



s e n s o r t e c h n i k



# Catalog

Pyrometer and infrared sensors for non-contact  
temperature measurement in industrial applications

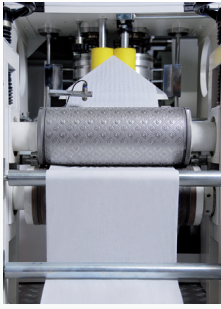
[www.novasens.com](http://www.novasens.com)

# Contents

## Page

- 3 Non-contact temperature measurement for various processes  
The advantages of non-contact temperature measurement using infrared measurement technology
- 4 Brief introduction of novasens Sensortechnik
- 5 Decision support: How to choose the right device configuration
- 6 Overview Basic Controller  
Controller options and accessories
- 7 Overview of the sensors
- 8 Optical resolution/beam path of the sensors  
Sensor options and accessories
- 9 Advantages of the novasens pyrometer
- 10 Our service for your advantage

# Non-contact temperature measurement for



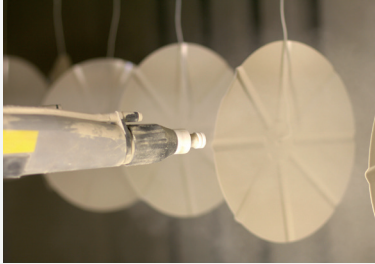
Paper production



Plastic injection molding and plastic molding



Glass production



Coatings



Solar industry



Mechanical engineering



Automotive industry



Steel processing

... and many other applications and processes.

## The advantages of non-contact temperature measurement using infrared measurement technology

- Fast measurement within a few milliseconds
- Measuring objects with a sensitive measurement surface are not affected or damaged
- Wear and tear of sensors with sliding contacts is a thing of the past, the sensor scans the surface contactless
- Temperature measurement of objects which are under high voltage
- Fast amortization of novasens pyrometer, since there is no more wearout of probes





Sales, manufacturing, research and development  
at the production site in Lueneburg/Germany

## Brief introduction of novasens Sensortechnik

Since 1991 novasens offers quality and reliable infrared temperature measuring instruments for non-contact temperature measurement and infrared adhesive application monitoring controller for adhesive application.

### We for you:

- Application consulting
- Contract manufacturing for special measurement tasks
- Calibration of infrared instruments and sensors
- Individual adjustment of the infrared pyrometers also for single pieces and small series
- Repairs of novasens equipment
- Short delivery time

The novasens infrared temperature measuring devices are used in the automobile industry, packaging industry, mechanical engineering, steel industry, in pharmaceuticals, plastics and injection molding and many other sectors.

# How to choose the right device configuration:

The novasens 2050 infrared temperature measurement system always consists of the following two components: the infrared temperature controller and the infrared temperature sensor.

Due to the simple and straightforward modular system all components can be configured for their individual operation purpose.

To find the appropriate device configuration, the following parameters are crucial:

Infrared Temperature Controller  
(See page 5)



Power supply basic controller:

24 VDC, 115VAC or 230VAC

In which temperature range do you want to measure or is your measuring object?

E.g. you want to monitor a plastic injection-molding form, which is heated to about 220° C. Then the temperature range 0-250 °C is offered for the base controller.

Signal output:

0-20mA, 4-20mA, 0-10Volt.  
By DIP switch selectable and switchable.

Do you need any one of the following options:

- Switch contact/relay potential free
- Optocouplers
- Adjustable measuring delay/measuring reassurance
- Hold function for retaining the last measured value
- Digital LED and switching displays for control without PLC

+

Infrared Temperature Sensor  
(See page 6)



What measurement distance do you have between the sensor and the measurement object?

Depending on the distance of the sensor to the measurement object there are sensors with and without optics to choose from.

How large is the area of your measurement object?

Depending on the size of the measuring spot, different sensors are offered (see page 7).

Measurement speed:

How fast does the sensor have to respond?

Environmental conditions of the sensor:

Is the sensor used under very harsh conditions in a surrounding with high temperatures with a lot of dust particles? Then we recommend the sensor option „air cooling and lens cleaning by compressed air“. The compressed air cools the sensor, protects and cleans at the same time the sensor lens of dirt particles.

Do you have any questions?

Phone: +49 (0) 4131-510 69  
We are looking forward to your call.

## Overview basic controller

The novasens 2050 infrared temperature measurement system is a very fast non-contact pyrometer with standard outputs for combination with temperature controllers, temperature

indicators and automatic plc's. Through a variety of configuration options the novasens 2050 can be adapted to individual measurement tasks.

### Power supply:

- 24 VDC (18-36)
- 115 VAC (U.S)
- 230 VAC

Configurable for every application by using a variety of sensor selection



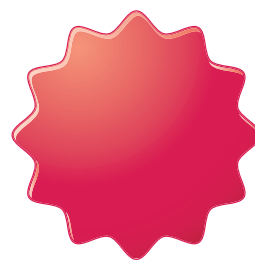
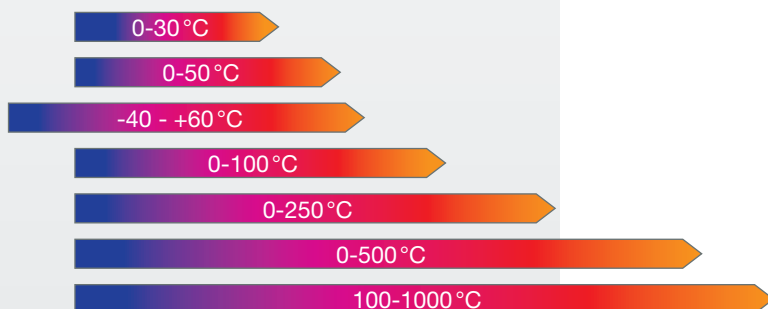
### Output:

Standard analog output signal:  
0-20 mA, 4-20 mA, 0-10 V  
selectable by DIP switch

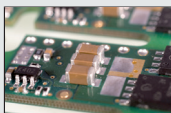
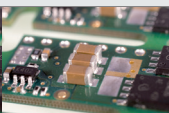
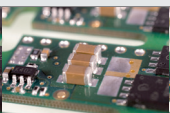
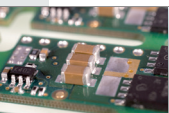


### Extras:

- Available as a single board for the cabinet installation
- Calibration/testing certificate

The controller is available in the following temperature ranges:



## Controller options and accessories

					
Switch contact/ relay potential free alarm contact	Optocouplers	Holdfunction 24VDC	Adjustable measuring delay/ measurement reassurance	Digital temperature display DP1001 with MIN/ MAX temperature limit values freely selectable MIN/MAX relay contacts potential free, 0-10VDC output input: 0-20 mA (4-20 mA optional) Mounting dimensions: 96x48mm	Digital temperature display DP1002 output: 0-10VDC Mounting dimensions: 96x48mm
ArtNr. 0200113	ArtNr. 0200115	ArtNr. 0200220	ArtNr. 0200210	ArtNr. 0200213(230VAC) ArtNr. 0200212(24VDC)	ArtNr. 0200228(230VAC) ArtNr. 0200229(24VDC)

## Overview sensors

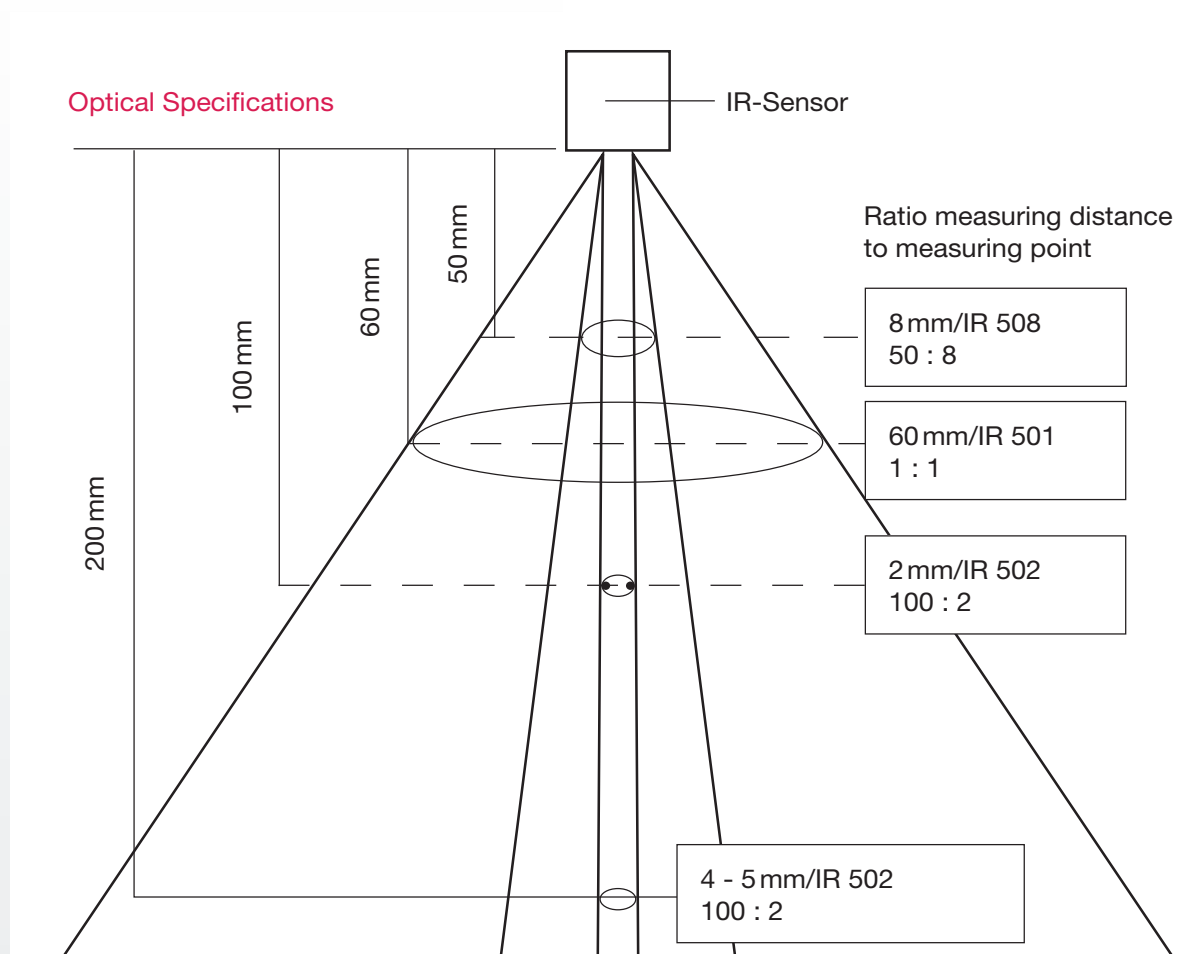
Model	IR502 G	IR502GAC	IR502GACV40	IR508 G	IR501	IR501AC
Short description	Precise sensor with germanium optics to detect small measurement spots across large measurement distances	Robust sensor with air cooling/lens cleaning by compressed air for use in very hot or very dirty environments	Data as sensor IR502GAC additionally with 40mm header pipe against pollution and interference	Data as IR502G with other optics for larger measurement spots	Small, compact sensor for detecting large measurement areas and measuring objects	Robust, small sensor with air cooling/lens cleaning by compressed air to capture large measurement areas and measuring objects
Measuring range	-40°C to +1000°C	-40°C to +1000°C	-40°C to +1000°C	-40°C to +1000°C	-40°C to +1000°C	-40°C to +1000°C
Spectral range	8-14µm	8-14µm	8-14µm	8-14µm	8-14µm	8-14µm
Emissivity correction	1,0 – 0,1 adjustable	1,0 – 0,1 adjustable	1,0 – 0,1 adjustable	1,0 – 0,1 adjustable	1,0 – 0,1 adjustable	1,0 – 0,1 adjustable
Dimensions	Length 62mm x 18mm diameter	Length 62mm x 18mm diameter	Length 100mm x 18mm diameter	Length 62mm x 18mm diameter	Length 43mm x 18mm diameter	Length 43mm x 18mm diameter
Permissible moisture	95% not condensing	95% not condensing	95% not condensing	95% not condensing	95% not condensing	95% not condensing
Permissible environment temperature	-20°C to +50°C	-20°C to +170°C (with air cooling)	-20°C to +170°C (with air cooling)	-20°C to +50°C	-20°C to +50°C	-20°C to +170°C (Air cooling)
Distance to measuring spot	100mm : 2mm	100mm : 2mm	100mm : 2mm	50mm : 8mm	1:1	1:1
Accuracy	+/- 1% of reading	+/- 1% of reading	+/- 1% of reading	+/- 1% of reading	+/- 1% of reading	+/- 1% of reading
Repeat accuracy	0,5°C (0-100°C) 1,0°C (over 100°C)	0,5°C (0-100°C) 1,0°C (over 100°C)	0,5°C (0-100°C) 1,0°C (over 100°C)	0,5°C (0-100°C) 1,0°C (over 100°C)	0,5°C (0-100°C) 1,0°C (over 100°C)	0,5°C (0-100°C) 1,0°C (over 100°C)
Reaction time	60ms	60ms	60ms	60ms	40ms	40ms
Resolution	1/10°C	1/10°C	1/10°C	1/10°C	1/10°C	1/10°C
Outputs	0-20mA, 4-20mA, 0-10V	0-20mA, 4-20mA, 0-10V	0-20mA, 4-20mA, 0-10V	0-20mA, 4-20mA, 0-10V	0-20mA, 4-20mA, 0-10V	0-20mA, 4-20mA, 0-10V
Weight	170 Grams	190 Grams	210 Grams	170 Grams	160 Grams	180 Grams
Sensor cable length	3m (extendable up to 40m)	3m (extendable up to 40m)	3m (extendable up to 40m)	3m (extendable up to 40m)	3m (extendable up to 40m)	3m (extendable up to 40m)
Protection class	IP64	IP64	IP64	IP64	IP54	IP64
Conformity	CE, RoHS	CE, RoHS	CE, RoHS	CE, RoHS	CE, RoHS	CE, RoHS
Article number	0200231	0200236	0200241	0200209	0200207	0200208

## Sensor variants





Model	IR502GS/ IR508GS	IR502GW	IR508GAC	IR501SWL	IR501S	IR501ACS
Short description	Data as IR502G/IR508G with faster response time of 5ms	Side-entry cable for sensor IR502G and IR508G for use in confined environments	Data such as sensor IR508, hot air cooling / lens cleaning by compressed air for use in very hot or polluted environments	Data as IR501, extra fast response time of 3ms Rectangular spot: 4x13 mm Measuring distance: 5-100 mm	Data as IR501 extra fast response time of 3ms	Data as IR501AC extra fast response time of 3ms
Article number	0200232	0200237	0200240	0200288	0200287	0200233



## Optical resolution / beam path of the sensors



## Sensor options and accessories

					
Steel braided/ casing/shielding line optional for all sensors	Water cooled sensor housing for use in very hot environ- ment temperatures, or directly on a heat source. For all sensors	Dust protection tube 40mm against contamination and interference, for the sensors IR502GAC and IR508GAC	Sensor cable extension including connections, per meter	Robot cable for use on robots and drag chains, per meter	Replacement air filter F110 for all novasens sensors with air cooling and lens cleaning with compressed air
ArtNr. 0200238	ArtNr. 0200239	ArtNr. 0200211	ArtNr. 0200225	ArtNr. 0200289	ArtNr. 0200215



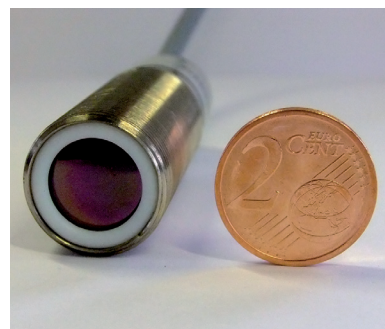
# Advantages of novasens pyrometer



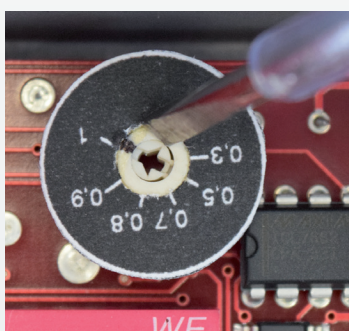
High quality sensor optics made of germanium - Resistant to environmental influences, precise in measurement



Easy change of the sensor and the evaluation unit by threaded connector also possible during ongoing operating



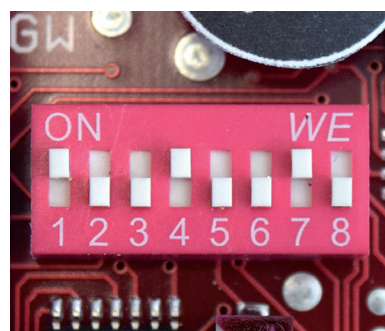
Small compact sensors also suitable for installation in limited space



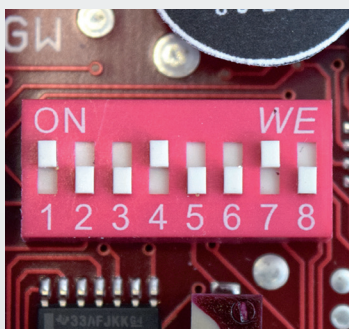
Comfortable setting and adjustment of the emissivity on the measurement object



Robust and compact controller housing



Easy choice of sensor output signal between 0-20 mA, 4-20 mA, 0-10 V by DIP switch



Simple change of the temperature measuring range e.g. from 0-100 ° C to 0-250 ° C per DIP-switch

# Our service for your advantage

## Repair

Repair and maintenance of novasens infrared measuring instruments, temperature sensors and pyrometers. Quotation for repairs on request.

## Calibration and calibrationpaper

The novasens infrared measuring instruments are calibrated at the factory in our state of the art calibration laboratory. We provide a calibration certificate upon request.

## Test equipment

We will gladly provide a test device for a test installation for free for a limited time.

## Loan equipment

In order to simplify the exchange of a device during operation, you can request a loan device.

## Fast delivery time

Fast delivery of the pyrometer and sensors.

## Custom made solutions

In the last 20 years we have planned, developed and implemented a variety of special designs for our customers.

## Warranty

Beyond the statutory warranty period of 6 months, we offer a total of 2 years warranty on material and workmanship.



novasens Sensortechnik Heuer  
Otto-Brenner-Str. 13-15  
21337 Lueneburg | Germany

Tel +49 (0)4131 510 69  
Fax +49 (0)4131 5 63 24  
info@novasens.de  
www.novasens.com

We are looking forward to your call.

Distributor

Free testing  
device upon  
request.