

2YEAR
WARRANTY

Ω OMEGA™ **User's Guide**



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RHXL5SD

Handheld Temperature/Humidity Meter with SD Card Data Logger



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FEATURES

- 1) New compact hand held size measures and records single thermocouple K type with 1 meter remote temperature and relative humidity sensor probe.
- 2) Applying to duct measurements or harsh environment.
- 3) Quick response and high accuracy single input thermocouple and extend TRH probe.
- 4) Relative function to compare the reference temperature per second.
- 5) Backlight function for working in dark area.
- 6) Hold function: Freeze current readings on LCD.
- 7) Maximum/Minimum/Average: Record since powered on.
- 8) Auto power off: Save power energy when not used. Enable to disable the function.
- 9) Temperature unit: Switchable.
- 10) Display T1 (K), T2 (Remote TRH), T1-T2, T1 REL, T2 REL with Time and Date.
- 11) Store up to 8G memories (Supplied).

SUPPLIED

- Meter
- 9V battery
- Universal 9V plug adaptor
- Calibration certificate
- Manual website card
- K type probe x 1 pc
- Remote sensor probe x 1 pc
- 8G SD Card
- Black carrying case

SPECIFICATION

Spec./ Model no.	RHXL5SD
Input	Single K + Remote Temp. RH
Remote temp. range	-20~60°C (-4~140°F)
Remote temp. accuracy	±0.6°C (1.2°F)
Remote RH range	0.0~99.9%
Remote RH accuracy	±2.5%(@25°C, <70%), others±5%
Resolution	0.1°C/°F, 0.1%
K Temp. range	-200~1370°C (-328~2498°F)
Resolution (K)	0.1°C/0.1°F(-99.9~199.9°C), others 1°C/1°F
Accuracy (K)	±(0.3% rdg + 1°C/2°F): -50~1370°C; others ±(0.1% of rdg ±2°C)@23±5°C,<75% RH condition
Function	Alarm setting. Max. Min. AVG. REL. Hold, T1 (Or Air T). Tripod mountable. APO

Backlight	YES
SD Card (8G supplied)	YES
Temperature Coefficient	0.1 times the applicable accuracy specification per °C from 0°C to 18°C and 28°C to 50°C (32°F to 64°F and 82°F to 122°F)
Operating Temperature	0~50°C (32 to 122°F) at < 80% RH
POWER	9V Battery / 9V AC/DC adaptor
Incl. bead probe K	1 K bead wire sensor
Dimension	Meter: 180 x 68.5 x 50 mm Temp. RH sensor probe: 180 x 12 x 10 mm with 1M cable

KEYPAD (CONTROLS)

UNIT: Press **UNIT** to select °C/°F.

Go to next setting (under setting mode).

HOLD: Press “**HOLD**” to hold and release it to go back to normal measurement mode.

Increase the value (under setting mode).

Long press the button to clear MAX/MIN/AVG readings.

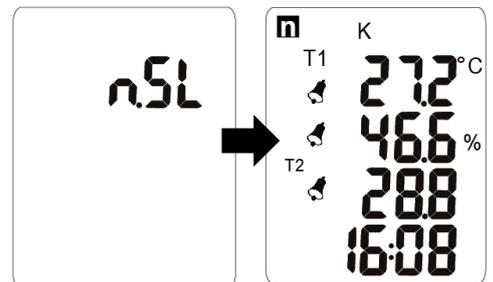
MODE: Press **MODE** button to change operation mode T1 T2, T1-T2, T1 REL and T2 REL.

Move to left digit (under setting mode).

PWR: Press “**PWR**” to turn on the meter or long press it to turn off the meter.

Short press to turn on / off alarm.

HOLD+PWR: Meter will turn off automatically after 15 minutes if no press action is taken. To disable auto power off function, when the meter is off, press and hold “**HOLD**” button then press “**PWR**” button to turn on the meter, the primary LCD shows “**n.SL**” and then enter to normal measurement mode. Display shows “**n**”, now the sleep mode is disabled.

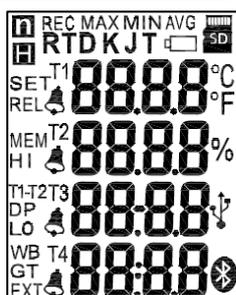


MAX/MIN: Press **MAX/MIN** to change operation mode from Temp. → MAX → MIN → Avg. → Temp. circularly.

SET: Long press button to enter Hi/Lo T1 temp., Hi/Lo T2 temp., Hi/Lo RH%, Date/Time and SD card sample rate setting.

BKLT: Short press to activate/deactivate the backlight function. Decrease the value (under setting mode).

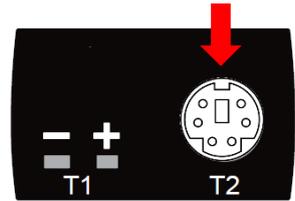
LCD FULL DISPLAY



OPERATION

(1) INSTALLATION

Install K type sensor to left port, make sure the polarity (-+) is plugged in correct side. Install remote temperature probe to right Mini Din port.



(2) POWER ON / OFF

NOTE: Please power on the meter without SD card inserted, or the power on function will be blocked.

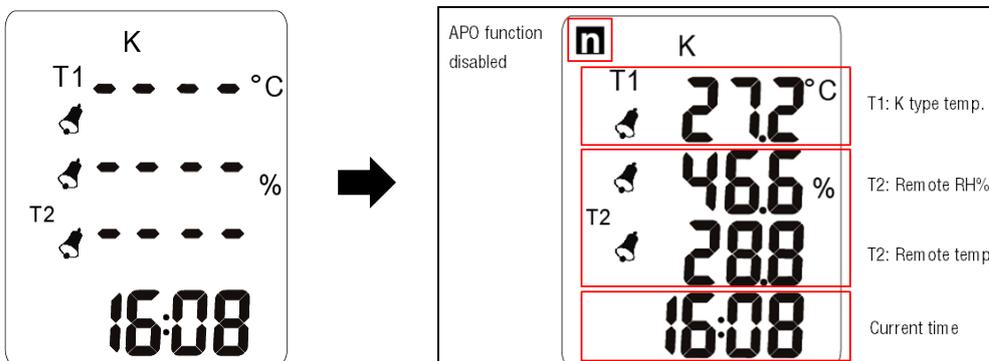
NOTE: Do not use 9V adaptor / battery at the same time, or the meter will be damaged gradually.

Press “**PWR**” button to turn on the meter and the full screen of LCD will quick show on the display, the meter now is in normal measurement mode. While the meter is on, long press “**PWR**” button to turn off the meter.

Note: Make sure you have plugged in the thermocouple probe before turning on.

(3) TAKING MEASUREMENT

Make sure you have plugged in K type sensor probe and remote sensor probe on the top of the meter, if the probe is not plugged in appropriately, LCD shows “ - - - - ” on the display. Under normal measurement mode, display will show T1 temp., T2 temp., T2 relative humidity (remote sensor probe) and current time.



NOTE: Remove batteries when not use.

(4) CHANGE UNIT

Press “**UNIT**” button to change unit “°C” or “°F”. The meter’s default temperature unit is degrees C. After setting to degrees F the unit will revert to degrees C when powered off and back on.

(5) MAX/MIN/AVG

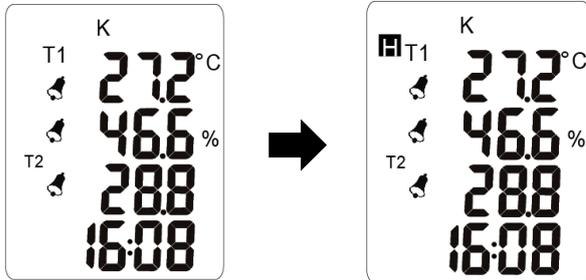
Press **MAX/MIN** button to change operation mode from T1 T2 → MAX → MIN → AVG → T1 T2 circularly. Analysis value will calculate since power on or reset. Once concentration of gas exceeds or lower than current Max or Min value, the readings will be updated.

RESET MAX/MIN/AVG: Long press **HOLD** button more than 2 sec. to reset MAX/MIN/AVG analysis value. The MAX/MIN/AVG value is updated to current reading.

(6) DATA HOLD

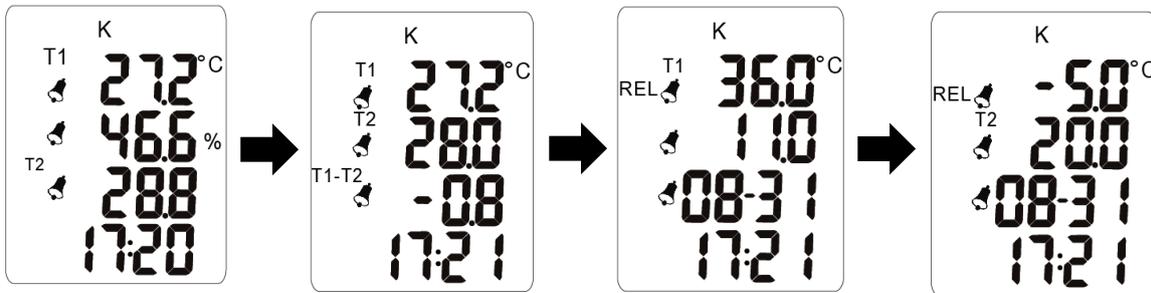
Freeze display by short pressing “**HOLD**” button, and release it to go back to the temperature reading by short pressing button again. When the reading is freeze, the display will show “**H**”.

NOTE: Under “**HOLD**” mode, the current reading status and time will be locked, press **HOLD** button to release freeze status.



(7) CHANGE MODE

Press **MODE** button to change operation mode T1. T2 with time, T1-T2 with time, T1-REL with Date and time, T2-REL with Date and time. REL stands for relative reading.



(8) REL FUNCTION

This is a very useful function to quick check temperature variation by saving a value as standard (reference).

For example:

When the reading shows 25°C, now meter saves 25°C and LCD shows 0.0°C. Simultaneously with REL icon, put the sensor at 36°C object, LCD shows 11°C. Move the sensor to 29°C, the LCD automatically shows 4°C. When the object's temperature is 20°C, now the reading will show -5°C.

(9) ALARM ON/OFF: (Default: Alarm ON)

Short press **POWER** to turn ON/OFF beeper sound.

(10) K temperature Hi/Lo alarm setting - Default: Hi temp. 40°C (104°F), Lo temp. 10°C (50°F)

Remote temperature Hi/Lo alarm setting - Default: Hi temp. 40°C (104°F), Lo temp. 10°C (50°F)

Remote RH% Hi/Lo alarm setting (Default: Hi RH% 70%, Lo RH% 20%)

SET: Long press to enter alarm setting.

MODE: Move to left digit.

MAX/MIN: Move to right digit.

HOLD: Number goes up.

BKLT: Number goes down.

UNIT: Short press to toggle K temp. Hi/Lo setting → Remote temp. Hi/Lo setting → Remote RH%
Hi/Lo setting → Year/Month/Date/Time setting.

K type temp. adjustable range: -200~1370°C (-328~2498°F)

Remote temp. adjustable range: -20~60°C (-4~140°F)

Remote humidity adjustable range: 0~90%

(11) SETTING YEAR/DATE/TIME:

Long press **SET** button to enter alarm setting mode, skip Hi/Lo alarm setting by pressing **UNIT** button six times. The digit of year will flash on the display, adjust the value by pressing buttons.

HOLD: Number goes up.

BKLT: Number goes down.

UNIT: Short press to toggle Year/Date/Time.

After setting completed, short press **UNIT** button to enter SD card sample rate setting.

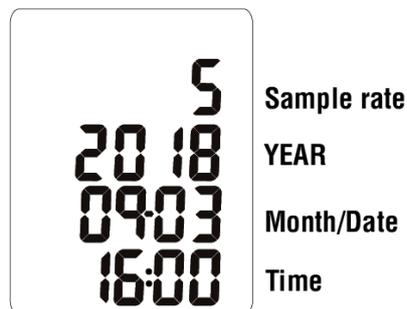
YEAR adjustable range: 2019~2050

Month adjustable range: 01~12

Date adjustable range: Depends on month.

Hour adjustable range: 00~23

Minute adjustable range: 0~59



(12) SD CARD SAMPLE RATE SETTING:

The available settings are : 0 (Manual datalogging), 5 sec, 10 sec, 15 sec, 30 sec, 60 sec, 120 sec, 300 sec, 600 sec, 900 sec, 1800 sec, and 1hr.

HOLD: Number goes up.

BKLT: Number goes down.

After setting completed, long press **SET** again to save and return to normal measurement mode.

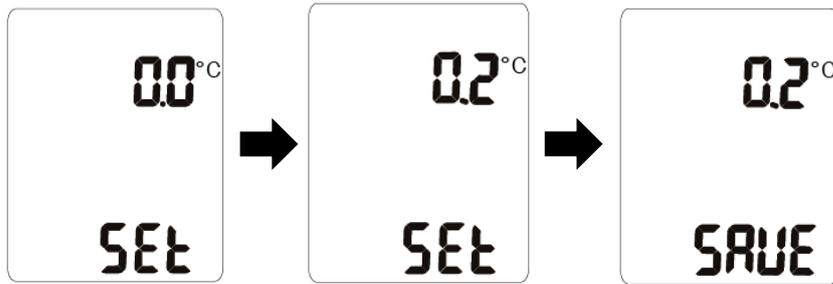
(13) TEMPERATURE&HUMIDITY OFFSET FUNCTION:

The meter is designed with precision and free maintenance capacitor humidity sensor and thermistor temperature sensor. For long time usage, or special accurate purpose, user may do the offset function to adjust Temperature and Humidity per standard value.

NOTE: Under power off condition. press and hold **MODE+BKLT** buttons by left fingers, and then press **PWR** button by right fingers, LCD shows 0.0 °C and SET, now release all fingers, to add the value by pressing **HOLD** button, to reduce value by pressing **BKLT** button. Short press **UNIT** to toggle °C/°F.

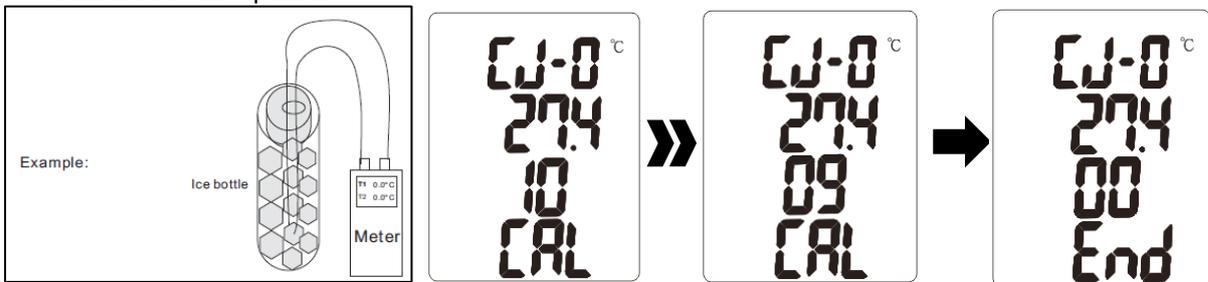
If you want to escape temperature adjustment to RH%, short press **SET** button, and follow the same steps. Long press **SET** button to save the adjustment value, LCD shows **SAVE** in 2 seconds, then power off the meter, the offset function is completed and values are adjusted.

NOTE: Only ±9.9°C, ±9.9°F, ±9.9% are available to be adjusted. Long press **HOLD** or **BKLT** button may quick to select the values.



(13) ICE POINT (0°C) calibration:

1. Sensor part put in an ice bottle with full crushed ice.
2. Plug in K type probe for T1.
3. Press **SET+UNIT** buttons for few seconds, the meter will enter T1 K ice point calibration, “**CJ-0**” shows on the display. CJ means cold junction.
4. Long press **SET+UNIT** buttons again to start zero calibration with number counts down from 10.
5. After 10 seconds calibration, the display shows “**End**” and return to normal measurement automatically.
6. The calibration completed.



ERROR MESSAGES:

OL2	T1 temperature, T2 temperature or T2 Humidity over the range.
---	Thermocouple is disconnected.

WARNING

1. Always plug thermocouple sensor in before turning on the meter, or the displays on LCD are meaningless.
2. Make sure you plug sensor with correct polarity.

BATTERY REPLACEMENT

With SD card inserted, when the power is weak, the “” will flash every second, and LCD display is also flashing.

Without SD card inserted, When the power is weak (less than 3.3V), battery icon “” will appear on the display, when the power less than 2.9V, the LCD display will flash.

Follow below steps to replace new batteries.

1. Turn off the instrument.
2. Remove the battery compartment.
3. Change the battery.
4. Cover the compartment cover.

SD CARD DATALOGGING

✘For long time logging, please use adaptor to power the meter, after inserting the SD card, the “” icon will appear on the bottom of display.

✘**BATTERY LIFE:** Around 50 hrs. with sample rate: 15 sec.

● **SD Card Information**

- a) Insert an SD card (8G supplied) into the SD card slot at the side of the meter. SD card must be placed with the front of the card (label side) facing toward the front of the meter. Once SD card is inserted properly, icon “” will appear on the screen.
- b) If the SD card is being used for the first time, it is recommended that the card must be formatted.

● **SD Card Formatting**

NOTE:

Always make sure that the device is compatible with the SD, SDHC or SDXC memory card before formatting.

WARNING: Backup all your data before formatting. Formatting will erase all data on the memory device.

a) **Activate Windows**

Click the Start or Windows menu and select Computer (Windows Vista/7) or My Computer (Windows XP).

For Windows 8 users, type “computer” and click the Computer icon in the Apps search results. For Windows 10, open the File Explorer. Then find “This PC”.

b) **Find your SD card.**

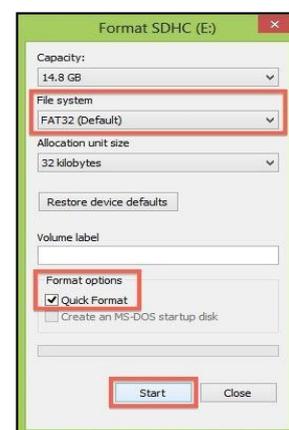
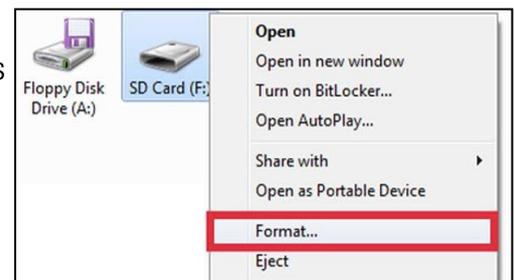
The removable drive that appears last in the “**Devices with Removable Storage**” list should be the SD card that you just connected to your computer. Right-click on your SD card to bring up the right-click menu options.

Select **Format**. Keep “Capacity” and “Allocation unit size” set to be default.

c) **Select the file system.**

This is the way that files are stored on the card. Different systems use different file structures. In order for the SD card to be read by cameras, phones, printers, Windows, Mac, and Linux computers, and more.

1. Select Quick Format.
2. Click “Start”.
3. Once the formatting is completed, you can close the window.



AUTOMATIC DATALOGGING

The meter stores a reading at a user-selected sampling rate onto an SD memory card. The meter defaults to a sampling rate of 5 seconds.

NOTE 1: The sampling rate cannot be “0” for automatic datalogging.

NOTE 2: It is recommended that plug in the adaptor for long time using in order to avoid data lost. (Adaptor is optional.)

a) **Setting the datalogger clock time**

NOTE: Make sure the clock of the meter is set up correctly in order to get accurate date/time during datalogging sessions.

Refer to **page 5 (11) SETTING YEAR/DATE/TIME** to set the date and time.

b) **Setting the datalogger sampling rate**

NOTE: Make sure to set the sample rate before inserting the SD card, it will start to record automatically after SD card be inserted.

Refer to **page 5 (12) SD CARD SAMPLE RATE SETTING** to set the sample rate.

c) **Start datalogging**

Warning: SD recording the selected temperature unit ($^{\circ}\text{C}$ or $^{\circ}\text{F}$). If changing the temperature unit during the datalogging sessions, the recorded data will be switched into the selected temperature unit.

1. After inserting the SD card, display will show icon “” on the screen.
2. The **recording will start automatically** when SD card be inserted, “” will flash on the screen.
3. When “” disappear, SD stop to record data or SD card is not being inserted.
4. When an SD card is used for the first time, a folder is created on the card and named with the **model number**. Under the MODEL number folder, the MODEL number and **AUTO+YEAR** folder will be automatically created. **e.g.:** / RHXL5SD /AUTO2018/.....
5. When starting datalogging, a new folder named **M(month)/D(date)/H(hour)/M(minute)** is created on the SD card in the **AUTO+YEAR** folder. At the same time, a new spreadsheet document (CSV) named M/D/H/M is also created under its folder.
e.g.: / RHXL5SD /AUTO2018/04051858/04051858.csv
6. Each CSV. file can be stored up to 30,000 points.
Once 30,000 points are stored, a new file name will be auto created as **M/D/H/M** right after the last recording time. Unless you interrupt recording, this process continues in the initial created M/D/H/M folder.
e.g.: / RHXL5SD /AUTO2018/12261858/12262005.csv

NOTE1: Datalogging stopped when removing the SD card, removing adaptor, resetting sampling Rate or batteries power is weak.

NOTE2: When the recording is been stopped, a new folder will be created as M/D/H/M from the next datalogging.

NOTE3: When the recording year and model number is changed, the new folder will be also created accordingly.

NOTE4: When SD card records 1 points, “” icon will flash one time, once the “” icon flashes three times, it means the meter is under low battery, the recording will be failed if the battery is low.

MANUAL DATALOGGING (MAX 199 POINTS)

1. Set the sampling rate to “0” (Refer to “**Setting the datalogger sampling rate**”).
2. In the manual mode, data is logged when long pressing **BKLT** button, the “” icon will flash for a second when the data be recorded. (**NOTE:** If “” icon flashes for three times, it means the **recording is failed, please install brand new batteries to start recording**).
3. Data created directory in SD card : / RHXL5SD/ **MANUAL.csv**

NOTE : When manual data records full (199 points), logging will continue, but the new data will overwrite the old data. If you want to keep the previous data, rename the file “**MANUAL.csv**” in

/RHL5SD/ MANUAL.csv is required.

TRANSFERRING SD DATA TO PC

- a) Remove SD card from the meter.
- b) Insert SD card directly into a PC SD card slot or use a SD card reader.
- c) Open the saved documents (CSV.) (Data stored) in the folder from PC.
- d) File name /Product number/ Sample rate/ Recording point/ Start recording time/ End recording time/ Recording date/time /Recording parameters will be shown in the CSV. file.
- e) Data show “-49” stands for no measured value during recording period.

#A	FileName:	06061044.CSV				
Prod.No:	RHXL5SD					
Sample Rat	15					
Point(s):	616					
Start:	2019/6/6 10:44					
End:	2019/6/6 13:16					
#Point(s)	DATE	TIME	K Temp.	Temp.	RH	
Point(s)	(Y/M/D)	(H:M:S)	(C/F)	(C/F)	(%)	
1	2019/6/6	10:44:18	27.3	29.2	48.3	
2	2019/6/6	10:44:33	27.4	29.2	47.8	
3	2019/6/6	10:44:48	27.4	29.2	47.7	
4	2019/6/6	10:44:03	27.5	29.2	47.7	
5	2019/6/6	10:45:18	27.5	29.2	48	
6	2019/6/6	10:45:33	27.4	29.2	47.8	
7	2019/6/6	10:45:48	27.4	29.2	47.9	
8	2019/6/6	10:45:03	27.4	29.2	47.9	
9	2019/6/6	10:46:18	27.5	29.2	48.1	
10	2019/6/6	10:46:33	27.4	29.2	48.2	

▲ Automatic Datalogging▲

#M#081#148	FileName:	MANUAL.CSV				
Prod.No:	RHXL5SD					
Point(s):	81					
#Point(s)	DATE	TIME	K Temp.	Temp.	RH	
Point(s)	(Y/M/D)	(H:M:S)	(C/F)	(C/F)	(%)	
1	2019/6/5	11:23:32	80	82.9	47.7	
2	2019/6/5	11:23:37	80	82.7	47.9	
3	2019/6/5	11:24:40	79.8	82.7	47.8	
4	2019/6/5	11:24:43	80.2	82.7	47.8	
5	2019/6/5	11:24:46	79.7	82.7	48.1	
6	2019/6/5	11:24:49	79.5	82.7	48.1	
7	2019/6/5	11:24:52	79.7	82.7	48.1	
8	2019/6/5	11:24:54	79.7	82.7	48	
9	2019/6/5	11:24:58	79.7	82.7	47.8	
10	2019/6/5	11:24:05	80	82.7	47.6	

▲ Manual Datalogging▲

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **25 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **two (2) 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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CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

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.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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