

PORTABLE THERMOMETERS

Portable Measurement Tasks

Internal Data Storage

Analysis via USB

Portable Thermometers for Demanding Handheld Applications



The Optris portable thermometers are characterized by combining a **modern industrial design** with outstanding technical parameters. The **high-class precision lenses** assure the precise measurement of objects in short or long distances. The portable thermometer optris LS LT consists of an one of a kind, switchable lens. This means that smallest objects can be measured in a close-up range as well as in mean distances.

The portable thermometers of the optris MS series consist of a single point laser to mark the middle of the measuring field.

All additional devices to this series feature an **innovative laser sighting concept**. This means that the laser are following the infrared optical path to mark the accurate size and spot of the measuring field at every distance. For the portable thermometer optris P20 this is carried out by a double laser sighting whilst the optris LS LT consists of **worldwide patented cross hair laser sighting system**.

All portable thermometers come with a **LCD color alarm**. This alarm offers to visualize an under-run or over-run of a defined temperature barrier with varying colors of the display background. The display of the optris LS LT can also flip according to the beholders position (integrated absolute position transducer).

The complete portable thermometer series consists of an **USB interface**. Temperature gradation can be displayed and recorded at a PC in connection with the optris Connect software.

Occasionally Measurements



All Optris portable thermometes are suitable for measurement tasks where sporadic temperature monitoring is sufficient. Application examples are:

Non-metal surfaces (LT)

- MS series: Mechanical and electrical maintenance
- LS LT: Matted catalyzer at engine test benches
- LS LT: Electronic development at R&D
- P20 LT: Testing of outside wall of melting tanks

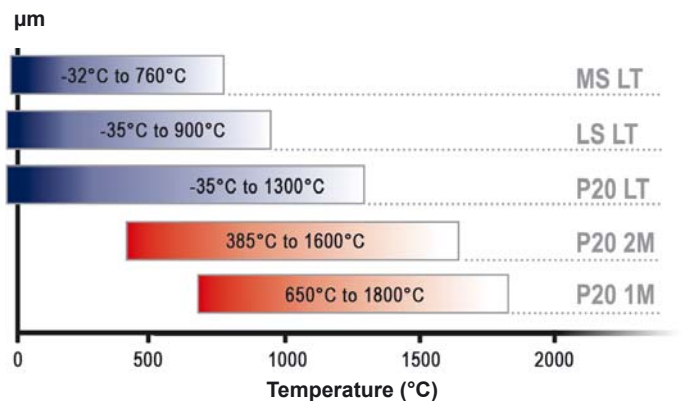
Metal surfaces (2M; 1M)

- P20 2M: Rolling of iron sheets
- P20 1M: Steel slab temperature

Suitable for Every Temperature



The portable thermometers cover a wide temperature range. Some devices are also suitable for the measurement of high temperatures at metal surfaces.

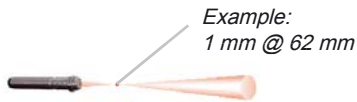


Temperature range of the portable thermometers across the wavelengths.

Best Optics for Portable Thermometers



The optics of the portable thermometers are designed for mean distances. The **optris LS LT** comes with an **unique, switchable lens** which means that smaller objects can precisely be measured in a close-up range.

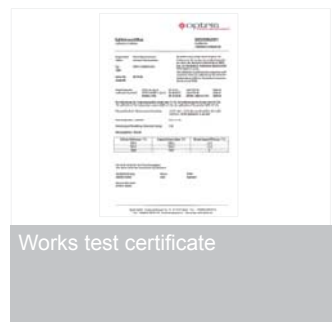
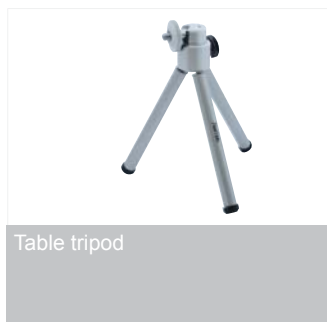


Close lens (CF, close focus): Measurement of smallest objects under test close to the sensor (only optris LS LT)

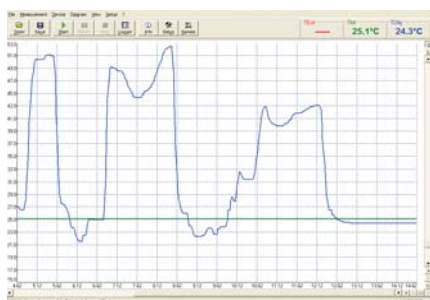


Standard lens (SF, standard focus): Measurement of smallest objects under test in mean distances.

Accessories

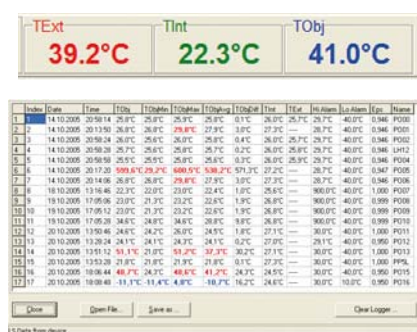


Software optris Connect



General

- Connection of all portable thermometer via an USB interface
- Various language options including translation tool
- Temperature display in °C or °F
- Compatible with Windows XP, Vista and 7
- Simple setup of picture based temperature reports

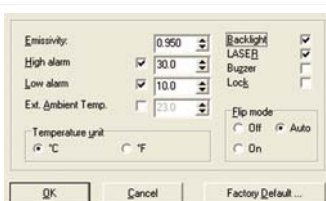


Display and analysis of temperatures

- Display of temperature data within temperature time diagram or via digital display
- Automatic or manual adjustment of diagram scale
- Data recording for a later detailed analysis or documentation
- File storage including complete temperature information for analysis in Excel (*.dat)
- Download of logger data in clearly arranged tables (display Hi-Alarm in red, Lo-Alarm in blue)

Changing of device setup

- Setup of emissivity for measurement of different surfaces
- Possibility of external background temperature compensation (only optris LS LT)



Product Overview of Portable Thermometers

Base Model	LS	P20	P20	MS	MSPlus	MSPro
Type		LT	1M / 2M	LT	LT	LT
						
Detector	Thermopile	Thermopile	Si / InGaAs	Thermopile	Thermopile	Thermopile
Spectral range	8-14 μm	8-14 μm	1 μm / 1.6 μm	8-14 μm	8-14 μm	8-14 μm
Temperature ranges	-35°C...900°C	0°C...1300°C	650°C...1800°C 385°C...1600°C	-32°C...420°C	-32°C...530°C	-32°C...760°C
Temperature resolution	0.1°C	1°C	1°C	0.2°C	0.1°C	0.1°C
Optical resolution	75:1	120:1	300:1	20:1	20:1	40:1
Switchable optics	■	-	-	-	-	-
Smallest spot (CF optics)	1 mm @ 62 mm	-	-	-	-	-
Smallest spot (SF optics)	16 mm @ 1200 mm	100 mm @ 12 m	12 mm @ 3.6 m	13 mm bis 140 mm	13 mm bis 140 mm	13 mm bis 260 mm
Sighting	Cross hair laser	Double laser	Double laser	Laser	Laser	Laser
Response time (90%)	150 ms	300 ms	100 ms	300 ms	300 ms	300 ms
Accuracy	$\pm 0.75^\circ\text{C}$ or $\pm 0.75\%$	$\pm 2^\circ\text{C}$ or $\pm 1\%$	$\pm (0.3\% T_{\text{Meas}} + 2^\circ\text{C})$	$\pm 1^\circ\text{C}$ or $\pm 1\%$	$\pm 1^\circ\text{C}$ or $\pm 1\%$	$\pm 1^\circ\text{C}$ or $\pm 1\%$
PC interface	USB	USB	USB	USB	USB	USB
Software	■	■	■	■	■	■
Probe connection (t/c)	■	-	-	-	■	■
T _{Amb} min. / max.	0°C / 50°C	0°C / 50°C	0°C / 50°C	0°C / 50°C	0°C / 50°C	0°C / 50°C
Display MAX / MIN / HOLD	■	■	■	■	■	■
HIGH / LOW alarm	■	■	■	-	■	■
Data logger / capacity	■ / 100	■ / 2000	■ / 2000	-	-	■ / 20
Emissivity	0.100...1.100	0.100...1.100	0.100...1.100	0.95 fixed	0.100...1.100	0.100...1.100

Application Examples

Preventive electrical maintenance



Almost every current asset which is supported by energy turns hot before a breakdown. Temperature monitoring can best be provided with an optris LS LT in line with preventive electronic maintenance.

Defect analysis for air conditioning technology



The optris MSpro LT saves time and money during maintenance of heating systems, ventilators and air conditioning. Error sources, such as leaks or clogged filters, can be localized within short times and unscheduled cutoffs can be avoided.

Fast diagnosis at car garages



Accurate measurement results are demands of every master mechanic to fastly detect and repair troubles at engines, catalyzers or breaking systems. Therefore the optris MS LT is an important measurement device at garages.

Hot deforming of metals



Close temperature limits need to be met during hot deforming processes of metal to fulfill the quality demands of the raw materials. The optris P20 2M can be used for sporadic monitoring in forging and bending processes.