HSD-300Z Z-Wave Temperature / Humidity Meter

The Z-Wave Temperature/Humidity Meter is a Z-Wave[TM] enabled device and is fully compatible with any Z-Wave[TM] enabled network. Z-Wave[TM] enabled devices displaying the Z-Wave[TM] logo can also be used with it regardless of the manufacturer, and ours can also be used in other manufacturer's Z-Wave[TM] enabled networks. Inclusion of this Temperature/Humidity Detector on other manufacturer's Wireless Controller menu allows remote turn-on of connected modules and their connected lighting when the Detector is triggered. Z-Wave nodes in the system also act as repeaters if they support that function.

Adding to Z-Wave[TM] Network

One of the function keys (°C °F/↻) is used to carry out inclusion, exclusion or association. Put a Z-Wave[TM] Wireless Controller into inclusion/exclusion mode, press the °C °F/↻ key for 3 seconds on the detector to complete the inclusion/exclusion process. HSD-300Z supports one association group with five nodes. This has the effect that when the HSD-300Z trigger, all devices associated with HSD-300Z will be operated.

The Temperature/Humidity Detector will stay "awake" for ten minutes when power is first applied to allow time for configuration.

SPEAKS Z-WAVE®

Product Overview

Front & Side View

1

3

2
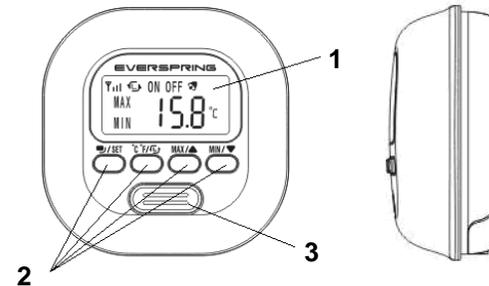
1. LCD Screen
2. Function Keys
(▣/SET: Select modes/Change setting;
°C °F/↻: Select temperature unit/Learning;
MAX/▲: Increase settings, displays max. temperature/humidity or enable RF & beep tone;
MIN/▼: Decrease settings, displays min. temperature/humidity or enable RF & beep tone)
3. Temperature/Humidity Sensor

Back View
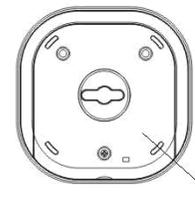
4. Battery Compartment Cover

4

LCD Display

Temp/Humid ON

Learning Signal   Temp/Humid OFF

Radio Frequency Status ——— Beep tone ON

Max.Temp./Humid. ——— MAX

Min.Temp./Humid.——— MIN   15.8 °C   Temperature °C/°F Humidity %

1

the device.
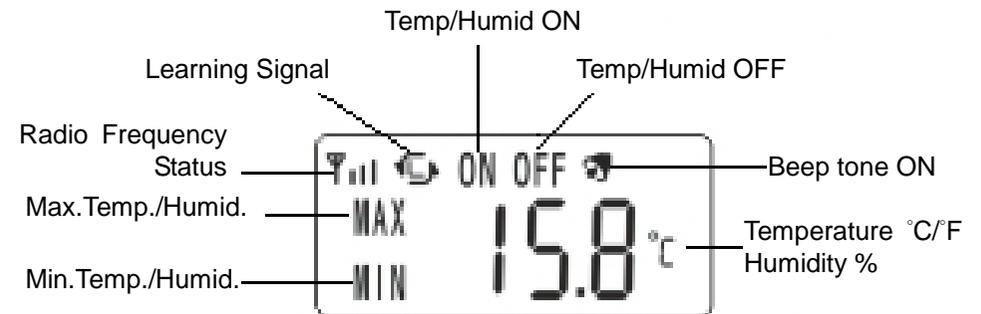
Choosing A Mounting Location

2 Plastic Wall Plug

1

3

4

5
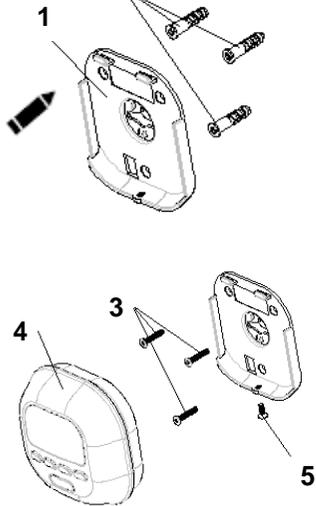
Please follow these directions when mounting the Temp/Hum Detector.

1. Place mounting bracket over desired location on wall. Through the 3 screw holes of the bracket, mark the mounting surface with a pencil.
2. Where marked, drill holes into mounting surface using an appropriate size drill bit and insert the plastic wall plugs supplied respectively.
3. Screw mounting bracket onto the mounting surface. Ensure that the screws are flush with the bracket.
4. Snap the Temp/Hum Detector into place on the mounting bracket.
5. Secure with the fixing screw supplied.

Table Stand

1.

Stand

2.
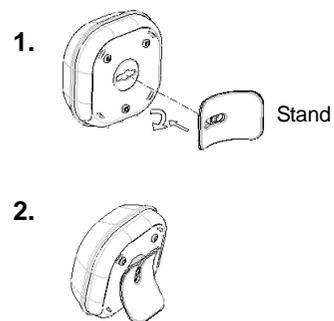
1. Insert the stand into the hole on mounting bracket and turn 90 degrees clockwise.

2. Once snapped in place the detector can then be placed on a shelf, table or other surface where the temperature and humidity measurements are desired.

Note: Take care when fixing the Detector to a metal surface, or mounting within 1m of metalwork (i.e. radiators, water pipes, etc) as this could affect the radio range of

Installation

Battery Installation

2

3

4

5

1
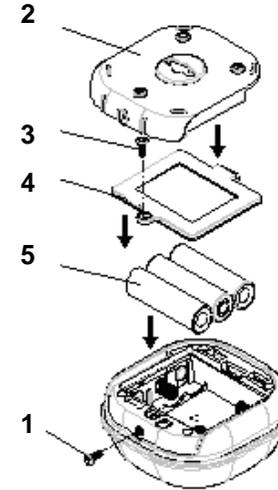
Please follow these directions when first setting up, or for replacing batteries purposes.

1. Remove the first screw

2. Open the mounting bracket.

3. Remove the second screw.

4. Open the battery cover.

5. Observe the correct polarity and install 3 AA size alkaline batteries in each unit in sequential order.

6. Close the battery cover and mounting bracket then secure the screws.

Note: After removing batteries, wait for 5 seconds to refit batteries.

Operation

There are 8 modes available. Press 🔲/SET to select desired mode.

MODE 1. Current temperature display (°C/°F)
MODE 2. Current humidity display (%)
MODE 3. Setting temperature trigger on
MODE 4. Setting temperature trigger off
MODE 5. Setting humidity trigger on

MODE 6. Setting humidity trigger off
MODE 7. Setting radio frequency on/off
MODE 8. Setting beep tone on/off

MODE 1 & MODE 2 are showing as main displays on the screen. As finished setting any of the other modes (MODE 3 to MODE 8), the screen will return to main display automatically after 12 seconds, or by pressing ℃ ℉/⟳ can return to main display as well.

Inclusion / Exclusion / Association

Press and hold ℃ ℉/⟳ for 3 seconds to enter Inclusion/Exclusion/Association mode and you will hear a long beep tone and see this icon ⟳ flashing 1 second.

NOTE:

※ If learning record is cleared, the RF mode reading should be 00,otherwise should be 01.

Temperature

To display the current temperature: Press ▬/SET and select MODE 1.
The temperature range is from -20℃ to 50℃.

To toggle temperature unit: Press ℃ ℉/⟳

To show the maximum or minimum temperature records: Press MAX/▲ or MIN/▼ once under MODE 1.
(Press ▬/SET or wait for 12 seconds will return to current temperature display.)

To clear the max/min temperature records: Press both MAX/▲ and MIN/▼ at the same time.

THRESHOLD LIMIT WARNING:

If the temperature is reaching the limit, **MAX** or **MIN** reading displays on the screen.

ICE WARNING:

If the temperature falls to 0℃, temperature display flashes with LCD backlight lighting up for 1 second and continuous beep tone sounding for 1 second. Press any key to stop the beep tone.

To set temperature Trigger-ON:

1. Press ▬/SET and select MODE 3. Icon ON flashes and the screen shows the recorded trigger-ON temperature. If no value is preset, the screen will read ▪ ▪ ▪ ℃.
   To clear the trigger-ON record, press both MAX/▲ and MIN/▼ at the same time.
   The record is cleared after hearing a long beep tone.
2. Press and hold ▬/SET for 5 seconds. 5 beep tones will be heard and the screen reading starts flashing.
3. Use MAX/▲ and MIN/▼ to select the desired temperature. Press ▬/SET to confirm setting or

press ℃ ℉/⟳ to cancel.
Press and hold MAX/▲ or MIN/▼ can scan thru the temperature reading from -20℃ to 50℃.

If the temperature reaches the preset Trigger-ON value, Temp/Hum detector emits out radio frequency signal of Temperature Trigger-ON which comprised of Z-wave protocol. Simultaneously, the screen of Temp/Hum detector returns to MODE 1 and you can see symbol ON flashing with backlight lighting up for 1 second. Continuous beep tone sounds for 1 second at same time and to stop it just press any key.

To set temperature Trigger-OFF:

1. Press ▬/SET and select MODE 4. Symbol OFF flashes and the screen shows the recorded trigger-OFF temperature. If no value is preset, the screen will read ▪ ▪ ▪ ℃.
   To clear the trigger-OFF record, press both MAX/▲ and MIN/▼ at the same time.
   The record is cleared after hearing a long beep tone.
2. Press and hold ▬/SET for 5 seconds. 5 beep tones will be heard and the screen reading starts flashing.
3. Use MAX/▲ and MIN/▼ to select the desired temperature. Press ▬/SET to confirm setting or press ℃ ℉/⟳ to cancel.
   Press and hold MAX/▲ or MIN/▼ can scan thru the temperature reading from -20℃ to 50℃.

If the temperature reaches the preset Trigger-OFF value, Temp/Hum detector emits out radio frequency signal of Temperature Trigger-OFF which comprised of Z-wave protocol. Simultaneously, the screen of Temp/Hum detector returns to MODE 1 and you can see icon OFF flashing with backlight lighting up for 1 second. Continuous beep tone sounds for 1 second at the same time and to stop it just press any key.

NOTE:

※ The temperature of trigger-ON and trigger-OFF cannot be set equal; there MUST be at least 2℃ difference in between. For example, if now the trigger-OFF temperature is already set to be 20℃, so trigger-ON temperature can only be ≦18℃ or ≧22℃. (Values between 18℃ and 22℃ cannot be set.)

※ Once the detector has been triggered, the temperature must increase or cool down at least 2℃ from the preset value before it can be triggered again. For example, if the detector is triggered on at 20℃, then the temperature must go higher than 22℃ or drop lower than 18℃ before it can be re-triggered.

Humidity

To display the current humidity: Press ▬/SET and select MODE 2.
The humidity range is from 20% RH to 90%RH.

To show the maximum or minimum humidity records: Press MAX/▲ or MIN/▼ once under MODE 2.

(Press ⏺/SET or wait for 12 seconds will return to current humidity display.)

To clear the max/min humidity records: Press both MAX/▲ and MIN/▼ at the same time.

THRESHOLD LIMIT WARNING:
If the humidity is reaching the limit, **MAX** or **MIN** reading displays on the screen.

To set humidity Trigger-ON:
1. Press ⏺/SET and select MODE 5. Icon ON flashes and the screen shows the recorded
   trigger-ON humidity. If no value is preset, the screen will read **- - -**%.
   To clear the trigger-ON record, press both MAX/▲ and MIN/▼ at the same time.
   The record is cleared after hearing a long beep tone.

2. Press and hold ⏺/SET for 5 seconds. 5 beep tones will be heard and the screen reading starts
   flashing.
3. Use MAX/▲ and MIN/▼ to select the desired humidity. Press ⏺/SET to confirm setting or
   press °C °F/⏏ to cancel.
   Press and hold MAX/▲ or MIN/▼ can scan thru the humidity reading from 20%RH to 90%RH.

If the humidity reaches the preset Trigger-ON value, Temp/Hum detector emits out radio frequency signal
of Humidity Trigger-ON which comprised of Z-wave protocol. Simultaneously, the screen of Temp/Hum
detector returns to MODE 2 and you can see icon ON flashing with backlight lighting up for 1 second.
Continuous beep tone sounds for 1 second at the same time and to stop it just press any key.

To set humidity Trigger-OFF:
1. Press ⏺/SET and select MODE 5. Symbol OFF flashes and the screen shows the recorded
   trigger-OFF humidity. If no value is preset, the screen will read **- - -**%.
   To clear the trigger-OFF record, press both MAX/▲ and MIN/▼ at the same time.
   The record is cleared after hearing a long beep tone.
2. Press and hold ⏺/SET for 5 seconds. 5 beep tones will be heard and the screen reading starts
   flashing.
3. Use MAX/▲ and MIN/▼ to select the desired humidity. Press ⏺/SET to confirm setting or
   press °C °F/⏏ to cancel.
   Press and hold MAX/▲ or MIN/▼ can scan thru the humidity reading from 20%RH to 90%RH.

If the humidity reaches the preset Trigger-OFF value, Temp/Hum detector emits out radio frequency
signal of Humidity Trigger-OFF which comprised of Z-wave protocol. Simultaneously, the screen of
Temp/Hum detector returns to MODE 2 and you can see icon OFF flashing with backlight lighting up for
1 second. Continuous beep tone sounds for 1 second at the same time and to stop it just press any key.

NOTE:

※ The humidity of trigger-ON and trigger-OFF cannot be set equal; there MUST be at least **5%**
   difference in between. For example, if now the trigger-ON humidity is already set to be 50%, so
   trigger-OFF humidity can only be ≦45% or ≧55%. (Values between 45% and 55% cannot be set.)

※ Once the detector has been triggered, the humidity must raise up or drop down at least **5%** from the
   preset value before it can be triggered again. For example, if the detector is triggered on at 50%, then
   the temperature must go higher than 55% or drop lower than 45% before it can be re-triggered.

Radio Frequency

This function is designed to send RF command which comprised of Z-wave protocol, to controller as
Temp/Hum detector has been triggered on/off and the RF mode is **ON**.

To enable the RF function: Press ⏺/SET and select MODE 7. You will see this icon 📶 flashing and
press MAX/▲ for ON and MIN/▼ for OFF.

If Temp/Hum detector is learning with controller, the reading in RF mode is 01.

NOTE:
If the RF mode is OFF, no command can be sent out even the Temp/Hum detector is triggered on/off.
If the RF mode is ON and the RF reading is 00, no command can be sent out even the Temp/Hum
detector is triggered ON/OFF.

Beep Tone

To set the beep tone: Press ⏺/SET and select MODE 8. You will see this icon 🔔 flashing and press
MAX/▲ for ON and MIN/▼ for OFF.

Low Battery Indication

When the battery is low, this icon 🔋 appears on the LCD display and RF emits out the low battery
signal to controller.

If low battery happened in learning status, RF command will still be sent to controller.

Please follow the **Battery Installation** directions replacing the batteries as soon as low battery icon 🔋
appears.

1. When HSD-300Z is in Low Battery, it will send RF command. **[Command Class Battery, Battery
    Report, Battery Level = 0xFF].**
2. After receiving the Battery Get Command, it will send the Battery Report command **[Command
    Class Battery, Battery Report, Battery Level = 0%-100%].**

1. When HSD-300Z has a temperature or humidity Trigger-ON event, HSD-300Z will send command **[Command Class Basic, Basic Set, Value = 0xFF]** to the associated nodes.
2. When HSD-300Z has a temperature or humidity Trigger-OFF event, HSD-300Z will send command **[Command Class Basic, Basic Set Command, Value = 0x00]** to the associated nodes.

Feed Back Humidity Value to the Controller

When HSD-300Z receives the **Multilevel Sensor Get Command, HSD-300Z** will reply the **Multilevel Sensor**

Report command **[COMMAND_CLASS_SENSOR_MULTILEVEL, SENSOR_MULTILEVEL_REPORT,**

Sensor Type = 0x05(Relative humidity), Precision+Scale+Size = 0x01, Sensor Value 1 = 20-90%]]

Example:

Sensor Value 1 = 0x23

Formula of *Humidity* = Sensor Value 1 = 35(%)

Feed Back Temperature Value to the Controller

Celsius Air temperature s (C)

When HSD-300Z receives the **Multilevel Sensor Get Command, HSD-300Z** will reply the **Multilevel**

Sensor Report command [COMMAND_CLASS_SENSOR_MULTILEVEL,

SENSOR_MULTILEVEL_REPORT, Sensor Type = 0x01(Air temperature), Precision+Scale+Size =

0x22, Sensor Value 1 = (High Byte of Temperature Value), Sensor Value 2 =(Low Byte of

Temperature Value)]

Example:

Sensor Value 1 = 0x01

Sensor Value 2 = 0x31

Formula of *Temperature* = {Sensor Value 1 * 256 + Sensor Value 2 } / 10

= (1 *256 + 49)/10= 30.5 **(C)**

Fahrenheit (F)

When ST804 receives the **Multilevel Sensor Get Command, ST804** will reply the **Multilevel Sensor**

Report command [COMMAND_CLASS_SENSOR_MULTILEVEL, SENSOR_MULTILEVEL_REPORT,

Sensor Type = 0x01(Air temperature), Precision+Scale+Size = 0x2A, Sensor Value 1 = (High Byte

of Temperature Value), Sensor Value 2 =(Low Byte of Temperature Value)]

Advanced Operation

The following information is for someone that has some experience setting up a Z-Wave system or someone that has computer software running a Z-Wave controller.

Wakeup Command Class

HSD-300Z will send a Wakeup Notification Command if it has been included into a Z-Wave network. The prerequisite is the connected Z-Wave controller needs to emit a node ID and wakeup time interval to the Detector.

The HSD-300Z will wake up the time you set from the Command **[Command Class Wake Up, Wake Up Interval Set, Second, Node ID]** and resend the Wakeup Notification Command unless configured for another time interval. The HSD-300Z will stay awake for 10 seconds and then go back to sleep to conserve battery life.

The time interval between Wakeup Notification Commands can be adjusted if you have a device in which that is supported. Refer to that device's instructions.

Troubleshooting

Symptom	Possible Cause	Recommendation
Cannot carry out inclusion and association	1. Run out of battery power or does not fit batteries. 2. Check if reverse battery polarity	1. Replace a new battery 2. Refit the battery with correct polarity
LED illuminating, but cannot control the connected modules	Not carry out inclusion and association	Carry out inclusion and association
	Frequency interference	Wait for a second to retry

Specifications

TYPE	DESCRIPTIONS
Dimensions (W x H x D)	85 x 85 x 35 mm
Temperature Range	-20℃ ～ 50℃
Temperature Unit	℃ / ℉
Relative Humidity Range	20% ~ 90%
Power	1.5V * 3 Alkaline / AA type battery
Battery Life	≧1year (at 25℃ standby mode)
Range	Up to 100 m line of sight
Frequency Range	908.42 MHz (US) / 868.42 MHz (EU)

Specifications are subject to change without notice

A501110873R

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.   These limits are designed to provide reasonable protection against harmful interference in a residential installation.   This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.   However, there is no guarantee that interference will not occur in a particular installation.   If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

WARNING:
Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities.

Contact your local government for information regarding the collection systems available.

If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being.

When replacing old appliances with new once, the retailer is legally obligated to take back your old appliance for disposal at least for free of charge.