



GPT-8000A/GTS-810A SERIES

**AUTO TRACKING
TOTAL STATION**

The Solo Surveying System that puts you in control

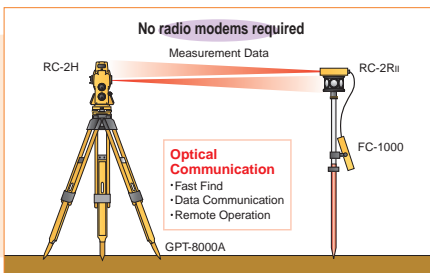


The New Topcon GPT-8000A series is a true first. The fastest, most flexible Solo Surveying System combining non-radio data communication and distance measurement without a prism. The system comprises the Topcon auto tracking total station, the unique Infrared communication device RC-2 II, Topcon Field controller FC-1000 and the Topcon TopSURV controller software.

A complete, unique, solo surveying system from one manufacturer with over 70 years of experience in supplying leading technology surveying instrumentation.

The GPT-8000A series are non-prism total stations with built in auto tracking offering the option for one person surveying from behind the instrument or at the prism. The GTS-810A series instruments are Auto Tracking Total Stations with standard prism measurement capability and are the alternative choice when non-prism measurement is not required. Both series of instruments can become part of the Topcon Solo Surveying System with the addition of the Remote controller RC-2 II which turns an auto tracking total station into a remotely controlled surveying system.

Unique system features



Unique Remote Control

Topcon's system for solo surveying is based on a unique principle using an optical data link for communication between the prism

position and the instrument. Using the GPT-8000A/ GTS-810A with the remote control device, RC-2 II, the surveyor can "talk" to the total station, giving instructions to measure and tell the instrument where the prism is after a loss of lock.

What is more, the total station can "talk" back to the surveyor, sending all the measured data for storage in the handheld controller unit.

No radios are needed, no interference or reception problems, no missing or corrupted data. The optical data link puts you in control.

Fast auto tracking

GPT-8000A has a very fast tracking speed of 12° per second (GTS-810A 10° per second) ensuring that loss of lock only normally occurs due to obstructions and not due to the movement of the

prism. 12°/sec is approximately equivalent to 75 km/h at 100m. This results in reliable prism lock and better performance in machine control and other applications where fast or erratic movements can be expected. The GPT-8000A series uses a new CCD tracking system, which identifies the prism and ensures only the prism can be followed by the instrument. This system increases the speed and reliability of tracking.

Super Fast Find

The super "Fast Find" function is a major advantage of the system ensuring quick re-location of the prism after loss of lock, with the simple press of a button.

Using Topcon's unique laser optical communication technique the RC-2 II directs the total station to the prism position. Weighing only 300 grams and the size of a small pocket calculator, the RC-2 II, when activated, sends a signal, which is detected by the total station. The total station then quickly turns to the correct direction and vertical angle setting to locate the prism.

Fast Auto Lock

The area around the prism where auto lock is activated has been increased from 1° to 5° in the GPT-8000A and GTS-810A Series. (Compared to the predecessor, GTS-800A)

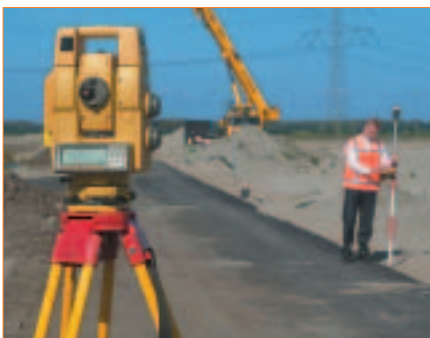
This allows the prism to be identified within a wider field of view so that automatic sighting takes over from manual sighting sooner and only rough pointing to the target is necessary.

Reflectorless measurement

To offer complete flexibility to your surveying procedures the GPT-8000A can measure in non-prism mode over a distance of 120 meters.



This gives the added benefit to the surveyor working on his own, of being able to work behind the instrument to pick up those inaccessible or difficult to reach points.



Measurement Specifications

Angle measurement

The GPT-8000A series (and GTS-810 series) consist of 4 models, GPT-8001A (GTS-811A), GPT-8002A (GTS-812A), GPT-8003A (GTS-813A) and GPT-8005A (GTS-815A), with 1" (0.3mgon), 2" (0.6mgon), 3" (1.0mgon) and 5" (1.5mgon) angle measurement accuracy's respectively. The first two models have 0.5" (0.1mgon) minimum reading and second two models have 1" (0.2mgon) minimum reading. All models have absolute encoder system for angle measurement.

Distance measurement

The GPT-8000A Series uses the principle of Pulse Laser technology to measure distance. Distance measurement range is 7 Km to a single prism with an accuracy of (3mm + 2ppm). The measurement speed is very fast making repeat measurement in approximately 1.2 seconds (Fine 1 mm mode). GPT-8000A series can measure in non-prism mode, up to 120 meters with an accuracy of +/-5mm. GTS-810 series measures using principles of traditional EDM and has a distance measuring range of 2,200 meters, but also with a fast measurement time of 1.2 seconds in repeat mode.

Advanced Features

Internal memory

Large capacity internal memory for storing upto 30,000 data points is available in both the GPT-8000A and GTS-810A. There is also an internal program memory of 2MB for storing large application programs including the field surveying package supplied by Topcon as standard.



Additional data storage

PCMCIA or Flash card slot is on the instruments for additional data handling flexibility. Memory cards are available from Topcon which are suitable for more extreme environmental conditions, but standard compact flash cards can also be used.

Large graphic display

Large graphic display screen on both sides of the instrument with backlight, heater function and contrast adjustment, ensure clear visibility under all lighting conditions.

The clear keyboard with keys for alpha and numeric characters make the instrument easy to use.



Tracking indicator lights

Power supply accessories

The GPT-8000A/ GTS-810A series includes as standard two internal batteries, BT-56Q. This new battery has an improved capacity.

The charger for BT-56Q is the BC-27C allowing full recharge in 2.5 hrs.

Also available are new external power supply battery and charger.



The Solo Survey System

RC-2 II Remote control

The RC-2 II provides remote control of the auto tracking total station. It consists of two parts, RC-2H the smart handle unit, and RC-2R the remote control unit. The RC-2H replaces the instruments standard carrying handle and includes 4 laser sensors, one on each quadrant of the handle. The RC-2R control unit is carried by the surveyor with the prism pole or can be mounted on the side or the top of the pole. The RC-2R can be connected to the field controller with a standard instrument cable to establish communication between the controller and the instrument.

The RC-2R has the following features:

- Fast Find of total station tracking beam (typically less than 10 seconds).
- Small, compact size. Light weight (300g).
- Mount on top of prism or side of prism pole.
- Operating range of at least 250m.
- Weather proof IPX5.
- Operating time 30 Hours.



Field controller

The FC-1000 Windows CE handheld Field controller was designed and built by Topcon. The unit is built to meet the demanding needs of surveyors and able to withstand rugged use in the field being shockproof, waterproof, dustproof and lightweight. In addition to these design features the computing power is second to none, with fast data processing ensuring optimum performance of your Topcon Auto Tracking Total Station. The unique standard features that make the FC-1000 stand out from other field computers include the following:

- 56 key keyboard and touch screen.
- Removable compact flash card.
- 2 Com Ports (9-pin serial, 6-pin instrument)
- USB Port.
- Re-movable Li-ion batteries, rechargeable in or outside the unit.
- Super-fast Hitachi SH7750S Microprocessor.(300 MIPS)
The Standard set of FC-1000 comes with 2 batteries BT-59Q, Charger BC-29C and power adapter AD-7C.



To offer the user greater flexibility with his choice of controller units, of course other brands of field computer can be used in the Topcon system.



Controller software

Topcon Auto Tracking Total stations are loaded with Topcon's "Standard Survey Software" offering full functionality for

field surveying, calculations and stake-out. For the Total Station Controller there is now new Topcon software, TopSURV. TopSURV includes all the functions of the Total Station software bringing the power of the instrument to the prism position. The Topcon system also gives the possibility to use third party software so users can adapt the system to their own specific needs if required.

TopSURV is an integrated field controller package with, in addition to the total station data logging and Solo Survey total station control, also controller software for Topcon GPS systems. The 2 modules are available separately or combined, providing a seamless integration between Topcon surveying systems.



RC-2 Pole mount bracket

This bracket allows the RC-2 to be mounted on top of the A-3 prism or on the side of the prism pole.

A-3 Prism

The Topcon circular prism array is specifically designed for use with Topcon auto-tracking total stations. The A-3 prism assures accurate tracking and measurement and reduces the chances of loss of prism lock.



SPECIFICATIONS

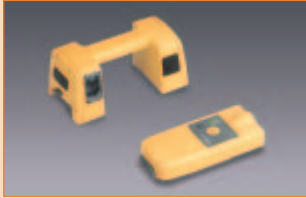
	GPT-8001A (GTS-811A)	GPT-8002A (GTS-812A)	GPT-8003A (GTS-813A)	GPT-8005A (GTS-815A)
TELESCOPE				
Length			166mm	
Objective lens			50mm	
Magnification			30X	
Field of view			1° 30'	
Resolving Power			3"	
Minimum focus			1.3m	
Focusing	2 speed	2 speed	1 speed	1 speed
AUTO TRACKING SERVO MECHANISM				
Max. revolving speed			50°/sec	
Max. auto tracking speed			12°/sec (GTS-810A: 10°/sec)	
Auto tracking range			800m (GTS-810A:1000m)	
Driving range			All range revolving	
Search range			User definable	
Coarse Movement			Shuttle control (7 speeds)	
Fine Movement			Jog control (Min. 1 sec.)	
Positioning accuracy			standard deviation 3"	
DISTANCE MEASUREMENT (P)				
Measurement range Mini prism			1,500 (visibility approx.20km) (GTS-810A: 800m)	
Standard Prism			7,000 (GTS-810A: 2,200m) (visibility approx. 20km)	
Measuring accuracy			± (3mm+2ppm)m.s.e (GTS-810A: 2mm+2ppm)	
Minimum reading			Fine 0.2mm/1mm Coarse 1mm/10mm	
Measuring time(initial)			Fine 1mm mode approx. 1.2 sec. (3 sec)	
DISTANCE MEASUREMENT (NP) GPT-8000A ONLY				
Measurement range			3-120m	
Measuring accuracy			3-25m ±(10mm)m.s.e >25m ± (5mm+2ppm) m.s.e	
ANGLE MEASUREMENT				
Method			Absolute encoder	
Detecting			Horizontal : dual Vertical : dual	
Minimum reading			0.5" (0.1mgon)/1" (0.5mgon) 1" (0.2mgon)/5" (1.0mgon)	
Accuracy	1" (0.3mgon)	2" (0.6mgon)	3" (1.0mgon)	5" (1.5mgon)
TILT SENSOR				
Type			Dual axis	
Compensating range			±4'	
LEVEL SENSITIVITY				
Circular level			10'/2mm	
Plate level			30"/2mm	
OPTICAL PLUMMET				
			Optical plummet	
OTHERS				
Waterproof			IP54	
Topcon Standard Survey Software			Yes	
Laser Class			class 2	
Optical Communication			Optional RC-2 II	

Standard set composition

GPT-8000A series	1 pce
Battery BT-56Q	2 pcs
Battery Charger BC-27CR	1 pce
Tool Kit with case	1 pce
Hard plastic carrying case	1 pce
Silicon cloth	1 pce
Plastic rain cover	1 pce
Plumb bob set	1 pce
Lens cap	1 pce
Instruction manual	1 pce



Optional accessories



RC-2 II REMOTE CONTROLLER



TROUGH COMPASS 6



DIAGONAL EYEPIECE 10



SOLAR FILTER 6



SOLAR RETICULE 6



PCMCIA CARD



PRISM UNIT A3



AC-6 12 V ADAPTER

Software

The Topcon Auto tracking total stations all have pre-installed surveying software (SSS800) as standard. There are no extra charges for extended modules; all the advanced functionality is included. TopSURV Total Station Controller package is an additional software needed to upgrade the system for one-person operation. Both packages have the same functionality and menu structures so there is seamless integration and a familiar user interface. The software includes the following functions:

- Easy to read and use menu structure.
- Overview of JOB status in main menu.
- Re-computation of co-ordinates after editing measured data (e.g. prism height, offset).
- Measured co-ordinates are displayed in the measurement screen when recording.
- When setting out, points are displayed in graphics on the display.
- The Point Code library has a layer table structure. Point codes can be uploaded to the internal memory or created directly in the instrument.
- Multiple job files can be created.
- Easy to use field observation procedures for traverse and detail point measurement and offset points.

- Multiple backsight orientations with calculation of residuals.
- New Resection program including calculation of residuals, the possibility to remove or add observations, calculation with scale factor, storage of measurements, continuous display of standard deviation of results.
- Cross section survey procedure.
- Point -to- line calculation.
- Control point coordinate library.
- Extensive editing facilities.
- DXF download.
- Printed output reports.
- Cut and fill reports can be generated for staked out points.
- Definition of road alignments and stake out.
- Traverse adjustment.
- Computation of occupied point elevation by observation to a known point.
- Area calculation using previously stored points.
- Building plot setting out routine to define batterboard intersection points.
- Computation and storage of Missing line measurements.
- Input of taped dimensions to fill in missing points.



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