INTRODUCTION
This instrument is a 4½ digit, compact-sized portable digital thermometer designed to use external 100Ω Platinum RTD as temperature sensor. Temperature indications are based on the Reference Temperature/Resistance Tables (Pt385 for European Curve, Alphan=0.00385, Pt3926 for American Curve, Alphan=0.003926, Pt3916 for Japan Curve, Alphan=0.003916.)

SAFETY INFORMATION
It is recommended that you read the safety and operation instructions before using the thermometer.

**WARNING**
To avoid electrical shock, do not use this instrument when working voltages at the measurement surface exceed 24V AC or DC.

**WARNING**
To avoid damage or burns, do not make temperature measurement in microwave ovens.

SPECIFICATIONS

**ELECTRICAL**

**Input Connector:** Accepts for RTD 3 wires or 4 wires subminiature 4-prong type connectors (flat blades spaced 7.9mm, center to center).

**Battery:** 1.5V x 4 PCS (SIZE AAA) UM-4 R03.

**Battery Life:** 200 hours typical with carbon zinc battery.

**Operational Voltage:** 24V dc or 24V ac rms maximum input voltage on any combination of input pins.

**Overload:** 4½ digit liquid crystal display (LCD) with maximum reading of 19999.

**Reading Rate:** 1 time per second.

**Auto power off:** 30 minutes, press power key to resume operation.

**Dimensions:** 160mm(H) x 83mm(W) x 38mm(D).

**Weight:** Approx. 260g including batteries.

**Wire Communication Protocol:** 19200 baud rate. (HH804U)

**External Connections:** (HH804) 1. USB Port.

**2. DC power JACK(12V)**

OPERATING INSTRUCTIONS

1. **“○” Power Button**
   - The “○” key turns the thermometer on or off. In the SET mode cannot be powered off. Exit SET mode to power off.
   - AP0 function mode
   - Press “○” key for more than 6 seconds to disable the auto-power function. The display will show “APO OFF”.

2. **“C/F” Selecting the Temperature Scale (Main display)**
   - Reading the main displayed in either degrees Celsius(°C) or degrees Fahrenheit(°F). When the thermometer is turned on, it is set to the temperature scale that was in use when the thermometer was last turned off. To change the temperature scale, press the “○” key.

3. **“℃” Display Back-Light**
   - Press the “℃” key to turn on or turn off the Back-Light.

4. **“T1 T2/T1-T2” Main display Input Selection**
   - The input selection indicates which input is selected for main display; T1 probe, T2 probe or the difference between the two probes (T1-T2). When the thermometer is turned on, it is set to T1, when main display input selected T1, then T1 input can select alternate of probe by pressing Pt385/Pt3926/Pt3916 key switch.

5. **“TYPE”(Pt385/Pt3926/Pt3916) Input RTD Probe Select (only Main display)**
   - The “TYPE” key switches the T1 input to select the Pt385, Pt3926 or Pt3916 RTD probe as input, when main display.

6. **“MIN/MAX” with Time record mode**
   - Press “MIN/MAX” key to enter the MIN MAX Recording mode, (displays the Maximum reading with time, Minimum reading of 19999.
   - If an overload is recorded, the averaging function is stopped. In this mode, press the “HOLD” key to restart recording.
   - “IN” or “OL” is display.
   - Battery: 3.5V x 4 PCS (SIZE AAA) UM-4 R03.
   - Battery Life: 200 hours typical with carbon zinc battery.

**ENVIRONMENTAL**

**Ambient Operating Ranges:**
-0°C to 50°C (32°F to 122°F) 95% R.H.
-20°C to 60°C (-4°F to 140°F) <70% R.H.
0°C to 50°C (32°F to 122°F) <80% R.H.

**Storage Temperature:**
-20°C to 60°C (-4°F to 140°F) <70% R.H.
-55°C to 85°C (-67°F to 185°F) <80% R.H.

**GENERAL**

**Display:** 4½ digit liquid crystal display (LCD) with maximum reading of 19999.
**Overload:** “----” or “OL” display.
**Battery:** 3.5V x 4 PCS (SIZE AAA) UM-4 R03.
**Battery Life:** 200 hours typical with carbon zinc battery.
To prevent accidental loss of MIN, MAX and AVG data, this document may only be cancelled by pressing and holding the “MIN/MAX” key for 2 seconds. All recorded readings are erased.

7. REL Relative mode (only Main display)
Press the “REL” key to enter the relative mode, zero the display, and store the displayed Reading as a reference value. REL is shown on the display. Press “REL” key again to exit the relative mode. The relative reference value can also be entered via the keypad, by pressing the key (see later in this manual). When the desired relative value has been entered, press “REL” key to enter the relative mode and then press “SET” key to enter the relative value as a reference value. Press “REL” key again to exit the relative mode. In the relative mode the value (can ±1999.9) shows on the LCD is always the difference between the stored reference and the present reading.

8. HOLD mode (only Main display)
Press the “HOLD” key to enter the Data Hold mode, the “HOLD” annunciator is displayed. When HOLD mode is selected, the thermometer held the present readings and stops all further measurements. Press the “HOLD” key again to cancel HOLD mode causing thermometer to resume taking measurements. In the MIN/MAX recording mode, press “HOLD” key again to resume recording. (Previously recorded read are not erased).

9. SET mode (Relative set value, time set and Hi/Lo Limits value set)
9.1 Press the “SET” key to enter relative values SET mode (Press “ENTER” key to skip setting relative value). = = = = is displayed on the main display. The relative value is entered via overlay numbers, press overlay “ENTER” key to store the relative value, and advance to elapsed time set mode.

9.2 Elapsed time set mode, (Press ENTER key to skip elapsed time set mode (Press “ENTER” key to store the elapsed time value). Elapsed time starts from set time value.

9.3 Hi Limit set mode. (Press “ENTER” key to skip Hi Limit set value mode). = = = = is displayed in main display. Hi Limit value is entered via overlay numbers, then press “ENTER” key to store the Hi Limit value. = = = = is displayed in main display, Lo Limit value is entered via overlay numbers, then press “ENTER” key to store the Lo Limit value and exit SET mode.

11. TYPE (Pt385/Pt3926/Pt3916) Input RTD Probe
select (second display)
The Pts385/Pt3926 key switches the T2 input to select the Pt385, Pt3926 or Pt3916 RTD probe as input, when second display input selected T2. When the thermometer is turned on, it is set to the RTD selected that was in use when the thermometer was last turned off.

12. Hi/Lo Limits mode (only Main display)
Press “Hi/Lo Limits” key to enter the Hi/Lo Limits comparative mode. When the input temperature value exceeds the Hi or Lo Limit set value, the display shows the temperature, “Hi Limit” or “Lo Limit” respectively. When in the Hi/Lo Limits mode key “Hi/Lo Limits” key again to exit the Hi/Lo Limits mode.

**Battery Replacement**
1. Power is supplied by 4pcs 1.5V (AA SIZE) UM4 R03.
2. The “(states” appears on the LCD display when replacement is needed. To replace battery remove screw from back of meter and lift off the battery compartment lid.
3. Remove the battery from battery contacts and replace.
4. When not in use for long periods remove battery.
5. Do not store in locations with high temperatures, or high humidity.

**Cleaning**
Periodically wipe the case with a damp cloth and detergent, do not use abrasives or solvents.

*Software Operation manual is on the Software disk.*

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**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/LINE/LEVEL**
- Flowmeters, Gas Mass Flowmeters & Flow Computers
- Air Velocity Indicators
- Turbine/Paddlewheel Systems
- Totalizers & Batch Controllers

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

**DATA ACQUISITION**
- Data Acquisition & Engineering Software
- Communications-Based Acquisition Systems
- Plug-in Cards for Apple, IBM & Compatibles
- Datalogging Systems
- Recorders, Printers & Plotters

**HEATERS**
- Heating Cable
- Cartridge & Strip Heaters
- Immersion & Band Heaters
- Flexible Heaters
- Laboratory Heaters

**ENVIRONMENTAL MEASUREMENTS AND CONTROL**
- Metering & Control Instrumentation
- Refractometers
- Pumps & Tubing
- Air, Soil & Water Monitors
- Infrared Gas & Wastewater Treatment
- pH, Conductivity & Dissolved Oxygen Instruments

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