

CS20L8 Non-contact Infrared Temperature Sensor

Operator's Guide

CS20L8 non-contact infrared sensors measure temperature from 0°C to 1200°C and provide a RS485 Modbus output. They are suitable for most materials such as food, paper, textiles, plastics, leather, tobacco, pharmaceuticals, chemicals, rubber, coal and asphalt; but not materials with low emissivity, for example polished metals.

GENERAL SPECIFICATIONS

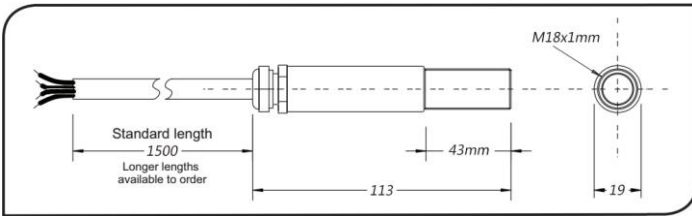
Part number	CS20L8-□□□
Measuring range	0~100/200/250...../1200°C
D:S	20:1
Accuracy	±1.5% or ±1.5°C(whichever is greater)
Emissivity	0.95(fixed)
Response time	240 ms (90% response)
Spectral response	8 to 14µm
Output	RS485 Modbus
Supply Voltage	5~30V DC

MECHANICAL SPECIFICATIONS

Construction	Stainless Steel
Dimensions	19mm diameter x 113mm length
Thread (sensing head)	M18x1
Cable length	1.5m as standard
Weight with 1.5m cable	180g

ENVIRONMENTAL SPECIFICATIONS

Environmental Rating	IP65
Ambient Temperature Range	0°C to 60°C
Relative Humidity	95% maximum non-condensing



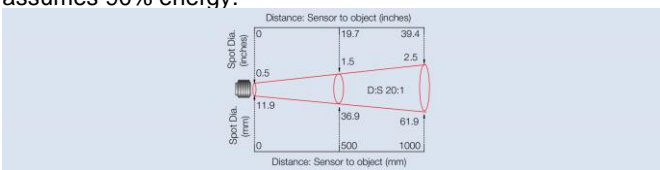
ACCESSORIES

A range of accessories to suit different applications and industrial environments is available. These may be ordered at any time. The accessories consist of the following parts.

- Fixed mounting bracket
- Adjustable mounting bracket
- Air purge collar
- Laser sighting tool

OPTICAL CHART

The optical chart below indicates the nominal target spot diameter at any given distance from the sensing head and assumes 90% energy.



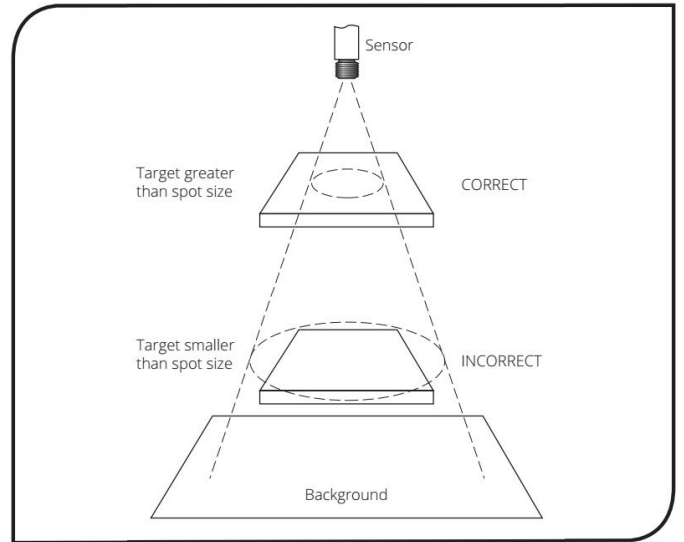
INSTALLATION

The installation process consists of the following stages:

Preparation Mechanical installation Electrical installation
Please read the following sections thoroughly before proceeding with the installation.

PREPARATION

Ensure that the sensor is positioned so that it is focused on the target only.



Distance and spot size

The size of the area (spot size) to be measured determines the distance between the sensor and the target. The spot size must not be larger than the target. The sensor should be mounted so that the measured spot size is smaller than the target.

Ambient temperature

The sensor is designed to operate in ambient temperatures from 0°C to 60°C. For ambient temperatures above 60°C, an air/water-cooled housing will be required.

Avoid thermal shock. Allow 20 minutes for the unit to adjust to large changes in ambient temperature.

Atmospheric quality

Smoke, fumes or dust can contaminate the lens and cause errors in temperature measurement. In these types of environment the air purge collar should be used to help keep the lens clean.

Electrical interference

To minimize electromagnetic interference or 'noise', the sensor should be mounted away from motors, generators and such like.

Wiring

Checking the distance between the sensor and the indicating/controlling device. If necessary, the CS20L8 sensor can be ordered with a longer cable attached.

Models with thermocouple output

When extending the cable, ensure thermocouple extension cable and connectors are used.

Power supply

Be sure to use a 5~30V DC (>25mA) power supply.

MECHANICAL INTALLATION

All sensors come with a 1.5m cable and a mounting nut. The

sensor can be mounted on brackets or cut outs of your own design, or you can use the fixed and adjustable mounting bracket accessories.

ELECTRICAL INSTALLATION

Output	Cable color	Function
RS485 Modbus	Red	+ 5~30V
	Black	GND
	Green	A (Data+)
	Yellow	B (Data-)
	Transparent	Shielded

OPERATING

Once the sensor is in position and the appropriate power, air, water, and cable connections are secure, the system is ready for continuous operation by completing the following simple steps:

1. Turn on the power supply
2. Turn on the meter, chart recorder or controller
3. Read/monitor the temperature.

IMPORTANT

Be aware of the following when using the sensor:

- If the sensor is exposed to significant changes in ambient temperature (hot to cold, or cold to hot), allow 20 minutes for the temperature to stabilize before taking or recording measurements.
- Do not operate the sensor near large electromagnetic fields (e.g. around arc welders or induction heaters). Electromagnetic interference can cause measurement errors.
- Wires must be connected only the appropriate terminals.
- Do not damage the cable, as this could provide a path for moisture and vapour into the sensor.
- Do not open the sensor housing. This will damage the sensor and invalidate the warranty.

Service Line

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