

**TFT COLORFUL DISPLAY  
MULTIPLE-CHANNEL WEATHER STATION  
DL5000**

**Operation Manual**

## OVERVIEW

### 1. Inventory of contents

QTY	Item
1	Display Console Frame Dimensions (LxHxW): 11.5 x 8.2 x 4cm LCD Dimensions (LxW): 9.5 x 5.5cm
*	Thermo-hygrometer transmitter (WH31) Dimensions (LxHxW): 12 x 4 x 1.8cm
1	USB Cable for PC Connection
1	Adaptor

\* 1,2,3,4, or 5, based on your order configuration.

### Console



Figure 1

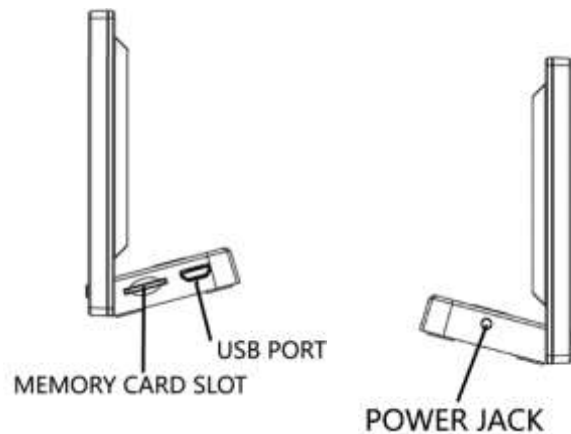


Figure 2

### sensors



Figure 3

## 2. Introduction

Thank you for your purchase this professional weather station. This device can receive signals up to at most 8 sensors. All the sensors measure temperature, humidity, heat index and dew point and transmit to the console and displayed in defined channels.

This manual will guide you step-by-step through setting up your device. Use this manual to become familiar with your professional weather station, and save it for future reference.

## 3. Getting Started

**Note: The power up sequence is performed in the order shown in this section(insert batteries in the display console first, remote transmitters second).**

### 3.1 Display Console Set Up

Connect the console to AC power with the included AC adapter.

If the remotes do not update, please reference the troubleshooting guide in Section 0.

### 3.2 Thermo-Hygrometer Sensor Set Up

**Note:** To avoid operating problems, please take note of battery polarity before/when inserting any Alkaline Batteries (permanent damaged could be introduced by inserting the battery in wrong direction). Do not use rechargeable batteries. We recommend fresh alkaline batteries for outdoor temperature range between -20°C and 60°C and fresh lithium batteries for outdoor temperature range between -40°C and 60°C.

1. Move the transmitters(s) about 5 to 10' away from the display console (if the transmitters are too close, they may not be received by the display console). With multiple transmitters, make sure all transmitters are powered up and displaying different channels on the display.
2. Remove the battery door on the back of the thermo-hygrometer sensor by sliding down the battery door, as shown in Figure 4.

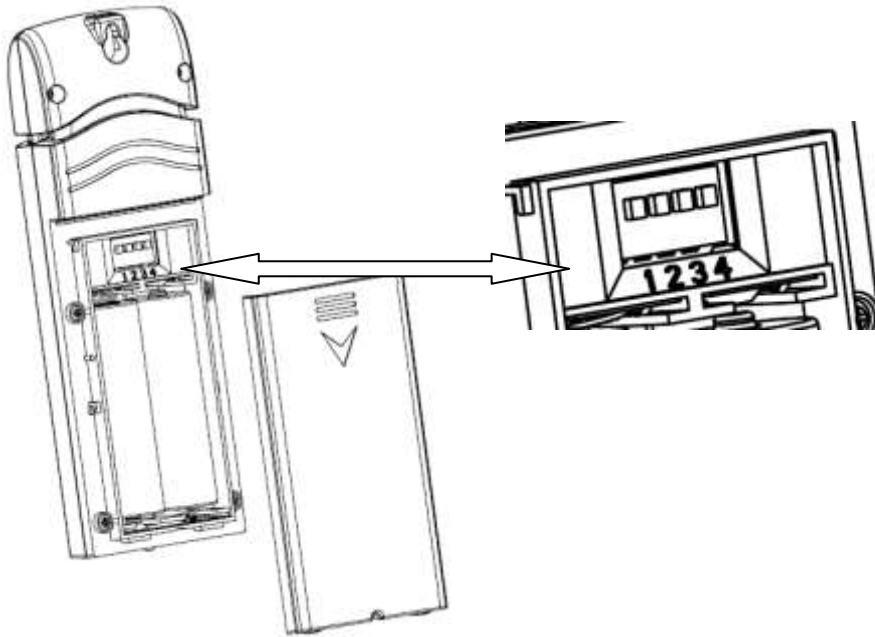


Figure 4

3. **BEFORE** inserting the batteries, locate the dip switches on the inside cover of the lid of the transmitter.
4. **Channel Number:** the weather station support up to eight sensors, and includes three transmitters. To set each channel number, change Dip Switches 1,2,3 as referenced in Figure 6.
5. **Temperature unit of Measure:** To change the sensor display units of measure ( $^{\circ}\text{F}$  or  $^{\circ}\text{C}$ ), change Dip Switch 4, as referenced in Figure 5.

: Pull down the button    
 : Pull up the button

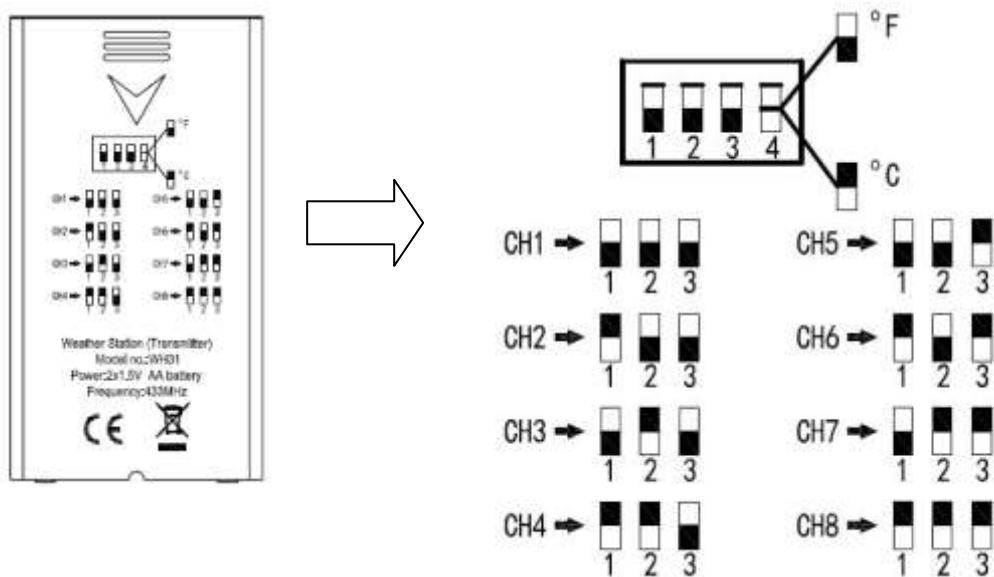


Figure 5

6. Insert two AA batteries
7. Wait for seconds until temperature and humidity displayed on the LCD screen of sensors.
8. Verify the correct channel number (CH) and temperature units of measure are on the display, as shown in Figure 6.

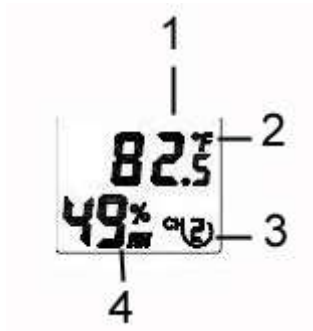


Figure 6

- (1) Temperature
- (2) Temperature units ((°F or °C)
- (3) Channel number
- (4) Relative humidity

9. Close the battery door.
10. Repeat for the additional remote sensor, verifying each remote is on a different channel.

### 3.3 Sensor Operation Verification



Verify the humidity sensors match closely with all of the sensors in the same location (about 5 to 10' apart). The sensors should agree within 10% (the accuracy is  $\pm 5\%$ ). Allow about 30 minutes for all sensors to stabilize. The humidity can be adjusted or calibrated later to match each other a known source.

Verify the temperature sensors match closely with all of the sensors in the same location (about 5 to 10' apart). The sensors should be within 2°C (the accuracy is  $\pm 1^\circ\text{C}$ ). Allow about 30 minutes for all sensors to stabilize. The temperature can be adjusted or calibrated later to match each other or a known source.

### 3.4 Radio Controlled Clock (RCC)

After the remote sensor is powered up, the sensor will transmit weather data for 30 seconds, and then the sensor will begin radio controlled clock (RCC) reception. During the RCC time reception period (maximum 5 minutes), no weather data will be transmitted to avoid

interference. Once the radio controlled time is received the RCC signal received successfully,

the RCC reception icon  will turn on in the outdoor sensor LCD display. Then outdoor sensor sends the RCC signal to display console, Once the radio controlled time is received, RCC reception icon  will turn on in the display console. (reference Figure 10).

If the signal reception is not successful within 3 minute, the signal search will be cancelled and will automatically resume every six hours until the signal is successfully captured. The regular RF link will resume once RCC reception routine is finished. In some locations, RCC reception may take a couple of days to receive the signal.

#### 4. Remote Sensor Installation

Before mount the units, ensuring that the receiver can still pick up the signal from transmitters. It is recommended to mount the sensors on a north facing wall, in a shaded area. Direct sunlight and radiant heat sources will result in inaccurate temperature readings. Although the sensors are water resistant, it is best to mount in a well protected area, such as under an eave.

1. Use a screw or nail to affix the remote sensor to the wall, as shown in Figure 7
2. Hang the remote sensor up on string, as shown in Figure 8.



Figure 7



Figure 8

#### 5. Program modes

##### 5.1 Normal display Mode

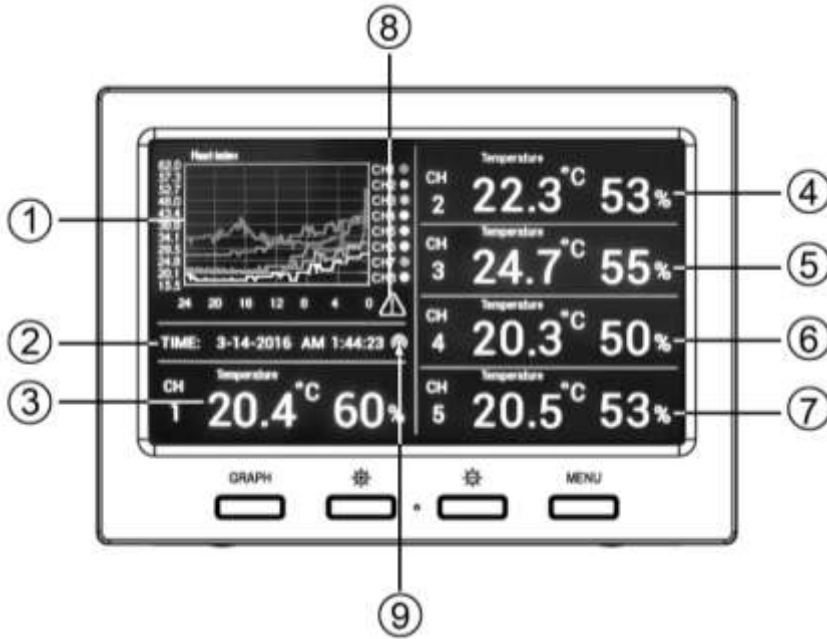


Figure 10

1. Graph for Temperature/Dew point/heat index/humidity of Indoor/outdoor sensors.
2. Date and time.
3. Outdoor Temperature/Dew point/heat index/humidity for channel 1 and other channels defined to be displayed in CH1 area in turn.
4. Outdoor Temperature/Dew point/heat index/humidity for channel 2 and other channels defined to be displayed in CH2 area in turn.
5. Outdoor Temperature/Dew point/heat index/humidity for channel 3 and other channels defined to be displayed in CH3 area in turn.
6. Outdoor Temperature/Dew point/heat index/humidity for channel 4 and other channels defined to be displayed in CH4 area in turn.
7. Outdoor Temperature/Dew point/heat index/humidity for channel 5 and other channels defined to be displayed in CH5 area in turn.
8. Alarm icon
9. RCC reception icon

After the console receives data from each remote sensor, user can press these 4 buttons for operation.

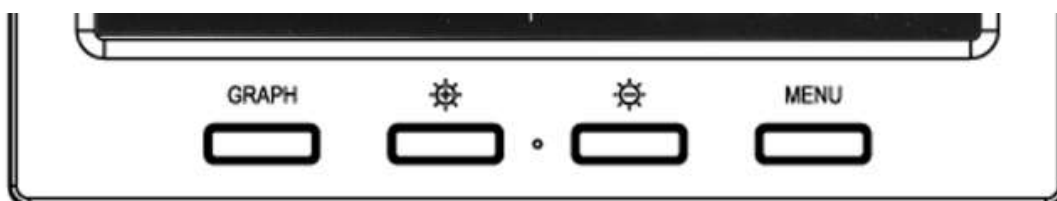


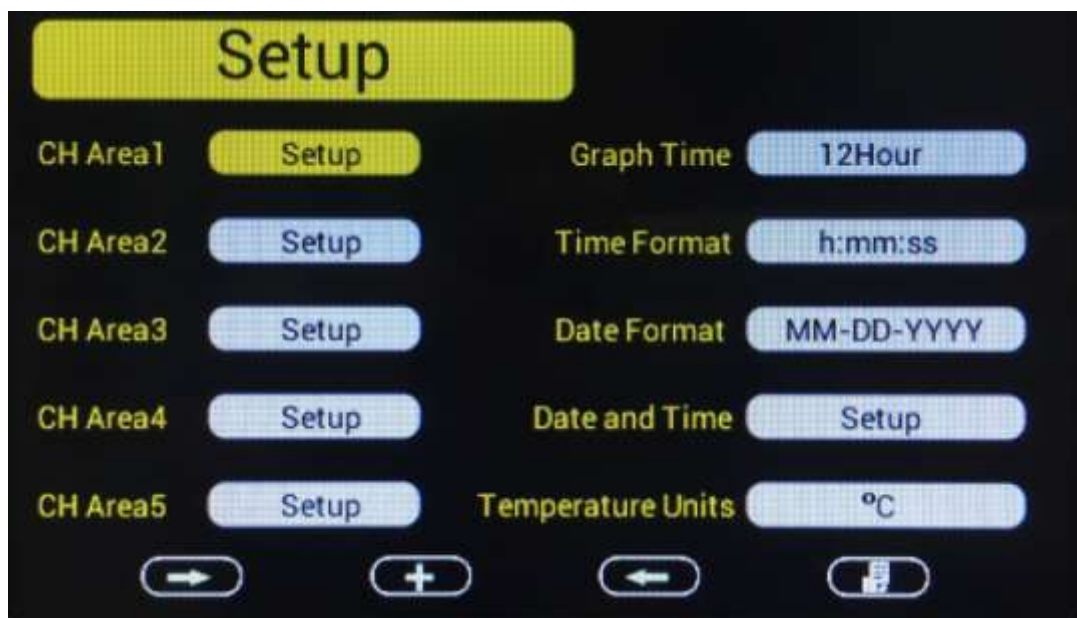


Figure 11

Icon	Description
GRAPH	<b>Graph key</b> Switch to display graph of Temperature/Dew point/heat index/humidity for all sensors
	<b>Brightness control key</b> Press this key to increase the brightness
	<b>Brightness control key</b> Press this key to decrease the brightness
MENU	<b>Menu Key</b> Press this key to enter menu and scroll to different modes

## 5.2 Setup Mode

Under Normal mode, press **MENU** key once to enter Setup Mode.







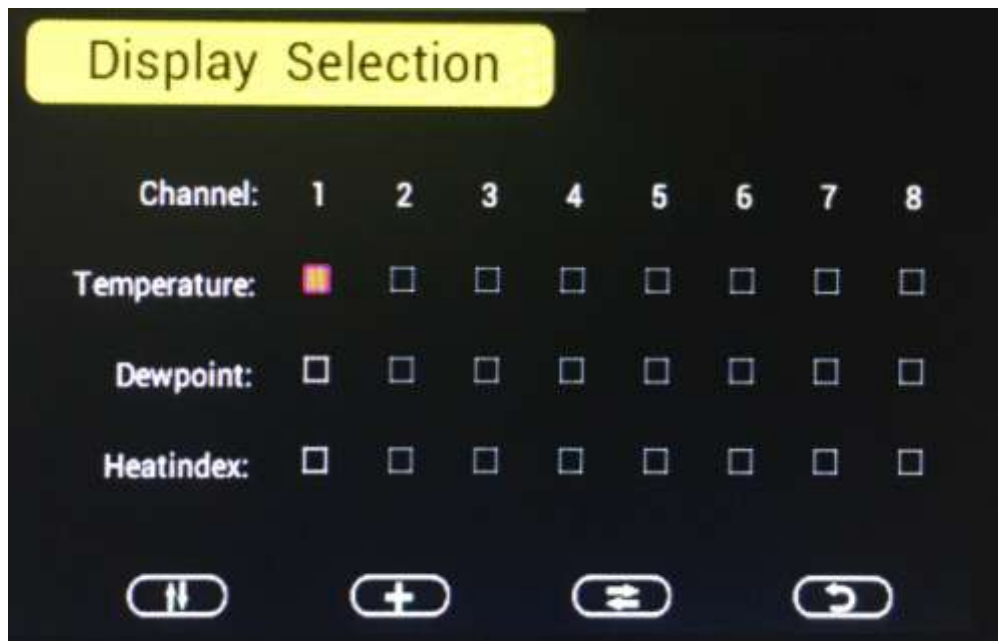
Icon	Description
	<b>Scroll right key</b> Press this key to scroll down/right.
	<b>Selection key</b> Press this key to select and enter the option.
	<b>Scroll left key</b> Press this key to scroll up/left.
	<b>Mode key</b> Press this key to enter to next mode

Figure 12

CH Area1-5



Scroll to selected channel area, and press  key to enter the setting interface as below:





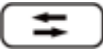

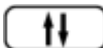
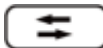

Icon	Description
	<b>Scroll right key</b> Press this key to scroll down/up. .
	<b>Selection key</b> Press this key to select and enter the option.
	<b>Scroll left key</b> Press this key to scroll right/left.
	<b>Return key</b> Press this key to back to Setup main menu.

Figure 13

To modify the display parameter, press the up/down  and left/right  keys to move the blue cursor to a sensor channel number (1-8) and parameter (temperature, dew point, heat index).

Press  key to display this channel and parameter in the selected area on the main screen.

For example, if you wish to display Channel 1 Dew Point in the CH Area 1, highlight the Channel 1 Dew point field.



If you wish to toggle both channel 1 temperature and channel 1 dew point, highlight both the Channel 1 Temperature and Channel 1 Dew Point (reference Fehler! Verweisquelle konnte

nicht gefunden werden.),, and the screen will toggle between the channel 1 temperature and dew point on the main screen once every 3 seconds.



If you wish to toggle both channel 2 temperature and channel 5 Dew point in the CH Area 2, highlight both the Channel 2 Temperature and Channel 5 Dew point, and the screen will toggle between the channel 5 temperature and dew point in the CH Area 2 once every 3 second.

Note: CH Area 1 can't shift display other channel parameter and just display channel 1 sensor parameter.



### Graph Time

To change the Graph Time on the main display, scroll  to the Graph Time, and select the  key to change between 12, 24, 48 and 72 hours.

### Time Format

To change the Time Format on the main display, scroll  to the Time Format, and select the  key to change between AM h:mm:ss, hh:mm:ss AM (12 hour time format) and h:mm:ss (24 hour time format)

### Date Format

To change the Date Format on the main display, scroll  to the Date Format, and select the  key to change between MM-DD-YYYY, DD-MM-YYYY and YYYY-MM-DD.




### Date and time

This is to set time, date, DST, and time zone.



Figure 14

The console receives the radio controlled time signal from one wireless sensors. The time and date will set automatically, and adjust for Daylight Savings Time (DST). To work properly, you must enter the time zone and DST. You can also manually enter the time.

To manually change the time and data settings, scroll  to the field you wish to change, and press the  or  key to adjust up or down.

Turn **ON** the DST setting, unless you reside in the place which do not observe Daylight Savings Time.



Adjust your time zone according to the table below:

Hours from GMT	Time Zone	Cities
-12	IDLW: International Date Line West	---
-11	NT: Nome	Nome, AK
-10	AHST: Alaska-Hawaii Standard CAT: Central Alaska HST: Hawaii Standard	Honolulu, HI
-9	YST: Yukon Standard	Yukon Territory
-8	PST: Pacific Standard	Los Angeles, CA, USA
-7	MST: Mountain Standard	Denver, CO, USA
-6	CST: Central Standard	Chicago, IL, USA
-5	EST: Eastern Standard	New York, NY, USA
-4	AST: Atlantic Standard	Caracas
-3	---	São Paulo, Brazil
-2	AT: Azores	Azores, Cape Verde Islands

Hours from GMT	Time Zone	Cities
-1	WAT: West Africa	---
0	GMT: Greenwich Mean WET: Western European	London, England
1	CET: Central European	Paris, France
2	EET: Eastern European	Athens, Greece
3	BT: Baghdad	Moscow, Russia
4	---	Abu Dhabi, UAE
5	---	Tashkent
6	---	Astana
7	---	Bangkok
8	CCT: China Coast	Beijing
9	JST: Japan Standard	Tokyo
10	GST: Guam Standard	Sydney
11	---	Magadan
12	IDLE: International Date Line East NZST: New Zealand Standard	Wellington, New Zealand

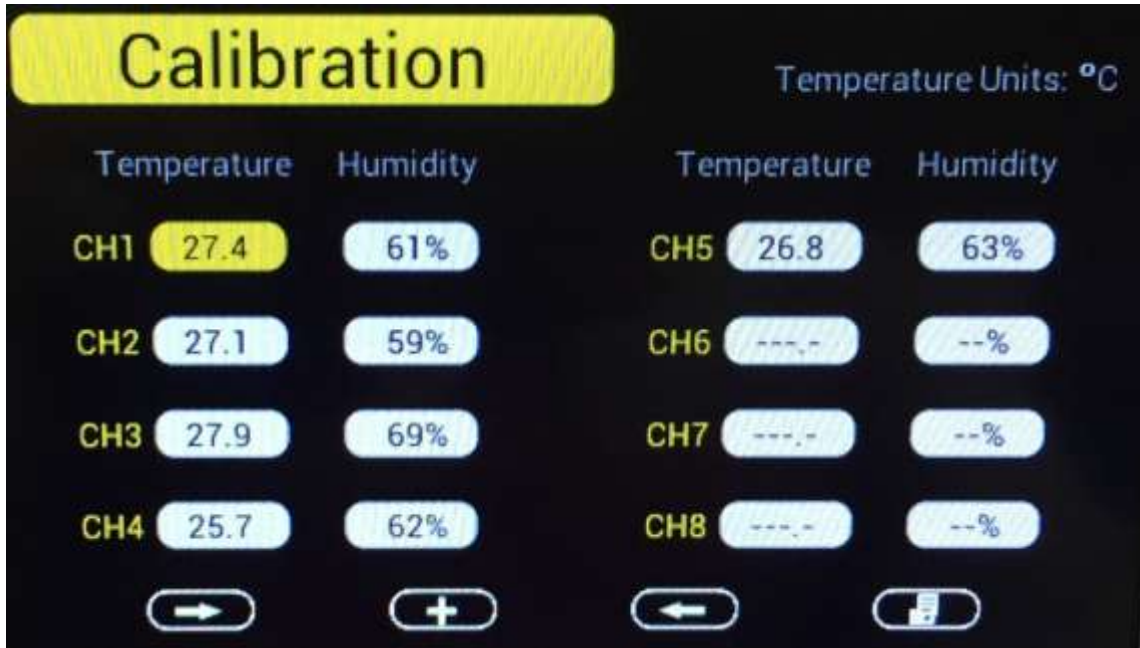
Figure 15

### Temperature Units

To change the temperature units of measure, scroll  to the Temperature Units field, and press the  key to toggle between °F and °C.

### 5.3 Calibration Mode

Under Normal mode, press **MENU** key twice to enter Calibration Mode. Users can calibrate the temperature and humidity of wireless sensors here.









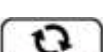
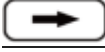



Icon	Description
	<b>Scroll down/right key</b> Press this key to scroll down/right.
	<b>Selection/value increase key</b> Press this key to select parameter and enter the calibration interface. Increase the value during calibration.
	<b>Value Decrease key</b> Decrease the value during calibration.
	<b>Scroll up/left key</b> Press this key to scroll up/left.
	<b>Mode key</b> Press this key to enter to next mode
	<b>Return Key</b> Back to main menu of calibration mode.
	<b>Resume Key</b> Cancel the calibration and resume.

Figure 16

Scroll  to the temperature or humidity field you wish to calibrate, press the  key to perform the calibration, and press the  or  key to match your calibration source.

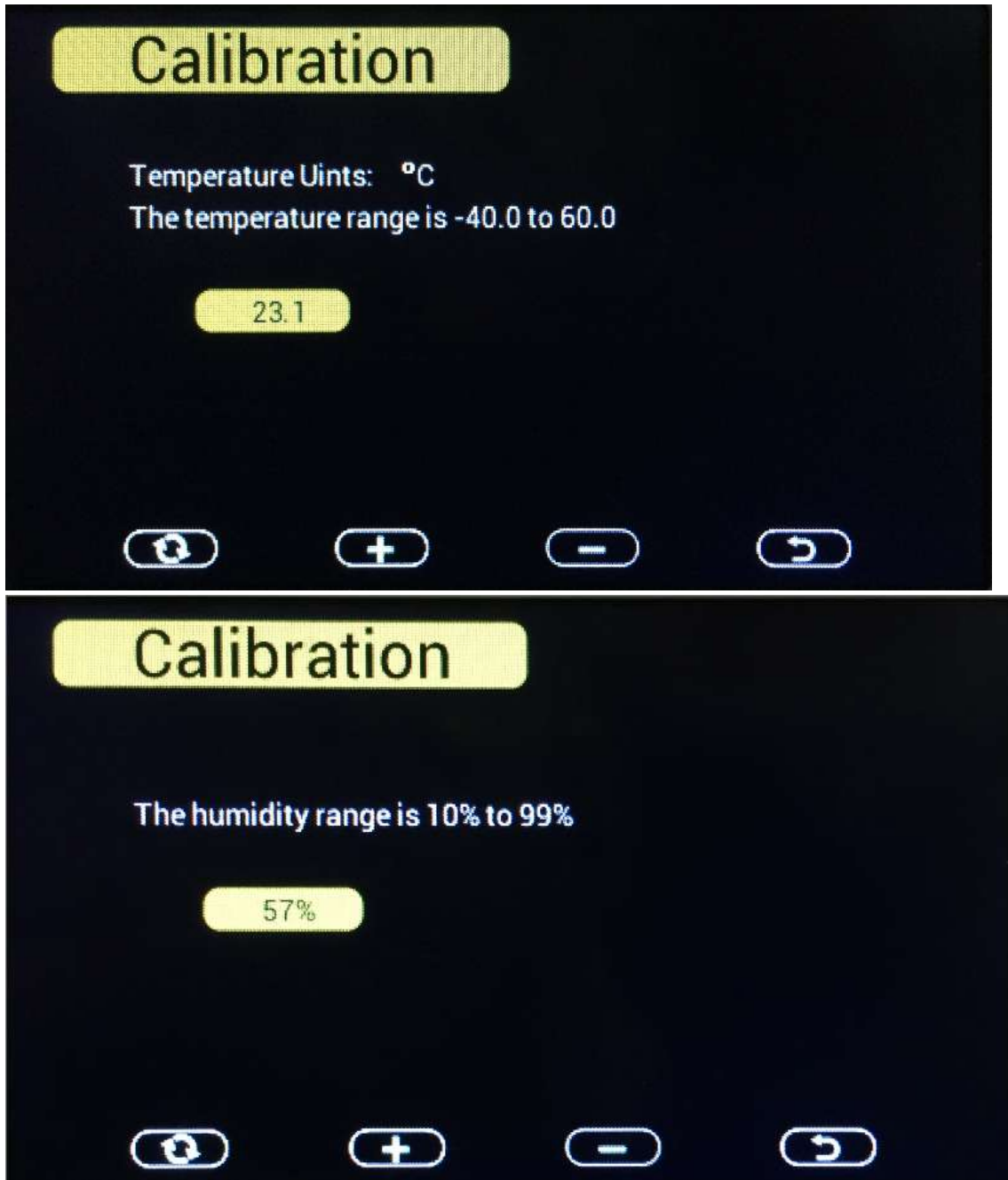




Figure 17

### 5.3.1 Notes about Calibration

 **Note:** The calibrated value can only be adjusted on the console. The remote sensor(s) always displays the un-calibrated or measured value.

 **Note:** The measured humidity range is between 10 and 99%. Humidity cannot be accurately measured outside of this range. Thus, the humidity cannot be calibrated below 10% or above 99%.

The purpose of calibration is to fine tune or correct for any sensor error associated with the devices margin of error. The measurement can be adjusted from the console to calibrate to a known source.

Calibration is only useful if you have a known calibrated source you can compare it against, and is optional. This section discusses practices, procedures and sources for sensor calibration to reduce manufacturing and degradation errors. Do not compare your readings obtained from sources such as the internet, radio, television or newspapers. They are in a different location and typically update once per hour.

The purpose of your weather station is to measure conditions of your surroundings, which vary significantly from location to location.

### **5.3.2 Humidity Calibration Methods**

Official stations recalibrate or replace humidity sensors on a yearly basis. Due to manufacturing tolerances, the humidity is accurate to  $\pm 5\%$ . To improve this accuracy, the indoor and outdoor humidity can be calibrated using an accurate source, such as a sling psychrometer or one step humidpak calibration kits.

### **5.3.3 Temperature Calibration Methods**

Temperature errors can occur when a sensor is placed too close to a heat source (such as a building structure, the ground or trees).

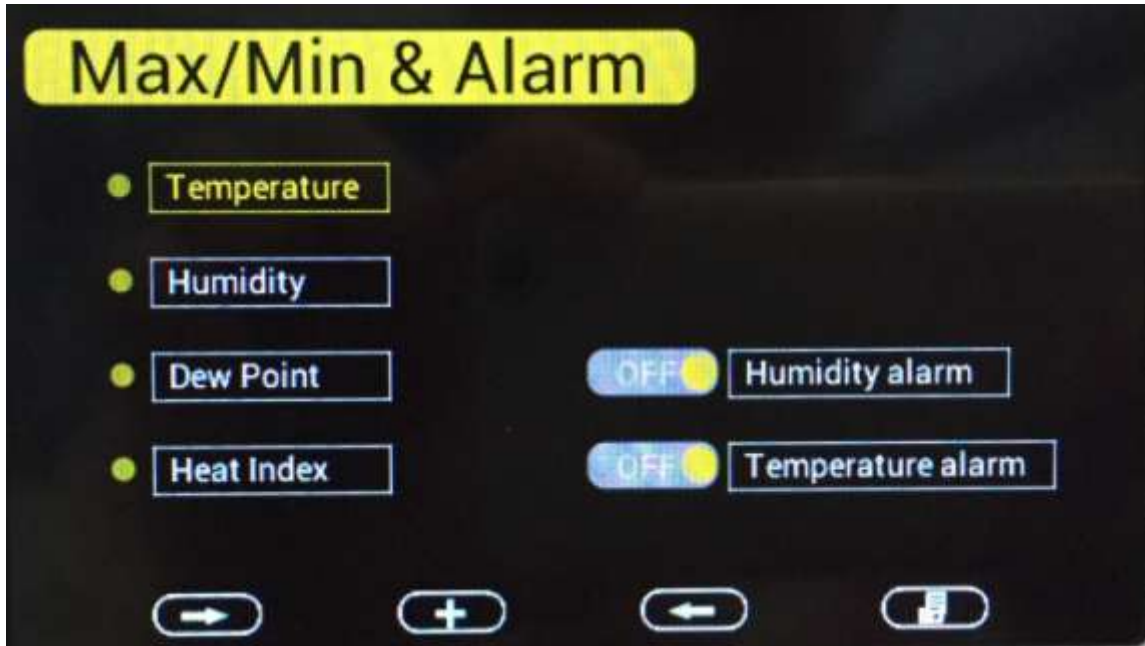
To calibrate temperature, we recommend a mercury or red spirit (fluid) thermometer. Bi-metal (dial) and other digital thermometers are not a good source and have their own margin of error. Using a local weather station in your area is also a poor source due to changes in location, timing (airport weather stations are only updated once per hour) and possible calibration errors (many official weather stations are not properly installed and calibrated).

Place the sensor in a shaded, controlled environment next to the fluid thermometer, and allow the sensor to stabilize for 48 hours. Compare this temperature to the fluid thermometer and adjust the console to match the fluid thermometer.

## **5.4 Max/Min & Alarm Mode**

Under Normal mode, press **MENU** key three times to enter Max/Min & Alarm Mode. Users can check max/min records of temperature, humidity, dew point, heat index of each sensor.

And ice warning, high/low alarms of humidity and temperature can be configured here.









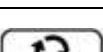
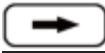

Icon	Description
	<b>Scroll down/right key</b> Press this key to scroll down/right.
	<b>Selection/value increase key</b> Press this key to select parameter to check according max/min records. Switch on/off alarms and increase the value during alarm setup.
	<b>Value Decrease key</b> Decrease the value during alarm setup.
	<b>Scroll up/left key</b> Press this key to scroll up/left.
	<b>Mode key</b> Press this key to enter to next mode
	<b>Return Key</b> Back to main menu of calibration mode.
	<b>Resume Key</b> Cancel the calibration and resume.

Figure 18

#### 5.4.1 Max/Min

Scroll  to the temperature, humidity, dew point or heat index min/max field you wish to view, and press the  key. Note that dashes (--) will be displayed for sensors that are not programmed for your system.



### Temperature Max/Min interface

The screenshot displays a 'Temperature Max/Min' interface with a yellow header. It shows two columns of data for 8 channels. Each channel entry includes a channel number (CH), a maximum temperature value, a minimum temperature value, and a timestamp. The data is as follows:

Channel	Max Temp (°C)	Min Temp (°C)	Timestamp
1	27.3	27.1	01:40 3/2/2016
2	28.2	27.5	01:39 3/2/2016
3	27.6	27.3	01:39 3/2/2016
4	27.6	27.3	01:39 3/2/2016
5	27.6	27.4	01:39 3/2/2016
6	--.	--.	--:-- --/--/----
7	--.	--.	--:-- --/--/----
8	--.	--.	--:-- --/--/----

A circular arrow icon is visible at the bottom right of the interface.

Figure 19

To clear all of the min and max values, refer to Section Fehler! Verweisquelle konnte nicht gefunden werden. for details.

### Humidity Max/Min interface

The screenshot displays a 'Humidity Max/Min' interface with a yellow header. It shows two columns of data for 8 channels. Each channel entry includes a channel number (CH), a maximum humidity percentage, a minimum humidity percentage, and a timestamp. The data is as follows:

Channel	Max Humidity (%)	Min Humidity (%)	Timestamp
1	64%	61%	01:40 3/2/2016
2	71%	65%	01:39 3/2/2016
3	63%	60%	01:39 3/2/2016
4	67%	64%	01:39 3/2/2016
5	68%	65%	01:39 3/2/2016
6	--%	--%	--:-- --/--/----
7	--%	--%	--:-- --/--/----
8	--%	--%	--:-- --/--/----

A circular arrow icon is visible at the bottom right of the interface.

Figure 20

Dew point Max/Min interface

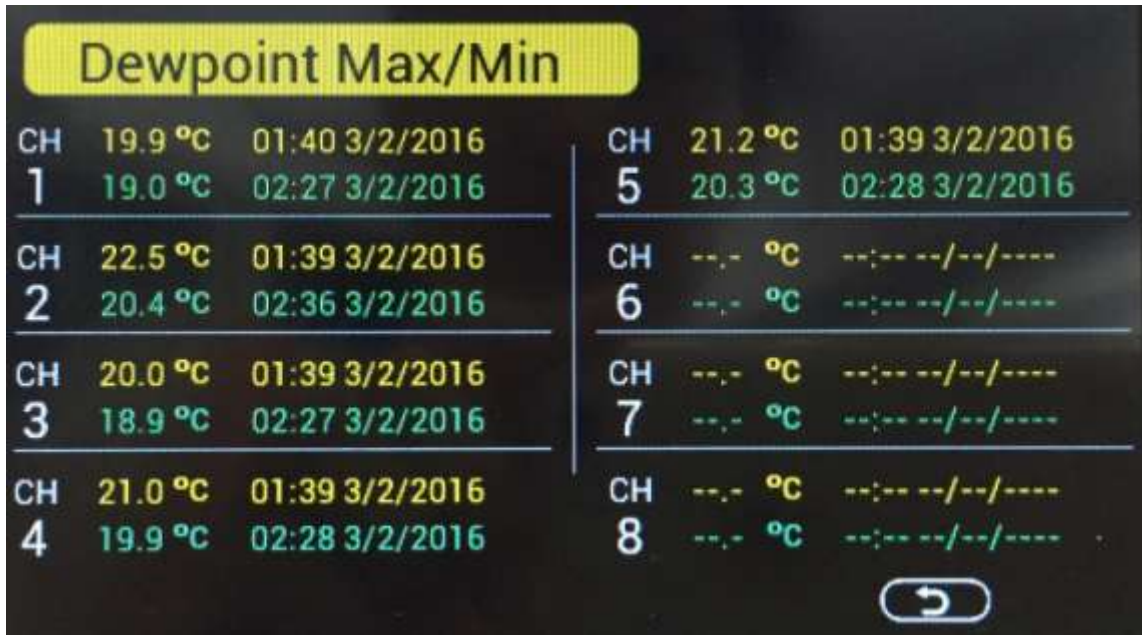


Figure 21



Heat index Max/Min interface





Figure 22

## 5.4.2 Alarm

You can set a high and low temperature and humidity alarm on **Channels 1-8**.

If the measured value is greater than the high alarm, an audible alert will sound and the alarm icon  will flash on the alarm panel, and the red color alarm icon  will appear on the main panel.

If the measured value is less than the high alarm, an audible alert will sound and the alarm icon  will flash on the alarm panel, and the grey color alarm icon  will appear on the main panel.

When an alarm has been triggered, the alarm will sound for 120 second and the corresponding alarm icon will flash until the alarm condition is no longer met. Press any key to silence the alarm.

The alarm icon is color coded, and will flash as shown in Figure 23 **Fehler! Verweisquelle konnte nicht gefunden werden.** if one or more alarms are triggered.







Alarm Type	 Color
High Alarm	Red – grey - red
Low alarm	Blue – grey - blue
High alarm & Low alarm both activated	Red – grey – blue – grey – red
Beep alarm stop	grey

Figure23

Scroll  to the Humidity or Temperature Alarm On/Off switch, and press the  key to toggle the Humidity or Temperature Alarm On or Off.

Scroll  to the Humidity Alarm or Temperature Alarm field, and press the  key to display the alarm programming panel, as shown in **Fehler! Verweisquelle konnte nicht gefunden werden.**

 **Note:** The alarm must be turned On to program the alarm settings.

Referring to **Fehler! Verweisquelle konnte nicht gefunden werden.**, scroll  to the

channel and alarm limit, and press the **+** or **-** key to adjust the alarm limit up or down. Scroll to the alarm field and press the **+** key to turn the alarm bell on or off to activate the alarm.



Icon	Description
	<b>Scroll down/right key</b> Press this key to scroll down/right.
	<b>Selection/value increase key</b> Press this key to select parameter to set alarm thresholds and turn on the alarm icon. Red alarm icon is high alarm. Blue one is low







	alarm.
	<b>Value Decrease key</b> Decrease the value during alarm setup.
	<b>Scroll up/left key</b> Press this key to scroll up/left.
	<b>Mode key</b> Press this key to back to main menu or enter to next mode
	<b>Return Key</b> Back to main menu of alarm menu.

Figure24

## 5.5 Factory

Under Normal mode, press **MENU** key four times to enter factory mode.

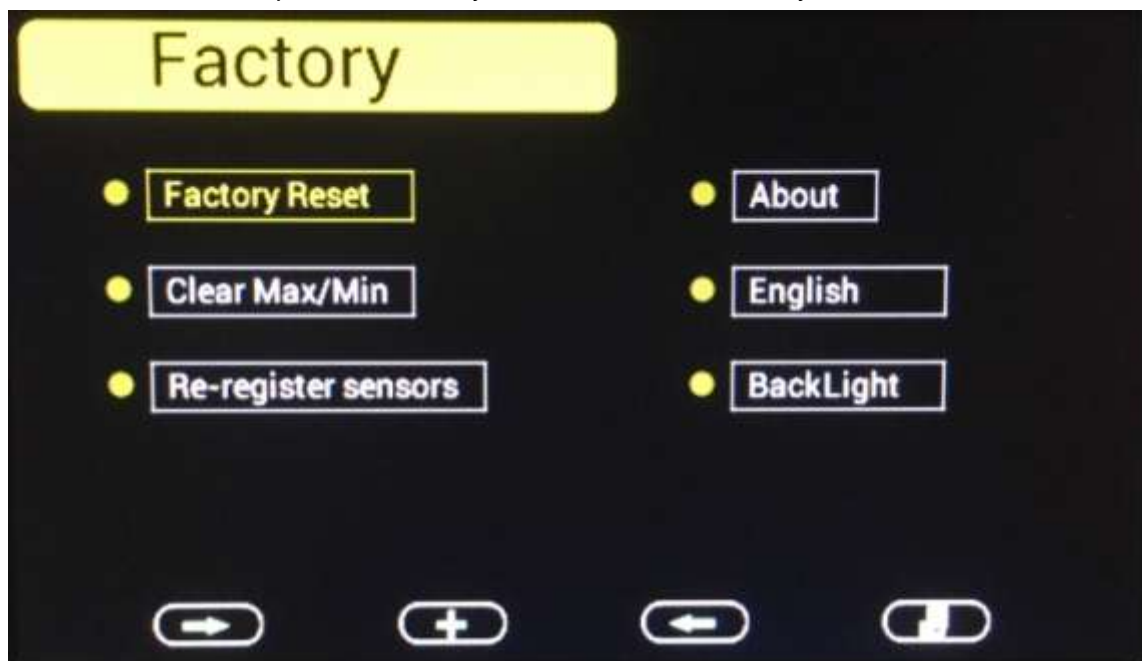







Figure25

### Factory reset:

To restore to factory default, scroll  to the Factory Reset field and press  to clear all settings and restore to factory default.

### Clear Max/Min:

To clear all of the max and min values, scroll  to the Clear Max/Min field and press  to view the clear Max/Min panel. Scroll the sensor you wish to clear, and press  to clear the stored max and min values of this sensor..

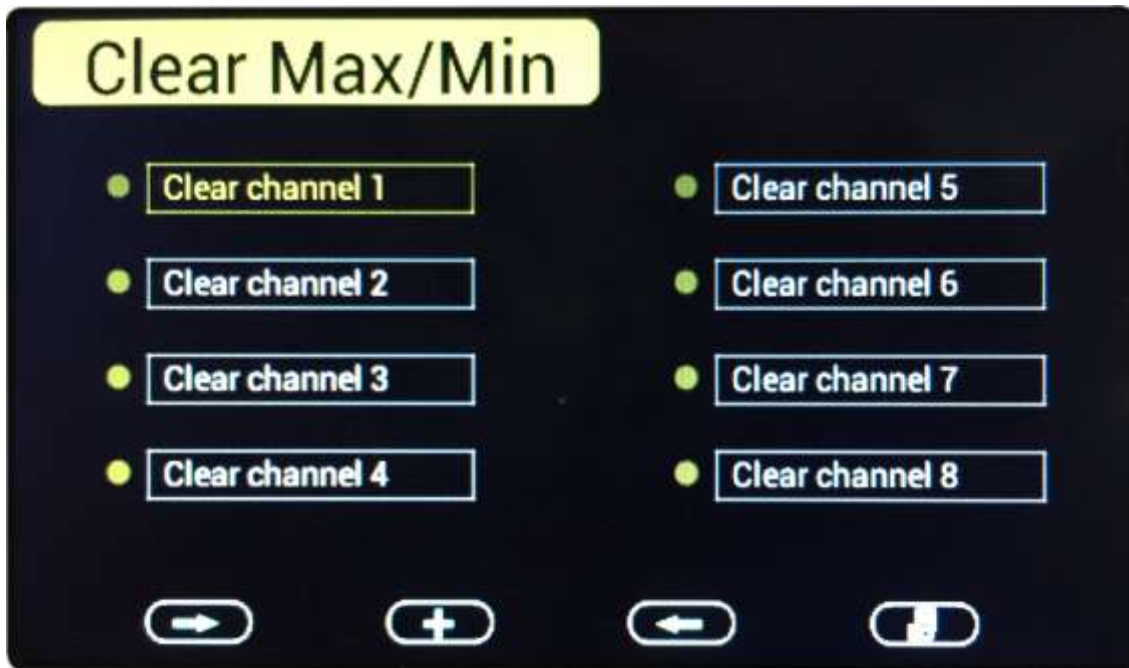
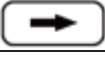






Figure26

**Re-register sensors:**

If sensor communication is lost with a specific sensor, you can re-acquire.

Scroll  to the re-register sensors field, and press  to view the re-register panel.

Scroll the sensor you wish to register, and press  to re-acquire this sensor. Press the  button to highlight Yes and press  to confirm.

If the indoor sensor display "-- --", please scroll to it and enter to Re-register the indoor sensor.



**About:**

Scroll  to the About field, and press  to view the hardware and firmware version.

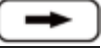





Figure27

**English:**

Scroll  to the Language field, and press  to change the language (currently only English is only supported).

**Backlight:**

Scroll  to the BackLight field, and press  to adjust the backlight features.

To turn on and off the back lit display at certain times during the day, scroll  to the Backlight control field, and select the  key to check the Backlight Control switch.

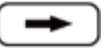


Scroll  to adjust the backlight on and off time. Press the  or  keys to adjust the hours and minutes up or down.



Figure28

## 6. Other Features

### 6.1 SD Card Export and Firmware Updates

With the use of an optional Micro SD Card, you can export data to a computer, save historical graphs (in the event of a power failure) and update firmware when new versions are released.



Figure 1

#### 6.1.1 SD Data Export

The console includes a micro SD / TF card slot on the right side, as shown in **Fehler!**  
**Verweisquelle konnte nicht gefunden werden..**

Backup data to micro SD / TF card (see the Accessories section of this manual for more information on micro SD / TF cards).



The SD card will record data into the HISTORY directory.

The file is comma separated value (csv) and can be imported into Microsoft Excel, or other text based applications.

The file format is as follows:

YYYYCH#A

where YYYY is the year, # is the channel number and A is the revision letter.

Example: 2016CH2A is the data for 2016, Channel 2, and A is the revision letter each time you change a units of measure or calibration setting.

Below is an example of the file output:

```
Time, Temperature(F), Humidity(%), Dewpoint(F), HeatIndex(F)
2016/02/18 08:05, 48.7, 32, 20.3, 48.7
2016/02/18 08:10, 49.1, 33, 21.2, 49.1
2016/02/18 08:15, 49.1, 31, 19.8, 49.1
```

### 6.1.2 Back Up Graph Data

In the event of a power failure, the graph data on the main screen is lost, unless an optional MicroSD Card is inserted into the SD Card Slot. The graph back up data file located on the SD Card is labeled **GRAPH.bin**.

## 6.2 PC Software

Optional PC Software is available

The software features:

- Live Data Display
- Program Date and Time
- Program Custom Display
- Set Alarms
- Calibrate Temperature and Humidity
- Export and Graph Data from the SD Card
- Sync Date and Time from the Computer

## 7. Specification

Transmission distance in open field : 100meter max.  
Frequency : 868MHz

Temperature measure range: : -40 to 60°C  
Resolution : 0.1°C

Humidity measuring range : 10% to 99%  
Humidity accuracy : +/-5% (only guaranteed between 20 to 90% under 0-45°C)  
  
Alarm duration : 120 sec  
Water proof level : IPX3

### **Measuring interval**

Outdoor sensor channel 1 : 61s  
Outdoor sensor channel 2 : 62s  
Outdoor sensor channel 3 : 63s  
Outdoor sensor channel 4 : 69s  
Outdoor sensor channel 5 : 65s  
Outdoor sensor channel 6 : 66s  
Outdoor sensor channel 7 : 67s  
Outdoor sensor channel 8 : 68s

### **Power consumption**

Base station (display console) : AC Power(included)  
Remote sensor : 2xAA Alkaline or Lithium batteries (not included)

Battery life: Minimum 12 months for base station with one sensor and excellent reception.  
Intermittent reception and multiple sensors may reduce the battery life.

Minimum 12 months for thermometer-hygrometer sensor (use lithium batteries in cold weather climates less than -20 °C)

# EasyTemp PC software User Manual

## 1.0 General Information

This Weather Station is a high quality, easy to use weather monitoring system that reads, displays and records the weather data from multiple external sensors. Each sensor measures temperature, humidity, and dew point of spot.

After installing the “EasyTemp” program on this CD-ROM, your PC can display all indoor data as well as the weather data from the Base Station received from the external sensors. For operation, simply use the USB cable supplied and connect the Base Station to the PC. From now on you can start to track current and history weather information at your finger tips.

## 2.0 System Requirements

Operating System: Windows XP, Windows Vista, Windows 7, Windows 8, Windows 10

Base Station and PC must be connected by USB cable

## 3.0 Installation of the “EasyTemp” Software

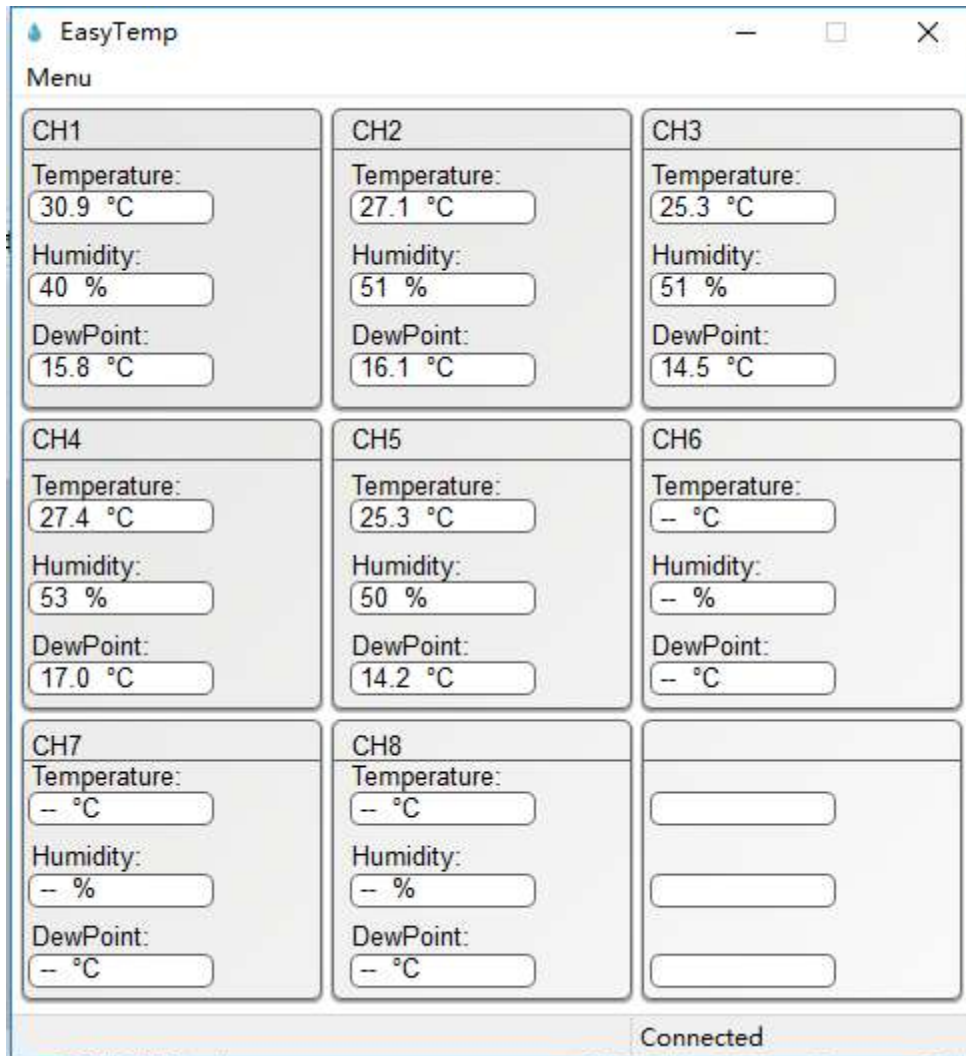
Firstly, the Base Station and the Outdoor Sensors should be connected and checked for correct function (see **Operation Manual for TFT COLORFUL DISPLAY MULTIPLE-CHANNEL WEATHER STATION** for setting up the Weather Station). After successful checking, install the “EasyTemp” software as follows:

1. Switch on your PC and insert the CD-ROM into the CD-ROM Drive.
2. Double click “EasyTemp.exe”
3. Select the installation process language option and click ok
4. click next and select the destination folder(change directory when needed)
5. click next and select the shortcut folder(change directory when needed)
6. click next and select the additional tasks.
7. Click next and setup is now ready to begin installing EasyTemp on your computer.
8. Click install, software will be installed automatically
9. Press Finish to finish the installation process and exit. If you tick “Launch EasyTemp” the software will start to run.
10. From “Start—All Programs—EasyTemp” path and double click the “EasyTemp” icon to start application.

## 4.0 Basic Settings of the “EasyTemp” Software

#### 4.1 Main Interface

After the “EasyTemp.exe” program has been started, the following main window will appear on the PC screen:



The main display screen will display “Connected” if properly communicating through the USB port.. The temperature, humidity and dew point measured by each external sensor will be displayed on the main interface. And If no base station is connected, it shows ”USB Unconnected”.

#### 4.2 Function button:

Click **Menu** button, to enter function menu.

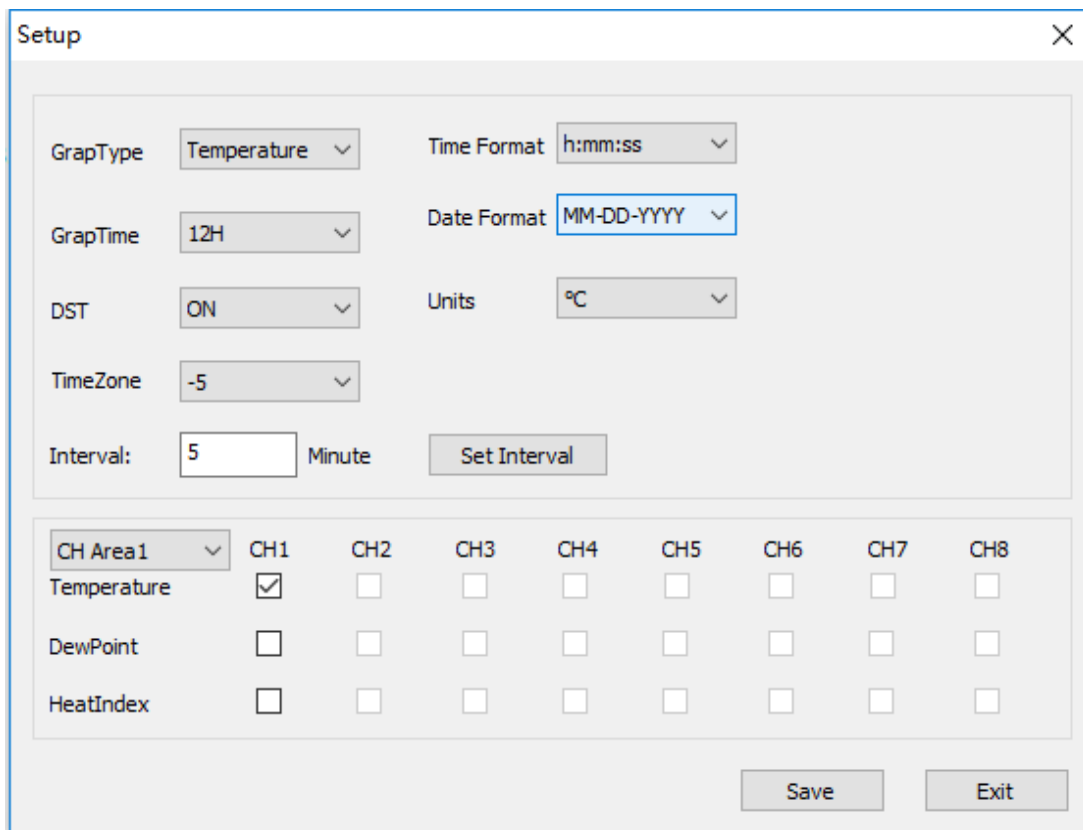


#### 4.2.1 Time, Date and Display Setup

Select **Menu | Setup** to set the time, date and display customization settings.

From this screen you can set the graph type on the weather station screen (temperature, humidity, dew point or heat index), graph hours, time zone and daylight savings settings, time and date format, temperature units of measure, archive interval, and display preferences (temperature, humidity, dew point or heat index).

For details, reference below:



All the settings from the base unit is mirrored into the PC software, so once you have done your setting on the base unit, then you don't need to make any setting changes on the PC software. However you can still easily make any setting changes you wanted from the PC

and download the changes into the base station (the setting change will be refreshed when next full minute arrives on the base station).

#### 4.2.2 Alarm Setting

Select **Menu | Alarm** to set the high and low temperature and humidity alarms for each of the 8 supported channels.

Temperature Alarm		Humidity Alarm			
Temperature Alarm: ON		Humidity Alarm: OFF			
	High	Low		High	Low
CH1:	<input type="checkbox"/> 30.0 °C	<input type="checkbox"/> 10.0 °C	CH1:	<input type="checkbox"/> 90 %	<input type="checkbox"/> 20 %
CH2:	<input checked="" type="checkbox"/> 17.2 °C	<input type="checkbox"/> 10.0 °C	CH2:	<input type="checkbox"/> 90 %	<input type="checkbox"/> 20 %
CH3:	<input type="checkbox"/> 30.0 °C	<input type="checkbox"/> 10.0 °C	CH3:	<input type="checkbox"/> 90 %	<input type="checkbox"/> 20 %
CH4:	<input type="checkbox"/> 30.0 °C	<input type="checkbox"/> 10.0 °C	CH4:	<input type="checkbox"/> 90 %	<input type="checkbox"/> 20 %
CH5:	<input type="checkbox"/> 30.0 °C	<input type="checkbox"/> 10.0 °C	CH5:	<input type="checkbox"/> 90 %	<input type="checkbox"/> 20 %
CH6:	<input type="checkbox"/> 30.0 °C	<input type="checkbox"/> 10.0 °C	CH6:	<input type="checkbox"/> 90 %	<input type="checkbox"/> 20 %
CH7:	<input type="checkbox"/> 30.0 °C	<input type="checkbox"/> 10.0 °C	CH7:	<input type="checkbox"/> 90 %	<input type="checkbox"/> 20 %
CH8:	<input type="checkbox"/> 30.0 °C	<input type="checkbox"/> 10.0 °C	CH8:	<input type="checkbox"/> 90 %	<input type="checkbox"/> 20 %

This section is used to set the high and low temperature and humidity alarm for each of the 8 supported channels. Once you made your choice, choose Save to make the setting effective. If you don't want to make any change, just press Cancel and exit without change.

#### 4.2.3 Calibration

Select **Menu | Calibration** to calibrate each of the 8 supported channels.

The temperature and humidity values are offsets.


**Example:** If the actual temperature measured by a calibrated source is 30 °C, and the channel 1 temperature sensor reads 29.5 °C:

$$\text{CH1 Temperature Offset} = 30 - 29.5 = 0.5 \text{ °C.}$$

Enter 0.5 in the CH1 Temperature field, as shown below.

	Temperature	Humidity
CH1:	0.5 °C	0 %
CH2:	0.0 °C	0 %
CH3:	0.0 °C	0 %
CH4:	0.0 °C	0 %
CH5:	0.0 °C	0 %
CH6:	0.0 °C	0 %
CH7:	0.0 °C	0 %
CH8:	0.0 °C	0 %

It may take a minute or two for the console to update the calibrated temperature, since the temperature updates once per minute.

 **Note:** There may be some °F to °C rounding error, since the native calculations are performed in °C. For example, if you enter 0.6 °F in the field, 0.5 °F may be displayed the next time you open this panel.

#### 4.2.4 SDCard File

**Note:** The Micro SD Card is optional, not included and sold separately.

Select **Menu | SDCard File** to download and analyze data stored on the SD Card.

Select the file you wish to view from the list and press **Select** to view the data.

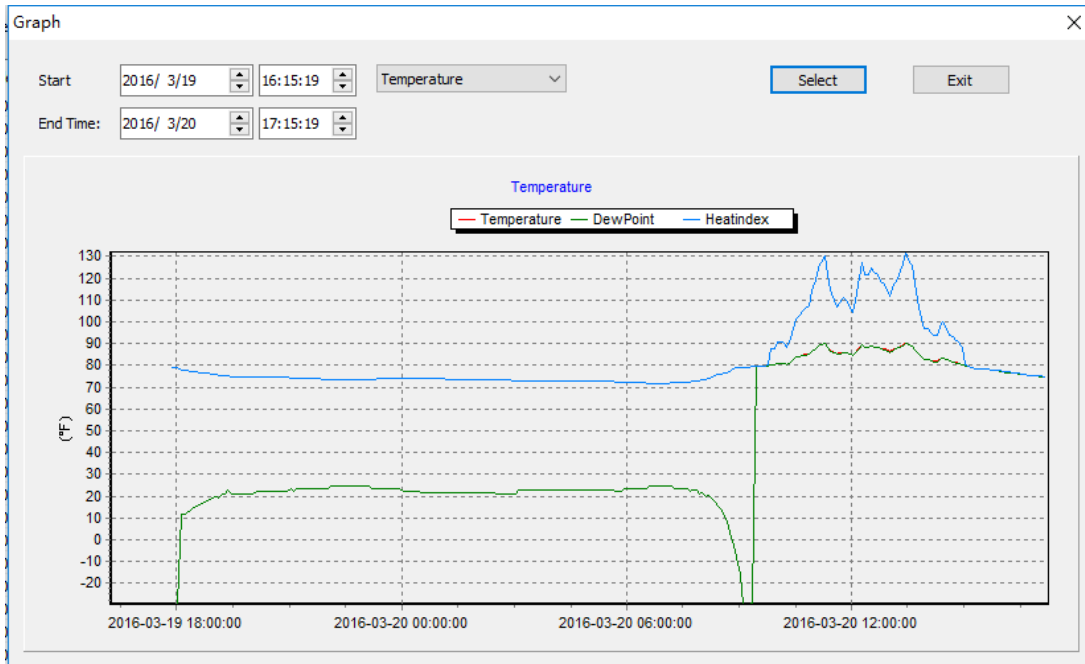
To graph the data:

1. Identify the data file start and end date and times.
2. Press the **Graph** button.
3. Enter the start and end date and times in the appropriate fields identified in Step 1.
4. Select the parameter you wish to graph, and press the **Select** button.

SDCard File

Select: 2016CH2C.CSV

File Name	Size	Time	Temperature(°F)	Humidity(%)	Dewpoint(°F)	Heatindex(°F)
2016CH1A.CSV	222.26 KB	2016/03/19 17:52	78.8	1	-29.7	78.8
2016CH2A.CSV	183.35 KB	2016/03/19 17:57	78.8	1	-29.7	78.8
2016CH3A.CSV	230.72 KB	2016/03/19 18:02	79.0	1	-29.6	79.0
2016CH4A.CSV	137.31 KB	2016/03/19 18:08	77.5	8	11.7	77.5
2016CH5A.CSV	129.68 KB	2016/03/19 18:13	77.5	8	11.7	77.5
2016CH6A.CSV	0.97 KB	2016/03/19 02:03	77.4	8	11.5	77.4
2016CH7A.CSV	1.88 KB	2016/03/19 18:24	77.2	9	14.0	77.2
2017CH1D.CSV	0.25 KB	2016/03/19 19:02	75.6	12	19.4	75.6
2017CH2D.CSV	0.24 KB	2016/03/19 19:07	75.4	12	19.2	75.4
2017CH3D.CSV	0.24 KB	2016/03/19 19:12	75.2	13	21.0	75.2
2017CH4D.CSV	0.24 KB	2016/03/19 19:17	75.0	13	20.8	75.0
2017CH5D.CSV	0.24 KB	2016/03/19 19:22	75.0	14	22.6	75.0
2016CH1P.CSV	318.53 KB	2016/03/19 19:27	74.8	13	20.8	74.8
2016CH1C.CSV	15.76 KB	2016/03/19 19:32	74.8	13	20.8	74.8
2016CH2C.CSV	16.38 KB	2016/03/19 19:37	74.8	13	20.8	74.8
2016CH3C.CSV	16.52 KB	2016/03/19 19:42	74.8	13	20.8	74.8
2016CH4C.CSV	16.50 KB	2016/03/19 19:47	74.8	13	20.8	74.8
2016CH5C.CSV	16.51 KB	2016/03/19 19:52	74.8	13	20.8	74.8
2016CH1D.CSV	102.34 KB	2016/03/19 19:57	74.8	13	20.8	74.8
2016CH2D.CSV	100.66 KB	2016/03/19 20:02	74.8	13	20.8	74.8
2016CH3D.CSV	99.08 KB	2016/03/19 20:07	74.7	14	22.3	74.7
2016CH4D.CSV	98.48 KB	2016/03/19 20:12	74.7	14	22.3	74.7
2016CH5D.CSV	73.76 KB	2016/03/19 20:17	74.7	14	22.3	74.7
2016CH1B.CSV	18.69 KB	2016/03/19 20:22	74.7	14	22.3	74.7
2016CH2B.CSV	18.69 KB	2016/03/19 20:27	74.5	14	22.3	74.5
2016CH3B.CSV	18.68 KB	2016/03/19 20:32	74.5	14	22.3	74.5



#### 4.2.5. Sync time

Select **Menu | Sync time** to synchronize the time with PC time.



## 5. Best Practices for Wireless Communication

**Note:** To insure proper communication, mount the remote sensor on a vertical surface, such as a wall. **Do not lie the sensor flat.**

Wireless communication is susceptible to interference, distance, walls and metal barriers. We recommend the following best practices for trouble free wireless communication.

1. **Electro-Magnetic Interference (EMI).** Keep the console several feet away from computer monitors and TVs.
2. **Radio Frequency Interference (RFI).** If you have other 433 MHz devices and communication is intermittent, try turning off these other devices for troubleshooting purposes. You may need to relocate the transmitters or receivers to avoid intermittent communication.
3. **Line of Sight Rating.** This device is rated at 300 feet line of sight (no interference, barriers or walls) but typically you will get 100 feet maximum under most real-world installations, which include passing through barriers or walls.
4. **Metal Barriers.** Radio frequency will not pass through metal barriers such as aluminum siding. If you have metal siding, align the remote and console through a window to get a clear line of sight.

The following is a table of reception loss vs. the transmission medium. Each “wall” or obstruction decreases the transmission range by the factor shown below.

Medium	RF Signal Strength Reduction
Glass (untreated)	5-15%
Plastics	10-15%
Wood	10-40%
Brick	10-40%
Concrete	40-80%
Metal	90-100%

## 6. Glossary of Terms

Term	Definition
Accuracy	Accuracy is defined as the ability of a measurement to match the actual value of the quantity being measured.
Hygrometer	A hygrometer is a device that measures relative humidity. Relative humidity is a term used to describe the amount or percentage of water vapor that exists in air.
Range	Range is defined as the amount or extent a value can be measured.

## 7. Troubleshooting Guide

Problem	Solution
<p>Wireless remote (thermo-hygrometer) not reporting in to console.</p> <p>There are dashes (--.-) on the display console, and these sensors are a part of your system.</p>	<p>If any of the sensor communication is lost, dashes (--.-) will be displayed on the screen. To reacquire the signal, re-acquire the signal per Section <b>Fehler! Verweisquelle konnte nicht gefunden werden.</b> Please verify each sensor is on a different channel by viewing the sensor's LCD display.</p> <p>The maximum line of sight communication range is 300' and 100' under most conditions. Move the sensor assembly closer to the display console.</p> <p>If the sensor assembly is too close (less than 5'), move the sensor assembly away from the display console.</p> <p>Make sure the remote sensor LCD display is working.</p> <p>Install a fresh set of batteries in the remote thermo-hygrometer. For cold weather environments, install lithium batteries.</p> <p>Make sure the remote sensors are not transmitting through solid metal (acts as an RF shield), or earth barrier (down a hill).</p> <p>Move the display console around electrical noise generating devices, such as computers, TVs and</p>

Problem	Solution
	<p>other wireless transmitters or receivers.</p> <p>Move the remote sensor to a higher location. Move the remote sensor to a closer location.</p>
<p>Temperature sensor reads too high in the day time.</p>	<p>Make sure the thermo-hygrometer is mounted in a shaded area on the north facing wall.</p>
<p>Temperature sensors do not agree</p>	<p>Allow up to one hour for the sensors to stabilize due to signal filtering. The sensors should agree within 2 °C (the sensor accuracy is ± 1 °C) under worst case conditions.</p> <p>Use the calibration feature to match the indoor and outdoor temperature to a known source.</p>
<p>Humidity sensors do not agree</p>	<p>Allow up to one hour for the sensors to stabilize due to signal filtering. The indoor and outdoor humidity sensors should agree within 10 % (the sensor accuracy is ± 5 %) under worst case conditions.</p> <p>Use the calibration feature to match the indoor and outdoor humidity to a known source.</p>
<p>Display console contrast is weak</p>	<p>Check the backlight display settings referenced in Section <b>Fehler! Verweisquelle konnte nicht gefunden werden.</b></p>