Leica DISTO™ E7400x
The original laser distance meter

- when it has to be right
# Table of Contents

## Instrument Set-up
- Introduction ....................................................... 2
- Overview .......................................................... 2
- Display .............................................................. 3
- Insert batteries .................................................... 3

## Operations
- Switching ON/OFF .................................................. 4
- Clear ................................................................. 4
- Message Codes ..................................................... 4
- Adjusting measuring reference / tripod ......................... 4
- Multifunctional endpiece ........................................ 5
- Distance unit setting .............................................. 5
- Tilt unit setting .................................................... 5
- Timer (automatic release) ....................................... 5
- Beep ON/OFF ....................................................... 6
- Illumination ON/OFF ............................................. 6
- Keypad lock ON .................................................... 6
- Keypad lock OFF .................................................. 6

## Measuring Functions
- Measuring single distance ....................................... 7
- Permanent / Minimum-Maximum measuring .................. 7
- Add / Subtract ...................................................... 7
- Area .................................................................. 8
- Volume ................................................................ 9
- Triangular area ..................................................... 10
- Pythagoras (3-point) ............................................. 11
- Pythagoras (partial height) ..................................... 12
- Stake out ........................................................... 13
- Smart Horizontal Mode ......................................... 14
- Height tracking ..................................................... 14
- Memory (20 last displays) .................................... 15

## Calibration
- Calibration of tilt sensor (Tilt Calibration) ................. 16

## Technical Data

## Message Codes

## Care

## Warranty

## Safety Instructions
- Areas of responsibility ......................................... 18
- Permitted use ....................................................... 19
- Prohibited use ..................................................... 19
- Hazards in use ..................................................... 19
- Limits of use ...................................................... 19
- Disposal ............................................................. 19
- Electromagnetic Compatibility (EMC) ....................... 19
- FCC statement (applicable in U.S.) ......................... 20
- Laser classification .............................................. 20
- Labelling ............................................................ 20
Introduction

The safety instructions and the user manual should be read through carefully before the product is used for the first time.

The person responsible for the product must ensure that all users understand these directions and adhere to them.

The symbols used have the following meanings:

**WARNING**
Indicates a potentially hazardous situation or an unintended use which, if not avoided, will result in death or serious injury.

**CAUTION**
Indicates a potentially hazardous situation or an unintended use which, if not avoided, may result in minor injury and/or appreciable material, financial and environmental damage.

Important paragraphs which must be adhered to in practice as they enable the product to be used in a technically correct and efficient manner.

Overview

![Image of the Leica DISTO™ E7400x device with labels for various functions such as Display, On/Measure, Add, Subtract, Memory/Unit, Smart Horizontal Mode, Measuring reference, and Timer.]
Insert batteries

To ensure a reliable use, do not use zinc-carbon batteries. Change batteries when battery symbol is flashing.
# Operations

## Switching ON/OFF

<table>
<thead>
<tr>
<th><strong>ON</strong></th>
<th><strong>OFF</strong></th>
<th><strong>CLEAR</strong></th>
<th><strong>2 sec</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>ON DIST</td>
<td>OFF Dist</td>
<td>CLEAR OFF</td>
<td>2 sec</td>
</tr>
</tbody>
</table>

- **Device is turned OFF.**

## Clear

<table>
<thead>
<tr>
<th><strong>1x</strong></th>
<th><strong>2x</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>CLEAR OFF</td>
<td>CLEAR OFF</td>
</tr>
</tbody>
</table>

- **Press ON button 2 sec to start continuous laser mode. If no key is pressed for 180 sec, the device switches off automatically.**
- **Undo last action.**
- **Leave actual function, go to default operation mode.**

## Message Codes

- If the message "**InFo**" appears with a number, observe the instructions in section "Message Codes".

**Example:**

- **InFo 256**

## Adjusting measuring reference / tripod

1. **Press button 2 sec and reference from front is set permanently.**

2. **Distance is measured from the front of the device.**

3. **Distance is measured from the rear of the device (standard setting).**

4. **Distance is measured from the tripod thread permanently.**
Operations

Multifunctional endpiece

The orientation of the endpiece is automatically detected and the zero point is accordingly adjusted.

Distance unit setting

Switch between the following units:

<table>
<thead>
<tr>
<th>UNITS</th>
<th>0.000 m</th>
<th>0’00’’ 1/4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00000 m</td>
<td>0.00 m</td>
<td>0’00’’ 1/32</td>
</tr>
<tr>
<td>0.00 ft</td>
<td>0’00’’ 1/16</td>
<td>0 in 1/8</td>
</tr>
<tr>
<td>0’00’’ 1/32</td>
<td>0’00’’ 1/16</td>
<td>0 in 1/4</td>
</tr>
<tr>
<td>0’00’’ 1/16</td>
<td>0’00’’ 1/8</td>
<td>0 in 1/4</td>
</tr>
<tr>
<td>0’00’’ 1/8</td>
<td>0 in 1/4</td>
<td>0 in 1/4</td>
</tr>
</tbody>
</table>

Tilt unit setting

Switch between the following units:

<table>
<thead>
<tr>
<th>UNITS</th>
<th>0.0 °</th>
<th>0.0 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 sec</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2 sec simultaneously

Timer (automatic release)

Adjust delay of automatic release (max. 60 sec, standard setting 5 sec)

Once the key is released with the laser activated, the remaining seconds until the measurement are displayed in a countdown. The delayed release is recommended for precise aiming e.g. at long distances. It avoids shaking of the device when pressing the measurement key.
<table>
<thead>
<tr>
<th>Operations</th>
<th>Beep ON/OFF</th>
<th>Illumination ON/OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keypad lock ON</td>
<td>2 sec simultaneously</td>
<td></td>
</tr>
<tr>
<td>Keypad lock OFF</td>
<td>1</td>
<td>2 sec simultaneously</td>
</tr>
</tbody>
</table>

**Beep ON/OFF**
- Press and hold `-` button for 2 seconds simultaneously.
- The beeper will turn off.

**Illumination ON/OFF**
- Press and hold `+` button for 2 seconds simultaneously.
- The illumination will turn off.

**Keypad lock ON**
- Press and hold `CLEAR OFF` button for 2 seconds simultaneously.
- The keypad lock will be activated.

**Keypad lock OFF**
1. Press and hold `DIST` button within 2 seconds.
2. Press and hold `-` button within 2 seconds.
Measuring Functions

Measuring single distance

1. Aim active laser at target.
2. 
3. 8.532 m

Target surfaces: Measuring errors can occur when measuring to colourless liquids, glass, styrofoam or semi-permeable surfaces or when aiming at high gloss surfaces. Against dark surfaces the measuring time increases.

Permanent / Minimum-Maximum measuring

1. 
2. 
3. 8.532 m

The minimum and maximum distance measured is displayed (min, max.). The last value measured is displayed in the main line.

Add / Subtract

1. 
2. +
3. The result is shown in the main line and the measured value above. This process can be repeated as required. The same process can be used for adding or subtracting areas or volumes.

The next measurement is added to the previous one.

The next measurement is subtracted from the previous one.

7.332 m

12.847 m
Measuring Functions

Area

1. PressFUNC

2. Aim laser at first target point.

3. PressON DIST

4. Aim laser at second target point.

5. The result is shown in the main line and the measured value above.

Partial Measurements:

Press + or - after starting the first measurement. Measure and add or subtract distances. Finish with DIST. Measure 2nd length.

6. PressFUNC

2 sec

Circumference 19.823 m

Area 24.352 m²
Volume

1. **FUNC**
2. Aim laser at first target point.
3. **ON DIST**
4. Aim laser at second target point.
5. **ON DIST**
6. Aim laser at third target point.
7. **ON DIST**
8. **FUNC**
   - **2 sec**
   - Circumference: 80.208 m
   - Wall areas: 208.103 m²
   - Ceiling/floor area: 24.224 m²
   - Volume: 78.694 m³

The result is shown in the main line and the measured value above.
### Triangular area

1. **Aim laser at first target point.**
2. **Aim laser at second target point.**
3. **Aim laser at third target point.**

**Measurements:**
- Triangular area: $24.352 \text{ m}^2$
- Circumference: $33.852 \text{ m}$
- Angle included by the first two measurements: $40.8^\circ$

**Results:**
- Triangular area: $24.352 \text{ m}^2$
- Circumference: $33.852 \text{ m}$
Measuring Functions

Pythagoras (3-point)

1. **FUNC**
   - Aim laser at upper point.

2. **ON DIST**
   - Aim laser at rectangular point.

3. **ON DIST**
   - Aim laser at lower point.

The result is shown in the main line and the measured distance above.

Pressing the measuring key for 2 sec in the function activates automatically Minimum or Maximum measurement.
Pythagoras (partial height)

1. Press the measuring key for 2 sec in the function activates automatically Minimum or Maximum measurement.

2. Aim laser at upper point.

3. Aim laser at 2nd point.

4. Aim laser at rectangular point.

The result is shown in the main line and the measured distance above.
Two different distances (a and b) can be entered to mark off defined measured lengths.

1. Adjust value "a".
2. Move device slowly along the stake-out line. The distance to the next stake out point is displayed.
3. Approve value "a".
4. Adjust value "b".
5. Approve value "b" and start measurement.
6. When approaching a stake out point to less than 0.1 m the instrument starts to beep. The function can be stopped by pressing the CLEAR/OFF button.

0.625 m

0.240 m

0.625 m

0.240 m is missing up to next 0.625 m distance.
**Smart Horizontal Mode**

1. Aim laser at target.

2. 0.032 m

3. 5.204 m

4. 0.032 m

5. 4.827 m

(40.8°) 

Height tracking

This function displays continuously the tracking height if the device is turned on a tripod. No 2nd distance measuring is needed as only the angle is automatically measured.

1. Aim laser at lower point.

2. 30.2° 

3. 6.932 m

4. 9.827 m

5. 40.8°

6. 9.827 m

Press key again to switch off horizontal measurement.

\[ \alpha \]

\[ \beta = \text{Tracking angle} \]

\[ y = \text{Tracking height if device is turned on tripod} \]
Measuring Functions

Memory (20 last displays)

1. UNITS
   - 1...20
   - 8.294 m
   - 20 last displays are displayed.

2. +
   - 1...20
   - 8.294 m
   - Navigates through 20 last displays.

Delete Memory

3. CLEAR OFF
   - 2 sec simultaneously
   - The value from the main line can be used for further calculations.

4. UNITS
   - 2 sec
   - Memory is completely deleted.
Calibration of tilt sensor (Tilt Calibration)

1. **2 sec simultaneously**
   - Place device on absolutely flat surface.
   - Turn the device horizontally by 180° and place it again on absolutely flat surface.

2. **MEAS 1 HOR CAL**
   - Place device on absolutely flat surface.

3. **ON DIST**
   - MEAS 2 TURN 180°

4. **ON DIST**
   - 180°
   - Turn the device horizontally by 180° and place it again on absolutely flat surface.

5. **ON DIST**
   - MEAS 3 VER CAL

6. **ON DIST**
   - Place device on absolutely flat surface.

7. **ON DIST**
   - MEAS 4 TURN 180°

8. **ON DIST**
   - 180°
   - Turn the device horizontally by 180° and place it again on absolutely flat surface.

9. **ON DIST**
   - OK CAL

After 2 sec the device goes back to the normal mode.
**Technical Data**

### Distance measurement

<table>
<thead>
<tr>
<th>Typical Measuring Tolerance*</th>
<th>± 1.0 mm / 0.04 in ***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Measuring Tolerance**</td>
<td>± 2.0 mm / 0.08 in ***</td>
</tr>
<tr>
<td>Range at Leica target plate GZM26</td>
<td>100 m / 330 ft</td>
</tr>
<tr>
<td>Typical Range*</td>
<td>80 m / 262 ft</td>
</tr>
<tr>
<td>Range at unfavourable condition ****</td>
<td>60 m / 197 ft</td>
</tr>
<tr>
<td>Smallest unit displayed</td>
<td>0.1 mm / 1/32 in</td>
</tr>
<tr>
<td>Power Range Technology™</td>
<td>yes</td>
</tr>
<tr>
<td>Ø laser point at distances</td>
<td>6 / 30 / 60 mm (10 / 50 / 100 m)</td>
</tr>
</tbody>
</table>

### Tilt measurement

| Measuring tolerance to laser beam***** | ± 0.2° |
| Measuring tolerance to housing***** | ± 0.2° |
| Range | 360° |

### General

| Laser class | 2 |
| Laser type | 635 nm, < 1 mW |
| Protection class | IP65 (dust tight and jet water protected) |
| Autom. laser switch off | after 90 s |
| Autom. power switch-off | after 180 s |
| Battery durability (2 x AAA) | up to 5000 measurements |
| Dimension (H x D x W) | 122 x 55 x 31 mm / 4.80 x 2.17 x 1.22 in |
| Weight (with batteries) | 155 g / 4.98 oz |
| Temperature range: |
| - Storage | -25 to 70 °C / -13 to 158 °F |
| - Operation | -10 to 50 °C / 14 to 122 °F |

### Functions

- Distance measuring: yes
- Min/Max measuring: yes
- Permanent measuring: yes
- Stake-out: yes
- Addition/Subtraction: yes
- Area: yes
- Triangle area: yes
- Volume: yes
- Painter function (area with partial measurem.): yes
- Pythagoras: 3-point, partial height
- Smart Horizontal Mode / Indirect height: yes
- Height tracking: yes
- Memory: 20 displays
- Beep: yes
- Illuminated display: yes
- Multifunctional endpiece: yes

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For accurate indirect results, the use of a tripod is recommended. For accurate tilt measurements a transverse tilt should be avoided.
If the message Error does not disappear after switching on the device repeatedly, contact the dealer.

If the message InFo appears with a number, press the Clear button and observe the following instructions:

### Message Codes

<table>
<thead>
<tr>
<th>No.</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>156</td>
<td>Transverse tilt greater than 10°</td>
<td>Hold the instrument without any transverse tilt.</td>
</tr>
<tr>
<td>162</td>
<td>Calibration mistake</td>
<td>Make sure, the device is placed on a absolutely horizontal and flat surface. Repeat the calibration procedure. If the mistake still occurs, contact your dealer.</td>
</tr>
<tr>
<td>204</td>
<td>Calculation error</td>
<td>Perform measurement again.</td>
</tr>
<tr>
<td>252</td>
<td>Temperature too high</td>
<td>Let device cool down.</td>
</tr>
<tr>
<td>253</td>
<td>Temperature too low</td>
<td>Warm device up.</td>
</tr>
<tr>
<td>255</td>
<td>Received signal too weak, measuring time too long</td>
<td>Change target surface (e.g. white paper).</td>
</tr>
<tr>
<td>256</td>
<td>Received signal too high</td>
<td>Change target surface (e.g. white paper).</td>
</tr>
<tr>
<td>257</td>
<td>Too much background light</td>
<td>Shadow target area.</td>
</tr>
<tr>
<td>258</td>
<td>Measurement outside of measuring range</td>
<td>Correct range.</td>
</tr>
<tr>
<td>260</td>
<td>Laser beam interrupted</td>
<td>Repeat measurement.</td>
</tr>
</tbody>
</table>

### Care

- Clean the device with a damp, soft cloth.
- Never immerse the device in water.
- Never use aggressive cleaning agents or solvents.

### Warranty

The device comes with a 3-year warranty. To receive the 3-year warranty, the product must be registered on www.disto.com within 8 weeks of the purchase date. If the product is not registered, a 2-year warranty applies.

### Safety Instructions

The person responsible for the instrument must ensure that all users understand these directions and adhere to them.

#### Areas of responsibility

**Responsibilities of the manufacturer of the original equipment:**

Leica Geosystems AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
Internet: www.disto.com

The company above is responsible for supplying the product, including the User Manual in a completely safe condition.

The company above is not responsible for third party accessories.

**Responsibilities of the person in charge of the instrument:**

- To understand the safety instructions on the product and the instructions in the User Manual.
- To be familiar with local safety regulations relating to accident prevention.
- Always prevent access to the product by unauthorised personnel.
Safety Instructions

Permitted use
- Measuring distances
- Tilt measurement

Prohibited use
- Using the product without instruction
- Using outside the stated limits
- Deactivation of safety systems and removal of explanatory and hazard labels
- Opening of the equipment by using tools (screwdrivers, etc.)
- Carrying out modification or conversion of the product
- Use of accessories from other manufacturers without express approval
- Deliberate dazzling of third parties; also in the dark
- Inadequate safeguards at the surveying site (e.g. when measuring on roads, construction sites, etc.)
- Deliberate or irresponsible behaviour on scaffolding, when using ladders, when measuring near machines which are running or near parts of machines or installations which are unprotected
- Aiming directly in the sun

Hazards in use

⚠️ WARNING
Watch out for erroneous measurements if the instrument is defective or if it has been dropped or has been misused or modified. Carry out periodic test measurements. Particularly after the instrument has been subject to abnormal use, and before, during and after important measurements.

⚠️ CAUTION
Never attempt to repair the product yourself. In case of damage, contact a local dealer.

⚠️ WARNING
Changes or modifications not expressly approved could void the user’s authority to operate the equipment.

Limits of use
-
- Refer to section "Technical data".
- The device is designed for use in areas permanently habitable by humans. Do not use the product in explosion hazardous areas or in aggressive environments.

Disposal

⚠️ CAUTION
Flat batteries must not be disposed of with household waste. Care for the environment and take them to the collection points provided in accordance with national or local regulations.

The product must not be disposed with household waste.

Dispose of the product appropriately in accordance with the national regulations in force in your country.

Adhere to the national and country specific regulations.

Product specific treatment and waste management can be downloaded from our homepage.

Electromagnetic Compatibility (EMC)

⚠️ WARNING
The device conforms to the most stringent requirements of the relevant standards and regulations.

Yet, the possibility of causing interference in other devices cannot be totally excluded.
FCC statement (applicable in U.S.)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

Laser classification

The device produces visible laser beams, which are emitted from the instrument:

It is a Class 2 laser product in accordance with:

• IEC60825-1 : 2007 „Radiation safety of laser products“

Laser Class 2 products:

Do not stare into the laser beam or direct it towards other people unnecessarily. Eye protection is normally afforded by aversion responses including the blink reflex.

⚠️ WARNING

Looking directly into the beam with optical aids (e.g. binoculars, telescopes) can be hazardous.

⚠️ CAUTION

Looking into the laser beam may be hazardous to the eyes.

Labelling

Subject to change (drawings, descriptions and technical data) without prior notice.
Leica Geosystems AG, Heerbrugg, Switzerland has been certified as being equipped with a quality system which meets the International Standards of Quality Management and Quality Systems (ISO standard 9001) and Environmental Management Systems (ISO standard 14001).

Total Quality Management - Our commitment to total customer satisfaction. Ask your local Leica Geosystems agent for more information about our TQM program.

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