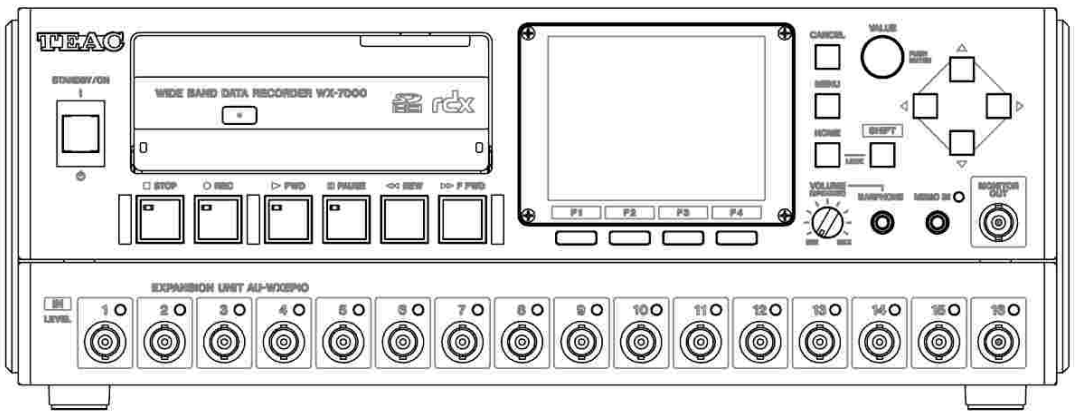
TEAC

Utility software for
WX-7000 Wideband Data Recorder

WX Navi

Instruction Manual

Please read this manual before using the product and keep the manual handy.



TEAC CORPORATION, Sep 2013, D01191810G

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E-mail: tic_cs@teac.co.jp

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1. Installing WX Navi

1.1. PC Requirement

Recommended Specification of PC;

CPU	2nd Generation Intel® Core™ i5 Processor 3.0GHz or more
Display resolution	1280 x 1024 or 1440 x 900 dots
Memory	2 GB or more
Additional free space of HDD	200GB or more
CD-ROM Drive	For installing WX Navi

Note: It doesn't guarantee the operation of all of computers that meet the above requirements. And it is possible not to be continued high sampling rate recording in case of resident software, active various services, various driver, active application software and HDD speed.

1.2. Operating System

WX Navi supports the following operating system;

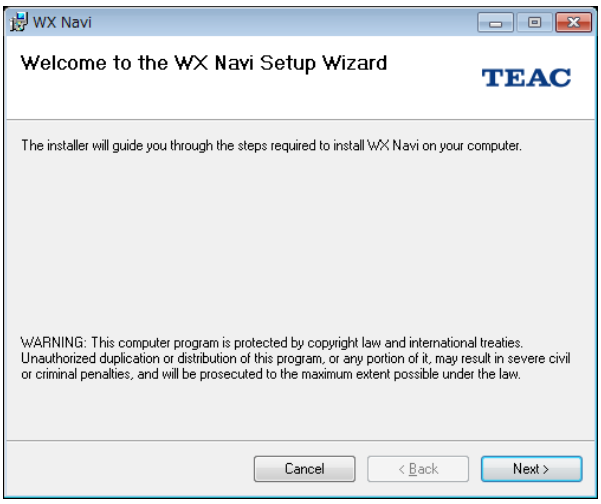
Microsoft Windows XP	32bit (English/ Japanese)
Microsoft Windows 7	32bit/64bit (English/ Japanese)

1.3. Installing WX Navi

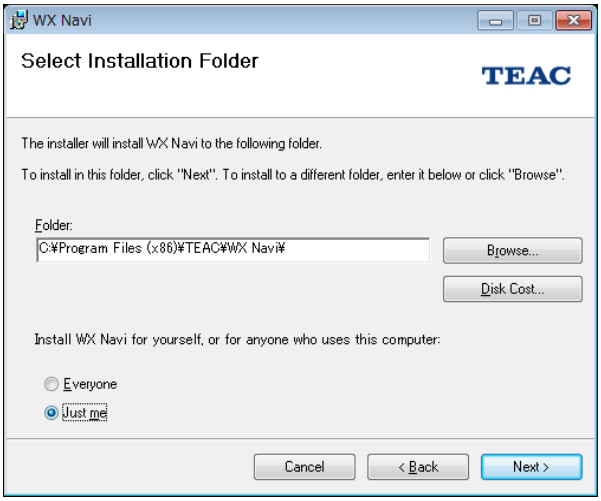
Please install supplied WX Navi software first following next step. Installation procedure should be done by administrator permission. Uninstall old version of WX Navi before install the latest version of WX Navi.

Run the "WxInst.msi" on the root directory of the supplied CD-ROM.

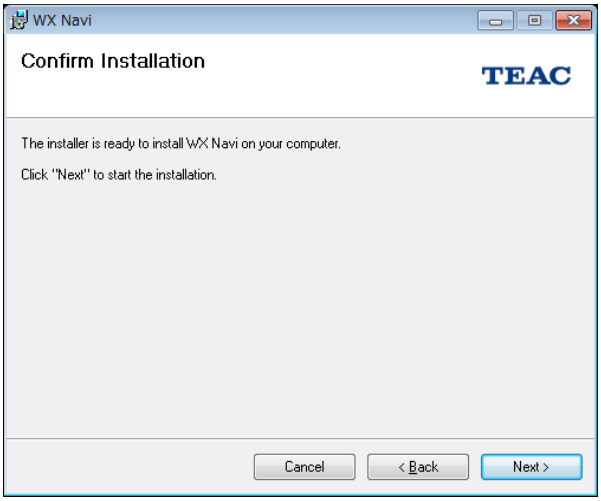
Set up according to the message in the window. Click [Next] button.



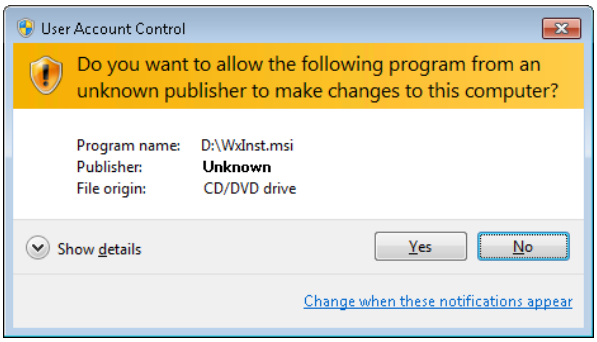
Message window to specify the installation location is displayed. If you want to specify the installation location, please specify where you want to install by clicking the "Browse" button. Otherwise click [Next] button.



Confirmation window to start the installation. Click the [Next] button.



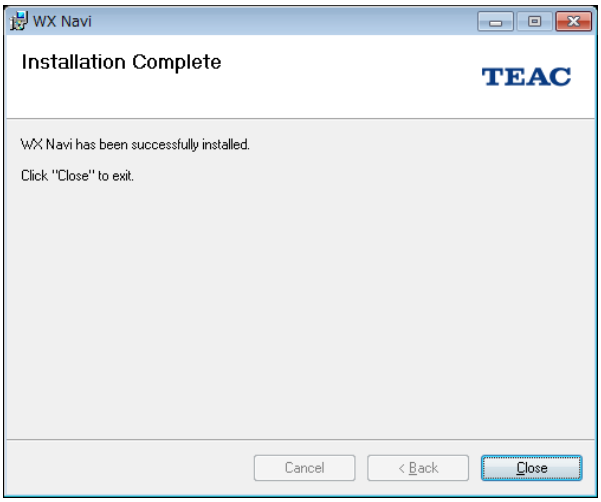
If User Account Control is enabled when Windows XP, of Windows 7, the User Account Control dialog box is displayed in the middle of the installation, please select [Yes].



The installation will start. It may take a while in the middle of the installation, please wait until the next window is displayed.

The window on the right will appear when the installation is successfully completed. Please end by clicking [Close] button.

Please restart computer if a massage prompting you to restart the computer is displayed.



2. Starting WX Navi

2.1. Initial setting

2.1.1. About IP address of computer and WX-7000

To establish a connection with the PC, you need to specify the same subnet mask and IP address of the same network segment as the PC. Modify the settings (such as the IP address of the WX-7000 series or the PC) as necessary. IPv4 is only abele to be used. Consult your network administrator when connecting the WX-7000 series to your network per the following information. Basic knowledge about the Windows network system is required to set the network connection parameters.

2.1.2. Default setting of WX-7000

The default settings of the WX-7000 Series are as follows. Modify the settings (such as the IP address) as necessary. How to change: Click the portion of the IP address in WX Network dialogue to display WX Property dialogue. You can create settings for parameters of the IP address or recorder name (Name). (For detail of the settings, refer to the next item of "Starting Program")

IP Address	192.168.0.10
Subnet mask	255.255.255.0
Gateway	0.0.0.0
DHCP client	DISABLE

2.1.3. About security software

If you establish a firewall on your PC or install virus check software, you may not connect the WX. Check the security level of the program on your PC. The ports to be used at WX Navi are as follows:

Control port	49408 (TCP)
Data transfer port	49664 (TCP)
UDP port	49920 (UDP)

2.1.4. Use the 1000BASE-T LAN interface

To communicate at 1Gbps, all devices in the path from the WX-7000 to the controller PC must support 1Gbps. Use a cable that is Category 7 or better.

Depending on the network environment being used, it is possible that you will encounter delays in data transmission or congestion in processing. In such a case, try the following to improve the situation:

Set your Windows to not to use the unnecessary protocols such as IPv6 WX-7000.

Reduce the number of broadcast packets as much as possible.

Use a communications path that does not pass through a router as much as possible.

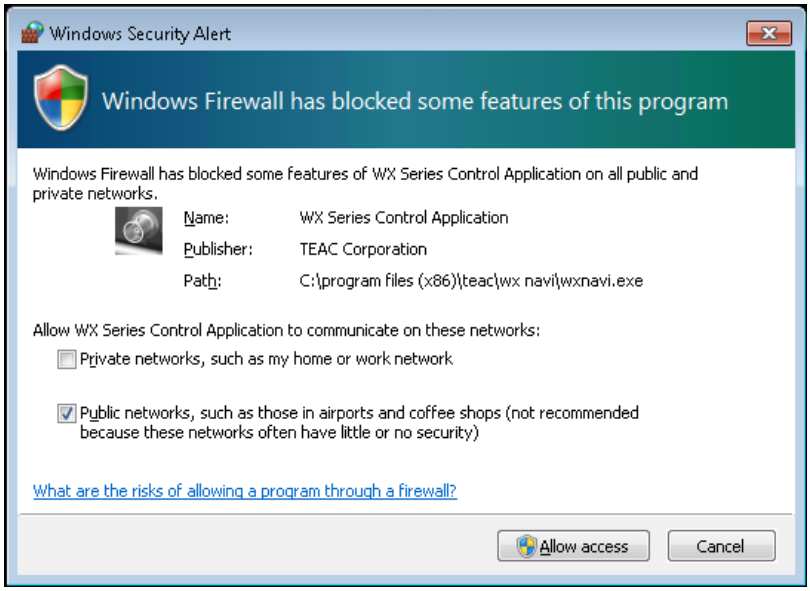
In a situation such as when the WX-7000 is in a remote location and communications are constrained by low-speed paths, use the WX-7000 with a reduced sampling rate or/and reduced number of recording channels.

The WX-7000 LAN interface carries out TCP connection continuous communications. However, if a packet from the other party does not arrive within 180 seconds, a timeout occurs and the other party is automatically disconnected. So, in the event that a normal termination was not possible because of some problem, such as a PC hang-up or disconnected cable, wait 180 seconds and then try reconnecting.

The WX-7000 can be operated as a DHCP (Dynamic Host Configuration Protocol) client, but if an IP address cannot be obtained within 30 seconds after startup, the WX-7000 starts those usual operations with a fixed IP address.

2.1.5. About Firewall

If the screen of Windows Security Warning is displayed after first running of WX Navi, disable Windows firewall block.



For standard firewall of Microsoft Windows, click "Turn Windows Firewall on or off" and "Off"(not recommended because these networks often have little or no security)".

2.1.6. Launching WX Navi with the next step

After installation, connect the PC and WX-7000 and PC, launch WX Navi.

Do not run the application software which uses large amount of memory at the same time with WX Navi.

2.1.7. On the WX-7000 recording unit, push up the power switch to turn it on.

When the power is turned on, the input amp is automatically calibrated. During calibration, the input amp LED will blink. When it finishes, the LED will turn off.

2.1.8. Start WX Navi

After WX Navi starts, if you power off the WX-7000 recording unit or remove the cable, WX Navi will display an error message and terminate. In such a case, if you turn the power back on or reconnect the cable, and then restart WX Navi, the WX-7000 can again be recognized.

In the case of the WX-7000, if you power off the WX-7000 recording unit or remove the LAN cable, not only will communications fail, but also the network will experience congestion in processing. Make sure to close WX Navi first to detach the WX-7000 from the network. Do not power off the WX-7000 before closing WX Navi. Do not power off the WX-7000 before closing WX Navi.

2.1.9. Do not put the PC into standby /sleep mode.

If the PC enters a standby/sleep/hibernation status while WX Navi is being used, communications will cease, and a timeout will cause a disconnection.Please ensure not to make setting of standby, sleep, hibernation status on Windows Settings of Power Options while WX Navi is being used. Please be noted that the settings of standby or sleep status might have been selected as a default setting right after purchasing especially for notebook PC.

2.1.10. Please do not operate the computer background tasks

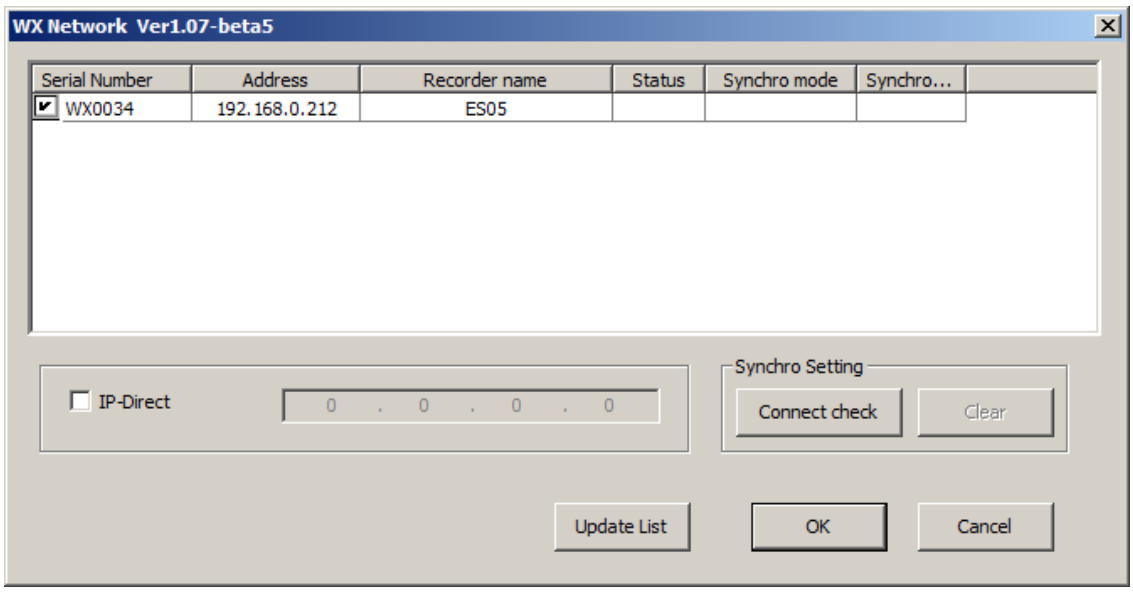
While Windows Update, scan disk, defrag, Indexing Service, Super Fetch and other tasks is running, processing power of the computer is reduced, you may record at a high sampling rate cannot be maintained. Set your PC so that these features do not work.

Also, please set so as not to run the scheduled task and the other tasks, such as reducing the processing power of the PC.

Please consult your administrator of the computer for the detail.

2.1.11. WX-7000 select window

Following dialog box appear, when WX Navi launches.

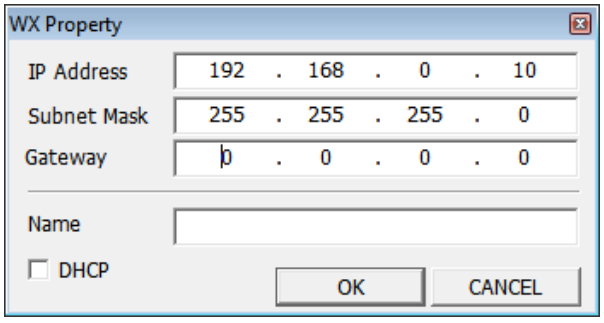


Check the box at the serial field WX Network dialog box by confirming that the white-out box has appeared and the correct serial number are displayed, and then click OK. In addition, a previously used serial number will automatically contain a check in the box.

If the whiteout box has not appeared, follow the next contents for a proper set up.

2.1.12. WX-7000 Network Configuration

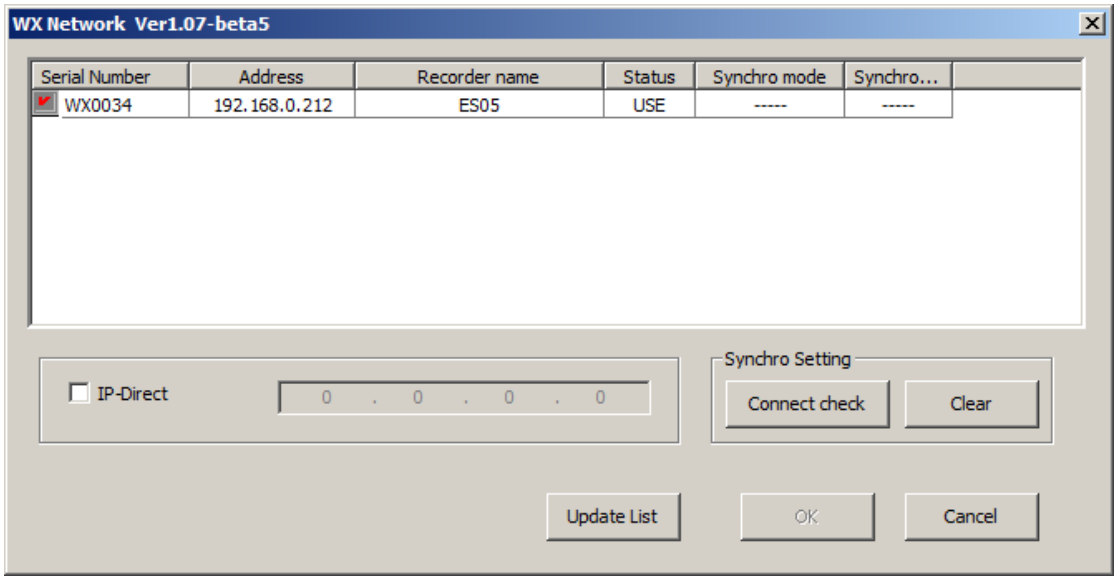
The upper part lists the WX-7000 series that exist in the same segment. If you click where the address or the name is displayed in the list area, the following WX Property dialog box will appear. In this dialog box, you specify settings, such as the IP address parameters and the recorder name (name). Enter the address parameters that match the network environment that you are using. You can use any string of up to 32 characters for the name. This name is displayed in the list at startup. So, use a name that differentiates the particular WX-7000 series from any others. If the DHCP system is available for the network environment that you are using, the IP Address parameters can be obtained automatically. So, in case that you want to set the IP Address parameters automatically, turn on the check box of the DHCP. Consult your network administrator to confirm whether or not the DHCP system is available for the network environment that you are using.



Click the OK button to apply the IP address parameters for the WX-7000 series. It is not necessary to restart the WX-7000 series. It takes a few seconds for the changed settings to actually take effect. So, wait at least 5 seconds and then connect to the WX-7000 series. If the list is not updated or the entry disappears from the list, click the Update List button to update the list.

2.1.13. Already being used WX-7000

If the WX-7000 series is already being used for another PC, a red check mark is displayed and USE is displayed in the status field. In such a case, you cannot connect to that WX-7000 series.



If a TCP connection is not possible because of a problem such as an incorrect IP address for the same segment, a grey check box will be displayed along with IP ERR in the status field. In that case, specify an appropriate IP address or check the IP address settings (Subnet mask, Gateway, etc.) between the PC and the WX-7000, and then connect to the WX-7000 series.

2.1.14. Connecting to an WX-7000 series that exists in a different segment

When connecting to a WX-7000 that exists in a different segment (and, for example, going beyond the router), select the IP Direct check box, enter the address of the device to be connected, and then click.

When multiple WX-7000 series are found in the same segment, the dialog box appears as shown above. In such a case, select the check box of the WX-7000 series to be connected, and click the OK button.

During a real time PC recording, the speed of the data transfer cannot catch up to the recording throughput a time unit depending on the PC specification, operating status of OS, traffic status of network, sampling setting, and etc. In this scenario, the recording will stop automatically when the memory buffer of the WX becomes full with un-transferred data. Please note that the upper limit setting shown in the recording condition might not be suitable for real time PC recording.

If, by using WX Navi, multiple WX units are connected to a single PC, the waveform settings and the data folder settings of each WX may conflict with others because the WX Navi shares the common save area. So that every PC has its own WX within a multi environment, use a separate PC for each WX.

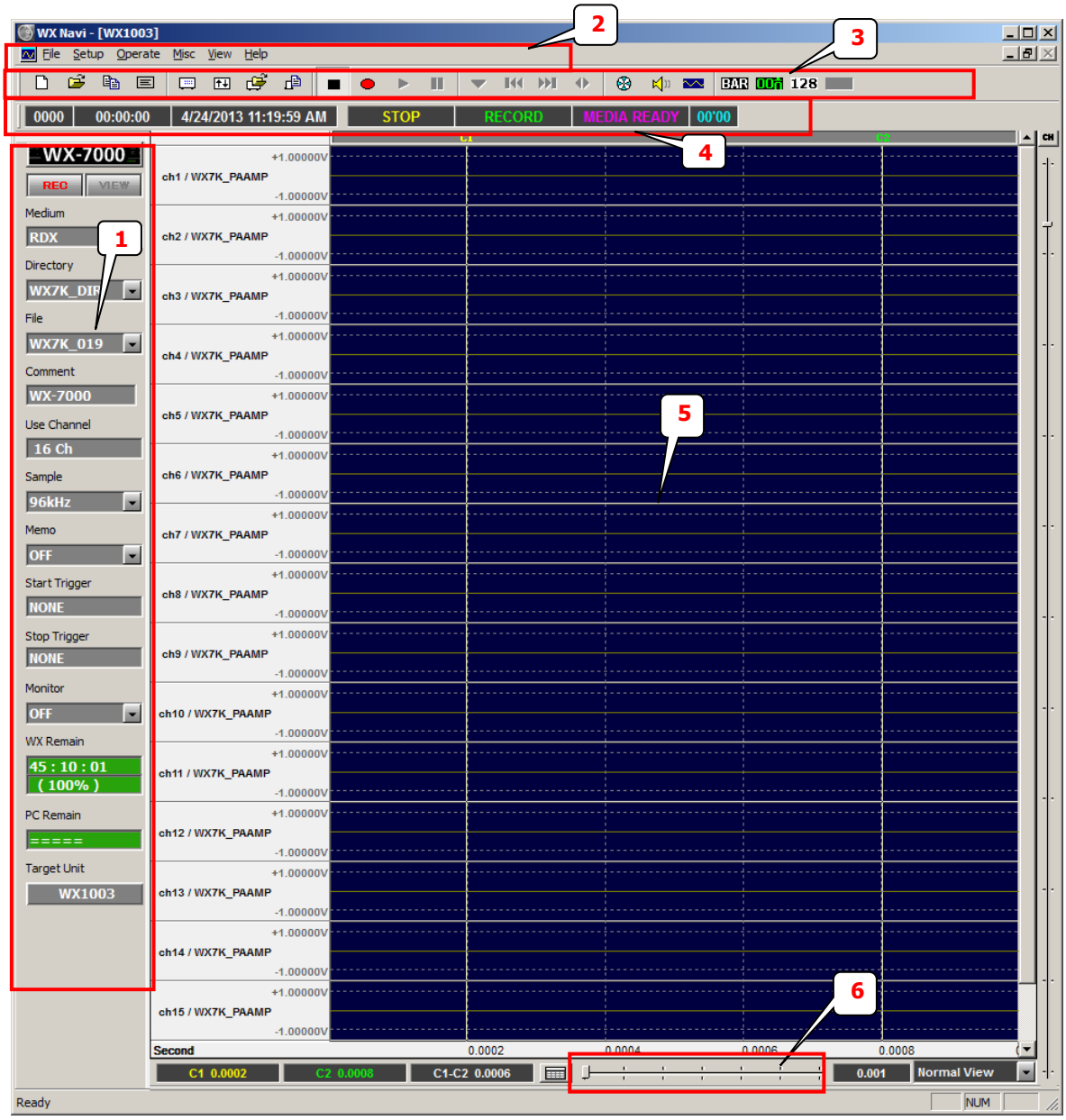
The Main Window will be displayed by starting WX Navi when the connection is completed.

See "Section 3 Introduction to WX Navi".

3. Introduction to WX Navi

3.1. Main Window

When you start the WX Navi program, the following main window will be displayed.



1.Status dialog display area
2.Menu bar
3.Tool bar
4.Status bar display
5.Waveform display area
6.Time axis scale for waveform display

3.2. Mode of WX Navi

There are two mode of WX Navi. "REC mode" which is the mode which records data and "VIEW Mode" which playback the recorded data exists.

It can be known as follows which mode WX Navi is now in the state of REC of the status dialog of a main window, and the VIEW button.

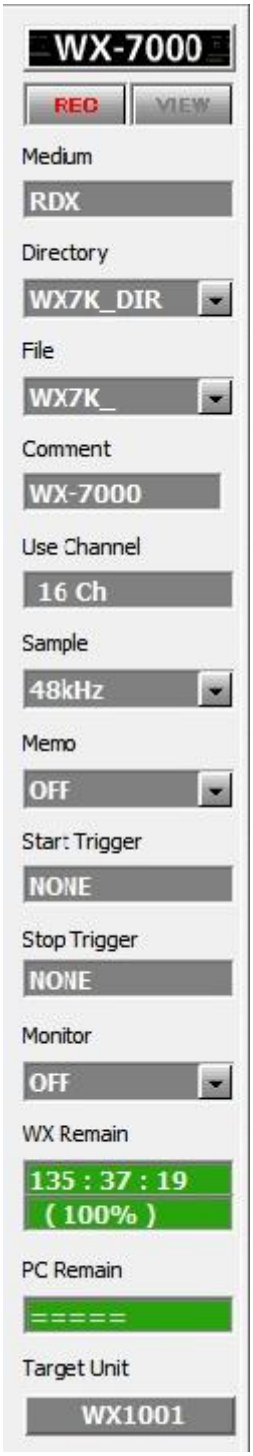
Mode	Status of button	Functions on the mode	Method to change mode
REC Mode	 REC in RED VIEW is grayed out	Set up about record Execution of record. Set up about playback. Selection of a playback file.	Push VIEW button on the status of STOP. This cannot be executed in REC status. Or a playback file is specified (after-mentioned).
VIEW Mode	 REC is grayed out VIEW in Blue	Set up about playback Selection of a playback file.	The REC button is pushed at a PAUSE state (impossible in a playback state).

Once it will be in a STOP state in the case of VIEW mode, it will be in a PAUSE state automatically, but this is the specification of WX Navi.

*When you remove or insert media, WX status has to be "STOP" on REC mode.

REC mode and VIEW mode are operational modes unique to WX Navi. WX-7000 does not have those modes.

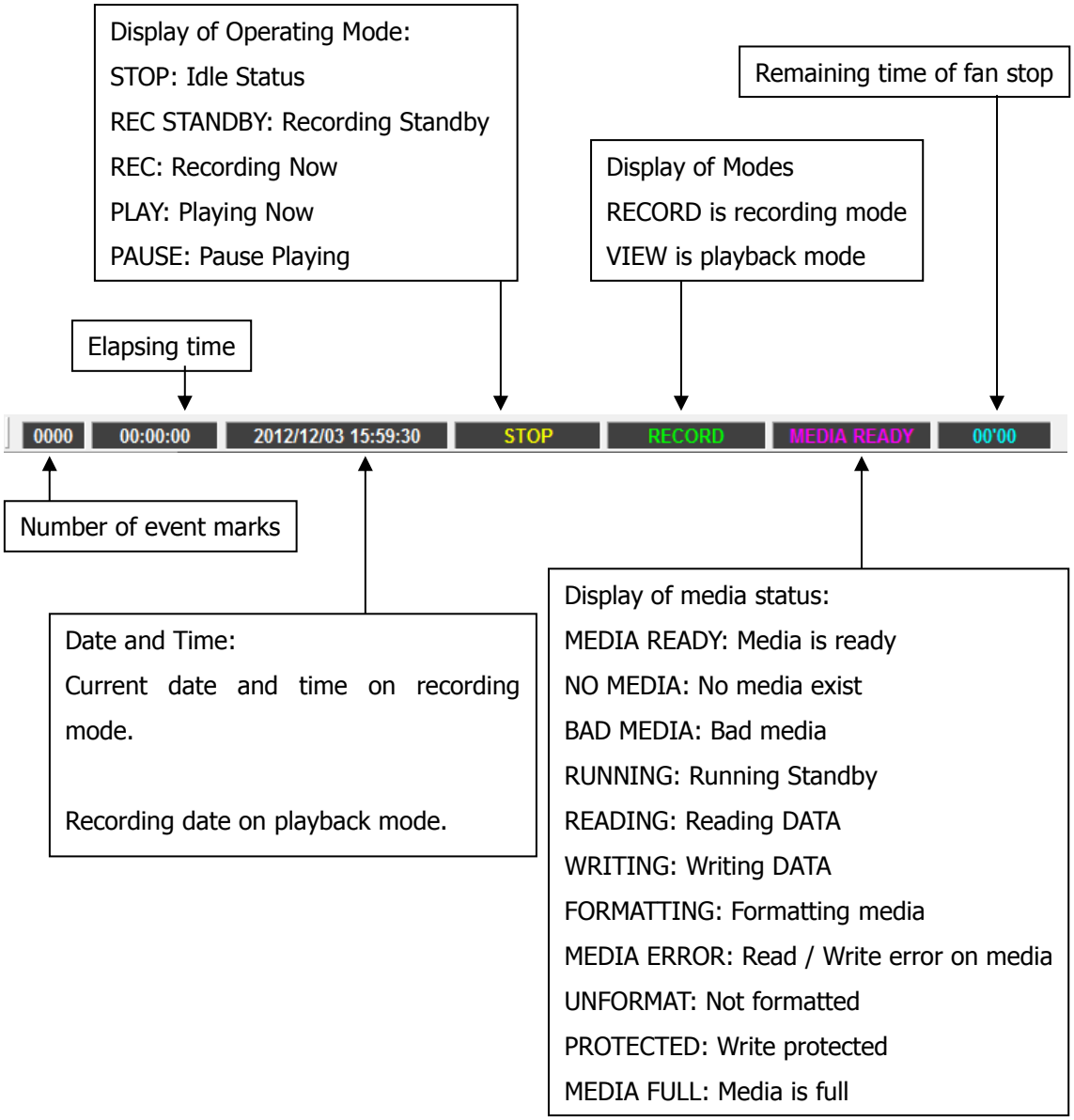
3.3. Status Dialog Display Area



REC button VIEW button	Switch between the recording mode (REC) and the view mode (VIEW).
Media	Indicate the media for recording (RDX, SD or PC) and playback (RDX or SD).
Directory	Indicate the directory name for recording, and indicate/select the directory for playback.
File	Indicate the file name for recording and indicate/select the file for playback.
Comment	Show the comment which has been entered.
Channel	Number of channel being used in recording and playback.
Sampling	Set and/or confirm the sampling frequency for recording and playback.
Voice memo	Indicates ON/OFF of voice memo recording.
Start trigger	Show the start trigger currently set.
End trigger	Show the end trigger currently set.
Monitor output	Select and confirm the monitor channels.
WX Remain	Remaining recording time (hour: minute: second and %(percentage)) on the specified device of the WX main unit. Background color is green when the remaining time is more than 11%, and it is red when less than 10%.
PC Remain	Remaining recording time on the PC (hour: minute: second).
Serial number	The name or serial number of the WX-7000 currently connected to WX Navi software.

If the data transfer speed is slow, the PC Remain field becomes dark yellow or red indicating that the data transfer to the PC is delayed. In such a case, the memory in the WX main unit might become full and the recording may finish earlier than indicated on the display.

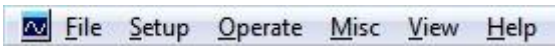
3.4. Display of Status Bar



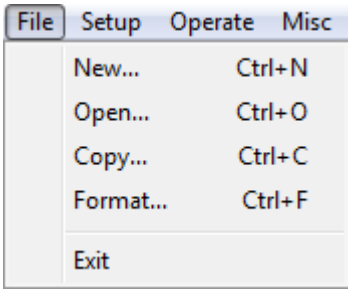
Once it will be in a STOP state in the case of VIEW mode, it will be in a PAUSE state automatically, but this is the specification of WX Navi.

*When you remove or insert media, WX status has to be "STOP" on REC mode.

3.5. Menu Bar

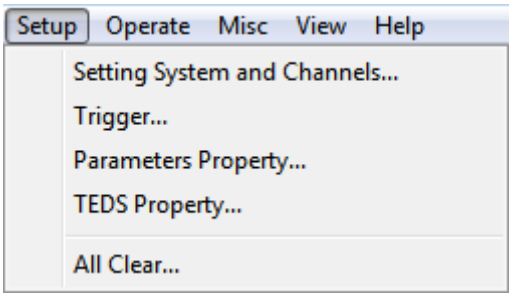


3.5.1. File Menu



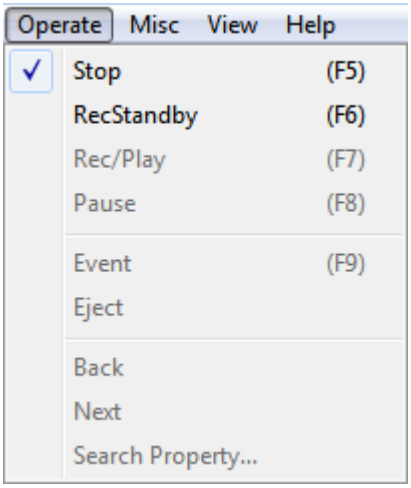
New:	Select a recording device, or specify a file name.
Open:	Select a data to be playback.
Copy:	Copy the files of the media (RDX or SD) in the WX-7000 recording unit to PC.
Format:	Format the media (RDX or SD) in the WX-7000 recording unit.
Exit:	Exit this application.

3.5.2. Setup Menu



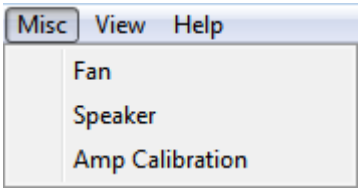
System and channels:	System and each channel setting.
Trigger:	Trigger and interval recording settings.
Parameters Property:	Save and load parameters.
TEDS Property:	Read information from the TEDS sensor connected.
All Clear:	Initialize all system and channel settings.

3.5.3. Operate Menu



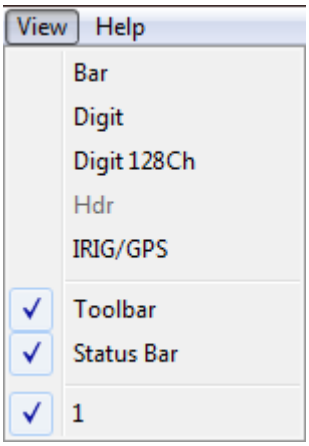
Stop:	Stop. When VIEW mode case, "STOP" condition is automatically becomes "PAUSE" condition.
RecStandby:	Recording standby.
Rec/Play:	Recording/playback start.
Pause:	Pause.
Event:	Record event mark.
Back:	Skip previous.
Next:	Skip forward.
Search Property:	Setting of skip.

3.5.4. Misc Menu



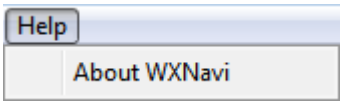
Fan:	Stop the fan forcibly for 10 minutes when recording or playback.
Speaker:	Playback a data by sounds.
Amp Calibration:	Execute calibration.

3.5.5. View Menu



Bar:	Show or hide a bar graph.
Digit:	Show or hide the digital value of a channel.
Digit (128ch.):	Show or hide the digital value of all channels.
Hdr:	Show or hide the header when playback.
IRIG/GPS	Show or hide the information on IRIG/GPS option board.
Toolbar:	Show or hide the Tool bar.
Status bar:	Show or hide the Status bar.

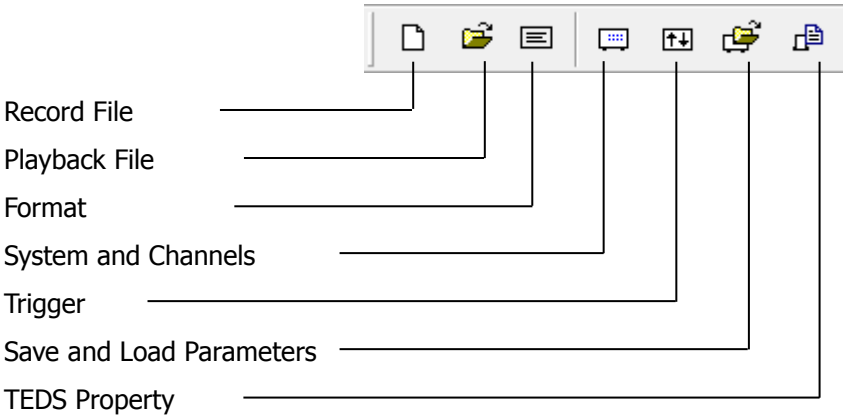
3.5.6. Help menu

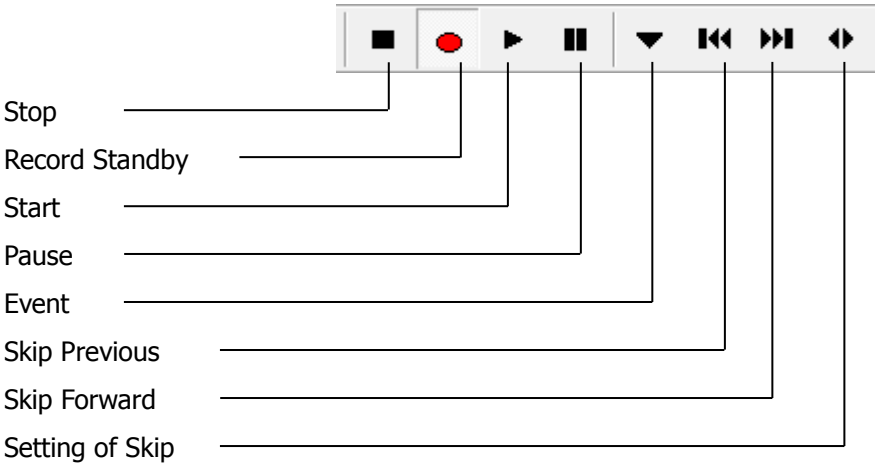


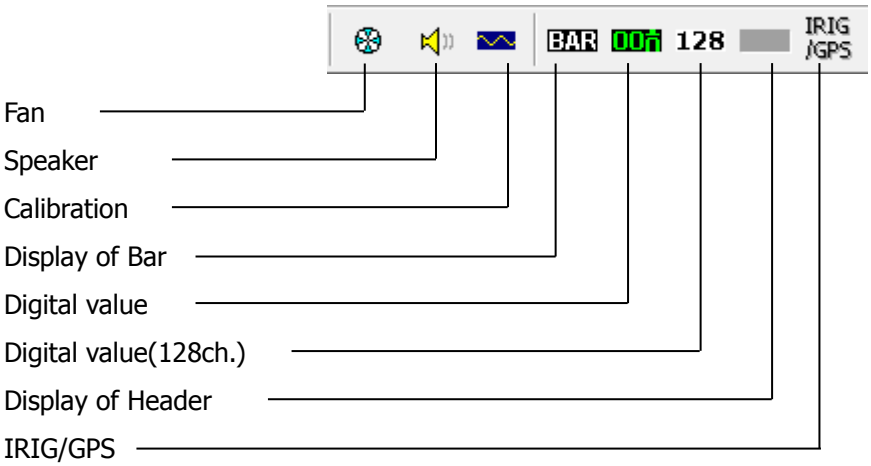
About WX Navi: Shows the version of this software.

3.6. Tool bar

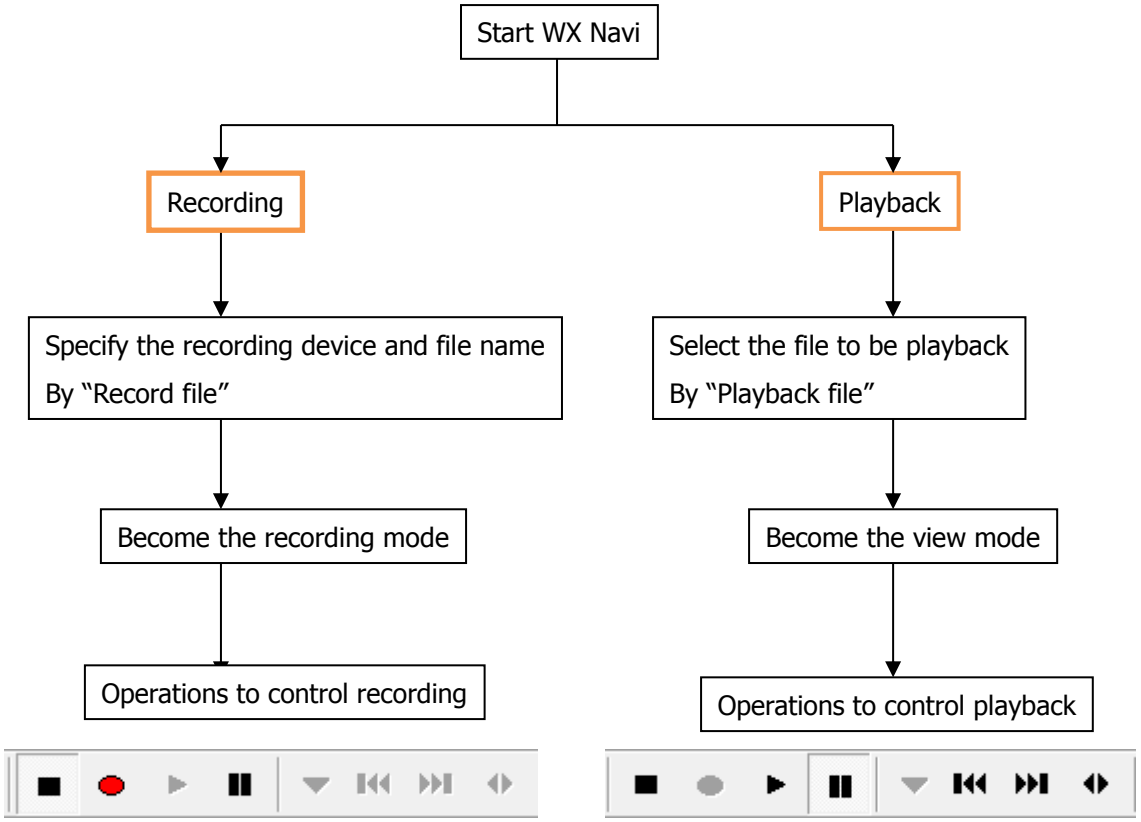
Tool bar operate same name's menu functions.





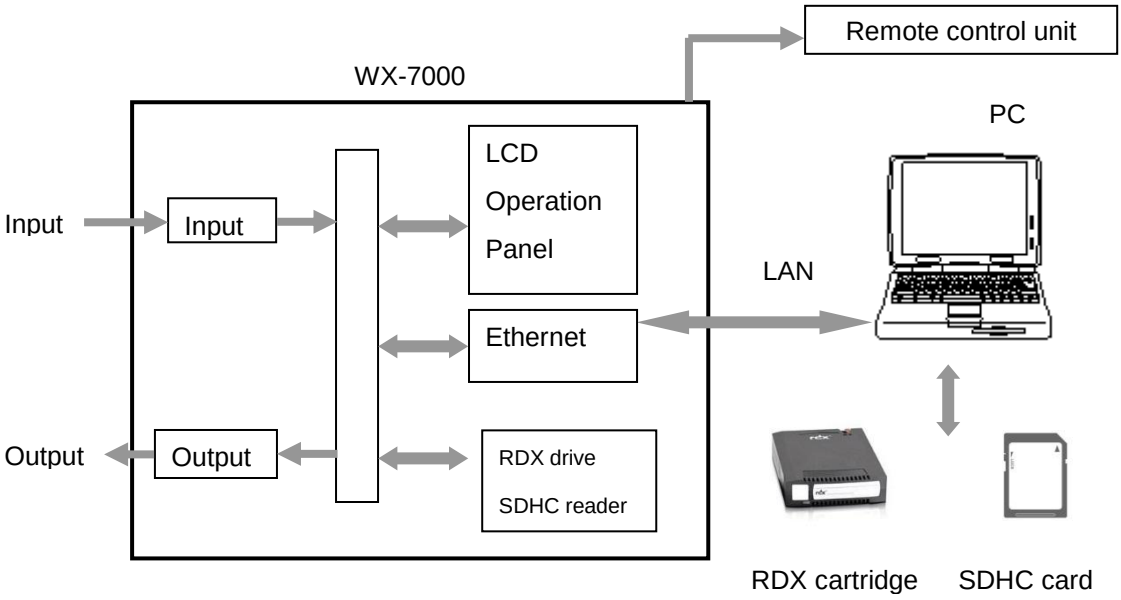


3.7. Overview of steps in recording and playback



*When you remove or insert media, WX status has to be "STOP" on REC mode.

4. Conceptual diagram for recording, playback



- Record input on WX-7000's RDX cartridge or SDHC card
- Record input on WX-7000's RDX cartridge or SDHC card and monitor by PC.
- Record input on WX-7000's RDX cartridge or SDHC card and PC
- Record input to PC
- Playback data on WX-7000's RDX cartridge or SDHC card
- Playback data on WX-7000's RDX cartridge or SDHC card and monitor by PC

5. Settings

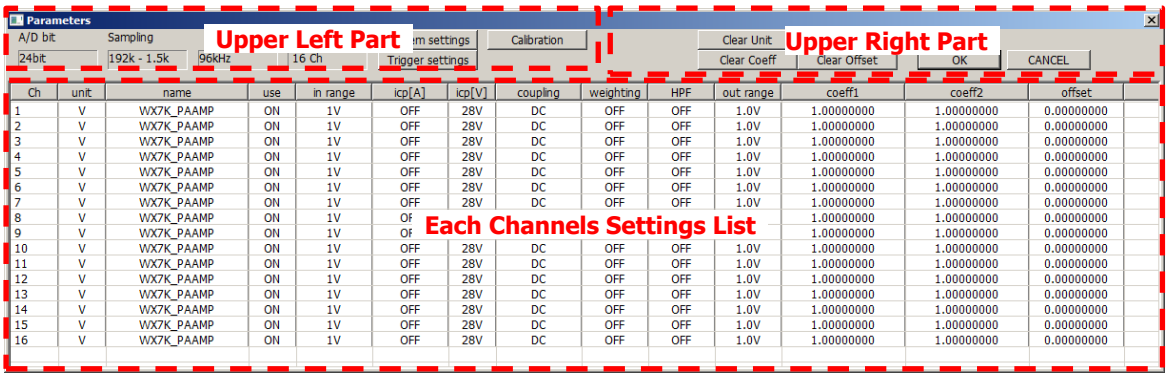
5.1. Notice for Settings

WX Navi software send the control command to WX-7000, however the values depend WX-7000 specification.

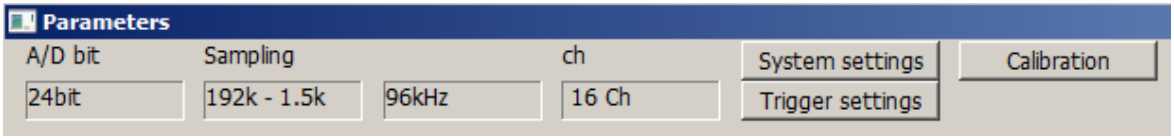
Please read WX-7000 Instruction Manual as well.

5.2. System and Channel Settings

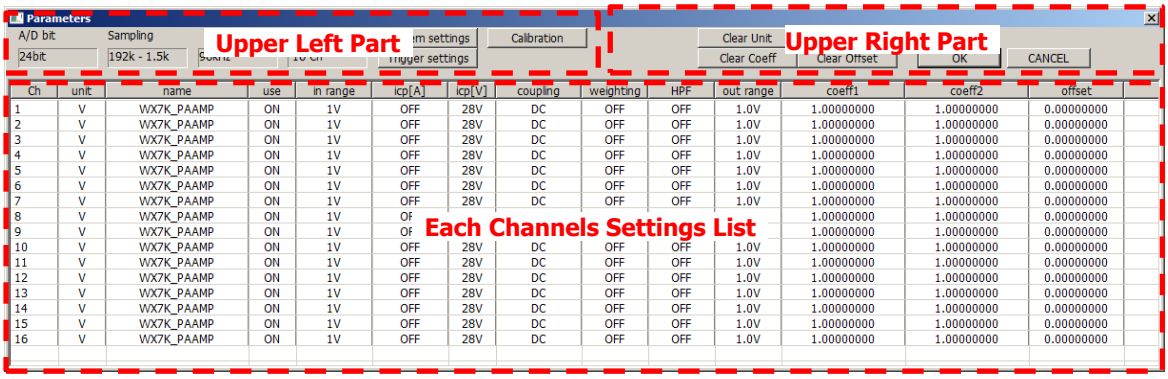
Following dialog appears by selecting "System and Channels".



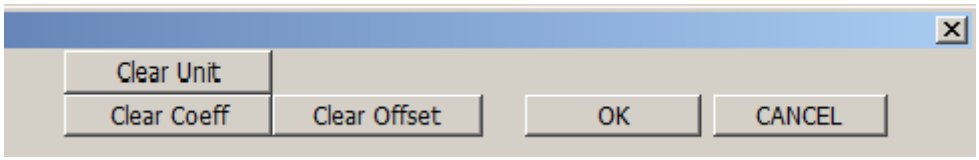
5.2.1. Upper Left Part



AD bit	Show AD bit which is set. Click System settings button to change AD bit.
Sampling	Show Sampling Frequency and series which are set. Click System settings button to change Sampling.
ch	Show selected channels. Click System settings button to change selected channels.
System settings	System settings dialog appears and to set WX-7000 system settings. (Please refer to 5.3 System settings)
Trigger settings	Trigger setting dialog appears and to set trigger conditions. (Please refer to 5.4.5 Level trigger settings)
Calibration	Calibration will start by pushing this button. (Please refer to 7.3 Calibration)

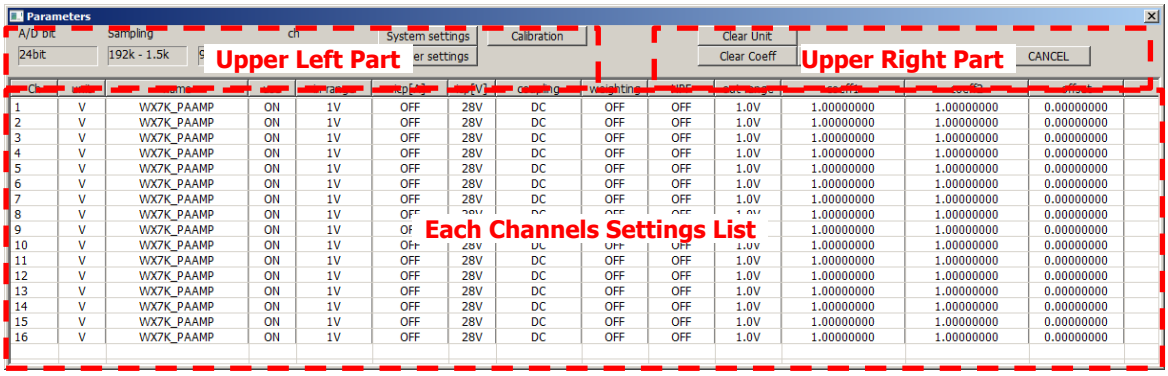


5.2.2. Upper Right Part



Clear Unit	All unit on "Each Channels Settings List" are changed back to default value "V".
Clear Coeff	All parameters Coeff1, Coeff2 on "Each Channels Settings List" are changed back to default value "1.0".
Clear Offset	All parameters Offset on "Each Channels Settings List" are changed back to default value "0.0".
OK	All parameters are set to WX-7000 and close this dialog.
Cancel	Cancel to change and close this dialog.

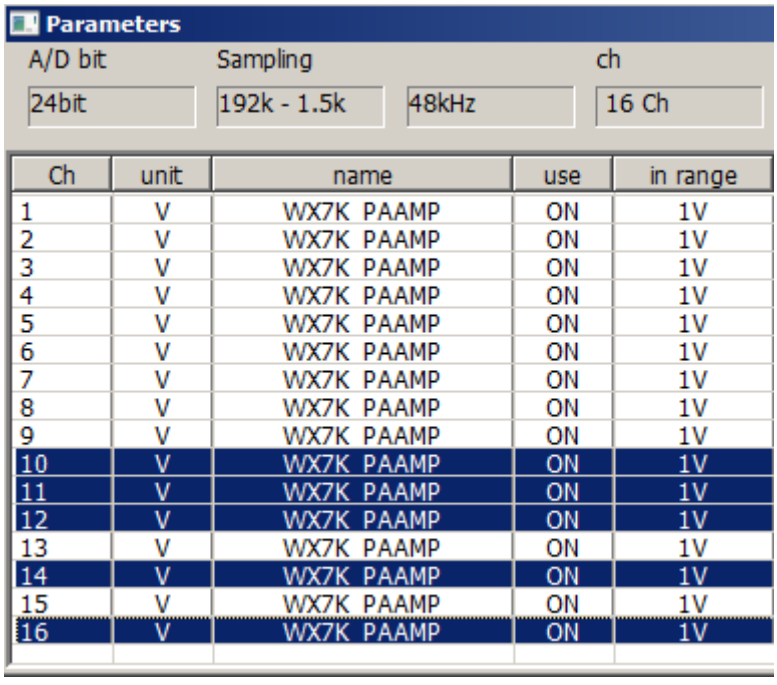
5.2.3. Each Channels Settings List



Each channels "Unit", "Channel Name", "Use", "Input Range", "Sensor Current", "Sensor Voltage", "Coupling", "Weighting", "HPF", "Output Range", "Coeff 1", "Coeff 2" and "Offset" are able to change.

To change each parameter, left click on channel which needs to change. To select multiple, SHIFT key, CTRL key are able to use with selecting channels.

Following example shows 10 to 12, 14 and 16 channels are selected.



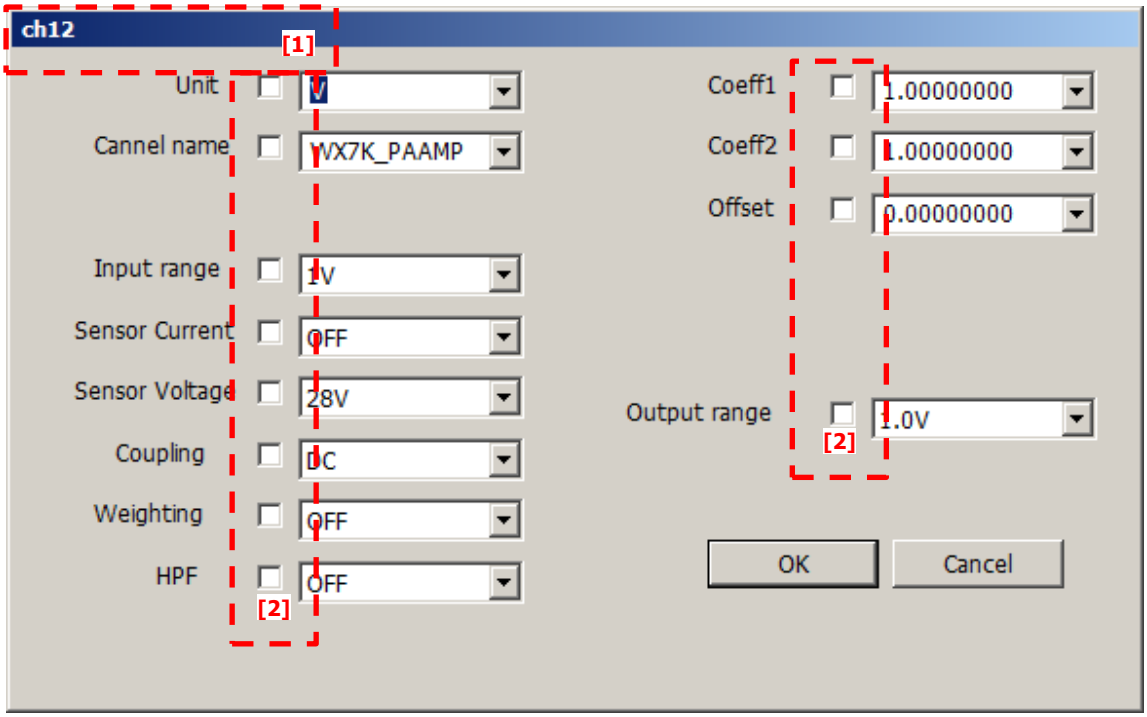
After select channels, right click to open channels setting dialog.

5.2.4. Channel Property Window

Channel Property can be set on following dialog.

[1]-Part shows the target channel(s) to set. This example shows channel 12 is target channel.

[2]-Parts check box is checked, the parameter will be set to changed parameter. If there is no check, the parameter is not changed.



Note 1: When several channels are selected, channel name are not able to change.

Note 2: Sensor voltage is same on each expansion unit. So it will be changed, if the voltage of any channels on same expansion unit are changed, voltage will be changed to same voltage which is changed.

Note 3: WX-7000 recording unit itself has only one coefficient. WX Navi sends parameter which is calculated by following formula.

$$(Coefficient\ on\ WX-7000) = \frac{Coefficient\ 2}{Coefficient\ 1}$$

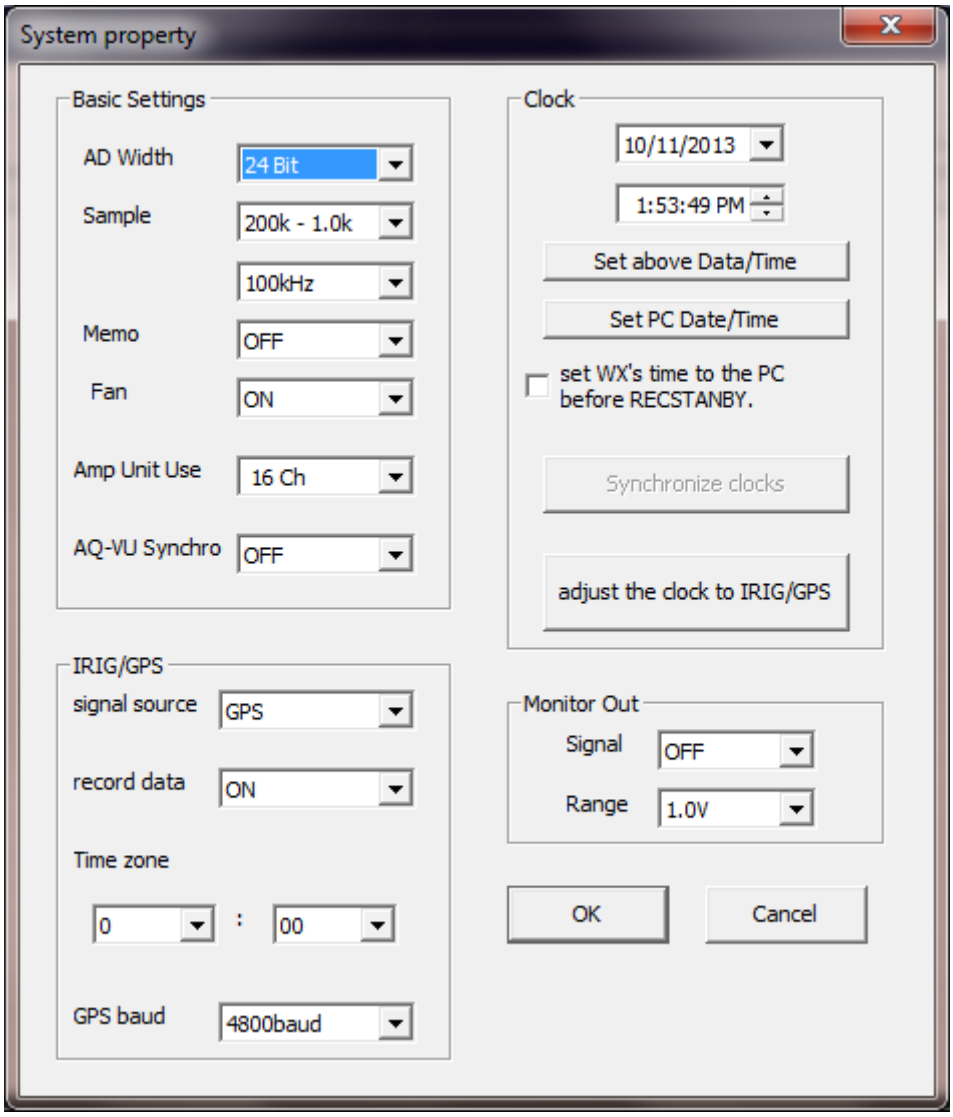
Parameters which [Coeff1] and [Coeff2] are excluded are same with WX-7000 itself. Please refer to WX-7000 instruction Manual.

Note 4: If [Sensor Current], [Weighting], [HPF] parameters are changed, coupling is changed to "AC". Because these parameters are of "AC" coupling.

The settings of [Unit], [Coeff1], [Coeff2] and [Offset] reflect on Wave form display area.

Please refer to 8.4 Channel Property.

5.3. System Setting



5.3.1. "Basic Settings" / "Monitor Out" groups

To specify settings of the WX-7000 operations, choose System property from the Setup menu. "Basic Settings" and "Monitor Out" are same as WX-7000 menu. Please refer to WX-7000 Instruction Manual.

5.3.2. "Clock" group

"Clock" shows current time when it appears.

Click "Set above Date/Time" to set clock to WX-7000 itself.

Click "Set Computer Date/Time" to set PC clock to WX-7000.

When whichever two buttons was clicked, the clock settings will not un-do, even if Cancel button is clicked.

If "Set WX's time to the computer before RECSTANDBY" is clicked, WX-7000 clock is adjusted to PC clock when WX-7000 becomes "REC STANDBY".

If the "Set above Date/Time" button or "Set PC Date/Time" button is clicked to change the clock of the Master unit while in synchronization mode, the clock of the Slave unit is also automatically set to the same date/time as the Master unit.

The "Synchronize clocks" button becomes active in synchronization mode only.
Click on this button to synchronize the Slave unit's clock with the Master unit's clock.

The "Synchronize with IRIG/GPS" button is valid only when IRIG/GPS option board is installed. This feature synchronizes the internal clock of WX-7000 with the time of IRIG/GPS board.

With the OK button on this window clicked, WX Navi sends WX-7000 commands to update the parameters of the Basic Settings and the Monitor Out. Once this has been done, the parameter changes cannot be canceled even if you click on the Cancel button on the Parameter window.

5.3.3. "IRIG/GPS" group

"IRIG/GPS" group is valid only when IRIG/GPS option board is installed.

In Signal Selection, the signal source for time code is selected from 3 options: IRIG-B, GPS and OFF.

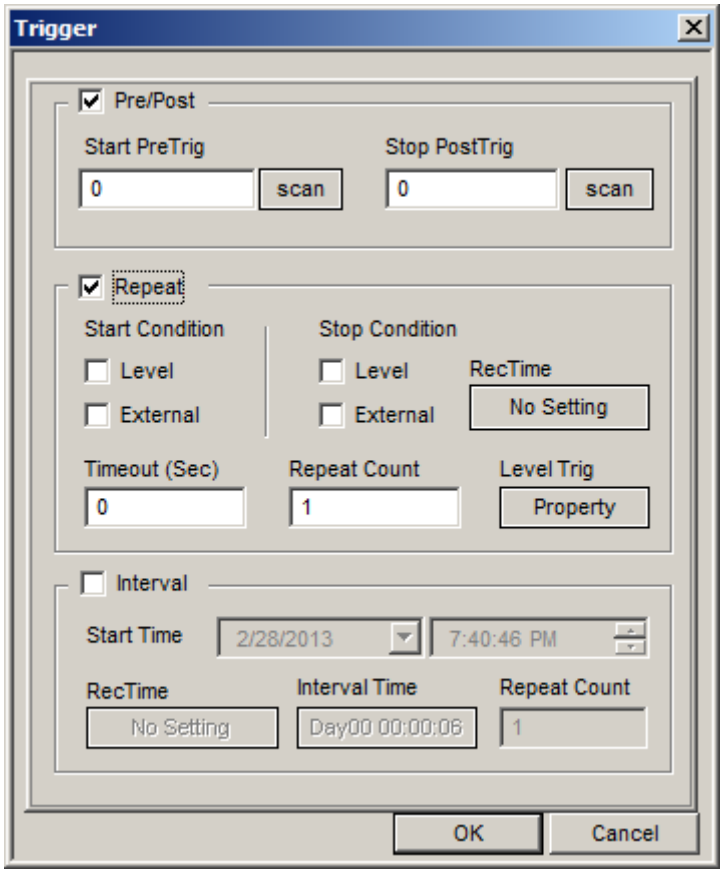
Select ON to record time code on ch1 or OFF to disable recording.
If ON is selected, a signal coming through the BNC cable connected to ch1 is not recorded but time code is recorded. And in this case, if ch1 settings (input range, etc.) are changed, there bring no effect.

In GPS baud rate, baud rate between IRIG/GPS board and GPS receiver is set. Please refer to the instruction manual of your GPS receiver for the baud rate.

5.4. Trigger Settings

Click "Trigger" button on "System and Channels" window or select "Trigger" on "Parameters", following dialog appears.

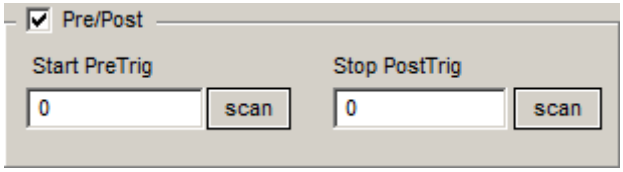
"Interval" group is not able to be set with "Pre-trigger/Post-trigger" and "Repeat".



5.4.1. Notice for Trigger recording

To start to record, please set to REC STANDBY after trigger condition is set.

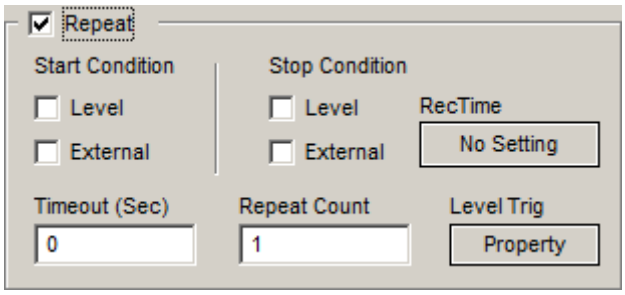
5.4.2. Pre trigger / Post trigger



Specify the length of the pre-trigger and post-trigger in scan or in seconds between 0 to 3 seconds.

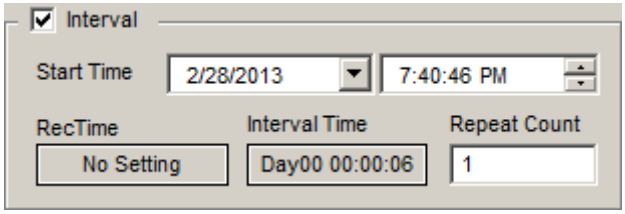
Scan has to be within sampling frequency (Hz) x 3 (seconds).

5.4.3. Repeat



Level	Enable level trigger function which is set by level trigger dialog.
External	Enable External trigger which is controlled by External trigger connector on rear panel of WX-7000
Rec Time	Specified recording time has been displayed. Recording time settings dialog will appear, if you left click.
Timeout(sec)	Specify Timeout to start record. It starts to record after timeout even the trigger condition is not reached.
Repeat	Specify how many times continue to record. When "0" is specified it records by reaching the limitation of capacity, number of files.
Level Trig	Open Level trigger window to set condition of level trigger.

5.4.4. Interval Mode Setting

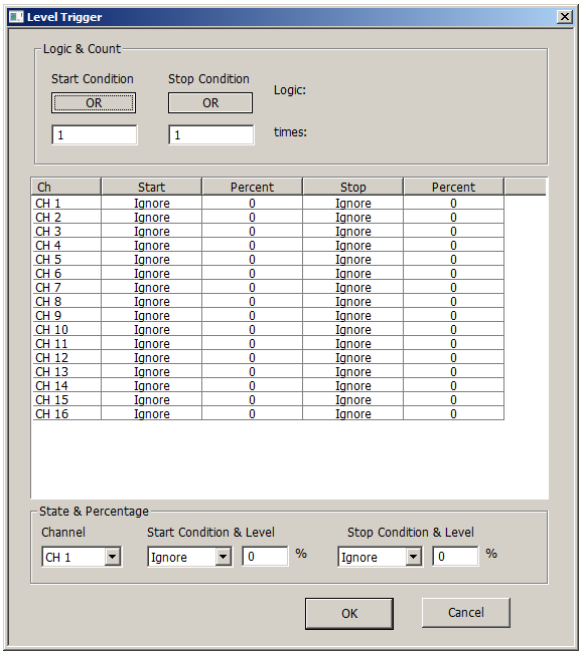


WX-7000 repeats recording for a specified number of times, during a specified period.

Start Time	Specify the recording start time. Start to Record, if the time on WX-7000 become the specified time. When WX-7000 is not REC STANDBY, WX-7000 doesn't start to record, even the specified time has come.
Rec Time	Specified recording time has been displayed. Recording time settings dialog will appear, if you left click.
Interval Time	Interval time has been displayed. Recording time settings dialog will appear, if you left click.
Repeat	Specify the repeat count

5.4.5. Level Trigger

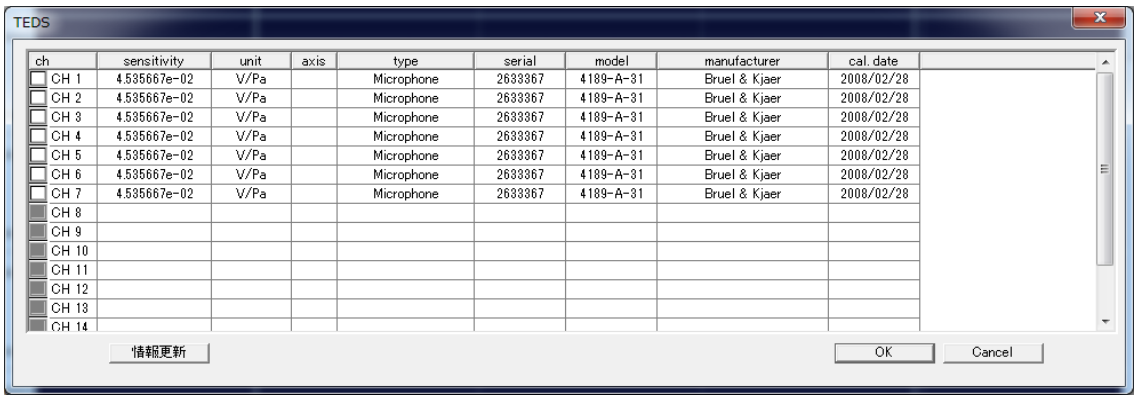
To specify the details of the level trigger, click Level Trig – Property in Trigger dialog.



Logic	When multiple channels are monitored for Start and Stop, specify whether these are combined using a logical AND or logical OR.
Number of times condition is satisfied	Specifies how many times a condition is regarded as having been established when a condition specified above (including the logical operator) is satisfied multiple times.
Channel	In the list of channels, click the desired channel. Alternatively, select the channel from the drop-down list box in the lower left of the window.
Start/Stop	Condition: None: The channel is not used for the level trigger. Up: The condition is regarded as having been satisfied when the input signal crosses from less than the specified level to a level that is higher. Down: The condition is regarded as having been satisfied when the input signal crosses from a higher than specified level to one that is lower. Level : The full scale of the specified input range is set at 100% on both the plus and minus sides. You set the monitoring level for these in the range from -99% to +99%.

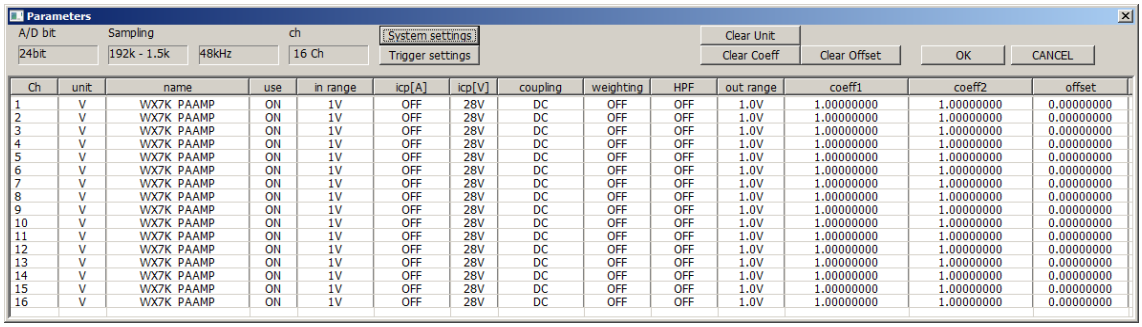
5.5. Property of TEDS

If "property of TEDS" is chosen from a menu or a tool bar, a TEDS information list can be perused.



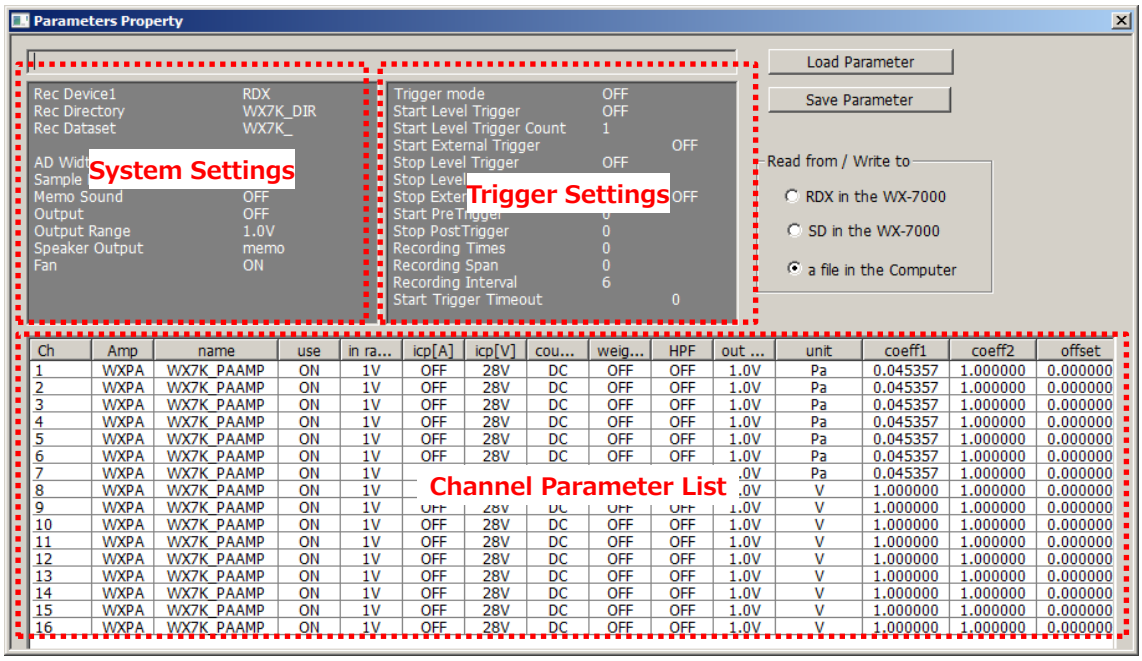
If an information update button is pushed, WX-7000 will search the apparatus corresponding to TEDS connected, and will reacquire information.

If the left check of a TEDS information list is turned ON and the OK button is pushed, sensitivity and unit of TEDS information will be reflected in the "unit" and the "physical quantity conversion factor 1" of a system and each channel.



5.6. Reading and preservation of a setup

A setup of a system, each channel, and a trigger can be saved as a "parameter file." The following window will be displayed if "reading and preservation of a parameter" are chosen from a menu or a tool bar.



Ch	Amp	name	use	in ra...	icp[A]	icp[V]	cou...	weig...	HPF	out ...	unit	coeff1	coeff2	offset
1	WXPA	WX7K_PAAMP	ON	1V	OFF	28V	DC	OFF	OFF	1.0V	Pa	0.045357	1.000000	0.000000
2	WXPA	WX7K_PAAMP	ON	1V	OFF	28V	DC	OFF	OFF	1.0V	Pa	0.045357	1.000000	0.000000
3	WXPA	WX7K_PAAMP	ON	1V	OFF	28V	DC	OFF	OFF	1.0V	Pa	0.045357	1.000000	0.000000
4	WXPA	WX7K_PAAMP	ON	1V	OFF	28V	DC	OFF	OFF	1.0V	Pa	0.045357	1.000000	0.000000
5	WXPA	WX7K_PAAMP	ON	1V	OFF	28V	DC	OFF	OFF	1.0V	Pa	0.045357	1.000000	0.000000
6	WXPA	WX7K_PAAMP	ON	1V	OFF	28V	DC	OFF	OFF	1.0V	Pa	0.045357	1.000000	0.000000
7	WXPA	WX7K_PAAMP	ON	1V						.0V	Pa	0.045357	1.000000	0.000000
8	WXPA	WX7K_PAAMP	ON	1V						.0V	V	1.000000	1.000000	0.000000
9	WXPA	WX7K_PAAMP	ON	1V	OFF	28V	DC	OFF	OFF	1.0V	V	1.000000	1.000000	0.000000
10	WXPA	WX7K_PAAMP	ON	1V	OFF	28V	DC	OFF	OFF	1.0V	V	1.000000	1.000000	0.000000
11	WXPA	WX7K_PAAMP	ON	1V	OFF	28V	DC	OFF	OFF	1.0V	V	1.000000	1.000000	0.000000
12	WXPA	WX7K_PAAMP	ON	1V	OFF	28V	DC	OFF	OFF	1.0V	V	1.000000	1.000000	0.000000
13	WXPA	WX7K_PAAMP	ON	1V	OFF	28V	DC	OFF	OFF	1.0V	V	1.000000	1.000000	0.000000
14	WXPA	WX7K_PAAMP	ON	1V	OFF	28V	DC	OFF	OFF	1.0V	V	1.000000	1.000000	0.000000
15	WXPA	WX7K_PAAMP	ON	1V	OFF	28V	DC	OFF	OFF	1.0V	V	1.000000	1.000000	0.000000
16	WXPA	WX7K_PAAMP	ON	1V	OFF	28V	DC	OFF	OFF	1.0V	V	1.000000	1.000000	0.000000

When this window is opened, a setup of present WX-7000 is displayed. When a "setting preservation" button is pushed, especially operation changes operation by selection of a "reading and preservation place" group as follows. Please be careful.

button / target	"Parameter reading" button	"Parameter preservation" button
RDX in WX-7000 or SD in WX-7000	A parameter file is read from RDX or SD in a WX-7000 recording unit, and the contents are displayed on a window.	The system, trigger and each channel of present WX-7000 are saved as a parameter file to RDX or SD in a WX-7000 recording unit.
Files in PC	A parameter file is read from the memory media of PC, and the contents are displayed on a window.	The contents which the present window shows are saved as a parameter file to the memory media of PC.

When a "parameter reading" button is pushed, the contents of a display of a window change, but in this stage, the command of setting change has not been transmitted to WX-7000 yet. A push on the OK button will actually change a setup of WX-7000 as below-mentioned.

When saving a parameter file at RDX or SD, they can use to 20 files of RDX and SD each. The number of characters of a file name and the kind of character has restriction. It is the same as restriction when saving by a unit.

When you read a parameter file by "the file in PC", please read the parameter file which WX-7000 or WX Navi created. Operation is unfixed when the parameter file created with other equipment is read.

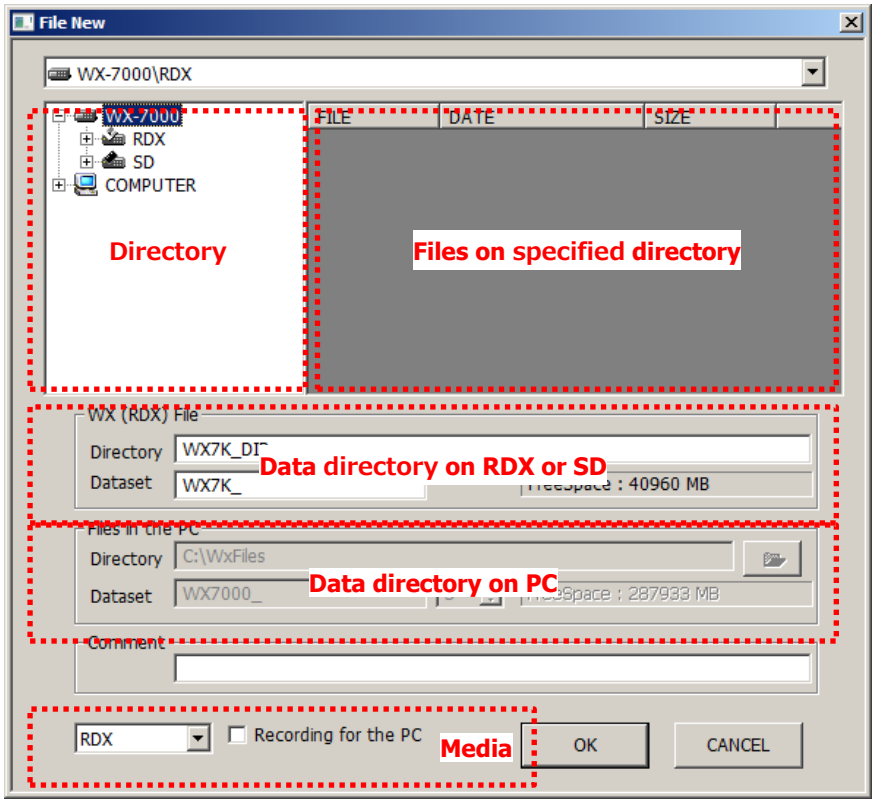
The OK button will transmit the contents of a setting of the system1, trigger, and each channel currently displayed on the present window to WX-7000.

When Cancel is pushed, a window is closed without performing a setup to WX-7000.

6. Operation

6.1. Selection of Media and file name

Following window is displayed after [New] of [File] menu selected.



At first, choose a media to record, then operate as following.

Archive destination	[media] selection drop down list	[Recording for the PC] check box
RDX	RDX	OFF
RDX and PC	RDX	ON
SD	SD	OFF
SD and PC	SD	ON
PC	No Media	ON

When you record to RDX or SD, setup at [Data directory on RDX or SD] that is circled by red dotted line. There is limit of quantity for character of file name and types.

When you record to PC, setup at [Media] that is circled by red dotted line. TAFFmat file format is used to record when you record to PC. Data file extension is (*.dat), header file extension is (*.hdr).

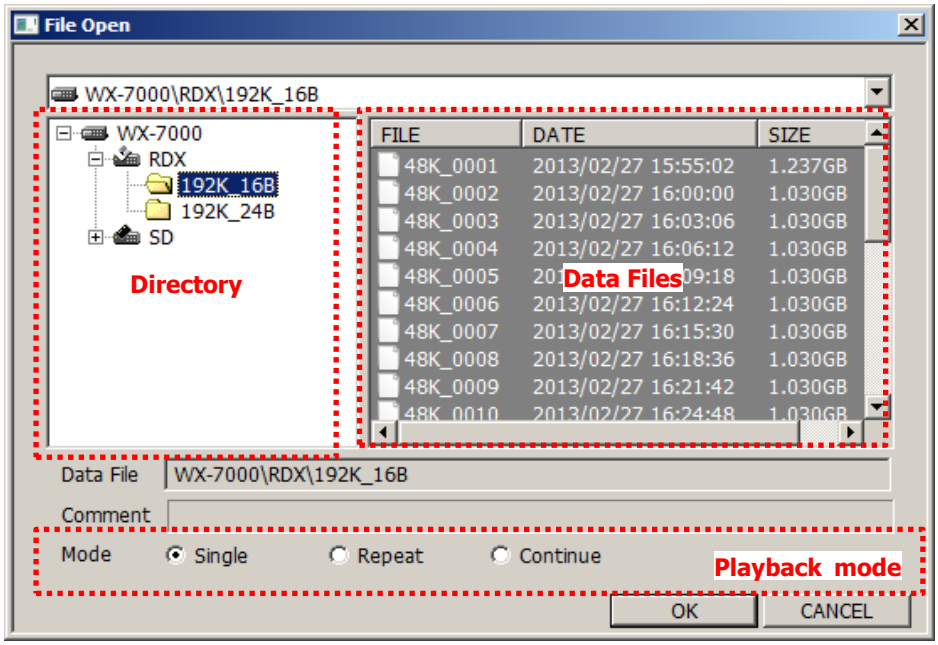
Voice memo is not recorded to PC even though [voice memo] setting is set to save.

You can type half-width alphanumeric until 128 characters in [comment box]. It is going to be recorded to header files.

The contents of the header file (*.hdr) of the TAFFmat file set are not identical with one created on WX-7000.

6.2. Specification of a playback media and a file name

Following window is displayed after [playback file] of [file] menu is selected.



Select directory and playback media using tree view of directory indicator circled by red dotted line.

After directory selected, TAFFmat file list which saved in the directory will be indicated at files indication part that circled by red dotted line.

Click the required file name to select the file then comment part is read from WX-7000 recording unit and comment box is showed.

[Please wait…] which is blue character are showed while reading comments.

Please use it for reference to search data you want.

Finally, setup playback mode. Playback mode is selected at a part of playback mode that is circled by red dotted line.

Playback mode	Explanation
Single file	Selected file is played. When it finished, return to PAUSE condition.
Repeat	Selected file is repeatedly played.
Repeat files in directory	This mode repeat files in directory.

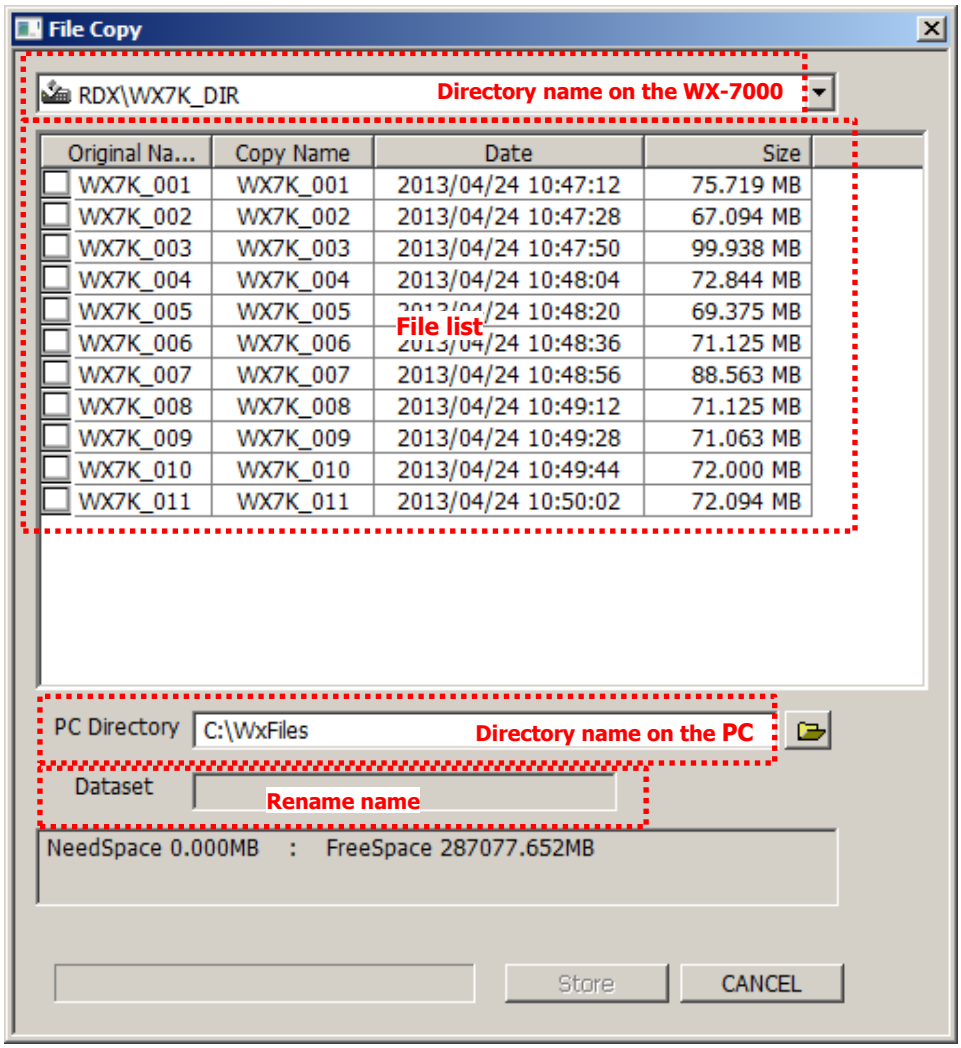
Push OK button, then WX-7000 and WX Navi shift to PAUSE using selected file.

You can push [Cancel] to cancel work of file selection.

6.3. Copy the files

Following window is displayed after [Copy] of [File] menu selected.

You can copy the TAFFmat files on the WX-7000 to the PC.

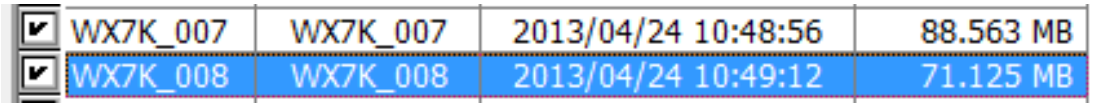


6.3.1. Select files

Select the directory of the media on the WX-7000.

You can select one directory for to copy files at once.

Select the files by check boxes.



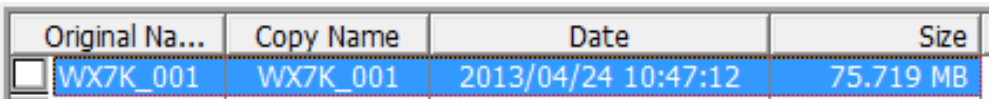
6.3.2. Select target directory

You can select the target directory on the PC by PC Directory box.

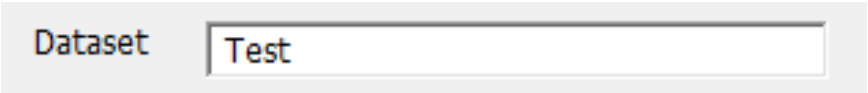
6.3.3. Rename the file name

When copying a file to PC, change of a file name can be performed.

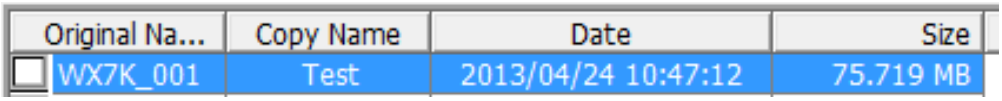
Select a file on the file list.



Input new file name on the Dataset box.



The inputted character string is reflected in Copy Name box.



6.3.4. Start of copy

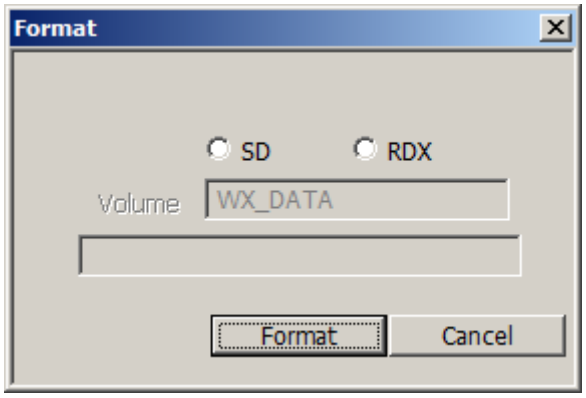
A click of a store button will start the copy of a TAFFmat file from WX-7000 to a PC after selecting a transport files.

Note. The copy of a mass file takes time.

6.4. Format

You can Format SD or RDX in WX-7000 recording unit as FAT32 format.

Following window is displayed after select [format…] of [file] menu.

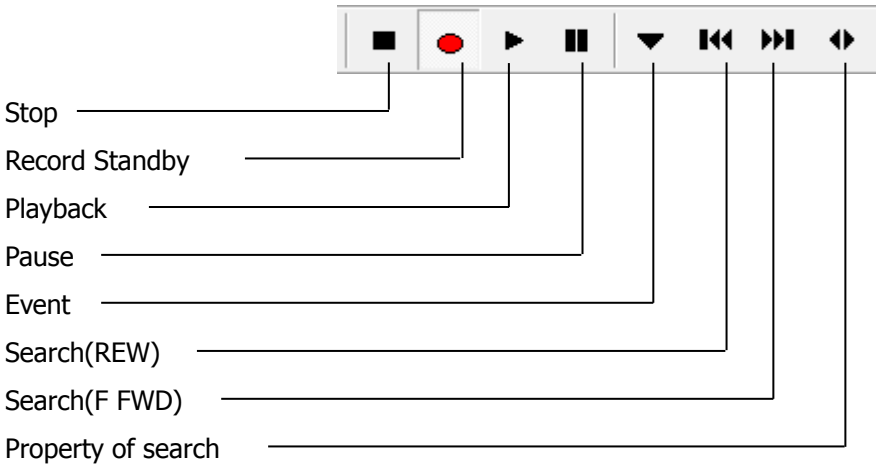


After media selected, please push [start format] button.

Caution: All files, data, and information in media which is formatted and deleted. Please check that files, data, and information in the media are no problem even if they are deleted.

6.5. Record and playback

When record and playback are started, push the buttons of the toolbar. There is deference about available buttons between REC mode and VIEW mode.



6.6. STOP

Recording will finish and shift to stop condition. PLAY condition shift to PAUSE condition. Record Standby

6.6.1. Record Standby

REC STANDBY shift to REC condition in situation of record with REC mode.

6.6.2. Playback

Also, STOP condition shift to PLAY condition in situation of playback with VIEW mode.

6.6.3. Pause

Recording finish and shift to REC STANDBY condition in situation to be used in REC condition. PLAY condition shift to PAUSE condition.

6.6.4. Event

Records an event mark if recording media is SD or RDX. If PC is selected as the recording media, event mark will not be recorded.

6.6.5. Search (REW)

This button is available in PAUSE condition. Its work is able to be set property of search.

6.6.6. Search (F FWD)

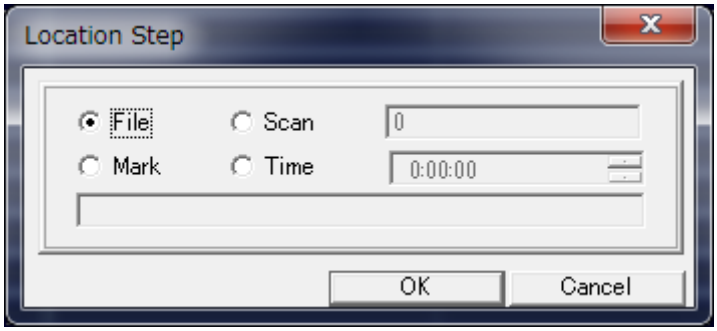
This button is able to use in PAUSE condition. Its work is able to be set property of search.

6.6.7. Search property

This button is able to use in PAUSE condition.[property window of search] will be showed then setting of search(REW) and search(F FWD) can setup.

6.6.8. Search property window

Setup items and work of window are as follows.

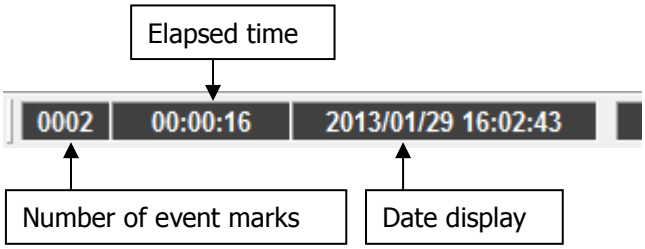


Selection items	In case of search(REW) used	In case of search(F FWD) used
File	Position move to the previous file in directory.	Position move to the next file in directory.
Mark	Start playback position return to the previous event.	Start playback position return to the next event.
Scan	Start playback position return as set scan number of times at right box.	Start playback position move as set scan number of times at right box.
Time	Start playback position return as set times at right box.	Start playback position move as set times at right box.

6.7. High grade Search

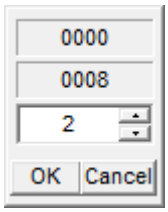
The move method of playback starting position has not only the explained function, but also high grade search function using the status information bar.

Please click any of a field of status information bar in PAUSE condition.



6.7.1. When the number of event marks is clicked

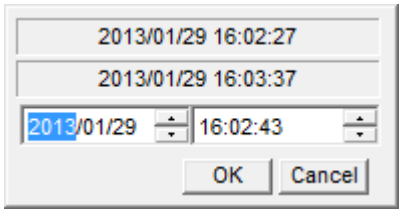
Event search will be mounted. The upper two fields show the range which can be specified.



6.7.2. When elapsed time is clicked

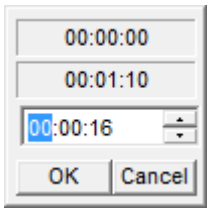
The time of a record opening day (hour: min: sec) is specified and searched.

The two upper fields show the range which can be specified.



6.7.3. When a time display is clicked

The time of a record date is specified and searched. The two upper fields show the range which can be specified.



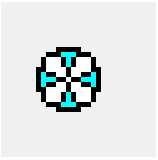
6.7.4. Reproductive resumption

Please push "reproduction" button, if search is finished. Reproduction is performed from the specified position.

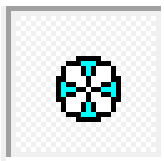
7. Other Settings

7.1. Fan

You can stop the cooling fan immediately on the WX by clicking the fan button on the toolbar. If you have already stopped the fan and recording of data, wait for about 10 minutes before you again stop the fan and record.



Fans are running.



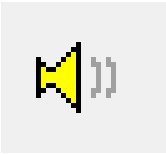
Fans are stopped.

Difference of two fan settings:

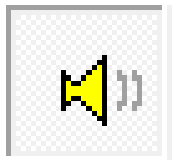
System Setting dialog	5.3 System Setting (p.30)	Cooling fans Stop at start recording (REC) for 10 minutes.
Toolbar	7.1 Fan (p.45)	Cooling fans Stop immediately for 10 minutes.

7.2. Listening Memo voice or Data

The voice memo or recorded data can be played on speaker. And it can change by pushing speaker button.



The voice memo is played back from the speaker.



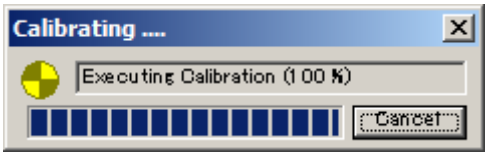
The data of the monitored channel instead of a voice memo is played back from the speaker.

7.3. Calibration

Calibration will start by pushing "Calibration Button" on tool bar.

While calibration is being executed, following window appears.

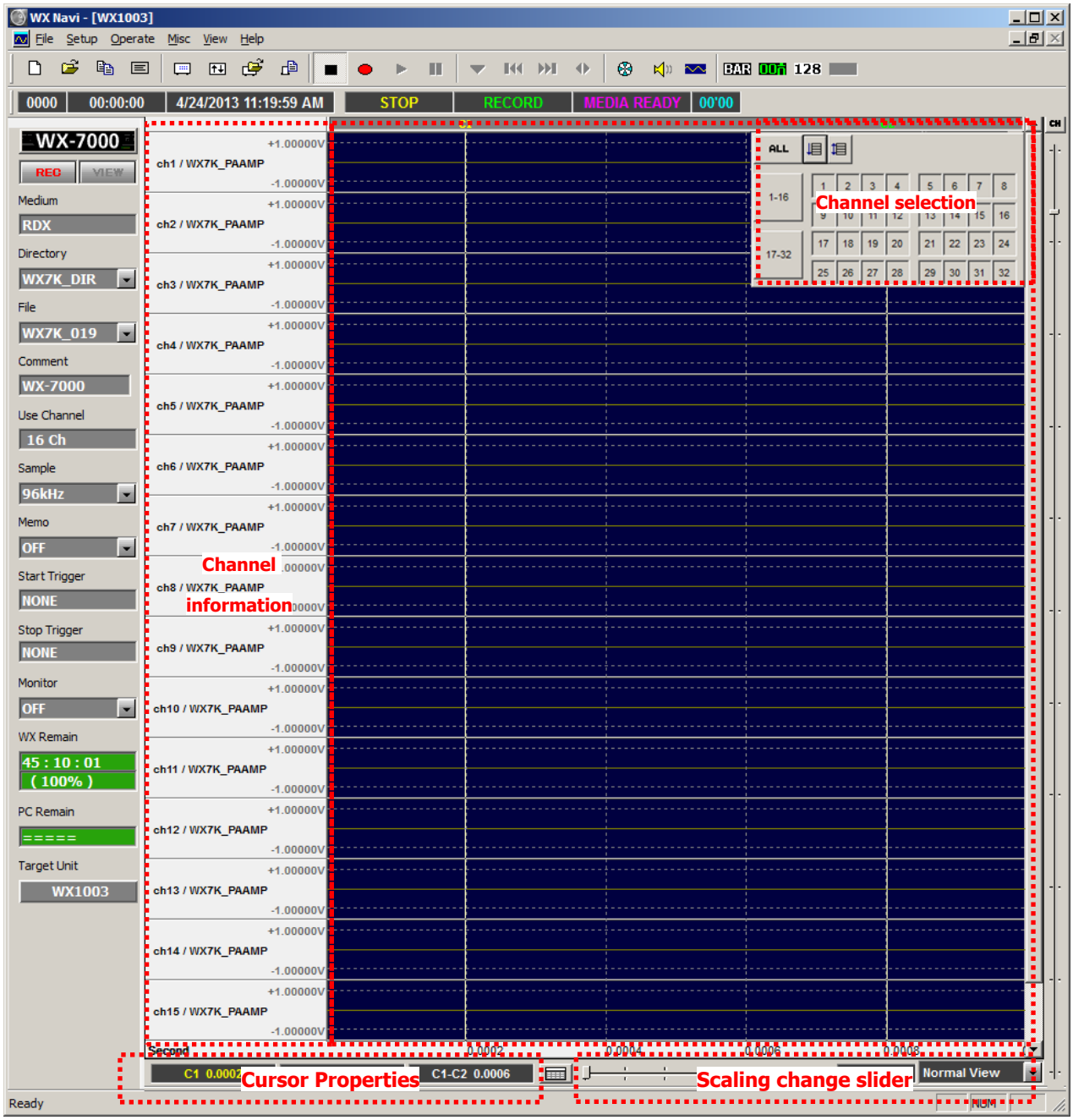
After finishing calibration, window closed.



8. Displaying Waveform

You may see the decimated plots on the viewing waveform depending on the sampling frequency settings and/or the display time scale.

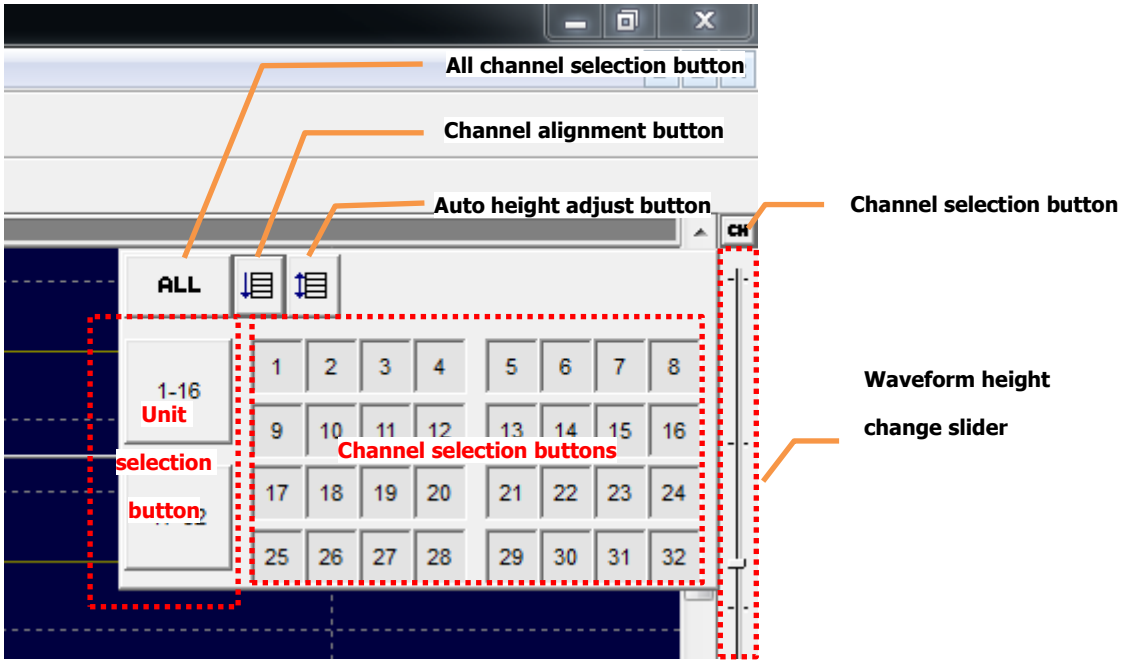
This chapter describes "channel selection" window, "scaling change" slider, "Cursor Properties" area and "channels information "area.



8.1. Select the channel to display

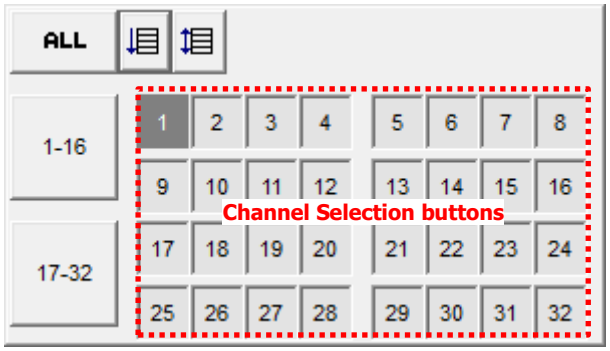
It is possible to select the waveform to be displayed in the waveform display area window of "channel selection".

When you press down a small button "CH", which is called "channel selection" button, in the upper right corner the main window , The "channel selection window" will be displayed near its. It will describe in a situation that the channel 32 is selected in the system configuration in this example. This example describes in a situation which the channel 32 is selected in the system configuration.



8.1.1. Channel Selection Buttons

"Channel selection area" toggles the visible/ nonvisible of each channel. In the non-visible state of the channel button is represented in dark gray. In the example below, only one channel is non-visible.

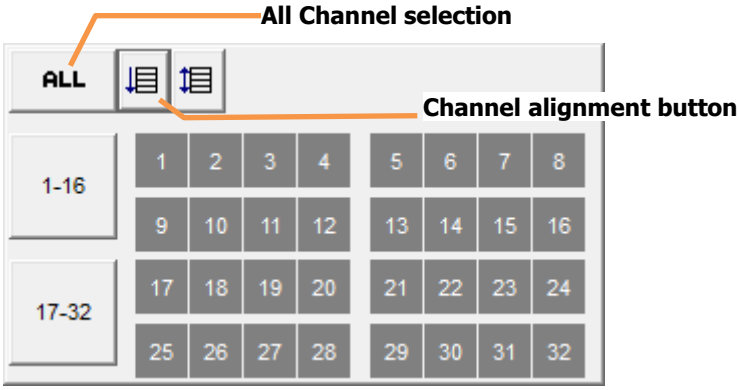


8.1.2. Unit Selection Buttons

"Unit selection buttons" can be used for switching visible/non-visible of corresponding expansion unit with a single click. In the example blow, first expansion unit of channels (1-16ch) are non-visible.

8.1.3. All Channel Selection Button

Select All Channel Button can be used for switching visible/non-visible of all channels with a single click. In the example blow, all of channels are non-visible.

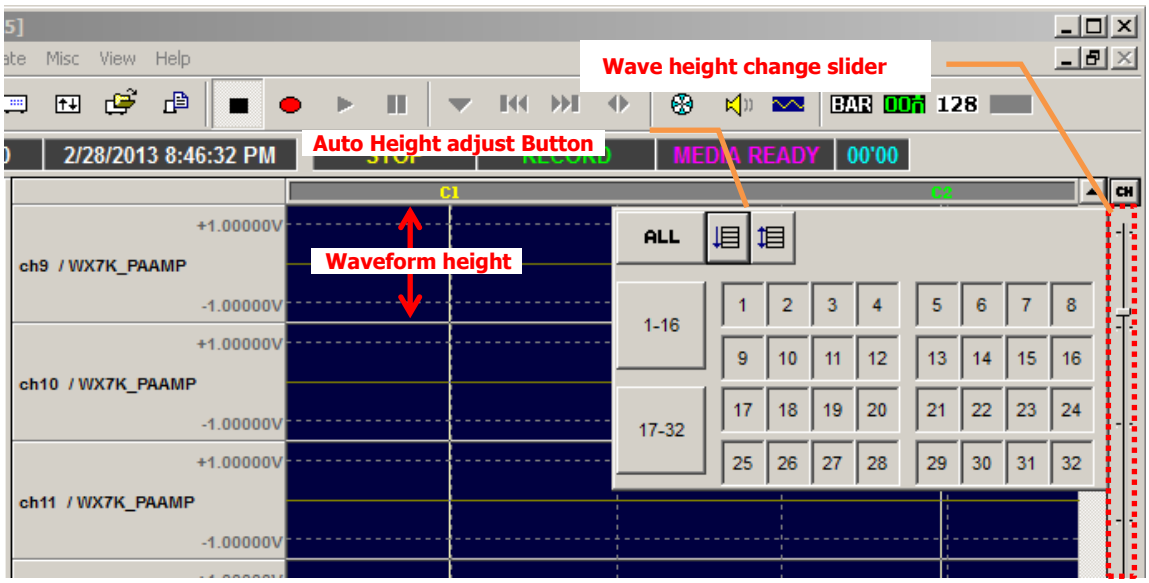


8.1.4. Channel Alignment Button

Channel Alignment Button can be used to change non-visible channels to visible and realigns wave forms by ascending order.

8.1.5. Auto Height Adjustment Button

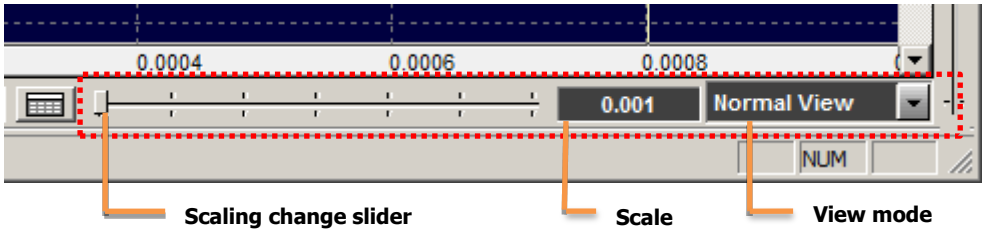
Auto Height Adjustment Button is used to automatically adjust the height of the waveform of each visible channel to display selected channels in the "waveform display area." However, this is by design to the height of the waveform has a minimum value, but it may not fit into all the channels in the "waveform display area" If you'd like to display a large number of channels.



If you'd like to manually adjust the height of the waveform, "Wave height change" slider can be used. All channels will be adjusted at the same height. It is not able to display. It is not possible to change the height for each channel.

8.2. Scaling Change Slider

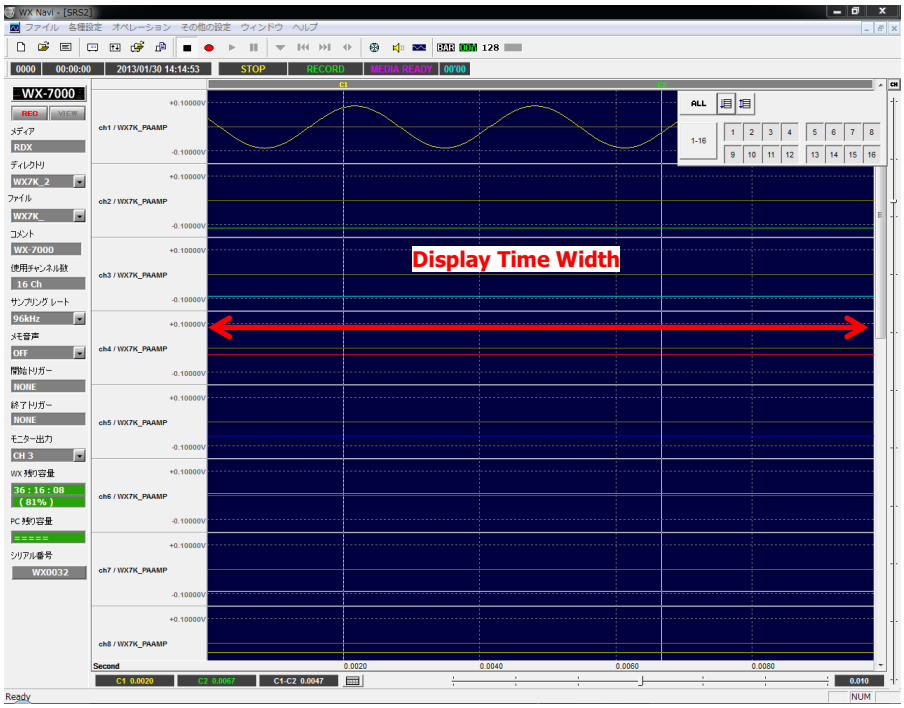
Scaling change slider is the bottom right of the main window.



"Scale" is corresponding to the number of seconds from the left to the right of the" waveform display area".

(Red arrow below <->)

The scale is 0.01 seconds in this example.

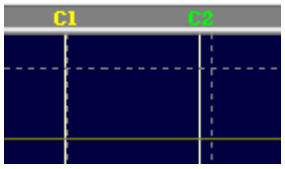


You can select two type view mode.

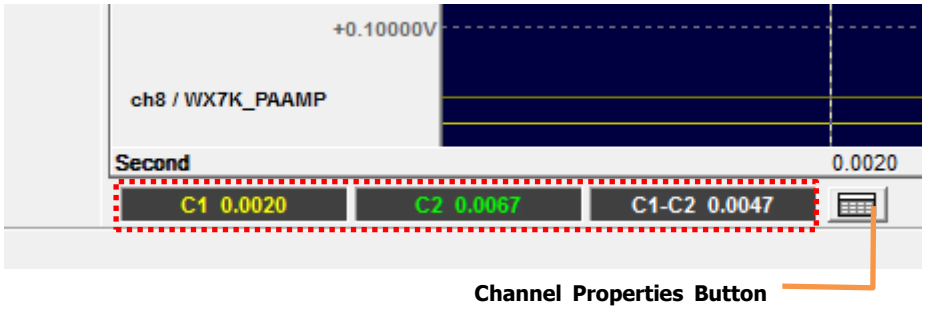
	Normal view	Prolonged view
Number of steps of slider	7 steps	10 steps
Display Time Width	0.01 sec to 10 sec (It regards sampling frequency)	60 sec to 10800 sec(3hours)

8.3. Cursor property

"C1" and "C2" are displayed at the top of waveform display area during STOP.



The left edge is 0[sec] and the right edge is defined seconds by "scale" in the waveform display area, time positions of the "C2" and "C1" cursor are displayed. "C1-C2" is the time differences between 2 cursors.



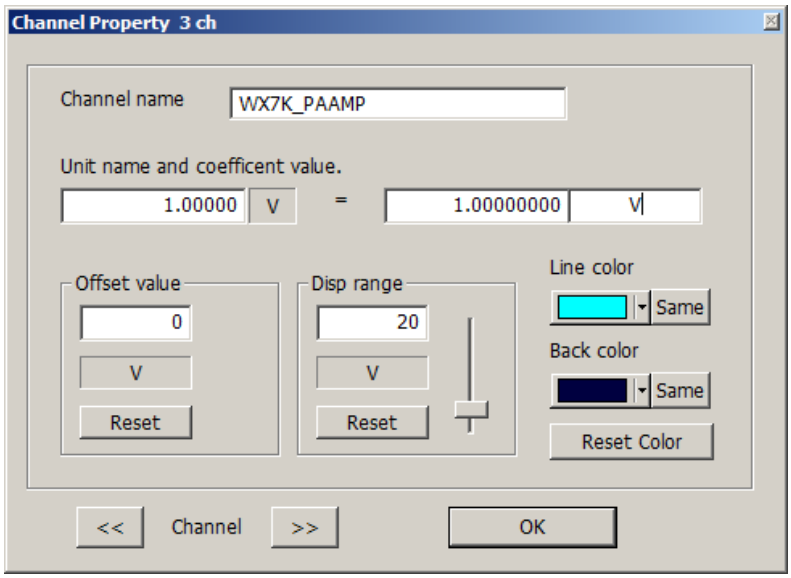
"Channel Properties Button" can be used to open "Channel Properties List" at under the waveform display area.

Channel	Range	DispRange	Offset	Cursor (C1)	Cursor (C2)	Abs (C1-...	Channel Name
1 ch	20.00000V	20.00000V	0.00000V	0.00000V	0.00000V	0.00000V	WX7K_PAAMP
2 ch	20.00000V	20.00000V	0.00000V	0.00000V	0.00000V	0.00000V	WX7K_PAAMP
3 ch	20.00000V	20.00000V	0.00000V	0.00000V	0.00000V	0.00000V	WX7K_PAAMP
4 ch	20.00000V	20.00000V	0.00000V	0.00000V	0.00000V	0.00000V	WX7K_PAAMP
5 ch	20.00000V	20.00000V	0.00000V	0.00000V	0.00000V	0.00000V	WX7K_PAAMP
6 ch	20.00000V	20.00000V	0.00000V	0.00000V	0.00000V	0.00000V	WX7K_PAAMP
7 ch	20.00000V	20.00000V	0.00000V	0.00000V	0.00000V	0.00000V	WX7K_PAAMP

If you double-click on any channel in the list, "Channel properties button" which is used to change the details of the waveform will be displayed.

8.4. Channel Property

It is possible to change the display of the waveform display area for each channel.

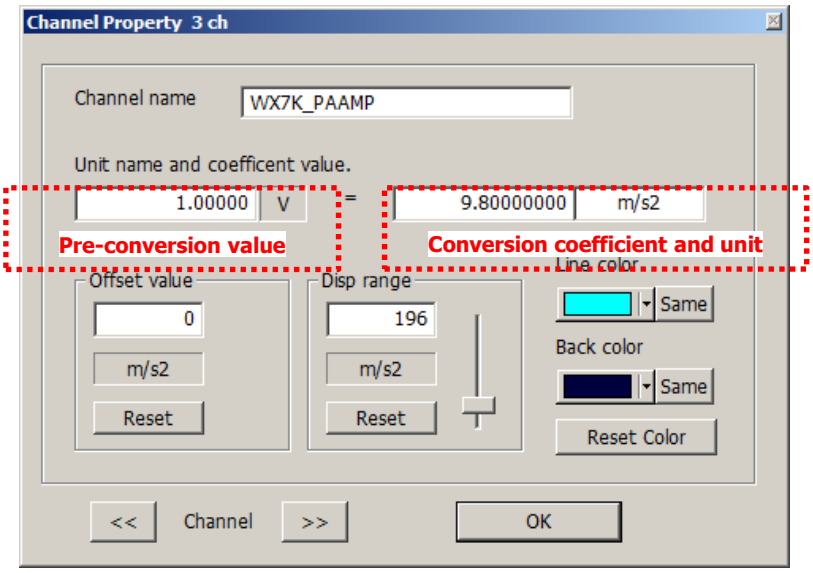


It is possible to display in engineering units by applying coefficient to a voltage that is input to the input connector.

Using the engineering unit and "OFFSET" affects to not only waveform but also Bar graph and Digital displaying.

8.4.1. Converting Units

Enter coefficient and unit to conversion in "Conversion coefficient and unit" of the red frame on the right side below. Use the pre-conversion value if necessary.



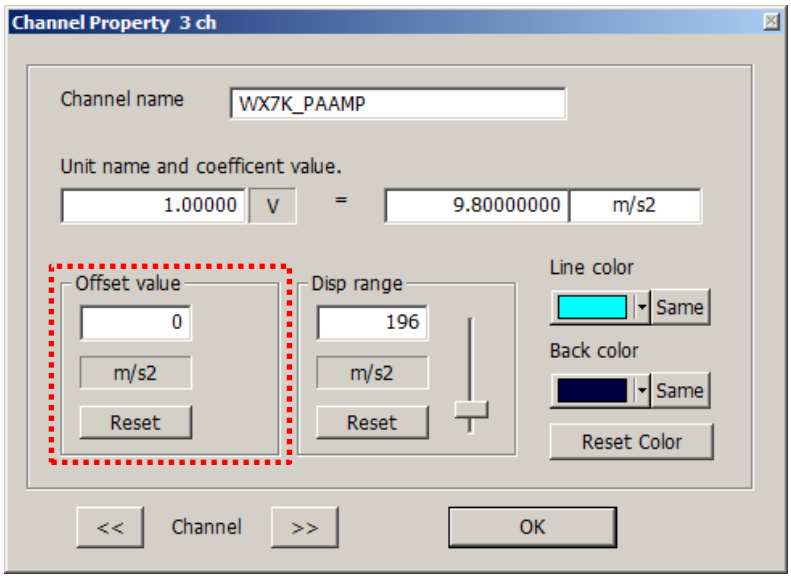
Correspondence table of "System and each channel" window

It will be changed in the same value if you change the other one.

Channel Property	Item of system and each channel
Pre-conversion vale	Engineering unit 1
Conversion Coefficient	Engineering unit 2
Physical unit	Unit
offset	offset

8.4.2. Offset

Offset value is added to the converted physical value of waveform, bar graph display, digital display.



8.4.3. Line color

This is used to change color of graph line. "Apply for all channels this color" button is used to change same color at once.

8.4.4. Background color

This is used to change color of background. "Apply for all channels this color" button is used to change same color at once.

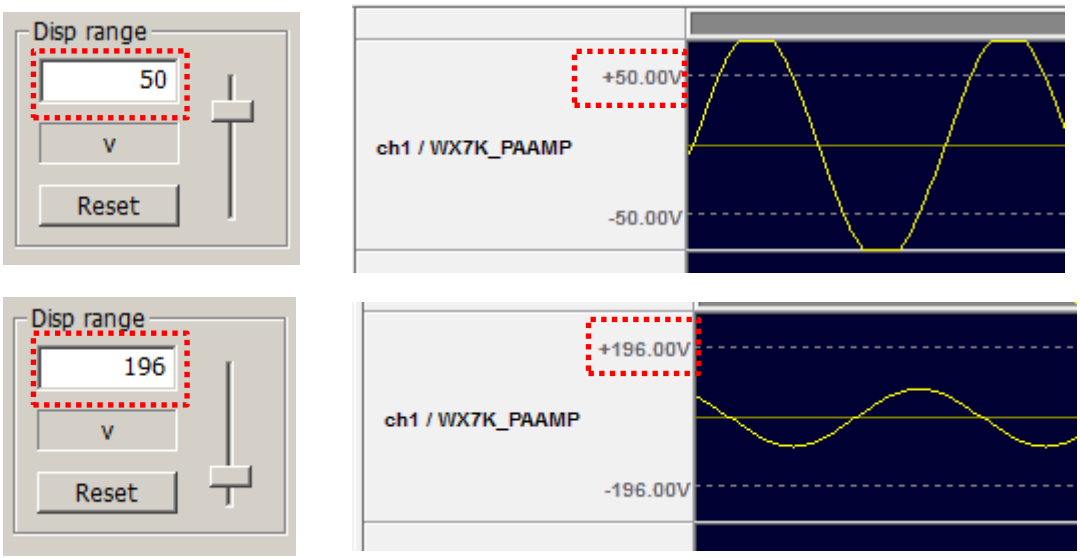
8.4.5. Back to default settings for all channels

This is used back to default settings for all channels. The values of "physical quantity conversion factor", "Rage of display" and "offset" are not changed.

8.4.6. Display Range

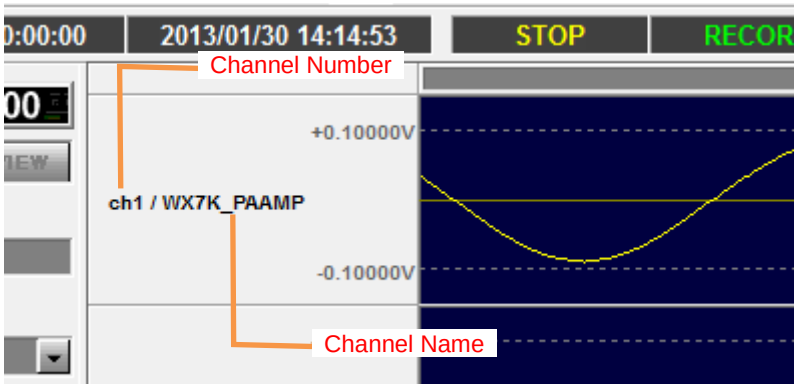
"Display Range" is used to change the display range of waveform. "Display Range" is used to change the display range of waveform. This is not meant to change the measured data and/or the physical value for converting.

The specified value of "Display range" is corresponding to the value of following figure.



8.5. Channel Information

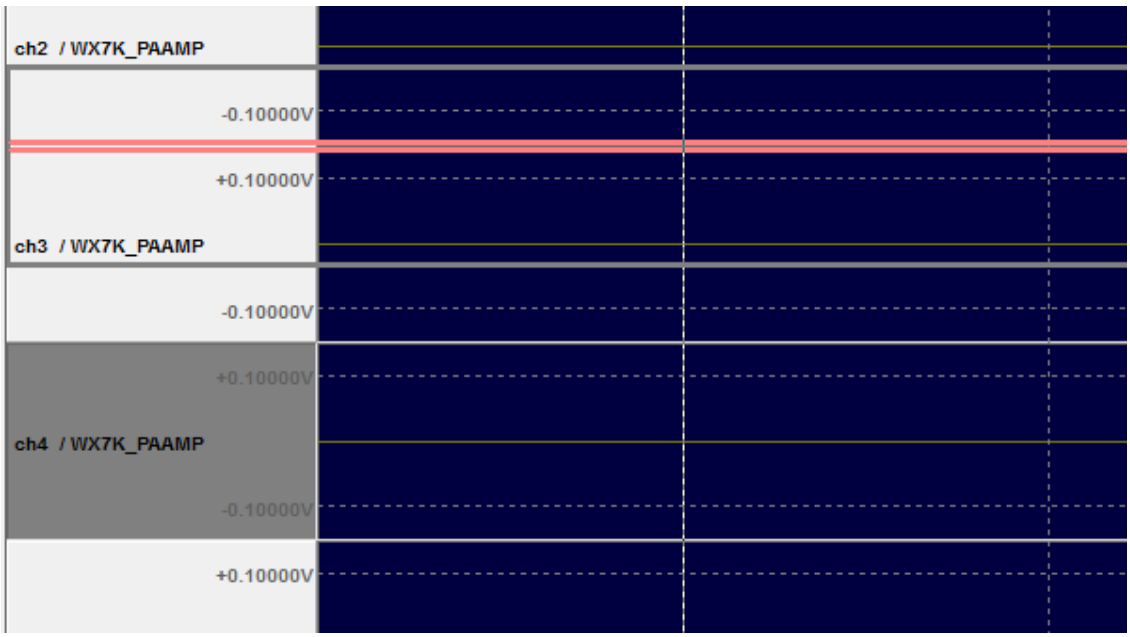
Following figure shows what this areal shows.



By dragging channel information area, changing display order and overlapping waveform are possible.

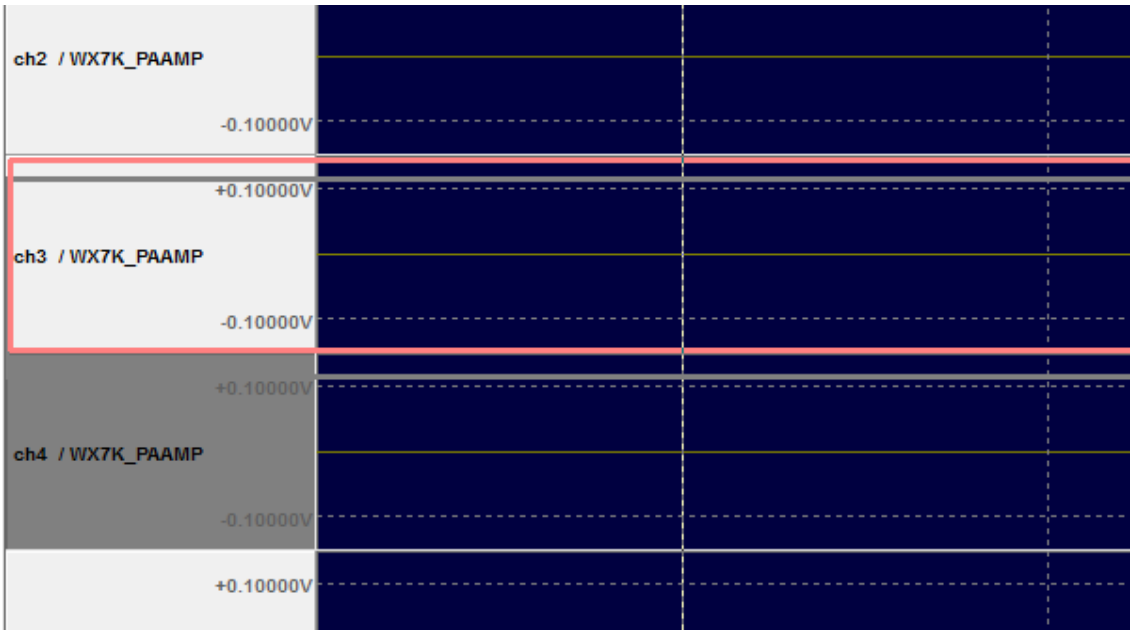
8.5.1. Changing to Display Channel Order

If you want to move a waveform data of channel 4 to between channel 2 and 3, drag information area of channel 4 and move to between channel 2 and 3 (red double line appears) and drop.



8.5.2. Overlapping Waveforms

If you want to see waveform data overlapping channel 3 and 4, drag information area of channel 4 and move to channel 3 (red frame appears) and drop.

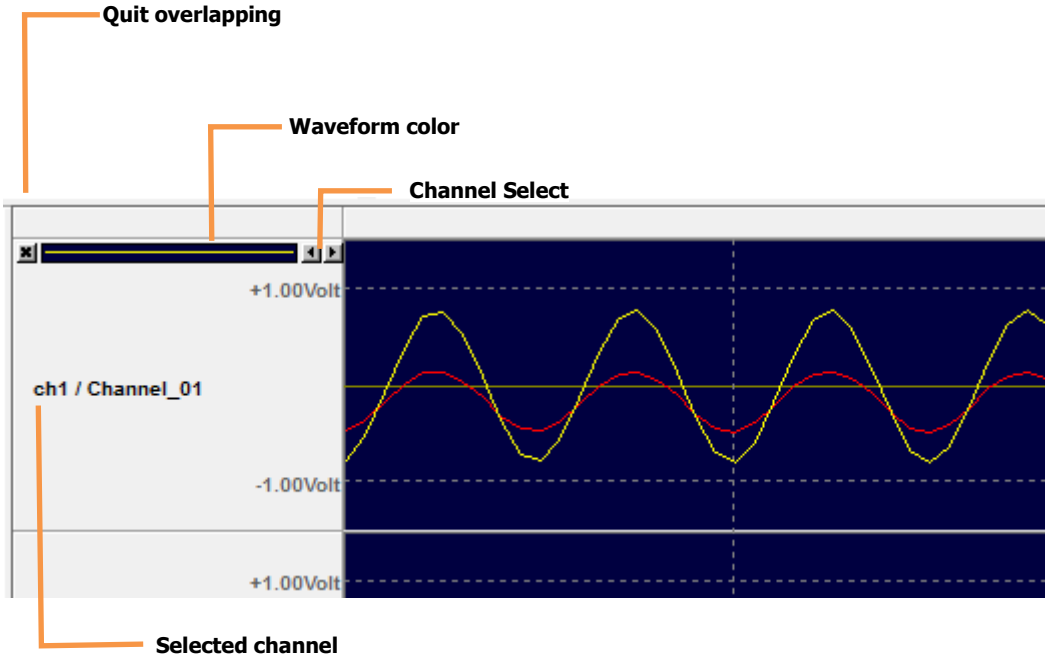


In case of overlapping waveform, [Quit Overlapping], [Waveform color] and [Channel select] buttons appear on channel information area which shows channel number and channel name.

[Quit Overlapping] button works to quit overlapping and selected channel is displayed under current position.

[Waveform color] button can change waveform color.

[Channel select] button can select showing waveform on top.

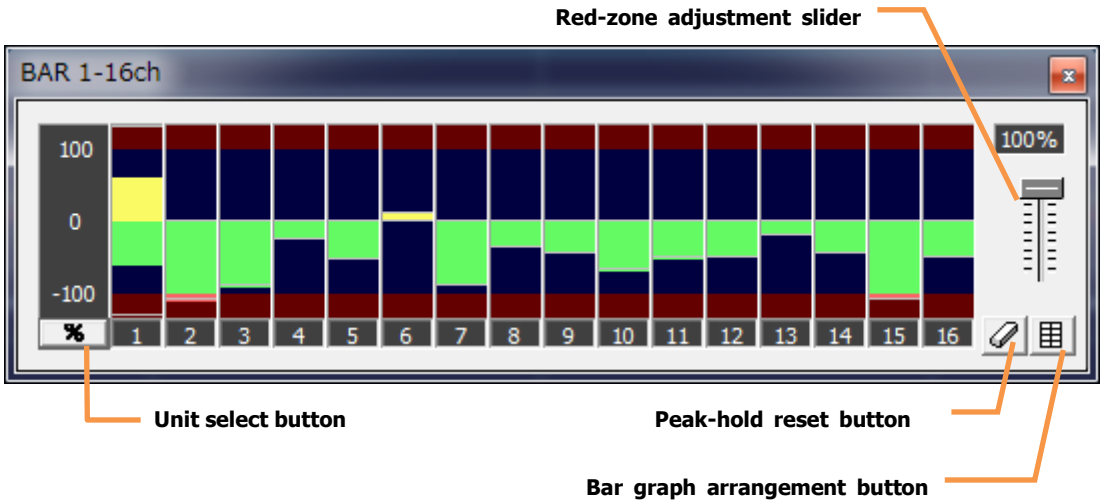


9. Sub window

9.1. Bar Display

If you click on the Bar Display in the tool bar, a bar graph will appear.

A bar graph can display up to 16 channels (equivalent to an expansion unit). For the 32-channel and 64-channel models, 2 bar graphs and 4 bar graphs will be displayed respectively.



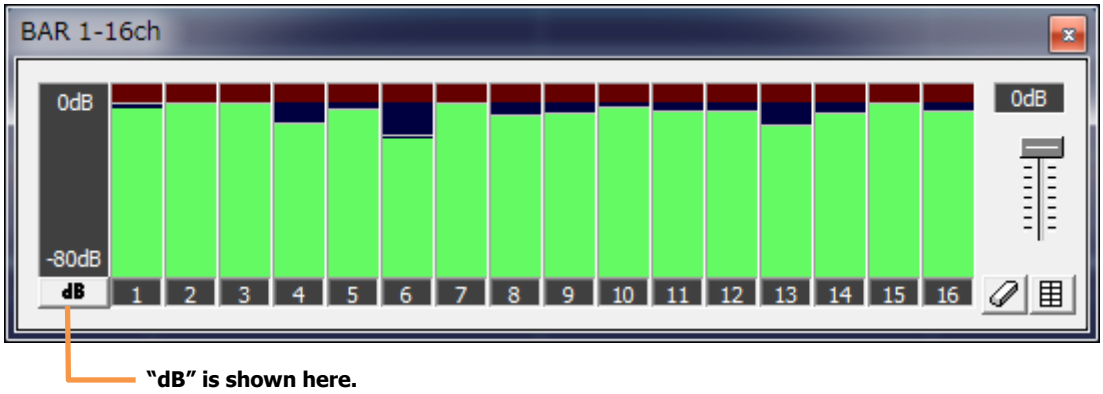
9.1.1. Peak-hold reset button

Reset peaks indicated with white lines for each channel.

9.1.2. Unit select button

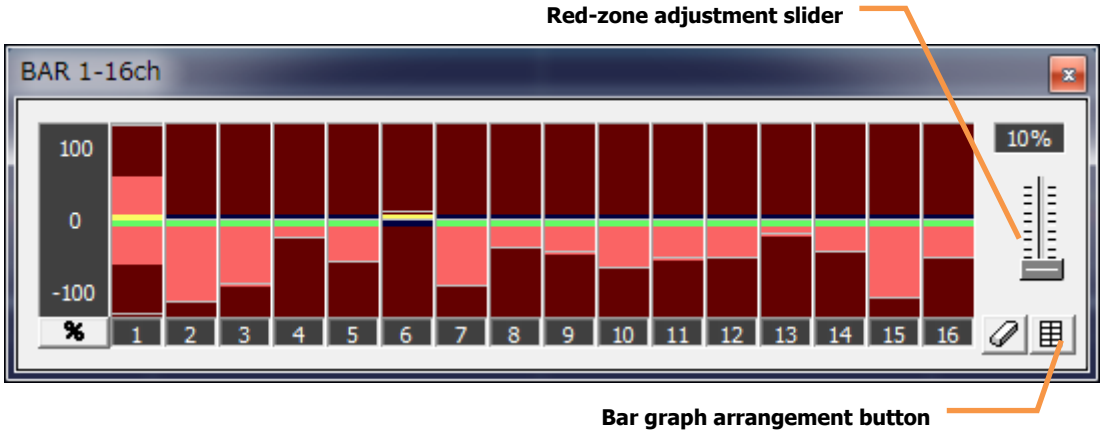
This button toggles the unit of the bar graph between "%" and "dB".

Below figure shows "dB".



9.1.3. Red-zone adjustment slider

You can adjust the red-zone level with this slider. Please use this function for reference purpose only.

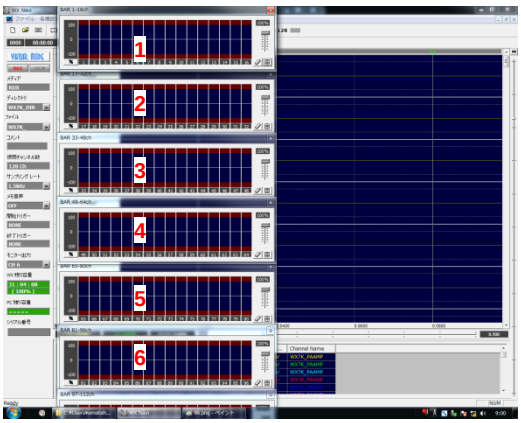


9.1.4. Bar graph Arrangement button

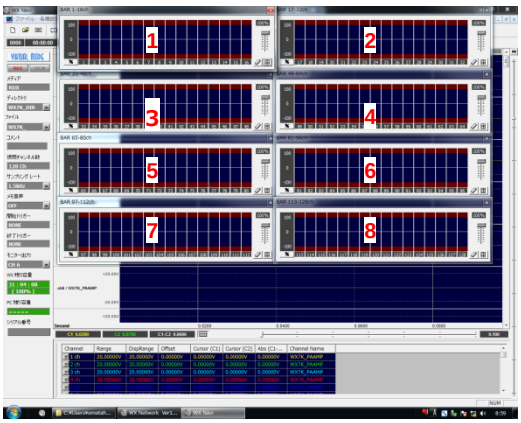
Click on the Bar Graph Arrangement button to select the arrangement from either one line or two lines. Bar graphs are to be re-arranged so that the window whose button was clicked will stay in the same position.

Refer to the below figure for the arrangements (in the below, bar graphs are numbered to show the order of the bar graphs for clarification purpose).

In-line



Side-by-side



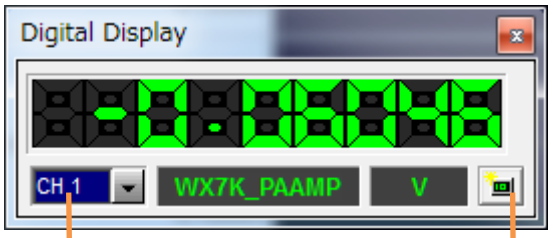
In the case that there are many bar graphs, all bar graphs may not be displayed simultaneously.

9.2. Digital display

Click on the "Digital Display" in the tool bar to digitally display the instantaneous value of each channel.

Up to 8 channels can be displayed simultaneously.

Values are converted and displayed according to the physical quantity conversion and unit set in the System and Each Channel or Channel Property.



Channel Select **Additional Window**

9.2.1. Channel Select drop-down list

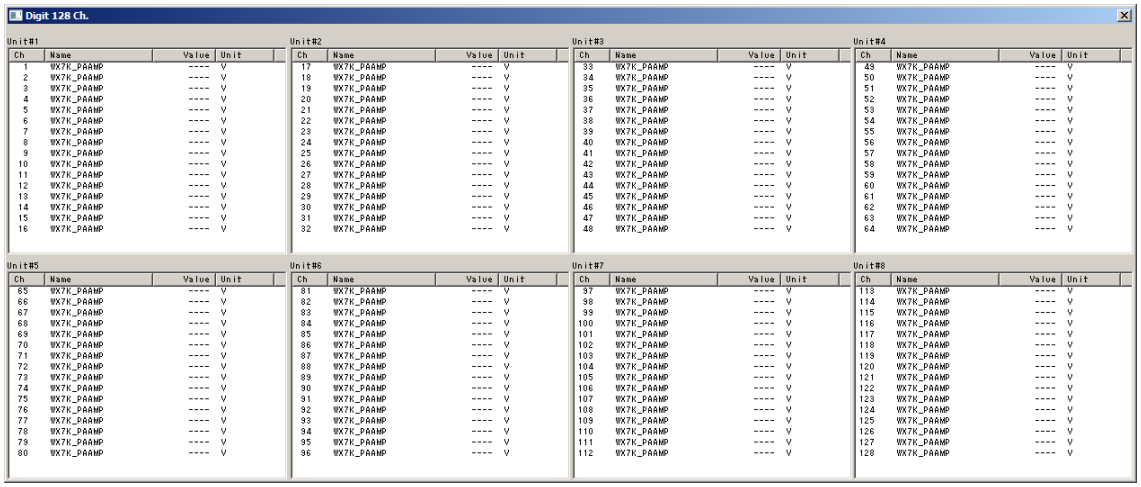
Use this drop-down list to select the channel which you want to see.

9.2.2. Additional Window button

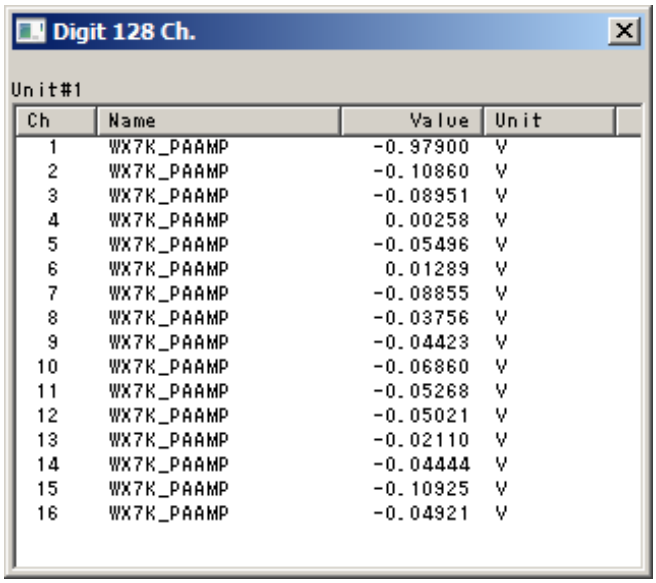
Click on this button to add digital display windows (up to 8 windows).

9.3. Digital 128ch display

This feature allows the operator to watch the instantaneous digital value of all channels simultaneously. Click on the Digital Display (128ch) in the tool bar to activate this feature.

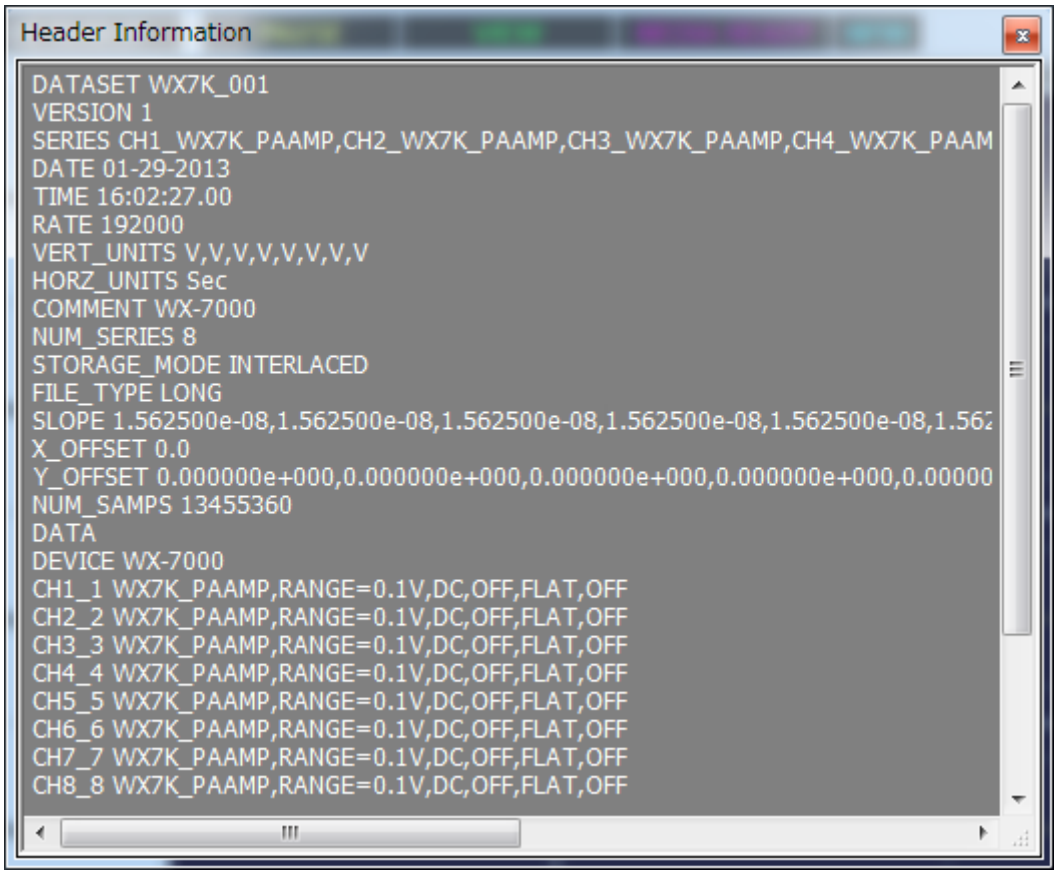


The window size is automatically adjusted according to the number of channel. Below figure shows the window for 16 channels.



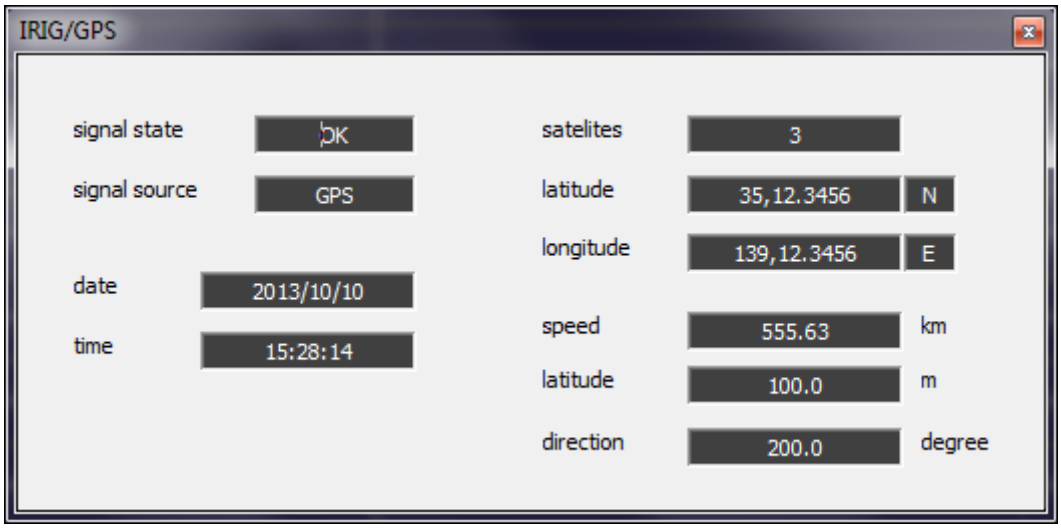
9.4. Header Information

The header file of TAFFmat currently being reproduced is displayed if the Header File Information on the tool bar is selected while being in the VIEW mode.



9.5. IRIG/GPS

Display IRIG/GPS information obtained.



9.5.1. In case of REC mode

Please refer to the below table for IRIG/GPS information (9.5 IRIG/GPS Information) when Data recording (5.3.3 IRIG/GPS Group) is ON or OFF in REC mode.

Data recording	Operational mode		
	STOP	REC STANDBY	REC
"ON"	Commands for information transfer are issued directly to WX-7000, and then the information is displayed.	IRIG/GPS information is obtained from the data on ch1. The information is displayed. The number of satellite will not be shown.	IRIG/GPS information is obtained from the data on ch1. The information is displayed. The number of satellite will not be shown.
"OFF"	Commands for information transfer are issued directly to WX-7000, and then the information is displayed.	No information will be shown.	No information will be shown.

9.5.2. In case of VIEW mode

In the case of VIEW mode, IRIG/GPS information is displayed as shown below.

Operational mode	
PAUSE	PLAY
No information will be shown.	IRIG/GPS information is obtained from the data on ch1. The information is displayed. The number of satellite will not be shown.

10. Synchronization

10.1. Remarks in using WX Navi

The followings are remarks that users should be aware of in using WX Navi while operating WX-7000 recorders in synchronization mode.

10.1.1. The two WX-7000 recorders which operate in synch must be connected to the same subnet.

Since connection check commands are issued through LAN, both the Master unit and the Slave unit must be connected to the same subnet.

10.1.2. No other WX-7000 recorders than the Master and Slave units are to be connected to the subnet.

In the case that other WX-7000 recorders than the Master and Slave unit are connected to the subnet, operation is not guaranteed.

10.1.3. When you run two WX Navi software for two WX-7000s recorders operating in synch, each WX Navi must be run on the another PC.

As mentioned in previous section, only one WX Navi can be run on a PC. If multiple WX Navi software is run on a PC and connected with the Master and Slave unit, operation is not guaranteed.

10.2. Cable connection

10.2.1. Synchronization cable

Make sure that the Master and Slave units are connected through synchronization cable before being turned on. Please refer to the WX-7000 Owner's Manual for details on cable connection.

10.2.2. Ethernet cable

All WX-7000 recorders to be operated in synch need to be connected to Ethernet hub through Ethernet cables. For more details, please refer to section 3-3 Connection with computers and oscilloscopes in the WX-7000 Owner's Manual.

Make sure that the IP address of WX-7000 recorders connected to the same subnet are not duplicated. Please refer to section 14-3 NETWORK in the WX-7000 Owner's Manual and section 2.1.12 WX-7000 Network Configuration in this manual.

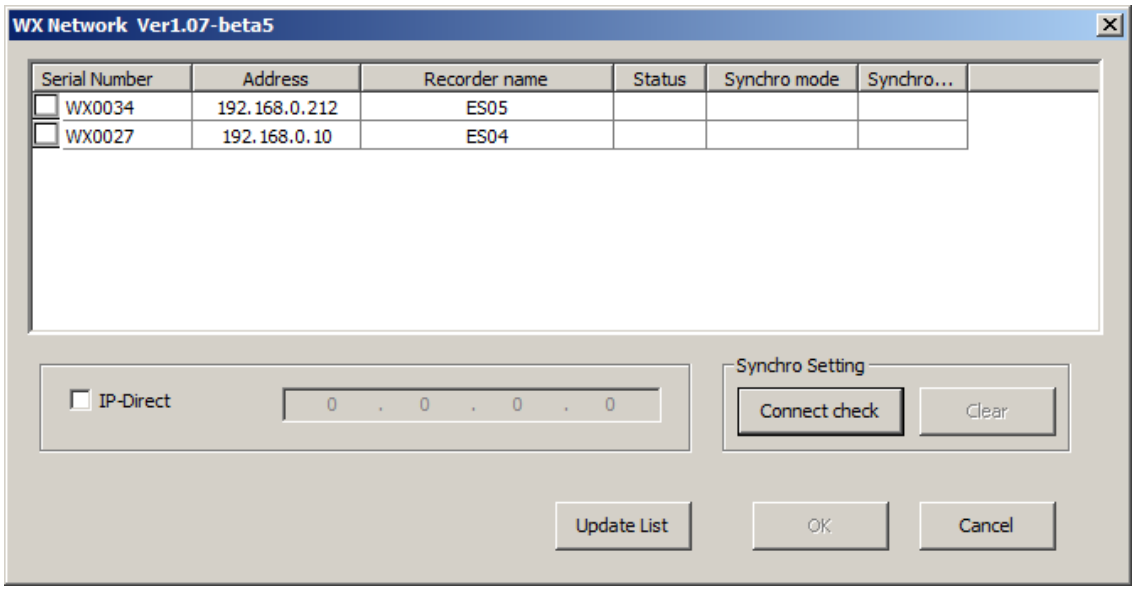
10.3. Connection check

This section explains how to check the synchronization cable connection before you operates WX-7000 recorders in synch.

10.3.1. Starting the connection check

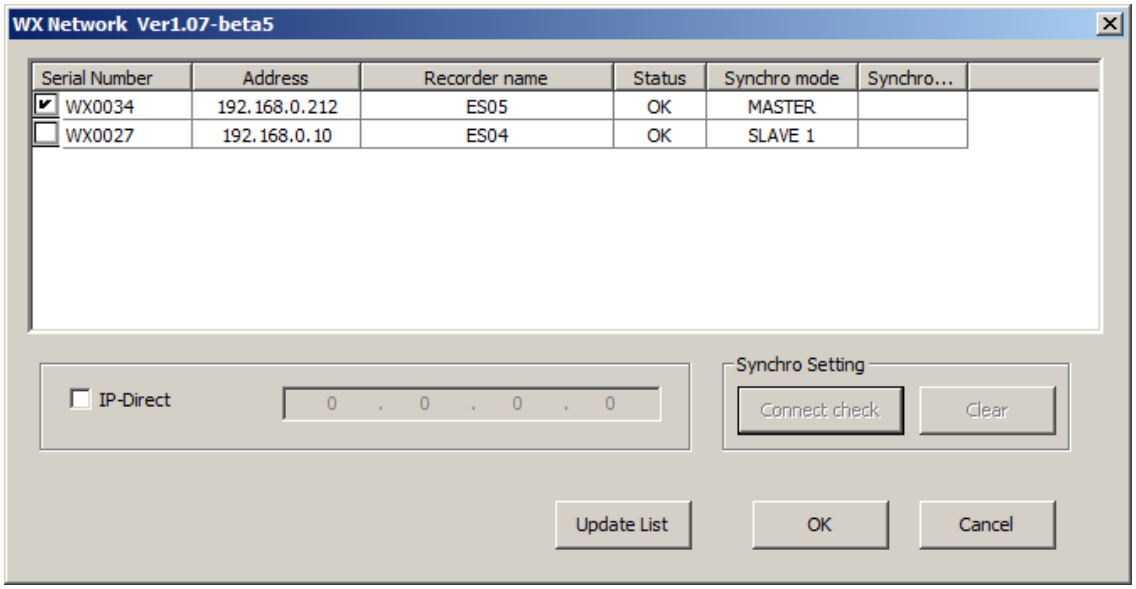
Connection check can be performed on a PC. If you have two PC's, you can run the check on either one.

Start WX Navi and two WX-7000 recorders will be detected. And then WX Network dialog will show up.



Click on the Connect check button and WX Navi will start searching for a WX-7000 in master mode and then issue the connection check commands to it.

A few seconds later, the connection check will complete and the following information will be shown.



The connection check can be performed from the menu shown on the front panel ofWX-7000. Please refer to the WX-7000 Owner's Manual for details.

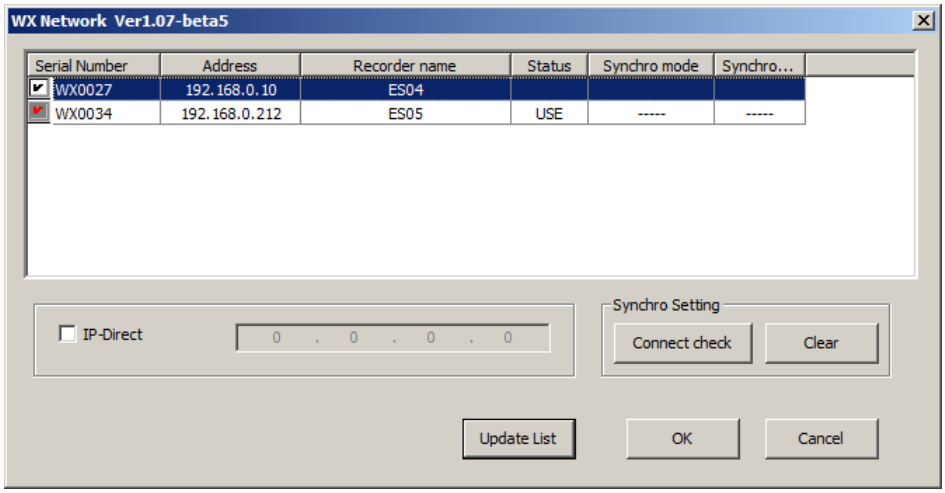
Synchronization selection and selection unlock are not available on this revision.

10.3.2. Connecting WX Navi

In the WX Network dialog, check the checkbox for the WX-7000 which you would like to connect to WX Navi and then click on OK button.

If you have multiple PC's, it is prohibited to connect the WX-7000 with other PC while the connection check is being performed.

It is not necessary to perform the connection check on the 2nd PC before connecting to the 2nd WX-7000.



10.4. Synchronized recording

When recording in synchronization mode, please follow the step 1 to 5 described below.
Those setting changes must not be done on two PC's at the same time. Please do it one by one.

Step 1 Switch from VIEW mode to REC mode.

If WX Navi is in VIEW mode (refer to section 3.2 Mode of WX Navi), please switch to REC mode. You can ignore this step if WX Navi is already in REC mode.

First, press the REC button on the Slave unit to switch to REC mode, and then switch the Master unit to REC mode.

Step 2 Setting recording media, sampling frequency and A/D converter on master unit

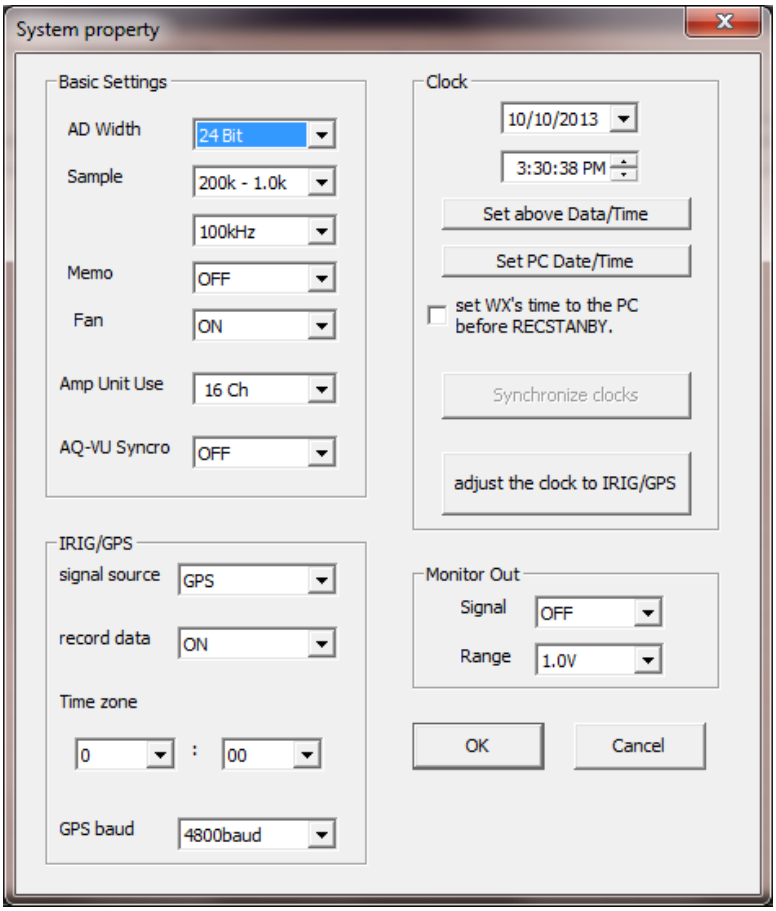
The settings for recording media (RDX or SD), sampling frequency and A/D converter for the Master unit are also applied to the Slave unit. Refer to section 16-1 Recording unit (WX-7000) in the WX-7000 Owner's Manual for recording bandwidth when you determine those settings.

Step 3 System/channel settings on each WX-7000

Set the number of recording channel and all parameters for each channel on both Master and Slave units.

In synchronized recording, there are the following limitations:

- Trigger setting is available for the Master unit only.
- Time on WX-7000 will not be synchronized with PC time before RECSTANDBY
- Time adjustment function will not work on the Slave unit.



Step 4 Close all setting dialogs

Make sure that all setting dialogs (recording file, system and each channel, etc.) of all WX Navi are closed.

Step 5 Start synchronized recording on Master unit

REC standby and start/stop recording are controlled on the Master unit. Slave unit starts/stops recording in synch with the Master unit.

10.5. Synchronized playback

When playing back in synchronization mode, please follow the step 1 to 5 described below.

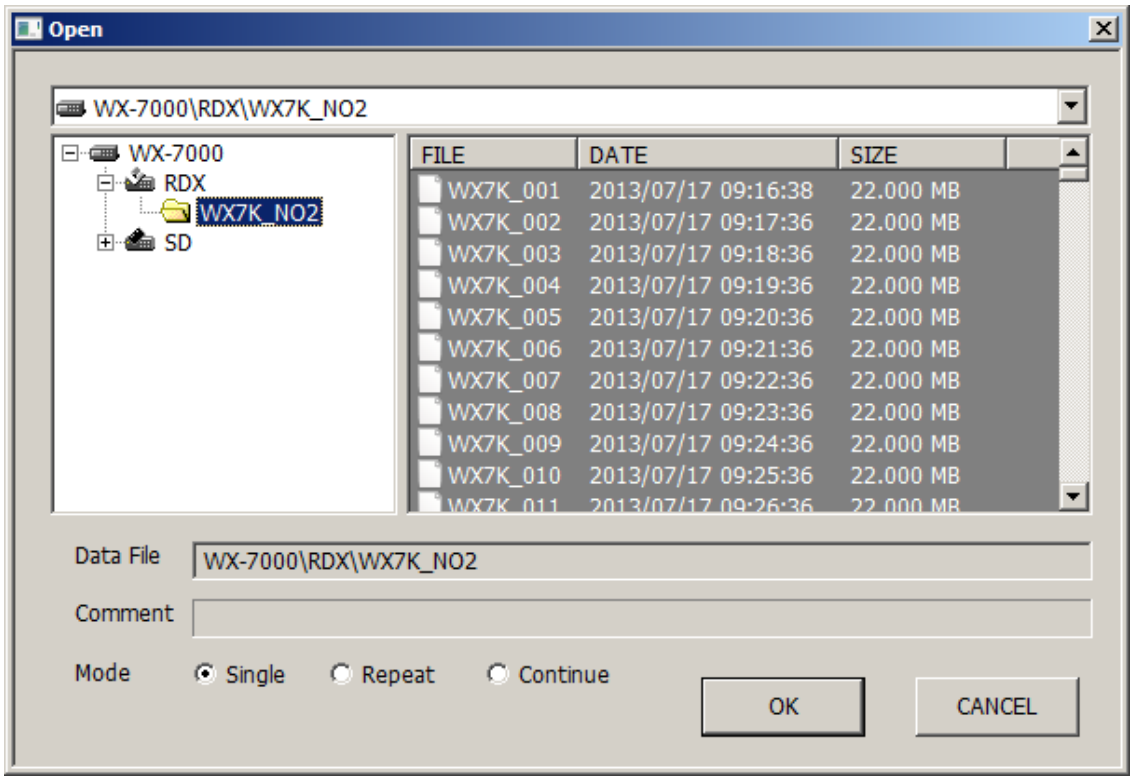
It is prohibited to operate multiple units at the same time. Each unit needs to be operated one by one.

Step 1 Select playback mode and file on Slave unit

First, select the playback mode on the Slave unit, and then select the file to be played.

For details on how to select playback file, refer to section 6.2 Specifying playback media and file.

Sequential playback operation is not guaranteed if there are files which are not recorded in synchronization mode in the folder.



Step 2 Select playback mode and file on Master Unit

Playback files must be ones recorded by the Master and Slave units operating in synchronization mode.

Please select playback files for the Master unit after selecting the playback mode (single file, repeat or sequential play) like you did for the Slave unit.

You must set playback files for Master unit first, and then do it for the Slave unit.

The Master and Slave units must operate in the same playback mode.

Step 3 Control play/stop on Master unit

Playback control (play/stop) is done on the Master unit. Slave unit automatically starts/stops playback in synch with the Master unit.

Step 4 Switch from VIEW mode to REC mode on the Slave unit

Click on the REC button of the WX Navi being connected to the Slave unit to switch back to REC mode, if you already finished playback.

Step 5 Switch from VIEW mode to REC mode on Master unit

Click on the REC button of the WX Navi being connected to the Master unit to switch back to the REC mode.

The Slave unit must be returned to the REC mode before the Master unit is switched back to the REC mode.

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