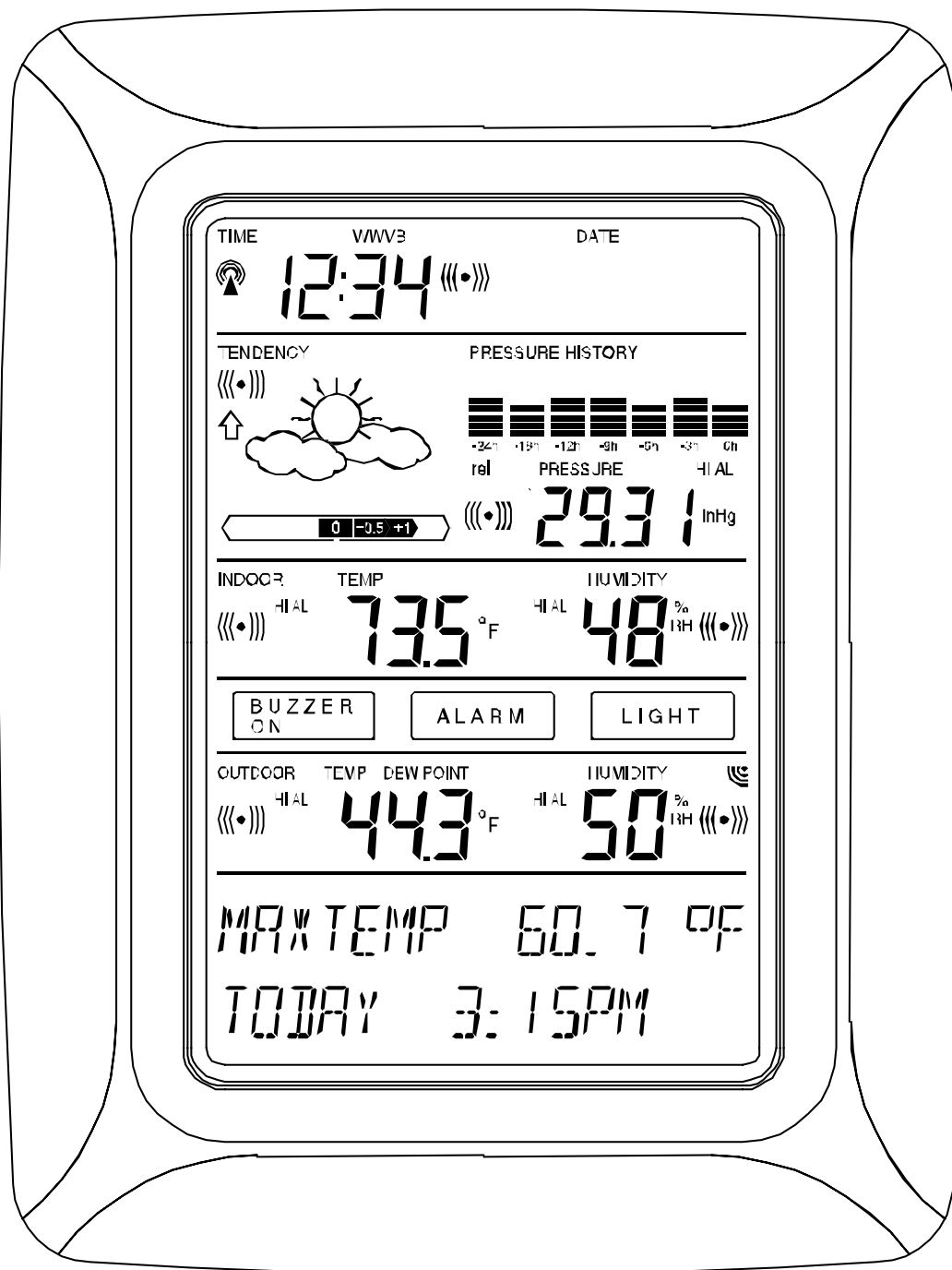


TOUCH-SCREEN WEATHER STATION MODEL WS-3510

Operation Manual



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Important Note:



Before inserting batteries please carefully read the entire operation manual.

The shipping contents of the touch-screen weather station WS-3510 include the touch-screen weather station, a remote temperature/humidity sensor, the respective connecting cables, an AC adapter and the PC software package on CD-ROM.

The weather station is equipped with a touch-screen LCD monitor and allows, by use of comprehensive menu controls, the display of a vast variety of time and weather data (from top to bottom):

- Radio-controlled time (Time) (also referred to as Atomic Time)
- Calendar (Date)
- Weather forecast (Tendency)
- Air pressure and air pressure history (Pressure, Pressure History)
- Indoor temperature and humidity (Indoor Temp, Humidity)
- Outdoor temperature and humidity (Outdoor Temp, Humidity)

An important feature of the touch-screen weather station is the ability, through the use of the supplied cable and software, to supply all measured and displayed time and weather data to a PC and the ability to upload the data to internet web sites.

2 Important Touch-Screen Operating Notes

All actions and functions of the touch-screen weather station are started on the touch-screen by slightly touching (**not pressing!**) the switching areas appearing in star (*) symbols (only in the text section at the bottom of the LCD) or the displayed values respectively.

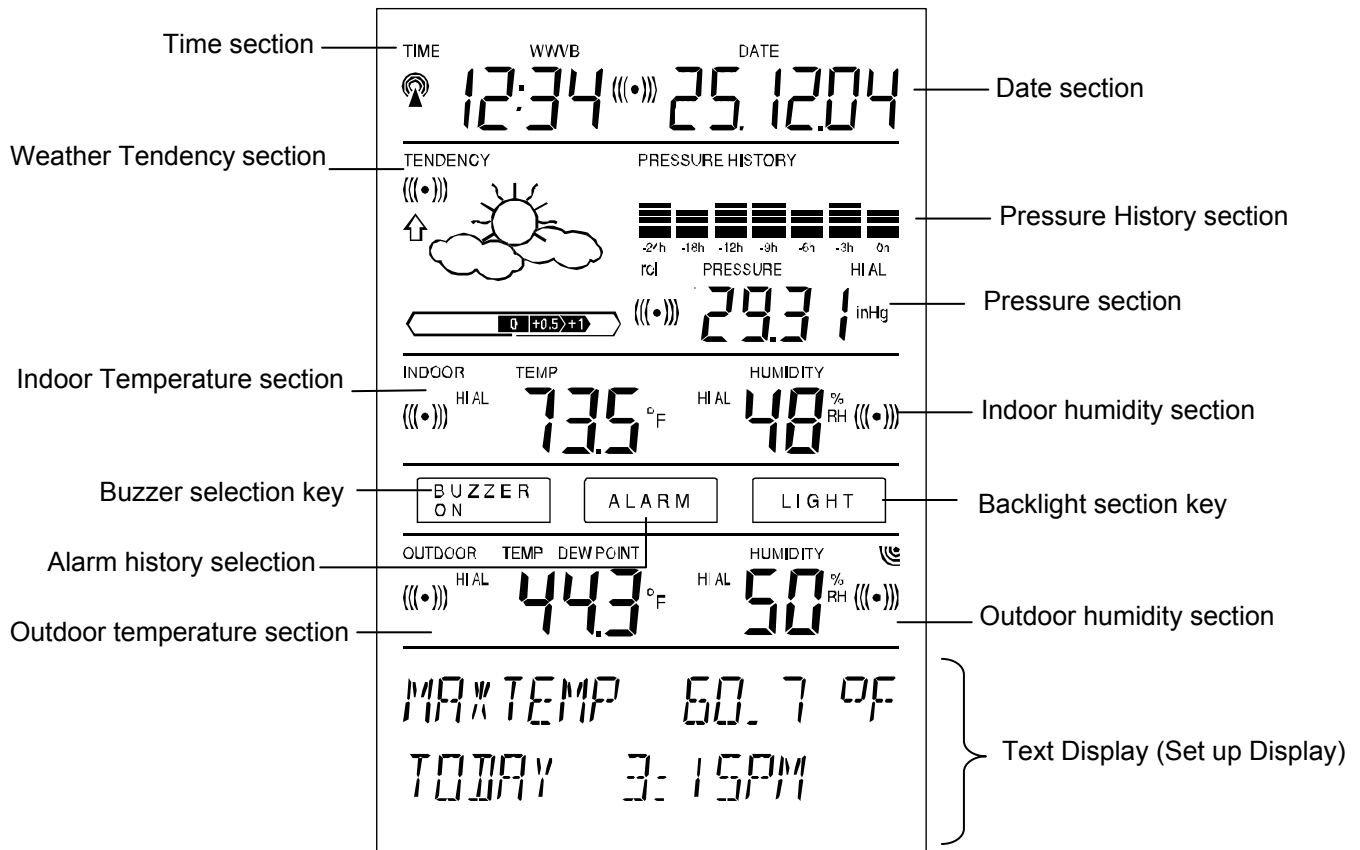
The setting of functions, values and units is in all modes performed by use of the switching areas *ON* or *OFF*, *UP* or *DOWN* or by direct unit selection.

You can advance to the next respective menu step with the *NEXT* area or leave all respective modes with *EXIT*.

Every programming step activated by touching a switching area on the touch-screen is acknowledged by an audible signal (with buzzer switched ON).

If during any process no further action is activated for about 30 seconds the active process is automatically terminated and switched back to the normal display mode (automatic time out).

Touch-screen "switching area" on LCD:

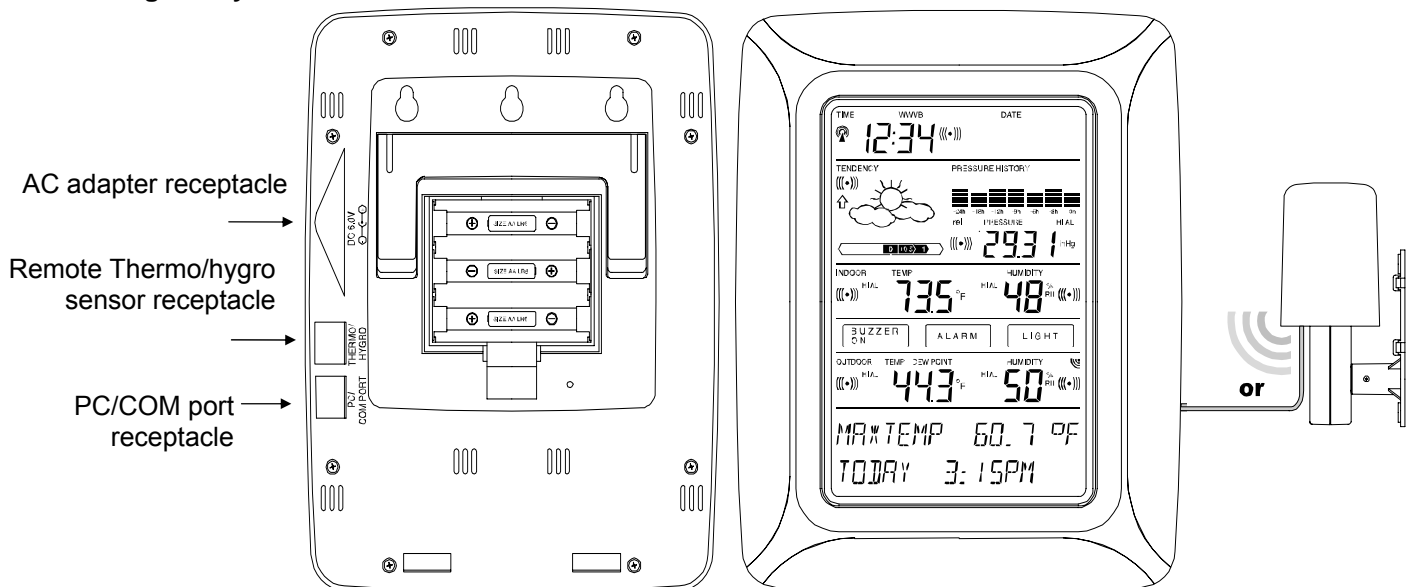


3 Putting into Operation

It first must be decided whether battery or AC (using the included adaptor) power will be used to operate the system. Both methods allow the connection of remote temperature/humidity sensor and touch-screen weather station by cable or 433 MHz wireless signal.

Note: When putting the wireless weather station into operation it is important to first perform a complete wiring and setup of the system in the configuration you intend to use. This serves as a test of all components for correct function before placing and mounting them in their final destinations.

3.1 Wiring the System



The direct cable connection of remote temperature/humidity sensor and touch-screen weather station can be used when:

- The flexibility of 433 MHz wireless transmission is not needed.
- Data transmission absolutely free of any environmental interference is wanted.

3.2 Power Supply

Power to the touch-screen weather station can be supplied by batteries or the included AC adapter.

3.2.1 Batteries:

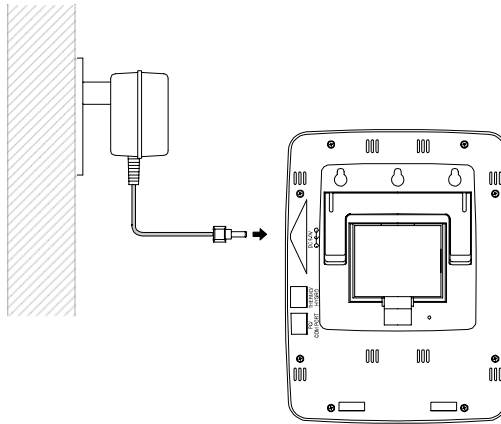
- First insert two AA 1.5 V batteries into the battery compartment of the remote temperature/humidity sensor.
- Immediately following this insert three AA 1.5V batteries into the battery compartment of the touch-screen weather station.



Please help in the preservation of the environment and return used batteries to an authorized depot.

3.2.2 AC Adapter:

- First insert two AA 1.5 V batteries into the battery compartment of the remote temperature/humidity sensor.
- Immediately following this connect the AC adapter to the touch-screen weather station and then plug it into a power outlet.



Note: In both cases it is important to observe this order of succession since the remote temperature/humidity sensor will send an identification code which has to be received and stored by the touch-screen weather station within the first few minutes of operation.

3.2.3 Cable Connection:

One further feature of the direct cable connection mentioned in Item 3.1 above is that in case of AC adapter operation power is provided not only to the touch-screen weather station but to the remote temperature/humidity sensor as well.

Note: Operating the system configured with a wired connection between the remote temperature/humidity sensor and touch-screen weather station and power supplied by only batteries in the touch-screen weather station is not recommended. The system will operate however there will be considerably shorter battery life due to the high power requirements. The batteries may however remain in the unit for emergency supply in case of a power failure.

A change from cable operation to 433 MHz wireless transmission or vice versa is possible since the touch-screen weather station will recognize this change and will automatically switch to the appropriate operating mode.

3.3 System Start

After powering up both the remote temperature/humidity sensor and touch-screen weather station the LCD of the touch-screen weather station will for a few seconds display all possible segments (to ensure all parts of the display can be seen).

Immediately after this the unit will enter the check mode phase in which for about 15 minutes all measured and received weather data be cycled through, updated and displayed. During this time period there will be no reception of the WWVB time information.

Note: The check mode phase allows the user of the touch-screen weather station to check all cables for correct connection and all components for correct function.

After completing the check mode the touch-screen weather station will automatically switch to the normal display mode from which all further settings can be performed by the user. At this point of time the unit will also automatically start reception of the WWVB time information.

Important Note:

Reception of the radio-controlled time information will only take place after completion of the check mode (approx. 15 minutes). In case the user wants to start the system without waiting for completion of the check mode it can be terminated prematurely by once touching the TIME display in the upper left corner of the LCD. Prior to manual setting or reception of radio-controlled time information there will be no recording of weather history data.

3.4 Placement

After the touch-screen weather station has been checked for correct function mounting the system components can take place. It must be ensured however that all components work properly together at their chosen mounting or standing locations. If there appear to be problems with the 433 MHz wireless transmission they can mostly be overcome by slightly moving the mounting locations.

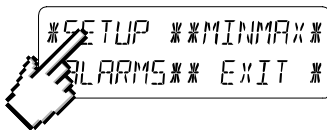
Note: Commonly the wireless communication between the remote temperature/humidity sensor and touch-screen weather station in the open field reaches distances of a maximum 330 feet (100 meters) providing that there are no interfering obstacles such as buildings, trees, vehicles, high voltage lines, etc.

Radio interferences created by PC screens, radios or TV sets can in some cases entirely cut off wireless communication. Please take this into consideration when choosing standing or mounting locations.

4 Setting Up:

Note: Because the default settings already determined by the manufacturer it may not be necessary for many users to perform - outside possibly the Relative Air Pressure (see further down) - any further basic settings. Changes however can easily be made if desired.

For basic settings the following menu is started by touching the touch-screen in the center of the text display (last two lines on the LCD). Touching the display *SETUP* will enter the setup mode.



The basic settings can now be performed in the following successive order:

LCD Contrast → Contrast can be set in 8 steps from 0 to 7 (Default 4).

LCD CONTRAST
NEXT *EXIT*

LCD 7 *UP*
NEXT *DOWN*

Time Zone → Time Zones can be set in the range from -12 to +12 hours (Default -5 hours for Eastern).

```
*ZONE*  
*NEXT*  *EXIT*
```

```
ZONE  -1h *UP*  
*NEXT*  *DOWN*
```

WWVB Radio-Controlled Clock (RCC) → ON/OFF. In setting “OFF” the clock is operating as a normal Quartz clock (Default RCC ON).

```
*RCC  ON/OFF*  
*NEXT*  *EXIT*
```

```
RCC  ON  *ON*  
*NEXT*  *OFF*
```

12/24-hour Time Display Format (Default 12-h Format).

```
*12/24 h  MODE*  
*NEXT*  *EXIT*
```

```
24 h  *12h*  
*NEXT*  *24h*
```

Units

- Temperature Display (Temp) in °F or °C (Default °F).

```
TEMP  °C *°C*  
*NEXT*  *°F*
```

- Air Pressure (Press) in inHg (inches of mercury – standard U.S. measurement) or hPa (hecto pascal) (Default inHg).

```
PRESS hPa *hPa*  
*NEXT*  *inHg*
```

Relative Air Pressure (Rel. Pressure) → To be set to the locally valid reference air pressure with regard to the local height above sea level (Default 29.98 inHg).

```
*REL PRESSURE*  
*NEXT*  *EXIT*
```

```
1013.0hPa *UP*  
*NEXT*  *DOWN*
```

Weather Tendency (Tendency) → Setting to a definite switching threshold (2 hPa to 4 hPa) for a change in display of weather icons (Default 3 hPa).

```
*TENDENCY*  
*NEXT*  *EXIT*
```

```
3 hPa *UP*  
*NEXT*  *DOWN*
```

Storm Warning (Storm) → Setting to a definite switching threshold for storm warning display at a decrease of air pressure from 3 hPa to 9 hPa over 6 hours (Default 5 hPa).

```
*STORM WARNING*  
*NEXT*  *EXIT*
```

```
5 hPa *UP*  
*NEXT*  *DOWN*
```

Activate/Deactivate storm warning alarm with *ON* / *OFF* (Default OFF).

```
WARNING OFF*ON*  
*NEXT*  *OFF*
```

Relearn Mode (Relearn Tx) → Allows recognition of the remote temperature/humidity sensor (e. g. after a battery change in the remote temperature/humidity sensor) without the necessity of a comprehensive re-setup of all system components → Acknowledge with *CONFIRM*.

```
* RELEARN TX *
* NEXT *      * EXIT *
```

```
* CONFIRM *
* NEXT *
```

Default Settings (Factory Reset) → Allows a reset of all weather data from the non-volatile buffer memory (EEPROM) and reset of all set and/or stored values to the factory settings set prior to shipment → Acknowledge with *CONFIRM*.

```
* FACTORY RESET *
* EXIT *
```

```
* CONFIRM *
* EXIT *
```

```
FACTORY RESET
IN PROGRESS
```

```
REMOVE BATTERY
```

Note:

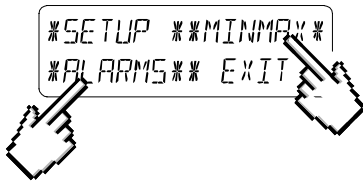
It will take about 5 minutes for the factory reset process. During this period, the text “Factory Reset In Progress” will be shown. After the reset process is finished, the LCD will switch off and the text “Remove Battery” will be displayed. Remove the battery and perform system start again. See “3 - Putting in Operation” paragraph.

Leave the basic settings procedure (Setup Mode) with *EXIT*.

5 Display of stored Min/Max Values and Alarm Value Settings

The selected values are simultaneously displayed and flashing in their respective display sections when showing the coinciding min/max value.

To recall the measuring and alarm values the menu shown below will have to be activated by touching the touch-screen in the center of the text display section (last two lines at the bottom of the LCD). The display of the values is started by touching the displays *MINMAX* or *ALARMS*.

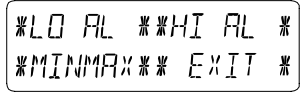


When *MINMAX* is selected the below shown menu step is activated, which in turn leads to the displays of the stored Min/Max values by use of *MIN* / *MAX* field.

Note: During individual display of the stored Min/Max values the top line of the LCD screen will automatically display the time and date of the record.

```
* MIN *    * MAX *
* ALARMS * * EXIT *
```


The following menu item will appear upon touching the display *ALARMS*. By selecting *LO AL* or *HI AL* the unit will display the set low and high alarm values. These values can be directly selected individually.



Because of the constant access to the opposite menu items, *MINMAX* and *ALARMS*, it is possible at any time to toggle between the MIN/MAX and ALARMS value displays.

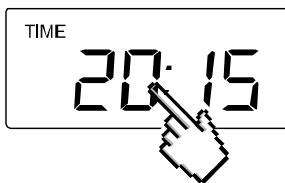
Any action can immediately be terminated through *EXIT*.

6 Radio-controlled WWVB Clock

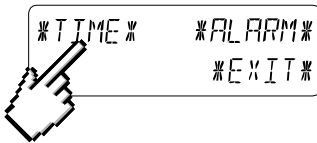
The radio-controlled WWVB clock is controlled by the radio signal of the WWVB time code transmitter and will thus set time and date automatically. Under bad reception conditions however both can be set manually as follows:

Setting the Time

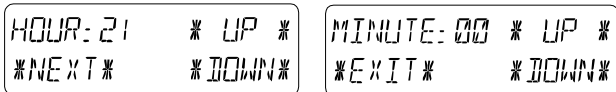
The action is started by touching the time display in the TIME section of the touch-screen.



Select *TIME* in the menu section (last two lines on the LCD).

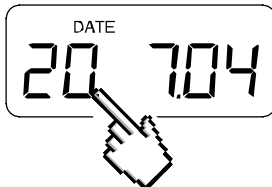


Set the hours and minutes. Leave the mode with *EXIT* or wait for automatic time-out.

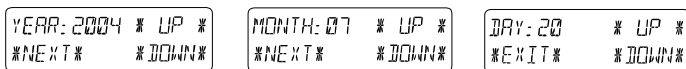


Setting the Date

The action is started by touching the date display in the DATE section of the touch-screen.



Set the year, month and date and day. Leave the mode with *EXIT*.



Note:

By twice touching the DATE section the display will toggle between the following:

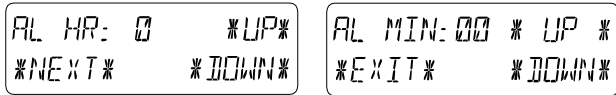
- Date in DD.MM.YY format (24-hour time format) or Date in MM.DD.YY format (12-hour time format)
- Weekday, Date of month, Month (24-hour format) or Weekday, Month, Date of month (12-hour time format)
- Seconds
- Set wake-up alarm time

Setting the Wake-up Alarm

The action is started by touching the time display in the TIME section.

Press *ALARM* in the menu section (last two lines on the LCD).

Set hours and minutes of the wake-up time. Leave the mode with *EXIT*.

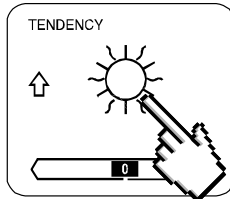


Note:

- The wake-up alarm is activated/deactivated by twice touching the TIME section. Here the alarm symbol (((•))) will show or disappear after *EXIT* (or automatic time-out).
- When the alarm sounds, user may "touch" any section on the LCD to stop the alarm.

7 Weather Tendency

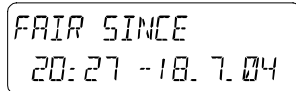
Call up the tendency display by touching the weather symbol in the TENDENCY section.



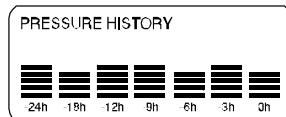
The text section (last two lines on the LCD) will show since when (with time and date) the weather corresponding to the icon occurred.

Note:

- Up and down arrow indicate weather tendency
- Advanced storm warning is displayed by Rainy symbol with a flashing down arrow
- Every minute, when a new pressure reading is obtained, this value is compared to pressure readings from last 2 hours and the biggest resulting difference is displayed in the difference barometer.



8 Air Pressure History (Pressure History)



The air pressure history shows the progress of the air pressure over a time period of 24 or 72 hours in the form of a 7-step bar graph, where the length of the utmost right bar represents the present air pressure and the remaining bars show the air pressure over the selected period of time.

Note:

The time resolution of the bar graph can be changed from fine (0 to -24 h) to coarse (0 to -72 h) and back by once touching the PRESSURE HISTORY section.

9 Operating and Setting of the following Functions:

- Air Pressure (Pressure), Relative and Absolute
- Indoor Temperature (Indoor Temp)
- Indoor Humidity (Indoor Humidity)
- Outdoor Temperature (Outdoor Temp), Dew Point
- Outdoor Humidity (Outdoor Humidity)

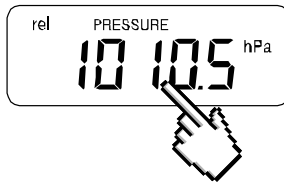
Important Note!

Since the operating procedures and settings are similar for all steps to be carried out on the touch-screen weather station for the above functions, the procedure shall be explained only once by means of the following example "Air Pressure".

9.1 Air Pressure (Pressure)

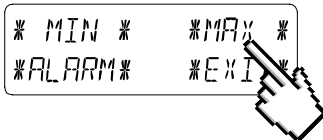
Example for Activating the Displays of Stored Maximum Values

Call up the menu on the text section by touching the PRESSURE section.

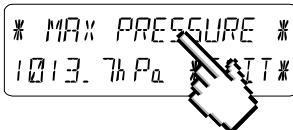


Start with *MAX* in the menu section.

Note: Display of the stored minimum values is possible from here through the *MIN* field on the LCD.



Display of stored value. Proceed with *MAX PRESSURE*.



You may now reset the displayed value to the present value with *CONFIRM*, if there is no need to reset, advance with the *EXIT* field.

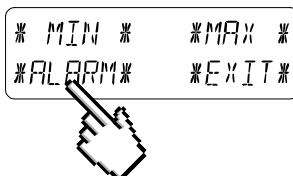


End of Example

Example for Setting of Alarms by means of the HI Alarms

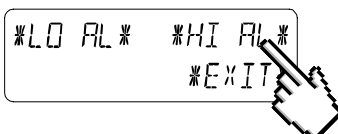
As in the example above here too call up the menu on the text section by touching the PRESSURE section.

Start with *ALARM* in the menu section.



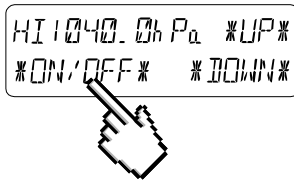
Proceed with *HI AL* in the menu section.

Note: Setting of the LO alarms is possible from here through the *LO AL* field.



Set the high alarm value with *UP* or *DOWN*.

Proceed with *ON/OFF*.



Activate or deactivate the alarm with *ON* or *OFF*.

Terminate with *EXIT*.

Note:

Activation or deactivation of the alarm (Display or deletion of the (((•))) symbol) only pertains to the presently displayed value.



End of Example

Note:

Twice touching the PRESSURE section toggles the displays of the Relative (rel) and Absolute (abs) air pressure. All setting and display facilities only pertain to the presently displayed value.

10 Additional Information and Functions - Outdoor Temperature (Outdoor Temp)

Note:

By twice touching the OUTDOOR section the display will toggle between the following:

- Outdoor Temperature (Outdoor Temp)
- Dew Point

All setting and display facilities only pertain to the presently displayed value.

11 Operating and Setting the EL Backlight (Light), Buzzer and Alarm Sections

11.1 EL Backlight (Light)

For easier reading of the LCD the EL backlight can be switched ON or OFF by once touching the LIGHT section. When the display shows "ON" the backlight will be switched on for approximately 15 seconds every time any one of the LCD sections has been touched.

The switching condition (Enabled/Disabled) is shown in the text section for about 30 seconds.

Note:

When the touch-screen weather station is battery operated the repeated use of the EL backlight will result in a considerable decrease of battery lifetime. It is recommended to either operate the touch-screen weather station with the included AC adapter or entirely deactivate the EL backlight (see above).

11.2 Buzzer

The buzzer for acknowledgement of selecting a field or alarm signals of the touch-screen weather station can be switched ON or OFF by touching the BUZZER section.

The switching condition ON or OFF is displayed directly in the BUZZER section as well as for about 30 seconds in the text section (Enabled/Disabled).

11.3 Alarm

Upon touching the ALARM section, and then by pressing the *NEXT* field all those set and activated alarms (outside the wake-up alarm) will be displayed that have reached an alarm condition since their last deletion.

Here for every respective alarm the time and date of appearance can be displayed by touching *ALARM*.

12 PC Connection

12.1 Data Storage

For a comprehensive weather history the touch-screen weather station allows the internal storage of up to 1750 complete sets of weather data with time and date. These data sets are stored in non-volatile ring buffer memory (EEPROM) and will not be lost even in case of an interruption of power supply (e. g. change of batteries).

If the memory capacity of the touch-screen weather station is exceeded the oldest data sets stored will be overwritten by the new ones recorded.

12.2 Data Recall

The weather data stored can only be read out, processed and displayed by means of a PC. Also the settings of the storing intervals from 1 minute to 24 hours for the storage of data sets can only be performed by means of a PC.

12.3 Connections and Software

The wiring between touch-screen weather station and PC takes place by means of an included COM port cable. The "Heavy Weather Pro 3510" software package also included in the shipping contents must be installed on your PC.

This software allows the display of all present weather data with graphic symbols. It further allows the display, storage and printing of history data sets, whose volume exceeding the maximum 1750 data sets of the touch-screen weather station is only limited by the capacity of the PC's main memory.

The present weather data can be loaded to web sites by means of the "Web Publisher" software. History data can be displayed as diagrams and graphs by means of the "Heavy Weather Pro" software.

Important note:

For further details to the subject "PC Connection" and Program utilisation, please see the "Help" File (under the Question mark button in menu bar) of the Heavy Weather Program. (The Wind and Rain measurements are not applicable to the model WS-3510.)

13 Technical Data

13.1 Outdoor Data:

Transmission Range in Open Field:.....330 feet max (100 meters)
Measuring Intervals Outdoor Data:every 128 seconds
Temperature Range:.....-40°F to +139.8° F (-40 °C to +59.9 °C) (Display "OFL" if outside this range)
Resolution:0.2°F (0.1 °C)
Measuring Range Rel. Humidity:1% to 99%
Resolution:1%

13.2 Data Transmission by 433 MHz Wireless Signal:

Measuring Intervals remote temperature/humidity sensor: 128 seconds

13.3 Data Transmission by Cable:

Measuring Intervals remote temperature/humidity sensor: 128 seconds

13.4 Indoor Data:

Measuring Intervals Indoor Data:every 20 s
Temperature Range:-40°F to +139.8° F (-40 °C to +59.9 °C) (Display "OFL" if outside this range)
Resolution:0.2°F (0.1 °C)
Measuring Range Rel. Humidity:1% to 99%
Resolution:1%
Measuring Range Air Pressure:27.17 to 31.90 inHg (300 hPa to 1099 hPa)
Resolution:0.01 inHg (0.1 hPa)
Alarm Duration:about 2 minutes

13.5 Power Supply:

Base Station:
Batteries:3 x AA batteries (Alkaline Batteries recommended, Life Cycle without EL backlight approx. 1 year). When batteries require replacement for the touch-screen weather station, the low battery indicator will light up on the LCD.
or AC Adaptor:AC Adapter INPUT 110VAC / 60Hz (use only the included Adapter).
Recommended for PC Connection and frequent use of EL Backlight)

Remote temperature/humidity sensor:
Batteries:2 x AA batteries (Alkaline Batteries recommended, Life Cycle approx. 1 year)
orPower provided via cable from the touch-screen weather station by using the AC adapter

13.6 PC Connection:

Wiring:COM Port Cable (included)
Data Processing:by PC only
Software:“Heavy Weather Pro” (included)
Storage Intervals:1 minute through 24 hours, user settable
Data Volume:
Base Station:1750 data sets maximum
PC:Volume of main memory maximum

13.7 Dimensions:

Base Station: 8.86 x 6.09 x 1.27 in (185 x 142 x 32.2 mm)
Thermo-Hygro-Sensor: 5.39 x 2.21 x 2.21 in (137 x 70.5 x 56.2 mm)

WARRANTY INFORMATION

La Crosse Technology, Ltd provides a 1-year limited warranty on this product against manufacturing defects in materials and workmanship.

This limited warranty begins on the original date of purchase, is valid only on products purchased and used in North America and only to the original purchaser of this product. To receive warranty service, the purchaser must contact La Crosse Technology, Ltd for problem determination and service procedures. Warranty service can only be performed by a La Crosse Technology, Ltd authorized service center. The original dated bill of sale must be presented upon request as proof of purchase to La Crosse Technology, Ltd or La Crosse Technology, Ltd's authorized service center.

La Crosse Technology, Ltd will repair or replace this product, at our option and at no charge as stipulated herein, with new or reconditioned parts or products if found to be defective during the limited warranty period specified above. All replaced parts and products become the property of La Crosse Technology, Ltd and must be returned to La Crosse Technology, Ltd. Replacement parts and products assume the remaining original warranty, or ninety (90) days, whichever is longer. La Crosse Technology, Ltd will pay all expenses for labor and materials for all repairs covered by this warranty. If necessary repairs are not covered by this warranty, or if a product is examined which is not in need of repair, you will be charged for the repairs or examination. The owner must pay any shipping charges incurred in getting your La Crosse Technology, Ltd product to a La Crosse Technology, Ltd authorized service center. La Crosse Technology, Ltd will pay reasonable return shipping charges to the owner of the product.

Your La Crosse Technology, Ltd warranty covers all defects in material and workmanship with the following specified exceptions: (1) damage caused by accident, unreasonable use or neglect (including the lack of reasonable and necessary maintenance); (2) damage occurring during shipment (claims must be presented to the carrier); (3) damage to, or deterioration of, any accessory or decorative surface; (4) damage resulting from failure to follow instructions contained in your owner's manual; (5) damage resulting from the performance of repairs or alterations by someone other than an authorized La Crosse Technology, Ltd authorized service center; (6) units used for other than home use (7) applications and uses that this product was not intended or (8) the products inability to receive a signal due to any source of interference.. This warranty covers only actual defects within the product itself, and does not cover the cost of installation or removal from a fixed installation, normal set-up or adjustments, claims based on misrepresentation by the seller or performance variations resulting from installation-related circumstances.

LA CROSSE TECHNOLOGY, LTD WILL NOT ASSUME LIABILITY FOR INCIDENTAL, CONSEQUENTIAL, PUNITIVE, OR OTHER SIMILAR DAMAGES ASSOCIATED WITH THE OPERATION OR MALFUNCTION OF THIS PRODUCT. THIS PRODUCT IS NOT TO BE USED FOR MEDICAL PURPOSES OR FOR PUBLIC INFORMATION. THIS PRODUCT IS NOT A TOY. KEEP OUT OF CHILDREN'S REACH.

This warranty gives you specific legal rights. You may also have other rights specific to your State. Some States do not allow the exclusion of consequential or incidental damages therefore the above exclusion of limitation may not apply to you.

For warranty work, technical support, or information contact:

La Crosse Technology, Ltd
190 Main Street
La Crescent, MN 55947
Phone: 507.895.7095
Fax: 507.895.2820

e-mail:

support@lacrossetechnology.com
(warranty work)

sales@lacrossetechnology.com
(information on other products)

web:

www.lacrossetechnology.com

FCC DISCLAIMER

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

FCC ID: OMO-01RX (Receiver), OMO-01TX (transmitter)

Freq. 433.92 MHz
La Crosse Technology
Made in China
WS-3510

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