



Weather Wing **WS-2**

User's Manual

Thank you for purchasing our product.
Carefully read this instruction manual
before using this unit.



Notices about this User's Manual

In order to properly use this product, please carefully read this manual before using. T&D Corporation accepts no responsibility for any malfunction of and/or trouble with this product or with your computer that is caused by the improper handling of this product and will deem such trouble or malfunction as falling outside the conditions for free repair outlined in the attached warranty.

- All rights of this User's Manual belong to T&D Corporation. It is prohibited to use, duplicate and/or arrange a part or whole of this User's Manual without the permission of T&D Corporation.
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- Weather Processing System® and WPS series® are trademarks of Texas Weather Instruments Inc., Dallas, TX.
- Company names and product names are trademarks or registered trademarks of each company.
- Specifications, design and other contents outlined in this manual are subject to change without notice.
- On screen messages in this manual may vary slightly from the actual messages.
- Please notify the shop where you purchased this product or T&D Corporation of any mistakes, errors or unclear explanations in this manual. T&D Corporation accepts no responsibility for any damage or loss of income caused by the use of our product.
- This product has been designed for private or industrial use only. It is not for use in situations where strict safety precautions are necessary such as in connection with medical equipment, whether directly or indirectly.
- We are not responsible for any malfunction or trouble caused by the use of our product or by any problem caused by the use of measurement results of our unit. Please be fully aware of this before using our product.
- Some of our products, which come under the category of strategic goods in foreign trade law, need the permission of the Japanese government to be exported outside of Japan.
- Please read the warranty and provisions for free repair carefully.

Software User's Agreement

Disclaimers

- Although T&D Corporation has made operational tests on our software "WS-2 for Windows®", we cannot guarantee that all operations will work properly under all conditions.
- T&D Corporation shall not accept any responsibility for any damage whether direct or indirect that results from the usage of WS-2 for Windows®.
- Specifications of WS-2 for Windows® may be subject to change and service may be terminated without advance notice to the user. In such a case, T&D Corporation shall not be responsible for any damages, whether direct or indirect, from the inability to use WS-2 for Windows®.
- T&D Corporation has no obligation to correct any defects found in WS-2 for Windows®.

Copyright

- All copyrights WS-2 for Windows®, including all of the programs and all related documents, are the sole property of T&D Corporation.
- The reprinting or redistribution for commercial purposes whether in part or in whole, in magazines or as a part of any product is strictly forbidden without the expressed consent of T&D Corporation. Any inquires concerning commercial redistribution should be directed to the Sales Department of T&D Corporation.
- Please do not attempt to make any changes or modifications to WS-2 for Windows®.

* WS-2 for Windows® includes [Network Settings Utility] and [Multi-scale Graph].

FCC Compliance Statement for American Users

This device complies with Part 15 of the FCC Rules.

Operation is subject to following two conditions: (1) this device may not cause harmful interference. and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note:

- *This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.*



Safety Precautions and Instructions

To ensure safety be sure to obey all of the following warnings







The following items should be strictly obeyed for the safe usage of this unit, and for protecting yourself and other people from bodily harm and/or damage to property. Before using make sure to carefully read, understand and follow the safety rules and precautions for our products as outlined below.

Explanation of Symbols

Explanation of Warning Symbols

 WARNING	DANGER: These entries are actions that absolutely under no circumstance should be taken. The taking of such an action may cause serious personal physical damage or death.
 CAUTION	These entries are actions that if taken may lead to physical injury or damage to persons or things.

Explanation of Picture Symbols

	Denotes an important warning or caution. Inside or near the symbol will appear another symbol giving details. (EX:  Be careful of electrocution.)
	Denotes a forbidden action. Inside or near the symbol will appear another symbol giving details. (EX:  Do not use in wet areas.)
	Denotes an action that you must take. Inside or near the symbol will appear another symbol giving details. (EX:  Unplug power plug from outlet.)

WARNING



Do not take apart, repair or modify the main unit.
This may cause fire or electrocution.



When installing and using this product, make sure to follow all warnings and directions from your computer manufacturer.



If water or a foreign body enters into this unit, immediately unplug the AC adaptor and stop using.
Continued use may cause fire or electrocution.



Do not use this unit in wet or humid places, such as a bathroom.
It may cause a fire or other trouble including malfunction.



Store main units, AC adaptors, and LAN cables out of the reach of children.
Touching them may result in injury and it is dangerous if they are dropped.



If any smoke or strange smells are emitted from the unit, immediately pull out the AC adaptor and cease using it.
Continued use may cause fire or electrocution.



Do not drop the unit, or expose the unit to a strong impact. If that happens to the unit, immediately remove the batteries and stop using.
Continued use may cause fire or electrocution.



Make sure to periodically remove dust and dirt from the AC adaptor plug.
If dust is allowed to accumulate on the plug, moisture may cause poor insulation and result in fire.



Do not unplug the AC adaptor with wet hands.
This may cause electrocution.

CAUTION



We are not responsible for any damage, malfunction or trouble, whether direct or indirect, caused by the use of our product. Please be fully aware of this before using our product.



This product has been designed for private or industrial use only. It is not for use in situations where strict safety precautions are necessary such as in connection with medical equipment, whether directly or indirectly.



This unit is not waterproof.
If the unit gets dirty, wipe it with a clean cloth dipped in alcohol.



Harmful gases or chemicals may cause corrosion and/or other danger to the unit. Also, by coming in contact with hazardous substances, harm may occur to the people handling the unit. Therefore, do not use in any environment that is exposed to chemicals and harmful gases.



Make sure that the LAN cable and AC adaptor are inserted fully, so as not to cause an improper connection.



Condensation may occur if the unit is moved from one environment to another where the difference in temperature is great.
Use the unit in an environment where the ambient temperature is from 0 to 50 °C and the humidity is between 20% and 80% RH (no condensation).
When using a Wireless LAN card, please follow all instructions included with the card.



Please do not insert your fingers or any foreign objects into the connection jacks.



To prevent damage to the unit from static electricity, remove static electricity from your body by touching metal around you (door knob, window frame) before touching the unit.
Static electricity may cause not only damage to the unit, but may cause breaks in or a loss of data.



Do not put anything on top of the AC adaptor.
This may cause overheating.



Also, when unplugging the LAN cable from the main unit, do not pull the cord, but hold the connector to disconnect.



Do not use or store the unit in places such as listed below:
Doing so may cause electrocution, fire and/or other adverse effects to the device and/or your computer.

- Areas exposed to direct sunlight
This will cause the inside of the device to become overheated and may cause fire, deformation, and/or other damage including malfunction.
- Areas prone to strong magnetic fields
This may cause damage including malfunction.
- Areas exposed to water leakage
This may cause electrocution or other damage including malfunction.
- Areas exposed to excessive vibration
This may cause injury, malfunction, damage or loss of proper electrical contact.
- Areas that are not flat or level
This may cause the unit to fall and result in injury and/or damage.
- Areas near fire or exposed to excessive heat
This may cause damage including malfunction and deformation.
- Areas prone to smoke, dust and dirt
This may cause damage including malfunction.

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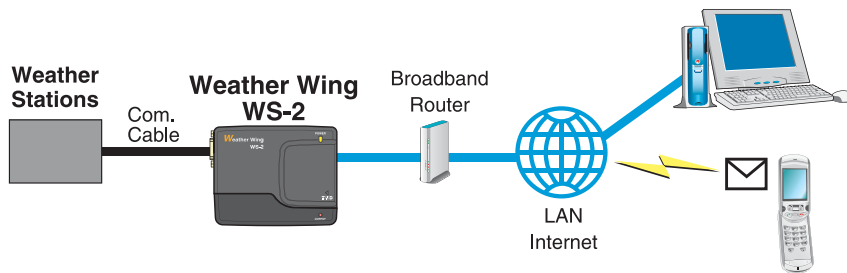
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What is Weather Wing WS-2?

Outline

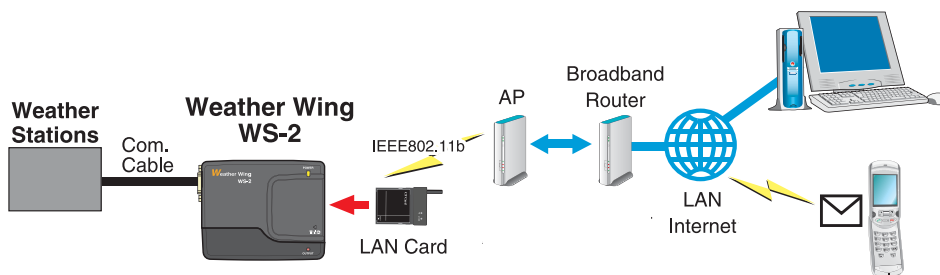
Weather Wing WS-2 allows the user to monitor real time measurements of weather data when connected to a weather station (purchase separately from Davis Instruments Corp. or Texas Weather Instruments Inc.)

Connection Image (Wired LAN)



By utilizing its built-in networking functions the WS-2 provides for easy access to weather data via Internet or LAN as well as the sending of warning e-mails.

Connection Image (Wireless LAN)



By inserting a wireless LAN card in the CF card slot, it is possible to connect to a Wireless LAN; allowing for communication with any WS-2, even when placed in remote locations.

[Weather Stations]

Vantage PRO2™ can be purchased from Davis Instruments Corp.

Weather Processing System (WPS series)® can be purchased from Texas Weather Instruments Inc.

Connecting to a Network

Examples of Network Connection

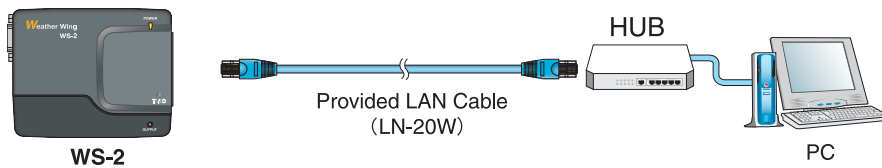
The following are some ways to connect a WS-2 to a network. Please select the connection method that suits your network environment.

NOTE:

- To avoid poor connections, be sure to push the sensor connector securely into the jack.

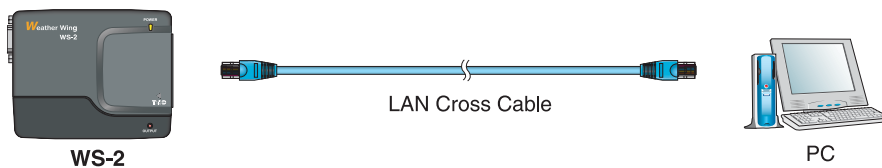
[Connecting to a HUB for in-company Communication]

Connect the provided LAN cable (LN-20W) to the HUB that is connected to your computer.



[Connecting Directly to PC for Communication]

Do not use the supplied cable; please purchase a cross LAN cable separately.

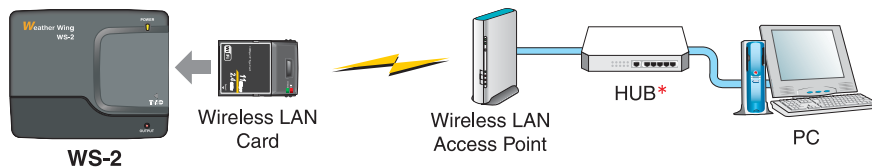


[Connecting to a Wireless LAN]

By inserting a Wireless LAN card into the WS-2, it is possible to carry out communication in places where LAN wiring is difficult or troublesome.

NOTE:

- Before you insert or take out the LAN card, make sure that the AC adaptor is unplugged.
- For information and updates concerning which wireless LAN cards can be used, please contact your local T&D dealer or representative.



* External HUB is not necessary if wireless LAN access point has a built in HUB / Router.

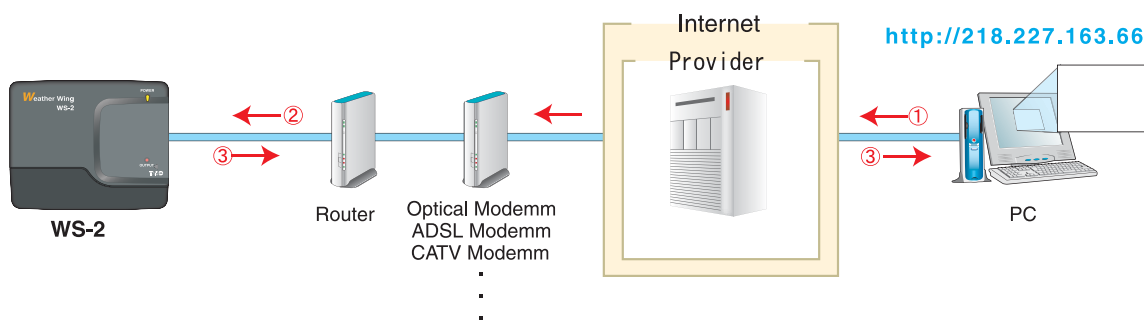
Internet Connection Examples

In order to connect the WS-2 to the Internet you must first set up an Internet connection environment by making arrangements with a provider for a line and get a global IP address and domain. Also, if necessary, make all domain name server and / or router settings.

For more details about various settings, it is best, if present, to contact the network administrator. To get more details about a global IP address and domain, please contact your provider.

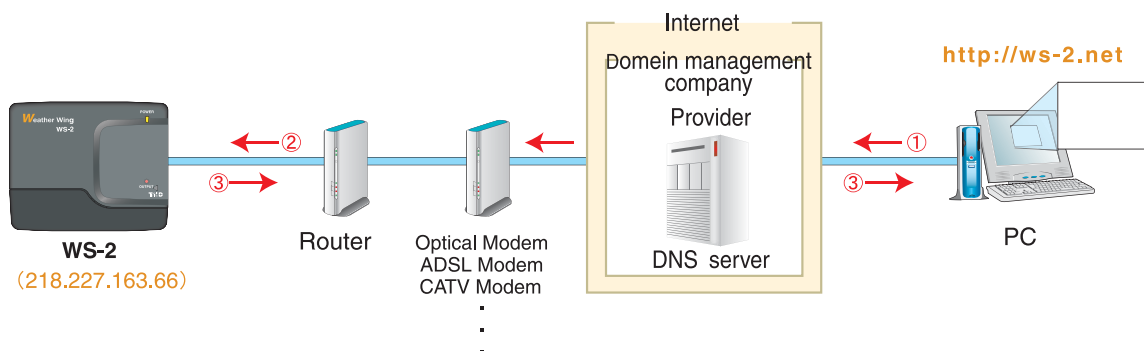
The following are examples of connection methods. Please select the connection method that suits your network environment.

[Using the WS-2 over the Internet]



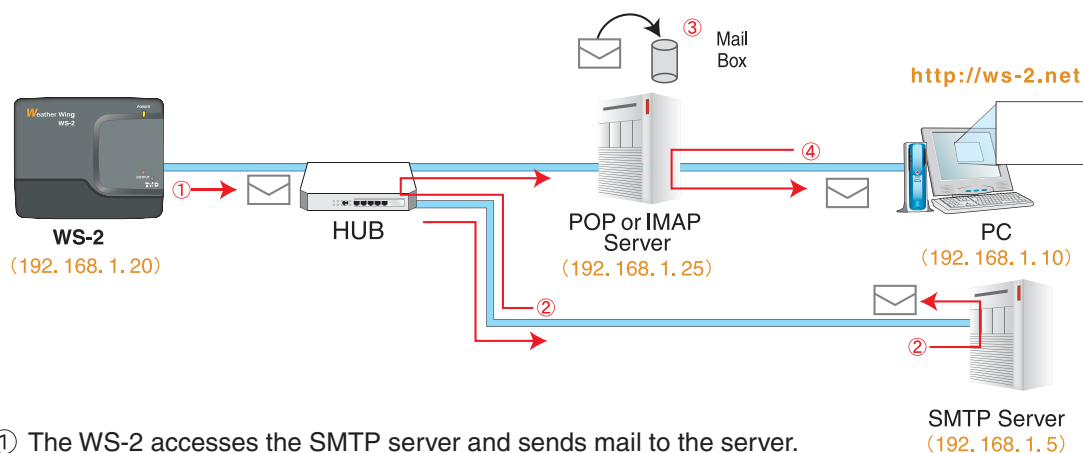
- ① In order to access the WS-2 from your browser, enter the Global IP address that has been assigned to the WS-2 in your browser's URL bar following [http://].
- ② The WS-2 will be called via a router or the Internet provider.
- ③ The WS-2 which received the access request will return data to the computer which sent the access request.

[Using a Domain Name (ex: WS-2.net)]



- ① In order to access the WS-2 from your browser, enter the Domain Name (Ex: WS-2.net) that has been assigned to the WS-2 in your browser's URL bar following [http://].
- ② The Domain Name that was entered in the URL bar is converted by the DNS server into an IP address and the WS-2 is called.
- ③ The WS-2 which received the access request will return data to the computer which sent the access request.

[Using Mail via LAN]

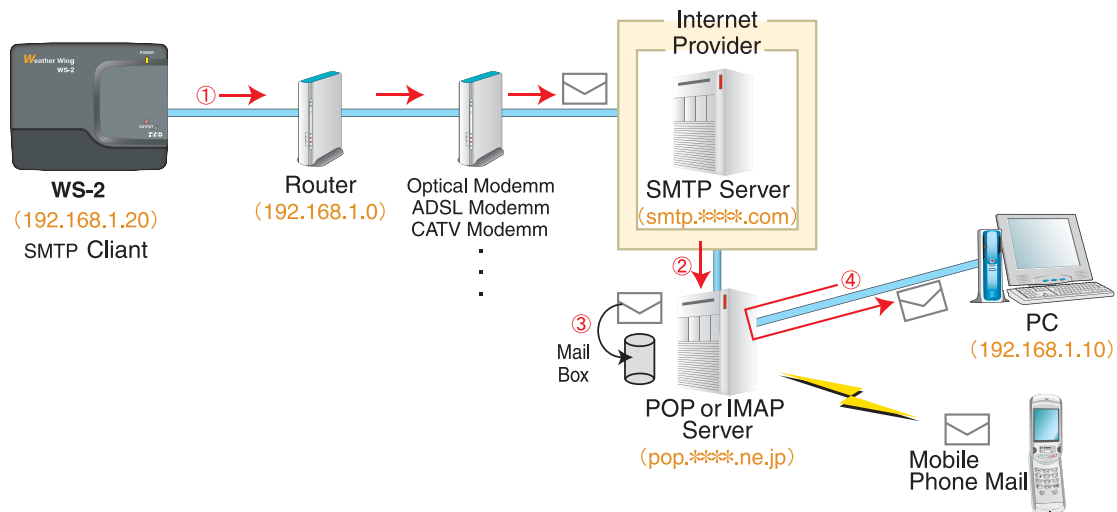


- ① The WS-2 accesses the SMTP server and sends mail to the server.
- ② The SMTP server delivers the mail sent from the WS-2, according to the address, to a POP server.
- ③ The POP server receives the delivered mail from the SMTP server and stores it in the appropriate mailbox for that mail address.
- ④ Your computer accesses the POP server where the mail is stored and receives mail in the computer's mailbox.

NOTE:

- Please take note that when you are using a LAN to send and get warning mail, it is necessary to have set up a SMTP server (for sending) and a POP or IMAP server (for receiving) in the network.

[Sending Internet Mail]



- ① The WS-2, via a router or provider, accesses an SMTP server that exists on the Internet and sends mail to the SMTP server.
- ② The SMTP server delivers the mail sent from the WS-2, according to the address, to a POP server.
- ③ The POP server receives the delivered mail from the SMTP server and stores it in the appropriate mailbox for that mail address.
- ④ Your computer accesses the POP server where the mail is stored and receives mail in the computer's mailbox.

NOTE:

- In order to connect to the Internet, please make the necessary router (LAN) settings.

Basic Functions

- With the Internal WEB Server, Use a Browser to Check Current Readings

The built-in WEB server gives you the option of putting your data on the Internet for public access. By using the Internet connection the user can gain the freedom to manage and collect weather data from anywhere in the world where the Internet is available.

- Monitor Real Time Measurements of Weather Data

The on-board software "Weather Display Live" allows users to visually check on weather data measurements via PC display. Also, by accessing the URL for the Weather Display Live, it is possible to view the current weather data readings anytime on your mobile phone.

- Send Warning Notifications via E-mail

By making upper and lower limit settings for the WS-2, when one of the set upper or lower limits has been exceeded, a warning report mail can be sent via e-mail to specified e-mail addresses.

- To make use of the warning report e-mail send function, it is necessary to create an environment in order to connect to the Internet or to an in-company (in-house) SMTP server.

- Automatic Sending of Recorded Data

The WS-2 incorporates a Data Sending function which allows for the automatic transmission at a certain time every day or at a set regular interval of recorded data as E-mail attachment.

- To make use of the warning report e-mail send function, it is necessary to create an environment in order to connect to the Internet or to an in-company (in-house) SMTP server.
- As with the automatic e-mail function, it is also possible to have recorded data automatically uploaded at a set time or at a set interval to a specified FTP server.

- Directly Insert Wireless LAN Card for Easy Wireless Connection

The WS-2 has been designed with an onboard CF card slot. By simply inserting a CF type wireless LAN card into the WS-2, you can use a Wireless LAN connection.

- For information and updates concerning which wireless LAN cards can be used, please contact your local T&D dealer or representative.

- Notification Output to External Devices Possible

The WS-2 is equipped with built-in external output terminals. It is possible to connect to an external device, such as alarm or light, so that a warning notification can be simultaneously seen or heard onsite.

- Management of WS-2

By using the Administration Menu displayed in the browser, it is possible to check current system settings and make WS-2 settings.

WS-2 for Windows

- WS-2 Settings Utility

Network Initialization

Make all necessary network settings for WS-2.
IP Address, Subnet Mask, Login ID / Password

Detailed Network Settings

Make detailed network settings here.
IP Address, Subnet Mask, Gateway Address, Login ID / Password, DNS Settings, Wireless LAN Settings, Port Number, Mail Server Settings, POP Before SMTP, IP Block, Time Difference

Package Contents

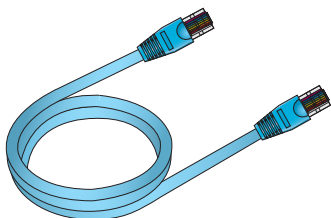
The following items are included in the package:



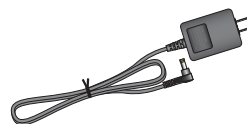
Weather wing WS-2
x 1unit



Software Set
CD-ROM x 1

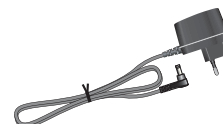


LAN Cable (LN-20W)
x 1



AD-0605

or



AD-0609

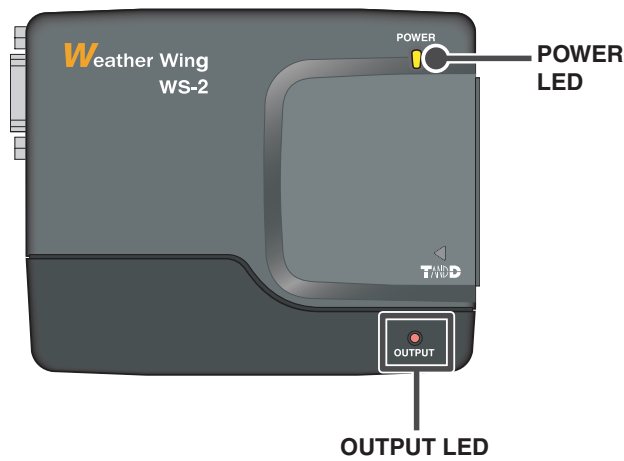
AC Adaptor x 1



Introductory Guide and Warranty
x 1

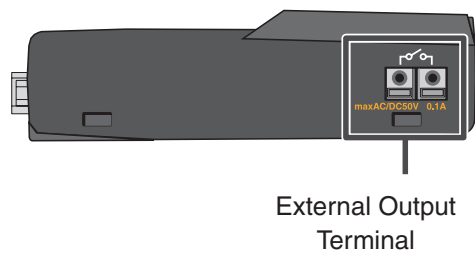
WS-2 Part Names and Functions

[Front]



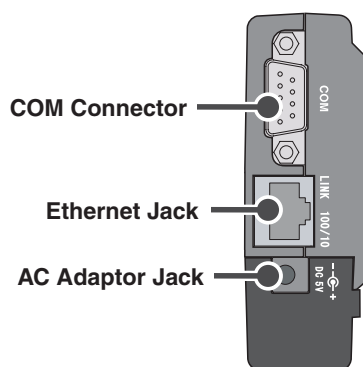
POWER LED (Power Monitor LED)	While the power is ON, the lamp will be on.
OUTPUT LED (External Output LED)	When external output is ON, the lamp will be on.

[Bottom]

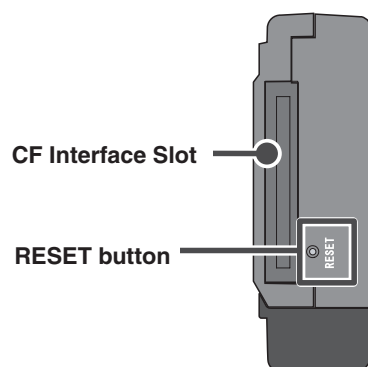


External Output Terminals (Warning Output)	Contact Output. Connect to an external device to notify locally of a warning occurrence.
--	--

[LEFT SIDE]



[RIGHT SIDE]



COM Connector	Connect a Weather Station here.
Ethernet Jack	Connect the LAN Cable. (10Base-T/100Base-TX Ethernet Connector)
AC Adaptor Jack	Connect the supplied AC adaptor.
CF Interface Slot	Insert a Wireless LAN Card
RESET button	Press to return to the factory default settings

* For information and updates concerning which CF cards can be used, please contact your local T&D dealer or representative.

Outline of Use

Getting Ready

1. Check the following items before using WS-2

- PC Operation - Weather Station Operation
- Computer and Network Setup - Adobe Flash Player (Version 7 or higher)

2. Getting the WS-2 Ready to Use

- Connect the AC adaptor and LAN cable
- Check the signal input method and Connect the signal wire

3. Connecting to the Network / Internet

- Connect the WS-2 to a HUB or to your computer (Even if you are planning to use a wireless LAN, it is necessary to make the initial settings via a wired connection)

4. Installing the WS-2 for Windows

WS-2 Settings Utility (Supplied Software)

5. Initialization Settings

- Search of WS-2 - Enter the "IP Address" and "Subnet Mask".

6. Detailed Network Settings

- Receive the Settings
- Make and Change Settings (WS-2 IP address, subnet mask, gateway address, Login ID and Password, DNS server, Wireless LAN, SMTP mail server, POP before SMTP, IP Block, Time Difference and Port Number settings)

7. Rebooting the WS-2 (Restarting the System)

8. History Function / Communication Time Settings

Management of WS-2 (Internet Explorer)

9. Before opening Weather Display Live

- Download and install Adobe Flash Player (Version 7 or higher)
if you do not already have it installed on your computer
- Make necessary settings to the Weather Station

10. Opening the Weather Display Live

- Live display of weather data measurements such as Barometric Pressure, Humidity, Temperature, Wind Speed / Direction and Rainfall - Shift Unit - Graph Display

11. Management of WS-2

- Warning Settings - Data Transfer Settings - WS-2 Device Configuration

12. Rebooting the WS-2

Multi-scale Graph

13. Opening Multi-scale Graph

- Zoom In and Out on the Graph - Data List Display
- View All / Selected Channels in One Graph
- Graph Maintenance (Edit Recording Conditions, Re-order / Delete / Merge Data by Channel, Change Graph Colors and Scale Lines, etc.)

14. Graph Print Previewing and Printing / Saving Data

Checking your Operating Environment

To properly use the logger, the following operational environment is necessary.

PC Operating Environment

OS	Microsoft Windows 2000 / XP / Vista (English) * To install the Settings Utility, it is necessary to have Administrator Rights for the computer into which it will be installed.
PC/CPU	A Stable Windows Operating Environment LAN, TCP/IP Communication Possible
Memory Capacity	Enough memory to stably operate Windows
Disk Space	More than 10MB free space(More free space is necessary for data)
Monitor	SVGA(higher than 800×600 recommended), more than 256 colors
LAN	100BASE-TX or 10BASE-T / Twisted pair cable conforming to Category 5 (STP/UTP)
Web Browser	Internet Explorer 6.0 or higher Fire Fox 2.0 or higher

[Using a LAN]

Connect the provided LAN cable to the HUB that is connected to your computer.

[Connecting Directly to a PC]

Connect the provided LAN cable to the HUB that is connected to your computer.

* LAN cross cables are not included with the product. Please purchase separately.

[Using a Wireless LAN]

Please use a Wireless LAN card and a Wireless LAN access point (Combined Wireless LAN and Hub OK).

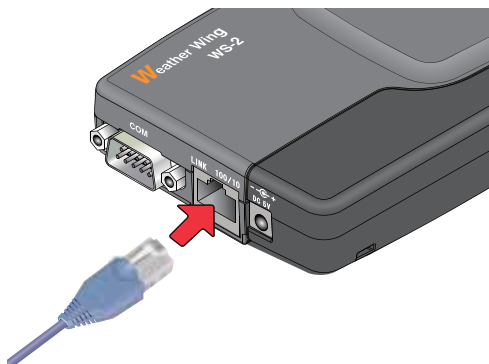
* For information and updates concerning which CF cards can be used, please contact your local T&D dealer or representative.

[Using the Internet]

- In order to connect to the Internet, you must first make arrangements with a provider for a line.
- In order to send mail via the Internet, user authentication may be required. The WS-2 has been designed to enable the use of POP before SMTP. It should, however, be noted that it has not been designed to be compatible with other authentication methods such as SMTP authentication.
- It may also be necessary to get an IP address or domain and make domain name server and other settings.
- For more details about various settings, it is best, if present, to contact the network administrator. To get more details about your Internet connection and setup, please contact your provider.

Getting the WS-2 Ready to Use

Connecting the LAN Cable



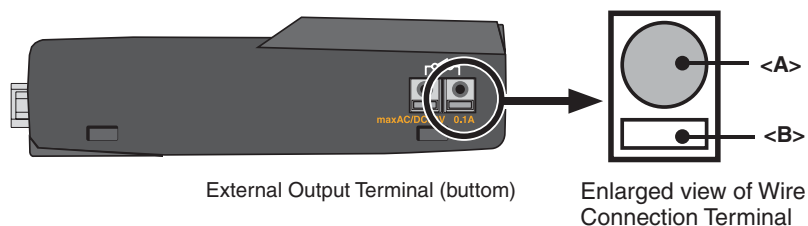
NOTE:

- When first making settings, please connect to a computer that is connected to the local network (same broadcast domain).
- To avoid poor connections, be sure to push the sensor connector securely into the jack.

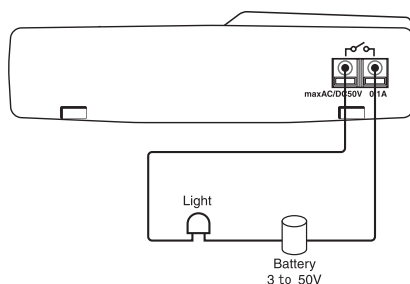
Connecting the Signal Wire

[When wishing to use contact output for a warning occurrence]

1. Prepare a $\Phi 0.5$ to $\Phi 0.9$ single type wire and remove the covering to about 10mm from the tip. Prepare a $\Phi 0.5$ to $\Phi 0.9$ single type wire and remove the covering to about 10mm from the tip.
2. Using a screwdriver or other such tool, while pressing down on the terminal button at the back of the unit, insert the wire into the hole <A>.



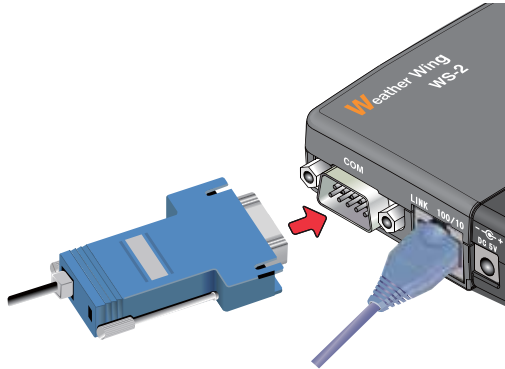
Example of Output Signal Connection



ON/OFF Output Signal

Output via photo MOS relay
Voltage when OFF: AC/DC less than 50V
Current when ON: less than 0.1A
Resistance when ON: 35 Ω

Connecting a Weather Station to the WS-2



NOTE:

- To avoid poor connections, be sure to push the sensor connector securely into the jack.
- Tighten and fasten both sides with screws.

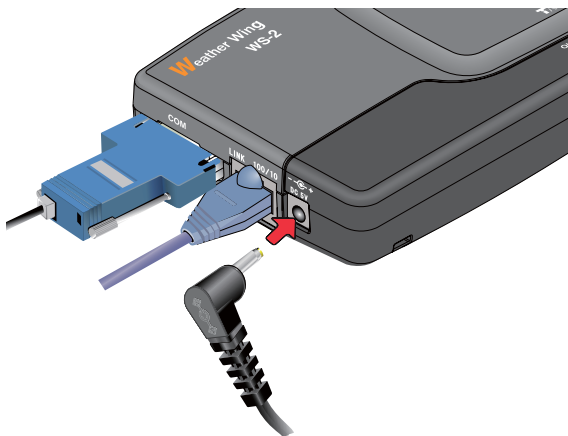
● **For connecting Davis® Vantage PRO2**

In order to connect a Davis Vantage PRO2 to a WS-2, it is necessary to use a Windows compatible version of Weather Link for Davis Vantage PRO2 with a Serial Port connection. For details about the Weather Link, please contact the shop where you purchased the Davis Vantage PRO2.

● **For connecting Texas Weather Instruments® Weather Processing System (WPS series)**

Please use the serial communication cable that is included with the product.

Connecting the AC Adaptor



NOTE:

- To avoid poor connections, be sure to push the sensor connector securely into the jack.
- Do not use an AC adaptor other than the one that is supplied with the product. Doing so may cause fire or other trouble.
- Insert the AC adaptor plug into an AC 100V socket. Inserting the plug into a socket with different voltage may cause fire or other trouble.
- Do not insert or pull out the AC adaptor plug with wet hands or if there are water drops on the plug. This may cause electrocution.

Using this software with Windows® Vista

Notes about graph operation

- Opening a Multi-scale Graph (.vt7) by dropping it into the Graph window

If you wish to open a file by dropping it into a Graph, it will not appear if the Graph has been opened using [Run as Administrator]. Please open the Graph as a general User. In general, we suggest when using Vista to only use [Run as Administrator] to open the Graphs the first time in order to link the type of data files (extension) to the Graph programs. After that please open as a general user and carry out the opening of data as usual.

About the Saving Location for Data Files

The application automatically creates a new data file each time an Auto-Download session occurs. Note that when using the Vista OS the [Virtual Store] function will redirect files from the default folder into which the program was installed to separate folders under [Program Files] for each user, as shown below: [C:\User\AccountName\AppData\Local\VirtualStore\Program Files\Application)].

(EX:

If login was carried out using the account name [myname] and [WS-2 for Windows] is the application being run, the saving location will appear in the application window as: [C:\Program Files\WS-2 for Windows\data] but due to the [Virtual Store] function the actual saving location will be [C:\User\myname\AppData\Local\VirtualStore\Program Files\WS-2 for Windows\data].

If the login was carried out from [Run as Administrator], the file will be saved to the folder as it appears in the application window.

Installation

- Is Windows® operating properly?

If Windows is not operating properly, [WS-2 for Windows] may not be installed correctly or it may not operate properly.

- Please quit all other applications.

If other programs are open, please close and quit all of them, making sure to quit all Quick Start programs such as a virus checker.

- For Windows 2000, XP and Vista, in order to install [WS-2 for Windows], it is necessary to have Administrator rights (Computer Administrator) for the computer in which you wish to install it.

NOTE:

- To install WS-2 for Windows, it is necessary to have Administrator rights (Computer Administrator) for the computer in which you wish to install it.

For Windows 98SE / Me / 2000 / XP

1. Start Windows.

2. Place the accompanying CD-ROM into your CD-ROM drive. In a few seconds, the [Start] window will appear.

- If that window does not automatically open, please open it by double clicking the CD-ROM icon in [My Computer] on your desktop.
- Or, if after double clicking the CR-ROM drive, the file appears in the CD-ROM folder, double click on the "start.exe" icon.

3. Select [Install WS-2 Settings Utility] and click the [Execute] button to start the installation.



4. Continue the installation by following the directions as they appear.

5. After installation has been completed, WS-2 for Windows will be registered in Window's [Start] Menu.

For Windows Vista

1. Start Windows.
2. Place the CD-ROM in the appropriate drive.

* If the window automatically appears, under [Install or run program], click on [Run start.exe].
For some applications, the above may appear as [Run first.exe]



3. The [Start] window will appear.

* If the [Start] Window does not automatically open, please open it by double clicking on the CD-ROM icon in [Computer].



4. Select [Install WS-2 Settings Utility], then click the [Run] button, the [User Account Controls] window should appear.
5. Click [Next] to start the installation.

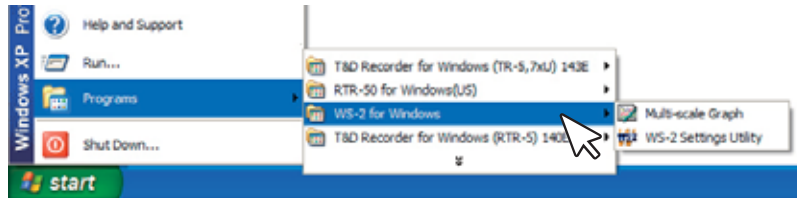
* Confirming the contents as you go, install the software according to the directions.

* After installation is completed, an icon for [WS-2 for Windows] will appear in the Start Menu.

WS-2 Settings Utility

Opening the WS-2 Settings Utility

From the list of programs in the Window's Start Menu, click on [WS-2 for Windows] - [WS-2 Settings Utility].



Main Items in the WS-2 Settings Utility

[Network Initialization] Tab

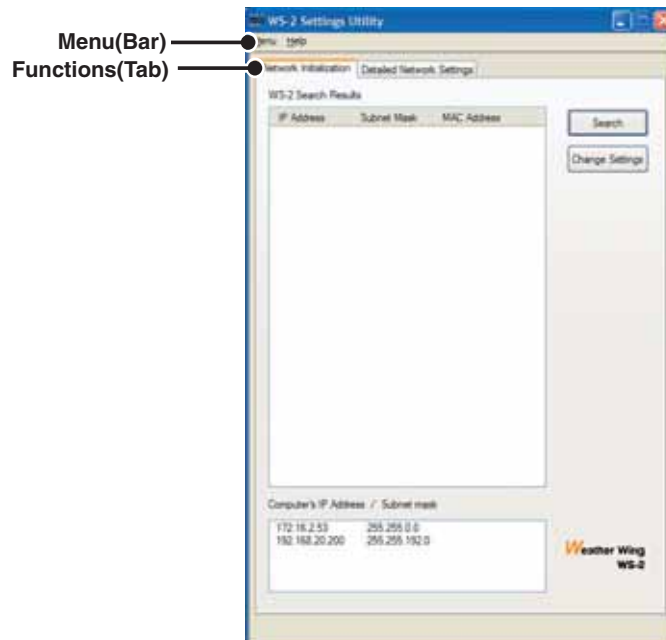
After purchasing a WS-2 unit, the first step is to make all Network Initialization Settings for connecting to a network.

[Detailed Network Settings] Tab

The reception of WS-2 settings and more detailed network settings can be made here.

NOTE:

- Please open the WS-2 Settings Utility from only one computer at a time in the same network (same broadcast domain).
- If you open the WS-2 Settings Utility on multiple computers in the same network, it may not work properly.

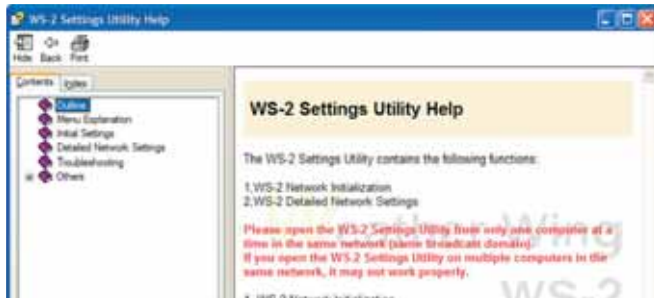


WS-2 Settings Utility Menu

Using Help

For details about how to use the software, please see the explanations in the Software Help Menu.

- By clicking on [Help] in the Menu Bar and then [How to Use Network Settings Utility] you can click on one of the tabs [Contents] or [Index] to search for the topic or term you are unsure about or have questions about.



[Contents]

By clicking on one of the topics listed, you can find detailed information for that subject.

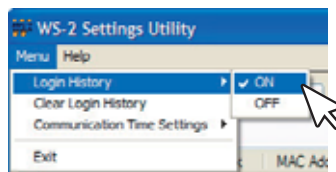
[Index]

By selecting a Keyword in the Keyword list, and clicking the [Display] button at the bottom, a detailed explanation will appear.

* By clicking the [Help] button in a dialog box, an explanation for that dialog box will appear.

History Function Settings

If you wish to disable the History Function, in the WS-2 Settings Utility Menu, please select [Login History] → [OFF]. Please note that a history will remain viewable from when before it was disabled. To erase a history, please click on [Clear Login History] in the Menu.



[Login History]

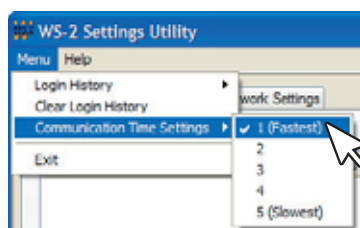
If you wish to disable the History Function, select [Login History] → [OFF].

[Clear Login History]

Use this to erase the entire login history. By clicking [Clear Login History], a confirmation message will appear. Select "Yes" to erase the entire login history.

Communication Time Settings

In the [Detailed Network Settings], communication speed settings can be made. It is possible to change the communication time / speed for all type of communication depending on your network environment. Select the best setting from the 5 choices 1, 2, 3, 4, 5. Normally the setting should be [1 (fastest)].



NOTE:

- If during communication problems occur such as, frequent communication errors or data is only partially received, please try setting the Communication Time to a slower number, such as 2 or 3.

WS-2 Network Initialization

To connect a WS-2 to a network, it is necessary to enter an IP Address and Subnet Mask that are appropriate for your network.

NOTE:

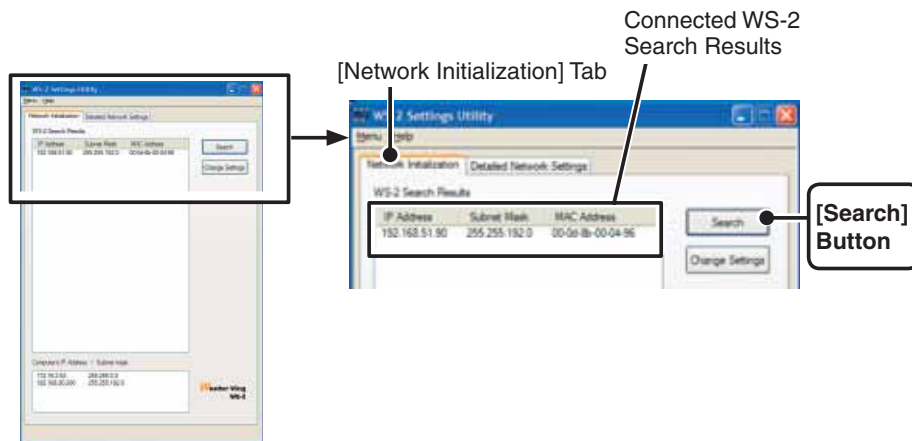
- Please note, that upon purchase, all WS-2 units are set with the same IP address. Do not connect more than one unit with the same address to the network at the same time.
- To make IP address changes, connect one WS-2 unit at a time and carry out the changes.
- Also, if the unit connects to an outside network via a router, it will be impossible to carry out initialization settings.

1. Connect the WS-2 via cable to a network.

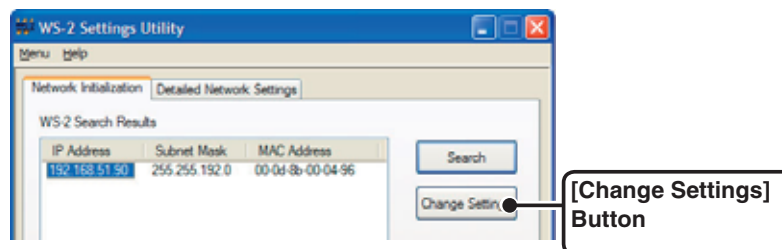
It is necessary to connect the WS-2 to the same network as the computer running the [WS-2 for Windows] application.

2. In [WS-2 Settings Utility], click on the [Network Initialization] Tab and then click on the [Search] button.

After clicking, the search results will be shown in a few seconds.



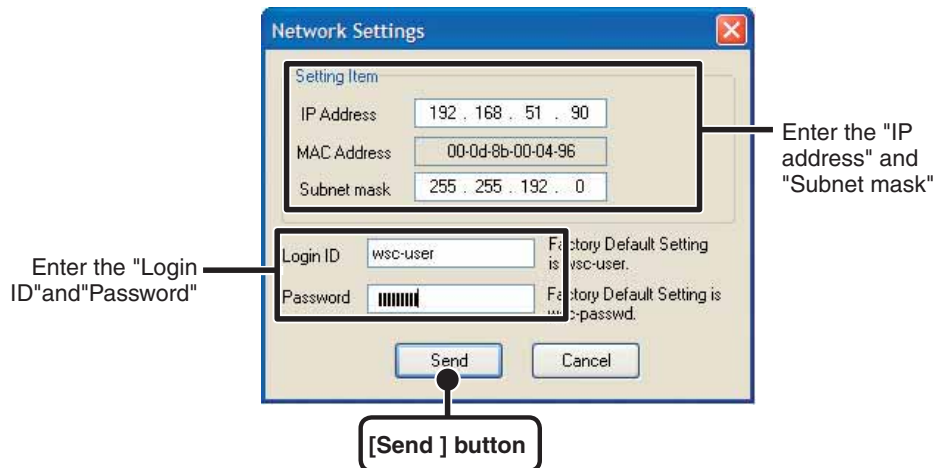
3. From the displayed list, select the WS-2 to which you wish to make settings and then either double click on that address or click on the [Change Settings] button to open the [Network Settings] window.



4. Enter an IP Address and Subnet Mask.

NOTE:

- Enter an IP address and subnet mask that is appropriate for your network.
- Do not use the same IP address for two different units. It may cause abnormalities to the entire network system.



5. Enter the "Login ID" and "Password".

WS-2 Factory Default Settings... Login ID: "wsc-user" / Password: "wsc-passwd"

You cannot make any necessary changes to the login ID and password here. Make changes to these from [Detailed Network Settings]. (See page 27 for details)

6. After checking for entry errors, click the [Send] button. After transmission has been completed a message will appear.

7. Click the [OK] button to finish.

After settings are completed the WS-2 will automatically restart. During the restarting process, a search cannot be performed, even if you click the [Search] button. Please try again after one minute.

● If no units are detected

- Check the connection between the computer and the WS-2.
- Check the hub power switch and the network cable type.
- If some network environments, it may be necessary to make changes to the IP address and subnet mask via computer in order to carry out a search. For details, see page 45 [Checking and Making Changes to Computer Network Settings].
- Check if your wireless LAN card has been formatted. Do not use an unformatted wireless LAN card.
- If security software used to detect viruses is currently activated, a successful search may not be carried out. Please temporarily close the software.

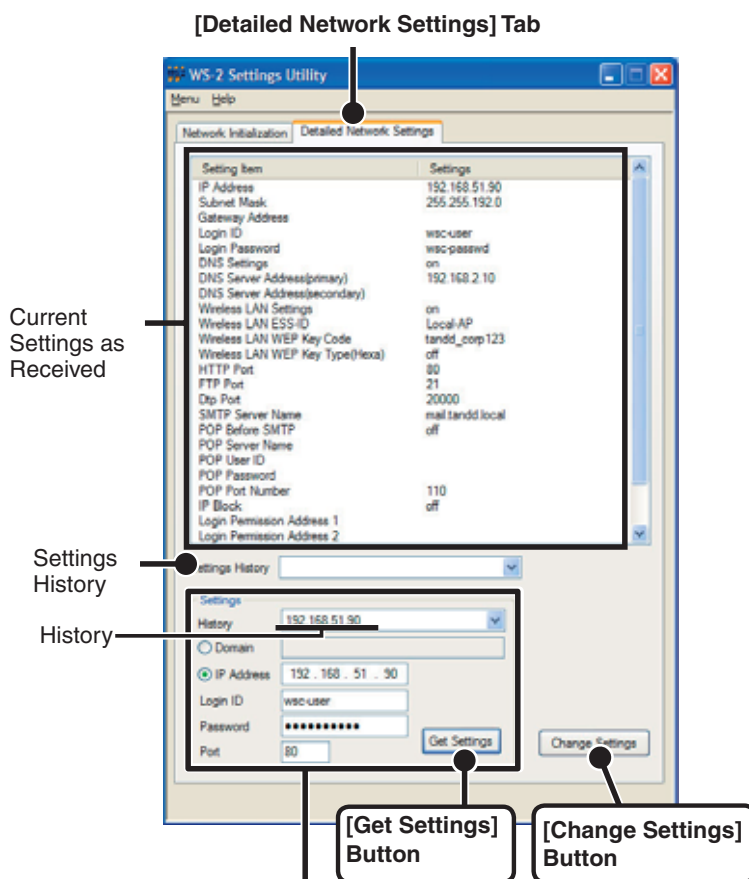
Detailed Network Settings

The reception of WS-2 settings and more detailed network settings can be made here.

- To make these settings it is necessary to have first made proper settings with a correct IP address.

Receiving the Settings

1. Click the [Detailed Network Settings] Tab.
 2. In the [Receive Settings] Area (see *1 below), enter the information for the WS-2 you wish to make settings for and click the [Get Settings] button. The current settings will appear.
- A list that shows all of the IP addresses and domain names with which successful communication has occurred until now can be viewed in the [Settings History] pull down menu.
 - If you select an IP address or domain name here, the Login ID, Password and Port Number will be entered automatically.
 - Note that if you have turned [OFF] the [Login History] in the [Menu] or if you have deleted the Login history by having clicked [Clear Login History] the Settings History will not appear.
 - By clicking the [Settings History] button you can receive the current settings.
 - Communication is impossible via a proxy server.



***1: [Receive Settings] Area**

Enter info for the WS-2 you wish to make settings in

Detailed Network Settings

1. In the [Detailed Network Settings] tab page (see the previous page), click the [Change Settings] button at the bottom right to open the "Detailed Network Settings" Window and make any necessary changes.

- For details about setting each item, See page 29.

"Recipient WS-2" Settings Area

Enter info for the WS-2 you wish to make settings in.

[WS-2 Restart] Button

2. Enter the info for the recipient of the settings and click the [Send Settings] button to have the settings sent to the Recipient WS-2.
3. Once the settings have been successfully transmitted, a message will appear asking you if it is OK to restart the system.



NOTE:

- The new settings will not become valid until the WS-2 is restarted.

4. After restarting has finished, the settings will have been completed.

[WS-2 Restart] Button

If the browser does not open, or if any errors occur during communication, click the [WS-2 Restart] button.

NOTE:

- Note that by clicking the [Send Settings] button over and over, communication may become impossible. Please try again after one minute.

In the [Detailed Network Settings] window, you can make the following settings. In the [Detailed Network Settings] window, you can make the following settings.

[IP Address / Subnet Mask]

Enter the WS-2 IP address and subnet mask.

[Gateway Address]

Enter the WS-2 gateway address.

[Login ID / Login Password]

Enter the WS-2 Login ID and Password. The Login ID / Password entered here will be necessary for logging into the WS-2 Administration Menu on the Web. (See page 36 for details.)

NOTE:

- We strongly suggest that you make changes to the factory default Login ID and Password. For security reasons, continued use of the default values is not recommended.
- The User ID and Password can be made up of up to 15 characters using alphabet, numbers, "-" (hyphens) and "_" (underscores).
- Note that spaces and <> cannot be entered. If you wish to use these symbols, please make any necessary changes to the ESS-ID and WEP Key Code.

[DNS Settings]

If it is necessary to assign a domain name, enter a DNS server.

[Wireless LAN Settings]

If you are using a Wireless LAN to access the WS-2, then make settings for the following items.

Wireless LAN ESS-ID ----- If you leave this field blank, the setting will be to allow for connection to any available network.

WEP Key Type ----- Select character string or hexadecimal.

WEP key code ----- Character string : The number of characters in key code will be 0, 5, 13.
Hexadecimal : The number of characters in key code will be 0, 10, 26.

NOTE:

- Leave this box empty if WEP-KEY is not used.
- Note that spaces and < > cannot be entered. If you wish to use these symbols, please make any necessary changes to the ESS-ID and WEP Key Code.

[Port Number]

Changes can be made to the FTP Server Port Number (FTP / DTP) to which the WS-2 will be connected and to the user HTTP Server Port Number to match your LAN environment.

[Mail Settings]

Enter the server (SMTP server name) from which you wish to send E-mails.

[POP Before SMTP]

When having warning report mails sent and using an SMTP server that requires POP before SMTP authentication, it is necessary to make these settings.

POP Server Name, POP User ID, POP Password, POP Port Number (Normal 110)

- Note that spaces and < > cannot be entered.

[Time Difference]

Set the time difference from Greenwich Mean Time (GMT).

If this is not set correctly, the Clock settings from SNTP will not be correct.

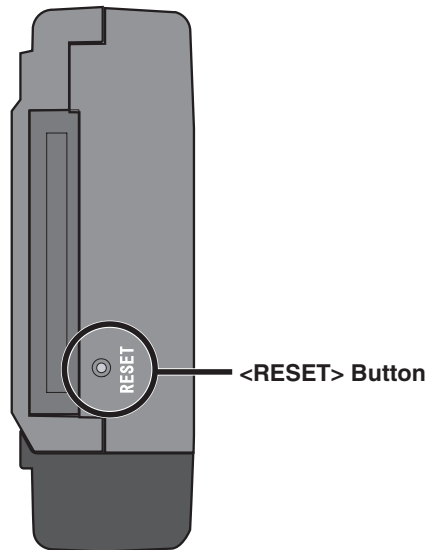
[IP Block]

This will forbid access to the WS-2 except from the specified IP address. If you do not enter the IP address of the computer from which you are making settings, after the WS-2 restarts, access will not be permitted from that computer.

Returning Settings to Factory Default

By pressing the <RESET> button, the WS-2 unit will be initialized and returned to the Factory Default Settings.

1. Press in the <RESET> button on the side of the WS-2 unit with a pointed object for more than three seconds.



2. When the <POWER> lamp on the face of the WS-2 unit disappears from the display, release the <RESET> button and the unit will have been returned to the factory default settings.

In order to activate the settings, the unit will automatically reboot.

NOTE:

- Rebooting may take about two minutes to complete.

Weather Display Live

What is Weather Display Live?

"Weather Display Live" allows users to monitor real time measurements of weather data when connected to a weather station, delivering clear, graphical presentations.

[Weather Stations]

- Vantage PRO2™ can be purchased from Davis Instruments Corp.
- Weather Processing System (WPS series)® can be purchased from Texas Weather Instruments Inc.

* To view "Weather Display Live" in your browser, it is necessary to have Adobe Flash Player (Version 7 or higher) installed on your computer.

Before opening Weather Display Live

- The WS-2 has been designed to be used with a weather station. Please make any necessary settings to the weather station you will be using with the WS-2 as outlined in the guide that comes with the product.
- Make sure that all monitoring condition settings, such as date and time or recording interval, have been made. Also note that the WS-2 supports only the following baud rates:
 - 9600bps , 19200bpsIf the baud rate setting for the Weather Station has been made to one other than listed above, please change to one of the above before connecting the WS-2 (Recommended baud rate: 19200bps).
- The WS-2 is designed to display graphs using gathered recorded data from weather stations. The WS-2 itself does not have any recording function. Therefore, if you wish to view a graph with one month of data saved in a weather station, the weather data recording interval setting must be set to 30 minutes or longer. If the recording interval setting is less than 30 minutes, it will be impossible to save one month of data in a weather station. Hence, with WS-2 the graph can only show less than one month of data (recorded data only). Note that even if the recording interval has been set at 30 minutes or longer, depending on the amount of elapsed time from the starting of monitoring, it may be impossible to display all recorded data in graph form. (For details about recording interval settings, refer to the guide that came with the weather station being used with the WS-2.)
- Make sure to go to "WS-2 Settings Utility" and make the proper IP address and subnet mask settings. After having made the appropriate settings, turn off the power and connect the weather station to the WS-2. Then, turn the power on again.

Opening the Weather Display Live

1. Open Internet Explorer.

- If you wish to use the Internet, make sure that the power for the router and computer are on so as to enable connection to the Internet.
- Set the browser so as to enable Cookies.
- Make settings to enable both Java applets and Java script.

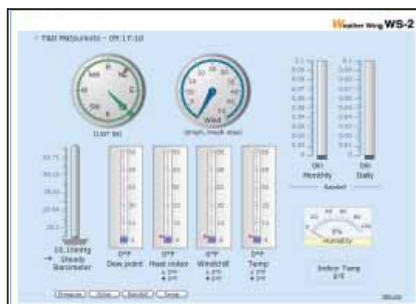
2. In the address section, enter the WS-2 IP address you wish to view, and press the [Enter] key. A confirmation window will appear showing the connection between the WS-2 and the weather station.



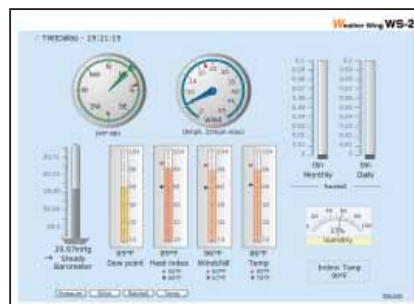
3. After the connection has been confirmed, the window will automatically change to view Weather Display Live.

Weather Display Live

If you are using Davis Vantage PRO2



If you are using Texas Weather Instruments WPS series

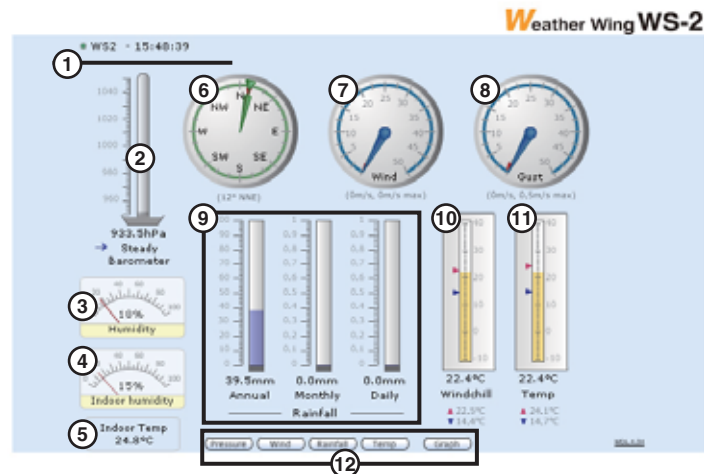


If the Weather Display Live does not appear....

- Make sure that the address you entered is correct.
- Check to make sure that the IP address and subnet mask are set correctly and if necessary redo the [Detailed Network Settings].

About Weather Display Live window

[Davis Vantage PRO2]



① Station Name

Displays the device name you assigned. For details about assigning device name, see page 42.

② Barometer

Displays the current barometric pressure.

③ Humidity

Displays the humidity received from the outdoor sensor.

④ Indoor Humidity

Displays the humidity received from the outdoor sensor.

⑤ Indoor Temp

Displays the humidity at the location where the Weather Station is placed.

⑥ Wind Direction

Displays the current wind direction. The red mark shows the dominant wind direction for the past 60 minutes.

⑦ Wind Speed

Displays the current wind speed. The average value for the last ten minutes. The red mark shows the fastest speed so far that day.

⑧ Gust

Displays the instantaneous wind speed. The red mark shows the fastest gust speed so far for that day

⑨ Rainfall

Displays the Annual, Monthly, and Daily rainfall.

⑩ Windchill

Displays the windchill factor taking into account the effect of wind speed on temperature.
(Red Mark: Highest / Blue Mark: Lowest)

⑪ Temp

Displays the temperature received from the outdoor sensor. (Red Mark: Highest / Blue Mark: Lowest)

⑫ Function Buttons

[Pressure] Shifts the Barometric Pressure unit (mb, hPa, and inHg) used in the display

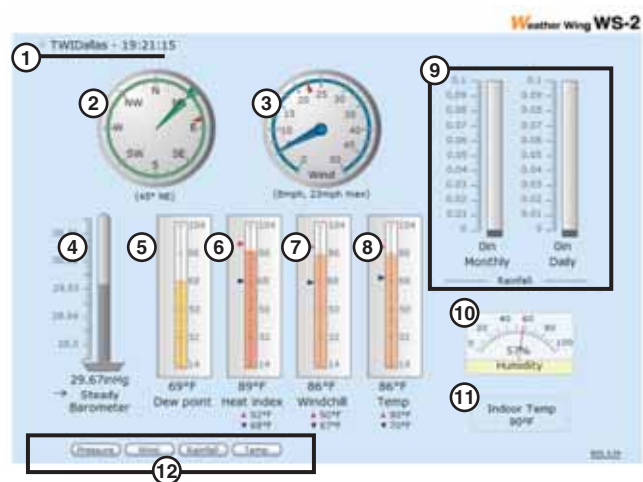
[Wind] Shifts the Window Speed and Gust unit (kts, m/s, Kph, and mph) used in the display

[Rainfall] Shifts the Rainfall unit (mm, inches) used in the display

[Temp] Shifts the unit for the display of Temp, Windchill, and Indoor Temp display between °C and °F

[Graph] Various recorded data is displayed in graph form

[Texas Weather Instruments WPS series]



① Station Name

Displays the assigned device name. For details about assigning device names, see page 42.

② Wind Direction

Displays the current wind direction. The red mark shows the dominant wind direction for the past 60 minutes.

③ Wind Speed

Displays the current wind speed. The average value for the last ten minutes. The red mark shows the fastest speed so far that day.

④ Barometer

Displays the current barometric pressure.

⑤ Dew point

Displays the dew point: temperature at which the air cannot hold any more water, so that dew forms on surfaces outdoors. (Red Mark: Highest / Blue Mark: Lowest)

⑥ Heat index

Displays the perceived temperature sensed under the influence of humidity on temperature. (Red Mark: Highest / Blue Mark: Lowest)

⑦ Windchill

Displays the windchill factor taking into account the effect of wind speed on temperature. (Red Mark: Highest / Blue Mark: Lowest)

⑧ Temp

Displays the temperature received from the outdoor sensor. (Red Mark: Highest / Blue Mark: Lowest)

⑨ Rainfall

Displays the Monthly, and Daily rainfall.

⑩ Humidity

Displays the humidity received from the outdoor sensor.

⑪ Indoor Temp

Displays the humidity at the location where the Weather Station is placed.

⑫ Function Buttons

[Pressure] Shifts the Barometric Pressure unit (mb, hPa, and inHg) used in the display

[Wind] Shifts the Window Speed and Gust unit (kts, m/s, Kph, and mph) used in the display

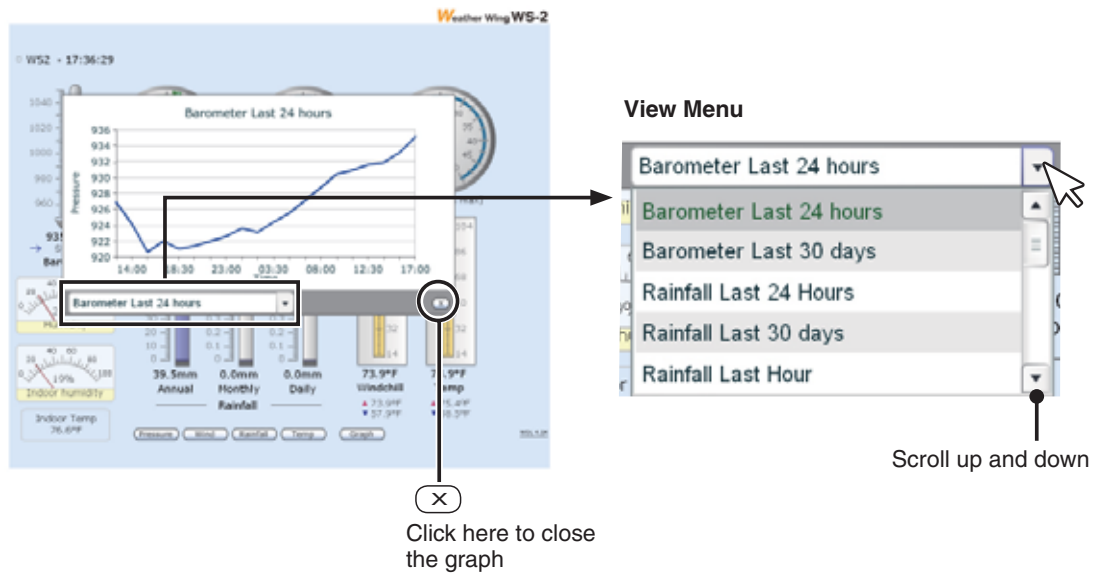
[Rainfall] Shifts the Rainfall unit (mm, inches) used in the display

[Temp] Shifts the unit for the display of Temp, Windchill, and Indoor Temp display between °C and °F

Graph Display (Vantage PRO2)

Note that this function is available only for those using the Vantage PRO2.

By clicking the [Graph] button from among the function buttons (see previous page 33), various graphs can be viewed.



Barometric Pressure, Rainfall, Windchill, Wind Direction, Wind Speed and Temperature data can be viewed in graph form according to the conditions below.

Drag the scroll bar up and down to the desired menu.

- **Last 24 hours** 30 hours' (20 points') worth of data can be shown in one graph at an interval of 90 minutes
- **Last 30 days** 30 days' worth of data can be shown in one graph.
- **Last Hour** The last one hour's worth of data can be shown in one graph
- **Live** The current measurements are shown in a real time progressive graph
- The WS-2 is designed to display graphs using gathered recorded data from weather stations. But, in some instances due to the recording interval settings or data details, all data readings may not be displayed.
- When using "Last Hour", the last one hour's worth of data will be stored in the WS-2. In order to view the entire record in Graph form, make sure that at least one hour has elapsed from the start before viewing.

Management of WS-2

Administration Menu

In order to make settings such as for warnings and the transferring of data, it is necessary to access the Administration Menu via your Internet browser.

Please open Internet Explorer and enter the Administration Menu address (such as: "http://*****/admin.htm") directly in your browser's URL bar; this will take you to the Administration Menu Login window. (***** is the WS-2 address that you have set.)

Ex) <http://www.prodigio.jp/admin.htm>

Login Window



It is necessary to login in order to operate the Administration Menu. Enter the Login ID and Password that you set in the WS-2 Settings Utility.

WS-2 Factory Default Settings
Login ID: "wsc-user"
Password: "wsc-passwd"

By logging in, the Administration Menu window will appear. From the menu buttons on the left, you can open each "Settings" window.

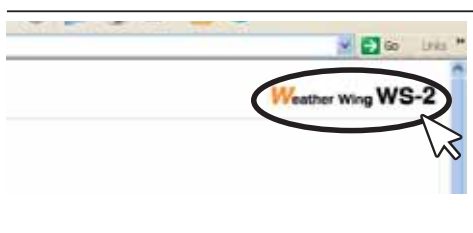
Administration Menu Top Window

Administration Menu Buttons



NOTE:

- When operations are not performed for ten minutes or longer, the user will automatically be logged out.



To the "Weather Display Live" Window

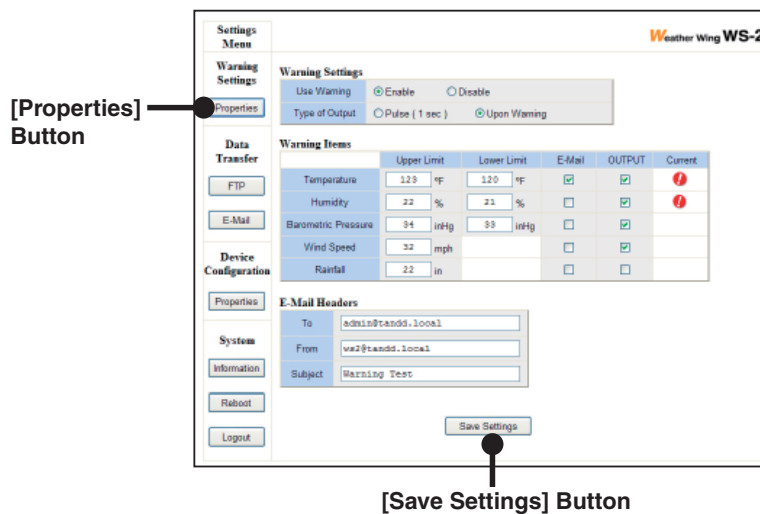
By clicking on the WS-2 logo at the upper right it is possible to jump to the "Weather Display Live" window.

Warning Settings: [Properties] Button

By making upper and lower limit settings for the WS-2, when one of the set upper or lower limits has been exceeded, a warning report mail can be sent via e-mail to specified e-mail addresses and/or the External Output will be switched ON. It is possible to simultaneously see or hear a warning notification on site by connecting to an external device, such as alarm or light.

(For details about External Output Terminals, see page 18 for details.)

After confirming that all entries are correct, click the [Save Settings] button. Then open the next menu.



● Warning Settings

[Use Warning : Enable / Disable]

If you wish to make use of the warning function, place a check next to [Enable].

[Type of External Output : Pulse (1 sec) / During Warning]

Select the "Type of External Output": how the external output will be switched ON. When the External Output is switched ON, the OUTPUT (LED) lamp will light up.

- Pulse (1 sec)

Regardless of the length of time a measurement has exceeded a set upper or lower limit the External Output will stay ON for one second.

- During Warning

This will keep the External Output at ON during the time when a measurement is exceeding a set upper or lower limit.

● Warning Items Settings

[Upper Limit / Lower Limit]

Please enter the upper and lower limit values (only upper limit for Wind Speed and Rainfall).

[E-Mail]

By placing a check in the checkbox, if a warning occurs, a warning report e-mail will be automatically sent. Please make settings for "Mail Recipient Addresses" (E-Mail Headers).

[OUTPUT]

By placing a check in the checkbox, if a warning occurs, the External Output will be turned ON. Also, check the above "Type of External Output".

[Current]

When a warning occurs, the icon [!] will appear.

● E-Mail Headers (Warning Report Mail Recipient Address Settings)

[To / From / Subject]

If you have checked "E-Mail" in the [Warning Items] area, make warning report mail recipient address settings here. The measurement and conditions for the warning occurrence at the time of warning will automatically be written into the body of the mail.

NOTE:

- Warning monitoring is carried out at one minute intervals, therefore, it may take up to one minute after a warning condition occurrence before the starting of an e-mail transmission or the turning ON of the external output.

Data Transfer via FTP: [FTP] Button

Make settings here for Data Transfer via FTP.

After confirming that all entries are correct, click the [Save Settings] button. Then open the next menu.

The screenshot shows the 'Weather Wing WS-2' settings window. On the left sidebar, the 'Data Transfer' section is expanded, and the 'FTP' button is highlighted. A black circle and line point from the text '[FTP] Button' to this button. The main content area shows the 'FTP Settings' section with the following fields: 'Upload' (radio buttons for 'Enable' and 'Disable', with 'Enable' selected), 'FTP Server Name' (text box with 'ftp.tanaka.local'), 'Basic Path Name' (text box with 'tw1*.VT7'), 'Upload Path' (radio buttons for 'None (a fixed filename)', 'Sequential Number (0000, 0001, ...)', and 'Date (YYMMDD-HHMM)', with 'Sequential Number' selected), 'Type of Data' (radio buttons for 'Original' and 'VT7', with 'VT7' selected), 'User ID' (text box with 'tanaka'), 'Password' (password field with 8 asterisks), and 'Interval' (dropdown menu with '1 min' selected). Below this is the 'AnythingWeather.com Settings' section with similar fields: 'Upload' (radio buttons for 'Enable' and 'Disable', with 'Enable' selected), 'FTP Server Name' (text box with 'ftp.tanaka.local'), 'Upload Path' (text box with 'test.txt'), 'User ID' (text box with 8 asterisks), 'Password' (password field with 8 asterisks), and 'Interval' (dropdown menu with '10 min' selected). At the bottom right, the 'Save Settings' button is highlighted with a black circle and line, with the text '[Save Settings] Button' below it.

● FTP Settings

[Upload via FTP: Enable / Disable]

If you wish to enable the FTP data transfer function, place a check next to [Enable].

[FTP Server Name]

Enter the FTP server name you wish to upload to.

[Upload Path Name]

- Basic Path Name

Enter the Upload Path Name. If you are adding a number please enter a [*] mark.

- Add Number

None ----- Uses a fixed file name and will always be overwritten.

Sequential Number -- Replaces the asterisks (**) with sequential numbers ranging from 0000 to 9999 (Return to 0000 after 9999).

Date ----- Adds the date and time to the basic path name.

[Type of Data]

- Original

The original unchanged data type as it was received via DMPAFT command.

- VT7 Format

The data format which can be handled by Multi-scale Graph. (For details about data formats, see page 41)

[User ID]

Enter the Login ID for the FTP server.

[Password]

Enter the Password for the FTP server.

[FTP Data Transfer Interval : 10 min. / 30 min. / 1 hour / 2 hours / 12 hours / 1 day]

Select the Upload Interval. The time settings for uploading are set as follows:

10 min.----- Every 05 / 15 / 25 / 35 / 45 / 55 minutes after each hour

30 min.----- Every 05 and 35 minutes after each hour

1 hour----- Every hour, 05 minutes after the hour

2 hours----- Every even numbered hour, 05 minutes after the hour

12 hours----- Every day at 00:05 and 12:05

1 day ----- Every day at 00:05

* Due to internal processes, the date and time of data transfer may be about five minutes late.

● Anything Weather.com Settings

If you wish to have recorded data uploaded to Anything Weather.com, place a check next to [Enable] and enter the FTP Server name, Upload Path, User ID, Password, and Interval as above.

Enter the FTP Server Name you wish to upload to.

Data Transfer via E-Mail: [E-Mail] Button

Make settings here for Data Transfer via E-Mail.

The temperature / humidity / pressure / rainfall / wind speed / direction at the time of sending an e-mail will automatically be written into the body of the mail.

After confirming that all entries are correct, click the [Save Settings] button. Then open the next menu.



● E-Mail Settings

[Sending E-Mail: Enable / Disable]

If you wish to enable the E-Mail data sending function, place a check next the [Enable].

[E-Mail Data Sending Interval]

Select the Upload Interval. The time settings for uploading are set as follows:

10 min. ----- Every 01 / 11 / 21 / 31 / 41 / 51 minutes after each hour

30 min. ----- Every 01 and 31 minutes after each hour

1 hour ----- Every hour, 01 minute after the hour

2 hours ----- Every even numbered hour, 01 minutes after the hour

12 hours ----- Every day at 00:01 and 12:01

1 day ----- Every day at 00:01

*Due to internal processes, the date and time of data transfer may be about five minutes late.

[Attached Logged File: None / Original Format / VT7 Format]

- None

Will not attach any logged data.

- Original Format

Attaches the original unchanged data type as it was received via DMPAFT command.

- VT7 Format

This will attach the data in a format which can be opened by Multi-scale Graph.

*For details about data formats, see the next page.

● E-Mail Headers

[To / From / Subject]

Enter the recipient address / sender address / subject for the E-mail.

About data formats of attached data Original

[Original]

If you select [Original], data formats vary depending upon your Weather Station type.

*** If you are using Davis Vantage PRO2 ™**

A bundle of 52 byte-sized data blocks received by the DMPAFT command is stored sequentially with the oldest data at the head. For details about "One block (52 bytes)," please refer to the User's Manual for "Vantage Serial Protocol Docs Ver.2.0 or above" from Davis Instruments.

52 bytes	52 bytes	52 bytes	52 bytes
----------	----------	----------	----------

*** If you are using Texas Weather Instruments® WPS series**

Data received by the "r", "k", "e", "W" commands is stored as text file data.

Examples of Files ----- "r" command
 "k" command
 "e" command
 "W" command

① "r" command ② "k" command ③ "e" command ④ "W" command

①	10:54 06/07/07 SE 00MPH 001K 460F 460F 000% 16.05F 00.00"D 00.00"M 00.00"T
②	-460DP-460TH-460WC
③	SS 06/07 10:54 001 06/07 10:54 001 K TI 06/07 10:54 460 06/07 10:54 460 F TO 06/07 10:54 460 06/07 10:54 460 F RH 06/07 10:54 000 06/07 10:54 000 % BP 06/07 10:54 16.05 06/07 10:54 16.05 " RR 00/00 00:00 00.00 06/07 00:00 00.00 " WS 06/07 10:54 00 06/07 10:54 00 MPH WD SE SE
④	10:54 0 135

- For details about each command, please refer to the "TWI Command Documentation" on the Texas Weather Instruments website.

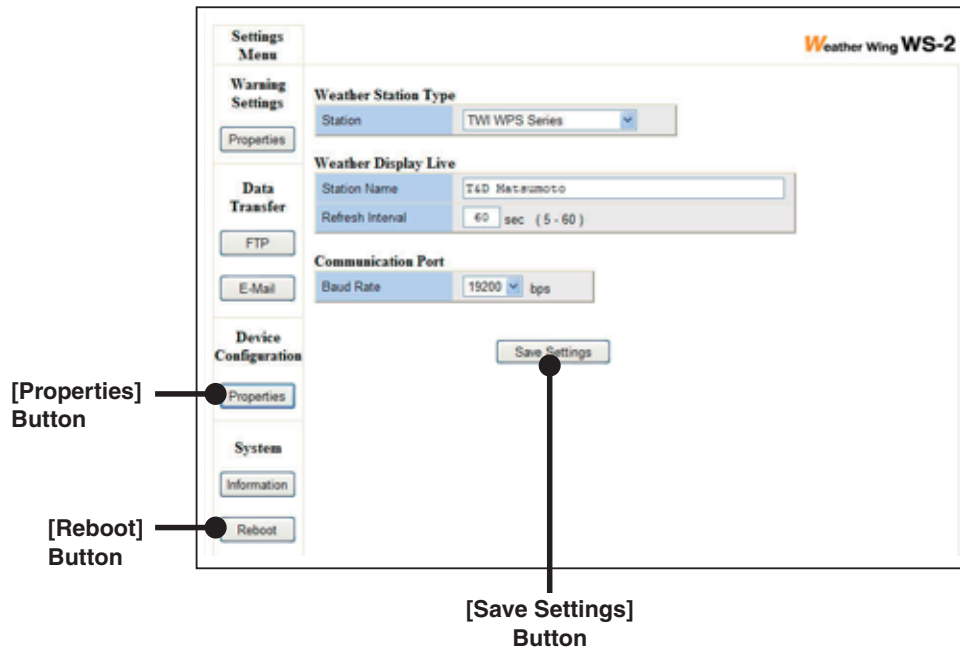
[VT7]

The data format which can be handled by the accompanying software "Multi-scale Graph" It is possible to view the data in graph form for Temperature / Humidity (Outside and Inside), Barometric Pressure, Wind Speed and Rainfall.

WS-2 Device Configuration: [Properties] Button

Here you can make communication settings for the WS-2.

After confirming that all entries are correct, click the [Save Settings] button. Then open the next menu. For the settings take effect, it is necessary to reboot the WS-2.



● Weather Station Type

[Station : TWI WPS Series / Davis Vantage PRO]

Please select one of the Weather Station types.

● Weather Display Live

[Station Name]

It is possible to display the device name you assigned at the top left "Weather Display Live" window.

[Refresh Interval: from 5 to 60 seconds]

Here you can make the display refresh interval setting for the "Weather Display Live". Specify the desired refresh interval from 5 to 60 seconds.

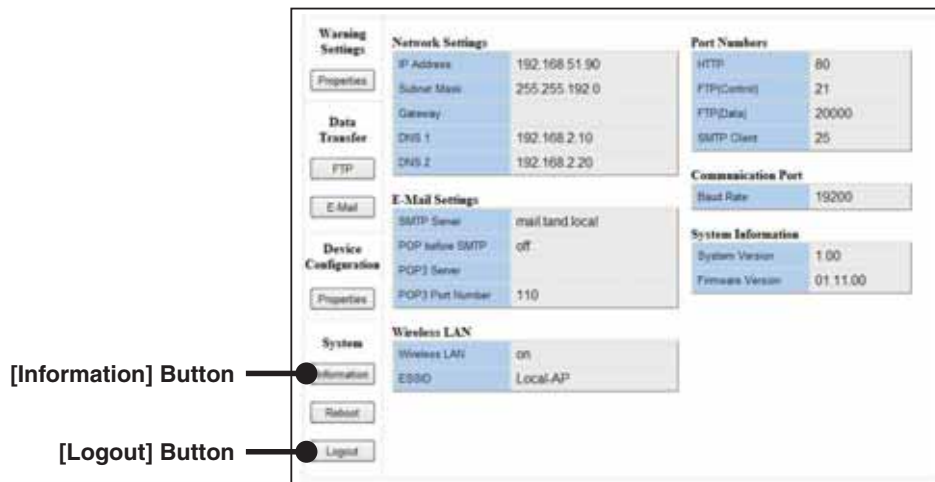
● Communication Port

[Baud Rate: 9600bps / 19200bps]

Please select one of the baud rates for the WS-2 COM Port. Please set to the same baud rate setting as that made for the Weather Station.

System: [Information] Button

Pressing this button will display the current settings for the WS-2.



[Check the following settings]

- Network Settings ---- Basic network setting information
- E-Mail Settings ----- Necessary information for sending E-mail
- Wireless LAN ----- Information on Wireless LAN
- Port Numbers ----- The HTTP Server Port Number, the FTP Server Port Number you wish to upload to, and others.
- Communication Port - Baud rate (communication speed) for Communication Port
- System Information -- WS-2 Version Information

System: [Reboot] Button

Upon clicking the button a confirmation message will appear. Click the [OK] button to reboot the WS-2. After reboot has finished, you will return to the Administration Menu Login window.

System: [Logout] Button

This will allow you to exit "Administration Menu" and return to the Administration Menu Login window. Click this button to finish operations on the Administration Menu. If any of the operations on the Administration Menu are performed, it is absolutely necessary to logout.

Note:

- When operations are not performed for ten minutes or longer, the user will automatically be logged out.

Viewing Current Readings via Mobile Phone

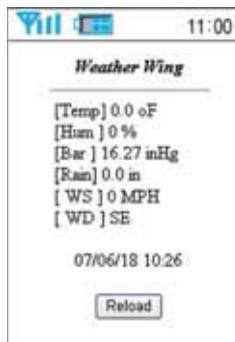
It is possible to view the current readings via your mobile phone by accessing the URL for the Weather Display Live.

NOTE:

- The example figure below is only an image of browser display. The display layout is different from that on actual windows.
- Depending on the type of mobile phone, current readings may not be viewable.
- To view the current readings monitor via mobile phone, it is necessary to open the WS-2 to the public on the Internet.
- The weather data measurements shown in the browser are those of when accessing the "Weather Display Live".

1. Open the URL entry display and enter the URL for the WS-2 logger you wish to view and press enter.
2. Weather data measurements are displayed. The current readings will not be automatically refreshed. Press the [Reload] button to refresh data.

Ex. of a display



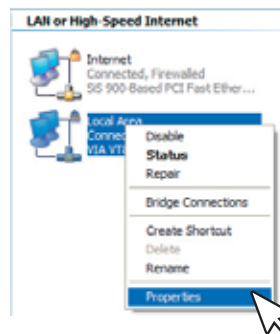
Display Contents

The following data when accessed via a browser: Temperature / Humidity / Barometric Pressure / Rainfall / Wind Speed / Wind Direction
Date and Time when data was collected.

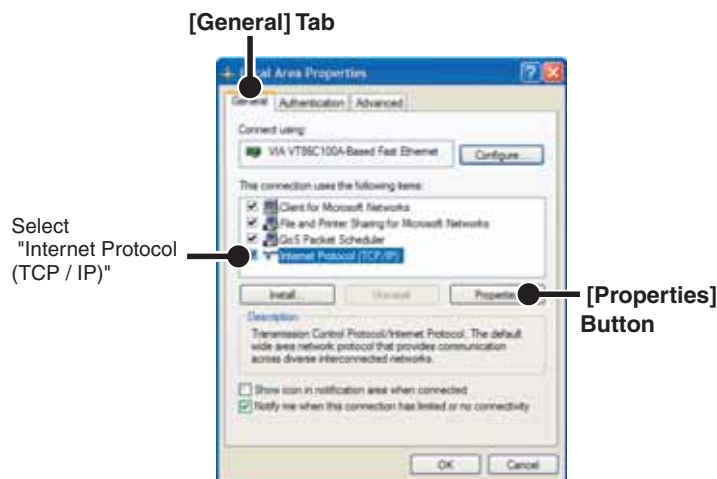
Checking and Making Changes to Computer Network Settings

In some network environments, it may be necessary to make changes to the IP address and subnet mask at the computer side in order to carry out a search. See the following procedures for checking and making changes to your computer network settings.

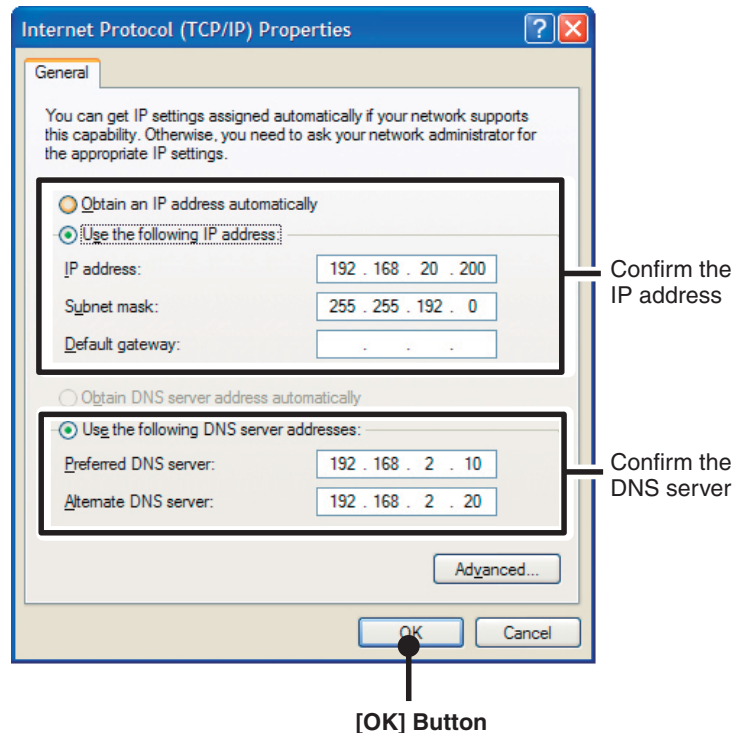
1. In the Windows [Control Panel], open [Network Connections].
2. Select the Network adaptor that you are using, and right click with the mouse and open the "Properties".



3. Under the [General] Tab, in [This connection uses the following items:] select "Internet Protocol (TCP / IP)" and click on [Properties] button.



4. In the [Internet Protocol (TCP / IP) Properties] window, under [Use the following IP address:] make sure that the IP address and Subnet mask are correct.



5. In order to return the settings back to the original ones make sure to write down the current settings for "IP address", "Subnet mask", "Default gateway", "Preferred DNS server" and "Alternate DNS server".
6. Enter "192.168.1.1" as the IP Address and "255.255.255.0" as the Subnet Mask.
7. After entering, click the [OK] button.
8. Clicking the [OK] button in the "Network Connections" [Properties] window as seen in step 3. above will close the window.
9. Once again, in the [WS-2 Settings Utility] run a search and check whether the IP address for the WS-2 connected to the network is displayed.
10. If it is displayed properly, make the initial network settings.
11. After making the initial network settings, follow steps 1. - 4. above to open the [Internet Protocol (TCP / IP) Properties] window. Re-enter the "IP address", "Subnet mask", "Default Gateway", "Preferred DNS server", and "Alternate DNS server" that you had written down before and click the [OK] button.
12. Open the browser, enter the address (URL) that you set in the settings utility and check to make sure that the display is proper or not.

- If you are using a company network or are working in an environment that may have special settings and after having followed the above procedures still cannot view the display properly, please connect your network administrator.

Multi-scale Graph

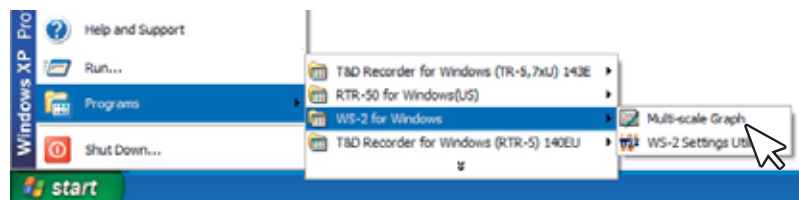
By selecting file type "VT7 Format" for transferring data (sending e-mails or uploading to FTP server), the "Multi-scale Graph" enables you to view all data recorded in the Weather Station: temperature / humidity (outside and inside), barometric pressure, wind speed and rainfall in the same graph.

"Multi-scale Graph" is designed to allow you to simultaneously view the display of graph channels with different scales. With "Multi-scale Graph," it is easy to see visually in colorful graphical form the changes in temperature and humidity. Moreover, functions such as creating text files and printing data help in the analyzation of gathered recorded data.

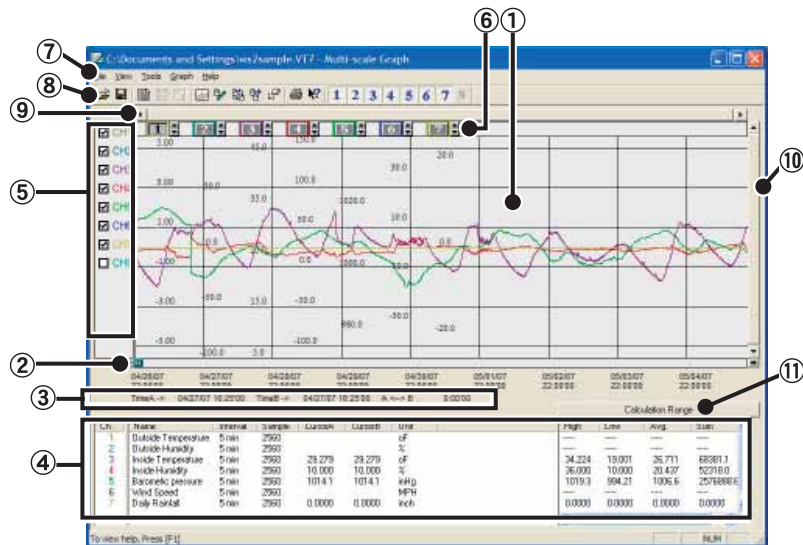
The graphs shown in the "Weather Display Live" display are simplified ones. Please use the "Multi-scale Graph" for more detailed data analysis.

Opening Multi-scale Graph

From the list of [Programs] in the Window's Start Menu, click on [WS-2 for Windows] - [Multi-scale Graph].



Main Window Names and Functions



① Graph Area

The area in which the Graph is displayed. The horizontal axis shows time and the vertical axis shows measurement data in units as calculated by the selected conversion equation.

② A / B Cursor Movement Buttons and A / B Cursor Buttons

By clicking the arrow buttons at the left and right of the bar, you can simultaneously move the A/B cursors. Click and drag the A or B button on the bar to move the cursor to the left or right.

③ A and B Cursor Position Information

The approximate date and time for the A and B cursor positions and the time difference between the A cursor and the B cursor is displayed.

④ Channel Info Display


The detailed data info for each channel 1 to 7 is displayed below the Graph Display.

ch1. Outside Temperature	Name	Channel Data Name	High.	Highest Reading in Calculation Range
ch2. Outside Humidity	Interval	Recording Interval	Low.	Lowest Reading in Calculation Range
ch3. Inside Temperature	Sample	Number of data	Avg.	Average Reading in Calculation Range
ch4. Inside Humidity	CursorA	Cursor A position data	Sum.	Total of Readings in Calculation Range
ch5. Barometric Pressure	CursorB	Cursor B position data		
ch6. Wind Speed	Unit	Unit		
ch7. Rainfall				

⑤ Vertical Axis Display ON/OFF

Shift the vertical axis scale display ON/OFF.

⑥ Vertical Axis of Each Channel()

The vertical axis scale can be displayed for each channel into which data has been read. By clicking the arrow at the corners of the gauge bar  you can scroll up or down on the current display while maintaining the present zoom.

⑦ Menu Bar

Menus are lined up which contain various commands. They are used to view data or to make settings for the various functions in each menu.


⑧ Toolbar (Icons)

Buttons appear for frequently used commands.

⑨ Horizontal Gauge Bar and Button for Moving Horizontal Axis

The time axis moves by clicking these arrow buttons  at the left and right of the bar. By dragging the gauge you can move left and right to the data you want to be displayed.

⑩ Vertical Gauge Bar and Button for Moving Vertical Axis

The vertical axis moves up or down by clicking these arrow buttons  at the upper and lower sides of the bar. By dragging the gauge you can move up and down to the data you want to be displayed.

⑪ [Calculation Range] Button

The [Set High, Low, Avg. Calculation Range] window will appear. (See page 52 for details.)

Zooming In and Out on the Graph

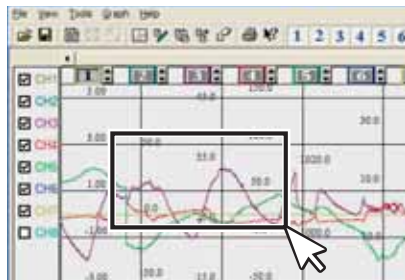
Zooming In and Out on the Graph with Mouse

With the left button drag the mouse to outline the area you want to zoom in on.

By right clicking on the graph, the Menu will be displayed. With [Return to Original Size] or [Step-by Step Return to Original] you can return both the vertical and horizontal axis back to show the entire graph.

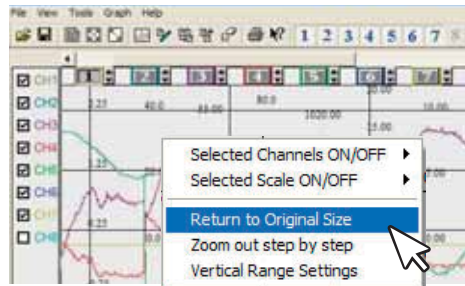
Zoom In

With the left button drag the mouse to outline the area you want to zoom in on.



Zoom Out

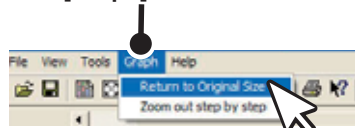
With the mouse, right click on the graph and select [Return to Original Size] in the pop-up Menu that appears.



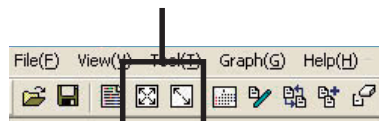
Use the [Graph] Menu to Zoom Out

The same operation can be done via commands in the [Graph] Menu or by clicking icons in the Toolbar.

[Graph] Menu



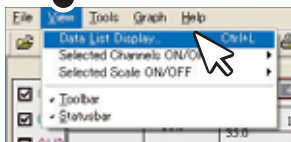
Icons in the Toolbar



Data List Display: from the [View] Menu

Shows all recorded data displayed in the graph as a list. Click [Data List Display] in the [View] Menu. You can view all the recorded data including its time and date as a list.

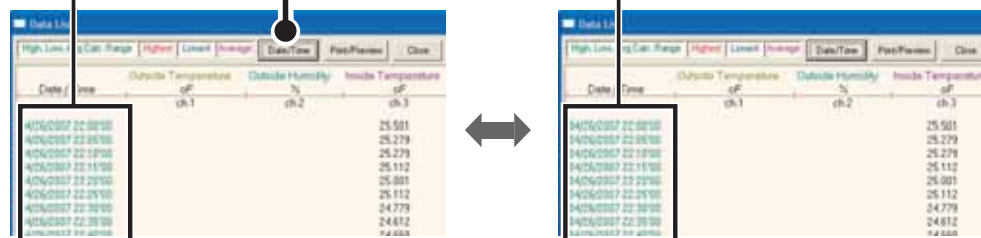
[View] Menu



Recorded Date/
Time Display

[Date/Time]
Button

Elapsed Time
Display



[Date / Time] Button

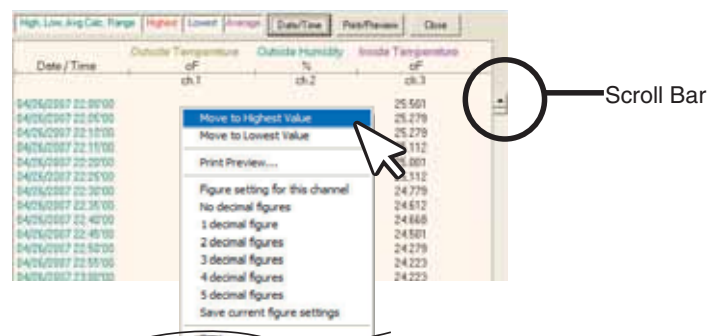
By clicking this button, you can shift the display between the recorded date and the amount of elapsed time since recording started.

[Color Coded Display]

- GREEN** Dates and times which fall within the calculation range for determining high, low and average measurements
- BLACK** Dates and times outside the calculation range for determining high, low and average measurement
- RED** Highest Value
- BLUE** Lowest Value
- PINK** Average Value

[Move to Highest Value / Move to Lowest Value]

By right clicking on a channel data in the Data List Display, a Menu will appear. Click [Move to Highest Value] or [Move to Lowest Value] to move to the Highest or Lowest values. By dragging the Scroll Bar up and down you can view the corresponding part of the displayed data in the list.



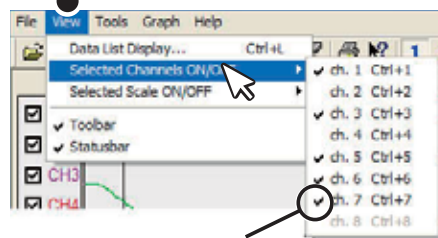
Scroll Bar

Selected Channels ON / OFF: From the [View] Menu

Hide or view the data graph for selected channel(s).

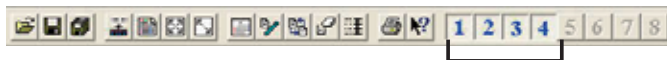
By moving the mouse to [Selected Channels ON/OFF], the channel numbers are displayed. Those channels with a check mark next to the number will be displayed in the Graph. If you wish to only hide the data graph for that channel, remove the check.

[View] Menu



Checkmark for hiding or viewing the data graph for selected channel(s)

- The same operation can be done by clicking on the [Channel Number] icons in the Toolbar. Click the channel No. of the channel you wish to view.

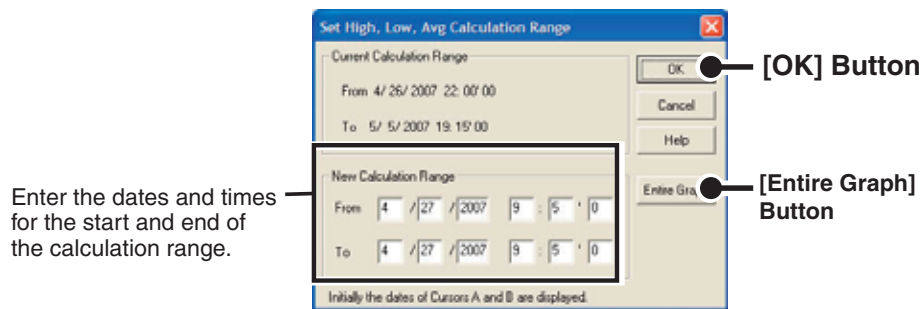


The data for the channel numbers which have been clicked will be displayed in the Graph.

Setting High, Low, Average Calculation Range Command: From the [Tools] Menu

Set the calculation range for determining high, low and average measurements. If no setting is made the values within the entire graph will be used as the calculation range. Select [Set High, Low, Average Calculation Range] in the [Tools] Menu to make the necessary settings.

1. Select [Set High, Low, Average Calculation Range] in the [Tools] Menu to open the settings window.
2. In the [Set New High, Low, Avg. Calculation Range] box the dates and times that appear are those of the AB Cursors when the dialog box is opened.
3. Change the range by entering the desired dates and times and click [OK]. From that point the High, Low and Average readings will be calculated within that range. The graph display will also show only that data within the calculation range.

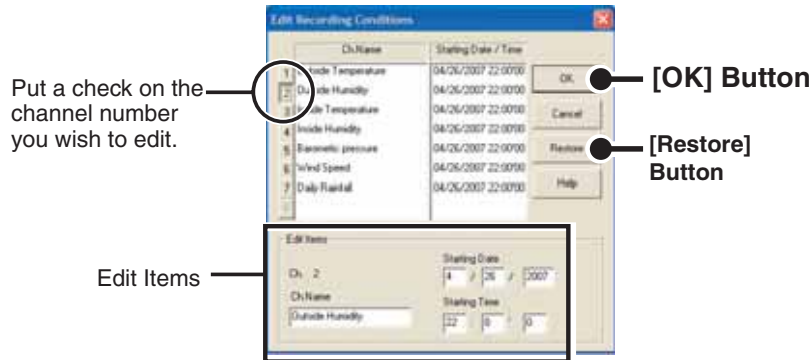


[Entire Graph] Button

By clicking the "Entire Graph" button, the dates and times in the [New High, Low, Avg. Calculation Range] box will display those of the entire graph.

Editing Recording Conditions: From the [Tools] Menu

Change channel names and/or adjust recording start times. Select [Edit Recording Conditions] in the [Tools] Menu to open the editing window.



1. By clicking the [Channel. No.] button of the channel you wish to edit, the [Name] and [Started Date / Time] in the "Edit Items" display will show info for that channel number.
2. Enter the [Name] and [Starting Date / Time] in the "Edit Items" and click the [OK] button.

- Up to 32 letters can be entered.

3. If you wish to continue to change other channels, repeat the process as in 1 and 2.

[Restore] Button

By clicking this button, the settings will return to those when the dialog box was opened.

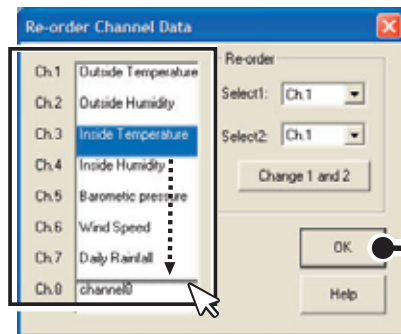
Re-ordering Channel Data: From the [Tools] Menu

You can change the order of the data in channels as viewed in the graph. Select [Re-order Channel Data] in the [Tools] Menu to open the settings window.

1. There are two methods to use when re-ordering channels: [Re-order by Dragging the Channel Number] and [Re-order by Selecting the Channel Number].

Re-order by Dragging the Channel Number

Ex: If you wish to move Ch.3 to Ch.7 position

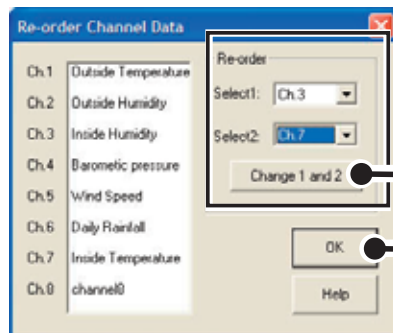


Drag the channel number you wish to move (Ch 3) to the newly desired channel number position (Ch 7) and drop it.

[OK] Button

Re-order by Selecting the Channel Number

Ex: If you wish to change Ch.3 to Ch.7 position



Enter the channels you wish to re-order: "Select 1" → Ch. 3, "Select 2" → Ch. 7; then click the [Change 1 and 2] button to complete the re-ordering.

[Change 1 and 2] Button

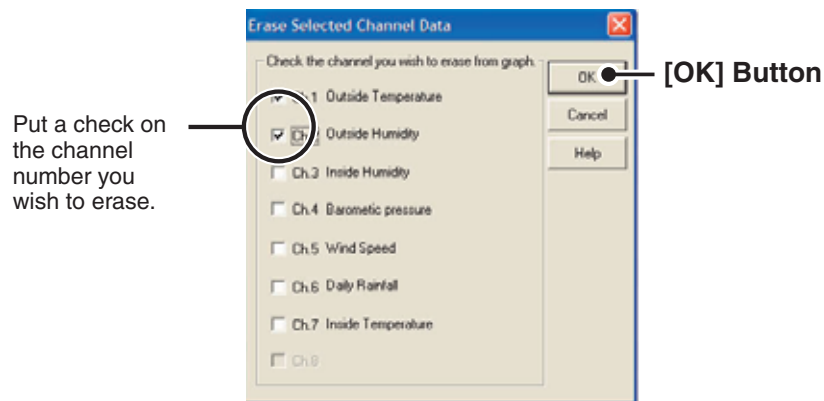
[OK] Button

2. By clicking the [OK] button, the channels will be re-ordered and the graph will be re-drawn.

Erasing Selected Channel Data: From the [Tools] Menu

You can erase the selected channel data from graph. Select [Erase Selected Channel Data] in the [Tools] Menu to open the settings window.

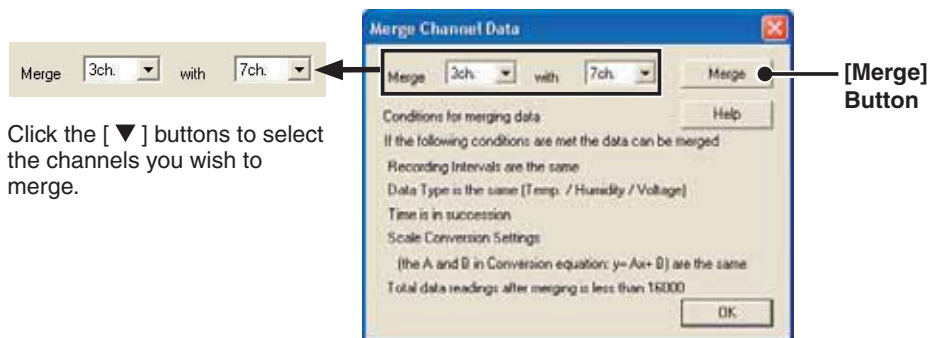
1. Put a check on the channel number you wish to erase.



2. By clicking on the [OK] button, the selected data will be erased and the graph will be re-drawn.

Merging Channel Data: From [Tools] Menu

Use this function when you wish to merge one channel of data with another channel of data. In the [Tools] Menu, select [Merge Channel Data] to open the settings window.



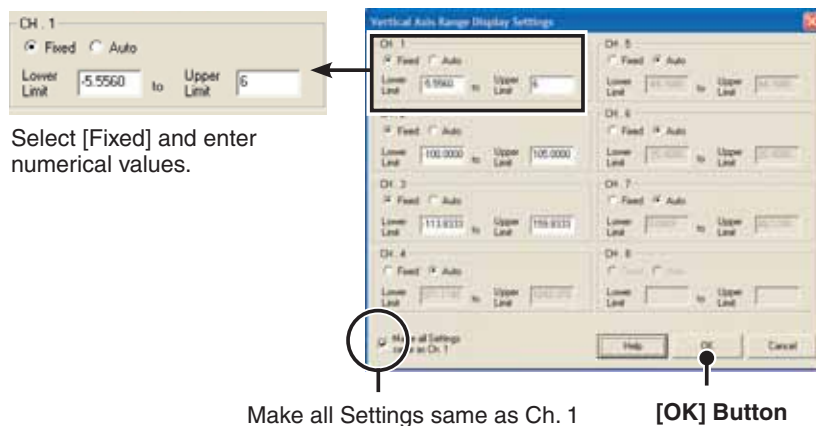
1. Please make sure to select a channel with older data for the left side. Upon selecting the channel for the left, the channels, which are capable of being merged, will appear in a list on the right.
2. Click the [Merge] button to merge two channels of data into one channel.

NOTE:

- The channel data selected for the box on the right will not be deleted. If you wish to delete, go to [Erase Selected Channel Data] in the [Tools] menu to delete that data.

Setting Vertical Axis Display Range: From [Tools] Menu

Set the Vertical Axis Scale Range to Auto or Fixed for each channel. Make settings to have the Vertical Axis Scale Range automatically assigned according to type of data or have it remain fixed at the same values every time it is opened. In the [Tools] Menu, select [Vertical Axis Range Display Settings] to open the settings window.



1. Put a check next to [Fixed] for the channel(s) you wish to make settings for and enter the top and bottom values.
2. If you wish to use fixed values for all channels, choose fixed values for Ch.1 and put a check next to [Make all settings same as Ch. 1]. Then the settings will become the same for all other channels.
3. Click the [OK] button to finish.

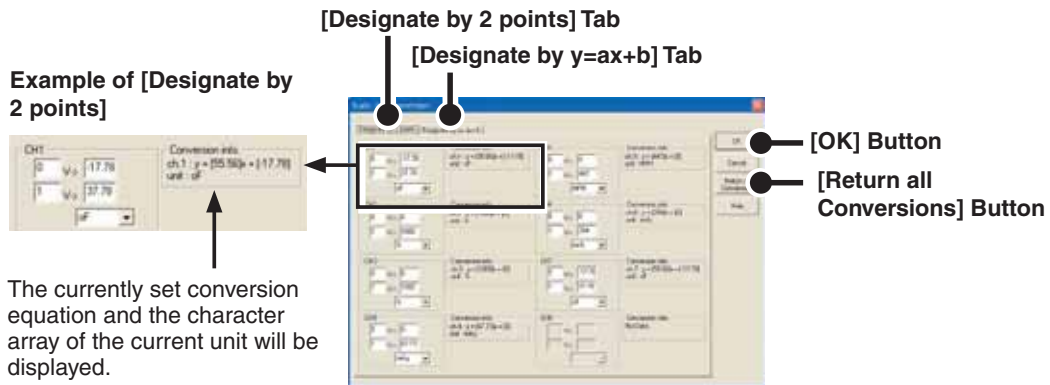
NOTE:

- If you have chosen fixed values for all channels, the data graph lines may, under certain circumstances, stick out of the graph. Settings for the upper limit must be 40,000 or lower and settings for the lower limit must be -40,000 or higher.
- The values assigned here will be active and used when saving the graph to a file. If you wish to have the vertical axis scale range automatically assigned, by clicking [Auto] for each channel, the vertical scale will automatically be determined and set according to the upper and lower values of the data being viewed.

Scale / Unit Conversion: From [Tools] Menu

It is possible to make settings for the conversion of units and scales for each channel of downloaded data. This can be used when no conversion formula settings were made before recording or when you wish to make changes to the conversion formula that was set in the Scale Settings Display.

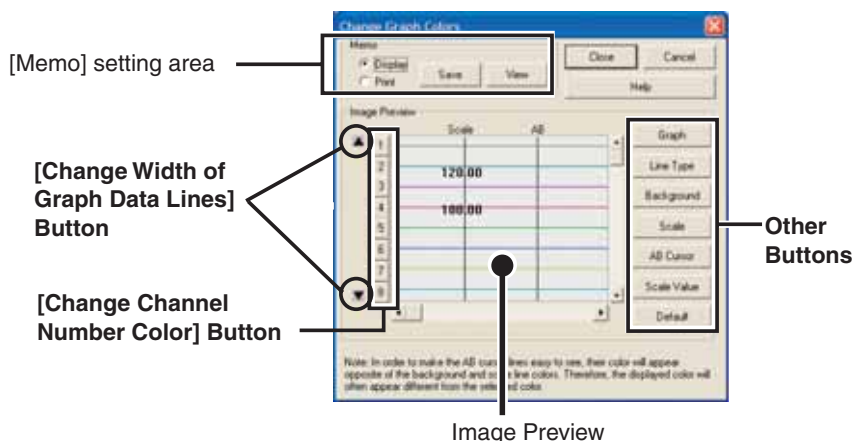
In the [Tools] Menu, select [Scale, Unit Conversion] to open the settings window.



1. Select to use 2 voltage points to convert the scale, by clicking on the [Designate by 2 points] tab or use the simple conversion equation by clicking on the [Designate by $y=ax+b$] tab.
2. By clicking the [Return all Conversions] button after making settings for the conversion equation and unit, the settings for all channels will return to those when the dialog box was opened.
3. Click the [OK] button to finish.

Changing Graph Colors and Widths of Lines: From [Tools] Menu

It is possible to change the colors of the graph background, the lines, the AB cursors and the width of the lines. You can make settings for both display and for printing. In the [Tools] Menu, select [Change Graph Colors] to open the settings window.



1. In the "Memo" setting area, select either "Display" or "Print".

- Click the [Save] button to save the settings, and by clicking the [View] button, you can call up a saved pattern. Here it is possible to save one pattern of settings for use in the display and one for use when printing.

2. Click on the [Channel No.] button first and then click on the topic you wish to make changes to. See below for details about each button.

[Image Preview]

This area will show the display with the newest settings. An image showing the new settings will appear and it can be used to check the graph.

[Changing the widths of the graph lines: [▲ ▼] Button]

Change the width of the data lines. Please use this feature when printing with a monochrome laser printer or any other printer where narrow lines may be difficult to see. Each click of the [▲] button will make the lines wider and each click of the [▼] button will make them thinner.

[Graph] Button

Change the color of that channel's data lines. The standard Windows color selection dialog box will appear. Choose the standard color you want or make any desired colors.

[Line Type] Button

You can select from five types of lines such as a standard line or a dotted line. (However, if the line has been made wider by the [▲ ▼] button it will appear as a standard line no matter the setting.)

[Background] Button

Change the graph's background color. The standard Windows color selection dialog box will appear. Choose the standard color you want or make any desired colors.

[Scale] Button

Change the horizontal and vertical graph scale line colors. The standard Windows color selection dialog box will appear. Choose the standard color you want or make any desired colors.

[AB Cursor] Button

Change the AB cursor line colors. The standard Windows color selection dialog box will appear. Choose the standard color you want or make any desired colors.

[Scale Value] Button

Change the Scale Value colors. The standard Windows color selection dialog box will appear. Choose the standard color you want or make any desired colors.

[Default] Button

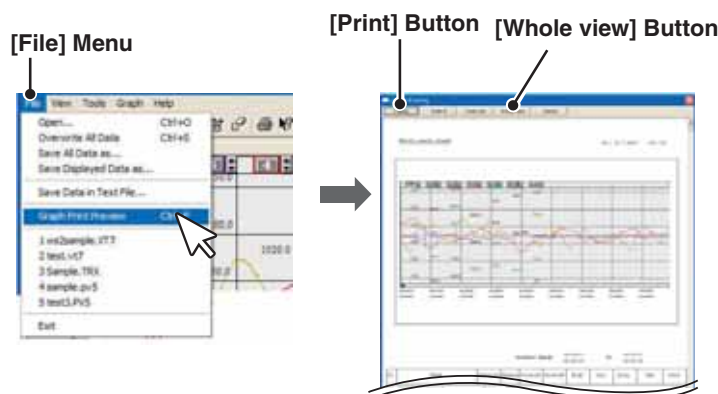
Returns the colors to the default [Multi-scale Graph] colors.

Print Preview and Print: From [File] Menu

● Print Graph / Graph Print Preview

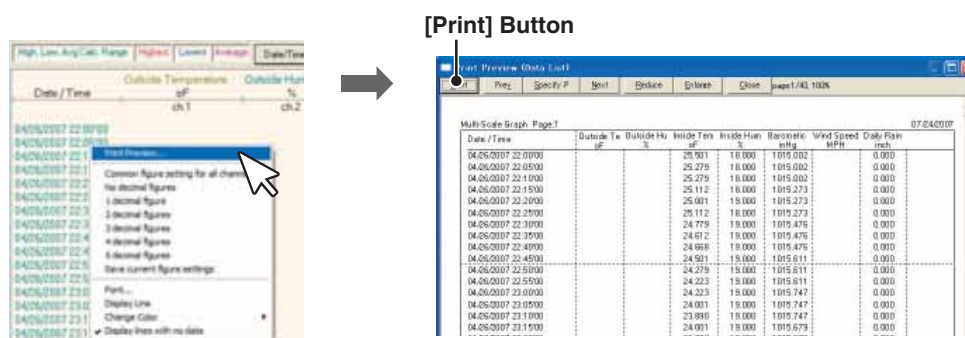
The image of the graph to be printed can be viewed in the Print Preview Display before printing ([File] Menu – [Graph Print Preview]). When carrying out printing, click the [Print] button in the Preview window to start the printing.

-The same operation can be done by clicking on the [Print Preview] icon in the Toolbar.



● Display the Data List Preview and Print

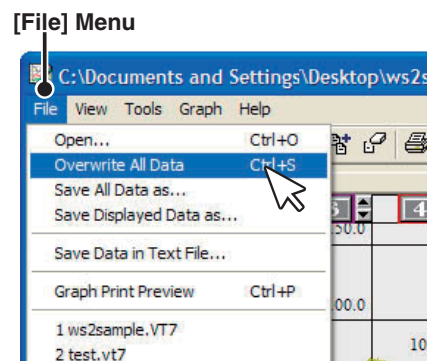
Carry out the printing of a data list by opening the Data List Display.



1. By right clicking on the [Date / Time] column in the Data List Display, the Menu will appear. Click [Print Preview] in the Menu and the [Print Preview (Data List)] window will be displayed.
2. After confirming, click the [Print] button in the Preview window to start the printing. By using the Print Preview Display Toolbar you can change the page being displayed, enlarge or reduce the display as desired, and start printing.

Saving Recorded Data: From [File] Menu

If necessary, save data. 3 Ways to Save Files.



[Overwrite All Data]

The data will be saved without making any changes to the file name or location.

[Save All Data as...]

This will save all edited data into a new file. The previous pre-edited data will remain saved as was in the original file.

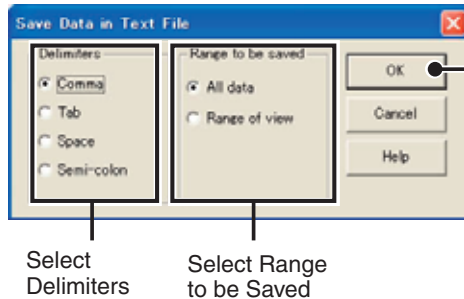
[Save Displayed Data]

This will save only that data in the current display. By selecting this, it is possible to save only the desired data.

Save Data in Text File: From [File] Menu

By saving the recorded data as text file, you can create a file type that can be read by common spreadsheet software.

1. Click [Save Data in Text File] in the [File] Menu.
2. Select the [Delimiters] and [Range to be saved], and click [OK].



[OK]
Button

Comma, Tab, Space, and Semi-colon are codes used by common spreadsheet software, such as Excel and Lotus, when reading Text File to divide cells.

3. Designate the location to which the file should be saved and click [Save] to create and save the data as a Text File document. File will have extension [.txt].

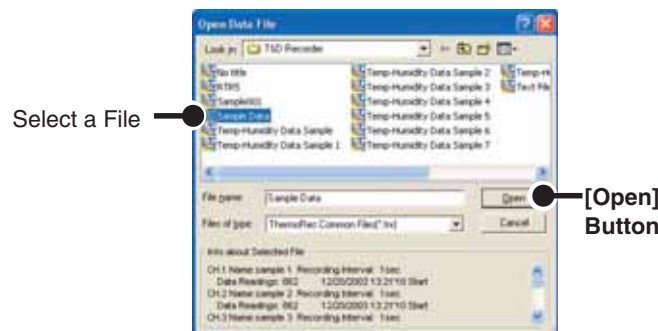
NOTE:

- [Multi-scale Graph] cannot read text type files.

Opening a Saved File: From [File] Menu

Open previously saved files.

1. From the [File] Menu, select [Open Data File].
2. Select the name of the data you wish to open and click [Open] to view the data in graph form.



Downloading Flash and Re-installing

To download Flash go to: <http://www.adobe.com/>

To view Weather Display Live in your browser, it is necessary to have Macromedia Flash Player (Version 7 or higher) installed on your computer. Please install it from the Adobe Macromedia Flash Player Website.

NOTE:

- The installation of Flash is completely the responsibility of the user. Please carry out the installation by following the directions as they appear.

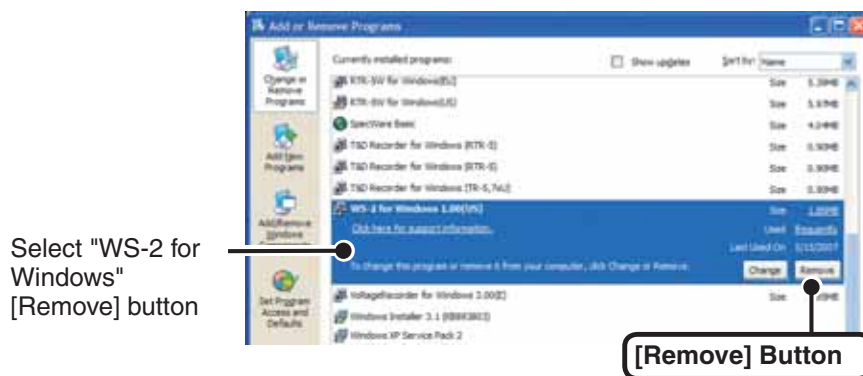
Re-installing

Before reinstalling or updating the "WS-2 for Windows" software, make sure to carry out the uninstall program first. Before uninstalling, make sure to quit all "WS-2 for Windows" applications.

NOTE:

- To install "WS-2 for Windows," it is necessary to have Administrator rights (Computer Administrator) for the computer in which you wish to install it.
- Even after uninstalling, saved data files will still remain in the folders and locations they were saved in.

1. In the Windows Control Panel, click on [Add or Remove Programs].
2. From the list of currently installed programs, select "WS-2 for Windows 1.xx" and click the [Remove] button.



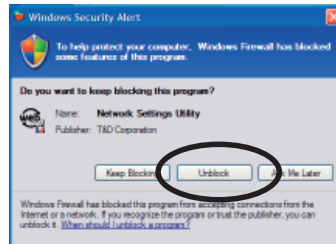
3. A message will appear, click the [Yes] button to start the uninstalling of application.
4. Follow the directions to Uninstall.
5. After the uninstall process is completed, reinstall by following the directions to "Installing the WS-2 for Windows" (See page 21 - 22 for details.).

Troubleshooting

Problems that may occur while running "WS-2 for Windows"

Q.1 The following message appears, [Windows Security Alert], what should I do?

- A** If you are using Windows XP SP2, the following message may be displayed. There is no problem, so please click [Unblock].



Q.2 Is it possible to use the [WS-2 for Windows] via a proxy server?

- A** Communication is impossible via a proxy server. With Web Viewer communication is possible.

Q.3 I cannot run a search in the Network Initialization. Why?

- A** One of the following may be the reason:
- Power is not being supplied by the AC adaptor to the WS-2.
 - The WS-2 and the computer you are using are not on the same network.
 - The [Network Settings Utility] is already being used by another computer.
 - The LAN card which is being used has not been formatted.

Q.4 I cannot make settings in the Network Initialization. Why?

- A** One of the following may be the reason:
- The Login ID and/or Password are incorrect.
 - Another WS-2 with the same IP address is on the same network.

Q.5 Why does a [Communication Error (Connection Error)] appear?

- A** The network is probably not properly connected. One of the following may be the reason:
- One of the following is incorrect: IP address or Domain, Login ID, Password, or Port Number.
 - The network is not properly connected (the LAN cable is broken, the Hub is damaged, a mistake occurred in setting up the router, etc...).
 - In the [Menu] - [Communication Time Settings] try slowing the communication time.

Q.6 Because of some other [Communication Error] communication cannot occur. Why?

- A** One of the following may be the reason:
- The IP Block setting is ON and communication can occur with only specific PC's.
 - If after several attempts a communication error continues to occur, turn OFF the WS-2 and restart.
 - A warning report mail or test mail is in process. If a sending error occurs, processing takes time, so please wait for at least one minute before trying again.

Q.7 Which has priority, a wireless LAN or a wired LAN?

- A** If a wireless LAN card is inserted, the wireless LAN will have priority. Because of this, if the wireless LAN settings are incorrect and a wired LAN is connected, communication will not take place via the wired LAN and hence communication will not occur.

Q.8 I forgot the password, what should I do?

A First, return the settings to the factory default settings and then redo the settings.

Q.9 Is it possible to hide the IP address history and settings history?

A If you wish to hide the History, in the [Menu], select [Login History] and click to [OFF].
Please note that a history will remain viewable from when before it was disabled. To erase a history, please click on [Clear Login History] in the Menu.

Problems that may occur with WS-2 Management Settings

Q.1 I cannot send mail, why?

A If the transmission failed, one of the following may be the reason:

- In the Detailed Network Settings, the necessary gateway address settings have not been made.
- In the Detailed Network Settings, the necessary DNS settings have not been made.
- In the Detailed Network Settings, the necessary SMTP Server settings have not been made.
- Check the ESS-ID for mistakes in upper and lower case letters.
- The SMTP server needs SMTP authentication (May need to change Provider).
- The SMTP server will not recognize the Sender Address (May need to change Provider).
- The necessary POP before SMTP settings have not been made.

Q.2 I cannot connect to a wireless LAN. Is there a way to check the wireless LAN status?

A Unfortunately, there is no way to check. But you can check the following:

- Is the ESS-ID or WEP key code incorrect?
- Are you using a Wireless LAN card other than the ones we endorse?

Q.3 I tried using a different wireless LAN card and now I can't get communication to work, what happened?

A Even if all settings remain unchanged, after putting in a different wireless LAN card and restarting, communication will no longer be able to occur.
That is because the MAC address of the previously used LAN card is still in the APR table in your computer.
In order to communicate using the new LAN card, you can either erase the APR table or reboot your computer.

Q.4 I forgot the password, what should I do?

A First, By pressing the "RESET" button, return the settings to the factory default settings and then redo the settings.

FAQ's

Q&A about WS-2

Q.1 WS-2 units use an AC adaptor, what happens when there is power shortage?

- A** During a power shortage all functions will be stopped. Therefore, the Web Server and Warning Functions will also be disabled. However, because the settings will remain in the WS-2, by turning the system on, operation will continue with the same settings.

Q.2 Can I connect directly to my computer with the LAN cable that comes with the logger?

- A** To connect a WS-2 directly to your computer, you must use a cross LAN cable.
The LAN cable supplied is a straight LAN cable and cannot be used to connect directly to your computer.
Please purchase a LAN cross cable at your local computer supply store.

Q.3 Does the WS-2 have a clock and calendar?

- A** Because the WS-2 clock settings are automatically received from the Weather Station, make sure that the Weather Station's date and time settings are correct.

Q.4 If several WS-2 are connected to the same router, how can I identify which is which?

- A** If two or more WS-2 are connected to the same router, it is possible to identify by setting each with an individual IP address and from the Internet side can be identified by the port number to which it is connected.

Q.5 Where can I set the port number?

- A** The port number can be set from the [WS-2 for Windows].
Under normal conditions, for HTTP communication the setting is 80, but if you wish to synchronize the settings to match the router settings, it is necessary to change the settings for the WS-2 and for the router.

Q.6 It is possible to connect the WS-2 to the network by using the LAN cable that connects the computer to the LAN network?

- A** Inserting the wireless LAN card that connects the computer to the network into the WS-2 will physically connect the WS-2 to the network, but without making the necessary settings such as IP address, the WS-2 cannot be active in the network and hence is not really connected.
After having inserted the LAN cable, make sure to go to [WS-2 for Windows] to make the necessary IP address and subnet mask settings.

Q&A about Web Server Functions

Q.1 Is a WS-2 unit a web server?

- A** The WS-2 units have web server functionality built into them. This function allows for the provision or serving up of temperature and humidity data, current readings and graphs.

Q.2 What is a Web Server? What is a client?

- A** In a computer network, the computer that acts as a provider of services to various users is called a server and the computers which request these services from the server are referred to as clients. Most communication service is made up of exchanges between servers and clients. In the case of WS-2, the WS-2 provides functions and information so it is a server and the computer, which reads this information or functions, is the client. For example, the storage of web sites and the making public of these are done by the [Web Server] and the sending and receiving of e-mail is performed by the [Mail Server].

Q&A about Networks

Q.1 What is a Network?

- A** A network is a system in which a group of computers are connected by cable (copper wire, optical fiber, etc), infrared ray, radio waves or other means in order to share and exchange information. There are basically two types of computer networks.
- LAN (Local Area Network)
A Local Area Network or LAN consists of a group or network of computers in a limited range.
 - WAN (Wide Area Network)
A Wide Area Network or WAN is a network of computers that are connected over long distance. The Internet is an example of a WAN that has connected a multiple number of networks.

Q.2 What is an IP address?

- A** In a network, in order to distinguish your computer from another it is necessary to assign a number; this number is called an IP address. When you connect to an outside network such as the Internet, the IP address that is used is referred to as a "Global IP address". In a Local Area Network the IP address that is used is called a "Private IP address". An IP address is divided into 4 blocks of numbers separated by periods, such as "192.168.15.10". The assigned numbers can use the digits 0-255 with private IP addresses usually beginning with numbers such as "192.168.". * However, the number "255." is not usually used. This number is absolutely necessary to enable participation in a network, so it is necessary to set the IP address to a number that suits your network environment.

Q.3 What is a subnet mask?

- A** An IP address is made up of the network address to which the computer belongs (network address) and the computer's own address within the network (host address). The subnet mask determines the division between these.

	← Network address →			← Host address →
IP address	192	168	15	10
Subnet mask	255.	255.	255.	0

The subnet mask, similar to the IP address, is made up of four blocks of numbers divided by periods, such as "255.255.255.0".

This number is absolutely necessary to enable participation in a network, so it is necessary to set the subnet mask to a number that suits your network environment.

Q.4 How should I make settings for the IP address/subnet mask?

- A** The IP address and subnet mask settings vary depending upon your networking environment (structure). Please consult your network administrator for details. Below is a simplified explanation for your reference.

If the computer connected to your company LAN has a subnet mask of "255.255.255.0" and an IP address of "192.168.100.1", set the subnet mask to the same as your computer, "255.255.255.0". Set the IP address to 192.168.100.***. Make sure to set the last three digits,***, to a number between 1-254 that is not the same as any other computer connected in your network.

IP address	192	168	100	1
				⋮
	192	168	100	254

Q.5 What is a MAC address?

- A** A MAC address is a unique number made up of alphabet and numbers that is assigned separately to the components of network communication (computer, server, router, etc...). Each MAC address is assigned to the hardware and is unique to that device, so there is no chance for duplication. If you compared it to a cell phone, even though the phone number may be changed, you could think of the MAC address as the serial number of the phone, which cannot be changed and is unique to each unit.

The MAC address is written on a sticker on the back of each WS-2.

Q.6 What is a port number?

- A** When using TCP/IP communication with a LAN cable or via a phone line, port numbers are assigned to distinguish one application from another. Port numbers can be assigned from 0 to 65535. The numbers 0 to 1023 are already reserved to communication services and are referred to as [Well Known Port Numbers]. [Well known port numbers] are: HTTP communication at 80/FTP communication at 20 and 21/SMTP communication (sending mail) at 25/POP3 communication (receiving mail) at 110. In order for communication to work properly these port numbers must be set correctly.

Q.7 What is a gateway?

- A** A gateway is a term used to refer to a device or software that is used to link networks with different standards.
- For example, a gateway is needed when connecting a cell phone to the Internet or in any case where you wish to connect two devices that are completely different. Gateway carries with it the meaning of entrance and exit and a router may also be referred to with this term.
- When making gateway settings, it is necessary to make IP address settings for the device that will act as a gateway.

Q.8 What is a URL?

- A** A URL is an address that is written in a way so that it is easy for the DNS function to determine on which server the IP address is located.
- This address begins with "http://" and is followed by such things as domain names, server names, port numbers, file names and other such info.

http://www.tandd.co.jp/product/ws2/index.php

Schema Domain Name File Name

For example, if the IP address that is assigned to "www.tandd.co.jp" is "61.197.203.107", by entering "http://61.197.203.107/product/ws2/index.php" in the browser, the same page will appear as when you enter "http://www.tandd.co.jp/product/ws2/index.php".

* The DNS or Domain Name Server helps to switch difficult to understand IP address of just numbers, such as "61.197.203.107" into easy to grasp names such as "www.tandd.co.jp" and helps connect to the desired server.

Q&A about the Internet

Q.1 What is an IP address?

- A** Usually, when you connect to the Internet, the provider with which you have contracted service automatically assigns an IP address which may be different each time you connect, or may change after a certain length of time.
- With this type of changing IP address, it is more difficult for outsiders to illegally enter your computer. On the other hand, when using your computer or a WS-2 unit as a sever, it would be necessary to enter a different IP address as the URL each time you wish to access it. In such a case, it would be necessary to find out the current IP address each time you wished to access and this would be totally inconvenient.
- To help solve this problem, there is something called a fixed IP address service that your provider can offer.
- With a fixed IP address, you will be assigned a special unique IP address.
- Some providers may give you a fixed IP address from the beginning of service, but with most providers it is necessary to sign up for this special service.

Q.2 How do you get a fixed IP address?

- A** A fixed IP address is a service offered by your Internet provider.
For details about how to receive a fixed IP address contact the Internet provider with which you are connected.

Q.3 How should I set up a fixed IP address?

- A** WIf you wish to open the WS-2 via the Internet, you must set the fixed IP address to the router and not to the WS-2. The fixed Internet IP address should be assigned to the router and all access to the WS-2 from outside should go through the router.
The router will have two IP addresses: an external IP address for the Internet and an internal IP address for the company or household LAN.

Q.4 I want to use a URL without a fixed IP address, how can I do that?

- A** If you wish to access a WS-2 by URL but without a fixed IP address, it is possible to use a dynamic IP address.
The DNS or Domain Name Server helps to switch difficult to understand IP address of just numbers, such as "61.197.203.107" into easy to grasp names such as "www.tandd.co.jp" and helps connect to the desired server.
The DNS usually changes names to fixed IP addresses.
But, if for some reason you cannot use a fixed IP address or for security reasons you wish not to use a fixed IP address, there is a type of DNS called a dynamic DNS, which can handle ever-changing IP addresses.
For example, the starting IP address is "210.0.0.1" and the URL associated with it is "http://www.ws2.com".
The IP address "210.0.0.1" is of the changing type that is periodically reassigned by the provider. After a certain period of time the assigned IP address is changed to "210.0.0.2".
Normally, at this point the DNS would not associate the URL with the IP address and access would be made impossible, but because the dynamic DNS tracks the IP address you can still access the desired server using the same URL.
There are many types of dynamic DNS plans and services available, please contact your local provider for more details.

Q.5 Can I use the Warning Mail function without getting or using a fixed IP address?

- A** Theoretically it is possible to send mail without having or using a fixed IP address. That is presuming it is possible to successfully send data via your provider's mail sever or your company's mail server. Fundamentally, if you are able to access your company mail server or connect to the Internet it should be possible to send mail.
It should be noted that a Mail Server which requires authentication other than POP before SMTP cannot be used.

Q.6 Is it possible to connect to the Internet without a fixed IP address nor an URL?

- A** Yes, it is possible to connect without using a URL or having a fixed IP address, but because the IP address that will be assigned by the provider will be constantly changing, the access will be varied and will not go smoothly.
- For example, the IP address that you used successfully one hour before may no longer work and access will be made impossible. Further, you will have no way of verifying the new IP address. We strongly suggest using either a fixed IP address or a dynamic DNS.

Q.7 If I connect the WS-2 to the Internet, is it not possible that another person could read my data or change my settings?

- A** Yes, as long as you are connected to the Internet, the unit could well be the target of unwanted access.
- But as long as your password and ID have not been leaked or stolen, it will be impossible to access the most important areas.
- But be aware that there are no assurances that your password and ID will not be stolen. If you wish to lessen these risks we strongly suggest that you install a firewall and other security software into your network.

Q.8 What is POP Before SMTP?

- A** POP Before SMTP is one method used for the sending and receiving of mail.
- A mail server uses two types of protocol to send and receive mail. Generally when mail is sent it uses an SMTP server and when receiving mail uses a POP server.
- Normally, the sending and receiving of mail are done separately. However, recently in an effort to fight Spam mail a new type of mail server, referred to as POP Before SMTP, has appeared.
- The way it works is that after logging in your Login ID and password to the POP server you can access the SMTP server for a certain length of time in order to send mail.
- Due to the particularity of this method, the WS-2 mailing function has been designed to be compatible with POP Before SMTP.
- The WS-2 mailing function has been designed to be compatible only with POP before SMTP.

Specifications

Hardware

Product Name	Network Server for Weather Station: Weather Wing WS-2
Interface Specifications	Serial: RS-232 D-SUB 9 pin Connector LAN: IEEE802.3 10Base-T/100Base-TX CF: Possible to use with IEEE802.11b Wireless LAN Card (PRISM2.5/3.0) * Although it is possible to be used with either Wireless LAN or 10/100Base-TX, it is impossible to use simultaneously with both.
Communication Speed	19200bps / 9600bps
External Output	Contact Output Capacity: Max AC/DC50V 0.1A
Warning Output	Voltage when OFF: AC/DC less than 50V Current when ON: less than 0.1A ON Resistance: MAX 35 Ω
Power	AC Adaptor AD-0605 or AD-0609
Dimensions / Weight of Main Unit	H83×W102×D28 mm(excluding protrusions) / about 35g
Operating Environment	Temperature: 0 to 50 °C , Humidity: 20 to 80%RH (No condensation)
Accessories included in package	AC Adaptor (AD-0605 or AD-0609) x1, LAN Cable (LN-20W) x1, Software Set x1, Introductory Guide (Warranty) x1

Weather Display Live

Management Functions	
Warning Settings :	Warning Items (Barometric Pressure / Humidity / Temperature / Rainfall / Wind Speed) Warning Function (Enable / Disable) , Upper and Lower Limit Settings (Only upper limit for Wind Speed and Rainfall) , Sending E-Mails, Output (Pulse / During Warning) , E-Mail Recipient Address
Data Transfer Settings :	FTP Upload (FTP Server Name/ Upload Path Name / Transmission Interval) E-Mail (Transmission Interval / Attaching Log File / Recipient Address)
Other Functions :	Communication Speed, Assigning Device (Station) Name, Refresh Interval Checking Settings (All Basic Network Settings / E-Mail Settings / Wireless LAN / Port Numbers / Communication Port / System Information)

WS-2 for Windows

WS-2 Settings Utility	WS-2 Settings Utility , Network Initialization, Detailed Network Settings, Login History (ON / OFF) , Clear Login History, Communication Time Settings
Multi-scale Graph	Graph : Data Graphs for every Channel (Data allocated to Channels 1 to 7) (Zoom in/out and scroll with mouse) Data : Channel Data Name, Recording Interval, Number of data, Cursor AB position data, Scale / Unit Conversion, Highest / Lowest / Average Reading and Total Number of Readings in Calculation Range Others : Data List Display, Delete Data, Re-order Data, Change Display Colors and Width of Data Lines for Channels, Merge Channel Data, View and Hide Channels , Set Vertical Axis Display Range, Scale / Unit Conversion, Change Graph Colors and Line Types / Widths, Edit Recording Conditions, Vertical Axis Settings, Creating Text File

PC Operating Environment

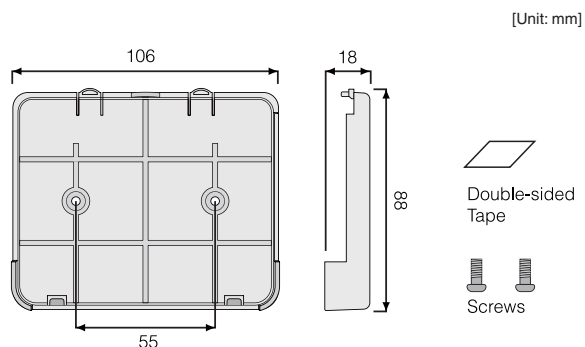
Compatible OS	Microsoft Windows 2000 / XP/ Vista English * To install the Settings Utility, it is necessary to have Administrator Rights for the computer into which it will be installed.
PC / CPU	A Stable Windows Operating Environment
Memory	LAN, TCP/IP Communication Possible
Hard Disk	Enough memory to stably operate Windows
Monitor	More than 10MB free space(Data will need more space)
LAN	SVGA (higher than 800×600 recommended) / more than 256 colors
Web Browser	100BASE-TX or 10BASE-T / Twisted pair cable conforming to Category 5(STP/UTP)
	Internet Explorer 6 or higher / Fire Fox 2.0 or higher

Optional Accessories

Wall Attachment

TR-5WK1

Wall Attachment x 1
Screws x 2
Double-sided Tape x 1



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Weather Wing **WS-2** User's Manual (2nd Edition)

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