## SPECIFICATIONS

### TELESCOPE
- **Magnification**: 32×, 30×
- **Objective Aperture**: 43mm
- **Field of view**: 1°20’
- **Resolving power**: 3’

### COMPENSATOR
- **Working Range**: ±12’, ±15’
- **Setting Accuracy**: ±0.3’

### HEIGHT MEASUREMENT
- **Accuracy (Standard deviation for 1km double-run leveling)**: 0.1mm/0.01mm (0.001ft/0.0001ft)
- **Electronic reading**: 0 to 100m (0 to 328ft) w/invisible staff, 1.5m (4.92ft) x 2 pcs.
- **Optical reading**: 1mm, 1.5mm
- **Least Count**: 1mm (BT-31Q Rechargeable Battery)

### DISTANCE MEASUREMENT
- **Least Count**: 1cm, 1mm
- **MEASURING RANGE**: 2m to 60m (7ft to 197ft) w/Invar staff, 2m to 60m (7ft to 197ft) w/Fiberglass staff
- **MEASURING TIME**: 3 sec.
- **CIRCULAR LEVEL SENSITIVITY**: 1.0mm
- **Optical reading**: 1.0mm w/Fiberglass staff
- **Electronic reading**: 0.4mm w/Invar staff

### STAFF
- **Aluminum staff SI-3/T or SI-3**: Length: 3.0m (9.84ft)
- **Fiberglass staff SG-3M**: Length: 3.0m (9.84ft)
- **Aluminum staff SA-5M**: Length: 5.0m (16.40ft)
- **Plastic train cover**: 1pc.

### DATA TRANSMISSION
- **Data Card**: PCMCIA card (64KB to 2 MB)
- **Data Storage**: PCMCIA card (64KB to 2 MB)

### POWER SUPPLY
- **Horizontal Circle**: 360° or 400gon
- **Timer**: Built-in timer
- **Keyboard**: Alphanumeric input
- **Data Transmission**: RS-232C port provided

### OPTICAL READING
- **Magnification**: 32
- **Graduation**: 1cm graduation with 5mm pattern (front surface)

### TELESCOPE
- **Telescope**: 8'/2mm, 10'/2mm
- **Telescope Magnification**: 32×
- **Graduation**: 1cm graduation with 5mm pattern (front surface)

### STAFF
- **Aluminum staff SI-3/T or SI-3**: Length: 3.0m (9.84ft)
- **Fiberglass staff SG-3M**: Length: 3.0m (9.84ft)
- **Invar staff SI-3/T or SI-3**: Length: 3.0m (9.84ft)

### OTHERS
- **Display**: 2-line, 8-digit per line. Dot matrix LCD with backlight
- **Data Storage**: PCMCIA card (64KB to 2 MB)
- **Internal memory approx. 8,000 data
- **Data Transmission**: RS-232C port provided
- **Keyboard**: Alphanumeric input
- **Timer**: Built-in timer
- **Horizontal Circle**: 360° or 400gon
- **Power Supply**: AA size dry cell batteries x 6
  - [Option: Rechargeable Battery BT-31Q]
- **Operating Time**: 10 hours (Dry cell - Alkaline)
- **Ambient Temperature Range**: -20°C to +50°C [-4°F to +122°F]
- **Dimensions**: 237 x 141 x 102mm (9.33 x 7.72 x 5.55 inch)
- **Weight**: 2.8 kg (6.16 lbs) (including on-board battery)
- **Display**: 2-line, 8-digit per line. Dot matrix LCD with backlight
- **Optical reading**: 1.0mm
- **Electronic reading**: 0.4mm w/Invar staff

### ACCURACY
- **Setting Accuracy**: ±0.3” ±0.5”
- **Working Range**: ±12’ ±15’
- **Compensator**: Resolving power 3” Field of view 1°20’

### MEASURING TIME
- **2m to 60m (7ft to 197ft):** Invar staff
- **MEASURING RANGE**: 0.1mm/0.01mm (0.001ft/0.0001ft)

### DISTANCE MEASUREMENT
- **Accuracy**: 1cm to 5cm
- **Setting Accuracy**: ±0.3” ±0.5”
- **Working Range**: ±12’ ±15’

### STAFF
- **Aluminum staff SI-3/T or SI-3**: Length: 3.0m (9.84ft)
- **Fiberglass staff SG-3M**: Length: 3.0m (9.84ft)
- **Invar staff SI-3/T or SI-3**: Length: 3.0m (9.84ft)

### OPTION
- **Rechargeable Battery BT-31Q**: Battery charger BC-23B or BC-23C
- **Power Supply**: AA size dry cell batteries
- **Data Card**: PCMCIA card (64KB to 2 MB)

### STANDARD SET COMPONENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery charger</td>
<td>BC-23B or BC-23C</td>
</tr>
<tr>
<td>Rechargeable Battery</td>
<td>BT-31Q</td>
</tr>
<tr>
<td>AA size dry cell batteries</td>
<td>6pcs.</td>
</tr>
</tbody>
</table>

*Designs and specifications herein are subject to change without notice.*

**Important**: In order to obtain the best results with the instrument, please be sure to review all user instructions prior to operation.
ELECTRONIC DIGITAL LEVEL DL-101C/102C

The “Electronic Eye” Makes Error-Free Measurements, Increases Speed, Accuracy and Productivity!!

TOPCON’s DL-101C/102C takes accuracy and ease of operation to a higher level with its Advanced Image Processing Technology. The outstanding features make the DL-101C/102C ideal for high precision applications including the performance of 1st and 2nd order leveling and deformation monitoring.

MAIN FEATURES

Faster Automatic Measurement
When used with TOPCON’s unique patterned staff, height and distance can be automatically determined digitally by the DL-101C/102C.

Since it’s a fully automatic electronic measurement, there is no need to make an optical reading! You just sight the staff, focus, and press the measurement button. “It’s that simple!” The results appear in the clearly visible display window after about three seconds.

Highly Accurate Measurements
The fully automatic measuring ability and digital display of the DL-101C/102C excludes any reading errors, writing mistakes in the field book, and other possible human-made errors. Consequently, the electronic measurement data is always more precise and more reliable as compared to the conventional visual measurement.

Increased Productivity up to 50%
With TOPCON’s DL-101C/102C, all leveling work can be carried out automatically, quickly and more economically as compared to the performance of conventional optomechanical levels. This effortless and error-free measurement makes it possible to have up to a 50% increase in productivity.

PCMCIA Memory Card System
The PCMCIA memory card system can be used with DL-101C/102C. Memory cards up to 2MB are available for memory storage in addition to the instrument’s internal memory capacity of 256KB. The internal memory can store up to 8,000 measured points. The PCMCIA memory card slot is concealed behind the battery compartment.

This ensures watertight protection of the PCMCIA card. Data recording directly to either internal memory or PCMCIA card is selectable.

Screen Backlight
The display screen has a software controlled backlight that can be set on or off and brightness control at 9 levels to ensure easy viewing of the screen in bright, shadow and dark conditions.

Data Output Function
Standard RS-232C port provides an instant communications link with a data collector or direct output to a personal computer.

OPERATING FUNCTIONS /SOFTWARE

◆ N-times measurements
(to get averaged result and standard deviation)
◆ Horizontal distance measurement
(to the staff)
◆ Height determination of intermediate points
◆ Calculation of difference in elevation
(from the Backsight to the Foresight)
◆ Design elevations can be recalled from the PCMCIA card and a counter down to zero for stake out the height is displayed.
◆ Repeat measurement for recollection
◆ Modification of point number (before foresight measurement)
◆ Selectable minimum units for reading
(DL-101C: 0.1mm/0.01mm, DL-102C: 1mm/0.1mm)
◆ Manually input data
◆ Alpha/Numeric input function
◆ Swing correct function to reduce the effect of vibrations. This ensures accurate and stable reading even under windy or heavy traffic conditions.
◆ Alarm function when distance between Foresight and Backsight is out of tolerance.

Foresight 1
Backsight 2
Foresight 2
Backsight 1

BF-FB, BB-FF Measurement
In addition to the general procedure of Backsight → Foresight, the DL-101C/102C has two other collections procedures. Either Backsight 1 → Foresight 1 → Foresight 2 → Backsight 2 or Backsight 1 → Backsight 2 → Foresight 1 → Foresight 2 methods can be used. Using these measurement techniques, you can make your measurements more accurate.

ADVANCED APPLICATIONS

◆ Network leveling
The performance from 1st to 4th order leveling
◆ Deformation monitoring
Monitoring and surveillance of ground subsidence.
◆ Industrial surveying
Topographical surveys
Line leveling, Area leveling, Leveling networks, Contour-line surveys.
◆ Road and Rail-laying construction
Longitudinal profiles, Cross-sections, Setting-out of heights
◆ Tunneling and mining
ELECTRONIC DIGITAL LEVEL DL-101C/102C

The “Electronic Eye” Makes Error-Free Measurements, Increases Speed, Accuracy and Productivity!!

TOPCON’s DL-101C/102C takes accuracy and ease of operation to a higher level with its Advanced Image Processing Technology. The outstanding features make the DL-101C/102C ideal for high precision applications including the performance of 1st and 2nd order leveling and deformation monitoring.

**MAIN FEATURES**

- **Faster Automatic Measurement**
  - When used with TOPCON’s unique patterned staff, height and distance can be automatically determined digitally by the DL-101C/102C.
  - Since it’s a fully automatic electronic measurement, there is no need to make an optical reading! You just sight the staff, focus, and press the measurement button. It’s that simple! The results appear in the clearly visible display window after about three seconds.

- **Highly Accurate Measurements**
  - The fully automatic measuring ability and digital display of the DL-101C/102C excludes any reading errors, writing mistakes in the field book, and other possible human-made errors. Consequently, the electronic measurement data is always more precise and more reliable as compared to the conventional visual measurement.

- **Increased Productivity up to 50%**
  - With TOPCON’s DL-101C/102C, all leveling work can be carried out automatically, quickly and more economically as compared to the performance of conventional optomechanical levels. This effortless and error-free measurement makes it possible to have up to a 50% increase in productivity.

- **PCMCIA Memory Card System**
  - The PCMCIA world standard memory card system can be used with DL-101C/102C. Memory cards up to 2MB are available for memory storage in addition to the instrument’s internal memory capacity of 256KB. The internal memory can store up to 8,000 levelling points. The PCMCIA memory card slot is concealed behind the battery compartment. This ensures watertight protection of the PCMCIA card. Data recording directly to either internal memory or PCMCIA card is selectable.

- **Screen Backlight**
  - The display screen has a software controlled backlight that can be set on or off and brightness control at 9 levels to ensure easy viewing of the screen in bright, shadow and dark conditions.

- **5m staff**
  - Levelling staffs of a variety of materials and length are available with the special TOPCON pattern to allow Digital Measurements with DL-101C/102C.

- **Data Output Function**
  - Standard RS-232C port provides an instant communications link with a data collector or direct output to a personal computer.

**OPERATING FUNCTIONS /SOFTWARE**

- N-times measurements (to get averaged result and standard deviation)
- Horizontal distance measurement (to the staff)
- Height determination of intermediate points
- Calculation of difference in elevation (from the Backsight to the Foresight)
- Design elevations can be recalled from the PCMCIA card and a count down to zero for stake out the height is displayed.
- Repeat measurement for recollection
- Modification of point number (before foresight measurement)
- Selectable minimum units for reading (DL-101C: 0.1mm/0.01mm, DL-102C: 1mm/0.1mm)
- Manually input data
- Alpha/Numeric input function
- Swing correct function to reduce the effect of vibrations. This ensures accurate and stable reading even under windy or heavy traffic conditions.
- Alarm function when distance between Foresight and Backsight is out of tolerance.

**ADVANCED APPLICATIONS**

- Network leveling
- Deformation monitoring
- Monitoring and surveillance of ground subsidence.
- Industrial surveying
- Topographical surveys
- Line leveling, Area leveling, Leveling networks, Contour-line surveys.
- Road and Rail-laying construction
- Longitudinal profiles, Cross-sections, Setting-out of heights
- Tunneling and mining

**DL-101C (precision digital level)**

- Accuracy: (Standard deviation for 1km)
- Electronic reading: 0.4 mm (w/infer Staff)
- Optical reading: 1.0 mm
- Least count: 0.1mm/0.01mm

**DL-102C (engineer’s digital level)**

- Accuracy: (Standard deviation for 1km)
- Electronic reading: 0.4 mm (w/infer Staff)
- Optical reading: 1.0 mm
- Least count: 0.1mm/0.01mm
### SPECIFICATIONS

<table>
<thead>
<tr>
<th></th>
<th>DL-101C</th>
<th>DL-102C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TELESCOPE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnification</td>
<td>32x</td>
<td>30x</td>
</tr>
<tr>
<td>Objective Aperture</td>
<td>45mm</td>
<td></td>
</tr>
<tr>
<td>Field of view</td>
<td>1°20'</td>
<td>1°20'</td>
</tr>
<tr>
<td>Resolving power</td>
<td>1''</td>
<td>1''</td>
</tr>
<tr>
<td><strong>COMPENSATOR</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working Range</td>
<td>±12°</td>
<td>±15°</td>
</tr>
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<td><strong>HEIGHT MEASUREMENT</strong></td>
<td></td>
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</tr>
<tr>
<td>Accuracy (Standard deviation for 1km double-run leveling)</td>
<td></td>
<td></td>
</tr>
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<td>Electronic reading</td>
<td>0.4mm w/telescope staff</td>
<td>0.4mm w/Fiberglass staff</td>
</tr>
<tr>
<td>Optical reading</td>
<td>1.0mm</td>
<td>1.5mm</td>
</tr>
<tr>
<td>Least Count</td>
<td>0.001m (0.003 ft)</td>
<td>0.001m (0.003 ft)</td>
</tr>
<tr>
<td><strong>DISTANCE MEASUREMENT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Least Count</td>
<td>1cm/1mm</td>
<td>1cm</td>
</tr>
<tr>
<td><strong>MEASURING RANGE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>Fiberglass staff</td>
<td>Aluminum staff</td>
</tr>
<tr>
<td>2m to 60m (7ft to 197ft)</td>
<td>Invar staff</td>
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</tr>
<tr>
<td><strong>MEASURING TIME</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>CIRCULAR LEVEL SENSITIVITY</strong></td>
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<td>10'/2mm</td>
</tr>
<tr>
<td><strong>OTHERS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display</td>
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<tr>
<td>Data Transmission</td>
<td>RS-232C, port provided</td>
<td></td>
</tr>
<tr>
<td>Keyboard</td>
<td>Alphanumeric input</td>
<td></td>
</tr>
<tr>
<td>Timer</td>
<td>Built-in timer</td>
<td></td>
</tr>
<tr>
<td>Operating Time</td>
<td>10 hours (Dry cell - Alkaline)</td>
<td></td>
</tr>
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<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>287 x 196 x 141mm [9.33 x 7.72 x 5.55 inch]</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>2.8 kg [6.16 lbs] (including on-board battery)</td>
<td></td>
</tr>
<tr>
<td>Data Card</td>
<td>PC card based on PCMCIA (SRAM: 64K~2M byte)</td>
<td></td>
</tr>
<tr>
<td><strong>STAFF</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminum staff SA-5M Length</td>
<td>5.0m [16.40ft] (Slide Type: 3pcs.)</td>
<td></td>
</tr>
<tr>
<td>Fiberglass staff SG-3M Length</td>
<td>3.0m [9.84ft]</td>
<td></td>
</tr>
<tr>
<td>Invar staff SI-3/T or SI-3 Length</td>
<td>3.0m [9.84ft]</td>
<td></td>
</tr>
</tbody>
</table>

### STANDARD SET COMPONENTS

1. Instruction manual: 1 vol.
2. Adjusting pin: 1 pc.
3. Plastic rain cover: 1 pc.
4. Silicone cloth: 1 pc.
5. Plumb bob set: 1 pc.
7. Carrying case: 1 pc.

**OPTION**

- Battery charger BC-23B: 1 pc. (AC120V) or (AC230V)
- Dry battery holder DB-31: 1 pc.
- AA size dry cell batteries: 6 pcs.

### DL-101C / DL-102C

Instrument DL-101C or DL-102C (with lens cap)...

- Carrying Case...
- Plastic rain cover...
- Silicone cloth...
- Plumb bob set...
- Adjusting pin...
- Instruction manual...
- Carry case...
- Carrying case...

Rechargeable Battery BT-31Q

Battery charger BC-23B or BC-23C

AC120V / AC230V

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