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Manual

HVAC Meter PCE-VE 200



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1 Introduction

Thank you for purchasing a PCE-VE 200 from PCE Instruments.
 This video endoscope is a useful tool for professionals for the non-destructive inspection of areas which are difficult to access. It can be used in automotive repair, in the construction industry, in restoration, plumbing, in HVAC/R inspection, etc.

2 Safety notes

Please read this manual carefully and completely before you use the device for the first time. The device may only be used by qualified personnel and repaired by PCE Instruments personnel. There is no warranty of damages or injuries caused by non-observance of the manual.

- The device may only be used in the approved temperature range.
- The case should only be opened by qualified personnel of PCE Instruments.
- The instrument should never be placed with the user interface facing an object (e. g. keyboard side on a table).
- You must not make any technical changes to the device.
- The appliance should only be cleaned with a damp cloth / use only pH-neutral cleaner.
- Please keep the device clean, try to avoid direct contact with water, oil and other materials that can cause corrosion.
- Do not overbend the probe.
- Charge only with the original mains adaptor / USB cable.
- Please note that the borescope is not intended for medical use.

Battery:

- Do not overcharge the battery in order not to reduce the battery life.
- Remove the battery whenever the device will not be used for a longer period of time.
- After battery leakage, unscrew the battery compartment cover and replace the battery by a new one.
 Make sure that the polarity is correct. Attach the battery compartment cover again and tighten the screw.

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We expressly point to our general guarantee terms which can be found in our general terms of business.

If you have any questions, please contact PCE Instruments.

3 Specifications

Console

Display	3.5" TFT LCD
Video resolution	AVI (640 x 480)
Image resolution	JPEG (1600 x 1200)
Image rotation	180 ° rotation / mirror image
Freeze frame	Possible
Zoom	4 x variable digital zoom
Menu languages	English, Simplified Chinese, French, German, Spanish, Japanese, Russian
Interface	Micro USB 2.0 / TV out / card slot
TV out	PAL
Memory	Micro SD card
Power supply	18650 Li-Ion battery (2600 mAh)
Battery life	Typically 5 h

Insertion probe

Diameter of camera head	4.5 mm
CMOS sensor	1/8" CMOS chip
Camera resolution	640 x 480 px
Camera illumination	intensity adjustment 6 white LEDs
Brightness level manual adjustment	possible
Field of View (FOV)	90 °
Camera depth of field	15 ... 100 mm
Probe length	1 m
Probe material	Flexible soft metal

Insertion probe further versions

	PCE-VE 200 –S	PCE-VE 200 –S3	PCE-VE 200 –SV1	PCE-VE 200 –SV3
Cable length	1 m	3 m	1 m	3 m
Diameter	3.7 mm	3.7 mm	9 mm	9 mm
Camera	Front	Front	Front / side	Front / side

* To switch the camera from front to side, use the control handle at the camera cable.

Environmental conditions

Operating temperature	Probe	In air: -10 ... 50 °C In water: 5 ... 50 °C
	Console	In air: -10 ... 50 °C
Relative humidity	All parts	15 ... 90 %
Liquid resistance	All parts	Machine oil, light oil or 5 % saline solution
Ingress protection	Probe	Water, oil and dust, in line with protection class IP67
	Console	Blowing rain (battery compartment must be closed) Not under water

4 System description



- 1 Power on / off
- 2 Down / image rotation
- 3 Up
- 4 Setting
- 5 OK
- 6 Preview / playback
- 7 Video recording
- 8 Photo taking
- 9 LED at tip of cable
- 10 Zoom
- 11 Frame freeze
- 12 LED at console
- 13 Tripod thread
- 14 Battery cover screw
- 15 Probe
- 16 Startup / shutdown indicator
- 17 Charging indicator
- 18 Micro SD card slot
- 19 TV out
- 20 Micro USB interface
- 21 Reset



5 Instructions

How to insert the micro SD card

- Remove the dust cover at the right side and insert the micro SD card.
- Please use a C4 micro SD card or above and make sure you format the card before use. To do so, connect the device with a computer or laptop, using the USB cable that comes with the device. Alternatively, you can format the SD card directly via the console, using the menu item for file management, see below.

How to switch the borescope on / off

To turn the endoscope on / off, push and hold the Power on / off button for 2 seconds.

How to take pictures and record videos

- To take a picture, push the photo button. The images will be saved to the micro SD card as DCIM files.
- To record a video, push the video button. To finish video recording, push the button again. The videos will be saved to the micro SD card as DCIM files.

Additional buttons

- LED button cable tip:
for adjustment of camera cable illumination (off / level 1 / level 2 / level 3)
- Zoom button:
for zooming (x 2 / x 3 / x 4)
- LED button console (torch function):
for illumination of the environment under inspection (off / level 1 / level 2 / level 3)

Settings

When you push the Setting button, you can set the language, date and time, and auto power off (Power Save). You can navigate through the different setting options using the arrow keys. You will find some more specific instructions on the display.

File management

Push the Playback button. Then push the Setting button to enter the file management screen where you can enter the following options using the arrow keys:

- Lock to protect image or video from unintended deletion
- Delete to delete the image or video
- Format to format the SD card (all saved data will be lost)

To execute these functions, please refer to the instructions in the display.

Charging

Charging via a 230 V outlet:

- Use the included mains adaptor / USB cable and connect it to a power outlet

Charging per USB

- Use the USB cable and connect it to a computer or power bank.
- The charging indicator will be red during charging. When charging via USB, the indicator will go off when the battery is fully charged.

6 Troubleshooting

Problem	Solution
No image on LCD after powered on	Connect the mains adaptor to the borescope to activate the battery.
No image but words on LCD after powered on	Remove the probe and insert it again.
No pictures / videos can be taken / recorded and settings are not accepted	Insert a micro SD card.
Display keeps indicating "Please format the SD card"	Insert another SD card with better quality.
Device crashed	Reset the device and power on again.

7 Disposal

For the disposal of batteries, the 2006/66/EC directive of the European Parliament applies. Due to the contained pollutants, batteries must not be disposed of as household waste. They must be given to collection points designed for that purpose.

In order to comply with the EU directive 2012/19/EU we take our devices back. We either re-use them or give them to a recycling company which disposes of the devices in line with law.

If you have any questions, please contact PCE Instruments.



8 Contact

If you have any questions about our range of products or measuring instruments please contact PCE Instruments.

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