



GPT-3000(L)N SERIES

***PULSE
TOTAL STATION***

Best Performance Non-prism measurement



The Topcon GPT-3000(L)N Series are Pulse Laser Total Stations with a superior non-prism measurement capability. Making use of an updated optical system, the GPT-3000(L)N Series incorporates special techniques to provide accurate, reliable and safe non-prism distance measurement over a range of up to 250 meters. In addition to non-prism measurement, the GPT-3000(L)N Series is of a compact, robust construction with IP66 water and dust protection making it the ideal construction site surveying instrument. The easy to use software provides complete functionality to carry out all surveying and stake out routines and calculations and to store all data in the instrument itself.

For a complete, All weather, Non-Prism surveying instrument that can be applied to almost any surveying task, look no further than the Topcon GPT-3000(L)N Series.

Features

Visible Laser Pointer

GPT-3000(L)N Series uses both an invisible Pulse Laser Diode for distance measurement and a Visible Red Laser Beam as a laser pointer to identify the measurement point at the center of the cross hairs of the telescope. The visible Class 2 laser pointer, which easily switches on and off if required. The laser pointer is an effective help in identifying the measurement point during non-prism measurement and for targeting the required point during stakeout.

Toughest Durability

The proven robustness and durability of Topcon construction Total Stations is also found in the GPT-3000(L)N Series. With International protection standard IP66, the instruments are water and dust proof and ensure reliable performance even in the harshest site conditions. This increases the amount of working hours during a day, even in bad weather and ensures the instrument performing reliably for many years without the need for lengthy service and repairs.

* Degree of protection against water for Topcon's GPT-3000(L)N Series is based on the standard IEC60529, defined as 'Water projected in powerful jets' against enclosure from any direction shall have no harmful effects. And also GPT-3000(L)N Series complies with 'Dust-tight' of the IEC60529 standard as to degree of protection against solid foreign objects, defined as 'No ingress of dust'.

Simple Operation

The GPT-3000(L)N Series is based on the best selling Total Station GTS-220 Series and has the same powerful, extreme and intuitive surveying and stakeout software.

24 Key Keyboard

The GPT-3000(L)N Series has a 24 numeric key keyboard build in. This 24 key keyboard makes it easier and quicker to key in codes and other alpha or numeric fields.



Large Internal Memory

The GPT-3000(L)N Series has the internal memory to store up to 24,000 points for data collection and layout work.

Dual-Axis Compensator

A dual-axis compensator is included in the GPT-3002(L)N/3003(L)N/3005(L)N models. This dual-axis tilt sensor automatically corrects the vertical and horizontal angle compensation for leveling error, ensuring accurate and reliable angle readings.



Point Guide System

Topcon's Point Guide function is available as standard on the GPT-3000(L)N Series. Get on line quick and easy with Point Guide! Two LED lights (one flashing), help identifying the correct direction for setting out.

Universal Reflectorless

The GPT-3000LN Series has besides all the features of the GPT-3000N added the L as in Long Range. The GPT-3000LN Series has high performance long range non prism measurements up to 1200 meters.

Non-Prism features

Long Range measurement

The GPT-3000N Series measure over a range of up to 250m and the GPT-3000LN Series up to 1200m in Non-Prism mode. This capability ensures a high performance non-prism measurement possible to dark, rough or inclined surfaces encountered in the practical site environment.

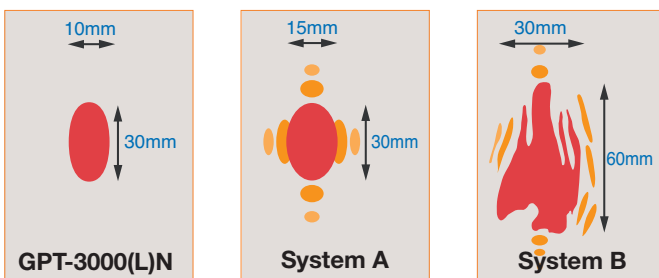
Non-prism measurements are rarely perpendicular to Kodak Grey surfaces, which most instrument measurement specifications are based on. Topcon GPT-3000(L)N Series is designed to perform under real site conditions.

Safe Measurement

Topcon's unique Pulse Laser technology with narrow beam optical system is a Class 1 laser. This allows the instrument to be used in compliance with safety regulations on the construction site or in crowded public areas. A Class 1 laser is permitted in these environments being safe for the user and observer.

Dual Optical System

The GPT-3000(L)N Series has a Dual Optical System for laser distance measurement. The first optical system is used for non-prism measurements. It's a narrow beam system providing a stable invisible narrow beam, which produces a stable measuring spot for non-prism measurements. The Dual Optical system allows accurate measurements at longer distances and improves the ability to measure to difficult surfaces, such as asphalt, at shorter distances.



Comparison of beam spots at 50 meters

The Topcon system produces a high quality measuring spot, which ensures the pointed point is the measured point.

The second optical system in the GPT-3000(L)N series is used in measurements using a reflecting glass prism (as with traditional EDM). This system has a broader measurement beam and is very stable over long distances up to 3 Km. The high stability of the beam ensures excellent performances even in conditions with high heat shimmer or other circumstances where the air is unstable, over water or along side buildings.



Non-prism mode



Prism mode

Switching between the 2 optical systems is achieved by a simple, one key touch operation.

Pulse Laser technology

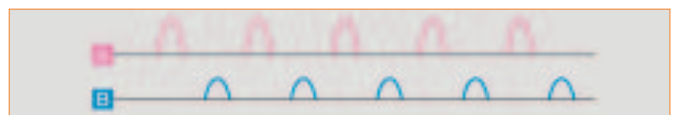
The special Pulse Laser technology in the GPT-3000(L)N Series uses the principle of "Time of Flight". The Pulse Laser technology measures the time between a pulsed burst of laser energy to a surface and back to the instrument. This technique used by Topcon has the ability to identify the reflection from the targeted point, thus filtering out the unnecessary signals from surfaces in front of, or behind the point to be measured. The GPT-3000(L)N series recognizes the target at the center of the telescope's cross hair and ensures that the measurement is made to the required surface. Using this technology even non-prism measurements through a chain-link fence or to corner points are possible.

The technique works as follows:



Prism mode

When collimating Point A, the pulse laser will output to Point A and Point B at the same time.



1. Pulse Laser (Time of Flight) measurement outputs signal A and signal B separately

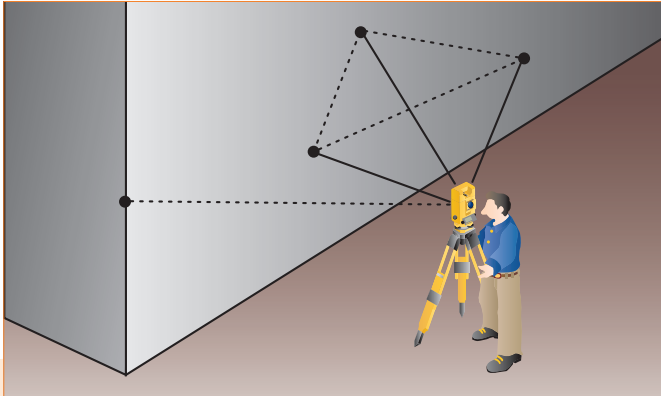


2. Although the measured value of A and B is mixed in one cycle, the shape of signal is different



3. In this way GPT-3000(L)N Series can distinguish between signal A and B

Application Software



Non-Prism Plane Offset Program

Topcon's exclusive, "Plane Offset Program" is standard on all GPT products. Just measure three (3) random points on a wall or plane to establish a known plane. Then sight the unknown point on the plane and the GPT calculates coordinates and distance values of the desired point.

Remote Elevation Measurement (REM)

This feature measures the elevation of a point where a prism can not be placed directly. The measurement is extended along the plumb line while the elevation is continuously displayed.

Z coordinate of occupied point (Benchmark Elevation)

The Z-coordinate and direction angle of the instrument is calculated and reset by measuring Z-coordinates of known points (Max. 10 points).

Area calculation

Area is calculated using measured data or file data (Coordinate data).

Missing Line Measurement (MLM)

Multiple lines can be drawn between:

- the first point and the last point;
- the last 2 points.

Horizontal distance, difference in height and slope distance is calculated. Coordinate file data and manual input data are available for further use.

Point to line measurement

Create a new coordinate by measuring to two points.

The first point becomes the origin and the second point becomes the N axis direction.

Roads Software

This new on-board software added to all GPT-3000(L)N Series. The Roads functionality is available as standard. The Roads functionality consists of two major components; defining complete roads and stake out roads.

Defining roads with the use of lines, curves, spirals and points are easily and quickly done.

Road stake out in each interval with optional offsets to left and right. Giving all flexibility to the user.

Applications

Applications

The features and software of Topcon's GPT-3000(L)N Series provide ultimate flexibility in many field applications such as City Elevation Work, Forestry Survey, Quarry Surveys, Mining surveys, Accident Investigation.



Building and Structures



Quarries Survey



Forestry Survey



Accident Investigation

SPECIFICATIONS

	GPT-3002(L)N	GPT-3003(L)N	GPT-3005(L)N	GPT-3007(L)N
TELESCOPE				
Magnification	30 X			
Field of view	1°30'			
Minimum focus	1.3m			
Reticle illumination	Provided			
DISTANCE MEASUREMENT (P)				
1 prism	3000m * 4000m **			
Accuracy	± (3mm + 2 ppm) m.s.e.			
Minimum reading	Fine: 0.2mm Coarse: 1mm Tracking: 10mm			
Measurement Time	Fine: 1.2 sec Course: 0.5 sec Tracking: 0.3 sec			
DISTANCE MEASUREMENT (NP)				
Kodak white card	1.5 ~ 250m (with GPT-3000LN Series up to 1200m)			
Accuracy	5mm m.s.e (above 25m) 10mm m.s.e. (1.5 to 25m)			
Laser class	1			
ANGLE MEASUREMENT				
Accuracy (Standard deviation based on DIN 18723)	2" (0.6mgon)	3" (1.0mgon)	5" (1.5mgon)	7" (2.0mgon)
Minimum reading	1" (0.2mgon)			5" (1.0mgon)
TILT SENSOR				
Type	Dual axis			Single axis
Compensating Range	± 3'			
DISPLAY				
LCD	Graphic LCD 160 x 64 Dots with backlight			
	2 sides			1 side
OPTICAL PLUMMET				
Magnification	3 X			
Field of view	5°			
OTHERS				
Instrument height	176mm			
Point guide	Provided			
Dimension	336(H) x 184(W) x 172(L) mm			
Weight (incl.battery)	5.3 kg			
Protection against dust and water	IP66			
Operating Temperature	-20°C to +50°C			
RECHARGEABLE BATTERY BT-52QA				
Maximum operating time including distance measurement	4.2 hrs			
Weight	0.3 kg			
BATTERY CHARGER BC-27CR				
Recharging time (at +20°C)	1.8 hrs			

* Condition 1: Slight haze with visibility about 20 km, moderate sunlight with light heat shimmer
 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.

** Condition 2: No haze with visibility about 40 km (25 miles) overcast with no heat shimmer.

Standard Components

GPT-3000(L)N series	1 each
Battery BT-52QA	2 each
Battery charger BC-27CR (230V)	1 each
Tool kit with case	1 set
Plastic carrying case	1 each
Silicon cloth	1 each
Plastic rain cover	1 each
Plumb bob set	1 each
Lens cap	1 each
Instruction manual	1 each
Sun shade	1 each



Optional accessories



TROUGH COMPASS-6



DIAGONAL EYEPIECE-10



SOLAR FILTER-6



SOLAR RETICULE-6



FC-2000

More than 70 years of experience

For 70 years, Topcon has been a leading manufacturer in industrial, medical and positioning enhancement tools. This broad experience has created a basis for Topcon's wide product line for basically every positioning need, whether it's for construction or surveying applications. For the construction industry, Topcon offers a complete range of innovative laser and sonic solutions, including industry-leading products for interior, utility, general construction and machine control applications.

For surveying applications, Topcon manufactures and supplies a complete range of optical measuring products, from digital and optical levels to theodolites and robotic total stations, and a full line of GPS+ satellite positioning solutions.

Product & Service support

To assure that your Topcon product maintains peak performance, your local Topcon dealer offers factory trained certified service technicians. And just in case service assistance isn't available in your area, our Europe wide network of Topcon offices, offer repair and return service policies second to none.

Innovation, not imitation

During the last decades, Topcon has brought many innovative solutions to the industry, which offers the contractor significant productivity increase and greater ease of use. That's the key to leadership, and the reason Topcon is the world's leading supplier of laser and surveying instruments. Some examples of unique Topcon technologies:

- Waterproof auto level
- The integrated total station, 'The Guppy'
- The compact coaxial total station (GTS-1)
- World's First laser with beam scanning technology
- The first waterproof total station
- GreenBeam® visible construction lasers
- Automatic excavator control system
- World's First 3-D machine control (3D- MC™ LPS)
- 5" Grade laser with automatic alignment & remote control
- Horizontal self leveling laser with liquid compensator
- First robotic total station with instant beam lock system (GTS-800A and RC-2)
- First satellite-directed automatic 3D machine control system (3D-MC™ GPS)
- GPS+: GPS and GLONASS
- mmGPS: GPS flexibility with total station accuracy



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