infrared thermometers

INFRASIN CS LT

Simple access into multiple sensor installations:
Smart, safe and easy for -40 to 1030°C

OUTPUT 0/10V , K
SCALABLE Tª

FEATURES

- Temperature range: -40°C to 1030°C
- Response time: 25 ms
- Optical Resolution 15:1
- Green LED alarm indication, aiming support, selfdiagnostic or temperature code indication
- Usable up to 80°C ambient temperature without cooling
- Several outputs: 0-10 V or 0-5 V free scalable, thermocouple type K, alarmoutput or digital output
- USB programming interface, direct serial 9.6 kBaud interface
- Power supply: 5-30 V DC

General Specifications

Environmental rating	IP 63
Ambient temperature	-20°C to 80°C
Storage temperature	-20°C to 85°C
Relative humidity	10 - 95%, non condensing
Vibration	IEC 68-2-6: 3 G, 11-200 Hz, any axis
Shock	IEC 68-2-27: 50 G, 11 ms, any axis
Weight	58 g

Electrical Specifications

Output/analog	0-5 V or 0-10 V free scalable, thermocouple type K or alarm with adjustable voltage levels
Output/alarm	0-30 V/50 mA (open collector)
3-state alarm output	adjustable threshold values and voltage level for: no alarm, pre-alarm, alarm
Output/digital	uni/bidirectional, 9.6 kBaud, 0/3 V digital level/USB optional
Input (0-10V)	programmable functional input for external emissivity setting/ambient temperature adjustment, triggered signal output or peak-hold function
LED-functions	alarm indication, automatic aiming support, self diagnostic, temperature indication (via. temp.code)
Cable length	1 m (standard), 3 m, 8 m, 15 m
Power supply	5-30 V DC
Current draw	4 mA (without LED)/10 mA

Measurement Specifications

Temperature range (scalable via software)	-40°C to 1030°C
Spectral range	8 to 14 µm
Optical resolution (90 % energy)	15:1
CF-lens (optional)	0.8 mm @ 10 mm
System accuracy (at ambient temp. 23 ± 5°C)	± 1.5% or ± 1.5°C[1)]
Repeatability (at ambient temp. 23 ± 5°C)	± 0.75% or ± 0.75°C[1)]
Temperature coefficient	± 0.05 K/K or ± 0.05 % K[3)]
NETD	0.1 K[2)]
Response time (90%)	25 ms (adjustable up to 999 s)
Emissivity/Gain (adjustable via 0-10 V DC input or software)	0.100 - 1.100
Transmissivity (adjustable via software)	0.100 - 1.100
Signal processing (parameter adjustable via software)	peak hold, valley hold, average; extended hold function with threshold and hysteresis
Software	optris Compact Connect

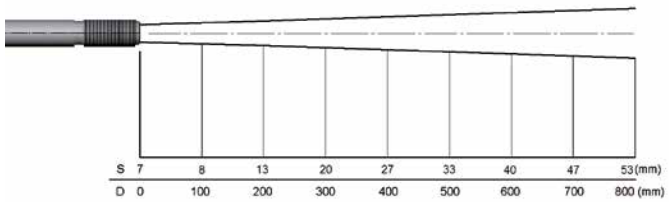
[1)] object temperature > 0°C; whichever is greater
[2)] at time constant 100 ms and T_{Obj} 25°C
[3)] for ambient temperatures <18°C and >28°C; whichever is greater

DIS2 Plus

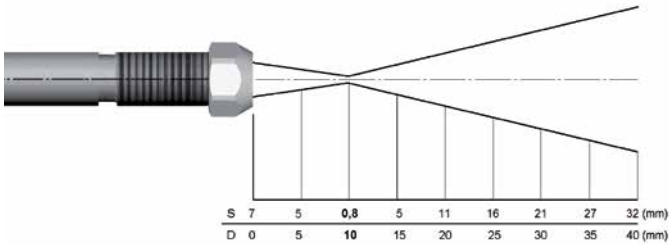
Controlador de temperatura
2 reles + SSR

Optical Specifications

Optics, D:S = 15:1

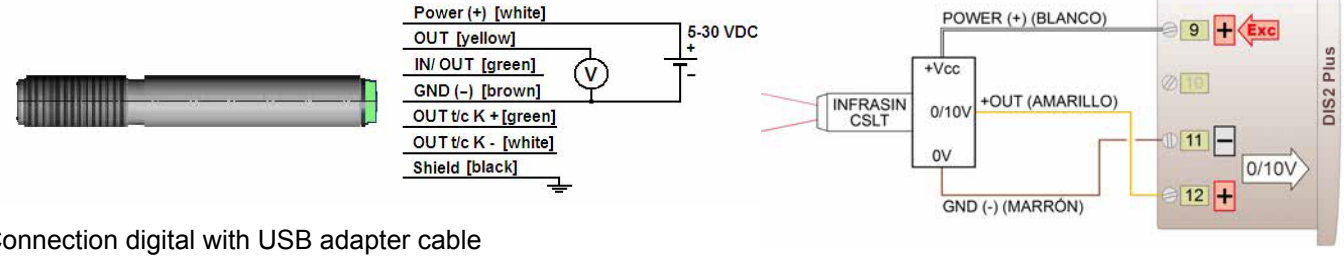


Optics with CF-lens, D:S = 15:1

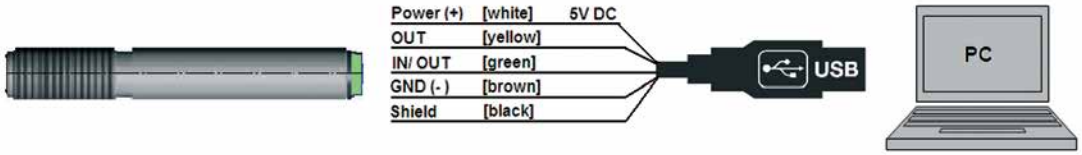


Connections

Connection analog with open collector alarm output

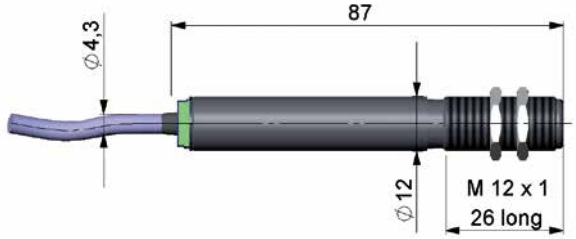


Connection digital with USB adapter cable

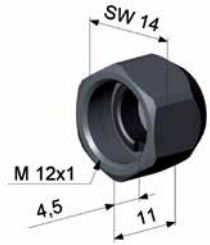


Dimensions/Accessories (examples)

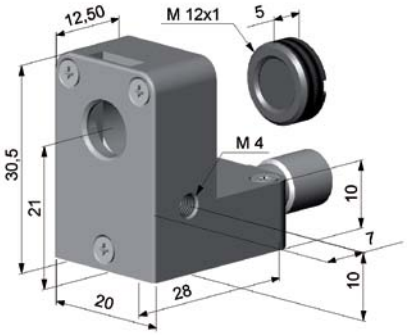
Dimensions CS



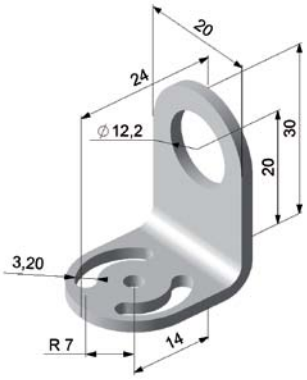
CF-lens (ACCTCF)



Air purge collar, optional with integrated CF-lens (ACCTAPLCF)



Mounting bracket, fixed (ACCTFB)



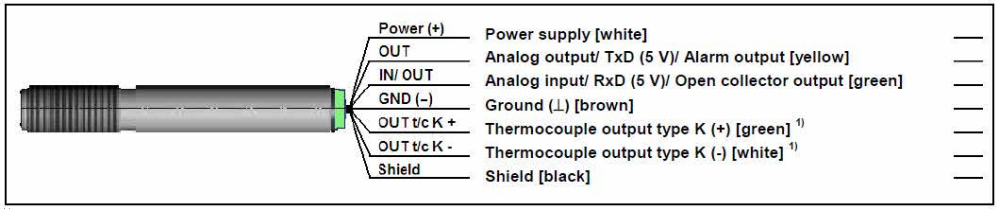
The sensors of the optris CS series are non¯contact infrared temperature sensors.
They calculate the surface temperature based on the emitted infrared energy of objects.

Scope of Supply

- CS incl. connection cable, two mounting nuts and Quick start guide

Cleaning: Blow off loose particles using clean compressed air. The lens surface can be cleaned with a soft, humid tissue moistened with water or a water based glass cleaner.

PLEASE NOTE: Never use cleaning compounds which contain solvents (neither for the lens nor for the housing).

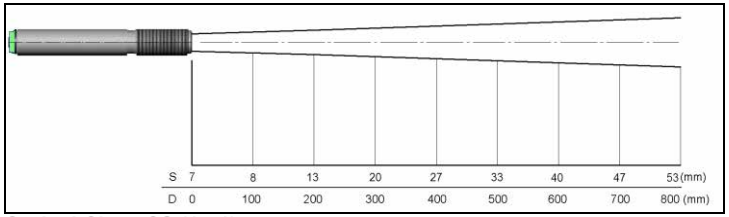


[1)] The t/c wires are indicated with an additional cable marker to avoid wrong connections due to the identical cable colors of other wires (white, green).

Technical Data

Ambient temperature	-20...80 °C
Storage temperature	-40...85 °C
Relative humidity	10...95 %, non condensing
Dimensions	M12x1, 85 mm long
Cable length	1 m (standard), 3 m, 8 m, 15 m
Output impedances (mV out)	min. 10 kΩ load impedance
Current draw	10 mA
Power supply	5...30 VDC
Temperature range	-40...1030 °C (scalable via software)
Spectral range	8...14 µm
Optical resolution	15:1
Accuracy [1) 2)]	±1,5 °C or ±1,5 % of reading (whichever is greater)
Warm-up time	10 min

[1)] at ambient temperature 23±5 °C and object temperatures >0 °C
[2)] Accuracy for thermocouple output: ±2,5°C or ±1%



Optical Chart CS (15:1)

Factory Default Settings

The unit has the following presetting at time of delivery:

Emissivity:	0,950
Transmission:	1,000
Average time:	0,3 s
Smart averaging:	active
Smart averaging hysteresis:	2 °C
Ambient temperature source:	internal (head)
Status-LED function:	Self diagnostic
Input (IN/ OUT/ green):	inactive
Output (OUT/ yellow):	mV output
Temperature range:	0...350 °C
Output voltage:	0...3,5 V
Thermocouple output:	inactive
Vcc adjust:	inactive
Signal processing:	Hold mode: off
Calibration:	Gain 1,000/ Offset 0,0
Failsafe:	inactive

The default settings can be changed with the optional USB kit (USB adapter cable + software). If the unit is supplied together with the USB kit the output is already preset to digital communication (bidirectional).

LED Functions

The green LED can be programmed for the following functions. For the programming the **USB adapter cable incl. software (option)** is necessary. The factory default setting for the LED is self diagnostic.

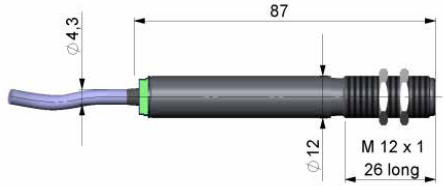
LED Alarm	LED lights up if the object temperature exceeds or deceeds an alarm threshold
Automatic aiming support	Sighting feature for an accurate aiming of the CS to hot or cold objects
Self diagnostic	LED is indicating different states of the sensor
Temperature Code indication	Indication of the object temperature via the LED
Off	LED deactivated

If activated, the LED will show one out of five possible states of the sensor:

Status	LED mode	
Normal	intermittent off	- - - -
Sensor overheated	fast flash	----------
Out of measuring range	double flash	-- -- -- -- -- --
Not stable	intermittent on	___ ___ ___ ___
Alarm fault	always on	_____

Mechanical Installation

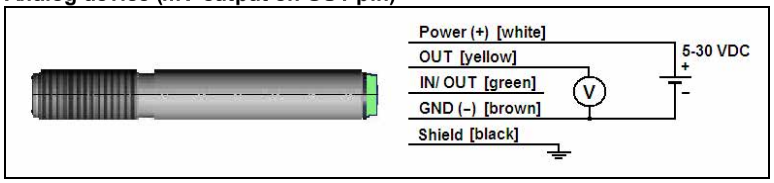
The CS is equipped with a metric M12x1 thread and can be installed either directly via the sensor thread or with the help of the both hex nuts (standard) to the mounting bracket available.



Electrical Installation

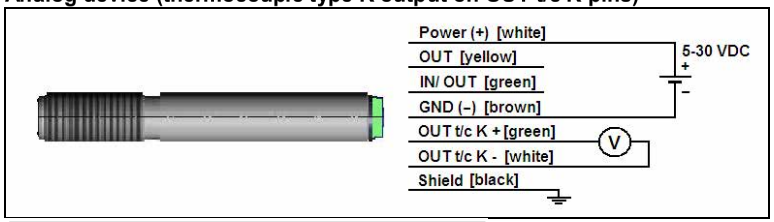
Please use a stabilized power supply unit with an output voltage in the range of **5–30 VDC** which can supply **100 mA**. The residual ripple should be max. **200 mV**.

Analog device (mV output on OUT pin)



The output impedance must be ≥ 10kΩ.

Analog device (thermocouple type K output on OUT t/c K pins)



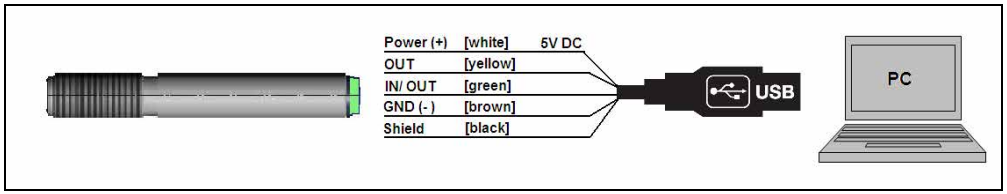
The output impedance must be ≥ 20 Ω.

IMPORTANT: The shield [black] on the CS is not connected to GND [brown].
In any case it is necessary to connect the shield to ground or GND (whichever works best)!

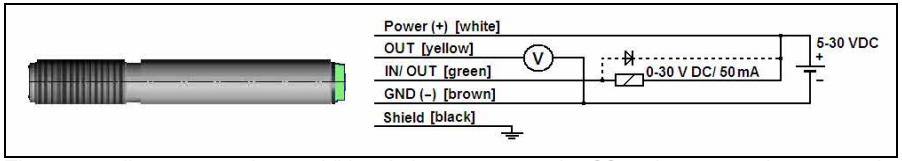
Digital communication

For a digital communication the optional USB programming kit is required.
The sensor is offering two ways of digital communication:

- bidirectional communication (sending and receiving data)
- unidirectional communication (burst mode – the sensor is sending data only)



Open collector output



The open collector output is an additional alarm output on the CS and can control an external relay e.g. In addition the analog output can be used simultaneously.

Software (optional)

Installation
Insert the installation CD into the according drive on your computer. If the autorun option is activated the **installation wizard** will start automatically.
Otherwise please start **setup.exe** from the CD-ROM. Follow the instructions of the wizard until the installation is finished.

The installation wizard will place a launch icon on the desktop and in the start menu.
If you want to uninstall the software from your system please use the uninstall icon in the start menu.

Main Features:

- Graphic display for temperature trends and automatic data logging for analysis and documentation
- Complete sensor setup and remote controlling
- Adjustment of signal processing functions
- Programming of outputs and functional inputs

You will find a detailed software manual on the CD.

Minimum system requirements:

- Windows XP, Vista, 7
- USB interface
- Hard disc with at least 30 MByte free space
- At least 128 MByte RAM
- CD-ROM drive

CE-Conformity

The product complies with the following standards:

EMC:	EN 61326-1:2006 (Basic requirements)
	EN 61326-2-3:2006
Safety:	EN 61010-1:2001

The product accomplishes the requirements of the EMC Directive 2004/108/EG and of the Low Voltage Directive 2006/95/EG.
This product is in conformity with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

CE

Warranty

Each single product passes through a quality process. Nevertheless, if failures occur please contact the customer service at once. The warranty period covers 24 months starting on the delivery date. After the warranty is expired the manufacturer guarantees additional 6 months warranty for all repaired or substituted product components. Warranty does not apply to damages, which result from misuse or neglect. The warranty also expires if you open the product. The manufacturer is not liable for consequential damage or in case of a non-intended use of the product.
If a failure occurs during the warranty period the product will be replaced, calibrated or repaired without further charges. The freight costs will be paid by the sender. The manufacturer reserves the right to exchange components of the product instead of repairing it. If the failure results from misuse or neglect the user has to pay for the repair. In that case you may ask for a cost estimate beforehand.