

PCE Americas Inc.  
711 Commerce Way  
Suite 8  
Jupiter  
FL-33458  
USA  
From outside US: +1  
Tel: (561) 320-9162  
Fax: (561) 320-9176  
info@pce-americas.com

PCE Instruments UK Ltd.  
Units 12/13  
Southpoint Business Park  
Ensign way  
Hampshire / Southampton  
United Kingdom, SO31 4RF  
From outside UK: +44  
Tel: (0) 2380 98703 0  
Fax: (0) 2380 98703 9  
info@pce-instruments.com

[www.pce-instruments.com/english](http://www.pce-instruments.com/english)  
[www.pce-instruments.com](http://www.pce-instruments.com)

## Manual Durometer PCE-DSD-Series





# Digital Durometer Model PCE-DSD Series

## Operating Instructions



PCE Instruments



User manuals in various languages  
(Deutsch, français, italiano, español, português,  
Nederlands, Türk, polski, русский, 中文)  
can be downloaded here:  
[www.pce-instruments.com](http://www.pce-instruments.com)

E-Mail: [info@pce-instruments.com](mailto:info@pce-instruments.com)

### Content

- 1.0 Introduction and hints
- 2.0 Technical Data
- 3.0 Safety information
- 4.0 Function of the operating keys / LCD
- 5.0 Connecting the data cable RS 232
- 6.0 Interface Specification
- 7.0 Battery warning
- 7.1 Battery change
- 8.0 Connecting to an Operating Stand
- 9.0 Durometer Calibration
- 10.0 Cleaning instructions
- 11.0 Guarantee
- 12.0 Accessories
- 13.0 EG Declaration of Conformity

#### 1.0 Introduction and hints

The Digital Durometer PCE-DSD is an instrument for testing the hardness of rubber, plastics and other non-metallic surfaces. The Durometer conforms to DIN ISO 7619, ISO 7619, ISO 868 and ASTM D 2240.



#### CAUTION

- Note:**  
Please note the following to prevent damage resp. malfunction of the instrument:
- Observe the storage and working temperature of this instrument (see technical data)
  - Do not subject the instrument to an electrical voltage (i.e. from an electric marking unit, etc.)
  - Do not open resp. modify the instrument
  - Close the data port with the supplied protective cap when not in use
  - For cleaning of the front cover glass use a soft cloth moistened with a neutral reacting cleaning agent
  - Never use organic solvents like thinners and petrol. For cleaning of the indenter and foot use a cloth moistened with alcohol.

Hints:

Handheld use:

Hold the durometer in vertical position above the specimen.

Press the durometer down without shock until entire presser foot (DIA. 18mm) is in full contact with the specimen.

Read the LCD after the pre-selected time.

Use in Operating Stand:

The PCE Inst. Durometer Operating Stands allows for accurate and repeatable Durometer readings. It rules out subjective test errors, which may be caused by differing load application forces or non-vertical applications of the Durometer to the test piece. You can mount the Durometer without tools. See chapter 8.0 and 12.0.

#### 2.0 Technical data

Width/Height/Depth	64 mm x 112 mm x 26 mm
Range	0,5....100
Accuracy	±0,5 at 23 °C
Resolution	0.1
Maximum reading function	Hold-Function
Display	LCD, digit height 8 mm
Data port	Opto RS 232
Net weight	0,250 kg
Operating temperature	+10 °C....+40 °C
Storage temperature	+5 °C....+50 °C
Battery	3,6 V 1/2 AA Size LI-SOC12
Operating time continuously	Approx.. 18 h
External power supply	8.00000197 (230 V, Euro) 8.00000163 (115 V, US)
Auto-OFF function	Approx.. 1 min.

#### 3.0 Safety information



#### CAUTION

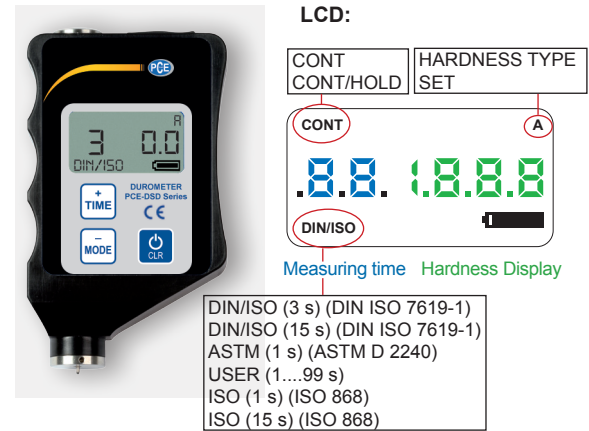
Battery

- Not rechargeable
- Do not incinerate
- Dispose off as prescribed

Never press the indenter on sensitive or hard materials (e.g. steel, glass, human hands, eyes etc.). Not suitable for children.

Do not use an electric marking tool.

#### 4.0 Function of the operating keys / LCD:



Functions:	Keys:	LCD:
USER (1....99 s) Select measuring time:		
Start change measuring time:		
Measuring time +		
Measuring time -		
confirm		
Switch OFF (LCD switch OFF)		>2 s

#### 5.0 Connecting the data cable RS 232

Remove the protective cap from the data port (Durometer on top, right side). Store the protective cap in the supplied protective box. Hold the Durometer in your hand. You must see the 2 phototransistors of the Opto RS-plug in the front (colorless and red). Insert the Opto RS-plug in the socket.



#### 6.0 Interface Specification

The RS232 communication settings are:  
4800 Baud, 8 Data bits, no parity, 1 Stop bit.

Kommando	Beschreibung
?<cr>	PCE-DSD sends the current value. The value is returned in the format: ddd.d<cr> where d is one digit. For example " 80.3"<cr>.
ID?<cr>	Device sends identification string.
OUT1<cr>	Activates the continuous sending of measurement values.
OUT0<cr>	Stops the continuous sending of measurement values.
SW?<cr>	PCE-DSD sends the software version.
SNO?<cr>	PCE-DSD sends the serial number.

#### 7.0 Battery warning

On the LCD appears on bottom right side the battery warning symbol, if the battery voltage is not sufficient. You have to change the battery.

#### 7.1 Battery change

On the rear side the lid of the battery tray is mounted with 2 screws. Screw out the 2 screws with a small screw driver and remove the lid Remove the battery carefully (without tools). Install the new battery. Make sure that the battery poles are correct.

**Note:**

While installing the battery please lay the battery in the battery tray in that way that you can read the inscription of the battery.



#### CAUTION

This Durometer contains a non-rechargeable Lithium battery. If the battery is empty, it may not be disposed of in the household waste! Spent batteries contain toxic waste which can cause harm to the environment and cause damage to health. Spent batteries either must be returned to an outlet where batteries are sold, or taken to a municipal collection point, these have an (unpaid) and legal obligation to take back batteries. Please only dispose of spent batteries in the provided collection containers, when disposing Lithium batteries please cover up the Poles. The disposal of the Durometer must be performed according to the local disposal regulations.

Dispose the packaging single-origin.

#### 8.0 Connecting to an Operating Stand

Remove the screw (top left side) with a screwdriver. Follow the operating instructions of PCE Inst. Operating Stands.



#### CAUTION

**Note:**

Internal thread in the housing: M10 x 0,5 (screw length: max. 5,5 mm)

#### 9.0 Durometer Calibration

An annual calibration cycle is recommended. Please send the Durometer for calibration to one of the local PCE Instruments subsidiaries (to be found on [www.pce-instruments.com](http://www.pce-instruments.com)).

#### 10.0 Cleaning instructions

See chapter 1.0

#### 11.0 Guarantee

All PCE Inst. Durometers and related accessories are guaranteed for a period of two (2) years against defective workmanship and / or material. This guarantee does not apply to mishandled, misused, etched, stamped or otherwise marked or damaged durometers.



#### CAUTION

**Note:**

Damaged indentors are not covered with this guarantee. Opening the instrument forfeits the guarantee!

#### 12.0 Accessories

Order-no.	Description
PCE-OS-2	Durometer-Operating Stand Model PCE-OS-2
PCE-ADP-OS-2	Adapter (required for Stand PCE-OS-2)
PCE-SOFT-DSD	PCE Instruments Software-DSD for direct connection of a PCE Inst. Digital Durometer Model PCE-DSD to a PC, incl. cable (RS232) from Digital Durometer to PC, (SUB D 9 pin), running under MS-Windows7
PCE-232-DSD	Opto RS 232 cable (SUB D 9 pin)

Functions:	Keys:	LCD:
Switch ON		
Select Mode CONT (continuous measuring)	manufacturing state	
CONT/HOLD HOLD (= maximum reading comparable with the drag pointer of an analogue Durometer).		 
Note: Note: Functions can vary according to different hardness types.		
Reset		
Standards		
Select standards: DIN/ISO (3 s) DIN/ISO (15 s) ASTM (1 s) USER (1....99 s) ISO (1 s) (ISO 868) ISO (15 s) (ISO 868)		
Press key to obtain the desired standard indicated on the LCD.		

#### 13.0 EC Declaration of Conformity

This measuring instrument conforms to the Low Voltage Directive 2006/95/EG and the Directive 2004/108/EG which concerns Electromagnetic Compatibility.

Old electronic equipment of the type PCE-DSD can be returned to us for disposal. We will dispose/recycle our products without causing any harm or damage to the environment in accordance to the EU-Directives 2002/95/EC RoHS and 2002/96/EC WEEE as well as German National - Electrical and Electronic Equipment Act, FRG.