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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.

FOR WARRANTY RETURNS, please has the following information available BEFORE contacting OMEGA: 1. P.O. number under which the product was PURCHASED. 2. Model and serial number of the product. 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. P.O. number to cover the COST of the repair. 2. Model and serial number of product, and 3. Repair instructions and/or specific problems relative to the product.
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The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit. then be marked on the outside of the return package and on any correspondence.

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCTS) 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

RETURN REQUESTS / INQUIRIES

whichever arising out of the use of the Product(s) in such a manner. 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 based on contact, 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, 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 based on contact, 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.

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If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will coverage on each product.

year product warranty to cover handling and shipping time. This ensures that OMEGA's customers receive maximum months from date of purchase. OMEGA's Warranty adds an additional one (1) month grace period to the normal one (1) years product warranty.

WARRANTY/DISCLAIMER

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
- Benchtop/Laboratory Meters
- Controllers, Calibrators, Simulators & Pumps
- Industrial pH & Conductivity Equipment

DATAACQUISITION

- 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
- Flexibie 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

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User's Guide

OSP 100 series Portable Infrared Thermometer



omega.com™
Ω OMEGA

http://www.omega.com
e-mail: info@omega.com



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, extrusion heads, depleted refrigeration system, etc. The instrument is rugged, accurate and compact for fast and easy periodic process monitoring, to control quality and/or supervise production phases of cooked and refrigerated foods.

Specifications

- Spectral band: 8-14 μm
- Display: 3 1/2 digit custom backlighted LCD plus labels for max, min, emissivity, Hold, °C, °F, low battery.
- Resolution: 0.1°C up to 199.9°C. 1°C otherwise.
- Response time: 500 ms
- Target pinpointing: sight 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 sec.
- Alarm: low and high alarm with visual and acoustic beeper
- Signal processing: °C/°F, average, hold, max, min (where applicable)
- Accuracy IR channel:
 - range from 23°C to f.s. : $\pm 1\%$ of reading or $\pm 1^\circ\text{C}$ whichever is greater
 - range from -32°C to 23°C : $\pm 1.5^\circ\text{C}$
- RTD channel: Pt100 IEC751 385 (probe excluded)
 - Input range: from -32°C to 520°C
 - Accuracy: $\pm 0.3\%$ of rdg or $\pm 0.3^\circ\text{C}$ whichever is greater
- Laser sight:
 - Wavelength: 650nm, Beam diameter: 3mm, Beam divergence: $<0.5\text{mrad}$;
 - Laser indicator: asterisk on display
- FDA Classification: Class II, Complies with 21CFR Chapter 1, Subchapter J
- Safety Classification: Class 2
- Power supply: alkaline or rechargeable battery
- Battery life: 60 h (back light & laser off)
- Ambient temperature: -10 to +45°C / 10-95% RH non condensing
- Storage temperature: -30°C to +60°C
- Dimensions and weight: 180x140x45 mm 380g nett

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

CE certifications

This instrument conforms to the following standards:
 EN 50081-1: 1992, Electromagnetic emissions
 EN 50082-1: 1992, Electromagnetic susceptibility

Basic functions

To take a temperature reading, point the unit at the target you wish 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 the instrument off. The OSP100L and 100XL models can be supplied with either a "laser dot" to read the target area center or with a "laser circle" to read the target area. Press the [*] key to enable/disable the laser. The message "LAS EN" or "LAS DIS" will be displayed. When enabled, the laser can be switched on by pressing the trigger button for more than 1 sec. The laser will automatically switch off when the trigger button is released. The emission indicator symbol (*) will appear on lower display. Press in sequence the [2nd] and [*] keys to change the laser beam mode between Continuous and Flashing (to increase battery expected life) mode. Press the [Lamp] key to switch back-light on or off. Press in sequence the [2nd] and [°C/°F] keys to change the engineering units between °C and °F.

Enhanced functions

External probe operation. Connect the Pt100 resistance thermometer to the appropriate connector. Switch the unit on and press the [Probe] key. The "EXT" message will be displayed on 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. 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 unit to the target to recall the last value when you switch the unit on.

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.

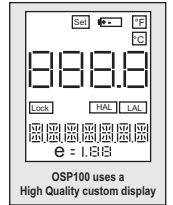
Emissivity adjustments. Press in sequence the [2nd] and [Set] keys to change the emissivity from 0.30 to 1.00 with 0.01 resolution. On the lower display the set value is shown. Press the [UP] and [DOWN] keys to increase and decrease the emissivity. Press the [ENTER] key to store and return on the normal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

Set low (LAL) and high (HAL) alarms. Press in sequence the [2nd] and [HI] keys to change the High alarm set point. "HAL" will be seen on the display. The stored High alarm will be displayed. The High alarm level is to be set by adjusting the [UP] or [DOWN] keys. Press the [HI] key to enable/disable the acoustic alarm. Press the [ENTER] key to store the displayed value and return to normal mode. Press in sequence the [2nd] 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 [UP] or [DOWN] keys. Press the [LO] key to enable/disable the acoustic alarm. Press the [ENTER] key to store the displayed value and return in normal operation mode. When the measurement is inside the programmed alarm band, the "LAL" or "HAL" symbol will be lit and an intermittent beep will be emitted.

Operational Flow Chart

NORMAL MODE KEYPAD

	Laser pointer enable/disable
Probe	Display external probe/infrared measurements
Lamp	Backlight ON/OFF
Hold	Hold measurements in lower display. Refresh hold.
Min/Max	Circular switch between Average, Minimum or Maximum measurements on lower display.
2nd	Activate 2nd function keys.
2nd +	Laser beam mode: Continuous / Flashing (economy mode).
2nd + Probe =	°C/°F Switch engineering temperature units.
2nd + Hold =	HI Set mode for HIGH alarm.
2nd + Min/Max =	LO Set mode for LOW alarm.
2nd + Lamp =	Set Set mode for Emissivity.



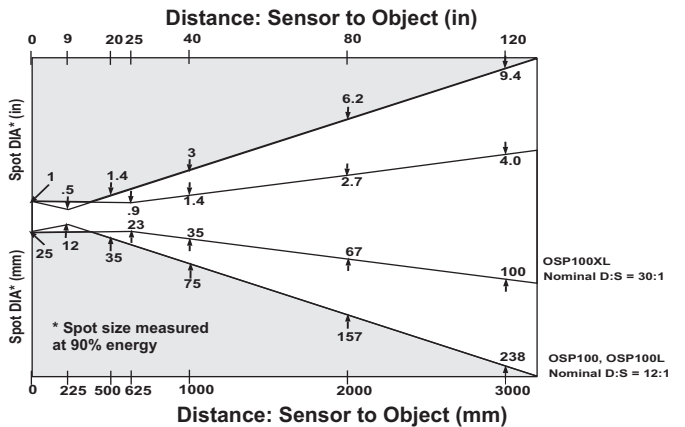
SET MODE KEYPAD

	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.

Optics



Warnings and Cautions

OSP100L and OSP100LX models only

- **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.**



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

PATENT NOTICE: U.S. PAT. B1 5,368,392; 5,524,984; 5,727,880; 5,465,838; 5,823,678; 5,823,679. Other U.S. and Foreign Patents and Applications Pending. Manufactured in Italy. Licensed by Omega Engineering, Inc.