

**TEST EQUIPMENT
FOR MAINTENANCE
AND SERVICE**



PCE Instruments

Discover our new test instruments and their functions



PCE
INSTRUMENTS

TESTING MEASURING INSTRUMENTS

TEST INSTRUMENTS FROM GERMANY

Maintenance and Service

PCE Deutschland GmbH, based in Meschede-Freienohl in the Sauerland region of Germany, was founded in 1999 by three engineers. With more than 140 employees and locations worldwide, PCE Instruments specialises in the development, manufacture and sale of high-performance, innovative products in the fields of measurement technology, control technology, weighing technology and laboratory technology.

PCE Deutschland GmbH is **DIN EN ISO 9001** and **DIN EN ISO 14001** certified and manufactures test equipment that is customised to meet specific customer requirements. PCE Instruments supplies to customers in the government, industrial and academic sectors, among others.

PCE Instruments' comprehensive range of products and services offers you high precision and flexibility in all applications, as well as outstanding quality and functionality. Take a look at the categories in the overview.

MEASURING INSTRUMENTS

The field of measuring instruments covers a multitude of innovative portable products as well as products for fixed installation that measure electrical, mechanical, biological and chemical parameters.

CONTROL SYSTEMS

The range of control systems covers the complete demand for sensors, displays, controllers and paperless recorders.

WEIGHING EQUIPMENT

The field of weighing equipment comprises a wide standard range of high-quality scales and balances that can be calibrated and/or verified for trade.

LABORATORY TECHNOLOGY

High-end analytical and laboratory devices have been developed for professional applications and in particular for use in laboratories.

DEVELOPMENT

In order to develop modified test equipment in line with customers' specifications, proficient engineers and technicians cooperate closely with the customer.

PRODUCTION

PCE Instruments manufactures industrial test instruments that help improving process analysis and optimisation.

CALIBRATION

Our DIN EN ISO 9001:2015 certified calibration laboratory verifies the measuring accuracy of our products. They calibrate pressure, hardness, force, material thickness, sound volume, conductivity, redox, vibration acceleration and more.



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THERMAL INSPECTION THERMOGRAPHY TEST INSTRUMENT

PCE-TC 28

Measuring range -20 ... +300 °C / emissivity adjustable

The infrared camera was designed for taking non-contact temperature measurements. To get accurate readings, the emissivity of the infrared camera can be adjusted, depending on the operation purpose. Besides taking infrared images, the infrared camera can also take normal pictures, as well as a mixture of both, due to the built-in digital camera. This makes it easier for the operator to aim at the

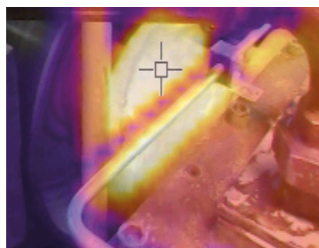
target and to recognize and locate hotspots. The infrared camera is well-suited for a large variety of applications. This includes monitoring of machinery, building inspection or different applications in the hobby and leisure domain, for example. The infrared camera comes with a built-in SD card slot for Micro SD cards.

ISO cal option

- » built-in digital camera
- » adjustable emissivity
- » fast sampling time
- » MIN/MAX indication
- » exchangeable Li-ion battery
- » auto power-off function
- » TFT display with backlight
- » protective cap for the lens



APPLICATION



TECHNICAL SPECIFICATIONS

Temperature

Measurement range	-20 ... 300°C / -4 ... 572°F
Accuracy	± 2%, ± 2°C / 3.6°F
Emissivity correction on screen	Yes
Setting of background temperature	Yes

Image

Frequency image recording	9 Hz
Type of detector	Uncooled pyroelectric ceramics
Thermal sensitivity	≤150 mK
Infrared spectral band	6.5 ... 14 µm
Camera	32 x 31 Pixel
Field of view	38 x 38°
Mechanism of focus	Fixed focus

Parallax correction of visual and IR image	0.5 m / 19.7 in, 1.0 m / 39.4 in, 2.0 m / 78.7 in, 3.0 m / 118.1 in
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Picture-in-picture coverage of visual and IR image	0 / 25 / 50 / 75 / 100%
Hot / cold spot localisation	Yes

Image recording and data storage

Image recording	Image can be viewed before saving
Storage medium	MicroSD card can save 6000 images per GB
File format	bmp
Memory view	Possibility to scroll through all saved images
Operating temperature	0 ... 50°C / 32 ... 122°F
Storage temperature	-20 ... 60°C / -4 ... 140°F
Relative air humidity	10 ... 90%, non-condensing
Display	2.2" diagonal, (320 x 240 TFT LCD)

Emissivities

Material

Asphalt	0.90 ... 0.98
Fabric (black)	0.98
Concrete	0.94
Human skin	0.98
Cement	0.96
Foam	0.75 ... 0.80
Sand	0.90
Coal	0.96
Soil	0.92 ... 0.96
Lacquer	0.80 ... 0.95
Water	0.92 ... 0.96
Lacquer (matt)	0.97
Ice	0.96 ... 0.98
Rubber (black)	0.94
Snow	0.83
Plastics	0.85 ... 0.95

Thermal emissivity

Glass	0.90 ... 0.95
Wood	0.90
Ceramics	0.90 ... 0.94
Paper	0.70 ... 0.94
Marble	0.94
Chromium (oxidised)	0.81
Plaster	0.80 ... 0.90
Copper (oxidised)	0.78
Mortar	0.89 ... 0.91
Iron (oxidised)	0.78 ... 0.82
Brick	0.93 ... 0.96
Textiles	0.90



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THERMAL INSPECTION THERMAL IMAGER

PCE-TC 30N

Temperature range -20 ... 450°C / -4 ... 842°F / Resolution 160 x 120 pixels

The PCE-TC 30N thermal imaging camera for preventive maintenance is the ideal tool for preventative maintenance. This thermal imaging camera is a must-have for electricians, fitters, or general maintenance personnel for trouble shooting and fault prevention on electrical equipment, electromechanical equipment, production process machinery, heating, ventilation, and air conditioning systems, espe-

cially when working in harsh environments. The operator can use the PCE-TC 30N high-resolution thermal imaging camera for preventive maintenance, to detect evolving faults on machinery and equipment. The preventive maintenance and service is thus made easy.

ISO cal option

- » IR resolution: 160 x 120 pixels
- » measuring range: -20 ... 450°C / -4 ... 842°F
- » thermal sensitivity: 70 mK
- » memory: 3 GB memory for more than 20,000 pictures
- » 5 different color palettes
- » hot and cold spot location
- » picture in picture function



APPLICATION



TECHNICAL SPECIFICATIONS

Infrared sensor

Resolution	160 x 120 pixels
Wavelength	8 ... 14 µm
Thermal sensitivity	70 mK
Refresh rate	9 Hz
Field of view (FOV)	35 ° x 26 °
Focusing	Firm focus
Smallest distance	0.15 m / 5.9 in
Temperature range	-20 ... 450 °C / -4 ... 842 °F
Accuracy	±2 °C / 3.6 °F, ±2 % From 300 °C / 572 °C, ±5 %

Calibration of the measurement Auto

Number of spots	1
Number of measuring ranges	1
Emissivity	Range: 0.01 ... 1.00
Color palettes	Rainbow, iron oxide red, cold color, black & white, white & black

Other specifications

Picture in picture function	Adjustable 25 %, 50 %, 75 %, 100 %
Camera resolution	300,000 pixels
Screen	2.8" TFT
Screen resolution	320 x 240 pixels
Image memory	Built-in SD card with 3 Gb for more than 20,000 images
Image format	JPG
Power supply battery	Built-in 18650 battery, about 2800-mAh
Power supply power supply	Primary: 100 ... 240 V AC 50/60 Hz Secondary: 5 V / 2 ADC
Interface	Micro USB for charging and memory readout on a PC
Operating time	Between 2 ... 3 hours
Menu languages	English, Chinese, Italian, German
Automatic shutdown	After 5, 20 minutes or disabled
Ambient temperature	0 ... 45 °C / 32 ... 113 °F
Storage conditions	-20 ... 60 °C / -4 ... 140 °F
Humidity	≤ 85% RH (non-condensing)
Dimensions	96 x 72 x 226 mm / 3.8 x 4.1 x 8.9 in
Weight	389 g / < 1 lb



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THERMAL INSPECTION THERMAL IMAGING CAMERA

PCE-TC 32N

With photo and video function / measuring range -20 ... +550 °C

The thermal imaging camera has a measuring range of -20 ... +550 °C. This means that the thermal imaging camera already covers a wide temperature range of measurement tasks. With an image frequency of 25 Hz, problems can be localised quickly with the thermal imaging camera. The picture-in-picture function allows the real image to be displayed simultaneously with the thermal image. The app enables

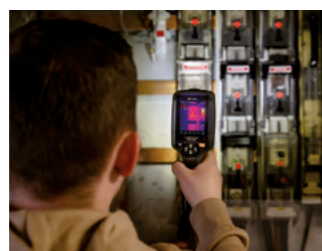
a clear display and operation of the thermal imaging camera. When connecting the thermal imaging camera to a PC, there are two different functions that can be selected in advance in the settings. With the "PC Connection" setting, the thermal imaging camera is recognised as a mass data storage device.



ISO cal option

- » software for evaluating the recordings
- » measuring range -20 ... +550 °C
- » picture-in-picture function
- » eight different thermal image representations
- » video and photo recording
- » optionally with ISO calibration certificate

APPLICATION



TECHNICAL SPECIFICATIONS

Measuring function

Measuring range	-20 ... 550 °C / -4 ... +1022 °F
Resolution	0,1 °C / 0,1 °F
Accuracy	±2 °C / 3,6 °F at an ambient temperature between 10 ... 35 °C and an object temperature of >0 °C

Sensor characteristics

Field of view (FOV)	50° x 37°
Depth of field of view	from 0.5 m
pixel density (IFOD)	7,6 mrad
Thermal sensitivity	<0,06 °C bei +30 °C / 60 mK

Frame rate

Image sensor	25 Hz
Spectral range	uncooled microbolometer
Infrared resolution	7,5 ... 14 µm
Measuring points	256 x 192 pixels
	Average point, automatic recognition of the hottest and coldest measuring point
Measurement correction	Reflection of temperature, adjustment of emission value
Image sensor	2 mega pixels
Field of view (FOV)	65°

Video recording

Storage capacity	8 GB on micro SD card, 3.4 GB internal memory
Recording time	>30 minutes
Format Standard	MPEG-4, 240 x 320 pixels, 30 Hz
Recording mode	Infrared and/or real image recording

Image recording

Storage format	.jpeg or .hir with measurement data.
Storage capacity	>6000 images

Interface

Cable connection	USB-C with charging and for data transfer
Wireless	Wi-Fi 802.11

Further specifications

Power supply	5 V DC, 1 A
Power supply (battery)	3,7 V DC, 2600 mAh, 9,62 W (18650)
Power off Automatic	5, 10, 15, 30 minutes or permanently switched on

Connection thread	1/4" photo tripod
Display	2.8" LC display
Display resolution	240 x 320 pixels
Colour palette	Iron, rainbow, black white, black white (inverted) brown, blue red, hot-cold, feather

Zoom	1 ... 16x digital zoom
Operating conditions	-15 ... +50 °C, 5 °F ... 122 °F
Storage conditions	-40 ... +70 °C, -40 ... +158 °F
Ambient humidity	10 ... 90 % r. F., non-condensing
Dimensions	224 x 77 x 96 mm
Weight	423 g



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THERMAL INSPECTION DIGITAL THERMOMETER

PCE-TC 33N

Measuring range up to 300 °C / Thermal sensitivity 70 mK

The infrared thermometer PCE-TC 33N is the ideal tool for repair work and prevention measures. This thermal imager is a must-have for electricians, fire fighters, locksmiths, or general service personnel for trouble shooting and fault prevention on electrical equipment, electromechanical equipment, production process machinery, heating, ventilation, and air conditioning systems, especially when working

in harsh environments. In preventative maintenance, the high-resolution PCE-TC 33N thermal imager is ideal for maintaining or repairing machinery or other equipment. At the heart of the PCE-TC 33N high-resolution thermography camera is an uncooled microbolometer (uncooled focal plane array) with a resolution of 220 x 160 pixels.

ISO cal option

- » IR resolution: 220 x 160 pixels
- » measuring range: -20 ... 300 °C / -4 ... 572 °F
- » thermal sensitivity: 70 mK
- » memory: 3 GB memory for more than 20,000 pictures
- » 5 different color palettes
- » hot and cold point location
- » picture in Picture function



APPLICATION



TECHNICAL SPECIFICATIONS

Infrared sensor

Resolution	220 x 160 pixels
Wavelength	8 ... 14 μm
Thermal sensitivity	70 mK
Refresh rate	9 Hz
Field of view (FOV)	35 ° x 26 °
Focusing	Firm focus
Smallest distance	0.15 m / 5.9 in
Temperature range	-20 ... 300 °C / -4 ... 572 °F
Accuracy	±2 °C / 3.6 °F, ±2 %
Calibration of the measurement	Auto
Number of spots	1
Number of measuring ranges	1
Emissivity	Range: 0.01 ... 1.00
Color palettes	Rainbow, iron oxide red, cold color, black & white, white & black

Other specifications

Picture in picture function	Adjustable 25 %, 50 %, 75 %, 100 %
Camera resolution	300,000 pixels
Screen	3.2" TFT
Screen resolution	320 x 240 pixels
Image memory	Built-in SD card with 3 Gb for more than 20,000 images
Image format	JPG
Power supply battery	Built-in 18650 battery, about 2800-mAh
Power supply power supply	Primary: 100 ... 240 V AC 50/60 Hz Secondary: 5 V / 2 ADC
Interface	Micro USB for charging and memory readout on a PC
Operating time	Between 2 ... 3 hours
Menu languages	English, Chinese, Italian, German
Automatic shutdown	After 5, 20 minutes or disabled
Ambient temperature	0 ... 45 °C / 32 ... 113 °F
Storage conditions	-20 ... 60 °C / -4 ... 140 °F
Humidity	≤85 % RH (non-condensing)
Dimensions	90 x 103 x 223 mm / 3.5 x 4.1 x 8.8 in
Weight	424 g / < 1 lb



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THERMAL INSPECTION THERMAL IMAGER

PCE-TC 34N

With 3 GB memory / Measuring range -20 ... 300 °C

The thermal imager has a resolution of 320 x 240 pixels. With a measuring range of -20 ... 300 °C, the thermometer already covers a large temperature range. In order to carry out measurements on different surfaces, the emission value of the thermometer can be set between 0.01 ... 1.00. During the measurement, the coldest and the hottest temperature of the surface at which the thermometer

is pointed are displayed in addition to the spot temperature. For a better analysis of the temperature, the thermal image displayed on the thermal imager can be displayed in five different color palettes: rainbow, iron, cold colors, white-black (+inverted).

ISO cal option

- » measuring range -20 ... 300 °C / -4 ... 572 °F
- » storage for about 20,000 images
- » picture in picture function
- » field of view 35° x 26°
- » USB-C interface for transmission
- » different color palettes
- » removable 18650 battery
- » automatic shutdown



APPLICATION



TECHNICAL SPECIFICATIONS

Measuring range	-20 ... 300 °C / -4 ... 572 °F
Resolution	0.1 °C / 0.1 °F
Accuracy	±2 % of measured value or ±2 °C / ±3.6 °F the larger value applies
Infrared and real image resolution	320 x 240 pixels
Picture in picture	5 steps
Field of View (FOV)	35° x 26°
Depth of field	>0.15 m / 0.49 ft
Emission range	0.01 ... 1.00
Refresh rate	9 Hz
Wavelength	8 ... 14 µm
Focus	fixed
Color palette	rainbow, iron, cold colors white-black (+inverted)
Display	3.5" TFT color display
Memory	3 GB for ca. 20,000 images
Image format	JPG
Interface	USB-C for charging and data transfer
Auto power off	off / 5 minutes / 20 minutes
Power supply (battery)	3.7 V, 2600 mAh, type 18650
Power supply (mains power adapter)	primary: 100 ... 240 VAC, 50 / 60 Hz secondary: 5 VDC, 2 A
Operating time with battery	min. 2 hours
Menu languages	English, German, Chinese, Italian
Storage conditions	-20 ... 60 °C / -4 ... 140 °F, <85 % RH non-condensing
Ambient conditions	0 ... 45 °C / 32 ... 113 °F, <85 % RH non-condensing
Tripod mount	1/4"
Dimensions	221 x 96 x 88 mm / 8.7 x 3.7 x 3.4"
Weight	372 g / 13 oz



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THERMAL INSPECTION THERMAL IMAGING CAMERA

PCE-TC 38

With memory for over 40000 images / 5 different colour palettes

Our Thermal Imaging Camera offers reliable temperature measurement within a range from -20 °C to 550 °C (-4 °F to 1022 °F). The infrared images are displayed with a resolution of 384 x 288 pixels on the 3.5-inch colour display. The compact and user-friendly design of the Thermal Imaging Camera features an ergonomic handle and an intuitive key control system directly below the screen for easy operation.

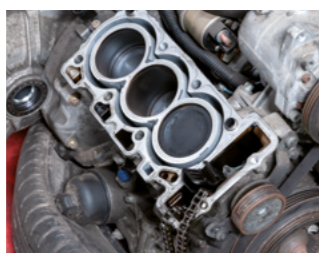
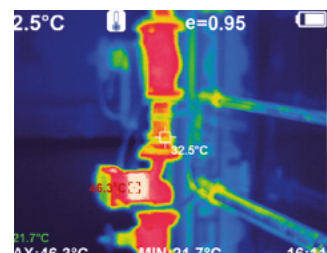
The camera offers multiple colour palettes, including rainbow and iron oxide red, as well as various viewing options to accurately capture thermal data. With a thermal sensitivity of 0.06 °C and an adjustable emissivity of 0.01 to 1.0, even subtle temperature differences can be detected. It saves more than 40000 images in the internal 6 GB memory in JPG format.

ISO cal option

- » infrared image resolution: 384 x 288 pixels
- » internal memory for over 40000 images
- » image format: JPG
- » WiFi image transmission
- » 5 different colour palettes
- » automatic power-off



APPLICATION



TECHNICAL SPECIFICATIONS

Temperature	
Measurement range up to	-20 ... +550 °C
Resolution	0,1 °C
Accuracy	<0 °C: ±3 % >0 °C: ±2 °C or ±2 %
Temperature	
Measurement range up to	-4 ... +1022 °F
Resolution	0,1 °F
Accuracy	<32 °F: ±3 % >32 °F: ±2 °F oder ±2 %
General technical data	
Units	°C, °F
Display type	TFT colour display
Display size	3,5 Inch
Display resolution	640 x 480 pixels
Measuring rate	25 Hz
Storage medium	Internal memory
Storage capacity	6 GB
Memory capacity (additional information)	for approx. 40000 images
Interface	Micro-USB, WiFi
Resolution	Infrared image: 384 x 288 pixels
Operating time	4 h
Automatic power-off from...to	5 ... 20 min.
Automatic power-off can be deactivated	Yes
Emissivity from/to	0.01 ... 1
Wavelength range	8 ... 14 µm
Field of vision (FOV)	28.4° x 21.4°/ 13 mm
Colour palette	Rainbow, Iron, Cold colours, white-black (+inverted)
Image / video format	JPG
Thermal sensitivity	0,06 °C
Menu language	German, English, Italian, Chinese
Protection class (device)	IP20
Power supply	100 ... 240 V AC 50/60 Hz
Connector type	Euro plug
Weight	634 g
Operating conditions	0 ... 45 °C, 0 ... 85 % RH
Storage conditions	-20 ... 60 °C, 0 ... 85 % RH
Capacity	5000 mAh
Dimensions (L x W x H)	245 x 97 x 110 mm

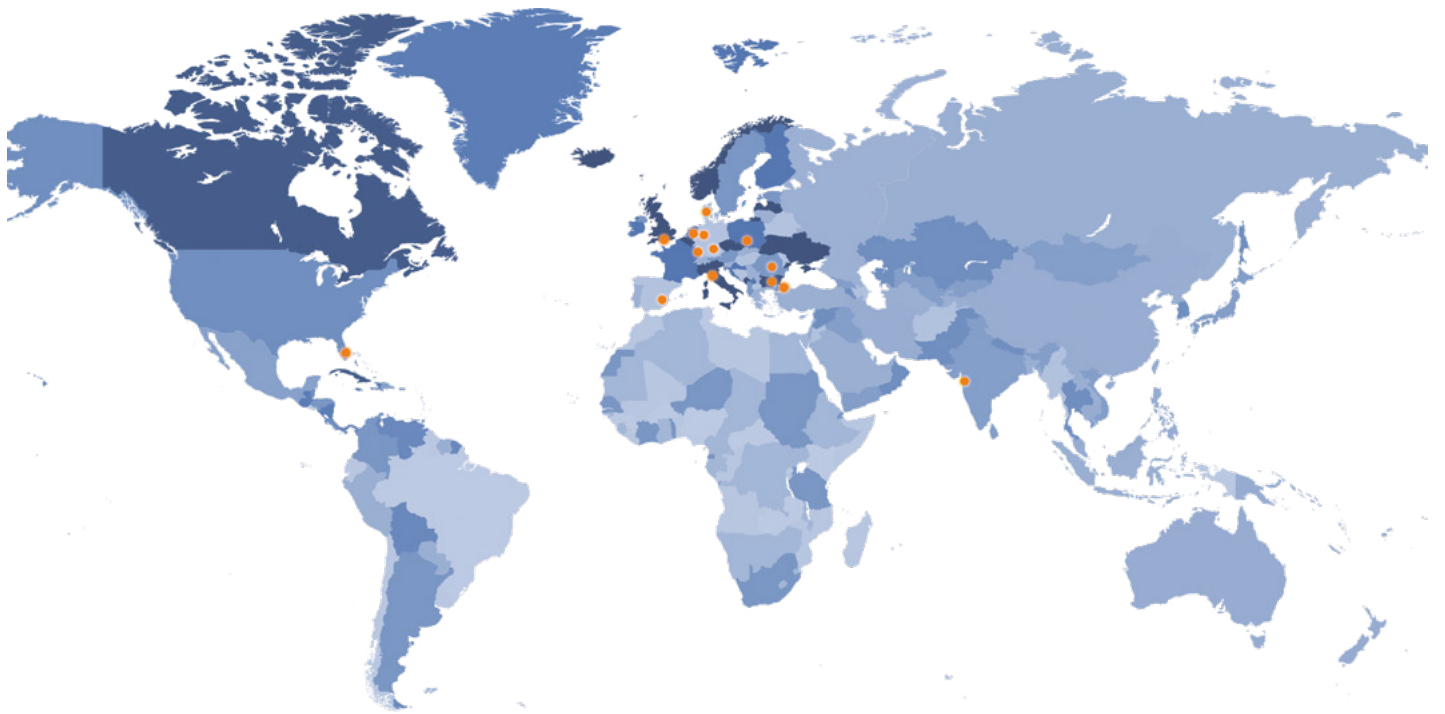


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