Specifications

Model	PT-S80	PT-U80
Measuring range	− 30 to 600℃	
Field of view	□ 30/1000mm (D:S=33:1)	
Optics	Si lens	
Sensing element	Thermopile	
Wavelength	8 to 14 μ m	
Response time	0.5sec. ／ 90%	
Accuracy ($\varepsilon \fallingdotseq 0.95$)	− 30.0 to 0℃ : ± 3℃、0.1 to 200℃ : ± 2℃、 200 to 600℃ : ± 1%	
Repeatability	± 1℃ of reading value	
Display resolution	− 30.0 to 199.9℃ : 0.1℃、200 to 600℃ : 1℃	
Sighting method	Coaxal laser marker (Class 2)	
HOLD time	15 seconds	
Continuous measurement mode	−	ON / OFF Selectable
USB output	−	○
Memory	1-point memory	35-point memory
High/Low Alarm LED/Buzzer	Alarm LED/Buzzer ON/OFF Selectable	
Emissivity (ε)Adjustment	0.95/0.85/0.70 Selectable	ε Adjustable (0.30 to 1.20/0.01step)
Temperature unit	℃ / ˚F (Selectable)	
Display function	NOR／MAX／MIN	
Power supply	AA Battery ✕ 2pcs	
Battery life	15 Hours (With max load)	
Ambient temperature	0 to 50 ℃	
Ambient humidity	35% to 85%Rh (Without due condensation)	
Storage temperature/humidity	− 10 ～ 60℃/35% to85% Rh	
Material	ABS/TEEE	
Dimension	H ✕ W ✕ D = 182 ✕ 56 ✕ 38mm	
Weight	Approx. 250g (Including batteries)	

Accessories : AA battery × 2pcs. (for checking operations), Instruction manual (this document)
exclusive protective case, USB cable (Only for PT-U80)
Optional : Blackbody tape

※ Specifications may change without prior notice.

Name of components

Display (LCD)

Measurement Mode Indicator
Laser Indicator
Battery Level Indicator
MAX Indicator
CONT. Mode Indicator
HOLD Mode Indicator
High Alarm Indicator
Low Alarm Indicator
MIN Indicator
Alarm Indicator
Clock   Clock
Emissivity Indicator
Memory Indicator
Sub Display

Alarm LED
Illuminace sensor

OPTEX
THERMO-HUNTER

MEASURE

Pushbuttons For detailed instructions for operation and settings,see "Operation" from page 8.

○ ▼/MAX/MIN button
To select temperature value (Maximum or Minimum) or selection in settings.

○ MEASURE button
To activate measurement and to set each function.

○ ▲/MEM./CAL. button
For storing and recalling of temperature value or selection of settings.

○ SET button
【PT-S80】 Setting Alarm.
【PT-U80】 Setting Emissivity,Alarm,Clock.

PT-S80   PT-U80

＊There is no button to turn ON/OFF the supper supply.

Lazer Aperture
Silicon lens

Caution Label

LASER APERTURE
レーザ光をのぞきこまないこと
レーザ光を人に向けないこと
子供に使わせないこと

CAUTION / レーザ光
LASER RADIATION
DO NOT STARE INTO BEAM
CLASS II LASER PRODUCT
LASER DIODE
POWER / 出力
MAX 1.0mW
WAVE LENGTH / 波長
630-670nm
CLASS 2 LASER PRODUC"
クラス2レーザ製品
COMPLIES WITH
US21 CFR 1040 10
AND 1040 11 1985
IEC 60825-1(1998-01)
EN 60825-1:1994/A11 1996

D:S=33:1
□30/1000
□20/500
[mm]

PS c JQA
CE

DIP switches

1. 0.95 / 0.85 / 0.7
Setting Emissivity to fit objects surface.

2. ˚C /˚F
Setting display units (˚C/˚F).

3. NOR. / CONT.
Selecting NOR.(Normal Mode) or CONT. (Continuous Mode).

Battery Cover

Strap Terminal

USB
(only PT-U80 available)

Operation

Temperature can be measured while the (MEASURE) button is being pressed.
Set the battery supplied as an accessory and operate the unit according to the folloowing procedure.

1 Pressing the (MEASURE)button to turns ON the power supply. A laser beam emitted and the measurement starts.
In the Normal Measurement mode, the units takes measurement while (MEASURE) button is pressed.

2 Point the laser beam at a measurement object and aim it at the center of the area to be measured. For the distance from this thermometer to the measuring object, refer to page10.

3 When the (MEASURE) button is released, the "MEAS" and laser beam symbols go out and "HOLD" and "℃ (˚F)" symbols light up. After the last temperature value is displayed for 15seconds (HOLD mode), the power is automatically turned OFF.

Selection of display function

Each time the (▼/MAX/MIN) button is pressed, the display function is switched in order of NOR., MAX, and MIN.

NOR. :" ε "is displayed at the bottom of LCD and the currently set emissivity is displayed on the sub-display.
MAX: "MAX" is displayed at the bottom of LCD and the maximum value during measurement is displayed on the sub-display.
MIN: "MIN" is displayed at the bottom of LCD and the minimum value during measurement is displayed on the sub-display.

Selection of temperature unit

Selection the temperature unit (℃ or ˚F) referring to the "DIP switch setting" in page 7.

*The temperature unit is automatically switched with regard to the temperature displayed in the HOLD mode, display function, setting values for upper/lower temperature alarms, and recorded data.
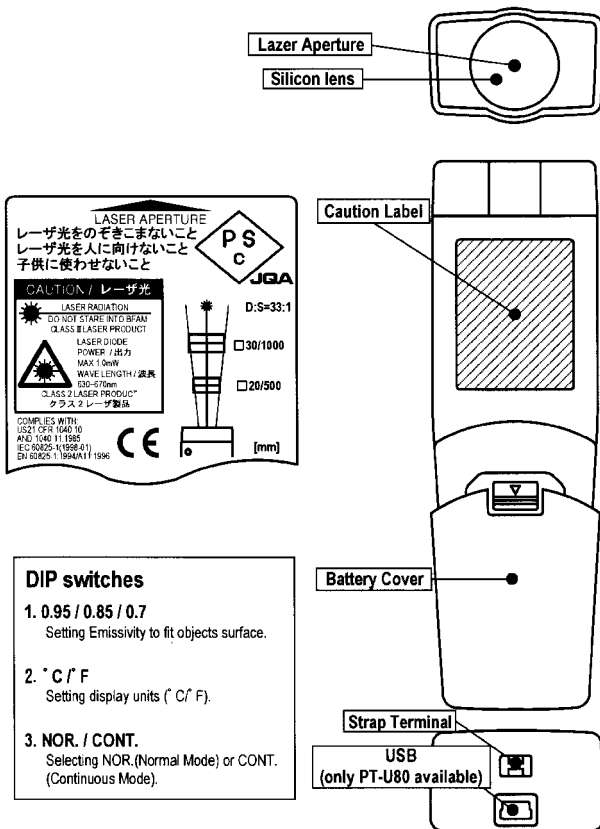
Default value for each setting (at the time of shipment)

	PT — S80	PT — U80
Temperature unit	℃	
Display function	NOR.	
Maximum temperature alarm	Temperature setting : 600℃ Function : OFF	
Minimum temperature alarm	Temperature setting : −30℃ Function : OFF	
Emissivity (ε)	0.95	
Memory	Nothing	
Continuous measurement mode	—	OFF

Field of View

For the non-contact thermometer (infrared thermometer), the field of view (spot size) is specified depending on the distance from the thermometer to the measuring object as shown below. The temperature value displayed is the average temperature within the spot size. To take an accurate measurement, check the correlation between the size of object and the distance to it.

[Field of View]

D:S=33:1
[Unit : mm]

Optical Axis/Laser Marker
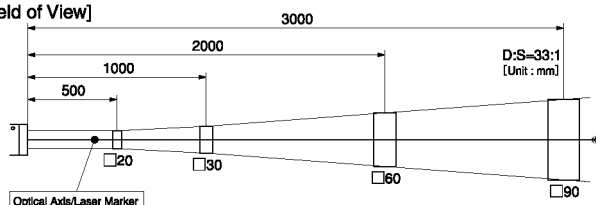
* **Remarks**
ex.) The average temperature of surface of the square 90mm in diameter is measured at a distance of 3000mm away from the measuring object.
* The laser beam points center of the field of view. The laser marker functions as a sighting method and not a sensing element.
* It is possible to take temperatures with this thermometer at a distance of 1,000mm or more away from the measuring object, unless there is any obstacle. However, please note that the measuring field of view depends on measuring distance. This thermometer has an optical resolution of 33:1 [D(Distance to the measuring object):S(Spot size)].

[For Correct Measurement]
The optical resolution values stated in "Field of View" are at minimum 90% energy. The size of measuring object should be sufficiently larger than the field of view (spot size) shown in the above illustration. Please keep away from target as far as you can within spot ratio when you measure high temperature. Sudden ambient temperature change may cause thermometer display value error. In this case, please keep thermometer for a while until display value error may be corrected.
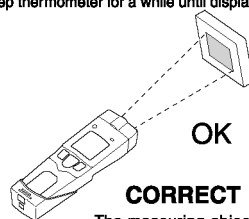
OK
CORRECT
The measuring object is bigger than the field of view.
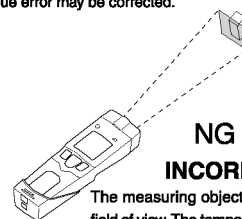
NG
INCORRECT
The measuring object is smaller than the field of view. The temperature of background influences the measuring value.

Setting/Resetting the High/Low Temperature Alarm

When the measured temperature of the object exceeds the High alarm value, the alarm LED blinks in red and a buzzer (high tone) sounds. When it is below the Low alarm value, the alarm LED blinks in green and a buzzer (low tone) sounds. The "High alarm" is set up first, and then the "Low alarm". Set up the alarms according to the following steps.

1

● SET

Press the (SET) button while the power is ON

Pressing the (SET) button displays "ALM" on the top of LCD. (Regarding PT-U80, the display is switched in order of "ALM", "EMS" and "TIME" each time the (SET) button is pressed.)

2

Pressing the (MEASURE) button blinks "ALM". Then, "ON"or"OFF" (currently set status) is displayed on the top of LCD and "AL-H" is displayed on the sub-display. (The High alarm is set up.)

3

Press the (▼/MAX/MIN) or (▲/MAX/MIN) button to select ON or OFF, and then press the (MEASURE) button to confirm the setting. When OFF is selected, the display shifts to the setting for the lower limit temperature alarm.

4

The alarm temperature is displayed on the top of LCD by selecting ON. Press the (▼/MAX/MIN) or (▲/MAX/MIN) button to select ON or OFF, and then press the (MEASURE) button to confirm the setting. When the setting has been completed, the display shifts to the setting for the Low temperature alarm.

For the setting/resetting of the lower limit temperature alarm, the above steps can be applied excluding that "AL-H" on the sub-display is changed to "AL-L" in step 2 and later. When the lower limit setting has been completed, the mode is changed to HOLD. When the upper and lower limit alarms are set, "HI" and "LO" lamps are lit on the display.

Note) The upper limit temperature cannot be set to the value less than the setting for the lower limit temperature alarm, and the lower limit temperature cannot be set to the value more than the setting for the upper limit temperature alarm.

PT-S80

■ Recording Measured Temperature
□ Record Measured Temperature (MEM.Mode)
□ Call Temperature Record (CALL Mode)
■ Emissivity Setting

Setting/Resetting the High/Low Temperature Alarm

PT-S80 can store one (1) temperature measurement data.
Perform the following steps.

[Record measured temperature/ MEM. mode]

1

1 Press this button for 2 seconds or more while the power is ON.

After "CALL" is displayed on the sub-display, "MEM" blinks on the display and the temperature value that had been displayed on the sub-display when the (▲/MEM./CAL) button was pressed starts to light up. Then the value is stored in memory. After the data is stored, the mode is changed to HOLD.

[Call temperature record/CALL mode]

1

1 Press this button for less than 2 seconds while the power is ON.

"CALL" is displayed on the sub-display, and then the stored temperature data displayed.

2

Press the (MEASURE) button to terminate the CALL mode. Then, the normal measurement mode is restored.

Emissivity Setting

Emissivity (ε) refers to the ratio of infrared energy emitted from all the object surfaces. All objects has their own emissivity, which changes depending on the surface conditions and object temperature. This thermometer has 3 fixed emissivities. Refer to the following examples.
0.95...Food, rubber, plastic, paintwork, etc.
0.85...Temperature of refrigerated food can be measured almost accurately.
0.70...Temperature of oxidized metal surfaces can be measured almost accurately.
The displayed temperature could differ from the actual temperature of objects that have different emissivity. In such cases, regard the displayed temperature as a rough standard. When you wish to measure shiny metal surfaces, put a piece of optional blackbody tape (ε =0.95) on the surface of the measured object.

When the emissivity (0.95/0.85/0.7) is selected according to "DIP switch setting" in page 2, the temperature value converted into the selected emissivity is displayed.

PT-U80

- **■ Date and Time Setting**
- **■ Emissivity Setting**
- **■ Recording Measured Temperature**
  - □ *Record Measured Temperature (MEM.Mode)*
  - □ *Call Temperature Record (CALL Mode)*
  - □ *Delete All the Temperature Records*
- **■ Continuous Measurement**
- **■ USB Connection**

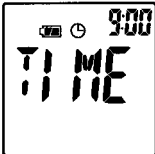## Date and Time Setting

Date and time can be set in PT-U80.
Perform the following steps.
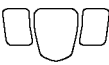*The setting returns to the default if batteries are removed.

1

SET

1 Press this button while the power is ON.

The LCD display is switched in order of **"ALM"**, **"EMS"** and **"TIME"** each time the (SET) button is pressed. Display **"TIME"** on the LCD.
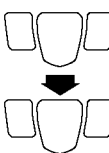
2
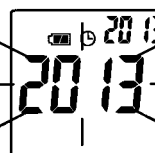
After **"TIME"** blinks, **"YEAR"** blinks. Then, the display is automatically shifted to the state that **"YEAR"** lights up and the dominical year blinks.

3

Press the (▼/MAX/MIN) or (▲/MEM./CAL) button to adjust the year. Then press the (MEASURE) button to fix the setting. After the setting, the set year blinks on the LCD.
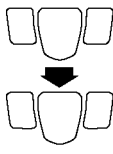
4

After the set year blinks, **"date"** blinks, then the display is automatically shifted to the state that **"date"** lights up, the left 2 digits of the clock (month) blinks and the right 2 digits (day) lights up. The left 2 digits of the clock indicate a "month" and the right 2 digits indicate a "day".
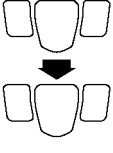
5
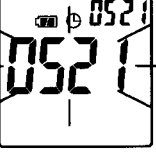
Press the (▼/MAX/MIN) or (▲/MEM./CAL) button to adjust the month. Then press the (MEASURE) button to fix the setting. After the setting, the right 2 digits of the clock blink. Then go to the "date" setting.

To the page that follows

6

Press the (▼/MAX/MIN) or (▲/MEM./CAL) button to adjust the month. Then press the (MEASURE) button to fix the setting. After the setting, the set month and date blink on LCD.
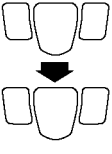
7

After the set date blinks, **"TIME"** blinks, and then the display is changed to the state that the time lights up, the left 2 digits of the clock (hour) blinks and the right 2 digits (minute) light up.
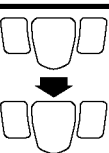
8

Press the (▼/MAX/MIN) or (▲/MEM./CAL) button to adjust the hour. Then press the (MEASURE) button to fix the setting. After the setting, the right 2 digits of the clock start to blink for the "minute" setting.
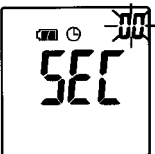
9

Press the (▼/MAX/MIN) or (▲/MEM./CAL) button to adjust the hour. Then press the (MEASURE) button to fix the setting. Then, the set time blinks on LCD.

10

After the set time blinks, **"SEC"** start to blinks and then the display is automatically changed to the state that **"SEC"** lights up and the "00" blinks on the clock.

11

When the (MEASURE) button is pressed, the second is set to 0. Press the button so that the second is accurately set. The date and time setting is now complete. After "00" blinks on LCD, the mode is switched to HOLD.

Emissivity Setting

Emissivity setting
Emissivity (ε) refers to the ratio of infrared energy emitted from all the object surfaces. All objects has their own emissivity, which changes depending on the surface conditions and object temperature. The emissivity setting for this thermometer can be changed, so that emissivity can correspond to a measured object and more accurate values can be measured.
Objects with low emissivity (ex: shiny metal surfaces) reflect the surrounding temperatures due to the high reflectivity. If an object other than the measured object such as a high-temperature object exists on the periphery, temperature for the other object is reflected, which will cause incorrect measurement. Thus, it is necessary to block off the obstacle.
Although the maximum emissivity is primarily 1.00, the value up to 1.20 can be set for this thermometer in consideration of convenience.

1

SET

1 Press this button while the power is ON.

The LCD display is switched in order of **"ALM"**, **"EMS"** and **"TIME"** each time the (SET) button is pressed. Display **"EMS"** on the LCD. (The currently set emissivity is displayed on the sub-display.)

2

After **"EMS"** blinks, the currently set emissivity appears on LCD. (The currently set emissivity is displayed on the sub-display.)

3

Press the (▼/MAX/MIN) or (▲/MEM./CAL) button to display the emissivity to be set up. The setting is completed by pressing the (MEASURE) button. After the setting, the mode is changed to HOLD.
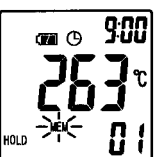
Record Measurement Temperature

PT-U80 can store 35 temperature measurement data.
Perform the following steps.

[Record measured temperature/ MEM. mode]

1

1 Press this button for 2 seconds or more while the power is ON.

After **"CALL"** is displayed on the sub-display, **"MEM"** blinks on the display and a memory No. lights up on the sub-display. Then the temperature value that had been displayed when the (▲/MEM./CAL) button was pressed is stored in memory. After the data is stored, the mode is changed to HOLD.

*If the number of stored data has exceeded the capacity, **"FULL"** lights up on LCD.

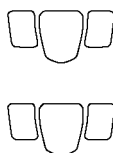**[Call temperature record/CALL mode]**

1

1 Press this button for less than 2 seconds while the power is ON.

"CALL" is displayed on the sub-display, and then the latest stored temperature data and the corresponding memory No. are displayed.
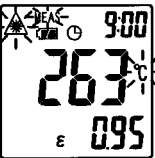
*Data cannot be called during the continuous measurement mode.

2

When the memory No. is changed, the corresponding temperature data is displayed in order.

3

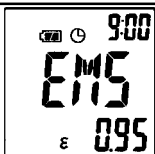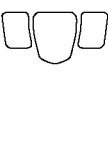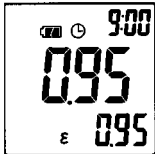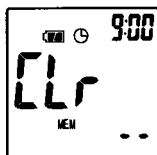Press the (MEASURE) button to terminate the CALL mode. Then, the normal measurement mode is restored.

4

[Delete all the temperature records]

1

●
SET

Press the (SET) button during the CALL mode.

🔋 ⏰ 9:00
CLr
MEM - -

"CLR" is displayed on LCD, and all the temperature records are deleted.
After the deletion, the HOLD mode is restored.

Continous Measurement

For PT-U80, continuous measurement can be performed without pressing the (MEASURE) button. Perform the following steps.
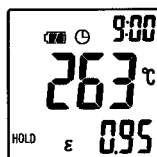
2

◻️◼️
NOR. CONT.
⬇️

Press once

Press once

◻️◼️
NOR. CONT.

🔋 ⏰ 9:00
263 ℃
HOLD ε **0.95**

When the (MEASURE) button is pressed while the DIP switch is adjusted to the CONT. side (Refer to "DIP switch setting" in page 7.), **"CONT"** is lit on LCD and continuous measurement is started. Measurement continues even if releasing the (MEASURE) button.

When the (MEASURE) button is pressed again or the DIP switch is changed over to the NOR. side, the mode is changed to HOLD.

*Laser beam is not radiated during the continuous measurement mode.

PT-U80 is connectable to PC with the exclusive software and included USB cable. The exclusive software is downloadable at following Web address.

URL   http://www.secumatic.nl

〈Adaptable hardware〉
The exclusive software activates on DOS/V PC with USB connector and installed Windows 2000 or XP. USB Rev11.
Note:Macintosh is not acceptable.

Connection
1: Download and install the exclusive software into PC.
2: Connect USB cable to PC.
3: Set up the exclusive software.
4: Push MEASURE switch on thermometer.

USB cable provides power to thermometer in connecting.

The outlook of exclusive software
1: Software is capable of reading, revising and writing of data inside thermometer.
2: PC can read all date instantly on thermometers continuous mode.
3: Output all data by CSV format.
4: Set up each parameters.
   Clock
   Emissivity
   Change memory capability

For the details, please see the exclusive software.

Shut down
1: Finish the exclusive software.
2: Disconnect USB cable from PC with PO indication.
3: Disconnect USB cable from thermometer