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

**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 Gauges
- Load Cells & Pressure Gauges
- 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
- pH, Conductivity & Dissolved Oxygen Instruments

**DATA ACQUISITION**
- Data Acquisition & Engineering Software
- Communications-Based Acquisition Systems
- Plug-In Cards for Apple, IBM & Compatables
- Datalogging 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

**USB 100 series**
Portable Infrared Thermometer
General

The OSP100 is the ideal tool for periodic process monitoring and for measuring temperature quickly and easily, by contact with the target or from distance. An optional laser pinpointing method simplifies the identification of the measuring surface area.

The OSP100 is the essential tool for the prevention of a variety of temperature related equipment or process malfunctions. It can prevent serious damage to bearings, motors, valves, electrical switches and distribution conductors, cooling or steam traps, thermal insulation deterioration, hot spots, engine performances, exhaustion heads, deoxidized refrigeration systems, etc.

The instrument is rugged, accurate and compact for fast and easy periodic process monitoring, to control quality and/or supervisory production phases of coated and refrigerated foods.

Specifications

- Spectral band: 8-14 μm
- Display: 3 ½ digit custom backlit LCD plus labels for max, min, emissivity, Hold, °C, °F, battery.
- Resolution: 0.1°C up to 199.9°C. 1°C otherwise.
- Response time: 500 ms
- Target pinpointing: spot dot or circular laser sighting (L and XL models only)
- Emissivity: adjustable from 0.30 to 1.00
- Auto Power Off: Automatic Power Off if no key is pressed for more than 40 seconds.
- Alarm: low and high alarm with visual and acoustic beeper
- Signal processing: °C/°F, average, hold, max, min (where applicable)
- Accuracy R channel: \([-20°C to 60°C]: \pm 1°C, \pm 1.5°C when greater than \([-5°C to 23°C]: \pm 1.5°C\] 
- RTD channel: Pt100 IEC751 (.385探针除外)
- Input range: from -32°C to 520°C
- Accuracy: 10.3% of reading or \(\pm 0.7°C\) whichever is greater
- Laser sight:
  - Wavelength: 650nm, Beam diameter: 3mm, Beam divergence: \(<0.5mrad
  - Focal Classification: Class 2, Complies with 21CFR Chapter 1, Subchapter J
  - Safety Classification: Class 1
  - Power supply: alkaline or rechargeable battery
- Battery life: 60 h (back light & laser off)
- Ambient temperature: -10°C to +45°C / 10-95% RH non condensing
- Storage temperature: -30°C to +60°C
- Dimensions and weight: 180x140x45 mm 380gnett

When alkaline batteries are used, DO NOT connect power module to input jack.

CE certifications

This instrument conforms to the following standards:
- EN50081-1: 1992, Electromagnetic emissions
- EN50082-1: 1992, Electromagnetic susceptibility

Basic functions

To take a temperature reading, point the spot at the target you want to measure. Push and keep the trigger pushed. The current temperature reading is displayed. Last reading before previous switching-off is displayed in lower display. Release the trigger. A “lock” symbol on the LCD will be displayed and the Hold value is refreshed. OSP100 will remain switched on for 40 seconds. The time will reset if a key is pressed or a serial communication message is sent. Press and release quickly the trigger to switch off the instrument.

The OSP100L and 100XL models can be supplied with a laser sighting with either a “laser dot” or “laser circle” to read the target area. Press the [ ] key to enable/disable the laser beam. The message “LAS EN” or “LAS DIS” will be displayed.

In sequence press in the [2nd] and [°C/°F] keys to change the engineering temperature units.

Enhanced functions

External probe operation. Connect the Pt100 resistance thermometer to the appropriate connector. Switch the unit on and press the [Probe] key. The “EXIT” message will be displayed in the lower display for Pt100 readings.

Hold measurement. Press the [Hold] key to freeze the displayed temperature. The hold value will be displayed in lower display. On the main display the temperature is that actually measured at the last key press. The key again to refresh the Hold indication.

The Hold indication is refreshed by pressing the trigger for more than 1 sec. with the unit in measuring mode and releasing the trigger. Switch the OSP100 off by pointing the spot at the target to recall the last value when you switch on the unit. Select Average (AVG), Minimum (MIN) and Maximum (MAX) values. Press the [Min/Max] key until the appropriate message is displayed. The unit will refresh the values of each measurement from the power on. To reset the values, press the [2nd] key or switch the unit off and on.

Emissivity adjustments. Press in sequence the [²] and [Set e] keys to change the emissivity from 0.30 to 1.00 with 0.01 resolution. On the lower display the set value is shown. Press the [Lamp] key and the [Set e] key to increase and decrease the emissivity. Press the [Enter] key to store and return on the normal mode measurement.

Set low (LAL) and high (HAL) alarms. Press in sequence the [²] and [HI] keys to change the High alarm set point. “HAL” will be seen on the display. The stored High alarm level will be displayed. The High alarm level is to be set by adjusting the [LUP] or [DOWN] keys. Press the [HI] key to enable/disable the high alarm. Press the [ENTER] key to store the displayed value and return to normal mode operation. Press in sequence the [²] and [LO] keys to change the Low alarm set point. “LAL” will be seen on the display. The Low alarm level is to be set by adjusting the [LUP] or [DOWN] keys. Press the [LO] key to enable/disable the low alarm. Press the [ENTER] key to store the displayed value and return in normal operation mode.

Optics

Enhanced functions

- USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HERE MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.
- DO NOT LOOK AT THE LASER BEAM COMING OUT OF THE LENS OR VIEW DIRECTLY WITH OPTICAL INSTRUMENTS - EYE DAMAGE CAN RESULT.
- USE EXTREME CAUTION WHEN OPERATING THE LASER.
- NEVER POINT THE LASER BEAM AT A PERSON.
- KEEP OUT OF REACH OF ALL CHILDREN.

Warnings and Cautions

- DO NOT ATTEMPT TO OPEN THE LASER SIGHT MODULE. (THERE ARE NO USER SERVICEABLE PARTS IN THE MODULE).

Operational Flow Chart

**NORMAL MODE KEYPAD**

- Laser pointer enable/disable
- Display external probe/infrared measurements
- Backlight ON/OFF
- Hold measurements in lower display. Refresh hold.
- Circular switch between Average, Minimum or Maximum measurements on lower display.
- Activate 2nd function keys.
- Laser beam mode: Continuous / Flashing (economy mode).
- Switch engineering units.
- Set mode for HIGH alarm.
- Set mode for LOW alarm.
- Set mode for Emissivity.

**SET MODE KEYPAD**

- Increase digit.
- Decrease digit.
- Store value and return in normal mode.

Applications

- FOOD (HACCP) To control and supervise production phases, handling, transport, and conservation of cooked and refrigerated foods.
- AUTOMOTIVE To check engine, bearings, muffler, brakes, etc.
- INDUSTRIAL & ELECTRICAL Bearings, motors, valves, switches, insulation, etc.
- HVAC/R Heating & cooling systems, thermal insulation, radiators, ducts, etc.

**Specifications**

- Resolution: 0.1°C up to 199.9°C. 1°C otherwise.
- Laser beam: Continuous and Flashing (to increase battery expected life) mode.
- Laser indicator: asterisk on display
- Target pinpointing: sight dot or circular laser sighting (L and XL models only)
- Signal processing: °C/°F, average, hold, max, min (where applicable)
- Accuracy R channel: \([-20°C to 60°C]: \pm 1°C, \pm 1.5°C when greater than \([-5°C to 23°C]: \pm 1.5°C\] 
- RTD channel: Pt100 IEC751 (.385探针除外)
- Input range: from -32°C to 520°C
- Accuracy: 10.3% of reading or \(\pm 0.7°C\) whichever is greater
- Laser sight:
  - Wavelength: 650nm, Beam diameter: 3mm, Beam divergence: \(<0.5mrad
  - Focal Classification: Class 2, Complies with 21CFR Chapter 1, Subchapter J
  - Safety Classification: Class 1
  - Power supply: alkaline or rechargeable battery
- Battery life: 60 h (back light & laser off)
- Ambient temperature: -10°C to +45°C / 10-95% RH non condensing
- Storage temperature: -30°C to +60°C
- Dimensions and weight: 180x140x45 mm 380gnett

EN 50081-1: 1992, Electromagnetic emissions
EN 50082-1: 1992, Electromagnetic susceptibility

**Optics**

- Distance: Sensor to Object (in)
- Distance: Sensor to Object (cm)
- Spot size measured at 90% energy
- Nominal D:S = 12:1
- Nominal D:S = 30:1

**Warnings and Cautions**

- USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HERE MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.
- DO NOT LOOK AT THE LASER BEAM COMING OUT OF THE LENS OR VIEW DIRECTLY WITH OPTICAL INSTRUMENTS - EYE DAMAGE CAN RESULT.
- USE EXTREME CAUTION WHEN OPERATING THE LASER.
- NEVER POINT THE LASER BEAM AT A PERSON.
- KEEP OUT OF REACH OF ALL CHILDREN.

**Applications**

- FOOD (HACCP) To control and supervise production phases, handling, transport, and conservation of cooked and refrigerated foods.
- AUTOMOTIVE To check engine, bearings, muffler, brakes, etc.
- INDUSTRIAL & ELECTRICAL Bearings, motors, valves, switches, insulation, etc.
- HVAC/R Heating & cooling systems, thermal insulation, radiators, ducts, etc.