

Manual Handheld Rotation Meter PCE-155



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1 Introduction

1.1 General

Thank you for purchasing a PCE-155 handheld rotation meter from PCE Instruments. This rotation meter is a multifunctional device to measure speed and summation. Furthermore it can be used to measure time. It is possible to estimate those parameters in rpm, inch, feet, miles, yards, centimetres and metres. The meter measures rotations of up to 200000 rpm. All readings are indicated on a well-readable display. Different sockets allow the use of external sensors or external display units. In order to ensure that you are able to work with the handheld rotation meter perfectly, please pay attention to this manual and its safety instructions.

1.2 Delivery contents

1 x PCE-155 rotation meter, 1 x manual

2 Safety notes

2.1 General safety precautions

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.



Caution:

This device emits a CLASS 3R laser beam. Avoid direct contact with the laser beam. The use of optical equipment such as glasses may increase hazards.



Attention:

The laser beam must never be pointed directly at other people or animals.



Attention:

Only use the device within the prescribed fields of use. Read the manual carefully and stick to it.

This manual is published by PCE Instruments without any guarantee.

We expressly refer to our general guarantee terms, they can be found in our general terms of business.

If you have any questions please contact PCE Instruments.

2.2 Laser

The instrument comes with a CLASS 3R laser. Avoid eye contact!!! The laser is classified according to IEC-60852-1:2001.

2.3 Qualified personnel

Only qualified personnel may operate and maintain the rotation meter according to the technical specifications. Qualified personnel are persons who are familiar with the setup, installation and use of the instrument. In addition to that they need to have the qualification to operate and maintain this product. Unqualified personnel may cause further hazards.

2.4 CE conformity

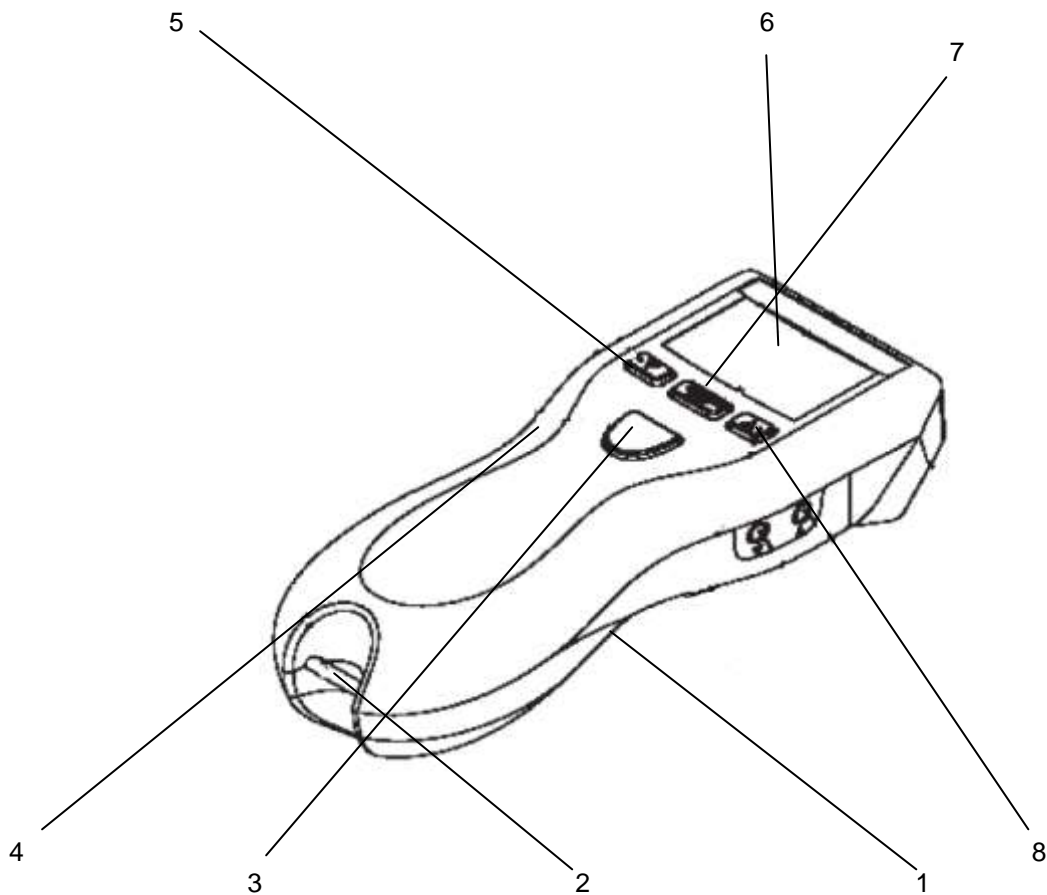
The handheld rotation meter complies with the common CE regulations and may only be used within the industrial area.

3 Technical specification

Display	Alphanumeric LCD with 5 digits
Summarizer	1 ... 200.000
Accuracy	Optical detection: $\pm 0,01$ % of the shown value contact sensor: $\pm 0,05$ % of the shown value (rpm)
Resolution	0,001 ... 10 rpm (depending on the measuring area)
Operational area	5 cm ... 8 m, $\pm 70^\circ$
Internal storage capacity	MAX / MIN of the last measurement
Power supply	Two 1,5 V "AA" Batteries
Casing	ABS plastic with rubberized sides
Dimensions	175 x 61 x 41 mm
Sensor connection	Via jack plug
Operating conditions	-5 ... +40 °C; 5 ... 80 % r.h.
Weight	~ 210 g
Optional accessory	

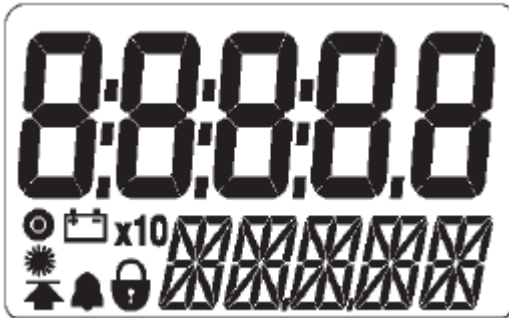
4 System description

4.1 Meter description



1. Battery compartment
2. Belt clip
3. Start / reset
4. Tripod socket (on the bottom of the device)
5. MIN / down
6. LCD
7. Menu / lock / select
8. MAX / up

4.2 LCD description



Indicator of activation. Flashes when an input signal is detected. When dealing with higher frequencies, the indicator will appear constantly.



Indication of a low battery status. The batteries need to be replaced.



Multiplication with the factor of 10. Indicates that the measurement is 10 times higher than the displayed value.



LASER indicator. The laser beam is activated when this indicator flashes.



Blocking mode. The device is used for long-term measurements when this indicator appears.

5 Instructions

5.1 Measurement

5.1.1 Contact-free measurement

The contact-free measurement can be performed internally (by means of the laser) or externally (by applying an optical sensor to the instrument).



Clean the shaft.



Apply the reflexion tape.



For small shafts, a small piece of reflexion tape can be used.

5.1.2 Contact measurement

In order to perform contact measurements, use the indented adaptor (RCA).

5.1.3 Installation of external sensors

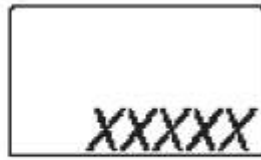


Insert the connector of the sensor into this socket. Either use the contact adaptor, an optical sensor or a magnetic sensor with an amplifier.

5.2 Tachometer mode

5.2.1 Settings

1. Switch on the device



The last measurement will be displayed.

1a. To toggle: Press and hold the button.

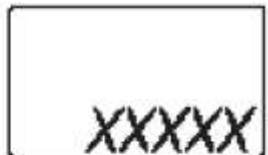


Device is locked.

2. Activate setup mode



3. Go to mode selection



4. Choose tachometer mode (TACH)



OR

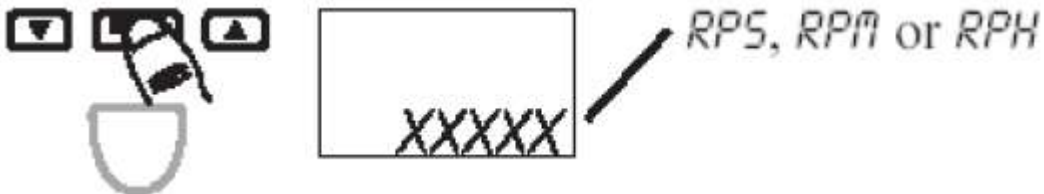


Repeat until TACH shows up.

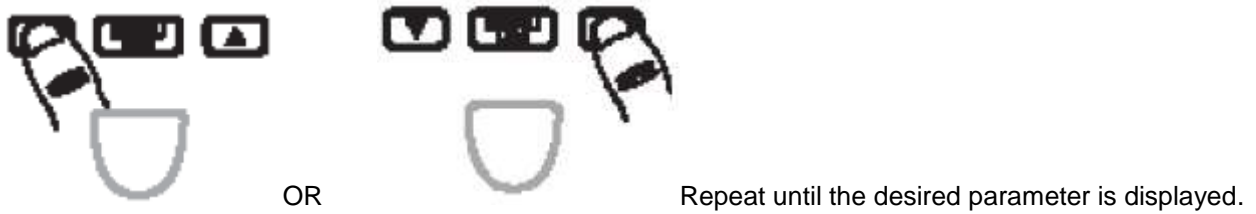
5. Save and continue



6. Go to parameter selection



7. Choose your parameter



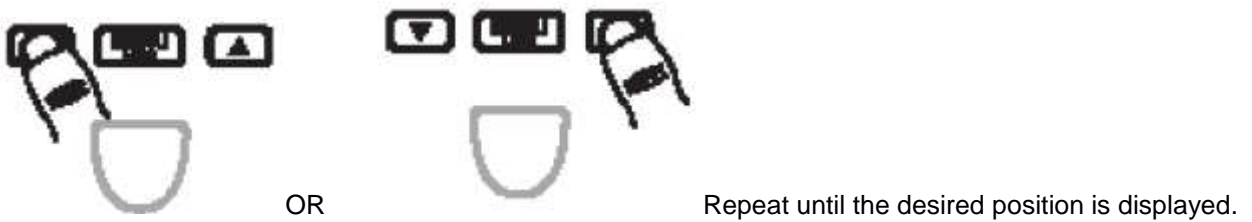
8. Save and continue



9. Go to the area where you can select the position of the decimal point



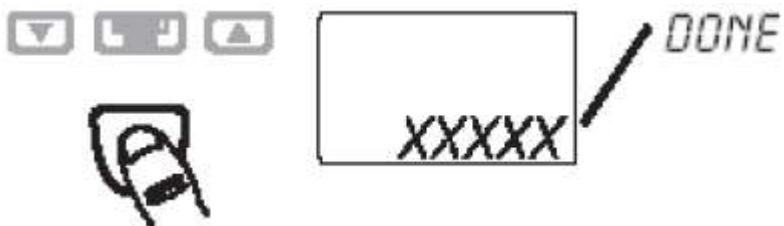
10. Select the decimal point



11. Save and continue



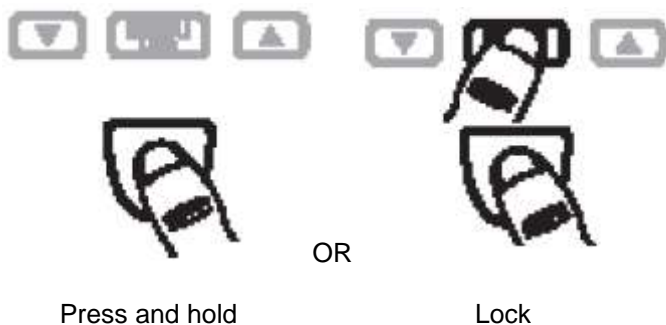
12. Leave setup mode



The handheld rotation meter remembers all settings (including the locking function) when being switched off and on again.

5.2.2 Tachometer operation

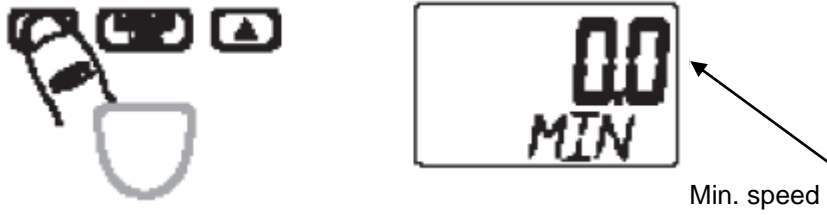
5.2.2.1 Measurement



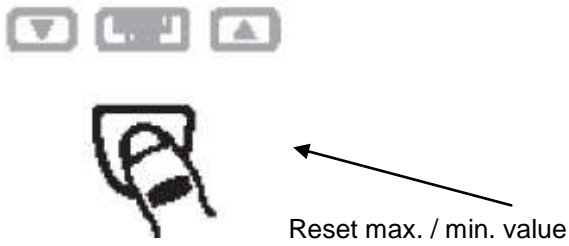
5.2.2.2 Call up the maximum value



5.2.2.3 Call up the minimum value



5.2.2.4 In case the device is locked



5.2.2.5 Switch off the device



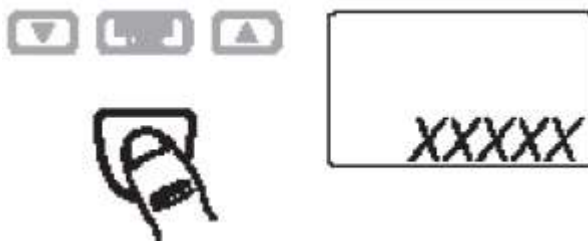
or make use of the auto power off function after 90 seconds of inactivity.

5.3 Speed mode

5.3.1 Settings

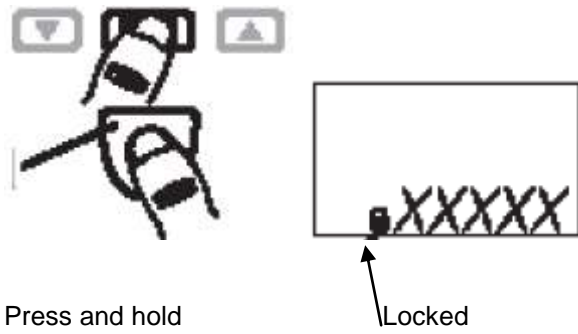
Attention: For this mode the external adaptor needs to be connected.

1. Switch on the device



"EXTRN", then rolling message, then last chosen parameter

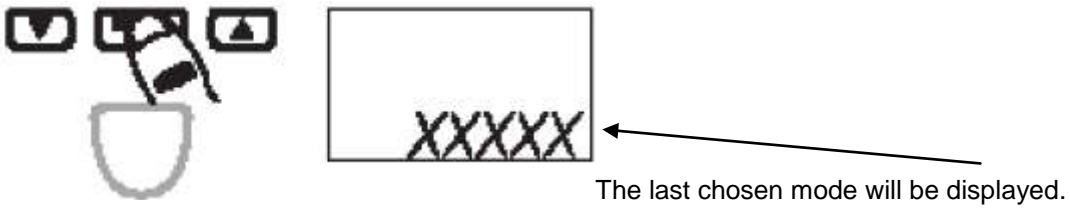
1a. To toggle: Press and hold the button in order to set / delete the locking function



2. Go to setup mode



3. Go to mode selection



4. Choose speed mode (RATE)



5. Save and continue

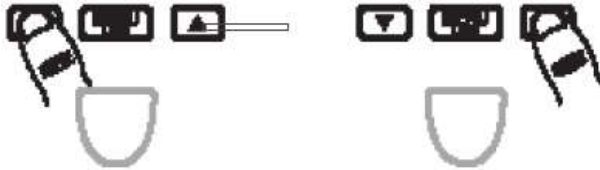


6. Go to parameter selection



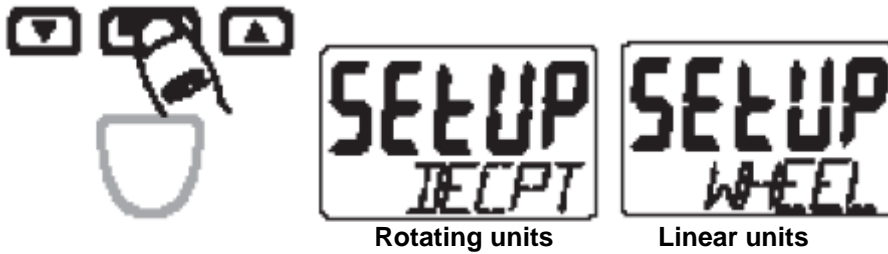
Choose between CRPS, CRPM or CRPH.

7. Choose the parameter

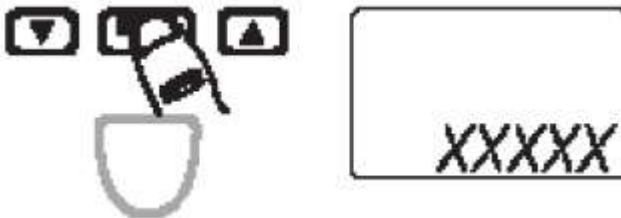


Repeat until the desired parameter is displayed.

8. Save and continue

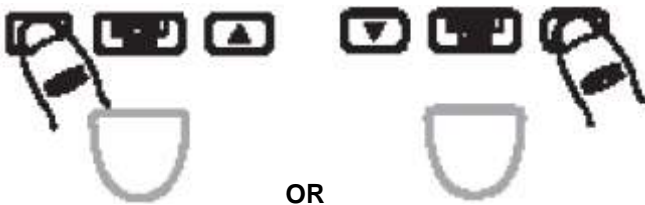


8a. (Linear units only): Area to choose the measurement wheel



Last chosen measurement wheel will be displayed.

8b. Choose the measurement wheel



OR

Switches between 10CM and 12IN.

8c. Save and continue

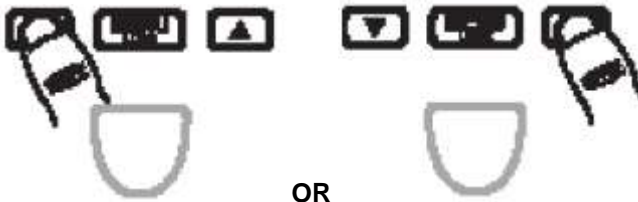


9. Go to the area where you can select the position of the decimal point



Select "NONE", "1", "2" or "3".

10. Select the decimal point

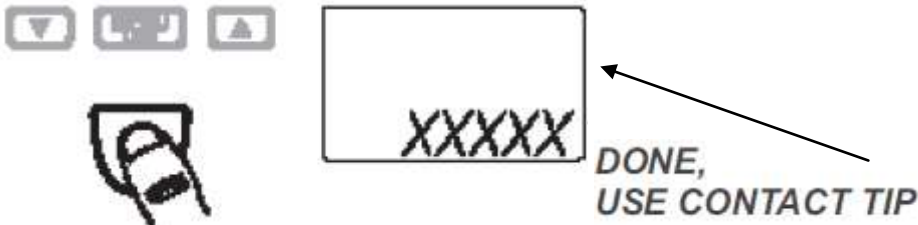


Repeat until the decimal point is displayed.

11. Save and continue



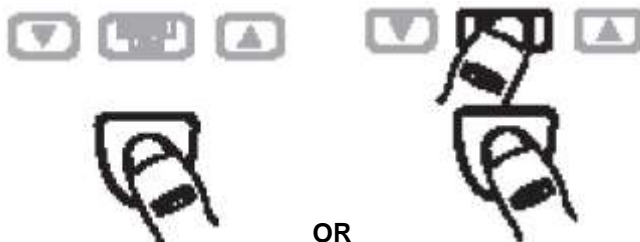
12. Leave setup mode and start your measurements



The handheld rotation meter remembers all settings (including locking function) when being switched off and on again.

5.3.2 Use

5.3.2.1 Measurement



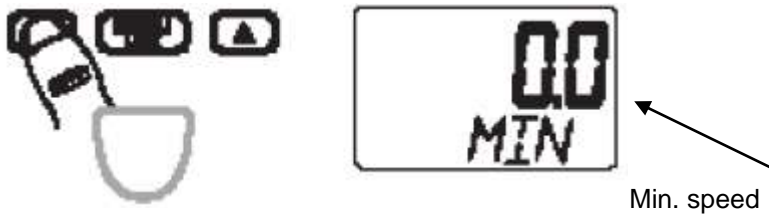
Press and hold

Lock

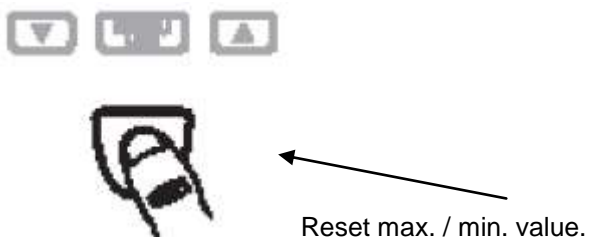
5.3.2.2 Retrieve the maximum value



5.3.2.3 Retrieve the maximum value



5.3.2.4 In case the device is locked



5.3.2.5 Switch off the device



or make use of the auto power off function after 90 seconds of inactivity.

5.4 Summing mode

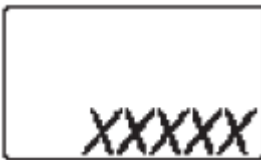
5.4.1 Settings

1. Switch on the device



Different messages for external or internal use are displayed.

Internal use or external sensor:



The last parameters that were chosen are displayed.

External measuring module:

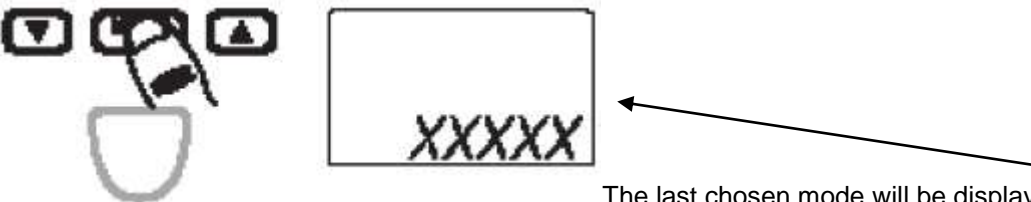


"EXTRN", then rolling message, then last chosen parameter.

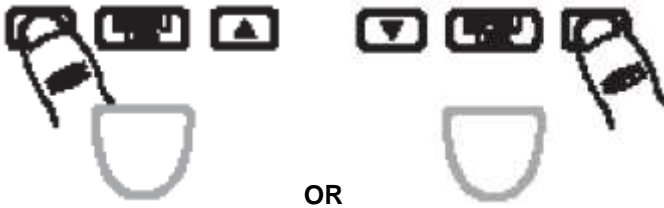
2. Go to setup mode



3. Go to mode selection



4. Choose summing-mode (TOTAL)



Repeat until TOTAL is displayed.

5. Save and continue

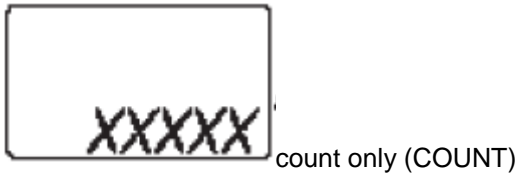


6. Go to parameter selection

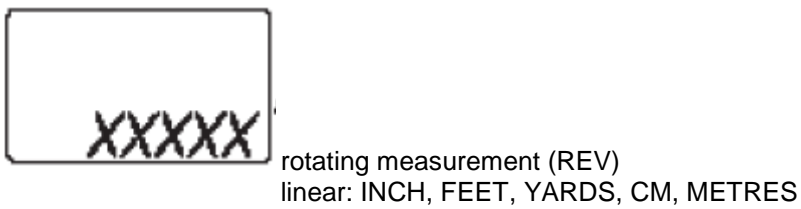


Different messages for external or internal use are displayed.

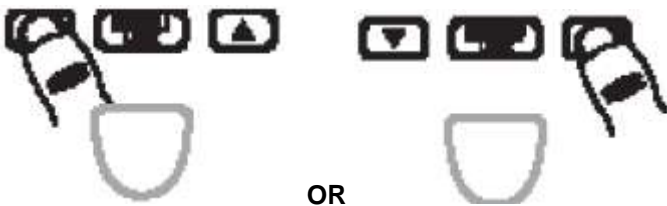
Internal use or external sensor:



External measuring module:



7. Choose the parameter

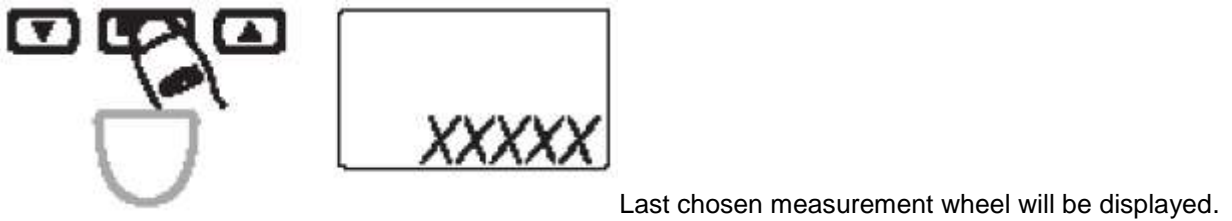


Repeat until the desired parameter is displayed

8. Save and continue



8a. (Linear measurements / parameters only): Area to choose the measurement wheel



8b. Choose the measurement wheel



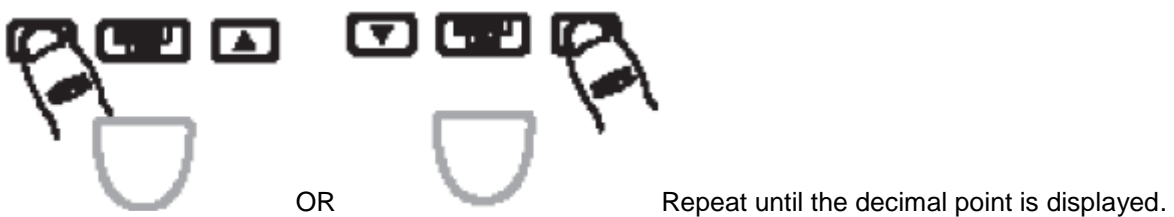
8c. Save and continue



9. Go to the area where you can select the position of the decimal point



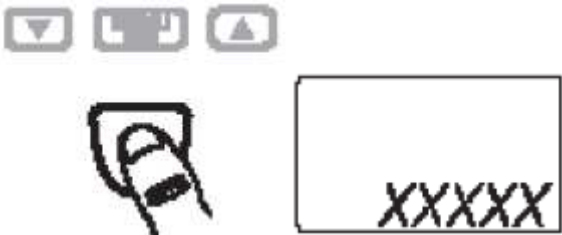
10. Select the decimal point



11. Save and continue



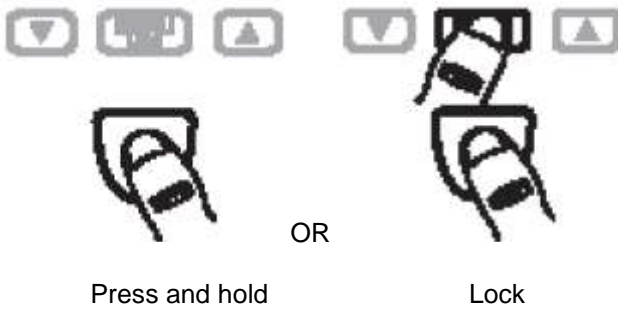
12. Leave setup mode and start your measurements



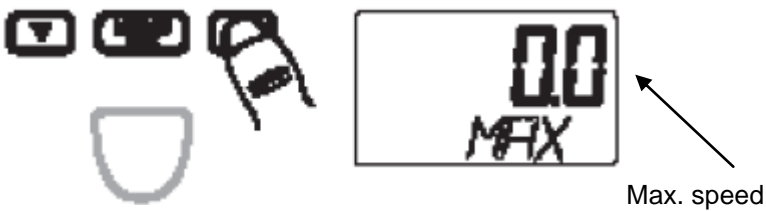
The handheld rotation meter remembers all settings (including locking function) when being switched off and on again.

5.4.2 Use

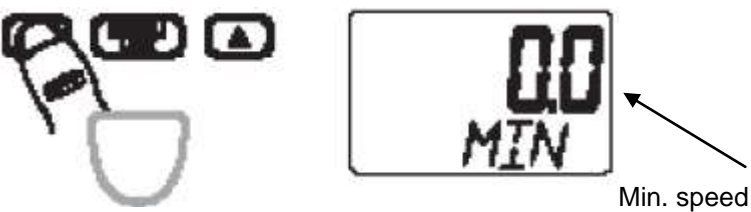
5.4.2.1 Measurement



5.4.2.2 Retrieve the maximum value



5.4.2.3 Retrieve the minimum value



5.4.2.4 In case the device is locked



Reset max. / min. value

5.4.2.5 Switch off the device

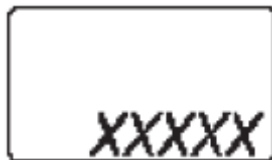


or make use of the auto power off function after 90 seconds of inactivity.

5.5 Timer mode

5.5.1 Settings

1. Switch on the device

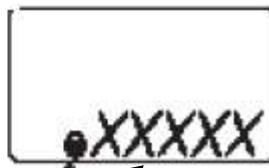


The last chosen parameters are displayed.

1a. To toggle: Press and hold the button in order to set the locking function



Press and hold



Locked

2. Go to setup-mode



3. Go to mode selection



The last chosen mode will be displayed.

4. Choose timer mode (TIMER)

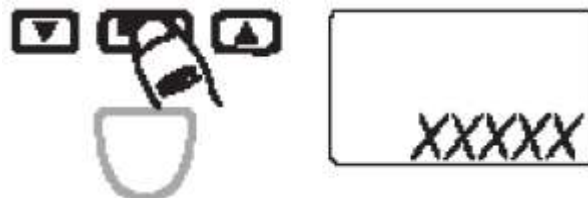


Repeat until "TIMER" is displayed.

5. Save and continue

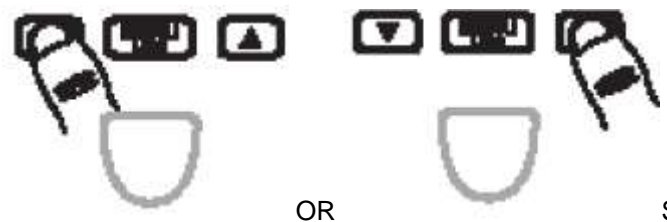


6. Go to timer selection



Choose MAN or AUTO.

7. Choose the timer



Switch between MAN and AUTO.

8. Save and continue



9. Leave setup mode and start your measurements



"DONE": The chosen parameter is displayed.

5.5.2 Use

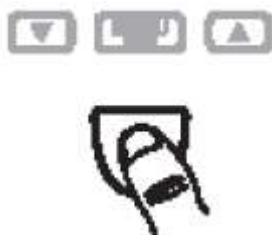
5.5.2.1 Measurement

5.5.2.1.1 Manual measurement



Every time you press the button the measurement is started or stopped.

5.5.2.1.2 Automatic measurement



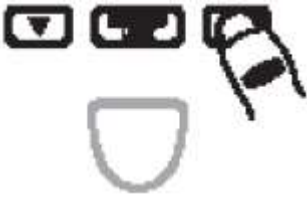
The measurement is started or stopped by triggering via an external sensor.

5.5.2.2 Reset



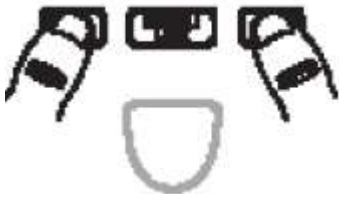
If the timer is stopped, the data is reset to 00:00.0.

5.5.2.3 Turn measurement



When the timer is used it stops after the time has elapsed. To continue you need to press the button again.

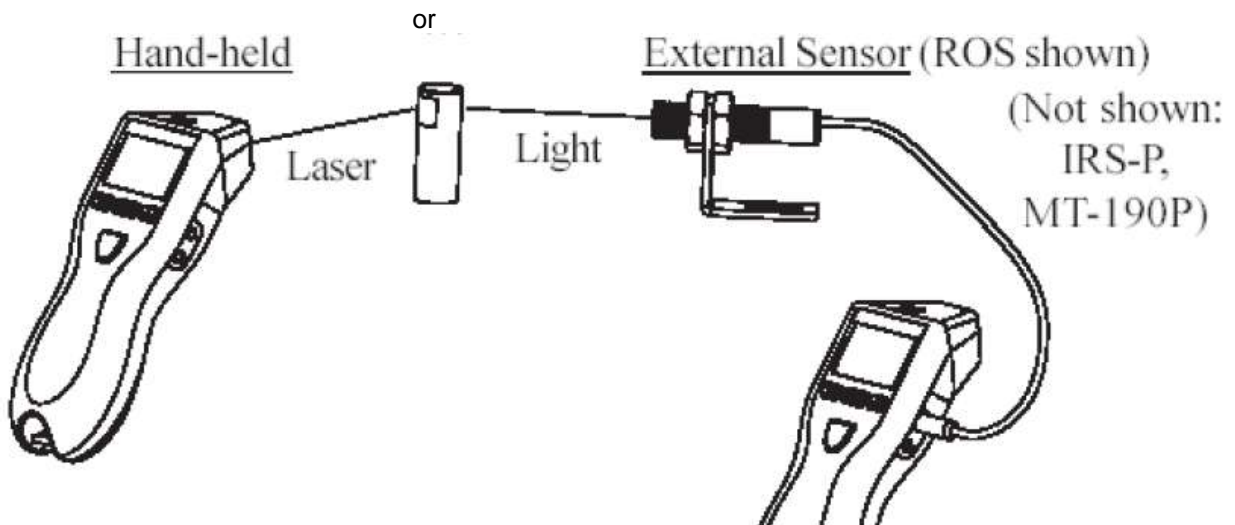
5.5.2.4 Switch off the device



or make use of the auto power off function after 90 seconds of inactivity.

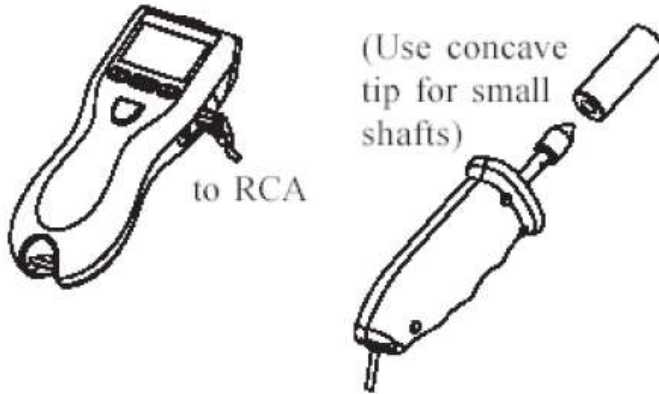
5.6 Perform measurements

5.6.1 Contact-free measurements

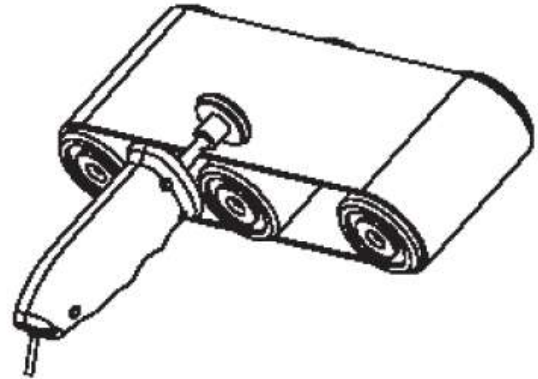


5.6.2 Contact measurements

Rotating measurement



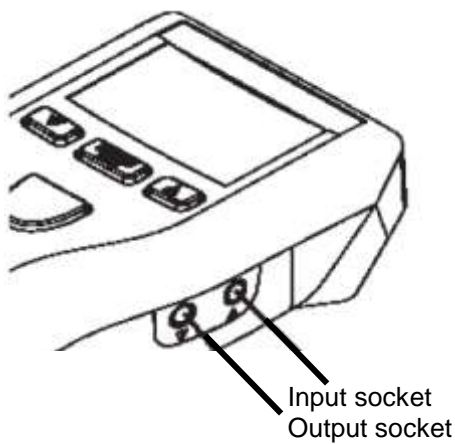
Linear measurements



Attention:

Only work with moderate contact pressure. Avoid direct contact with loose hair or clothing when operating with turning machines. Hold the device at the end. Do not use the device (with a contact sensor) for machines that have more than 20000 rpm.

5.7 Input / Output



Input:

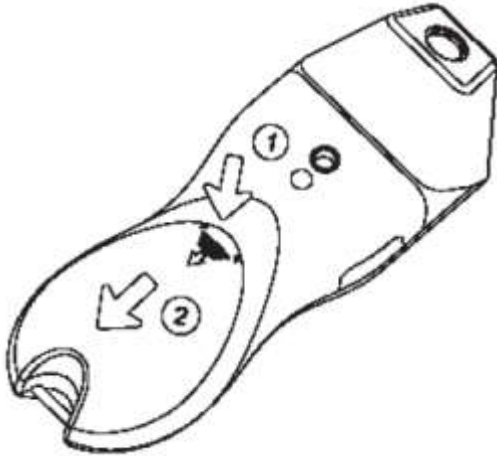
Offset sensors can be attached. Alternatively you can use a contact module with a 3,5 mm stereo jack.

Output:

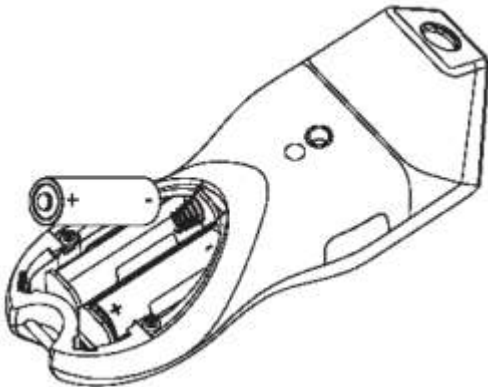
One impulse per turn as TTL-signal-output is given out when the device is running in internal operation. The transferred pulse is performed by a 3,5 mm mono jack plug.

5.8 Batteries

If the following symbol appears, you will have to replace the batteries.



Two 1,5 V "AA" Alkaline batteries need to be inserted.



Both batteries need to point in the same direction.

6 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.

7 Contact

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

7.1 PCE Instruments UK

By post:

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Hampshire

United Kingdom, SO31 4RF

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Sales: 02380 987 030

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USA

By phone:

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Fax: 410-387-7714

You can find an overview of our measuring instruments here: <http://www.industrial-needs.com/measuring-instruments.htm>

You can find an overview of our scales here <http://www.industrial-needs.com/balances.htm>

