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User's Guide

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# RH32 SERIES

## Pocket Size Temperature/ Humidity Handheld Datalogger

# Vol.1 [Basic Instructions]

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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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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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M4818/1009

# Request and notices

Please read this instruction manual for using this **"**Temperature/humidity meter**"** correctly and safely.

## Request to instrumentation manufacturers, installation contractors, and sales agents

Make sure to deliver this instruction manual to the operator of this **"**Temperature/humidity meter**"**.

## Request to the operator of this temperature/humidity meter

This instruction manual is necessary for maintenance, too.

Keep this manual with due care until this **"**Temperature/humidity meter**"** is discarded**.**

## Notices

1. The descriptions of this manual are subject to change without notice.
2. If a question has arisen or if an omission was found in this manual, please contact your nearest OMEGA's agent.
3. We are not responsible for any results by operation of this **"**Temperature/humidity meter**"**.

# ■ Important notices

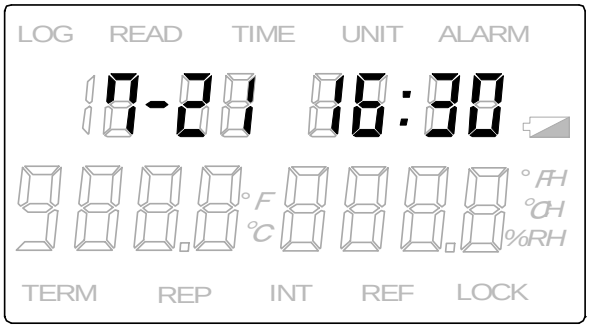
- The instruction manual for the RH32 series palm-sized temperature/humidity meter is consisted of Vol. 1 [Basic instructions] and Vol. 2 [Function instructions].

  This instruction manual is Vol. 1 [Basic instructions].
  For “Measurement and data storage”, “Stored data reading” and “Parameter programming”, etc., refer to Vol. 2 [Function instructions].

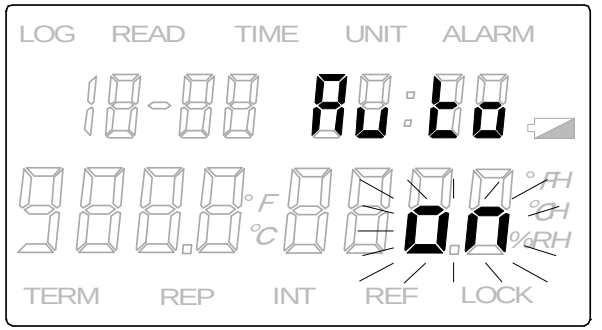
- **[Auto-power-off function]**
  For avoiding the comsumption of the batteries, the auto-power-off function of this **“**temperature/humiditymeter**”** has been set at ON (active) as a factory default setting. If no key is pressed for 1 minute, the continuous measurement will automatically stop and the mode will move to the clock mode.

  For setting of the auto-power-off function to OFF:
  Press DISP key to go to the continuous measurement mode ( Ref. [1.1Continuous measurement] and then press DISP key again for about 2 seconds to go to the programming mode. In the programming mode, press DISP key several times to go to the auto-power-off selection mode with **“Auto”** lit in the sub display. In the auto-power-off selection mode, **“on”** (active) will flash in the main display 2. For releasing the auto-power-off function, select **“oFF”** (release) by pressing ∧ key or ∨ key. Press ENT key to retain **“oFF”** selected. The flashing of **“oFF ”**will stop.

**Clock mode**




**Auto-power-off selection mode**




- For the RS-232C communications with Model RH32□-C2 (RS-232C communications type), the use of the AC power adapter (RH32-AC110 - sold separately) is recommended to avoid the consumption of the batteries.
- Also, for the RS-485 communications with Model RH32□-C4 (RS-485 communications type), make sure to use the AC power adapter (RH32-AC110 - sold separately) as the batteries will be consumed very rapidly.

# ■ Warning and safety notices

Ensure the following instructions to use this meter correctly.

| | **Warning (For avoiding unexpected dangerous accidents of death or serious injury)** |
|---|---|
|  | ◆ Don't use this meter in places where explosive gas exists. |
|  | ◆ If this meter is smoking, nasty smelling or abnormal noising, remove batteries from it or pull out an AC power adapter (RH32-AC110) (if used) from a receptacle as quickly as possible, and then contact your OMEGA's agent. |
|  | ◆ Don't throw out batteries in fire. Don't charge, short circuit, heat or disassemble them.<br>It will cause a fire or an injury by blowing-out or heat. |
|  | ◆ For the AC power adapter, use the power voltage of 100 to 240V.<br>Don't touch the AC power adapter or the receptacle by wet hands. It will cause an electric shock, a fire or a failure.<br>Wipe out dusts from the AC power adapter to prevent fires. |
|  | ◆ Don't touch the inside of the case by wet hands. |
|  | ◆ Don't repair or modify it. |
|  | ◆ Check the specifications of batteries. Use AA (UM-3) batteries. |
|  | ◆ Don't use it under failed conditions. |

# Contents

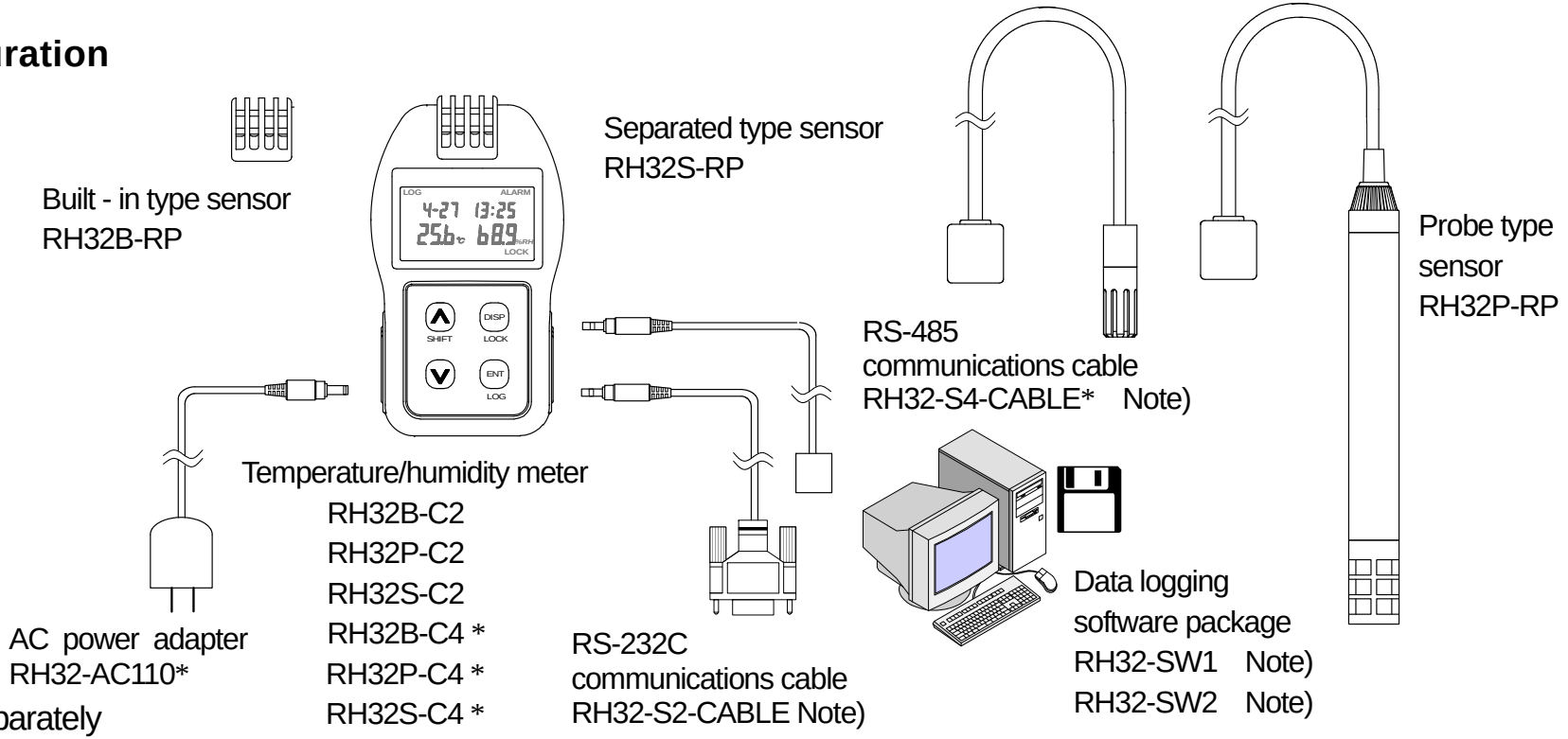
**Palm-sized temperature/humidity meter <Vol.1 [Basic instructions]>**
**Request and notices**
**Importance notices**
**Warning and safety notices**

# 1. Introduction

## 1. 1 Outline

The RH32 series is a high performance and highly reliable palm-sized temperature/humidity meter for the measurement of temperature and humidity of 0 to 100%RH using a capacitance type humidity sensor.
The meter has two major functions, “measurement of temperature and humidity” and “data logging of maximum 8000 data of both temperature and humidity” (Refer to the separated instruction manual Vol. 2 <Function instructions>). In addition, by using a data logging software package (sold separately), easy data processing by a PC is available.

## 1.2 Configuration




Note : Sold separately

**Caution** * For the RS-485 communications with Model RH32□-C4 (RS-485 communications type), make sure to use the AC power adapter (RH32-AC110 - sold separately) as the batteries will be consumed very rapidly.

INST.No.INE-418-1P1CE

# ▣ CE conformance

**Palm-sized temperature/humidity meter**

RH32B-C2, RH32P-C2, RH32S-C2,
RH32B-C4, RH32P-C4, RH32S-C4

**Directive**

89/336/EEC, 92/31/EEC amendment,
93/68/EEC amendment

**Standard**

EN61326+A1: Emission class B,
Immunity Table1
(Minimum immunity test requirements)

**Conformance condition**

RH32B-C4：The connection cable is to be used indoor and within 30m.

RH32S-C4, RH32P-C4：The connection cable is to be within 3m.

**Stability under the test environment of EMC directive**

**Temperature** ±0.5ºC

**Relative humidity** ±3%RH

**AC power adapter**

RH32-AC110

**EMI standard**

Meets the conduction limit of : FCC Class B EN61000-3-2
EN55022 B EN61000-3-3
VCCI II

**EMS** EN50082-1
IEC801-2 Level3
IEC801-3
IEC801-4

# 2. Model and accessories

## 2.1 Model

RH32□ -C□

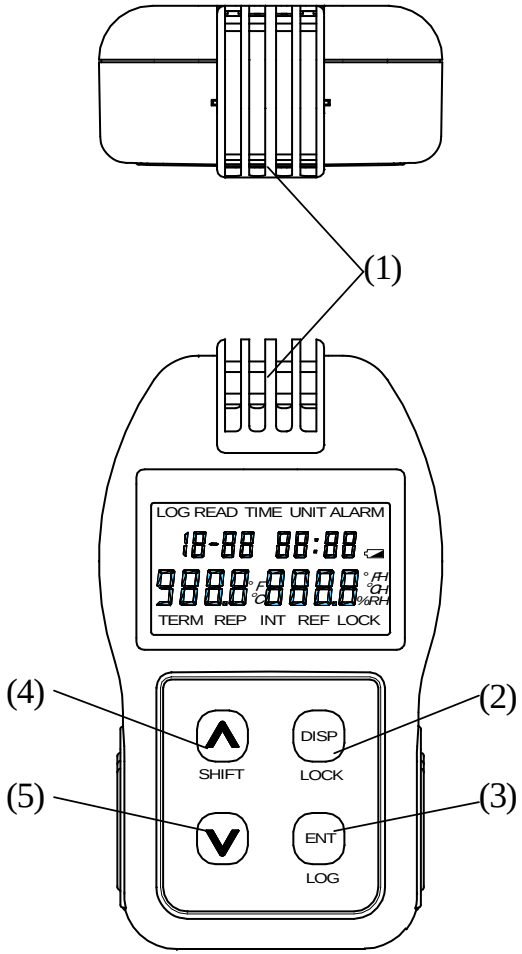
- □ (Temperature/humidity sensor)
  - B: Built-in type
  - P: Probe type (Cable length: 1.5m)
  - S: Separated type (Cable length: 1.5m)
- □ (Communications interface)
  - 2: RS-232C
  - 4: RS-485

## 2.2 Accessories

| Accessories | Qty. | Remarks |
|---|---|---|
| Desktop attachment | 1 | |
| AA (UM-3) alkaline battery | 2 | |
| Vol.1 Basic instructions | 1 | This manual |
| Vol.2 Function instructions | 1 | Separate manual |

# 3. Overviews and functions

## 3.1 Overviews and functions : Front view



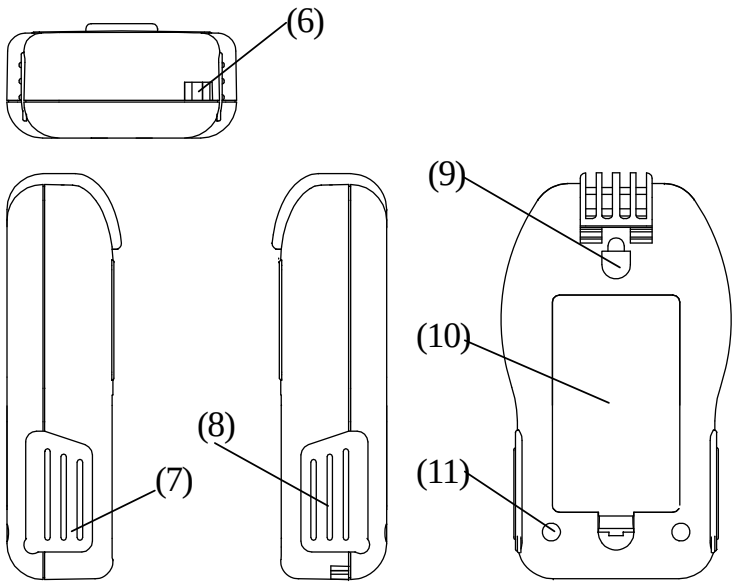

(The figures shown are for Model RH32B-C□. For Model RH32P-C□ and Model RH32S-C□, refer to [11.2 External dimensions of RH32P-C□] and [11.3 External dimensions of RH32S-C□].)

| Article | Function |
|---|---|
| (1) Temperature/humidity sensor | Temperature and humidity sensors built-in |
| (2) DISP (LOCK) key | To go to the continuous measurement mode or the programming mode from clock mode, or to set the key lock function |
| (3) ENT (LOG) key | To retain the parameter programmed, or to start/stop data logging |
| (4) ∧ (SHIFT) key | To increase a numerical figure and shift a key function. |
| (5) ∨ key | To decrease a numerical figure in the programming mode |

# 3. Overviews and functions

## 3.2 Overviews and functions : Side view

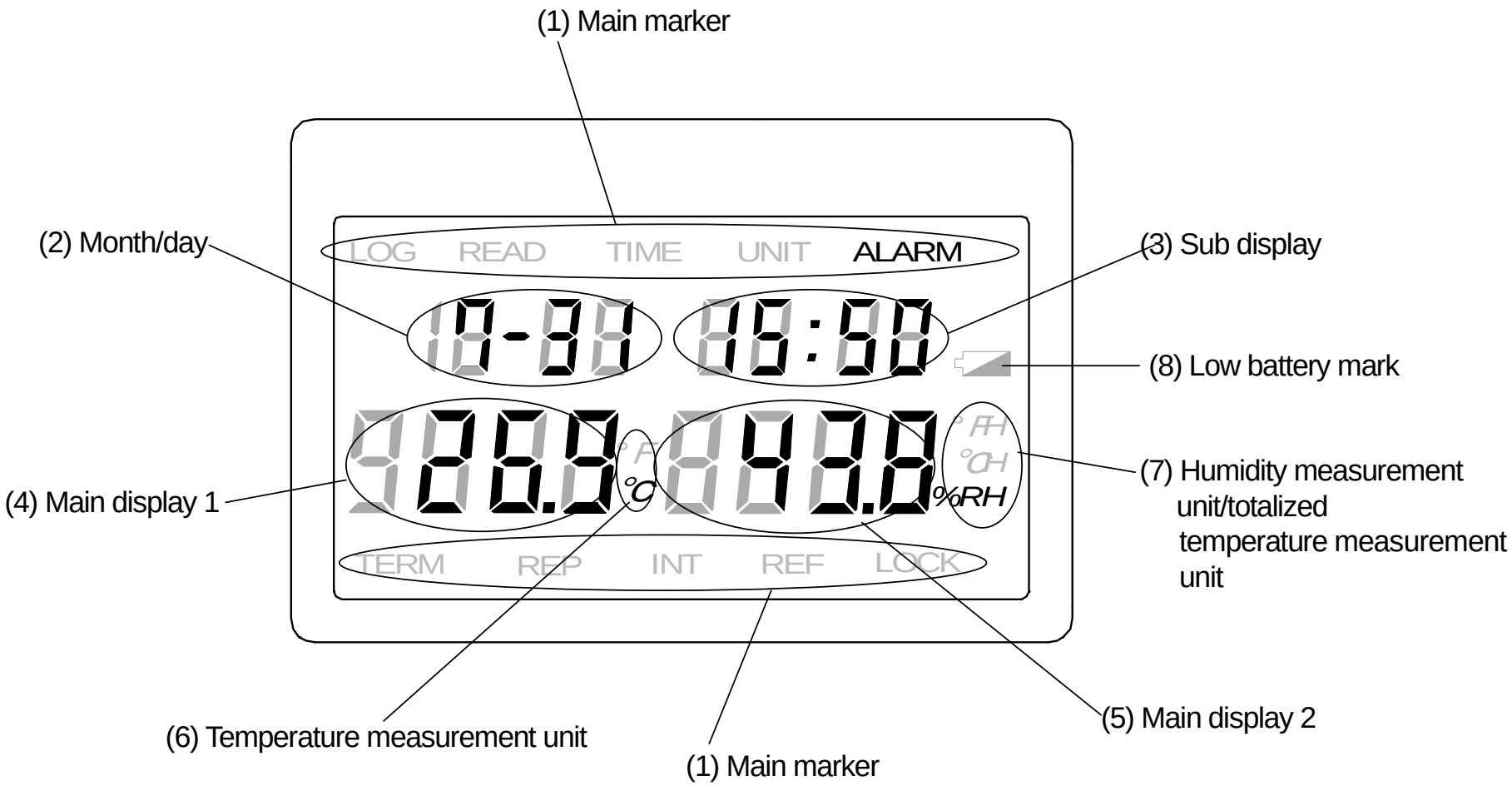
(The figures shown are for Model RH32B-C□. For Models RH32P-C□ and RH32S-C□, refer to [11.2 External dimensions of RH32P-C□] and [11.3 External dimensions of RH32S-C□].)




| Article | Function |
|---|---|
| (6)Hole for strap | The hole for attaching a strap |
| (7)Cover for AC power adapter jack | The cover for the jack to connect the AC power adapter (RH32-AC110)<br>For opening the cover, pull up it from the lower side. |
| (8)Cover for communications jack | The cover for the jack to connect the RS-232C communications cable (RH32-S2-CABLE) or the RS-485communications cable (RH32-S4-CABLE). For opening the cover, pull up it from the lower side. |
| (9)Hole for wall installation | The hole for hooking this meter to a wall using a M4 screw or a nail |
| (10)Battery cover | The cover for the AA battery compartment. For opening it, push it upward by picking up the nail of a lower part. |
| (11)Holes for desktop attachment | The holes for mounting the attachment for the desktop installation. |

# 3. Overviews and functions

## 3.3 Display



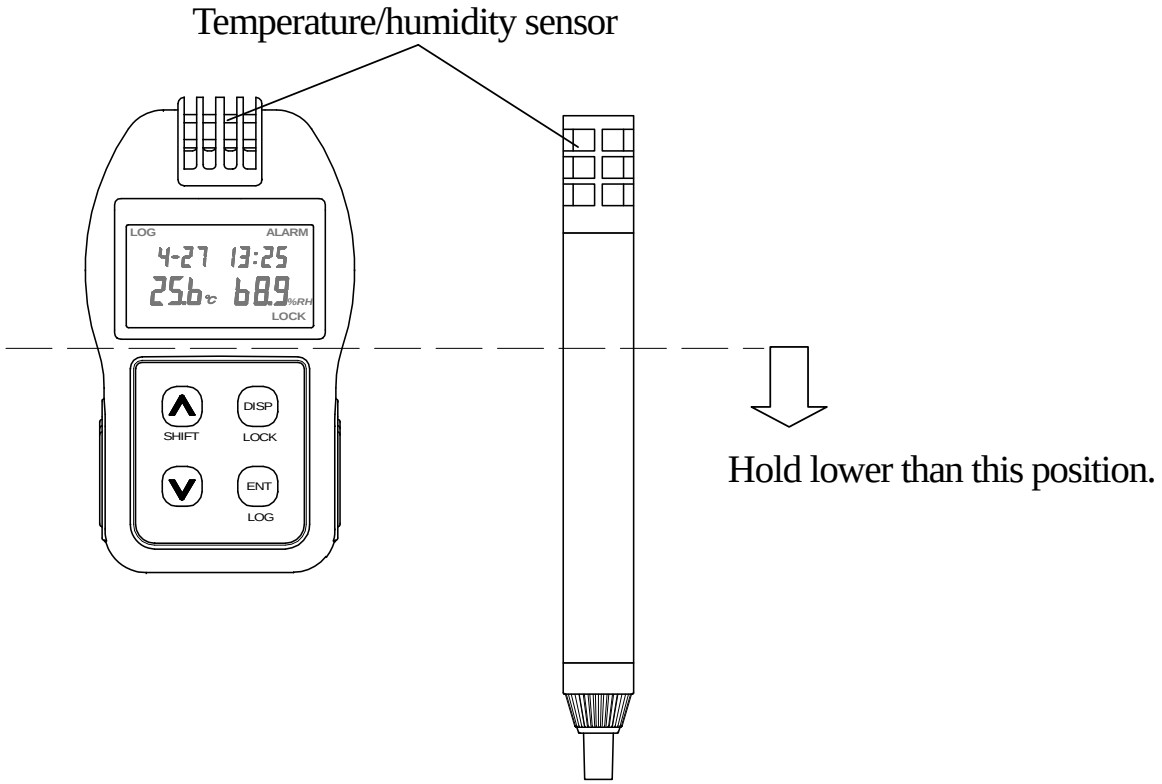
# 3. Overviews and functions

| | | | |
|---|---|---|---|
| (1)Main marker | **LOG** | Data storage | Lights during manual or automatic storage |
| | **READ** | Reading | Lights when stored data are read. |
| | **TIME** | Month/day/hour/minute | Lights when year, month, day and time are programmed.<br>Lights in endless storage by using the data logging software package (sold separately). |
| | **UNIT** | Temperature measurement unit /humidity measurement unit | Lights when the temperature measurement unit (ºC/ºF) or the relative humidity/the dew-point temperature measurement unit (%RH/ºC/ºF) is set. |
| | **ALARM** | Alarm | Lights when an alarm is activated or alarm setpoints are programmed. |
| | **TERM** | Start/stop | Lights when storage start and stop time of the automatic storage are programmed. |
| | **REP** | Repetition | Lights when storage repetition is programmed. |
| | **INT** | Interval time | Lights when storing interval is programmed. |
| | **REF** | Totalizing reference | Lights when totalizing reference temperature is programmed. |
| (2) Month/day | | Month/day | Displays month and day. |
| (3) Sub display | | Hour/minute and parameter item | Displays hour and minute when **"TIME"** or **"TERM"** lights in the main marker, or displays a parameter item in other cases. |
| (4) Main display 1 | | Temperature measured value | Displays measured temperature or totalized temperature. |
| (5) Main display 2 | | Humidity measured value | Displays measured relative humidity, measured dew-point temperature, or totalized temperature. |
| (6) Temperature measurement unit | | ºC | Lights when measured temperature is displayed in ºC. |
| | | ºF | Lights when measured temperature is displayed in ºF. |
| (7) Humidity measurement unit/totalized temperature measurement unit | **%RH** | Relative humidity | Lights when relative humidity is displayed. |
| | **°CH** | ºC/ºCH | ºC lights when dew-point temperature and ºC temperature are displayed.<br>ºCH lights when totalized temperature and ºC temperature are displayed. |
| | **°FH** | ºF/ ºFH | ºF lights when dew-point temperature and ºF temperature are displayed.<br>ºFH lights when totalized temperature and ºF temperature are displayed. |
| (8) Low battery mark |  | Low battery mark | Lights when battery voltage becomes lower. |

# 4. Installation

## 4.1 Using as a handheld type

When this meter is used as a handheld type, be careful not to cover the temperature/humidity sensor by hands or not to touch it by fingers. For the built-in type sensor, make sure to hold the lower half of this meter.



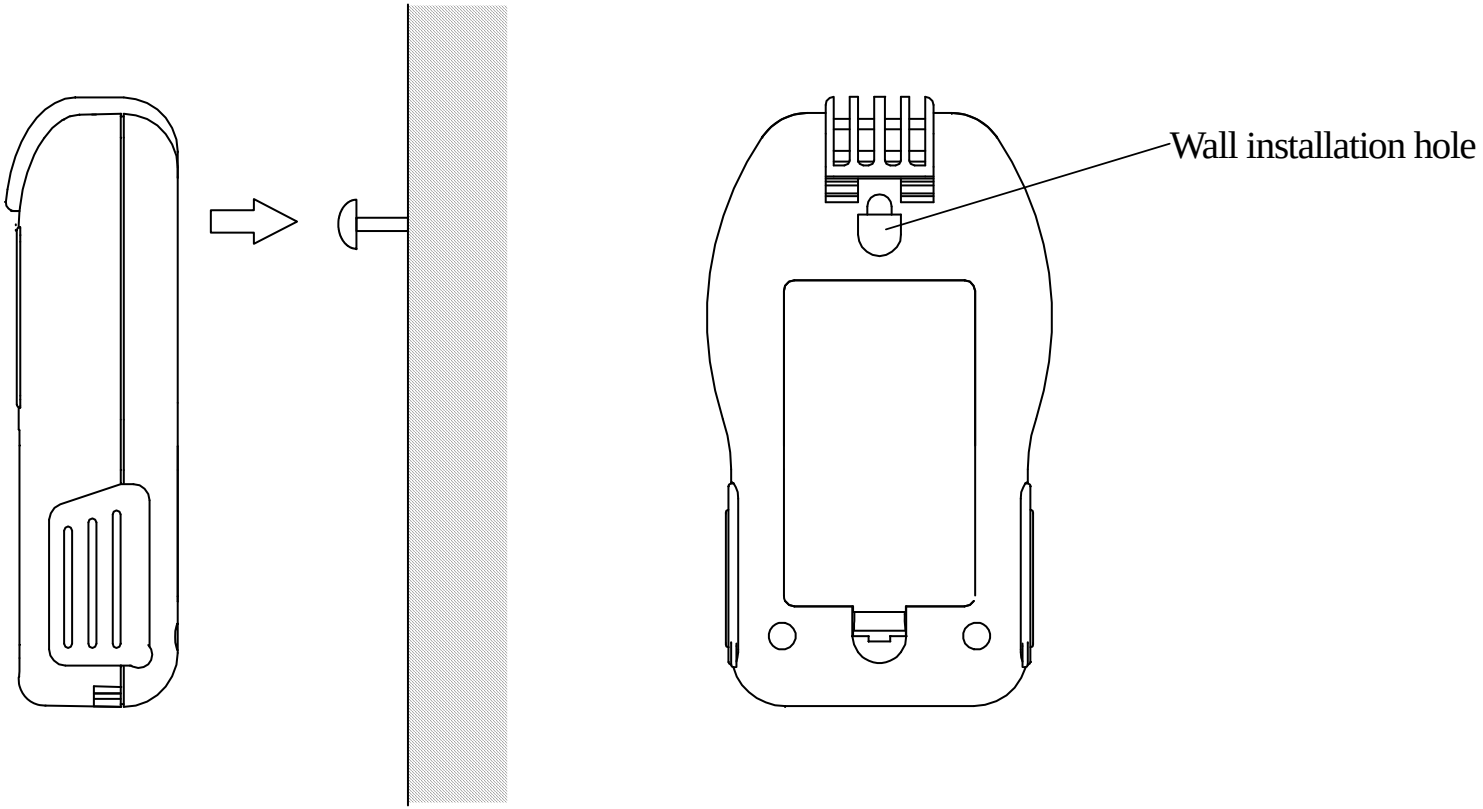

**Caution**

If the temperature/humidity sensor is covered by hands or touched by fingers, accurate temperature/humidity measurement is not possible.

# 4. Installation

## 4.2 Using as a wall installation type

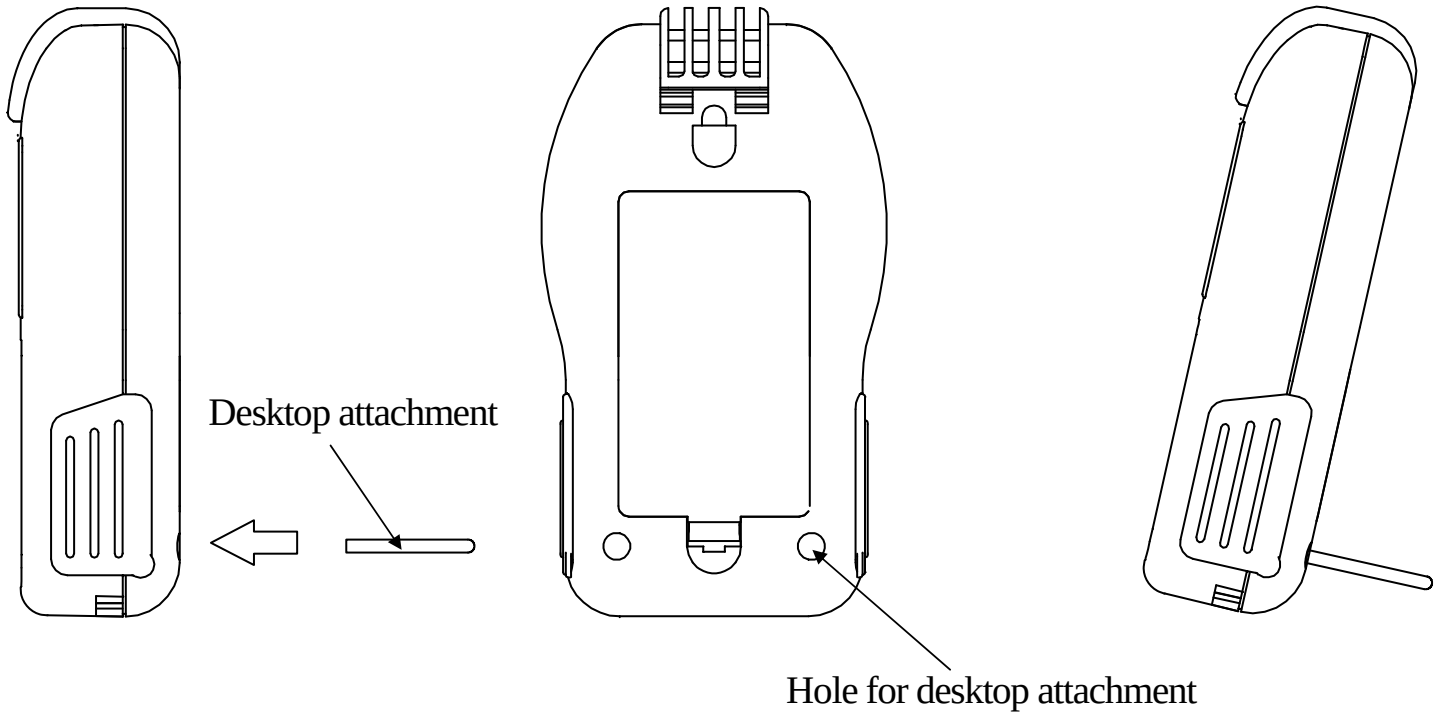
When this meter is used as a wall installation type, hook the wall installation hole on the backside of this meter to a M4 screw or a nail mounted to the wall.



# 4. Installation

## 4.3 Using as a desktop installation type

When this meter is used as a desktop installation type, insert the desktop attachment to the holes for the desktop installation.

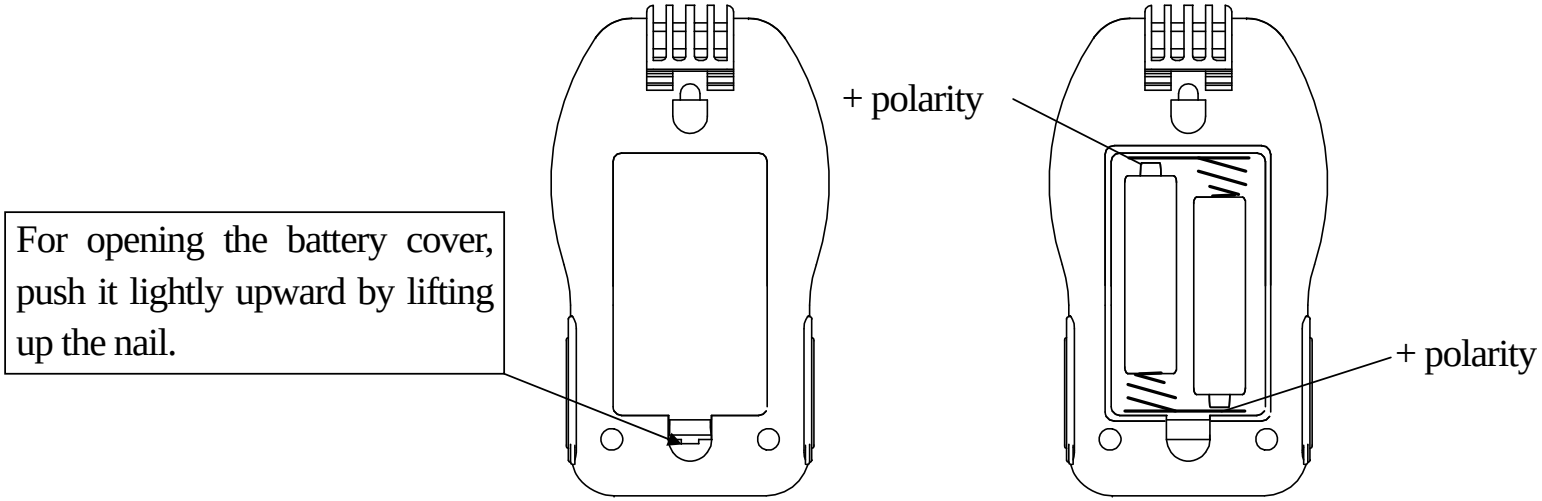


# 5. Measurement preparation

## 5.1 Loading of battery (AA=UM-3)

This meter is operated by two AA (UM-3) alkaline batteries.

Open the battery cover and load the batteries with correct polarities.




**Caution** Load the batteries with correct polarities.

**Reference** In operation of this meter with the AC power adapter (RH32-AC110* Note) only, the loading of the batteries is not required.

Note : Sold separately

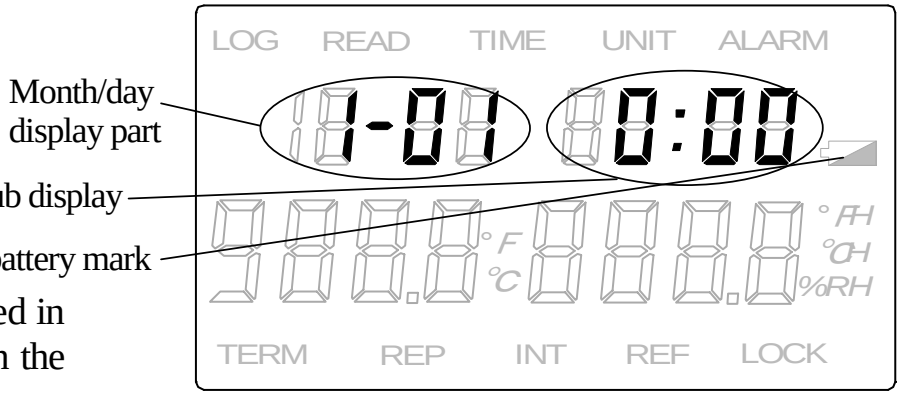
## 5. Measurement preparation

**Caution**

- Battery life
  - When the battery voltage becomes lower, the low battery mark will light. Replace the batteries with new ones.
  - If you use this meter with the low battery mark being lit, **"Er4"** will be displayed in the main display 2. Replace the batteries with new ones.
  - When any displays are not shown, the batteries voltage becomes lower. Replace the batteries with new ones.
- Battery replacement
  Replace 2 batteries together.
- Battery polarities
  Load the batteries with correct polarities.
- When the AC power adapter is used:
  - The low battery mark will not light.
  - If **"Er4"** displays in the main display 2, take the following procedures.
    1)Remove the AC power adapter from this meter.
    2)After then, take off the batteries or replace them into new ones.
    3)Connect the AC power batteries again.
    **Note)** The clock will stop (reset) by the above procedure, adjust the clock. (Refer to [5.2 Clock adjustment].)

**Reference**

- Stop of clock in battery replacement
  When the clock stops in the battery replacement, the clock will start from 0 hour 00 minute, January 1st, 2001 after the loading of the new batteries.



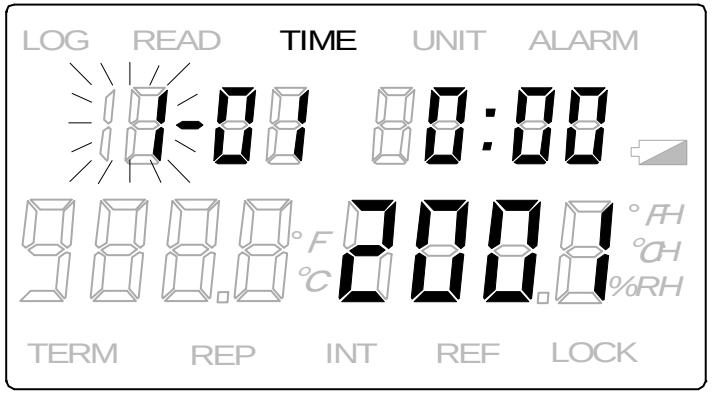

After the loading of the new batteries, month and day are displayed in the month/day display part, and hour and minute are displayed in the sub display.

# 5. Measurement preparation

## 5.2 Clock adjustment

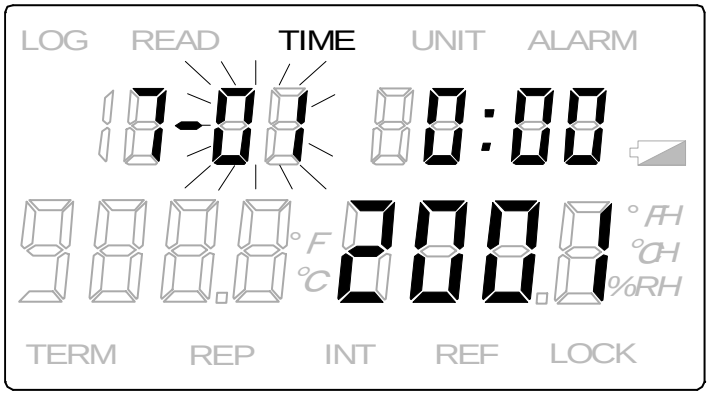
### 5.2.1 Clock adjustment mode

In the continuous measurement mode, press **DISP** key for 2 seconds to go to the stored data reading mode with **"READ"** lit in the main marker. Press **DISP** key again several times to go to the clock adjustment mode. In the clock adjustment mode, **"TIME"** will light in the main marker and "month" will flash.



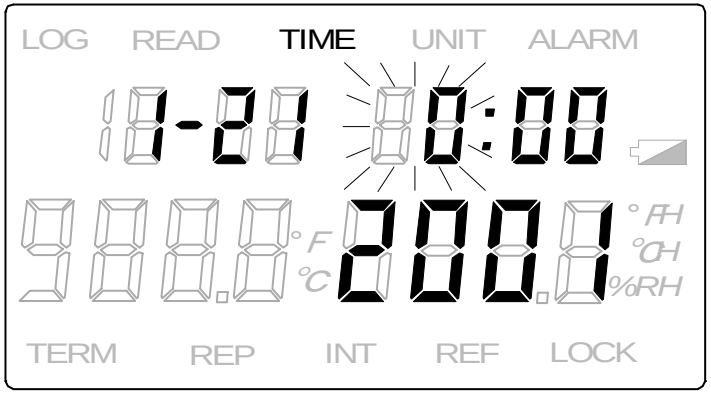

### 5.2.2 Retaining of month

Select the **"month"** by pressing ∧ key or ∨ key.
By pressing **ENT** key, the month selected will be retained and "day" will flash.




### 5.2.3 Retaining of day

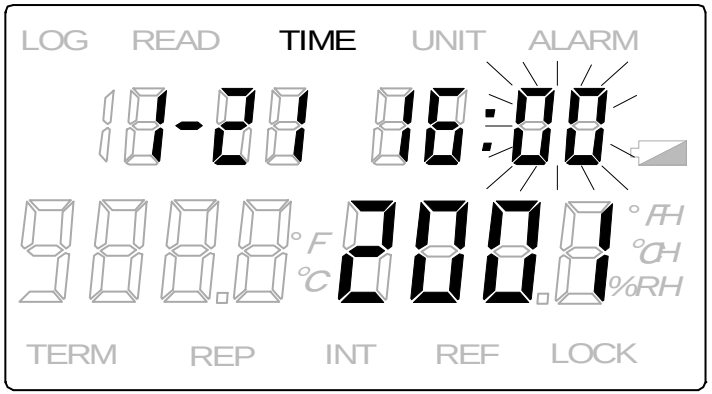
Select the **"day"** by pressing ∧ key or ∨ key.
By pressing **ENT** key, the day selected will be retained and "hour" will flash.



# 5. Measurement preparation

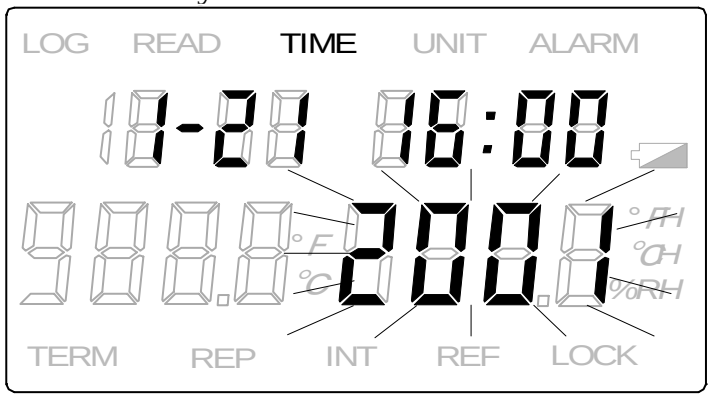
### 5.2.4 Retaining of hour

Select the **"hour"** by pressing ⋀ key or ⋁ key.
By pressing **ENT** key, the hour selected will be retained and "minute" will flash.




### 5.2.5 Retaining of minute

Select the **"minute"** by pressing ⋀ key or ⋁ key.
By pressing **ENT** key, the minute selected will be retained and "year" will flash.




### 5.2.6 Retaining of year

Select the **"year"** by pressing ⋀ key or ⋁ key. (The year up to 2099 can be selected.)
Press **ENT** key to retain the year selected.

### 5.2.7 Storing of clock

The flashing of the year selected will stop and the clock programmed will be stored.

Reference

• Judgment of clock
The judgment of the clock programmed is executed after pressing **ENT** key in [5.2.7 Storing of clock]. If the date not existed (Ex. February 31) has been programmed, the screen will return to [5.2.2 Retaining of month] screen with "month" flashing. Reprogram the correct date.
This judgment function supports leap years.

# 5. Measurement preparation

**[Programming range of clock]**

| | Programming range | Default |
|---|---|---|
| Month * | 1 to 12 | 1 |
| Day * | 01 to 31 | 01 |
| Hour | 0 to 23 | 0 |
| Minute | 00 to 59 | 00 |
| Year | 2001 to 2099 | 2001 |

* Leap years are supported.

Reference

The time is based on 24-hour clock system. Program 14-hour for PM2 and 22-hour for PM10.
If **DISP** key is pressed before the retaining of year, the programmed data before it will not be stored.

Caution

For the programming by Λ key, when the value reaches to the maximum value of the programming range, it will not return to the default value even if Λ key is pressed continuously.
Use V key to decrease the value.

Reference

・Accurate clock programming
For the accurate clock programming including second, take the following procedures.
1. Load the batteries at 0 second by referring to the radio time signal or an accurate watch.
2. Adjust the clock with the procedures from Para. 5.2.1 to Para. 5.2.7.
The counting of second starts at the moment the battery is loaded.

Caution

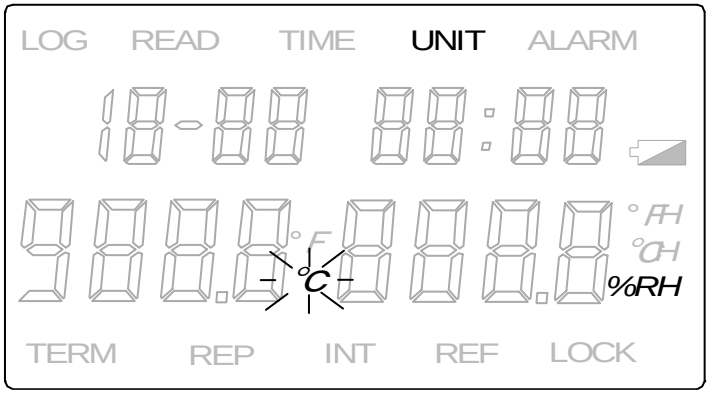
・The clock will be initialized when the batteries are replaced. Reprogram the clock.
・If the clock is reprogrammed, all time-related-parameters will be initialized. Reprogram the parameters.

# 5. Measurement preparation

## 5.3 Measurement unit selection

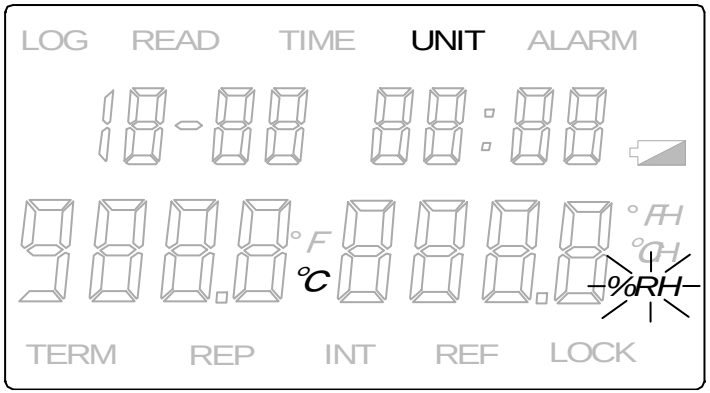
### 5.3.1 Measurement unit selection mode

In the clock adjustment mode with **"TIME"** lit in the main marker, press **DISP** key several times to go to the measurement unit selection mode (**"UNIT"** will light in the main marker.). In the measurement unit selection mode, "**ºC**" will flash.




### 5.3.2 Temperature measurement unit

By pressing Λ key or V key, **"ºC"** or **"ºF"** will flash. Press **ENT** key to retain the temperature measurement unit selected. The temperature measurement unit selected will stop flashing and the humidity measurement unit will flash.




### 5.3.3 Humidity measurement unit

By pressing Λ key or V key, **"ºC"** or **"%RH"** will flash when **"ºC"** is selected in [5.3.2 Selection of temperature measurement unit], or **"ºF"** or **"%RH"** will flash when **"ºF"** is selected.

Press **ENT** key to retain the humidity measurement unit selected. The humidity measurement unit selected will stop flashing

# 5. Measurement preparation

Reference

When the measurement unit is changed, the parameters of high alarm, low alarm and totalizing reference temperature will be initialized.
When **"ºC"** is selected for the temperature measurement unit, the humidity measurement unit is selected from **"%RH"** or **"ºC"**. When **"ºF"** is selected, it is selected from **"%RH"** or **"ºF"**. In condition that **"ºC"** is for the temperature measurement unit and the humidity measurement unit, when **"ºF"** is selected for the temperature measurement unit, the humidity measurement unit becomes **"ºF"** forcibly.

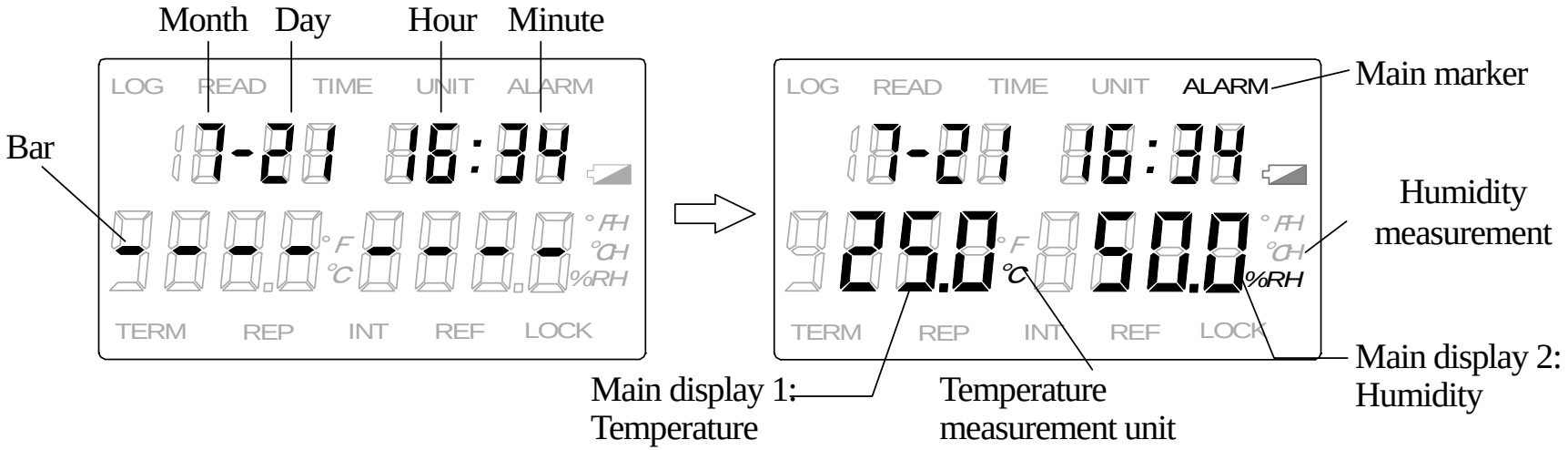
| | Selection | Default |
|---|---|---|
| Temperature unit | ºC, ºF | ºC |
| Humidity unit | %RH (Relative humidity)<br>ºC, ºF (Dew-point temperature) | %RH |

Press **DISP** key for about 2 seconds to go to the continuous measurement mode (Ref. [6.1 Continuous measurement] for starting the measurement.

# 6. Continuous measurement

## 6.1 Continuous measurement mode

By pressing **DISP** key, the temperature/humidity measurement will start after bars are displayed for about 1 second.
The measured temperature will be displayed in the main display 1 and the measured humidity will be displayed in the main display 2 together with the display of month, day, hour, and minute at the measurement.
The temperature measurement unit and the humidity measurement unit being displayed are the units already selected.
For the selection of the measurement unit, refer to [5.3 Measurement unit selection].
If **"ALARM"** lights in the main marker, the measurement value has exceeded a high alarm setpoint or a low alarm setpoint. Check the setpoints and reprogram them if necessary. Refer to [4.2 High alarm setpoint] and [4.3 Low alarm setpoint] in the separate instruction manual Vol. 2 <Function instructions>.




**Caution**

If **"Er4"** for "low battery" or "meter abnormal" is displayed in the main display 2, replace the batteries first. (Ref. [5.1 Loading of batteries] in the separated instruction manual Vol. 1 <Basic instructions>)
If **"Er4"** is still displayed by the above replacement of batteries, contact your CHINO's agent.

# 6. Measurement and data storage

## 6.2 Measured temperature/humidity display range

Reference

When the measured temperature is lower than the minimum limit, **"uFL"** will be displayed in the main display 1 and, when it is higher than the maximum limit, **"oFL"** will be displayed.
When the measured humidity is 0%, 0% will be displayed, but when the measured humidity is higher than 100% (dew condensation), the value will be held at 100%.

| | | |
|---|---|---|
| Temperature | ºC | -40 to 80ºC |
| | ºF | -40 to 176ºF |
| Humidity | %RH | 0 to 100%RH |
| | ºC | -60 to 80ºC |
| | ºF | -76 to 176ºF |

When the clock is displayed after the measurement for about 1 minute, the auto-power-off function is **"on"** (active).
For continuing the continuous measurement, select the auto-power-off function to **"oFF"** (release). (Ref. [Auto-power-off function] in Important notices)

Caution

When the auto-power-off function is set at **"oFF"** (release) and the continuous measurement is executed, the batteries will be consumed very rapidly.
For the continuous measurement constantly executed, use the AC power adapter (RH32-AC110) sold separately.

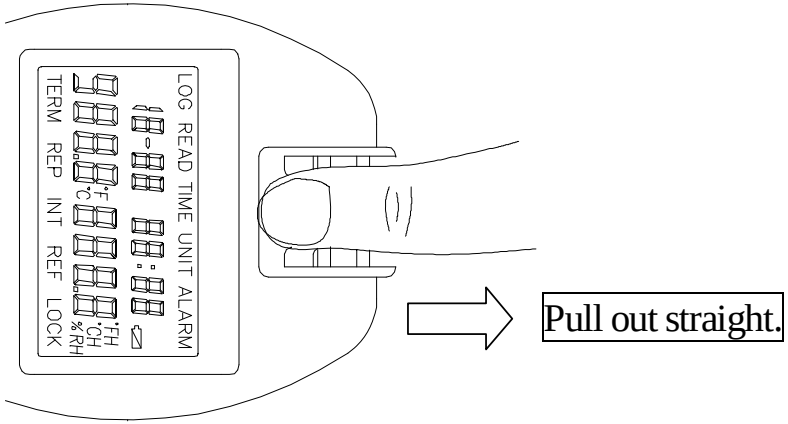
## 7. Replacement of temperature/humidity sensor (Ref. [3.1 Overviews and functions])

The following procedure is for the replacement of the temperature/humidity sensor being used for long period with a new one or the replacement of the built-in type temperature/humidity sensor with the separated type sensor or the probe type sensor.

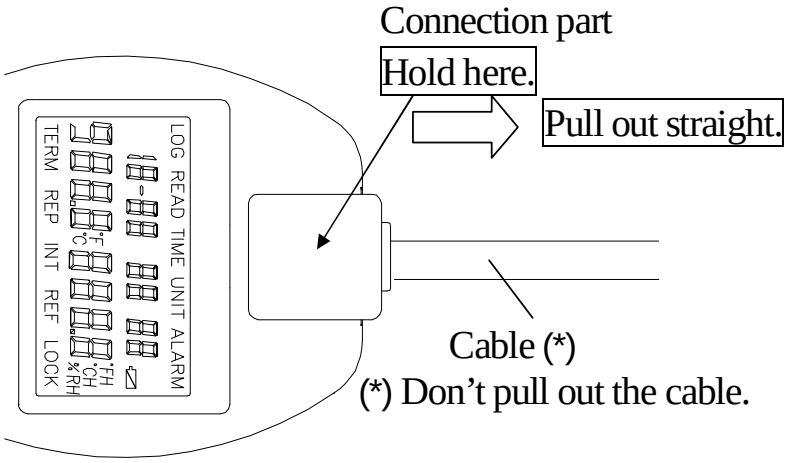
1) Pull out the temperature/humidity sensor from this meter.

**Caution**

Make sure to pull out the temperature/humidity sensor straight by holding its front and rear faces by two fingers. Pins may be bended if it is not pulled out straight.
For disconnecting the separated type sensor or the probe type sensor from this meter, pull out it by holding the connection part. Make sure not to pull out the cable. (Ref. [11. External dimensions])




<Built-in type RH32B>



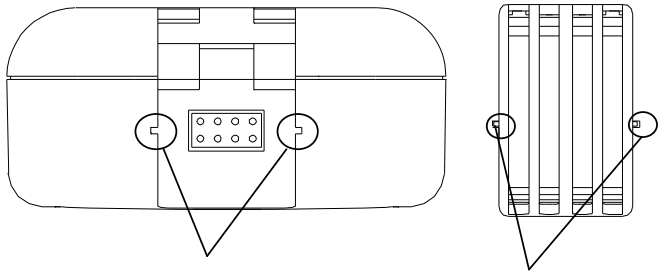

<Separated type RH32S>
<Probe type RH32P>

## 7. Replacement of temperature/humidity sensor (Ref. [3.1 Overviews and functions])

2) Align the protrusions at both sides of the connection part of the temperature/humidity sensor (RH32S-RP and RH32P-RP) or at both sides of the built-in sensor (RH32B-RP) with the concave portions of this meter, and insert the connection part or the built-in sensor straight.

3) Align the pins of the connection part or the built-in sensor with the connector of this meter, and push the connection part or the built-in sensor into this meter straight.

<From top>



Concave portions of meter

Protrusions of built-in type sensor

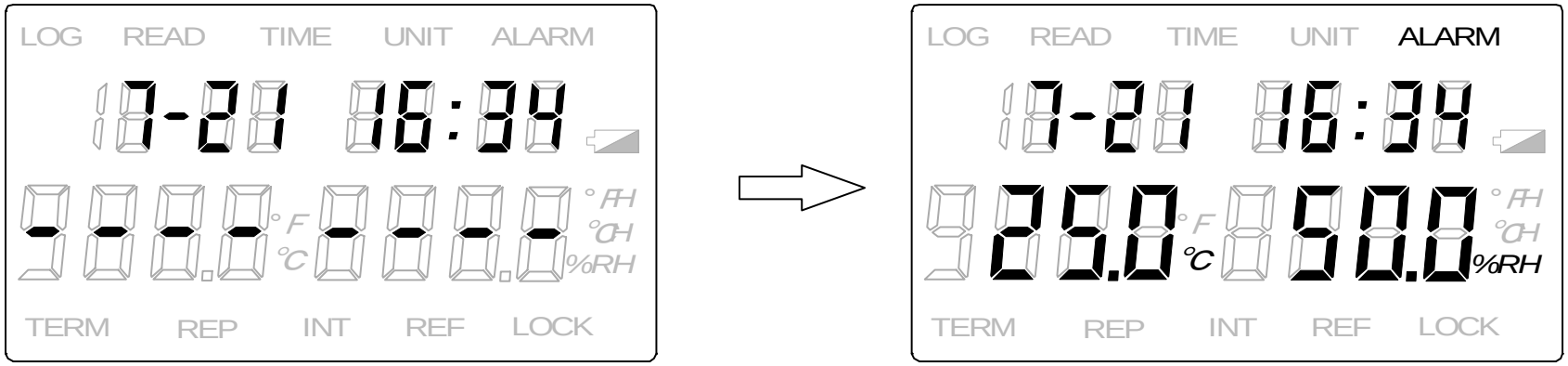
**Caution**

If you squeeze the connection part or the built-in sensor into this meter, the positions of the connector of this meter and the pins of the connection part or the built-in sensor are not fitted and the pins may be broken.

4) Press **DISP** key for about 2 seconds to go to the continuous measurement mode. At this time, the temperature and humidity values displayed are different from the exact measured values.

## 7. Replacement of temperature/humidity sensor (Ref. [3.1 Overviews and functions])

5) In the continuous measurement mode, press ⋁ key while pressing ⋀ (SHIFT) key.
After bars are displayed for about 1 second, the correct temperature and humidity measured values will be displayed.




Reference

Interchangeability of temperature/humidity sensors
The temperature/humidity sensors, the built-in type (RH32B-RP), the separated type (RH32S-RP) and the probe type (RH32P-RP), are interchangeable.
The interchangeability will be obtained by pressing ⋁ key while pressing ⋀ (SHIFT) key in the procedure No. 5)

## 8. Working environment

Avoid to use this meter in the following places.

- Places where the ambient temperature is out of –10 to 50ºC (this meter)
- Places where the ambient temperature is out of –40 to 80ºC (separated type and probe type sensors)
- Places where dew condenses
- Places where vibration or impact affects
- Places where much noise exist
- Places where dusts exist
- Places where much ketones organic solvent, esters organic solvent, halogen, strong acid material, corrosive material or dust/oil mist/salt mist exist
- Places where explosive gas, corrosive gas or flammable gas exist
- Places where steam, chemicals or seawater splash

**Caution**

As the humidity element is constantly exposed in ambient atmosphere, its performance may be remarkably deteriorated depending on measuring environment.
Its life depends on the kind of environment. Particularly avoid using it in the following places as these places make the humidity element life shorten rapidly.

- Place where ketones organic solvent, esters organic solvent, halogen, strong acid material, corrosive material, dust/oil mist/salt mist, corrosive gas, steam or seawater splashing exist.

# 9. Troubleshooting

| Phenomenon | Content | Countermeasure |
|---|---|---|
| 1) **"Er1"** is displayed in the main display 1. | Temperature measurement can't be executed. | Check the connection of the temperature/humidity sensor.<br>(Ref. [7. Replacement of temperature/humidity sensor]) |
| 2) The humidity value in the main display 2 is 100%RH (The dew-point temperature display becomes the same value as the temperature measured value.). | 100%RH has been measured in the humidity measurement. | Check if dew has been condensed in the temperature/humidity sensor.<br>Measurement is possible after recovering from dew condensation. |
| | | Check the connection of the temperature/humidity sensor.<br>(Ref. [7. Replacement of temperature/humidity sensor]) |
| | Interchangeability of the temperature/humidity sensor has not been obtained. | Press ▽ key while pressing △ key.<br>(Ref. [7. Replacement of temperature/humidity sensor]) |
| 3) The humidity value in the main display 2 is 0%RH (The dew-point temperature display becomes -60℃.). | 0%RH has been measured in the humidity measurement. | The humidity measurement from 0%RH is possible.<br>Check if an object is not in absolute dry condition. |
| | | Check the connection of the temperature/humidity sensor.<br>(Ref. [7. Replacement of temperature/humidity sensor]) |
| | Interchangeability of the temperature/humidity sensor has not been obtained. | Press ▽ key while pressing △ key.<br>(Ref. [7. Replacement of temperature/humidity sensor]) |
| 4) **"Er1"** is displayed in the main display 2. | Humidity measurement can't be executed. | Check the connection of the temperature/humidity sensor.<br>(Ref. [7. Replacement of temperature/humidity sensor]) |
| 5) **"Er2"** is displayed in the main display 2. | In the dew-point temperature display, the dew-point computation is not possible due to abnormal temperature data. | If **"Er1"** is displayed in the main display 1, check the connection of the temperature/humidity sensor.<br>(Ref. [7. Replacement of temperature/humidity sensor]) |

# 9. Troubleshooting

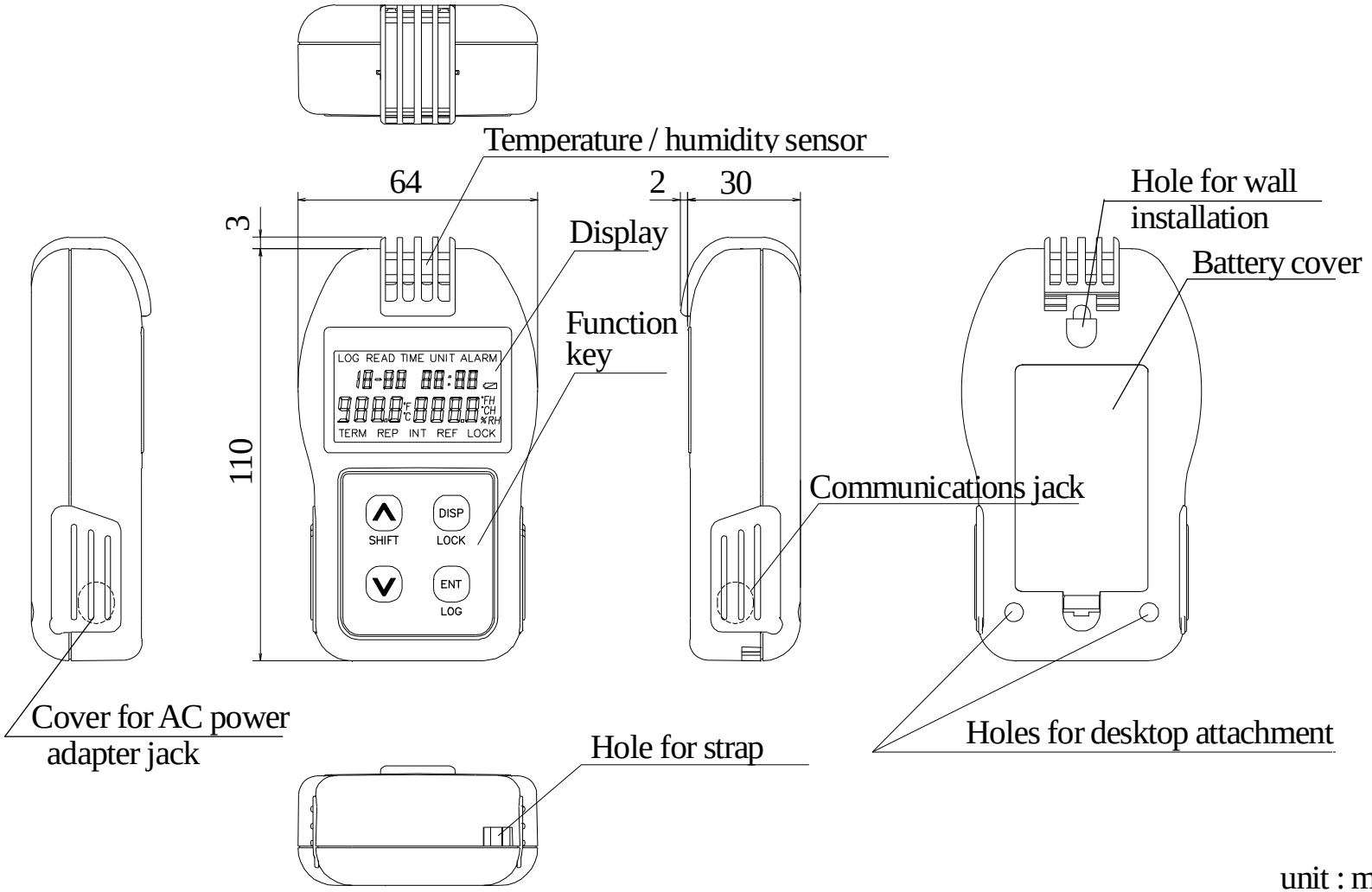
| Phenomenon | Content | Countermeasure |
|---|---|---|
| 6) **"Er4"** is displayed in the main display. 2 | The batteries are dead.<br>If **"Er4"** is still displayed after the battery replacement, this meter has been abnormal. | Replace the batteries with new ones. (Ref. [5.1 Loading of batteries])<br>If **"Er4"** is still displayed after the battery replacement, contact your OMEGA's agent. |
| 7) Nothing including the clock is displayed. | No power has been supplied. | Replace the batteries with new ones.<br>(Ref. [5.1 Loading of batteries]) |
| 8) None displayed | The batteries are dead | Replace the batteries with new ones.<br>(Ref. [5.1 Loading of batteries]) |
| 9) **"oFL"** is displayed in the main display 1. | Temperature measured value overflowed | Check the temperature measuring range.<br>Check the connection of the temperature/humidity sensor.<br>(Ref. [7. Replacement of temperature/humidity sensor]) |
| 10) **"uFL"** is displayed in the main display 1. | Temperature measured value under flowed | Check the temperature measuring range.<br>Check the connection of the temperature/humidity sensor.<br>(Ref. [7. Replacement of temperature/humidity sensor]) |

# 10. Specifications

| | | |
|---|---|---|
| Relative humidity | Sensor | High-polymer capacitance type |
| | Measuring range | 0 to 100%RH |
| | Accuracy ratings | ±2%RH (0 to 90%RH, at 25ºC), ±3%RH (90 to 95%RH, at 25ºC) |
| | Stability (under EMC test environment) | ±3%RH |
| | Temperature coefficient | ±0.1%RH/ºC (5 to 80ºC) |
| | Response time | Shorter than 15 seconds (90% response, 25ºC constant, under 0.1m/s ventilation) |
| Temperature | Sensor | Semi-conductor type temperature sensor |
| | Measuring range | -10 to 50ºC, -40 to 80ºC (Probe type RH32P, separated type RH32S) |
| | Accuracy ratings | ±0.5ºC (0 to 50ºC), ±1ºC (other than the left shown) |
| | Stability (under EMC test environment) | ±0.5%RH |
| Sensor interchangeability | Plug-in type interchangeability (Plug-in type interchangeability including 1.5m cable for probe type and separated type sensor) | |
| Power supply | 2 AA (UM-3) alkaline batteries or 100VAC (AC power adapter – sold separately) | |
| Display | Current data | Year, month, day, hour, minute, temperature measured value (ºC or ºF),<br>Relative humidity or dew-point temperature measured value (ºC or ºF) |
| | Data reading | Programmed parameters, stored data with year, month, day, hour, and minute (The year data is available in using the data logging software package (sold separately).<br>Max. temp./humidity, min. temp./humidity, average temp./humidity, totalized temperature |
| | Parameter item | Clock: Year, month, day, hour, minute, Temperature: ºC, ºF<br>Relative humidity, dew-point temperature (ºC or ºF)<br>Storage mode: Manual [by pressing of **ENT** (LOG) key for more than2 seconds] or automatic<br>Storage start time: Year, month, day, hour, minute ,or by pressing of ENT (LOG) key while pressing △ (SHIFT) key<br>Storage stop time: Year, month, day, hour, minute or by pressing of ENT (LOG) key while pressing △ (SHIFT) key<br>Storage repetition: Disable, every day, every week<br>Measurement interval: continuous, 1 to 60 minutes<br>High/low alarms, totalizing reference temperature, totalizing direction, auto-power-off, key lock |
| | Display content | Clock – displayed constantly<br>Measured values – displayed by pressing **DISP** key for about 2 seconds in power-off condition |
| Number of stored data | Temperature/humidity – each maximum 8000 data, total 16000 data EEPROM） | |
| Communications function | RS-232C or RS-485 | |

# 11. External dimensions

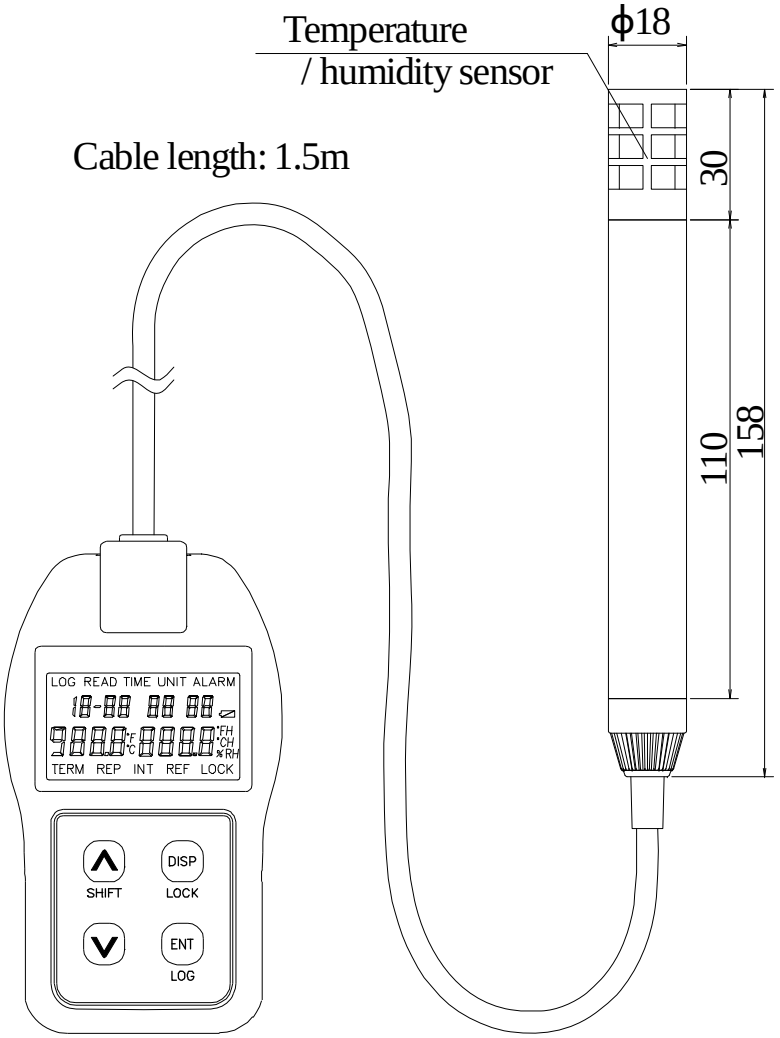
## 11.1 External dimensions of RH32B-C□



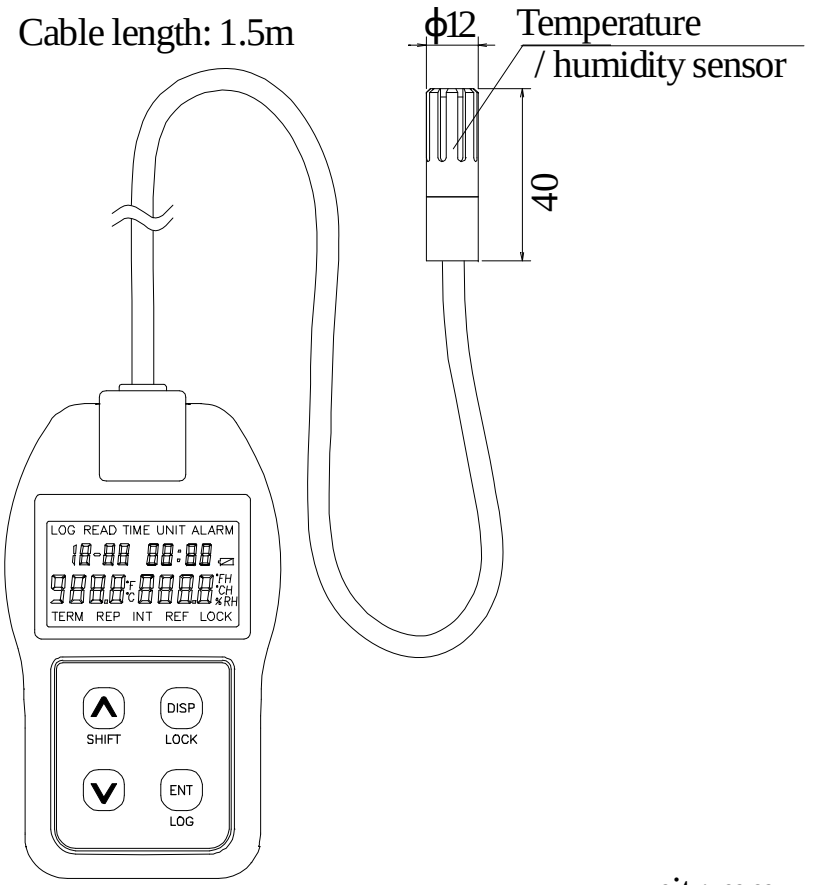

unit : mm

# 11. External dimensions

## 11.2 External dimensions of RH32P-C□




## 11.3 External dimensions of RH32S-C□




unit : mm