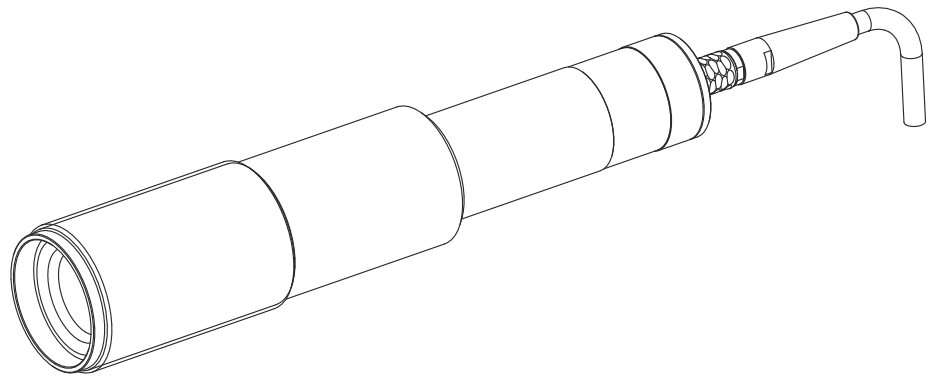


Operating instructions

OT1317 Pyrometer

Optical thermometer for temperature measurement



Introduction

Endress+Hauser pyrometers provide the most advanced temperature measurement system available today. This system is designed to provide you with very precise and stable temperature readings. With numerous features and options, it can be customized for many different applications. Please contact Endress+Hauser if you have any questions regarding your temperature measurement needs or the use of this instrument. Endress+Hauser has technical support staff with extensive experience in all aspects of temperature measurement and temperature control, and will be happy to provide assistance in solving your temperature measurement challenges: **Pyrometer@wetzer.endress.com**

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1 About this document

1.1 Document function

These Operating Instructions contain all the information that is required in various phases of the life cycle of the device: from product identification, incoming acceptance and storage, to mounting, connection, operation and commissioning through to diagnostics and troubleshooting.

1.2 Safety symbols

Symbol	Meaning
 DANGER	DANGER! This symbol alerts you to a dangerous situation. Failure to avoid this situation will result in serious or fatal injury.
 WARNING	WARNING! This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in serious or fatal injury.
 CAUTION	CAUTION! This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or medium injury.
 NOTICE	NOTE! This symbol contains information on procedures and other facts which do not result in personal injury.

1.3 Symbols for certain types of information

Symbol	Meaning
	Permitted Indicates procedures, processes or actions that are permitted.
	Preferred Indicates procedures, processes or actions that are preferred.
	Forbidden Indicates procedures, processes or actions that are forbidden.
	Tip Indicates additional information.
	Reference to documentation Refers to the corresponding device documentation.
	Reference to page Refers to the corresponding page number.
	Reference to graphic Refers to the corresponding graphic number and page number.
	Series of steps
	Result of a sequence of actions
	Help in the event of a problem
	Visual inspection

1.4 Electrical symbols

Symbol	Meaning
	Direct current A terminal to which DC voltage is applied or through which direct current flows.
	Alternating current A terminal to which alternating voltage is applied or through which alternating current flows.
	Direct current and alternating current ▪ A terminal to which alternating voltage or DC voltage is applied. ▪ A terminal through which alternating current or direct current flows.
	Ground connection A grounded terminal which, as far as the operator is concerned, is grounded via a grounding system.
	Protective ground connection A terminal which must be connected to ground prior to establishing any other connections.
	Equipotential connection A connection that has to be connected to the plant grounding system: This may be a potential equalization line or a star grounding system depending on national or company codes of practice.

2 Basic safety instructions

2.1 Requirements for the personnel

The personnel for installation, commissioning, diagnostics and maintenance must fulfill the following requirements:

- ▶ Trained, qualified specialists must have a relevant qualification for this specific function and task
- ▶ Are authorized by the plant owner/operator
- ▶ Are familiar with federal/national regulations
- ▶ Before beginning work, the specialist staff must have read and understood the instructions in the Operating Instructions and supplementary documentation as well as in the certificates (depending on the application)
- ▶ Following instructions and basic conditions

The operating personnel must fulfill the following requirements:

- ▶ Being instructed and authorized according to the requirements of the task by the facility's owner-operator
- ▶ Following the instructions in these Operating Instructions

2.2 Designated use

This optical thermometer, in general also known as a pyrometer, is a device that measures light and is calibrated to indicate temperature. The optical thermometer detects the radiant flux from a hot object and utilizes an algorithm to calculate the surface temperature of the object. The algorithm used is based on the Planck Blackbody Radiation Equation. (→  18,  38)

2.3 Operational safety

Risk of injury.

- ▶ Operate the device in proper technical condition and fail-safe condition only.
- ▶ The operator is responsible for interference-free operation of the device.

Conversions to the device

Unauthorized modifications to the device are not permitted and can lead to unforeseeable dangers.

- ▶ If, despite this, modifications are required, consult with Endress+Hauser.

Repair

To ensure continued operational safety and reliability,

- ▶ Carry out repairs on the device only if they are expressly permitted.
- ▶ Observe federal/national regulations pertaining to repair of an electrical device.
- ▶ Use original spare parts and accessories from Endress+Hauser only.

2.4 Product safety

This measuring device is designed in accordance with good engineering practice to meet state-of-the-art safety requirements, has been tested, and left the factory in a condition in which it is safe to operate.

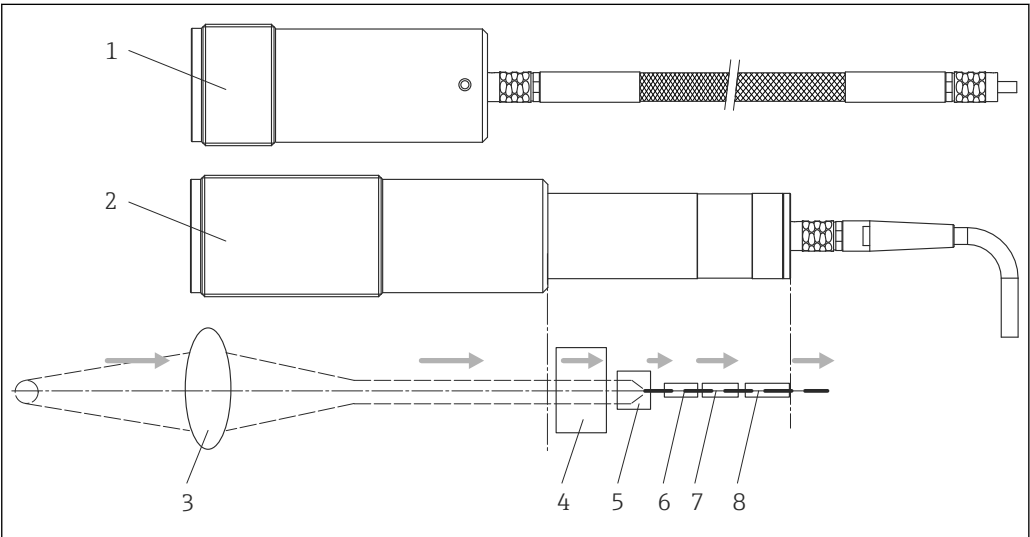
It meets general safety standards and legal requirements. It also complies with the EC directives listed in the device-specific EC Declaration of Conformity. Endress+Hauser confirms this by affixing the CE mark to the device.

3 Product description

Endress+Hauser optical thermometers provide many advantages for optically based temperature measurement:

Feature	Description
The ability to measure small signals and lower temperatures at short wavelengths	Careful design and use of an advanced amplifier circuit enables measurement of signals as small as 10^{-15} amps from the photo detector. The ability to measure smaller signals enables the measurement of lower temperatures while using short wavelengths. Short wavelengths significantly reduce emissivity errors and are ideal for many applications. (→  20,  40)
High resolution with measurements to 0.01°C	Precise amplification also means less electrical noise, and therefore lowers noise in the temperature measurements. This enables measurement and control of smaller changes in the process temperatures, leading to more stable process control and higher yields.
High speed, digital readings up to 1,000 readings per second	The instrument can provide temperature readings ranging from one reading per minute all the way up to 1,000 readings per second. In addition, the instrument performs all the A/D conversions internally, so each instrument provides a digital signal output. Endress+Hauser also offers an analog output module for applications where a proportional to temperature current or voltage output is desired.
The ability to read a wide range of temperatures. From 125 to 3 000 °C (257 to 5 432 °F)	The electronics design also allows a wider range of temperatures to be measured. Typically, hot objects from about room temperature, e. g. 125 °C (257 °F) to 1 000 °C (1 832 °F) can be measured.
Low-drift electronics	Special care has been taken in the selection and design of components to minimize drift in the electronics. This has resulted in electronics drift of only 0.10 °C (0.18 °F) or less per year.
A highly compact design which provides flexibility in placement and eliminates the need for fiber-optic cables	The small package with world-class performance allows the pyrometer to be placed close enough to hot objects to eliminate the need for long flexible fiber-optic elements required by other systems. This is critical since approx. 80% of the light (and therefore about 80% of the signal) can be lost when fiber-optic cables are used to transmit light to the photo detector. In applications where fiber optic cables are required, the sensitive electronics still provide a significant advantage and we offer a full line of flexible quartz fiber-optic cables for those situations where they are needed.

3.1 Overview



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 1 Components of the optical thermometer's probe head

- 1 Probe head without integrated electronics
- 2 Probe head with integrated electronics
- 3 Collection optics
- 4 Wavelength selective filters
- 5 Photo detector
- 6 Amplifier
- 7 Signal processor
- 8 Signal output

以上内容仅为本文档的试下载部分，为可阅读页数的一半内容。如要下载或阅读全文，请访问：<https://d.book118.com/798000130045006076>