

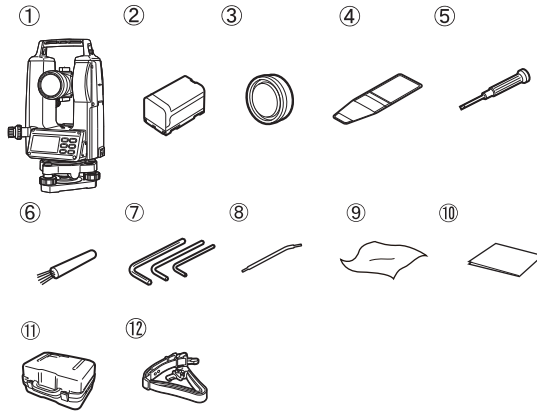
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Standard Package Components

Upon opening, make sure that all the following are included.



- 1 Main unit 1
 - 2 Battery holder DB-80 1
 - 3 Lens cap 1
 - 4 Tool pouch 1
 - 5 Precision screwdriver 1
 - 6 Lens brush 1
 - 7 Hexagonal wrench (1.3 mm/2 mm/2.5 mm) 1 each
 - 8 Adjusting pin 1
 - 9 Wiping cloth 1
 - 10 Quick Manual (This sheet) 1
 - 11 Carrying case 1
 - 12 Carrying strap 1
- * Dry batteries are sold separately.

- To see the instruction manual (PDF format) of this instrument, please download from TOPCON website. https://positioning.topcon.co.jp/sokkia_en/document/manual/
- * Adobe Acrobat Reader is necessary in order to view PDF documents. The latest version of Adobe Acrobat Reader can be downloaded from the Adobe homepage.
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Precautions for Safe Operation

For the safe use of the product and prevention of injury to operators and other persons as well as prevention of property damage, items which should be observed are indicated by an exclamation point within a triangle used with WARNING and CAUTION statements in this manual. The definitions of the indications are listed below. Be sure you understand them before reading the manual's main text.

Definition of Indication

| | | |
|--|----------------|--|
| | WARNING | Ignoring this indication and making an operation error could possibly result in death or serious injury to the operator. |
| | CAUTION | Ignoring this indication and making an operation error could possibly result in personal injury or property damage. |

- This symbol indicates items for which caution (hazard warnings inclusive) is urged. Specific details are printed in or near the symbol.
- This symbol indicates items which are prohibited. Specific details are printed in or near the symbol.
- This symbol indicates items which must always be performed. Specific details are printed in or near the symbol.

General

- Warning**
- Do not use the unit in areas exposed to high amounts of dust or ash, in areas where there is inadequate ventilation, or near combustible materials. An explosion could occur.
- Do not perform disassembly or rebuilding. Fire, electric shock, burns or hazardous radiation exposure could result.
- Never look at the sun through the telescope. Loss of eyesight could result.
- Do not look at reflected sunlight from a prism or other reflecting object through the telescope. Loss of eyesight could result.
- When securing the instrument in the carrying case make sure to set all the locks. Failure to do so could result in the instrument falling out while being carried, causing injury.
- Caution**
- Do not use the carrying case as a footstool. The case is slippery and unstable so a person could slip and fall off it.
- Do not place the instrument in a damaged case or in a case with a damaged belt. The case or instrument could be dropped and cause injury.
- Do not wield or throw the plumb bob. A person could be injured if struck.
- Secure handle to main unit. Failure to properly secure the handle could result in the unit falling off while being carried, causing injury.
- Tighten the adjustment tribrach clamp securely. Failure to properly secure the clamp could result in the tribrach falling off while being carried, causing injury.

Power Supply

- Warning**
- Do not disassemble or rebuild the battery or the battery charger, nor expose to heavy shocks or vibration. Sparking, fire, electric shock or burns could result.
- Do not short circuit. Heat or ignition could result.
- Do not place articles such as clothing on the battery charger while charging batteries. Sparks could be induced, leading to fire.
- Do not use voltage other than the specified power supply voltage. Fire or electrical shock could result.
- Do not use batteries other than those designated. An explosion could occur, or abnormal heat generated, leading to fire.
- Do not use damaged power cords, plugs or loose outlets. Fire or electric shock could result.
- Do not use power cords other than those designated. Fire could result.
- Use only the specified battery charger to recharge batteries. Other chargers may be of different voltage rating or polarity, causing sparking which could lead to fire or burns.
- Do not use the battery or charger for any other equipment or purpose. Fire or burns caused by ignition could result.
- Do not heat or throw batteries or chargers into fire. An explosion could occur, resulting in injury.
- To prevent shorting of the battery in storage, apply insulating tape or equivalent to the terminals. Otherwise shorting could occur, resulting in fire or burns.
- Do not use the battery or the battery charger if its terminals are wet. Resultant poor contact or shorting could lead to fire or burns.
- Do not connect or disconnect power supply plugs with wet hands. Electric shock could result.
- Caution**
- Do not touch liquid leaking from batteries. Harmful chemicals could cause burns or blisters.

Tripod

- Caution**
- When mounting the instrument to the tripod, tighten the centering screw securely. Failure to tighten the screw properly could result in the instrument falling off the tripod, causing injury.
- Tighten securely the leg fixing screws of the tripod on which the instrument is mounted. Failure to tighten the screws could result in the tripod collapsing, causing injury.
- Do not carry the tripod with the tripod shoes pointed at other persons. A person could be injured if struck by the tripod shoes.

- Keep hands and feet away from the tripod shoes when fixing the tripod in the ground. A hand or foot stab wound could result.
- Tighten the leg fixing screws securely before carrying the tripod. Failure to tighten the screws could lead to the tripod legs extending, causing injury.

Laser Safety

- Warning**
- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- Never intentionally point the laser beam at another person. The laser beam is injurious to the eyes and skin. If an eye injury is caused by exposure to the laser beam, seek immediate medical attention from a licensed ophthalmologist.
- The laser beam is emitted when the power is turned ON. Before turning the power on, make sure that persons are not located in the path of the laser beam.
- Do not look directly into the laser beam. Doing so could cause permanent eye damage.
- Do not stare at the laser beam. Doing so could cause permanent eye damage.
- Aiming the instrument into prism or highly reflective surface can result in serious damage to your eye because the optical axis and laser beam source is in coincidence. Do not aim the instrument directly into prism or highly reflective surface. Do not look at the laser beam directly.
- Caution**
- Perform checks at start of work and periodic checks and adjustments with the laser beam emitted under normal conditions.
- When the instrument is not being used, turn off the power and replace the lens cap.
- When disposing of the instrument, destroy the battery connector so that the laser beam cannot be emitted.
- Avoid setting the instrument at heights at which the path of the laser may strike pedestrians or drivers at head height. Operate the instrument with due caution to avoid injuries that may be caused by the laser beam unintentionally striking a person in the eye.
- Never point the laser beam at mirrors, windows or surfaces that are highly reflective. The reflected laser beam could cause serious injury.
- When using the laser-pointer function, be sure to turn OFF the output laser after measurement is completed. Even if the power is turned off, the laser-pointer function is still operating and the laser beam continues to be emitted.
- Refer to "LASER SAFETY INFORMATION" in your manual (PDF format).

Using the Battery

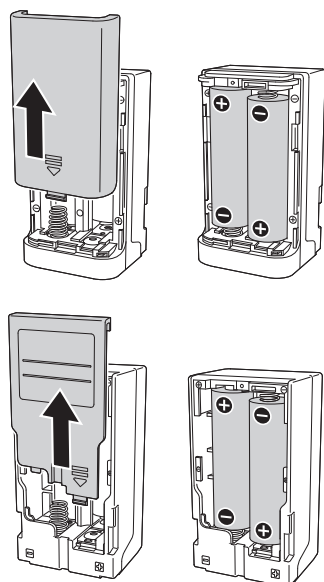
The following batteries can be used with the DT.

- Four dry batteries (AA alkaline batteries) (sold separately)
- Battery BDC71 (optional accessory)

Installing the dry batteries (AA alkaline batteries)

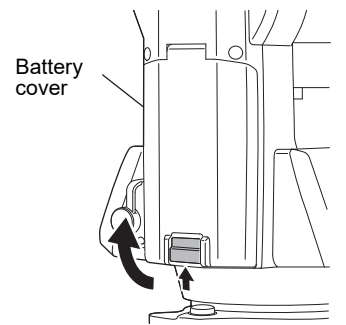
- Replace all four dry batteries (AA alkaline batteries) with new ones at the same time.
- Do not mix the old batteries to the new ones.

1. Remove the battery holder (DB-80) cover by sliding it upward.
2. Insert the two dry batteries (AA alkaline batteries) according to the +/- indicators on the battery holder.
3. Close the battery holder cover.
4. Similarly, slide the cover on the opposite side and insert the two dry batteries (AA alkaline batteries).
5. Close the battery holder cover.



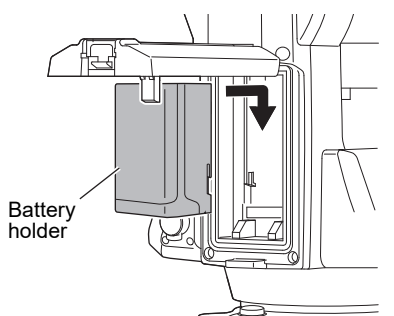
Installing the battery holder (DB-80)

1. Slide the catch on the battery cover to open.



2. Checking the terminal side on the battery holder, insert the battery holder as shown.

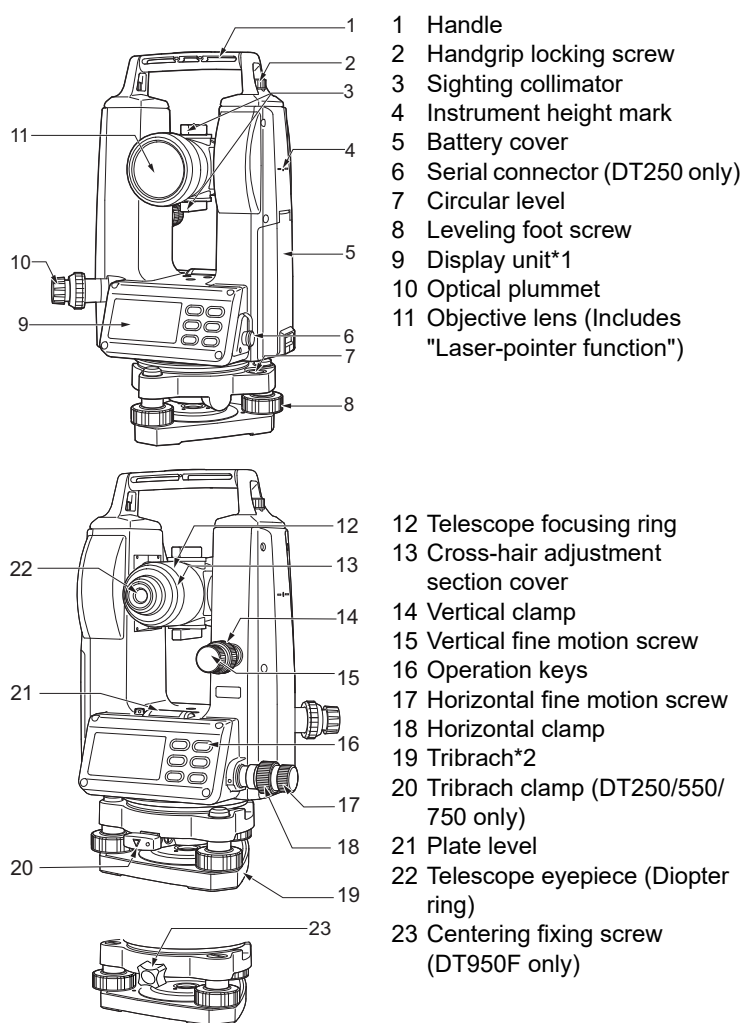
- Do not insert the battery holder inclined. Doing so may damage the instrument or battery holder terminals.



3. Close the battery cover. A click is heard when the cover is secure.

Parts of the Instrument

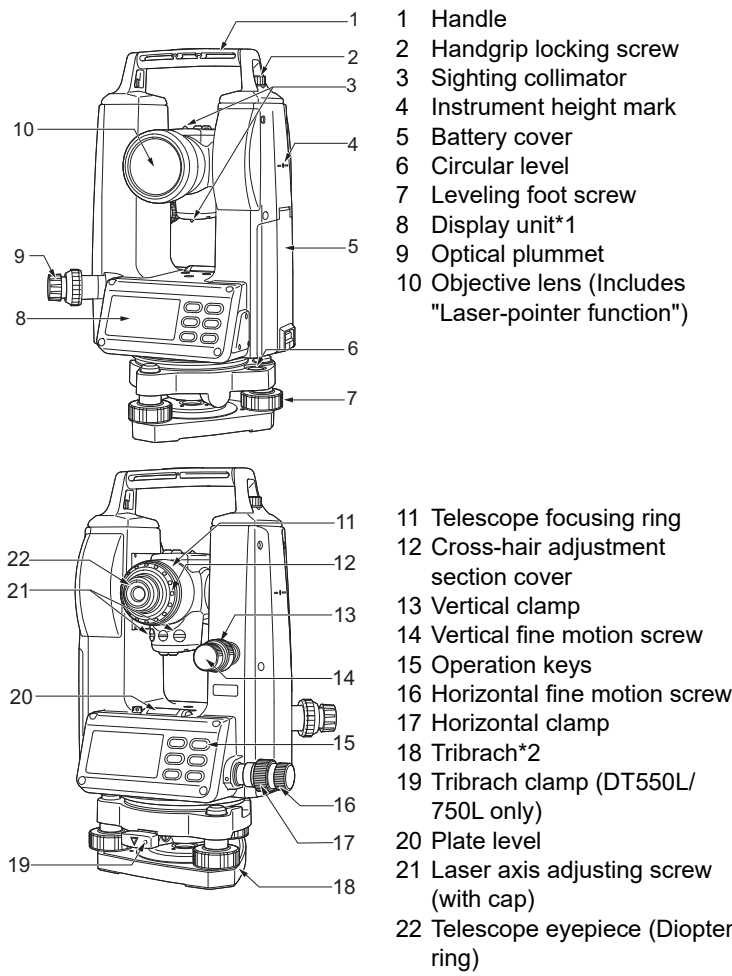
DT250/550/750/950F/950G



- 1 Handle
- 2 Handgrip locking screw
- 3 Sighting collimator
- 4 Instrument height mark
- 5 Battery cover
- 6 Serial connector (DT250 only)
- 7 Circular level
- 8 Leveling foot screw
- 9 Display unit*1
- 10 Optical plummet
- 11 Objective lens (Includes "Laser-pointer function")
- 12 Telescope focusing ring
- 13 Cross-hair adjustment section cover
- 14 Vertical clamp
- 15 Vertical fine motion screw
- 16 Operation keys
- 17 Horizontal fine motion screw
- 18 Horizontal clamp
- 19 Tribrach*2
- 20 Tribrach clamp (DT250/550/750 only)
- 21 Plate level
- 22 Telescope eyepiece (Diopter ring)
- 23 Centering fixing screw (DT950F only)

- *1: DT950F/950G has one side display only.
- *2: Tribrach type
DT250/550/750: Detachable
DT950G: Fixing
DT950F: Centering

DT550L/750L/950LG

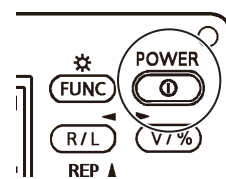


- 1 Handle
- 2 Handgrip locking screw
- 3 Sighting collimator
- 4 Instrument height mark
- 5 Battery cover
- 6 Circular level
- 7 Leveling foot screw
- 8 Display unit*1
- 9 Optical plummet
- 10 Objective lens (Includes "Laser-pointer function")
- 11 Telescope focusing ring
- 12 Cross-hair adjustment section cover
- 13 Vertical clamp
- 14 Vertical fine motion screw
- 15 Operation keys
- 16 Horizontal fine motion screw
- 17 Horizontal clamp
- 18 Tribrach*2
- 19 Tribrach clamp (DT550L/750L only)
- 20 Plate level
- 21 Laser axis adjusting screw (with cap)
- 22 Telescope eyepiece (Diopter ring)

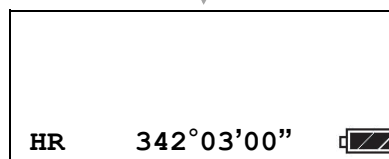
- *1: DT950LG has one side display only.
- *2: Tribrach type
DT550L/750L: Detachable
DT950LG: Fixing

Power ON/OFF

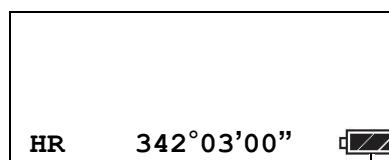
1. Press the power switch key on the operation panel.



Every segment turns on for about 1 second, and then the horizontal angle is displayed.



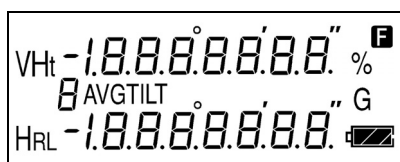
Press the {V/%}.
The vertical angle is displayed.



Remaining battery power

- Confirm the battery power remaining on the display. Replace with charged battery or charge when battery level is low.
- Caution**
- When using the laser-pointer function, be sure to turn OFF the output laser after measurement is completed. Even if the power is turned off, the laser-pointer function is still operating and the laser beam continues to be emitted.

Display Functions

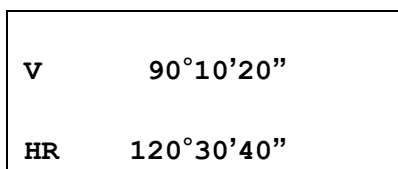
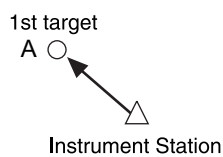


Display marks

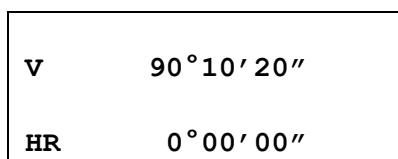
| Display | Contents | Display | Contents |
|---------|---|---------|---|
| V | Vertical angle | TILT | Tilt correction mode (DT250/550/550L/750/750L only) |
| HR | Horizontal angle right | F | Function key selection mode |
| HL | Horizontal angle left | % | Percent grade |
| Ht | Repetition angle measurement | G | Unit display GON |
| 8AVG | The number of repetition/Average of angle | | |

Angle Measurement

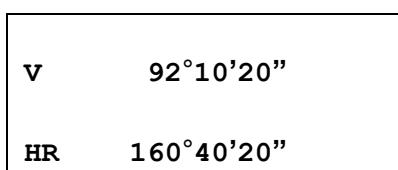
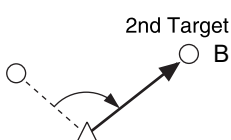
1. Sight the first target "A".



2. Press {0SET} twice to set the horizontal angle of target "A" to 0°00'00\"/>

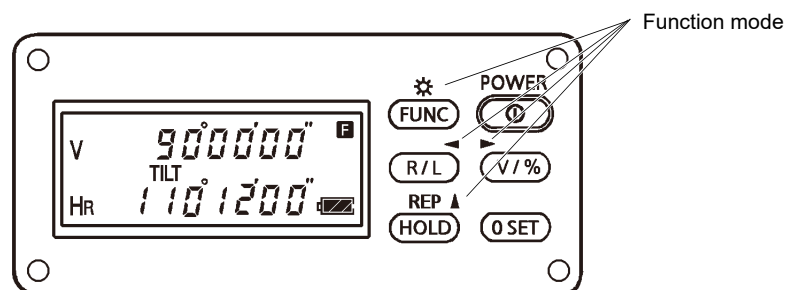


3. Sight the second target "B".



The required H/V angle to target B will be displayed.

Basic Key Operation



| Key | Function | Key | Function (Function mode) |
|---------|---|-------|--|
| {⏻} | Power switch | {REP} | Repetition angle measurement |
| {FUNC} | Upper function selection | {☀} | Illumination of display ON/OFF |
| {R/L} | Selection for horizontal angle right/left measurement | {◀} | Moving the blinking digit to the left |
| {V/%} | Vertical angle display Selection for vertical angle/percent | {▶} | Moving the blinking digit to the right |
| {HOLD} | Holding the horizontal angle | {▲} | Increment the blinking numeral |
| {0 SET} | Horizontal angle 0° set | | |

Adjustment mode and Selecting mode

| Mode | Key |
|------------------|---|
| Selecting mode 1 | Turn the power ON while pressing {R/L}. |
| Selecting mode 2 | Turn the power ON while pressing {V/%}. |

Mode1 Setting Items

- Minimum angle unit
- V angle Z0/H0
- Power-saving automatic cut-off ON/OFF
- Auto cut off time 10 min./30 min.
- Angle unit DEG/GON
- 90° buzzer ON/OFF
- Angle unit MIL

Mode2 Setting Items

- Press {0 SET} once/ twice
- Compass ON/OFF
- RS-232 Output (DT250 only)
- H Angle Memory
- Tilt correction ON/OFF (DT250/550/550L/750/750L only)

Refer to the instruction manual (PDF format) for how to set the selecting modes.