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# CSlaser Pyrometers

The Optris CSlaser infrared pyrometer temperature sensor provides an accurate, non-contact way to measure temperature. Sensors come preconfigured and ready to use out of the box. All CSlaser pyrometers provide double laser aiming to easily determine the measurement spot on the object surface and adjustable switches for setting the sensors emissivity value. The CSlaser series provides an analog 4-20mA output, multiple temperature ranges, and models ideal for measuring metals and ceramic materials. The CSlaser sensors feature a tough, stainless-steel construction with integrated electronics, fast response times as low as 10 ms, and easy adjustment of settings via the free IRmobile Android App or Windows software (CompactConnect). The Optris configuration cable ACCSMIACC is required to make changes to the sensor settings. Non-contact temperature sensors, including the Optris pyrometers, are capable of measuring moving objects and can be used in applications in which traditional contact measurements are not possible, such as fast moving food products. Additionally, non-contact measurement can be used to count objects, like hot bottles passing by on a production line. Other advantages of non-contact temperature measurement include not influencing the actual temperature of the object, not causing damage or surface wear to the measuring location. Optris infrared temperature sensors are an excellent choice for applications that are moving, cannot be reached, are in areas that are too hot, or are near electrical interference.

***Part No. OPTCSLLTSF***

***Part No. OPTCSL2MLSF***

## Features

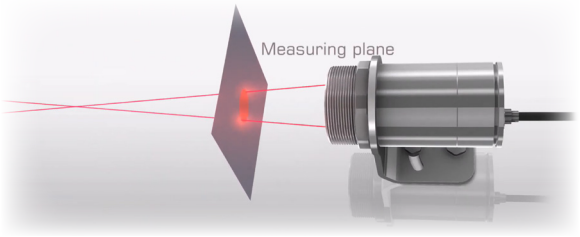
- Tough, stainless-steel construction
- German quality engineering and manufacturing
- Broad temperature sensing ranges
- Adjustable settings to fit many applications
- Fast response time: 10-150 ms dependent on model
- Popular optical resolutions: 50:1, 150:1, and 300:1 with spectral ranges of 8-14 µm and 1.6 µm
- Innovative double-laser sighting for exact marking of measurement targets without the need of lookup tables or graphs
- Wide power input range: 5-30 VDC
- Log and graph temperatures using free downloadable software
- 2 wire, loop powered for easy installation

## Applications

- Temperature readings:
  - Of moving materials like films, bottles or baked goods
  - Areas of high ambient heat through a protective window
  - Objects in areas of high electromagnetic noise or that are carrying a voltage or current
  - Of small areas, like the surfaces of microcontrollers or electrical components, without having an influence on the measured temperature
  - Of metals and ceramic surfaces with 2M models
- Counting objects based on temperature difference
- Monitoring for fast changes in temperature
  - Plastic processing industries
  - Metal processing industries

## CSlaser Pyrometer Laser Aiming Operation

The Optris CSlaser pyrometers measure surface temperature the same way the CS LT and CSmicro series pyrometers do with the added advantage of a double laser aiming system. The dual lasers intersect at the focal point where the measurement area, or spot size, is smallest. This makes aiming and determining the focal point easy without referencing distance to spot size charts. The area measured is given as a ratio of distance to spot diameter. The Optris CSlaser pyrometers offered by AutomationDirect.com operate in the 8 to 14 µm wavelength for general applications or 1.6 µm wavelength for metal surfaces depending on model. The Optris CSlaser pyrometers are also available in spot sizes of 50:1, 150:1, and 300:1 depending on the model selected providing a greater distance range to the smallest point of measurement compared to the CS LT and CSmicro series pyrometers.



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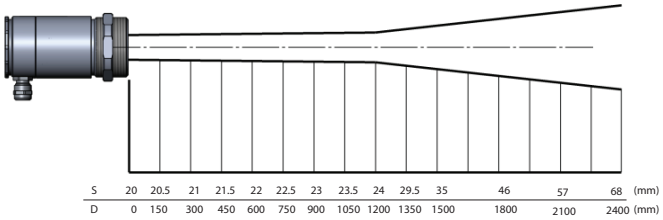
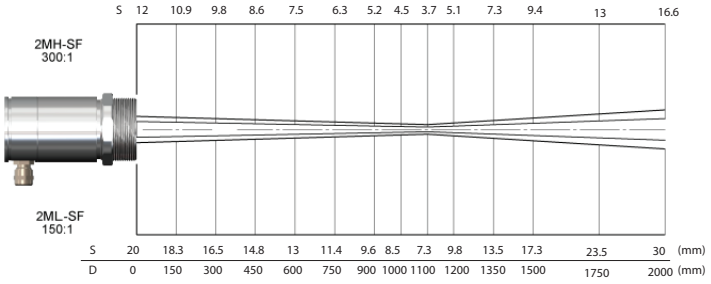



*Optical chart CSlaser LT 50:1 (24mm @ 1200mm)*
*D:S Far field = 20:1*




*Optical chart*
*CSlaser 2ML 150:1 (7.3 mm @ 1100mm)*
*D:S Far field = 42:1*
*CSlaser 2MH 300:1 (3.7 mm @ 1100mm)*
*D:S Far field = 48:1*

## Optris CSlaser Series Pyrometer Selection

| Part Number | Description | Measurement Range | Factory Default Temp Range | Spectral Range Response | Optical Resolution | Ambient Temp | Analog Output | Digital Output | Operating Voltage | End Mount | Electrical Connection | Wt (lb) | Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OPTCSLLTSF | Optris CSlaser LT Series Pyrometer | -30 to 1000ºC (-22 to 1832ºF) | 0 to 500ºC | 8-14 µm | 50:1 (24mm @ 1200mm) | -20 to 85ºC (-4 to 185ºF) | 4-20 mA | Alarm | 5-30 VDC | M48 x 1.5mm | Removable terminal block | 1.36 | $--05#il: |
| OPTCSL2MLSF | Optris CSlaser 2ML Series Pyrometer | 250 to 800ºC (482 to 1472ºF) | 250 to 800ºC | 1.6 µm | 150:1 (7.3mm @ 1100mm) | | | | | | | 1.36 | $-05#in: |
| OPTCSL2MHSF | Optris CSlaser 2MH Series Pyrometer | 385 to 1600ºC (725 to 2912ºF) | 385 to 1600ºC | | 300:1 (3.7mm @ 1100mm) | | | | | | | 1.36 | $-05#io: |

** For Vcc (supply voltage) 5-12VDC/ at Vcc > 12 VDC the max. ambient temperature of the electronics is 65ºC*
*ACCSMIACC configuration cable required to make all configuration changes.*

## Optris CSlaser Series Pyrometer Information Links

| Part Number | Drawing Link | Manufacturer Specs | Manufacturer Manual |
|---|---|---|---|
| OPTCSLLTSF | PDF | PDF | PDF |
| OPTCSL2MLSF | PDF | PDF | PDF |
| OPTCSL2MHSF | PDF | PDF | PDF |

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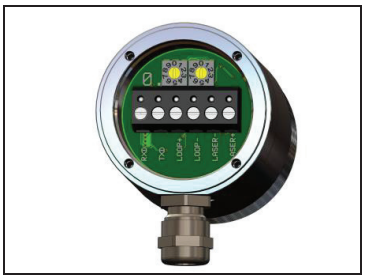
# CSlaser Pyrometers

## Wiring

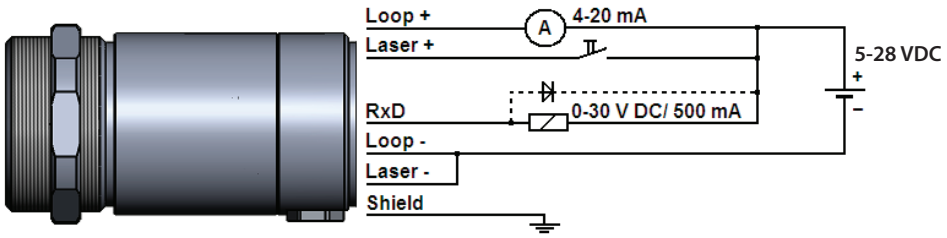
**Designation (sensor terminal block)**

| | |
|---|---|
| RXD | Receive data (digital) |
| TXD | Transmit data (digital) |
| LOOP + | Current loop (+) |
| LOOP – | Current loop (–) |
| LASER – | Power supply laser (–) |
| LASER + | Power supply laser (+) |

Above the terminal block you will find two rotary switches for emissivity setting.

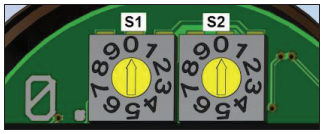


**Sensor back side with terminal block**




## Emissivity

After opening of the sensor backplane both of the emissivity switches are accessible.

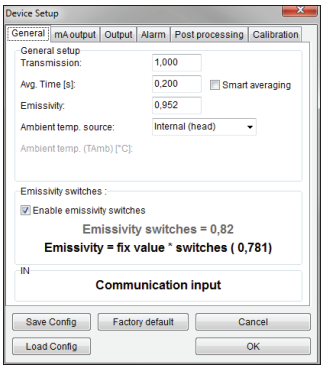



For an emissivity setting of **1.00** please turn both switches to **0**. Values below **0.10** are not adjustable. For all other switch positions the following applies: **0, S1 S2**.
Therefore the adjustment range is **0.10...1.09**.

**Example:** ε = 0.84 **S1=8**
**S2=4**

If you use the software (optional) please consider that the emissivity switches can be activated/ deactivated in the software menu **Device/ Device setup**. At time of delivery the switches are active.
The emissivity set in the software interacts as a factor to the emissivity set on the unit. Thus the adjustment range increases to **0.100...1,199**.

**Example:** $\varepsilon_{Software}$ = 0.952 x $\varepsilon_{Sensor}$ = 0.82 (S1=8/ S2=2)
Therefore the effective emissivity is: 0.781.



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# CSlaser Pyrometer Accessories

| Optris CSlaser Series Pyrometer Accessories | | | | | |
|---|---|---|---|---|---|
| *Item Photo* | *Part No.* | *Description* | *Weight* | *Price* | *Drawing Link* |
|  | ***ACCTLAB*** | Optris mounting bracket, two axis. For use with Optris CSlaser IR pyrometers. | 1.1 | $--05#ij: | PDF |
|  | ***ACCTLAP*** | Optris air purge collar, for use with Optris CSlaser IR pyrometers. | 1.2 | $-05#ip: | PDF |
|  | ***ACCSMIAC*** | Optris configuration cable, micro USB to 5-pin terminal. For use with Optris CS IR pyrometers and PC or Android configuration software. Comes with a USB A and USB C adapter. | 0.12 | Retired | PDF |
|  | ***ACCSMIACC*** | Optris configuration cable, USB-C to 5-pin terminal, 3.7ft/1.1m cable length. For use with Optris CS IR pyrometers and PC or Android configuration software. | 0.12 | $;660,: | PDF |

## Air Purge Accessory (ACCTLAP)

The air purge accessory should be used to keep the lens of the Optris CSlaser clean when there is heavy contamination in the air around the sensor. The Optris air purge accessory should be supplied approximately 2 to 10 liters per minute (l/min) of clean, oil-free air via the 6x8mm hose connection.

## Configuration Cable (ACCSMIAC)

The Optris configuration cable (**sold separately**) provides a USB connection to either a Windows computer or an Android phone or tablet. Using either the IRmobile Android App or Windows software (CompactConnect), the Optris sensor can be configured, and the sensor values can be monitored and analyzed. The terminal block included with the configuration cable makes connecting the sensor and configuration cable easy by pressing the release with a screwdriver and inserting the wire of the sensor. When connecting the sensor to the configuration cable, match the wire color of the configuration cable with the sensor wire color. The configuration cable works on most Android devices running 5.0 or higher with a USB port that supports USB-OTG (On The Go). The free IRmobile Android App is available direct from the Google Play store and the CompactConnect Windows software can be downloaded from Automationdirect.com. See manual for additional information on data logging, graphing and serial communication.

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## Scan to download the free IRmobile Android App

available on Google Play

GET IT ON Google Play