

**ELECTRONIC DIGITAL LEVEL**

# DL-101C/102C



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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.



## DL-101C (precision digital level)

Dist  
25.199m

\*Accuracy (Standard deviation for 1km)

Electronic reading: 0.4 mm (w/Invar Staff)

Rod  
1.44041m

Optical reading: 1.0 mm

\*Least count: 0.1mm/0.01mm

## DL-102C (engineer's digital level)

Dist  
25.02m

\*Accuracy (Standard deviation for 1km)

Electronic reading: 1.0 mm (w/Fiberglass Staff)

Rod  
1.4734m

Optical reading: 1.5 mm

\*Least count: 1mm/0.1mm

# 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 levelled 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

Leveling 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.

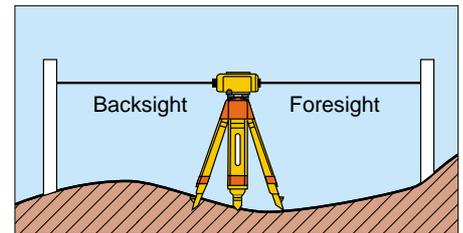
# OPERATING FUNCTIONS /SOFTWARE

- ◆ **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: 0.1 mm/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.**

## 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

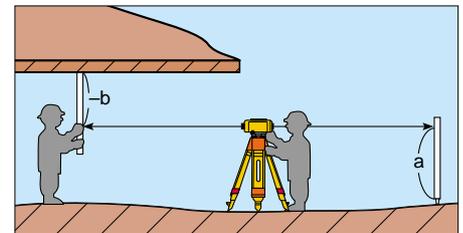
measurement techniques, you can make your measurements more accurate.



## Inverse Staff Mode

When heights of elevated points are required to be measured eg. For ceiling heights, or in tunnels etc., the DL-101C/102C can measure the height from the ceiling points with staff inverted, using the "reverse reading" mode.

Inverse Staff Mode is effective for any application in which the height is measured from elevated points.



# 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**

# SPECIFICATIONS

	DL-101C	DL-102C
<b>TELESCOPE</b>		
Magnification	32×	30×
Objective Aperture	45mm	
Field of view	1°20'	
Resolving power	3"	
<b>COMPENSATOR</b>		
Working Range	±12'	±15'
Setting Accuracy	±0.3"	±0.5"
<b>HEIGHT MEASUREMENT</b>		
Accuracy (Standard deviation for 1km double-run levelling)		
Electronic reading	0.4mm w/Invar staff	1.0mm w/Fiberglass staff
Optical reading	1.0mm	1.5mm
Least Count	0.1mm/0.01mm (0.001ft/0.0001ft)	1mm/0.1mm (0.01ft/0.001ft)
<b>DISTANCE MEASUREMENT</b>		
Least Count	1cm/1mm	1cm
Accuracy	1cm to 5cm	
<b>MEASURING RANGE</b>	2m to 100m (7ft to 328ft): Fiberglass staff/Aluminum staff 2m to 60m (7ft to 197ft): Invar staff	
<b>MEASURING TIME</b>	3 sec.	
<b>CIRCULAR LEVEL SENSITIVITY</b>	8'/2mm	10'/2mm
<b>OTHERS</b>		
Display	2-line, 8-digit per line. Dot matrix LCD with backlight	
Data Storage	PCMCIA card (64KB to 2MB) 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 × 6 [Option: Rechargeable Battery BT-31Q]	
Operating Time	10 hours (Dry cell – Alkaline) [10 hours (BT-31Q Rechargeable Battery)]	
Ambient Temperature Range	-20°C to +50°C [-4°F to +122°F]	
Dimensions	237 × 196 × 141mm [9.33 × 7.72 × 5.55 inch]	
Weight	2.8 kg [6.16 lbs] (including on-board battery)	
Data Card	PC card based on PCMCIA (SRAM: 64K~2M byte)	
<b>STAFF</b>		
Aluminum staff SA-5M	Length: 5.0m [16.40ft] (Slide Type: 3 pcs.)	
Fiberglass staff SG-3M	Length: 3.0m [9.84ft] (1.5m [4.92ft] × 2 pcs.) Graduation: 1cm graduation with 5mm pattern (front surface)	
Invar staff SI-3/T or SI-3	Length: 3.0m [9.84ft]	

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

**Important** In order to obtain the best results with this instrument, please be sure to review all user instructions prior to operation.



75-1 Hasunuma-cho, Itabashi-ku, Tokyo 174-8580, Japan Phone: 3-3558-2520 Fax: 3-3960-4214 www.topcon.co.jp

## TOPCON AMERICA CORPORATION

CORPORATE OFFICE  
37 West Century Road, Paramus, NJ 07652, U.S.A.  
Phone: 201-261-9450 Fax: 201-387-2710 www.Topcon.com

## TOPCON CALIFORNIA

3380 Industrial Blvd., Suite 105, West Sacramento, CA 95691, U.S.A.  
Phone: 916-374-8575 Fax: 916-374-8329

## TOPCON MIDWEST

891 Busse Road, Elk Grove Village, IL 60007, U.S.A.  
Phone: 847-734-1700 Fax: 847-734-1712

## TOPCON LASER SYSTEMS, INC.

5758 West Las Positas Blvd., Pleasanton, CA 94588, U.S.A.  
Phone: 925-460-1300 Fax: 925-460-1315 www.topconlaser.com

## TOPCON EUROPE B.V.

Esse Baan 11, 2908 LJ Capelle a/d IJssel, The Netherlands.  
Phone: 010-4585077 Fax: 010-4585045 www.topconeuropa.com

## TOPCON BELGIUM

Preenakker 8, 1785 Merchtem, Belgium  
Phone: 052-37.45.48 Fax: 052-37.45.79

## TOPCON DEUTSCHLAND G.m.b.H.

Weidkamp 180, 45356 Essen, GERMANY  
Phone: 0201-8619-100 Fax: 0201-8619-111 ps@topcon.de  
www.topcon.de

## TOPCON S.A.R.L.

89, Rue de Paris, 92585 Clichy, Cedex, France.  
Phone: 33-1-41069490 Fax: 33-1-47390251 topcon@topcon.fr

## TOPCON ESPAÑA S.A.

HEAD OFFICE  
Frederic Mompou 5, ED. Euro 3, 08960, Sant Just Desvern Barcelona, Spain.  
Phone: 93-473-4057 Fax: 93-473-3932 www.topconesp.com

## MADRID OFFICE

Avenida Burgos, 16E, 1° 28036, Madrid, Spain.  
Phone: 91-363-4129 Fax: 91-363-3890

## TOPCON SCANDINAVIA A. B.

Neongatan 2 S-43151 Mölndal, SWEDEN  
Phone: 031-7109200 Fax: 031-7109249

## TOPCON (GREAT BRITAIN) LTD.

HEAD OFFICE  
Topcon House Kennet Side, Bone Lane, Newbury, Berkshire RG14 5PX U.K.  
Phone: 44-1635-551120 Fax: 44-1635-551170  
survey.sales@topcon.co.uk laser.sales@topcon.co.uk

## TOPCON SINGAPORE PTE. LTD.

Alexandra Distripark Block 4, #05-15, Pasir Panjang Road, Singapore 118491  
Phone: 2780222 Fax: 2733540 www.topcon.com.sg

## TOPCON AUSTRALIA PTY. LTD.

408 Victoria Road, Gladsville, NSW 2111, Australia  
Phone: 02-9817-4666 Fax: 02-9817-4654 www.topcon.com.au

# STANDARD SET COMPONENTS



Instrument DL-101C or DL-102C (with lens cap).....1 pc.  
Carrying case.....1 pc.  
Plastic rain cover.....1 pc.  
Silicon cloth.....1 pc.  
Plumb bob set.....1 set  
Adjusting pin.....1 pc.  
Instruction manual.....1 vol.  
Dry battery holder DB-31.....1 pc.  
AA size dry cell batteries.....6 pcs  
**OPTION**  
Rechargeable Battery BT-31Q  
Battery charger BC-23B or BC-23C.....1 pc.  
(AC120V) (AC230V)



TOPCON CORPORATION

## TOPCON INSTRUMENTS (THAILAND) CO., LTD.

77/162 Sinn Sathorn Tower, 37th Fl.,  
Krungthornburi Rd., Klongtonnai, Klongsom, Bangkok 10600 Thailand.  
Phone: 662-440-1152-7 Fax: 662-440-1158

## TOPCON INSTRUMENTS (MALAYSIA) SDN. BHD.

Lot 226 Jalan Negara 2, Pusat Bandar Taman Melawati,  
Taman Melawati, 53100, Kuala Lumpur, Malaysia.  
Phone: 03-41079801 Fax: 03-41079796

## TOPCON KOREA CORPORATION

Hyobong Bldg., 1306-1, Seocho-Dong, Seocho-Gu, Seoul, Korea.  
Phone: 02-3482-9231 Fax: 02-3481-1928 www.topcon.co.kr

## TOPCON OPTICAL (H.K.) LIMITED

2/F., Meeco Industrial Bldg., No. 53-55 Au Pui Wan Street, Fo Tan Road,  
Shatin, N.T., Hong Kong  
Phone: 2690-1329 Fax: 2690-2221 www.topcon.com.hk

## TOPCON CORPORATION BEIJING OFFICE

Room No. 962 Poly Plaza Building, 14 Dongzhimen Nandajie,  
Dongcheng District, Beijing, 100027, China  
Phone: 10-6501-4191-2 Fax: 10-6501-4190

## TOPCON CORPORATION BEIRUT OFFICE

P. O. BOX 70-1002 Antelias, BEIRUT-LEBANON.  
Phone: 961-4-523525/961-4-523526 Fax: 961-4-521119

## TOPCON CORPORATION DUBAI OFFICE

Office No. 102, Khalaf Rashid Al Nailly Bldg., 245 Abu Hal Road, Deira, Dubai, UAE  
Phone: 971-4-2696511 Fax: 971-4-2695272