









ŒOMEGA®.

omega.com e-mail: info@omega.com For latest product manuals: omegamanual.info



MADE IN TAIWAN

HH126 RTD Data Logger Thermometer



OMEGAnet® Online Service omega.com

Internet e-mail info@omega.com

Servicing North America:

U.S.A.: Omega Engineering, Inc., One Omega Drive, P.O. Box 4047

ISO 9001 Certified Stamford, CT 06907-0047 USA

Toll Free: 1-800-826-6342 TEL: (203) 359-1660 FAX: (203) 359-7700 e-mail: info@omega.com

Canada: 976 Bergar

Laval (Quebec), Canada H7L 5A1

Toll-Free: 1-800-826-6342 TEL: (514) 856-6928 FAX: (514) 856-6886 e-mail: info@omega.ca

For immediate technical or application assistance:

U.S.A. and Canada: Sales Service: 1-800-826-6342/1-800-TC-OMEGA®

Customer Service: 1-800-622-2378/1-800-622-BEST® Engineering Service: 1-800-872-9436/1-800-USA-WHEN®

Mexico: En Español: 001 (203) 359-7803 FAX: (001) 203-359-7807

info@omega.com.mx e-mail: espanol@omega.com

Servicing Europe:

Benelux: Managed by the United Kingdom Office

Toll-Free: 0800 099 3344 TEL: +31 20 347 21 21 FAX: +31 20 643 46 43 e-mail: sales@omega.nl

Czech Republic: Frystatska 184

733 01 Karviná, Czech Republic

Toll-Free: 0800-1-66342 TEL: +420-59-6311899 FAX: +420-59-6311114 e-mail: info@omegashop.cz

France: Managed by the United Kingdom Office

Toll-Free: 0800 466 342 TEL: +33 (0) 161 37 29 00 FAX: +33 (0) 130 57 54 27 e-mail: sales@omega.fr

Germany/Austria: Daimlerstrasse 26

D-75392 Deckenpfronn, Germany

United Kingdom: OMEGA Engineering Ltd.

ISO 9001 Certified One Omega Drive, River Bend Technology Centre, Northbank

Irlam, Manchester M44 5BD England

Toll-Free: 0800-488-488 TEL: +44 (0)161 777-6611 FAX: +44 (0)161 777-6622 e-mail: sales@omega.co.uk

It is the policy of OMEGA Engineering, Inc. to comply with all worldwide safety and EMC/EMI regulations that apply. OMEGA is constantly pursuing certification of its products to the European New Approach Directives. OMEGA will add the CE mark to every appropriate device upon certification.

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.

Introduction:

HH126 hand-held thermometer is the digital thermometer which uses the microprocessor. The HH126 unit penetrates the IrDA output port and PC online (USB or RS232). Use PC and USB port online have to select the IrDA-USB transmit wire. Use PC and RS232 port online have to select the IrDA-RS232 transmit wire.

Accessories:

Common accessories:

4 1.5 V batteries Housing x 1pcs 4PIN MINI DIN wire x 2pcs Users manual x 1pcs

With PC on-line accessories:

Temp Monitor software users manual x 1pcs IrDA-USB or IrDA-RS232 transmit wire x 1pcs Temp Monitor software CD x 1pcs

Security information:

Marning

To avoid electrical shock or personal injury, follow these guidelines:

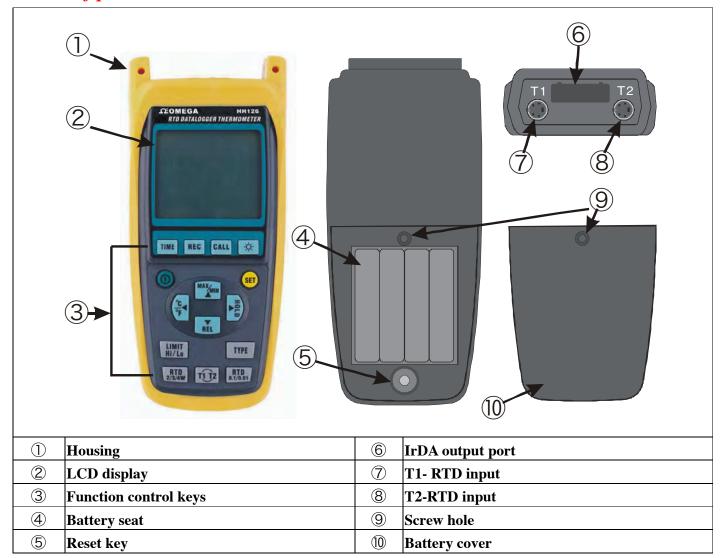
- Before using the thermometer inspect the case. Do not use the thermometer if it appears damaged. Look for cracks or missing plastic. Pay particular attention to the insulation around the connectors.
- Disconnect the RTD from the thermometer before opening the case.
- When displays battery mark become (), and you hear a short buzzing sound, replace the battery immediately, the possibility of false readings can lead to personal injury.
- Do not use the thermometer if it operates abnormally. Protection may be impaired. When in doubt, have the thermometer serviced.
- Do not operate the thermometer around explosive gas, vapor, or dust.
- Do not exert the voltage to RTD or earth.
- Do not take RTD direct measure generator set or equipment, intense electric shock possibly can lead to personal injury.
- When the thermometer cover opened, is sure not to use thermometer.
- Do not to put thermometer in the microwave oven to measure temperature.
- When RTD measure is high temperature or low temperature, you should be careful to avoid goods because it can can lead to personal injury.

Caution

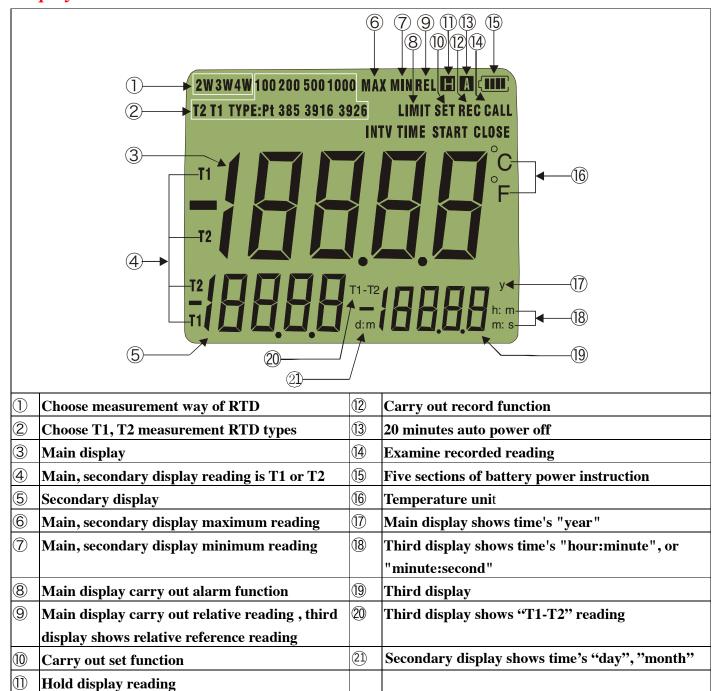
A caution identifies conditions and actions that may damage the meter or the equipment under test.

- Use the proper RTD, function, and range for your thermometer.
- Do not attempt to recharge the batteries.
- To prevent explosion, do not throw batteries into a fire.
- Follow local laws or regulations when disposing of batteries.
- Match the + and polarities of the battery with the battery case.

Names of parts:



Display elements:

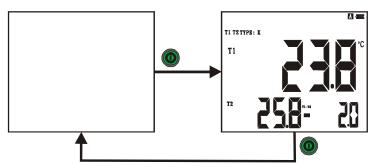


Battery power indicator and replacement:

- The battery power expressed by five sections of batteries marks. (
- When battery mark shows (____) and you hear a gap-like short buzzing sound, indicates the battery power is weak, please immediately close unit and replace 1.5V batteries to ensure the measuring accuracy.
- When battery power is low, to keep thermometer normal operation, can automatically stop the thermometer operation, and the main display will be show BATT and third display shows LO, after please immediately turn OFF unit and replace the 1.5V batteries and turn ON thermometer.
- When replace battery, must use a cross screwdriver to open battery cover, after exchange four new 1.5V batteries and lock battery cover.
- Replace in front of the battery, please take RTD away from thermometer.
- Replace in front of the battery, please note the battery polarity, cannot make a mistake.
- When the thermometer is not in use, please takes out the battery, and avoid leaving in a high temperature, wet place.
- Replace battery if surpasses above for 30 seconds, the thermometer can automatic reset and directly enter to calendar setting function.
- Replace battery if thermometer display shows not to be normal, please open battery cover and
 use the small screwdriver to press the Reset key, let thermometer reset and directly enter calendar
 setting function.

Keys:

n Power key: turn on/off thermometer. Auto power off function, after 20 minutes will auto power off.

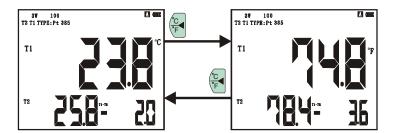


Initial temperature unit is (°C), when you turn power on, meter will keep last power off state.

Dual inputs: secondary display shows T2 measuring value and third display shows T1-T2 value.

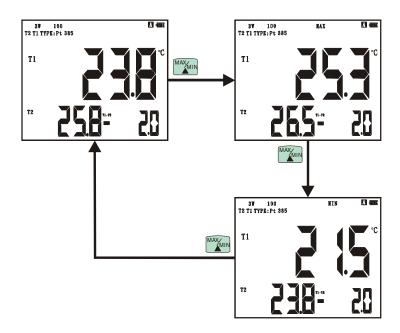


Temperature unit key: Choose temperature unit to be Centigrade (°C) or Fahrenheit (°F).

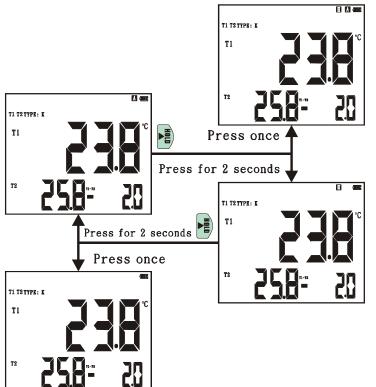




Maximum/minimum key: Main, secondary display shows (T1, T2) maximum/minimum value at same time, third display shows (T1-T2) real time readings.



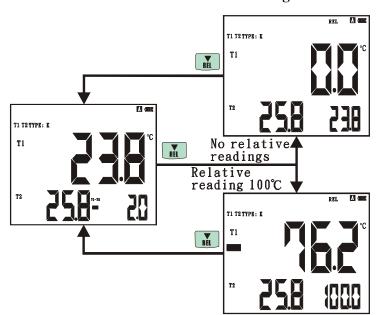
Hold readings key: Hold LCD display readings.



Press once: Carry out/cancel hold readings function.

Press for 2 seconds: Carry out/cancel hold readings function and to carry out/cancel auto power off function.

Relative readings key: Main display shows (T1 or T2 readings - relative readings), third display shows relative readings.

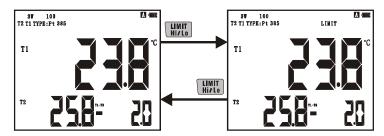


When not setting up relative readings: while pushing key for main display shows (T1 or T2) readings are the relative readings, it is show in third display.

When setting up relative readings: While pushing key, third display shows set up relative readings.

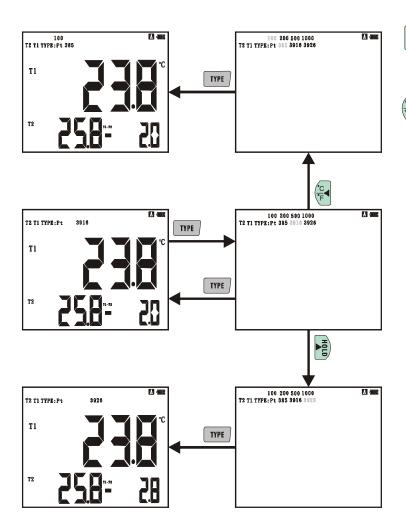
Note: Set up operation of relative readings, please consult the explanation of set up relative readings.

Alarm function key: Main display shows (T1 or T2) readings greater than or smaller than (T1 or T2) setting up critical high value or low value of alarm, the buzzer will send out alarm sound continuously.



Note: Set up operation of alarm critical value, please consult the explanation of set up alarm critical value.

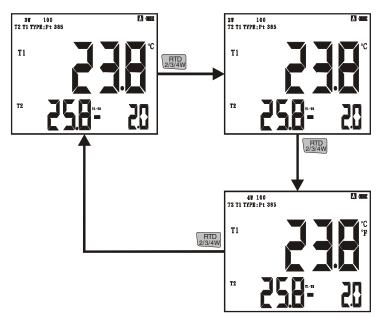
Choose types key of RTD: To choose types of RTD.



-> Press to move right one –figure that RTD type chosen.

->Press to move left one -figure that RTD type chosen.

2W/3W/4W option key of RTD: The input to choose RTD is 2W, 3W or 4W.



Note: 2W RTD is unable to use 3W or 4W to measure. 3W RTD is unable to use 4W to measure.

2W and 3W Rtd's will not be compensated for extension wire resistance.

Pt385 100Ω , increase 0.391Ω , nearly increase 1° C/1.8°F errors.

Pt3916 100 Ω , increase 0.397 Ω , nearly increase 1°C/1.8°F errors.

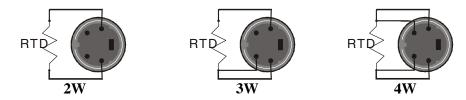
Pt3926 100 Ω , increase 0.398 Ω , nearly increase 1°C/1.8°F errors.

Pt385 200 Ω , increase 0.782 Ω , nearly increase 1°C/1.8°F errors.

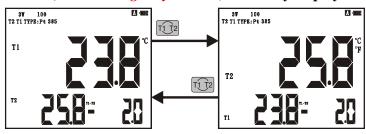
Pt385 500 Ω , Increase 1.954 Ω , nearly increase 1°C/1.8°F errors.

Pt385 1000 Ω , increase 3.91 Ω , nearly increase 1°C/1.8°F errors.

Wiring diagram of RTD input:



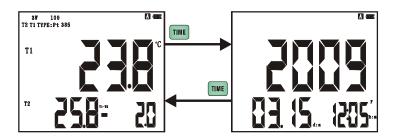
11, T2 exchange key: Main, secondary displays are exchanged (T1, T2) measure values.



Option key of resolution of RTD: Main, secondary display shows measurement values of RTD of among

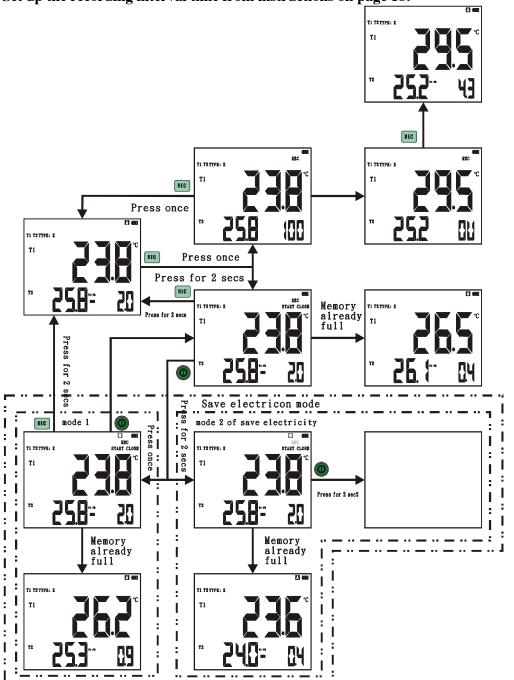


Look over key of the perpetual calendar: Main display shows year, secondary display shows date:month, third display shows hour: minute.



The data record key: The data record is divided into real time recording and scheduled receiving on page 15.

Set up the recording interval time from instructions on page 18.



To start recording in real time press the (REC) button. Data logging starts at the interval set. Quantity of data points appears in third display. To stop recording press (REC) button. Review logged data per instructions on page 11.

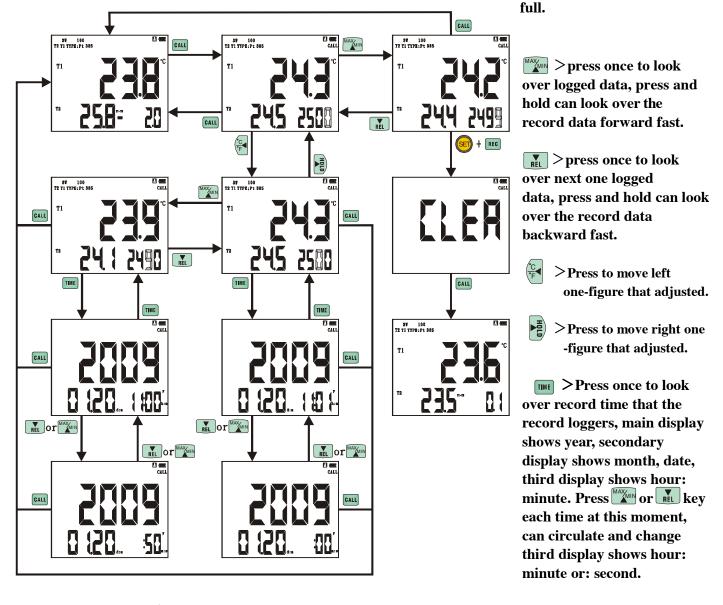
When in the scheduled record mode the following electricity settings are available.

Mode to save electricity is under order setting record: Need to set up (INTV) interval time ±10 seconds. Can increase the service time of order setting record.

press power key once > Enter mode 1 of save electricity, symbol will glimmer, MCU will enter the sleep state, will start MCU when measurement recorded. Press power key again finishes mode of save electricity 1.

press power key for 2 seconds > Enter mode 2 of save electricity, symbol and REC will glimmer, MCU will enter the sleep state and close the peripheral drive circuit, will start MCU and drive circuit when wanting to measurement record. If unable to finish the function of order setting record under mode of save electricity 2, press power key 2 seconds to finish order setting record function.

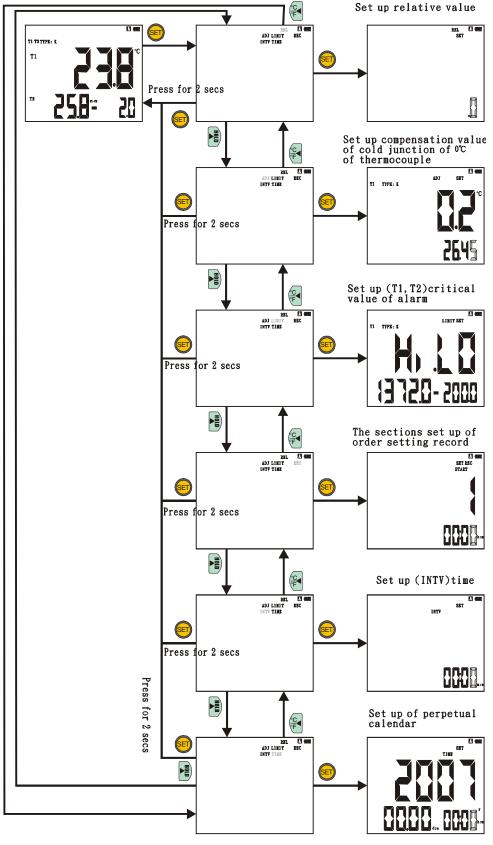
Press button to review recorded data. Main, secondary display shows recorded data. Recorded data on (T1, T2), third display shows the log of recorded data, if OU shows the memory is already



- Fress Fress key first and then press key, carry out clear memory function, press key again, get back to measuring state.
- Back light: Open/close LCD back light, will close automatically after opening one minute.

Function key of reset: Take a cross screwdriver, unlock after pressing Reset key under the battery cover, the system will produce reset movement, and will resume for the initial state, and enter the function that set up the perpetual calendar.

Note: For set up operation method of perpetual calendar, please consult set up the perpetual calendar explanation.



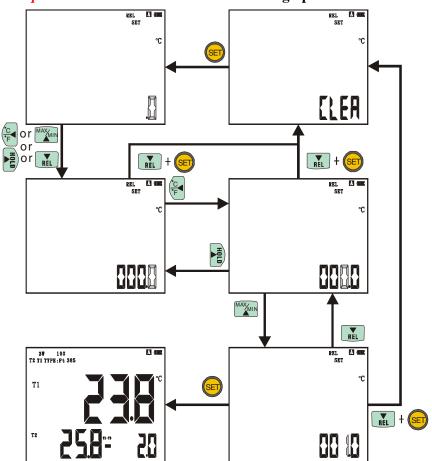
>Presses once to move right one-figure that set up function chosen.

> Press once to move left one-figure that set up function chosen.

Press SET once: Confirm selection of the chosen function.

Press for 2 seconds: Leave the chosen set up function.

Set up relative value: When there is no setting up relative value the third display will show 0, begin to set up



Can set up the range in every type RTD: Pt385 100Ω :

-200 to 800°C (-328 to 1472°F) Pt3916, Pt3926, Pt385 200Ω/500Ω/ 1000Ω:

-200 to 600°C (-328 to 1112°F)

> Press once to add one-figure upward, a thousand-figure needs to be accumulated by one hundred-figure.

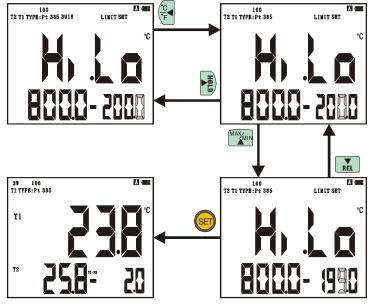
Press once to decrease one-figure downward, A thousand-figure needs to be reduced downwards by one hundred—figure.

> Press to move right one-figure.

© > Press to move left one-figure.

+ SET > Press key then press ET key, third display shows CLEA mean to clear set up relative value, press set key again to finish clearing.

Set up critical value of alarm: Set up main display shows (T1 or T2) critical value of the alarm, secondary



display shows high critical value of the alarm and third display shows low critical value of the alarm. Begun from the set up value directly when there is set up critical value the alarm. While use not choosing type function of RTD or temperature unit to choose function and use not setting up critical value of alarm, the high, low critical value of alarm shows that can be measured for every type RTD highest and minimum temperature value, adjust to you want and press set key again to finish setting up.

Can set up the range in every type RTD:

Pt385 100Ω::

-200 to 800°C (-328 to 1472°F)

Pt3916, Pt3926, Pt385 200Ω/500Ω/1000Ω

-200 to 600°C (-328 to 1112°F)

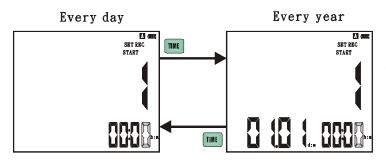
> Press to add one-figure upward.

Press to minus one-figure downward.

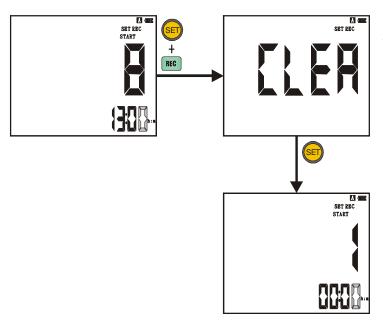
>Press to move right one-figure.

Press to move left one-figure.

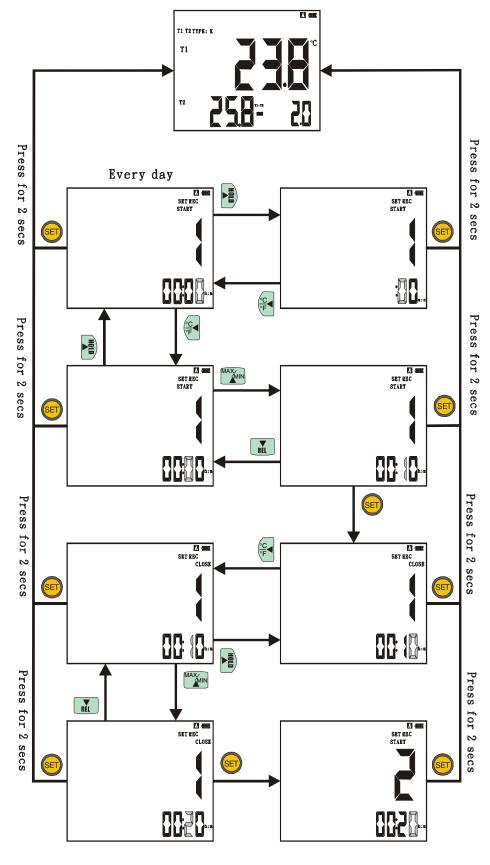
The sections set up of order setting record: Divide into the sections of order setting record (circulation of every day) and (circulation of every year). Can only choose one to set up, every kind can be set up for 9 sections at most.



Choose circulation of every day or circulation of every year: Can press we key to switch over and choose circulation of every day or circulation of every year under not finishing the set up in any section.



To delete the set up sections of circulation of every day: Press key then press key, when main display shows CLEA then press key to finish deleting.



To start order setting scheduled data logging press and hold (REC) for 2 seconds. Display will show REC, START, and CLOSE. START or CLOSE will only appear during the section presently active. When complete data can be viewed by using review mode on page 11.

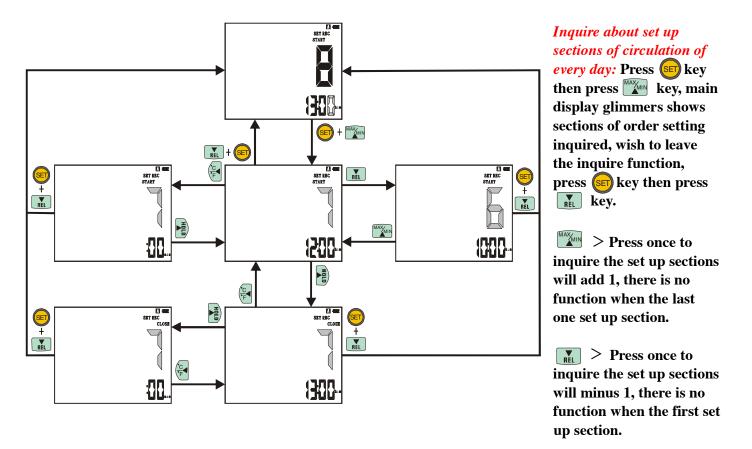
The order setting of circulation of every day: A day 24 hours from (00:00:00) 0 hour 0 minute 0 second to (23:59:59) 23 hours 59 minutes 59 seconds, at most can set up 9 sections from 1 to 9 that shows in main display. Symbol START represents sets up the beginning record time of section. Symbol CLOSE represents set up the end record time of section. Need from small to big when to set up sections of order setting, at the same time the set up time of each section can not overlap and repeat. It will be unable to finish setting up to violate the above rule of setting up. After finishing sections of set up order setting record, after carrying out, unless the capacity of memory has been already full or to cancel the function of order setting, repeated execution that will be incessant every day.

>Press to add one-figure upward.

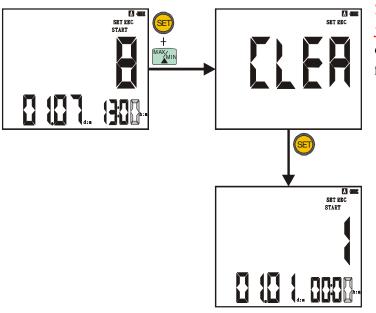
> Press to minus one-figure downward.

>Press to move right one -figure. When the -figure of adjusted in hour:minute (??:??) that the most right -figure, press again turn into: second (:??).

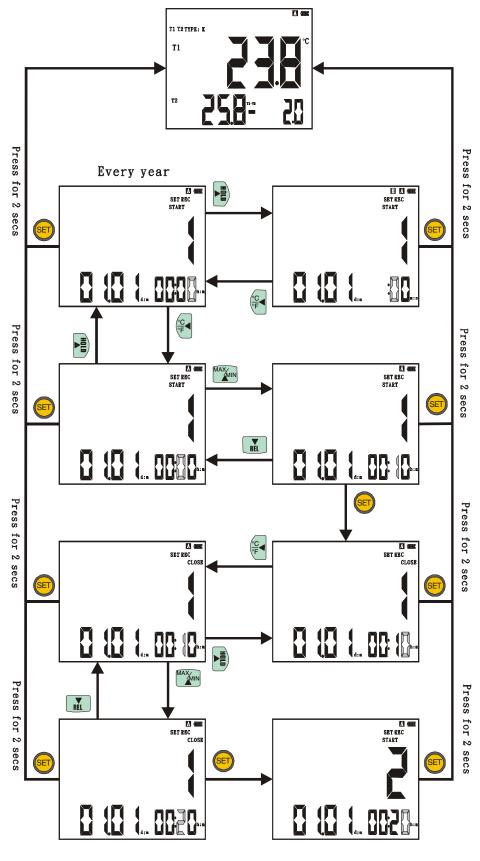
> Press to move left one -figure. When the figure of adjusted in: second (:??) that the most left –figure, press again turn into hour: minute (??:??).



- >At start time (START) that inquire the set up sections to press once, will turn into stop time (CLOSE). Press once in stop time (CLOSE), the third display shows hour: minute (??:??) will turn into: second (:??).
- >At stop time (CLOSE) that inquire the set up sections to press once, will turn into start time (START). Press once in start time (START), the third display shows hour: minute (??:??) will turn into: second (:??).



To delete the set up sections of circulation of every year: Press set key then press key, while main display shows CLEA then to press set key to finish deleting.



The order setting of circulation of every year: One year is divided into 12 months, a day 24 hours from (00:00:00) 0 hour 0 minute 0 second to (23:59:59) 23 hours 59 minutes 59 seconds, at most can set up 9 sections from 1 to 9 that shows in main display. **Symbol START represents the** beginning record time of section. Symbol CLOSE represents the end recordtime of section. Need from small to big when setting up sections of order setting, at the same time the set up time of each section can not overlap and repeat. It will be unable to finish setting up to violate the above rule of setting up. After finishing sections of set up order setting record, after carrying out, unless the capacity of memory has been already full or to cancel the function of order setting, repeated execution that will be incessant every year.

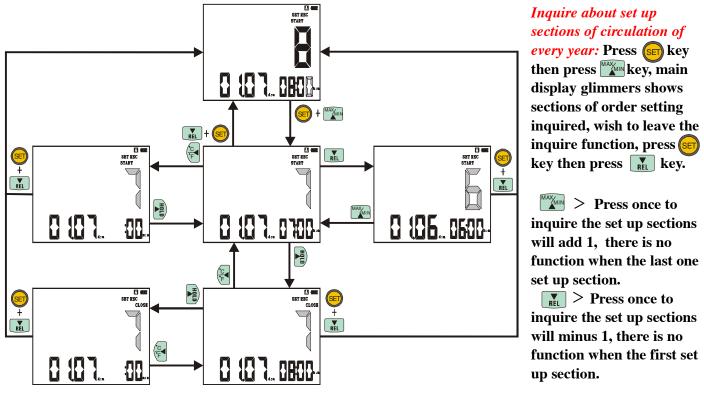
> Press to add one-figure upward.

> Press to minus one-figure downward.

>Press to move right one-figure. When the -figure of adjusted in hour: minute (??: ??) that the most right-figure, press again turn into: second (: ??).

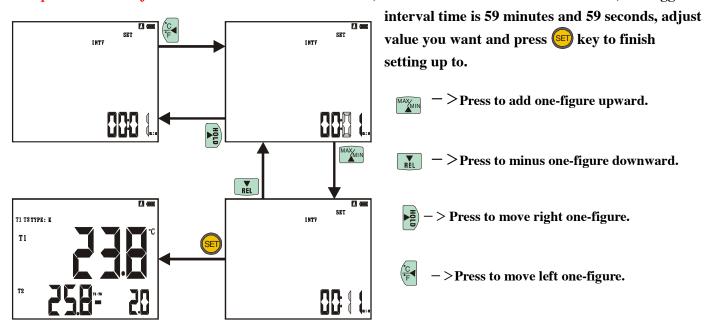
> Press to move left one -figure that adjusted. When the -figure of adjusted in: second (:??) that the most left-figure, press again turn into hour: minute (??: ??).

> Press once to confirm set up, press for 2 seconds to leave the set up function.

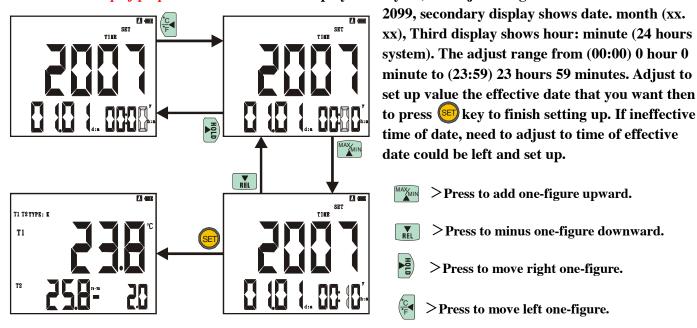


- >At start time (START) that require the set up sections to press once, will turn into stop time (CLOSE). Press once in stop time (CLOSE), the third display shows hour: minute (??:??) will turn into: second (:??).
- >At stop time (CLOSE) that require the set up sections to press once, will turn into start time (START). Press once in start time (START), the third display shows hour: minute (??:??) will turn into: second (:??).

Set up interval time of record: The interval time of record, minimum interval time is one second, the biggest



The time to set up of perpetual calendar: Main display shows year, the adjust range is from 2000 to



General specifications:

Display	4 1/2 digit crystal display, max display 19999	
Polarity indicator	No indicator in positive, negative indicator "-"	
Overload indicator	Positive overload show "OL", negative overload show "-OL"	
Low power indicator	When five sections of batteries mark show(□), expressed battery power is	
	run low.	
Power	UM-4/1.5V batteries x 4pcs	
	The pressed key use has not reached 20 minutes the battery power will be	
Auto power off	turned off, hold o	lown key for 3 seconds to cancel auto power off
	function, and	mark of display will be disappeared.
Reading renewal	4 times/sec	
Data logger	Every channel 9999 loggers at most.	
	General mode	Approximately 210 hours/alkaline battery
Battery life	Mode 1 of save	Approximately 750 hours (interval = 15 minutes)/alkaline
	electricity	battery
	Mode 2 of save	Approximately 6 months (interval = 15 minutes)/alkaline
	electricity	battery
Operating temperature	0 to -50°C (32 to 122°F), <80% RH	
Storage temperature	-10 to -60°C (-4 to 140°F), <70% RH	
Dimension	164 L x 76 W x 32 mm H (164 L x 76 W x 32 mm H)	
Weight	Approximately 415 g (0.916) (includes batteries)	

Electrical specifications:

Measurement	RTD Pt385 100Ω: -200 to 800°C (-328 to 1472°F)			
range		Pt3916, Pt3926, Pt385 200Ω/500Ω/1000Ω: -200 to 600°C (-328 to 1112°F)		
	0.01	Pt3916, Pt3926, Pt385 200Ω/500Ω/1000Ω: <+200°C/°F		
Resolution		Pt3916, Pt3926, Pt385 200Ω/500Ω/1000Ω: <-200°C/°F		
		Pt3916, Pt3926, Pt385 200Ω/500Ω/1000Ω: <+200°C/°F		
		Pt3916, Pt3926, Pt385 200Ω/500Ω/1000Ω: <-200°C/°F		
	Pt3916, Pt3926, Pt385 100Ω/200Ω/500Ω/1000Ω: \pm [0.05% reading+ 0.3°C (0.6°F]]			
Accuracy	[belov	[below-100°C (-148°F) Pt3916, Pt3926, Pt385 100Ω/200Ω add 0.15% of reading, Pt385		
	$500\Omega/1000\Omega$ add 0.45% of reading]			
	0.01% of reading 0.03°C/°C 0.06°F per °F outside the specified 18 to 28°C (64 to			
Temperature	e 82°F) range [below -100°C (-148°F) Pt3916, Pt3926, Pt385 100Ω/200Ω add 0.04% of			
coefficient	reading, Pt385 500 Ω /1000 Ω add 0.08% of reading]			
Temperature	ITS-90			
scale				
Accuracy is sp	ecified	for ambient temperatures between 18°C (64°F) and 28°C (82°F). The above		
specifications	do not i	include error of RTD.		

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.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

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
- 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.

OMEGA is a registered trademark of OMEGA ENGINEERING, INC.

© Copyright 2011 OMEGA ENGINEERING, INC. All rights reserved. This document may not be copied, photocopied, reproduced, translated, or reduced to any electronic medium or machine-readable form, in whole or in part, without the prior written consent of OMEGA ENGINEERING, INC.

Where Do I Find Everything I Need for Process Measurement and Control? OMEGA...Of Course!

Shop online at omega.com[™]

TEMPERATURE

- Thermocouple, RTD & Thermistor Probes, Connectors, Panels & Assemblies
- ✓ Wire: Thermocouple, RTD & Thermistor
- ☑ Calibrators & Ice Point References
- Recorders, Controllers & Process Monitors
- Infrared Pyrometers

PRESSURE, STRAIN AND FORCE

- Transducers & Strain Gages
- ☑ Load Cells & Pressure Gages
- Displacement Transducers
- Instrumentation & Accessories

FLOW/LEVEL

- ☑ Rotameters, Gas Mass Flowmeters & Flow Computers
- Air Velocity Indicators
- ☑ Turbine/Paddlewheel Systems
- ☑ Totalizers & Batch Controllers

pH/CONDUCTIVITY

- pH Electrodes, Testers & Accessories
- Benchtop/Laboratory Meters
- ☑ Controllers, Calibrators, Simulators & Pumps
- Industrial pH & Conductivity Equipment

DATA ACQUISITION

- ☑ Data Acquisition & Engineering Software
- ☑ Communications-Based Acquisition Systems
- ✓ Plug-in Cards for Apple, IBM & Compatibles
- Data Logging Systems
- Recorders, Printers & Plotters

HEATERS

- Heating Cable
- ☑ Cartridge & Strip Heaters
- Immersion & Band Heaters
- Flexible Heaters
- Laboratory Heaters

ENVIRONMENTAL MONITORING AND CONTROL

- Metering & Control Instrumentation
- Refractometers
- Pumps & Tubing
- Air, Soil & Water Monitors
- ☑ Industrial Water & Wastewater Treatment
- PH, Conductivity & Dissolved Oxygen Instruments