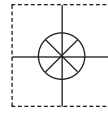


1 YEAR
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User's Guide



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RH318 Data Logger Hygro-Thermometer



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The information contained in this document is believed to be correct, but OMEGA accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARNING: These products are not designed for use in, and should not be used for, human applications.

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1. SAFETY INFORMATION

Read the following safety information carefully before attempting to operate or service the meter. Use the meter only as specified in this manual; otherwise the protections provided by the meter may be impaired.

ENVIRONMENT CONDITIONS

- Altitude up to 2000 meters
- Relatively humidity: 90% max
- Operation ambient temperature: 0 to 40°C

MAINTENANCE & CLEARING

- Periodically wipe the case with a dry cloth. Do not use abrasives or solvents on this instrument.

SAFETY SYMBOLS

 Comply with EMC

2. GENERAL DESCRIPTION

Thank you for choosing our Data Logger Hygro-thermometer. To ensure the safety and the best performance of this instrument, we recommend you to read and follow the manual carefully before any operation.

Measurement settings and results are shown on the backlit LCD panel.

Data can be stored in the meter or directly saved on a computer through PC interface. Recorded data can be further processed on a computer.

3. FEATURE

- Interchangeable digital probes
- Thermistor sensor for temperature measurement, fast response time
- Dual display
- Dew point measurement
- 16,000 Records Data Logger
- PC Interface
- With Windows software
- Auto power off for battery saving

4. SPECIFICATIONS

Sensor type	Electronic capacitance polymer film sensor / NTC
Relative humidity range	0 to 100%RH
Temperature range	- 20 to 60°C (- 4 to 140°F)
Dew point temperature range	- 20 to 60°C (- 4 to 140°F)
Resolution	0.1%RH, 0.1°C, 0.1°F

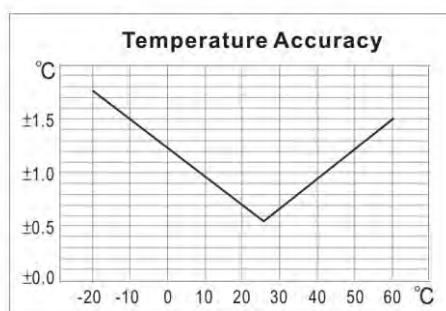
Accuracy

Probe: RP-32

<10%RH, >90%RH	±4.0%RH
10%RH to 90%RH	±2.0%RH
-20 to 60°C (-4 to 140°F)	±0.8°C (±1.5°F)

Probe: RP-31

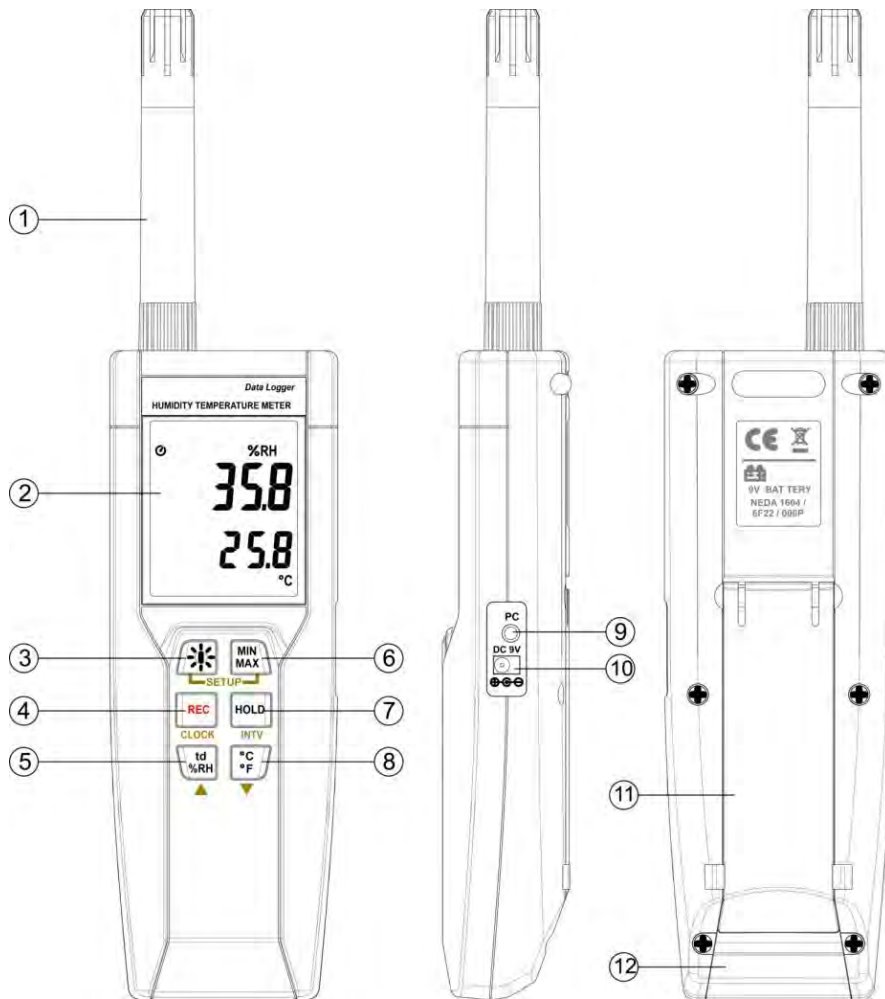
<10%RH, >90%RH	±5.0%RH
10%RH to 90%RH	±3.0%RH
-15 to 35°C (-60 to 95°F)	±0.8°C (±1.5°F)
<15°C (60°F), >35°C (95°F)	See figure below



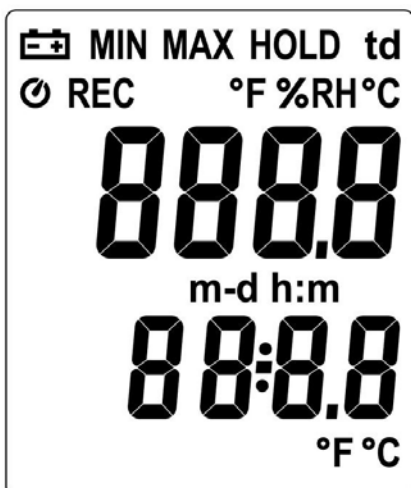
Response time	(@ t90; in slowly moving air) Humidity: 180 sec. Temperature: 10 sec.
Sensor hysteresis	<1.5%RH
Temperature coefficient	0.1 x (specified accuracy) per 1°C (<23°C or >23°C)
Sample rate	2 times per second
Battery type	9V Battery
Battery lifetime	Approx. 80 hours (alkaline battery)
Ac adapter	9 V _{DC} (8-10V _{DC} Max)
Operation temperature	0 to 40°C (32 to 104°F)
Operation humidity	10 to 90%RH
Storage temperature	-10 to 60°C (14 to 140°F)
Storage humidity	10 to 75%RH
Dimensions	Meter: 185mm(L) × 65mm(W) × 36mm(H) Probe: 15mm Diameter x 94mm(L)
Weight	Approx. 285g
Standard Accessories	Instruction manual, 9V Battery, windows software, carrying case, USB cable
Optional Accessory	AC adapter

5. BUTTONS AND FUNCTIONS

BUTTON ALLOCATION



DISPLAY SCREEN



SYMBOL FUNCTION

	Low battery indicator
	Auto power off indicator
MIN MAX	Maximum/minimum indicator
188.8	Relative Humidity reading
%RH	Relative humidity measurement unit
REC	Recording data logger indicator
td	Dew point temperature
HOLD	Data hold indication
m-d	Month-day
h:m	Hour: minute
188.8	Temperature reading
°F, °C	Temperature measurement units

FUNCTIONS

- ① Sensor probe
- ② Display screen
- ③ Power / Backlight button

Power on/off

Press the ③ button to turn on the unit. To turn the unit off, press and hold ③ button down until the screen shows “OFF 3, 2, 1, 0,” then the LCD screen goes off.

Note: When the unit is on, the LCD will show the following initial information before entering the main function: *Available memory Current date Current time Entering main function*

LCD backlight on/off

Press ③ to turn on the LCD backlight, making it easier to read in dark environment. Press ③ again to turn off backlight. The backlight will turn itself off automatically after 30 seconds to save battery power.


Auto power off

To save battery life, by default, every time the unit is powered on, it is under auto power off mode. The unit will power itself off after 30 minutes if no key operation.

Auto power off will be automatically disabled under the following 2 circumstances:

- When connecting to PC
- When data logger function is on process

Disabled auto power off

- (1) Turn off the unit.
- (2) Press and hold **HOLD** button, and keep holding **HOLD** button.
- (3) Press ③ to turn on the unit.
- (4) The LCD shows the initial information and then enter main function.
- (5) Release **HOLD** button.
- (6) Make sure the auto power off  symbol disappears from display screen.

- ④ REC button

Press **REC** button to start recording data. The **REC** symbol will display on the screen. To stop recording, press **REC** button again.

- ⑤ Relative Humidity/Dew Point Temperature switch

By default, the LCD displays *Relative Humidity* when the unit is powered on. To display *dew point (DP) temperature*, press **td %RH** button. Press **td %RH** button again to switch back to Relative Humidity.

- ⑥ MAX/MIN mode

Under this mode, the unit simultaneously monitors and stores the maximum and minimum value (both humidity and temperature) in the memory. The unit will keep updating/refreshing the data.

To start

- (1) Press **MAX/MIX** button. **MAX** symbol lights up on LCD, the reading shows the maximum data.
- (2) Press **MAX/MIX** button again to show minimum data; the **MIN** symbol lights up on LCD.
- (3) Press **MAX/MIX** button again, the **MAX** and **MIN** symbol blinks together. The reading shows present humidity and temperature.
- (4) Press **MAX/MIX** button again, **MAX** symbol lights up, and the mode returns to (1).

To exit

Press and hold **MAX/MIX** button for 2 seconds to stop storing maximum and minimum data.

Note: When the unit is in the **MAX/MIN** mode, **°C/°F** button is disabled.

⑦ Data-Hold mode

Press **HOLD** button to freeze the data shows on the LCD screen. Press again to exit Data-Hold mode.

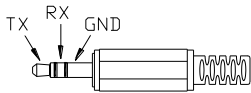
Note: When the unit is in the Data-Hold mode, the **MAX/MIN**, **°C/°F**, and **td %RH** buttons are disabled.

⑧ Selecting temperature units

By default, each time the unit is powered on, the scale is set to the Celsius (°C). Press the **°C/°F** button to switch between Celsius (°C) and Fahrenheit (°F).

⑨ Connecting to a computer

The PC jack signal output is a 9600 bps N 8 1 serial interface. Use the USB cable (standard accessory) to connect with a computer.



⑩ External DC 9V power supply jack

Connect the AC adapter (optional accessory) to use external power.

⑪ Tilt stand

⑫ Battery Compartment

6. DATA LOGGER

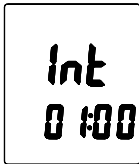
This section will explain how to store data (data logger) in memory and how to recall data from memory.

SETTING INTERVAL TIME FOR DATA STORING

- (1) Turn off the unit.
- (2) Enter SETUP mode by pressing and holding **MIN/MAX** button and then press **Ⓢ** power button to turn on the unit. "SEt" blinks on the LCD screen.



- (3) Press **INTV** (**HOLD**) button to set interval time.



- (4) Press ▲ (**td %RH**) or ▼ (**°C/°F**) to adjust the interval minute, press **INTV** (**HOLD**) button again to adjust second.
- (5) When finished, press **INTV** (**HOLD**) button to exit SETUP mode.

Note: To abort during the process, press power button to exit SETUP mode.

START DATA LOGGER (STORING DATA IN THE MEMORY)

- (1) Press **REC** button to start data logger (storing the measured values in built-in memory).
- (2) **REC** symbol lights up on LCD screen.
- (3) Press **REC** button again to stop recording.

Note: During recording period, most of the buttons are disabled, such as the **td %RH**, **°C/°F**, etc. All other settings must be made before starting the data logger function.

Note: When the memory is full (16000 recorders), **REC** symbol will blink on the LCD screen. The data logger stops.

Note: When battery power low (**⚡** symbol lights up on the screen), data logger cannot be started. If during data logger, the battery starts running low, data logger will stop automatically.

CLEARING DATA

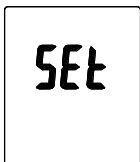
- (1) Turn off the unit.
- (2) Press and hold **REC** button and then press **Ⓞ** power button to turn on the unit.
- (3) Keep holding **REC** button, then LCD will show "CLR" and "SURE 5, 4...1, 0" until clean the memory. (To abort, release **REC** button before "SURE 0".)

7. SETTING DATE AND TIME

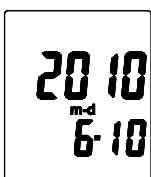
The unit incorporates a clock so that the data logger function can also record the data and time along with the measurement value in the memory.

SETTING DATE AND TIME

- (1) Turn off the unit.
- (2) Enter SETUP mode by pressing and holding **MIN/MAX** button and then press **Ⓞ** power button to turn on the unit. "SET" blinks on the LCD screen.



- (3) Press **CLOCK** (**REC**) button to set clock.
- (4) Press ▲ (**td %RH**) or ▼ (**°C/°F**) to adjust year, press **CLOCK** (**REC**) button to adjust next value (month → date → hour → minute).



- (5) When finish, press **CLOCK** (**REC**) button to exit SETUP mode.

Note: To abort during the process, press power button to exit SETUP mode.


Note: An internal backup battery supplies power for the clock.

8. POWER PREPARATION

BATTERY LOADING

Remove the battery cover on the back and insert one 9V battery.

BATTERY REPLACEMENT

When the battery voltage drops below the operating voltage, Low battery indicator  will appear. Replace a 9 Volt battery immediately to ensure the unit functions properly.

AC ADAPTER CONNECTION

When the AC adapter is used, insert the plugs of the adapter into the DC9V connector on the side panel.

Note: When the AC adapter is connected while battery is inserted, the unit will be powered from the adapter (the AC adapter has priority).

9. TESTLINK SE-318 SOFTWARE

The SE-318 package contains:

- 80mm CD
- Custom designed USB cable for SE318

SYSTEM REQUIRED

Windows NT 4.0/ NT2000/ XP/ VISTA/ Windows 7

MINIMUM HARDWARE REQUIRED

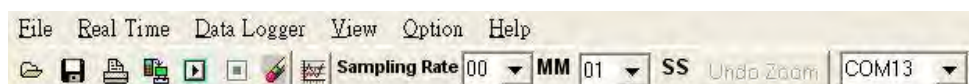
- PC or NoteBook with Pentium 800MHz or higher, 128 MB RAM
- At least 50 MB hard disk space available to install SE318
- Recommended screen resolution 800X600 or above

INSTALL SE-318

1. We recommend closing all other applications before installing SE318.
2. Insert setup CD disk to CD disk drive.
3. Choose the Start button on the Taskbar and select Run.
4. Type E:\SETUP and choose OK, then it will copy SE318.exe (executable file) and help file to your hard disk (default path is c:\program files\SE318).

For other detailed operation instructions, please refer to the online help while executing SE318.

MAIN MENU AND BUTTONS



Open - Retrieve files from the disk



Save - Save the present data to the disk



Print - Send data in the present table to the printer



Pause - Stop data recording



Run - Start data recording



Output To Graph - Send tabular data to another graph

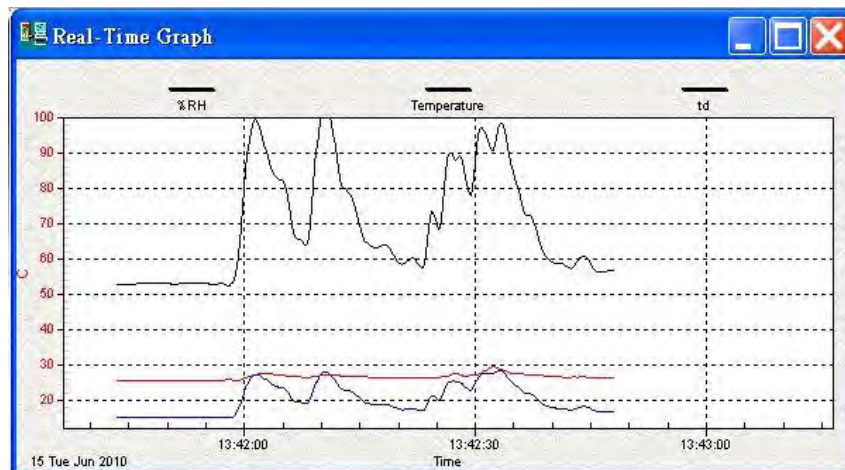


New - Reset all the data

Option - Setup dialog to set attributions of graph. (You can also double click on the graph.)

Sampling Rate - Time interval between each data to be recorded. If you want to change it, move mouse cursor to the digit you want to change and click, then input the new sampling rate. The change will be effective immediately. It will keep up to 5000 data points, when data points exceed this limit, the oldest 100 points will be replaced sequentially

REAL TIME GRAPH



You can Zoom this graph by using mouse:

To Zoom:

1. Press and hold the Shift key
2. Press the left mouse button and drag the cursor to select the new extents
3. Release the mouse button

To Undo the Zoom:

Press the Alt+U key or click Undo Zoom button

Note: Zooming method is not allowed in Real Time Graph Window.

TABULAR

NO	DATE	TIME	RH	T	td	UNIT
58	2010/6/15	13:42:40	58.5	26.6	17.6	C
59	2010/6/15	13:42:41	58.5	26.4	17.4	C
60	2010/6/15	13:42:42	57.2	26.4	17.1	C
61	2010/6/15	13:42:43	59.5	26.4	17.7	C
62	2010/6/15	13:42:44	60.4	26.4	18.0	C
63	2010/6/15	13:42:45	57.0	26.3	17.0	C
64	2010/6/15	13:42:46	56.1	26.2	16.6	C
65	2010/6/15	13:42:47	56.5	26.2	16.7	C
66	2010/6/15	13:42:48	56.4	26.2	16.7	C

The Tabular window can be used to record real time data in a table format. The maximum number of records that the Tabular window can keep will be depending on how many available memory and hard disk space of the connected computer.

DATA LOGGER

When you have thermometer connected to computer, select "Load Data" to start loading the recorded data from the thermometer. There will be a progress indicator to show the loading progress.

If error occurs, just click "Load Data" again.

After the data has been successfully loaded to computer, the left side window shows how many data sets were loaded and their detailed information (start date, start time, recording rate, and record numbers).

For example:

Data Sets				
Set	DATE	TIME	Rate	Nums
1	2010/5/7	下午 07:42:18	08:33	1
2	2010/5/7	下午 07:55:39	20:59	1
3	2010/6/25	下午 01:37:57	20:59	1
4	2010/6/25	下午 01:38:01	20:59	1
5	2010/6/25	下午 01:38:03	20:59	1
6	2010/6/25	下午 01:38:05	20:59	1
7	2010/6/25	下午 01:38:07	20:59	1
8	2010/6/25	下午 01:38:14	20:59	1
9	2010/6/25	下午 01:38:17	20:59	1
10	2010/6/25	下午 01:38:30	20:59	1
11	2010/6/25	下午 01:38:32	20:59	1

It will transfer the first data set to graph and tabular on the right side window once you finish loading recorded data from the thermometer. You can click on at any data set to show its graph and tabular on the right side window.

You can choose a rectangle area on the graph to zoom in for detail.

The vertical dash line in the graph will match the highlight row in the tabular. When clicking on another row in the tabular, the vertical dash line will move to the corresponding position to match the time.



FREQUENTLY ASKED QUESTION

1. *I have connected thermometer to computer serial port and turned thermometer on, but it still shows "NO CONNECTION."*
 - It could be caused by that all serial port are occupied by other applications. Close all application, restart your computer, and run SE318 again.
2. *In TABULAR window, I saved a file. Can I use EXCEL to open this file?*
 - If the decimal separator is comma (,) in your area, you cannot use CSV file because CSV file use comma to separate data. This will cause confusion (for example 23,6,C,24.6,C).
 - However, you can use TXT files instead. It uses tab to separate to data. (For example: 23.6 C 24.6 C) and it can be accepted in EXCEL.
3. *How to uninstall SE318?*
 - Uninstall SE318 by launching the Add/Remove Programs applet out of the Control Panel, highlighting the SE318, and clicking on the Add/Remove... button, then it will remove the SE318 folder and files from your computer.

NOTES:

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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