For ES-101, ES-102 and Low Temperature models.

**Standard package components**
- ES main unit, (Battery) (BDC70)
- Battery charger (CDC68) + Power Cable
- Lens brush, *A*justing pin +2, *C*leaning cloth
- **G**lotion manual, + **USB** memory key
- **U**sion caution sign-board
- Carrying case, *C*arrying strap

**Usage approval of** Bluetooth wireless technology **varies according to country.**

**About measuring time**
- (D=measuring distance in mm)
- Fine: 0.9s (initial 1.7s), Rapid: 0.7s (initial 1.4s), Tracking: 0.3s (initial 1.4s)

**Temperature models and 50 to 60°C (122 to 140°F) with High Temperature**

- Measuring range in temperatures of -30 to -20°C (-22 to -4°F) with Low Temperature models and +60 to +80°C (140 to 176°F)

- **Typical, under good conditions. Reflectorless measurement time may vary according to measuring objects, observation situations and environmental conditions.**

- **Accuracy**
  - Atmospheric conditions: 15°C (±2°C) and 60% RH (±5%)
  - Optical alignment: with Collimation compensation available

- **Display resolution**
  - Fine/Rapid: 0.001m / 0.01ft. / 1/8in. Tracking: 0.01m / 0.1ft. / 1/2in.

- **Magnification**
  - 1.3 to 500m (1,640ft.), RS90N-K: 1.3 to 500m (4.3 to 1,640ft.), RS50N-K: 1.3 to 300m (4.3 to 980ft.),

- **Leveling**
  - J1 + J2, M1 + M2, Circular level

- **Multiple prisms**
  - (3 + 2ppm x D) mm*7

- **Accuracy**
  - Fine: 0.3s (initial 1.1s), Rapid: 0.2s (initial 1.0s), Tracking: 0.1s (initial 1.0s)

- **Data storage**
  - Log: 10,000 points

- **Internal memory**
  - Approx. 250MB

- **Software (Easy Station)**
  - Support for Topcon and others manufacturer's software

- **General**
  - RS10N-K: 1.3 to 60m (4.3 to 190ft.), R810N-K: 1.3 to 30m (4.3 to 98ft.),

- **Specifications**
  - **Model**
    - ES-101
    - ES-102
    - ES-103
    - ES-105
    - ES-107

- **Telescope**
  - Objectives: 17x (mm) (40mm), Objective aperture: 48.5mm (1.9in.),* Ross 100 (1.0in.), *120 (0.47in.)
  - Field of view: 8° (1.5deg.), Magnification: 1x to 150x
  - Collimation range: ±225 (±4.9mm)
  - Collimation compensation available

- **Range measurement**
  - Laser plummet (option)
  - Optical plummet

- **Distance measurement**
  - Laser pointer (option) + **L**aser caution sign-board, Laser pointer: 50 to 60°C (122 to 140°F)

- **Interface**
  - Serial RS-232C, USB2.0 (Type A, for USB flash memory)

- **Data management**
  - Internal memory (approx. 250MB)

- **Accuracy**
  - Accuracy (ISO 17123-3:2001)

- **Display resolution**
  - 0.5" / 1" (0.0002 / 0.001gon, 0.005 / 0.02mil)

- **Magnification / Resolving power**
  - 30x / 2.5" (60°) / 30x / 2.5" (24°)

- **Angle measurement**
  - Collimation: ±3m / 3mm
  - Accuracy: ±1mm / 3mm

- **Laser pointer**
  - Coaxial red laser using EDM beam

- **Optical plummet**
  - Prepared for 60° prism/sheet, Ø1 in (25.4mm) for Ø1 sheet target

- **Guide light**
  - Green LED (524nm) and Red LED (626nm), Coaxial red laser using EDM beam

- **Plug-in memory device**
  - Approx. 3.9MB

- **Others**
  - Fine: 0.6 to 1.5 x 10,000 points

- **Magnification**
  - 3x, Minimum focus: 0.3m (11.8in.) from tribrach bottom

- **General**
  - Topcon main unit
  - IP66 (IEC 60529:2001)

- **Laser plummet**
  - Circular level

- **Dimensions**
  - Control panel on one face: W191 x D174 x H348mm (W7.5 x D6.9 x H13.7in.)
  - Control panel on both faces: W191 x D181 x H348mm (W7.5 x D7.1 x H13.7in.)

- **Usage approval of** Bluetooth wireless technology **varies according to country.**

- **About measuring time**
  - Fine: 0.9s (initial 1.7s), Rapid: 0.7s (initial 1.4s), Tracking: 0.3s (initial 1.4s)

- **Data storage**
  - Approx. 10,000 points

- **Accuracy**
  - Accuracy (ISO 17123-3:2001)

- **Mounting**
  - 30x / 2.5" (60°) / 30x / 2.5" (24°)

- **Magnification / Resolving power**
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  - Accuracy (ISO 17123-3:2001)

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  - 30x / 2.5" (60°) / 30x / 2.5" (24°)

- **Magnification / Resolving power**
  - 30x / 2.5" (60°) / 30x / 2.5" (24°)
The perfect combination of easy operation and powerful features.

**Fast and Powerful Reflectorless EDM**
- Fast and accurate pinpointing with phase shift technology.
- Fast distance measurement of 0.9s regardless of object.
- Minimum reflectorless measuring distance – just 30cm.
- Improved collimation with super-bright pointer.
- Smaller EDM beam spot size for minimal distance measuring error.
- Dependable measuring even at shallow incidence angles.
- Ensures accurate reflective sheet distance measurement.

**Advanced Angle Measurement System**
- ES features advanced absolute encoders for long-term reliability in all work conditions. Dual-axis compensation ensures accurate leveling even on rough terrain.
- Motion clamp and tangent screw ensure stable angle measurement.
- ES-101 and ES-102 feature angle measuring accuracy of 1" equipped with groundbreaking technology for extremely reliable angle measurement.

**LongLink Data Communication**
- Long-distance communications with Bluetooth® Class 1.
- Bluetooth Class1 realizes long-distance and stable connection.
- Link between total station and rover-end data collector, both equipped with Bluetooth Class1, facilitates quick surveying only by sighting the object.
- USB Type A port for convenient added memory. Use of included USB accessory assures IP66 protection.
- Star key [ ] instantly brings up functions.
- Trigger key lets you take a series of measurements without taking your eye off the telescope.
- Control panel consists of 10-key pad with LCD for easy viewing of graphics*.

*Offered as a factory option.

**Rugged and User-friendly Design**
- IP66 dustproof/waterproof performance.
- Standard usage temperature range –20° to +50°C. Low temperature models can be used as low as –30°* and High temperature Models up to +60°C*.
- Just one battery last 36 hours. It runs one week in full charge and no longer requires extra batteries.

*Low and High temperature models available as options.

**The Longest Battery Life – 36 Hours!**
- As of December, 2011.
- 7 hours in 5 days for fine single measurement in 30 seconds.

**The Ultra-narrow EDM beam** can precisely measure walls, corners, manholes on the surface, even chain-link fences and tree branches.

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