

protech

LCD Type Engineers Calipers

HOBBYIST

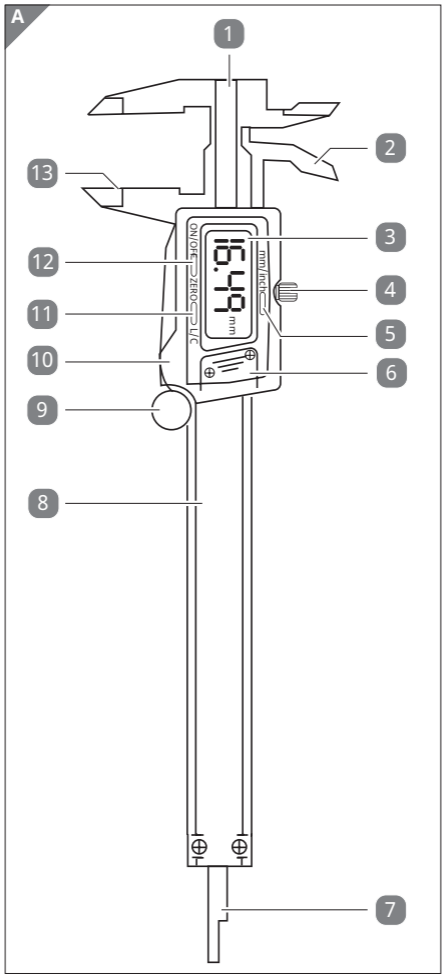


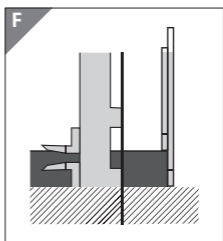
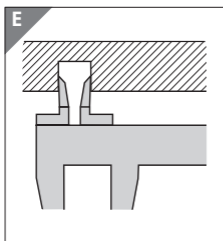
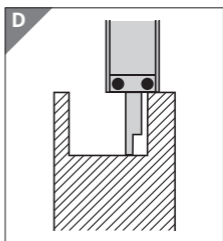
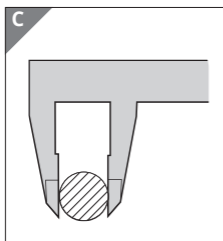
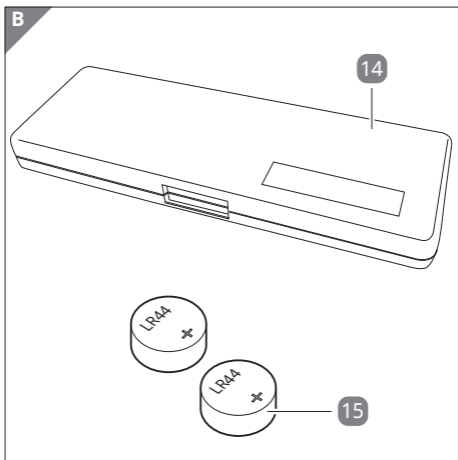
User Manual

TD2038

Contents

Overview	3
Use	4
Package contents/device parts	5
General information	6
Reading and storing the user manual	6
Explanation of symbols	6
Safety	9
Proper use	9
Safety instructions	9
First use	14
Checking the caliper and the package contents	14
Inserting the battery	15
Changing the battery	15
Handling	16
Functions	17
Zero setting	17
Conversion	17
Measuring circumference	17
Fine adjustment dial	17
Switching the caliper on and off	18
Measurements	18
Reference table	19
Cleaning	20
Storage	21
Troubleshooting	21
Technical data	22
Disposal	22
Disposing of the packaging	22
Disposing of the caliper	23





Package contents /device parts

- 1 Step measurement scale
- 2 Inside measurement scale
- 3 LCD display
- 4 Locking screw
- 5 mm/inch button
- 6 Battery compartment
- 7 Depth blade
- 8 Measuring scale
- 9 Fine adjustment dial
- 10 Slider
- 11 L/C button
- 12 ON/OFF (ZERO) button
- 13 Outside measurement scale
- 14 Plastic case
- 15 1 x LR44 1.5V Button cell battery (pre-installed);
1 x LR44 1.5V Button cell battery (provided as spare)

General information

Reading and storing the user manual



This user manual accompanies this digital caliper (hereinafter referred to as the “caliper”).

It contains important information on start-up and handling.

Before using the caliper, read the user manual carefully. This particularly applies to the safety instructions. Failure to comply with the user manual may result in severe injury and damage to the caliper.

Store the user manual for future use. If you pass the caliper on to third parties, please be absolutely sure to include this user manual.

Explanation of symbols

The following symbols and signal words are used in this user manual, on the caliper or on the packaging.

 **WARNING!**

This signal symbol/word designates a hazard with moderate degree of risk which may lead to death or severe injury if not avoided.

 **CAUTION!**

This signal symbol/word designates a hazard with low risk that, if not avoided, may result in minor or moderate injury.

NOTICE!

This signal word warns against potential damages to property.



This symbol provides you with useful supplementary information on start-up and handling.



DANGER
if swallowed

WARNING! KEEP BATTERIES OUT OF REACH OF CHILDREN

Swallowing or placed inside any part of the body may lead to serious or fatal injury in as little as 2 hours, due to chemical burns and potential perforation of the oesophagus. If you suspect your child has swallowed or inserted a button battery immediately call the 24-hour Poisons Information Centre on 13 11 26 for fast, expert advice. Dispose of used button batteries immediately and safely.



WARNING! The battery is hazardous and is to be kept away from children (whether the battery is new or used).

The battery can cause severe or fatal injuries in 2 hours or less if it is swallowed or placed inside any part of the body. Medical attention should be sought immediately if it is suspected the battery has been swallowed or placed inside any part of the body.



Safety

Proper use

The caliper is only designed for use as a measuring device. It is only intended for private use and is not suitable for commercial purposes. Only use the caliper as described in this user manual. Any other use is considered improper and may result in damage to property.

The manufacturer or vendor accepts no liability for damage caused by improper or incorrect use.

Safety instructions

<p> WARNING</p> <p>KEEP OUT OF REACH OF CHILDREN Swallowing can lead to chemical burns, perforation of soft tissue and death. Severe burns can occur within 2 hours of ingestion. Seek medical attention immediately.</p>	
--	---

WARNING!

- Do not open the housing; instead, have a qualified professional carry out the repairs. Contact a qualified workshop for this. Liability and warranty claims are waived in the event

of repairs performed by the instruction, improper connection of the device or incorrect operation.

- Only parts that comply with the original device data may be used for repairs.
- Only use the caliper in rooms located indoors. Never operate the caliper in wet rooms or in the rain.
- Never store the caliper such that there is a risk of it falling in a tub or sink.
- Only use the caliper in altitudes up to 2000 m.

 **WARNING!**

Danger for children and persons with impaired physical, sensory or mental capacities (e.g. partially disabled persons, older persons with reduced physical and mental capacities) or lack of experience and knowledge (e.g. older children).

- Store the batteries in an area that is not accessible for children.
- Do not let children play with the packaging. Children may get caught in it when playing and suffocate.
- Do not allow children to play with the batteries. Batteries may pose a risk to health if ingested.

 **WARNING!**

Danger of explosion!

Improperly handling the batteries may cause an explosion.

- Never short circuit the batteries.
- Never dismantle the batteries.
- Never dispose of the batteries in fire.
- Never expose batteries to excessive heat or direct sunlight.
- Do not charge any non-rechargeable batteries.

 **WARNING!**

Risk of chemical burns!

Fluid leaked from the batteries could cause chemical burns if it

comes into contact with skin or other body parts.

- Never open the batteries.
- If battery acid leaks out, avoid contact with skin, eyes and mucous membranes. In the event of contact with battery acid, immediately rinse the affected areas with plenty of clean water and consult a physician.
- In the event of a leaky battery, be absolutely sure to wear protective gloves and remove the leaked battery fluid with a dry, absorbent cloth.
- Take the batteries out of the battery compartment as soon as they are empty.

 **WARNING!**

Risk of explosion and fire!

Improper handling of batteries may result in fire or an explosion.

- Never dispose of batteries in open flames or in water.

⚠ CAUTION!

Risk of injury!

Touching the measuring edges may result in injury.

- Only hold the caliper by the handles, do not hold it by the measuring edges.
- Do not allow children to play with the caliper. Children could crush their fingers between the measuring surfaces and injure themselves.

NOTICE!

Risk of damage!

Improper handling of the caliper may result in damage.

- Be careful when performing measurements on sensitive surfaces to prevent scratches.
- Do not apply voltage to any part of the caliper (e.g. for engraving with an electric pen) as this could damage the circuit.

- Only replace the battery with the same type or an equivalent battery type.
- Batteries must not be exposed to excessive heat such as in the form of sunlight, fire or similar.
- Make sure that the battery is inserted the right way around, that is, observe the polarity.
- The battery must first be removed before disposing of the caliper.
- Take the battery out of the caliper if you do not use it for a prolonged period of time.

First use

Checking the caliper and the package contents

1. Take the caliper out of the packaging.
2. Check whether the delivery is complete (see **Fig.A** and **B**).
3. Check whether the caliper or the individual parts exhibit damage. If this is the case, do not use the caliper. Contact the manufacturer at the service address specified on the warranty card.

Inserting the battery

A button cell **15** has already been inserted.

1. Remove the safety strip under the button cell.

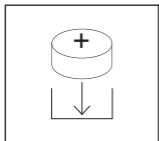


After inserting the battery, the caliper will need approximately 5–6 seconds to configure itself. The caliper may only be switched on once the configuration process is complete.

Changing the battery

Additionally required: a crossheaded screwdriver.

1. Remove the two screws by using a crossheaded screwdriver. Open the battery compartment **6** by pulling the cover off.
2. Insert the battery. Pay attention to the correct polarity. The plus pole must point upwards.



3. Slide the cover back onto the battery compartment and tighten the screws.

Handling

1. To switch the caliper on, push the ON/OFF (ZERO) button **12**.
2. To select the desired unit of measure (metric/inch), push the mm/inch button **5**.



The caliper saves the set unit of measure for the next time you use it.

Set the caliper to 0 by briefly pressing the ON/OFF (ZERO) button **12** to start measuring. For additional functions of the caliper, refer to the chapter “Functions”.

3. Move the slider or turn the fine adjustment dial **9** to perform a measurement.



You can lock the caliper with the locking screw **4** to fix the result of the measurement.

4. Read the result of the measurement on the LCD display **3**.
5. To turn off the caliper, press and hold the ON/OFF (ZERO) button **12** for a few seconds.

Functions

Zero setting

The zero setting can be performed in any position and facilitates step measurements.

- Push the ON/OFF (ZERO) button **12** to set the zero point. This makes it possible to perform differential measurements.



Negative measurements are displayed with a “-”.

Conversion

The mm/inch conversion may be performed in any position.

- To display the result of the measurement in another unit, push the mm/inch button **5**.

Measuring circumference

You can switch over to take the circumference measurement from any position.

- Press the L/C key **11** to select between measuring circumference and length. The ‘C’ on the display shows the circumference measurement.

Fine adjustment dial

The caliper can be set for high precision with the fine adjustment dial **9**.

Switching the caliper on and off

The caliper can either be turned on/off manually or automatically shut down.

Automatic deactivation

- After about 5 minutes of inactivity, the caliper will automatically switch off.

Manual activation and deactivation

- Push the ON/OFF (ZERO) button **12** to switch the caliper on.
- To turn off the caliper, press and hold the ON/OFF (ZERO) **12** button for a few seconds.

Measurements

You can perform different measurements with the caliper:

- Circumference measurement (see Fig. C): Press the L/C button **11**.
- Outer measurement (see **Fig. C**): Use the outside measurement scale **13**.
- Depth measurement (see **Fig. D**): Use the depth blade **7**.
- Inside measurement (see **Fig. E**): Use the inside measurement scale **2**.
- Step measurement (see **Fig. F**): Use the step measurement scale **1**.

Reference table

Convenient reference table for cutting threads (also see the back side of the caliper):

Metr. ISO			
Screw size Ø mm	Screw pitch Ø mm	Screw hole Ø mm	Drill size Ø mm
3	0.5	2.46	2.5
4	0.7	3.24	3.3
5	0.8	4.13	4.2
6	1	4.92	5
8	1.25	6.65	6.8
10	1.5	8.38	8.5
12	1.75	10.11	10.2
16	2	13.84	14
20	2.5	17.29	17.5

Whitworth			
Ø in	Ø/in	Ø mm	Ø mm
1/4	20	4.72	5.0
5/16	18	6.13	6.4
3/8	16	7.49	7.7
1/2	12	9.99	10.25
5/8	11	12.92	13.25
3/4	10	15.8	16.25
7/8	9	18.61	19
1	8	21.34	21.75

Cleaning

NOTICE!

Risk of damage!

Improper handling of the caliper may result in damage.

- Do not use any aggressive cleaners, brushes with metal or nylon bristles or sharp or metallic cleaning utensils such as knives, metal sponges and the like. They could damage the surfaces.
- Do not in any case place the caliper in the dishwasher. It would be destroyed as a result.
- Protect the measuring scale from watery liquids.
- Never immerse the caliper in water.
- Wipe the measuring scale **8** of the caliper off with a dry and clean cloth (or one that has been wetted with cleaning oil).

Storage

- When not in use, place the caliper in the plastic case **14**.
- Store the caliper so that it is not accessible to children, securely locked and at a storage temperature between $-10\text{ }^{\circ}\text{C}$ and $+60\text{ }^{\circ}\text{C}$.

Troubleshooting

Some problems may be caused by minor faults that you can fix yourself. To do so, follow the instructions in the following table. If it is still not possible to resolve the problem with the caliper, contact the manufacturer at the service address specified on the warranty card. Never repair the caliper yourself.

Problem	Possible cause	Solution
The LCD display will flash.	The voltage is too low.	Change the battery.
The LCD display is blank.	The voltage is too low.	Change the battery.
	Loose contact.	Check the position of the battery.
The LCD display is frozen or flickers.	Fault in the circuit.	Take the battery out and wait one minute before you put it back in.

Technical data

Model:	TD2083
Power source:	1.5 V, LR44 button cell
Measurement speed:	≤ 1.5 m/s
Weight:	approx. 150g
Operating temperature:	0 °C – +40°C
Storage temperature:	-10 °C – +60°C
Relative humidity:	≤ 80 %
Tolerances:	+/- 0.02 mm/0.001inch at < 100mm +/- 0.03 mm/0.001inch at 100–150mm
Pollution degree:	2
IK code:	04
Article number:	819548

Disposal

Disposing of the packaging

- Dispose of the packaging separated into single type materials. Dispose of cardboard and carton as waste paper and film via the recyclable material collection service.

Disposing of the caliper

- Should the caliper no longer be capable of being used at some point in time, dispose of it in accordance with the regulations in force in your city or state.
- Please ensure your recycling information applies to the local regulations.

Batteries and rechargeable batteries do not belong in the household waste!

As the end user you are required by law to bring all batteries and rechargeable batteries, regardless whether they contain harmful substances* or not, to a collection point run by the communal authority or borough or to a retailer, so that they can be disposed of in an environmentally friendly manner.

*labelled with: Cd = cadmium, Hg = mercury, Pb = lead



WARNING – KEEP BUTTON BATTERIES OUT OF REACH OF CHILDREN

- If swallowed a lithium button battery may lead to serious or fatal injury in as little as 2 hours, due to chemical burns and potential perforation of the oesophagus
- All button batteries must be kept away from children regardless if they are new or used.
- If you suspect your child has swallowed or inserted a button battery immediately call the 24-hour Poisons Information Centre on 13 11 26 (Australia) or 0800 764 766 (New Zealand) for fast, expert advice.
- If your child is having difficulty breathing contact 000 (Australia) or 111 (New Zealand).
- Dispose of used button batteries immediately and safely out of the reach of children. A battery can still be dangerous even when it can no longer operate the device.
- As soon as you have finished using a button battery, put sticky tape around both sides of it. This will make it harder for children to swallow the button battery and avoid the risk of the battery catching fire.
- Immediately dispose of button batteries immediately out of reach of children, or recycle using a child resistant container and take used cells to your local battery collection centre.

Distributed by:
Electus Distribution Pty Ltd
46 Eastern Creek Dr,
Eastern Creek NSW 2766 Australia
Ph 1300 738 555
Int'l +61 2 8832 3200
Fax 1300 738 500

www.electusdistribution.com.au