help files

7-2-3 Data table

List view of shock data transfer from IMPAK-02.

Record Time	Impact	X Impact	Y Impact	Z Impact
2004/06/21 18:26:57	2.7	0.7	2.1	1.5
2004/06/21 18:26:58	5.5	1.5	5.1	1.3
2004/06/21 18:26:59	4.3	1.5	2.1	3.4
2004/06/21 18:27:00	3.1	1.2	1.0	2.7
2004/06/21 18:27:03	2.9	0.9	1.2	2.5
2004/06/21 18:27:04	2.8	0.9	1.1	2.4
2004/06/21 18:27:05	2.3	0.6	0.9	2.0
2004/06/21 18:27:06	2.8	0.9	1.2	2.4
2004/06/21 18:27:08	3.0	0.9	1.2	2.6

The scrollbar is displayed on the right side when there are a lot of number of data having been measured.

Content of row is as follows.

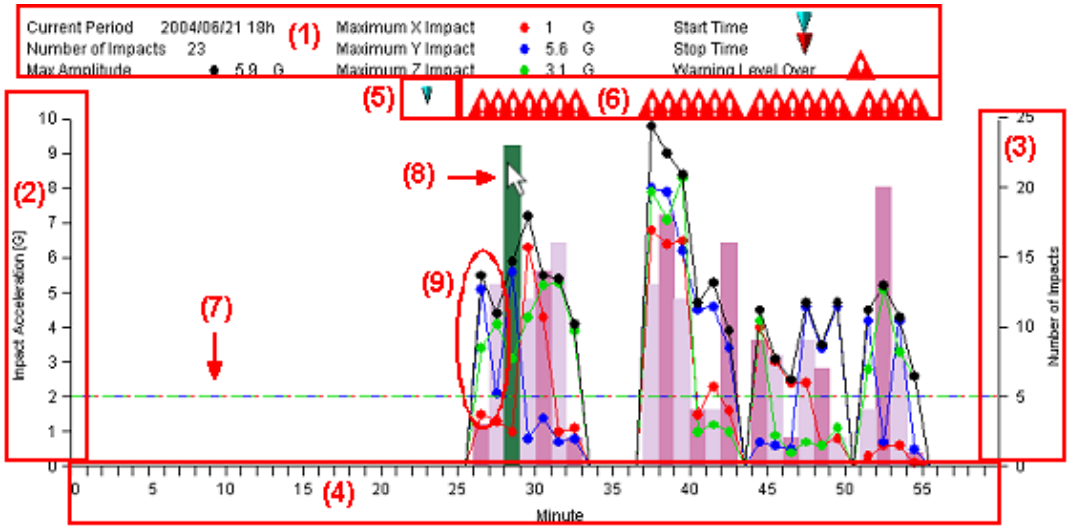
Record Time	: Time when shock was recorded
Shock	: RMS value of shock
X axis	: X axis data
Y axis	: Y axis data
Z axis	: Z axis data

※Unit of shock is able to change in option dialog

Click the bar in graph, a corresponding data in the table is scrolled.

7-2-4 Data graph

The recorded shock data is graphically displayed.



Graph displays a number of shock and magnitude. Horizontal axis of graph means time and vertical axis means magnitude and numbers of shock.

The peak value of shock is displayed by line chart , the number of impact is displayed by bar chart. When put pointer of mouse on concerned bar chart, peak value and number of shock are displayed on information area (1).

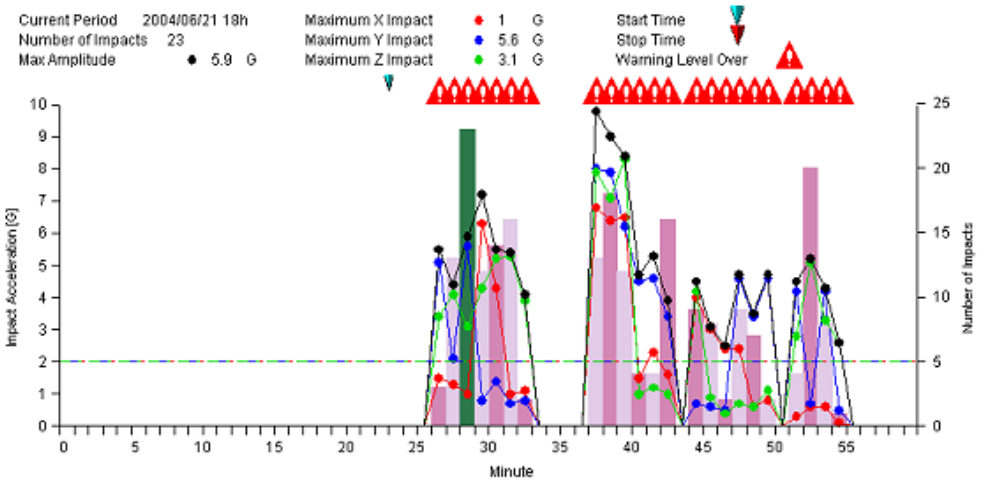
This is what is displayed in the information area (1).

(1)Information area	Detail of data to have matched a mouse pointer.
Recorded time	Recorded time
Number of shock	Number of recorded data to have matched a mouse pointer.
Peak value	Peak value to have matched a mouse pointer.
X axis data	Peak value of X axis to have matched a mouse pointer.
Y axis data	Peak value of Y axis to have matched a mouse pointer.
Z axis data	Peak value of Z axis to have matched a mouse pointer.
(2) Acceleration	This axis shows magnitude of shock. Graph range is adjusted depending on data automatically.
(3)Number of shock	This axis shows number of shock. Graph range is adjusted depending on data automatically.
(4)Time axis	This axis shows recorded time. Graph range is adjusted when zoom in/out.
(5)Start／Stop time	A blue arrow shows a start time of recording and a red arrow shows a stop time of recording.
(6)Warning mark	The mark attaches when shock exceeds warning level
(7)Warning level	Indicate warning level
(8)Bar graph	Number of shock which is recorded in interval time
(9)Line graph	Peak value of shock which is recorded in interval time

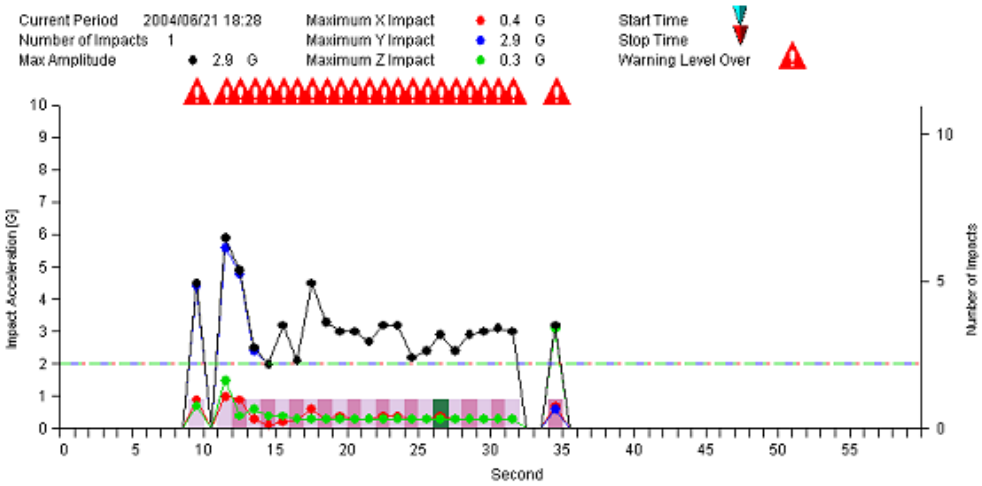
Color or items to display can be changed by option dialog.

When zooming in, put pointer on the bar and make left-click. When zooming out, make right-click.

(Example)
In the following chart、it recorded at 18:28 June 21, 2004.



Put pointer of mouse on the bar and make left-click then:



The time range is changed a display on every one second. The resolution of time is set depending on interval time. When zooming out, make right-click on any place.

7 - 3　Data communications

7 - 3 - 1　Receive data from IMPAK-02

(A) Click [Connection]

(B) Click [Receive data] or Click 

(C) When complete receiving data, a dialog will appear. If it records some shock, it shows a number of shock. Otherwise, the message "There is no shock data" is displayed.

(D) Click {O K}

To receive data from IMPAK-02 has been completed.

7 - 3 - 2　Send configuration data to IMPAK-02

It explains the method of transmitting the parameters to IMPAK-02.

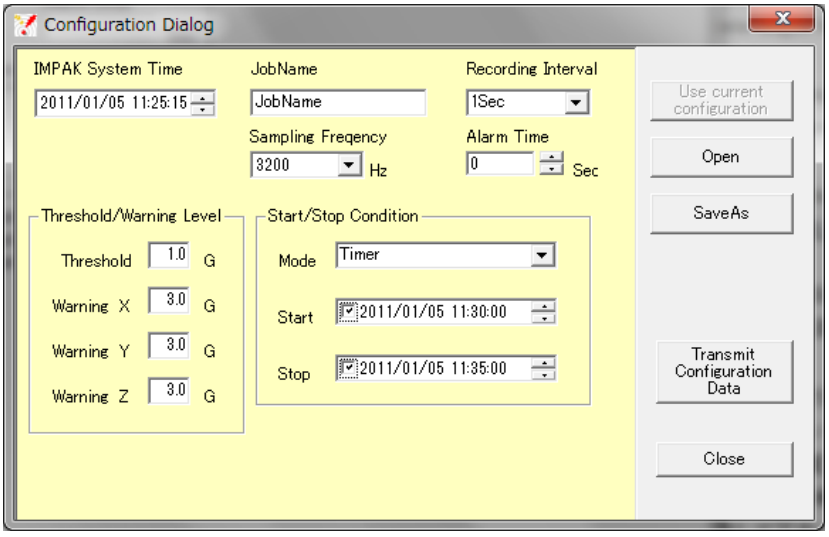
CAUTION

All previous parameters and shock data turn to be invalid when transmit new parameters. Make sure saving data before making communication with IMPAK-02.

A)　Click [Connection]

B)　Click [Transmit configuration data] or Click 

C)　The configuration dialog appears.



D)　Filling or set some parameters. 3 methods to input data as bellows:

①　Type keyboard

②　Use current parameters

Click [Use current Configuration]. Then copied all parameters received as above form.

When [Use current configuration] is not active, it means no data.

③　Open the configuration file which saved before.

Click [Open] and select a file or type a file name.

E) Explanation of each item as follows:

① **IMPAK System time** : Internal clock

Recording will start or stop at time set by VIEWPAK-02. So setting at accurate time is important.

② **Job name** : String to identify. 15 or less alphanumeric.

③ **Interval** : Minimum duration of treatment as one shock.

④ **Sampling freq.** : Repetition frequency when shape of wave is analyzed. Unit is Hz. Select it from the list.
Refer to Chapter 6－4.

⑤ **Alarm time** : Width of signal output duration when alarm level is exceeded. Set by up/down bar and range is 0～10s. Refer to Chapter 6－5

⑥ **Detecting level** : Level to recognize it as shock of X、Y、Z axis. Range is 0.5G ～ 14.9G. Refer to Chapter 6－1

⑦ **Alarm level** : Level to be harmful in X、Y、Z axis. Range is 0.5G ～ 14.9G. But this level must be greater than the Detecting level. If peak level of shock exceeds alarm level, the mark in graph screen appears.

⑧ **Start／Stop condition** : Set the condition of start or stop recording. It is possible to set it independently.

- Mode : Timer or manual
  - Timer
    The automatic operation starts with the timer according to setting. [START／STOP] is not active.
  - Manual
    Press [START／STOP] for 3 seconds.
- START : Select timer mode. If a left check switch of the time setting is turned on, it becomes effective.
  If a check switch is turned off, recording begins immediately

after disconnection of USB cable.

- STOP : Select timer mode. If a left check switch of the time setting is turned on, it becomes effective.
  If a check switch is turned off, recording quits immediately after connection of USB cable.

F) Click [Save as]、then all parameters can be preserved as IMPAK-02 configuration file.

G) Click [Transmit Configuration Data]

H) When the configuration data is finished being sent to IMPAK-02, the message "Configuration completed" will be displayed.

This completes the transmission of the setting data to IMPAK-02.

7 - 4　Save / Load data

7 - 4 - 1　ViewPak-02 file and IMPAK-02 configuration file

VIEWPAK-02 generates two type of configuration file, those are VIEWPAK-02 file and IMPAK-02 configuration file.

- VIEWPAK-02 file(*.vpk)
  Parameters and shock data.
  Even if the IMPAK-02 is not connected, data already saved in PC can be available.

- IMPAK-02 configuration file(*.cfg)
  Parameters only
  A present setting can be copied into other units.

7 - 4 - 2　Export

Data can be saved by CSV format. Data can be used by other applications.

Click [File]　→　[Export]
And type a file name.

NOTE) Can not open a CSV format file.

7-5 Options

7-5-1 Language

The language to display can be changed.

Click [Option] → [Language]

And select [Japanese] or [English]

Once a new setting of language has been made, the language becomes effective.

7-5-2 Preference

The item of graph, color, and the print entry can be changed.

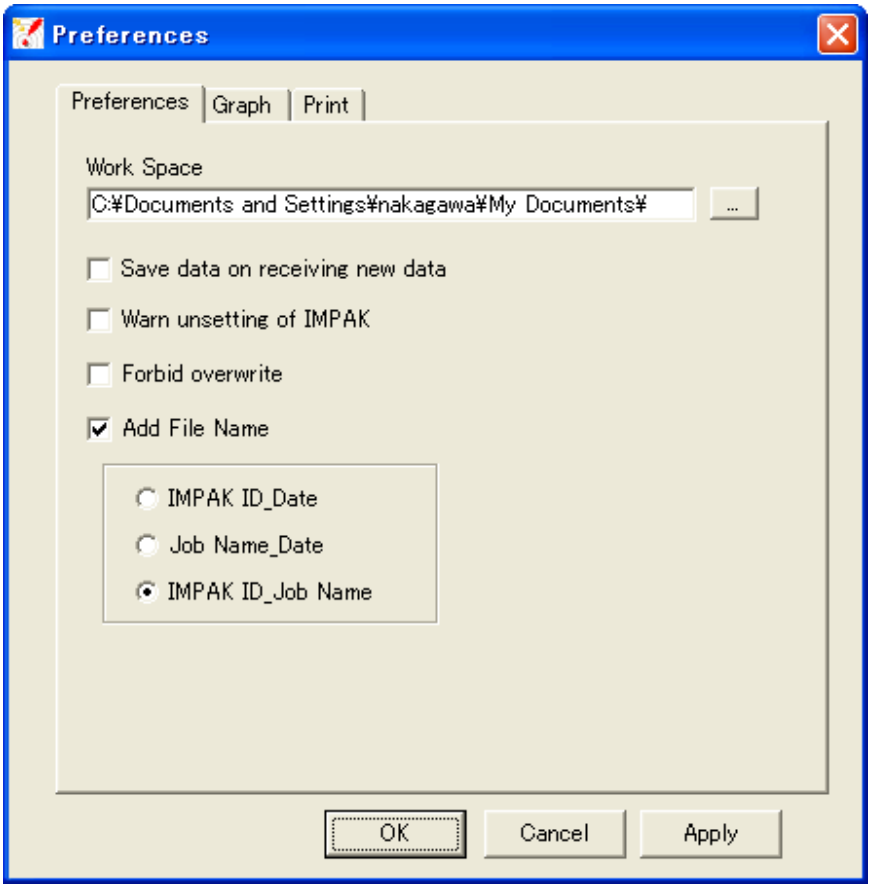
.

Click [Option] → [Preference]

Then the dialog appears.

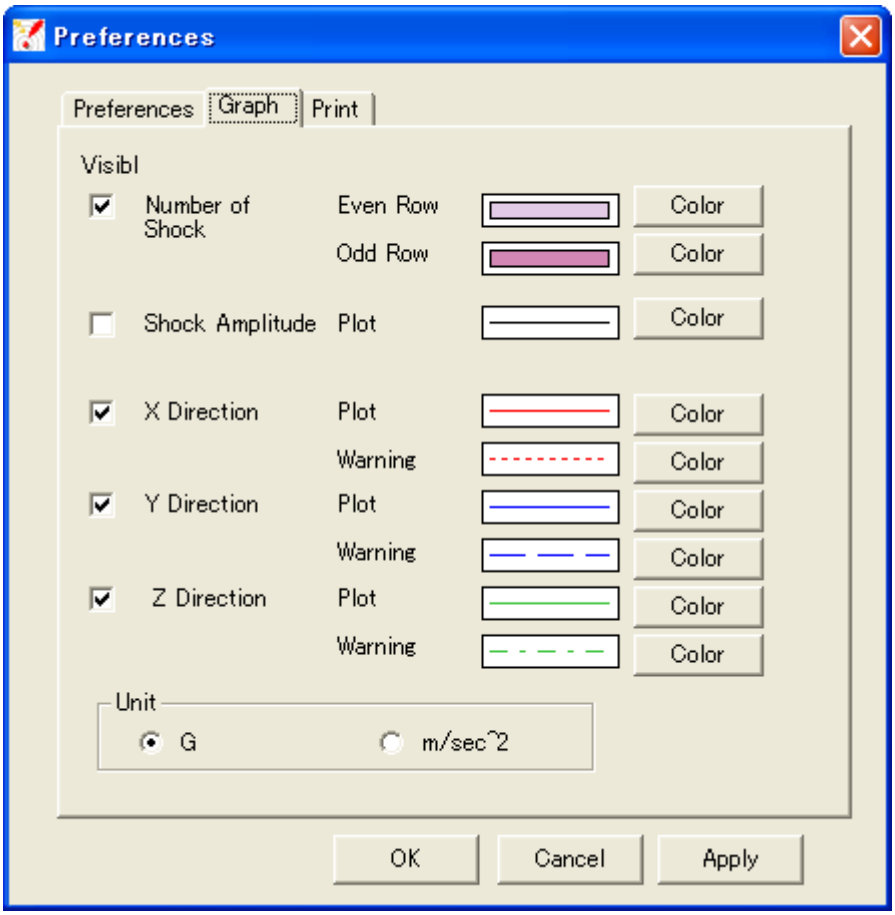
In case of Check or select and press [OK] or [Apply], changed setting becomes effective at once. It explains detail of the screen and the item as follows.

● [Preference]TAB



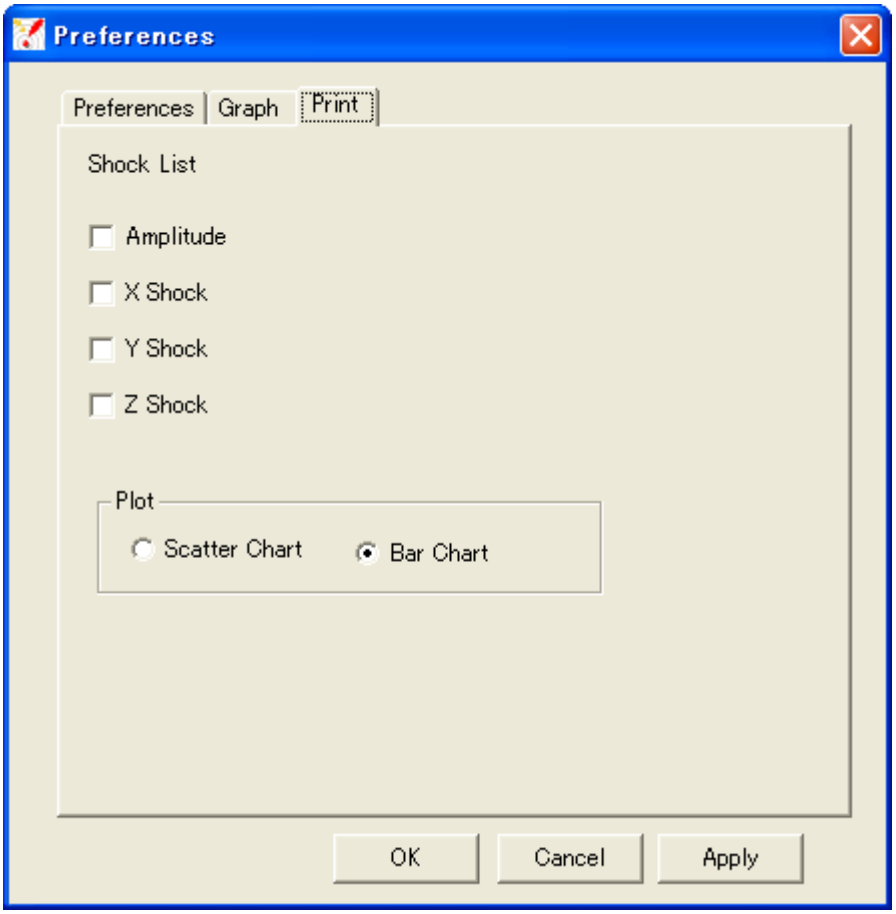
Work space	Directory of working folder
Save data on receiving new data	Open a dialog for save after receiving the data.
Warns unsetting of IMPAK	It warns when data doesn't transmit and quit.
Forbid overwrite	Overwrite is prohibited.
Add file name	When save data, put new file name.

● [Graph]TAB



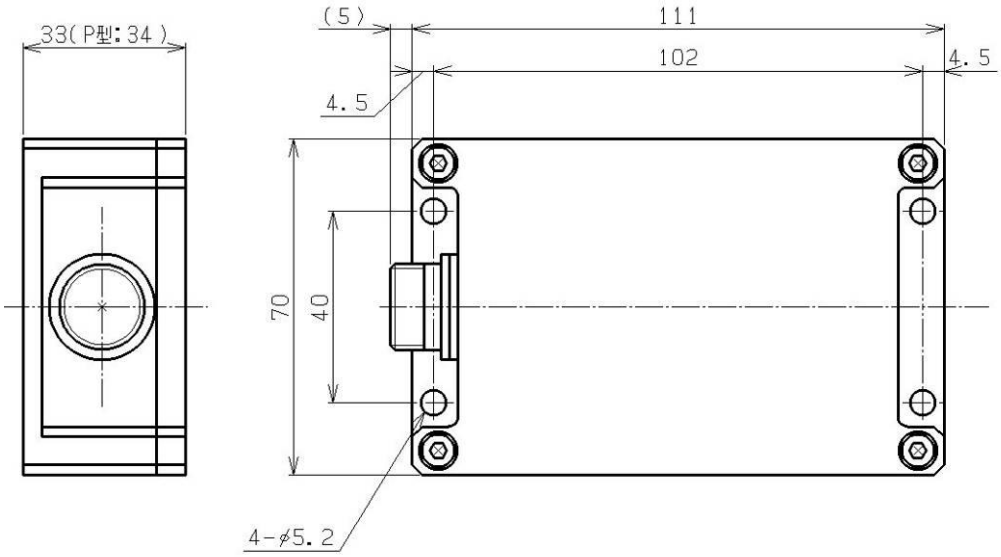
Visible	Specify the displayed item.
Color	Set color of bar and line
Even row / Odd row	The color of the bar can be set in an alternately different color to identify
Plot	Color of dot
Warning	Color of alarm line
Unit	Select unit of shock 1 $[G] = 9.8 \quad [m/\sec^2]$

- [Print]TAB



Shock List	Select axis for printing
Plot	Select print form , bar graph or scatter chart

8 OUTLINE DRAWING



Pin No.	Name
1	POWER SUPPLY（5V）
2	D−
3	D+
4	GND（0V）
5	TXD
6	ALARM OUTPUT
7	AUX. POWER　SUPPLY

PIN CONNECTION

9 AUXILIARY POWER SUPPLY

9-1 Specifications

It supplies power to this terminal for a long term recording.
Pin 4 and 7 on connector are terminals for auxiliary power supply(3~5V±15%).

Pin No.	Name
4	GND（0V）
7	Aux. power supply (3~5V±15%)

The power supply with the capacity of 100mA or more is recommended.

9-2 Setting Procedure

① Charge inner battery.（Please be sure to charge.）

② Set sleep mode（The Lamp should be turned off.）

③ Configure IMPAK-02

④ Disconnect USB cable

⑤ Apply aux. power

9-3 Record

① Now ready for measurement.

When the auxiliary power supply is used, an internal battery is not consumed. When the auxiliary power source is removed, automatically the power source is changed to built-in battery. So that, the built-in battery has been properly charged..

② Recording

9-4 Save data

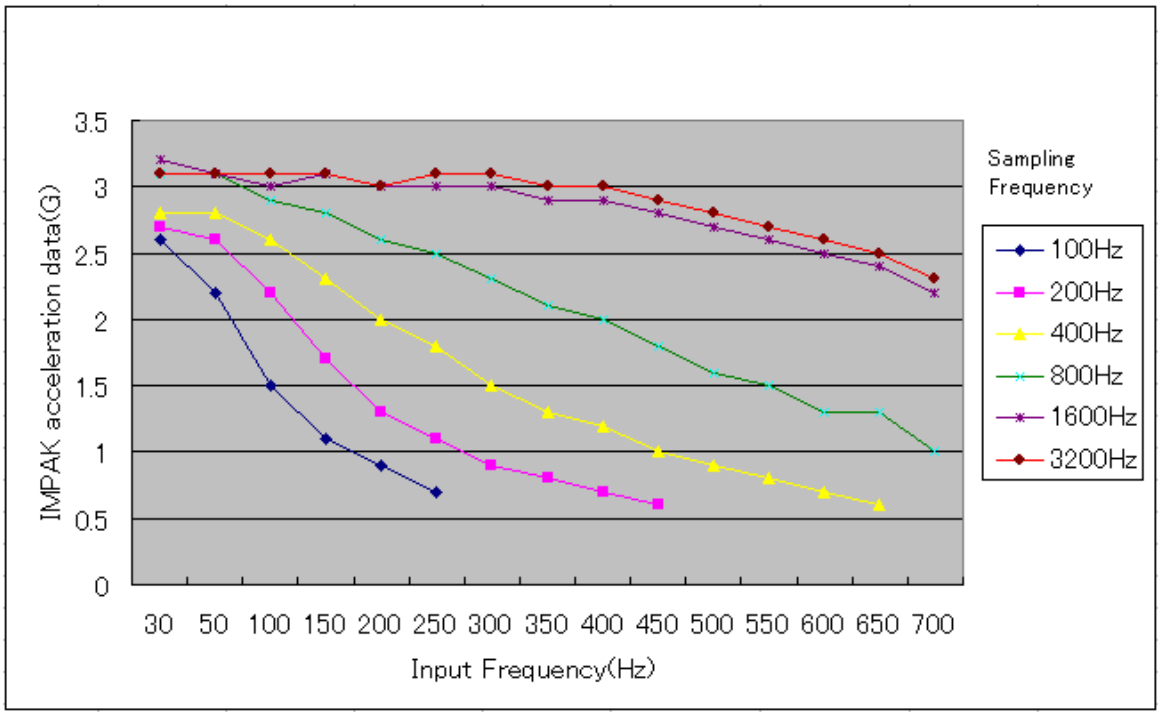
① Set sleep mode（The Lamp should be turned off.）
② Disconnect aux. power supply.
③ Connect to PC and save data

1 0 REFERENCE MATERINAS

IMPAK-02 Frequency Response Characteristic

Condition

Input Acceleration : 3[G]



◆ ViewPak-02 Installation　Procedure

- Introduction

Please start this installer after uninstalling former software, when Viewpak02 already reinstalls by having installed in the personal computer.

When you uninstall, please delete "ViewPak02 Setup" from "an addition and deletion" of Windows of a program.

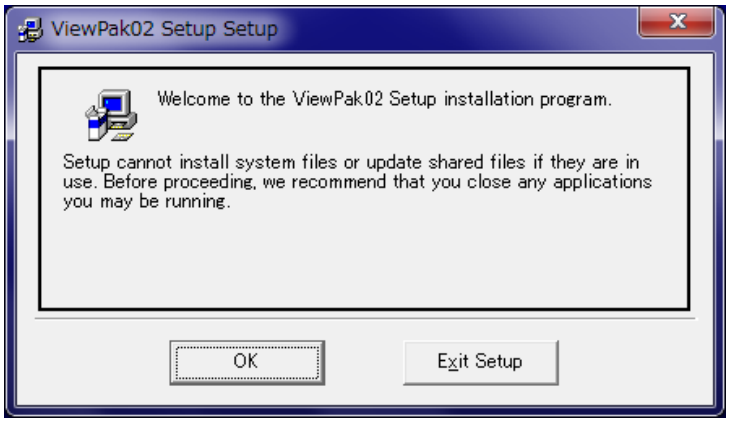
- Installation procedure

① "Installer_Viewpak02" and "USBDRIVER"　on distribution CD ROM are copied to a PC.
(Please copy "_XP", when WindowsOS is XP. Please copy "_Vista7", when OS's are Vista/7.)
It unites henceforth and calls it "Installer_Viewpak02" for short.
Since there is work which specifies the folder copied later, please record and place a copy place

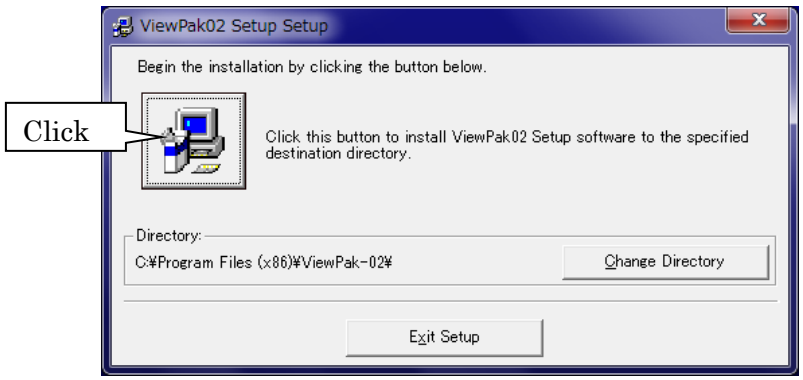
② "setup.exe" in "Installer_Viewpak02" is double-clicked.

③ Since an installer starts, please advance a procedure according to directions.

④ The following wizard appears, after double-clicking "setup.exe."
Please Click OK.



⑤ If the following wizard is displayed, please click the button in which PC is drawn.
Usually, the setup of a folder should set up without changing.

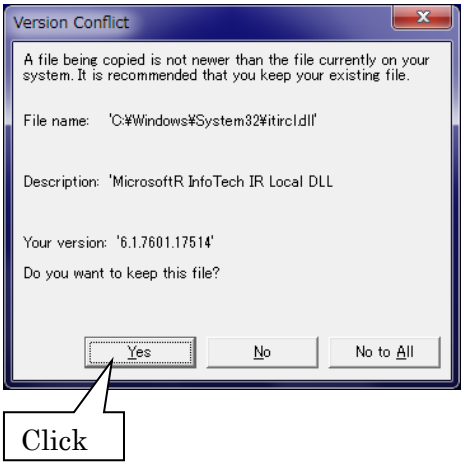


【Note】

On the way, the cautions following clause about version conflict of a file may come out by setup of a PC.

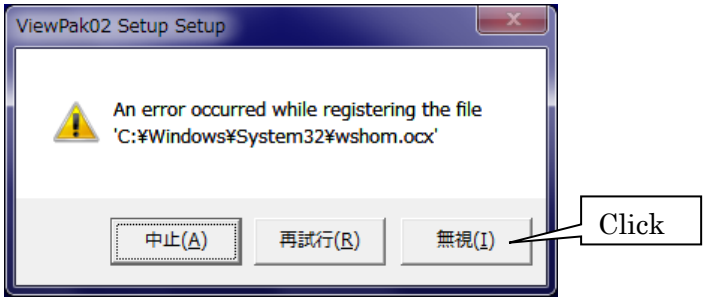
Please choose a setup holding the state of PC of the present use in that case.

Usually, please choose " Yes ".

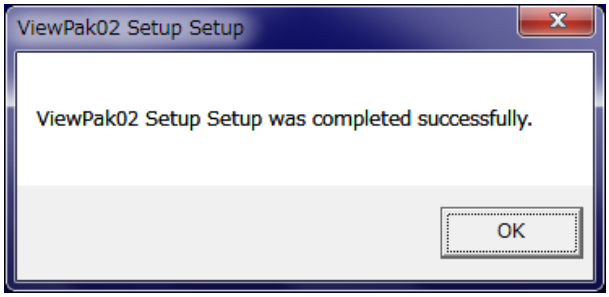


【Note】

Please choose "Ignore(I)", although an error display may be performed depending on a setup of PC.



⑥ The dialog of completion will be displayed if installation is finally completed



◆ Installation of a USB driver　Procedure

① If IMPAK-02 is connected to the USB connector of a PC for the first time, the installer of a USB driver will start automatically and it will urge installation.

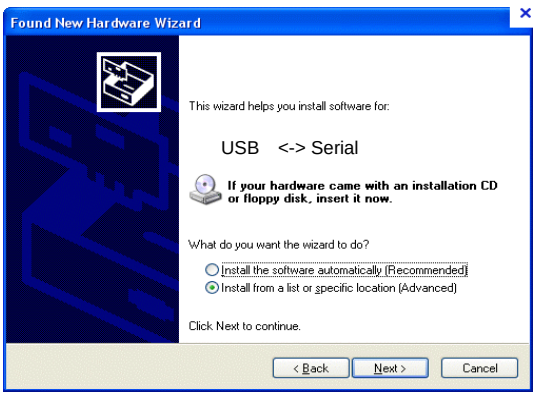
② Please install according to the display screen of PC.

（Wizards is the display at the time of XP. The display by Windows7 is described later.）

（1）

please select 「No, not this time」.

Click “Next” to continue.



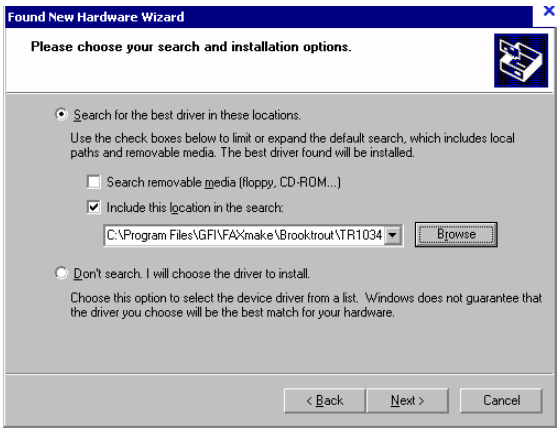
（2）

please select 「Install from a list or specific location 」.

[Note]

The portion of "USB<- -> S e r i a l" may be replaced according to conditions.

Click “Next” to continue.



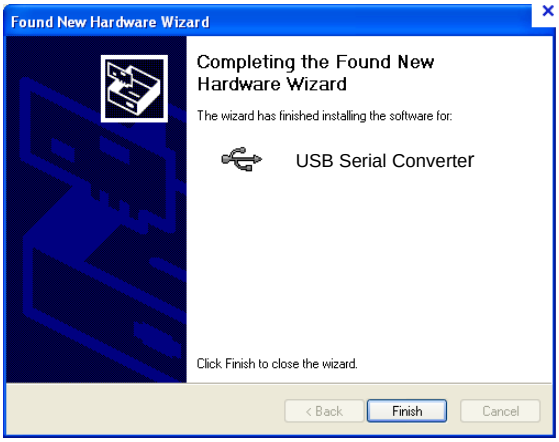
（３）

please　select「Search for the best drive in these location」-「Include this location in search」.

Click「Browse」and　please specify the folder which copied "USBDRIVER" as the point.

Furthermore, please choose "C D M 2 .0 6 .0 0 W H Q L C e r t i f i e d" in it.

And click “Next” to continue.



（It may take about 10 minutes or more by completion.）

（４）

Click “Finish” and it ends installation.

[Note]

The portion of "USB S e r i a l Converter" may be replaced according to conditions.

③ An indication may be given to following the same procedure twice.
Please perform the 2nd time as directed.
Installation of a driver is completed now.

- The cautions at the time of installation to Windows7

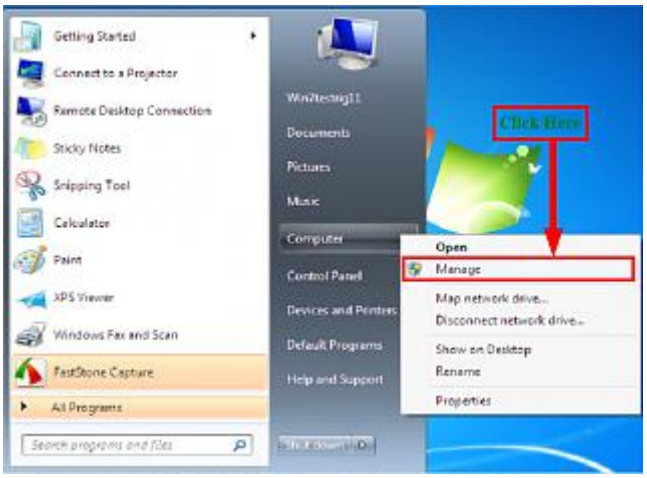
Even if IMPAK-02 is connected to the USB connector of PC, the procedure described in the top may not be displayed.

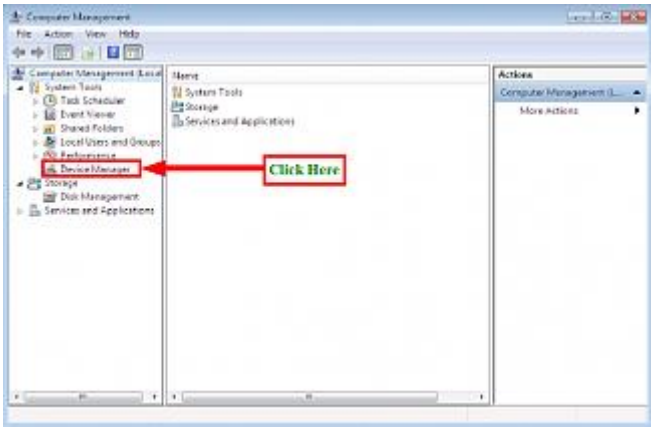
Please install a USB driver by a method separately in that case.

'Device driver software was not successfully installed'

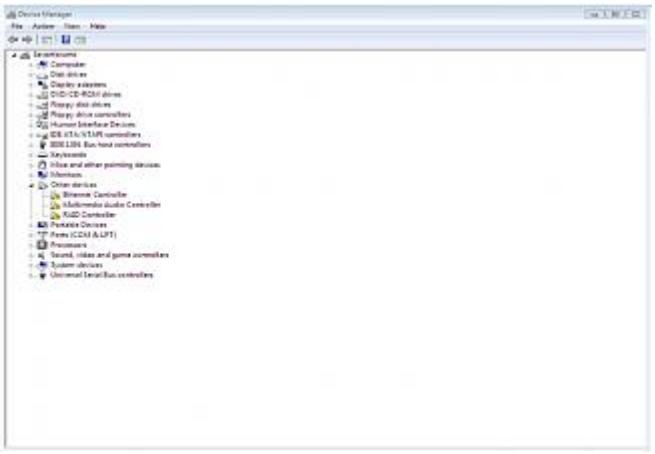
(1)
If USB is inserted, the display of installation failure may appear..

(2) Open Windows Device Manager and the device which failed in installation is checked.





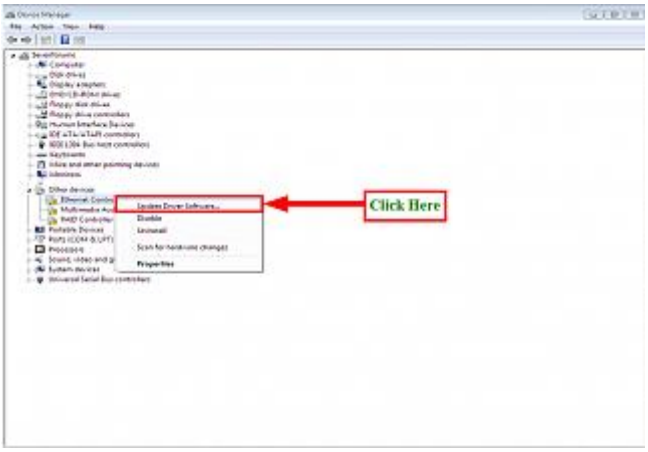
(3)
Open Windows Device Manager and the device which failed in installation is checked.
In the device which failed in installation A warning mark is displayed.



(4)

In the device which failed in installation,

a warning mark  is displayed.

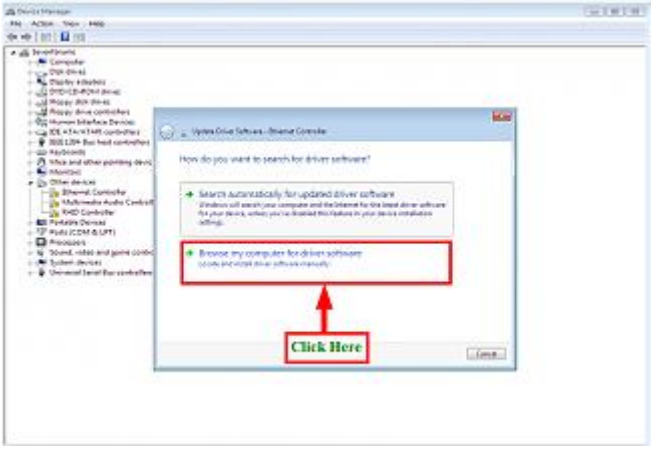


(5)

Please select the device with a warning mark and right-click.

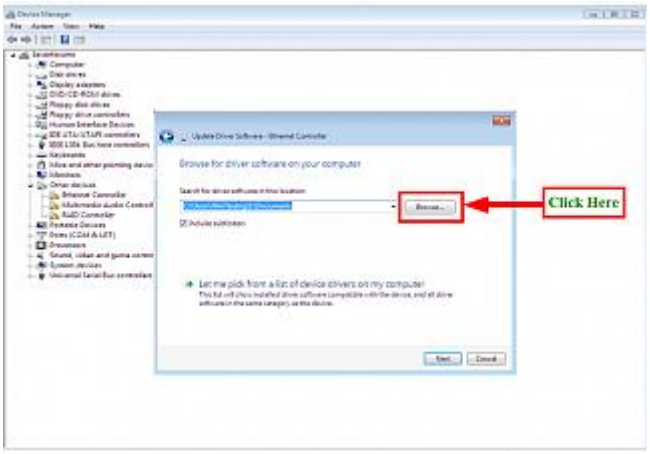
Menu is sdisplayed.

Click on Update Driver Software.



(6)

Click on Browse my computer for drivers software

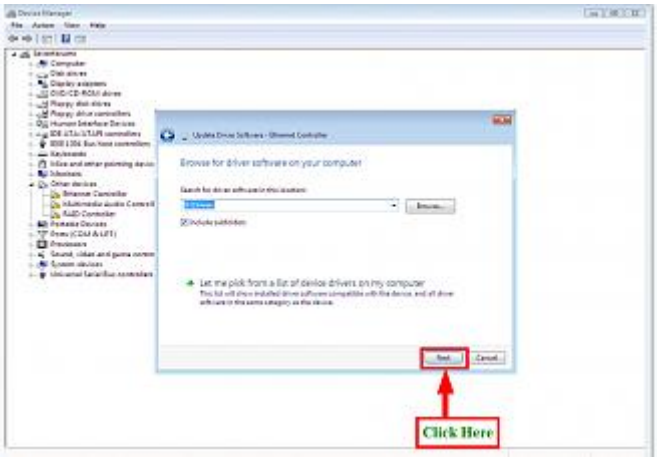


(7)

Click on Browse.

Next, since it becomes a screen which specifies the place of a file, please set up the folder which copied USBDREIVER "C D M 2 .0 6 .0 0 W H Q L C e r t i f i e d".

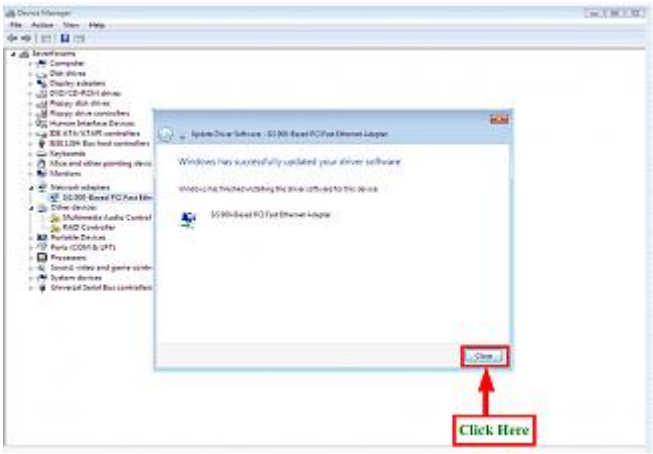
("C D M 2 .0 6 .0 0 W H Q L C e r t i f i e d." is in a USBDREIVER folder.)



(8)

Please Click on Next.

Download of a driver is started.



(9)

Download was completed.

Click on Close

(10)

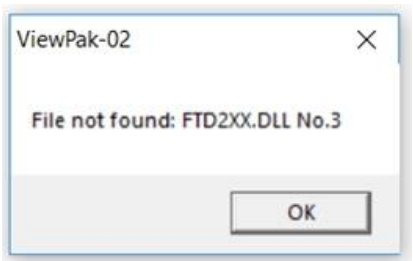
Under installation, if the following warning is displayed, please select "Install this driver software anyway" .

After a while, the pop-up of "not having been installed correctly" may be displayed (installation is performed normally.).
It is not an error.
Please follow the procedure same in that case again

[Note]
Operation may have some difference by setup of PC.

- The cautions at the time of installation to Windows10

After having installed it in the same way as Windows7, When you are going to start ViewPak-02, An next figure may be displayed.



In that case. Copy "ftd2xx.dll" of the attached CD-R in a folder of the ViewPak-02 installation.

ftd2xx.dll ⇒ In CD-R

¥USBDRIVER¥CDM 2.06.00 WHQL Certified¥i386

ViewPak-02 installation folder (default). ⇒

C:¥Program Files (x86)¥ViewPak-02

This operation varies according to the PC setting.

---------- Warranty ----------

The IPK-02 has been designed and manufactured for general industries applications.
The gratis warranty term of the product shall be for one year after the date of delivery to a designated place. If any faults or detects found to be responsibility of SANTEST occurs during use of the product within the gratis warranty term, the products shall be repaired at no cost via the dealer or SANTEST co., Ltd. Note that if repairs are required out of Japan, expenses to send to Japan shall be charged for.
Even with in the gratis warranty terms, shall be charged for in the following case.

1. Failure occurring inappropriate storage or handling, carelessness or negligence by the user.
2. Any other failure found to not be the responsibility of SANTEST.
3. Failure caused by unapproved modification and repair.
4. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from SANTEST.
5. Failure caused by external irresistible forces such as fires, earthquakes or wind and water damage.

Regardless of the gratis warranty term, SANTEST shall not be liable for compensation to damage caused by any cause found not to be responsibility of SANTEST

IMPAK-02 User's manual

2021/11/22 Rev2.7E

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Specifications subjects to change without any notice