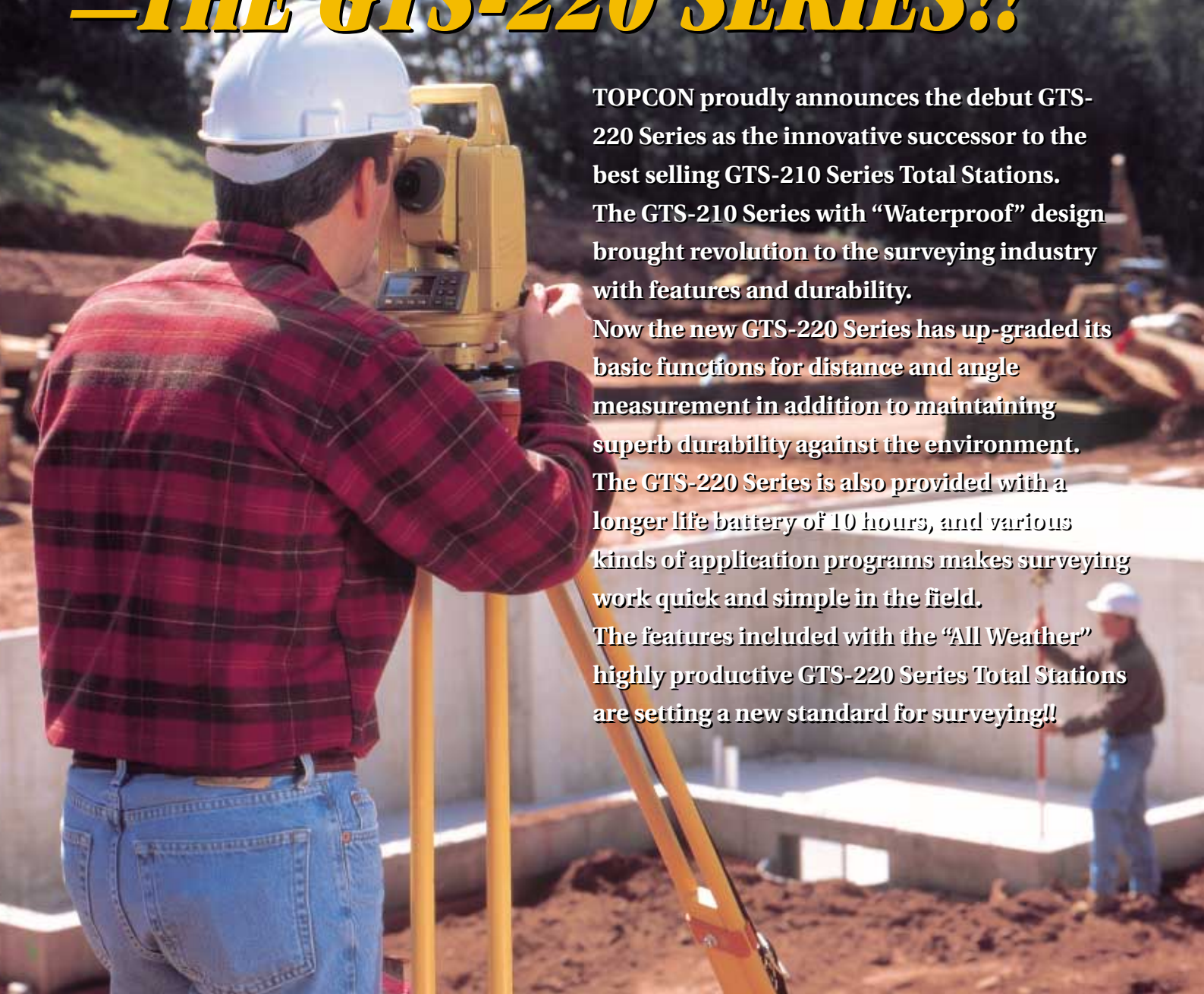


 **ELECTRONIC TOTAL STATION**

# GTS-220 series



# THE NEW STANDARD FOR TOTAL STATIONS —THE GTS-220 SERIES!!



TOPCON proudly announces the debut GTS-220 Series as the innovative successor to the best selling GTS-210 Series Total Stations. The GTS-210 Series with “Waterproof” design brought revolution to the surveying industry with features and durability. Now the new GTS-220 Series has up-graded its basic functions for distance and angle measurement in addition to maintaining superb durability against the environment. The GTS-220 Series is also provided with a longer life battery of 10 hours, and various kinds of application programs makes surveying work quick and simple in the field. The features included with the “All Weather” highly productive GTS-220 Series Total Stations are setting a new standard for surveying!!

## FEATURES

### Superior Basic Function for measuring distance & angle

The GTS-220 Series is provided with a distance measuring range of 3,000m (9,900ft) to a single prism which is superior in its class (GTS-229: 2,000m (6,600ft)/1 prism), while maintaining high accuracy  $\pm(2\text{mm}+2\text{ppm}\times D)$  m.s.e.(GTS-229:  $\pm(3\text{mm}+3\text{ppm}\times D)$  m.s.e.). As for distance measuring time, data updates at a high rate speed of 1.2 seconds in the fine measurement mode. (0.7 seconds in the coarse mode, and 0.4 seconds

in the tracking mode). This shorter distance measurement time will allow you to increase your efficiency and productivity in the field.

### Increased Internal Memory for Data Storage

The GTS-220 Series has the internal memory to store up to 8,000 points for data collection, or up to 16,000 points for layout work. Due to this substantial memory capacity, you do not need to worry about memory storage.

## Point Guide System

TOPCON'S field proven Point Guide function is standard for the GTS-223/225/226 (GTS-229: Factory Option). Get on line quickly and easily with this feature. Two(2) LED lights, one flashing and one constant, help identify the correct alignment for setting out.



## Laser Plummet

The laser plummet located in the alidade of the instrument is standard for the GTS-220 Series. With a clearly visible spot on the ground, you can set up the instrument fast and easy. As an option to the laser plummet the GTS-220 Series can be equipped with a conventional optical 3× plummet.



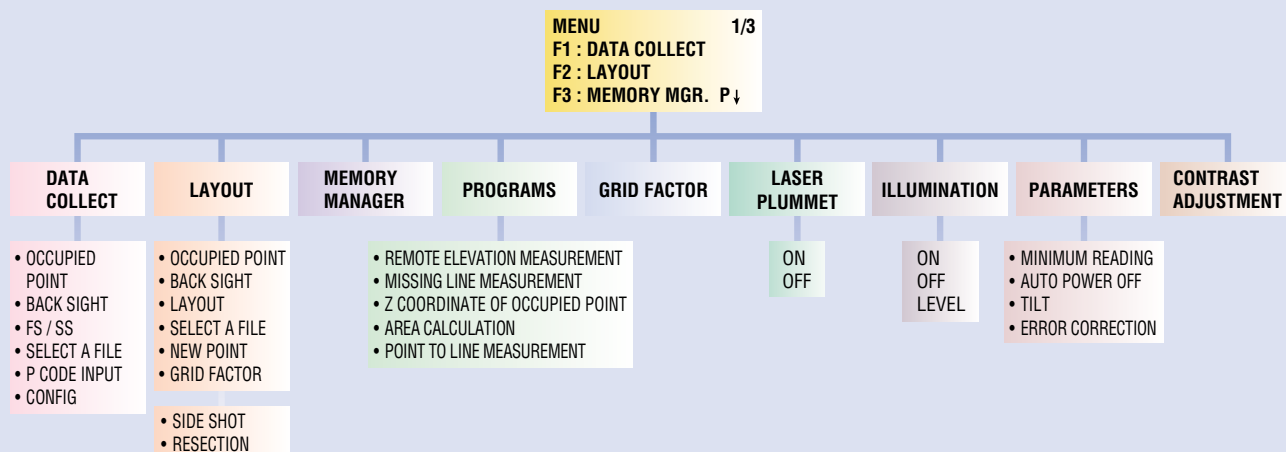
## Dual-Axis Compensator

Dual-axis compensation is available for GTS-223/225/226 model. This dual-axis tilt sensor automatically corrects the vertical and horizontal angle compensation for mis-leveling error.

## Compact and Light Weight

The GTS-220 Series is compact and weighs only 4.9 kg (10.8 pounds), (instrument body with on-board battery and handle grip). Due to this small size and weight you can easily transport to and around the job site.

## MENU STRUCTURE DIAGRAM



## RESECTION

Instrument coordinates can be calculated by measuring known points (Maximum 7 points) stored in the internal memory. Scale factor can be used in the calculation and standard deviation of measurement can be calculated.

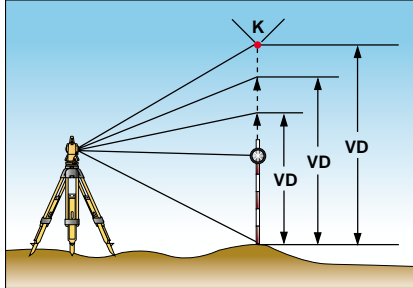
## SIDE SHOT

Set the instrument on a known point. After collecting the side shot angle and distance, the side shot point coordinate is calculated and stored in the coordinate data file.

# APPLICATION MEASUREMENT

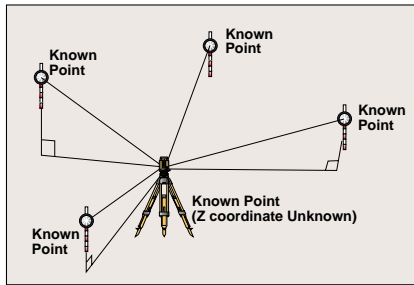
## REMOTE ELEVATION MEASUREMENT (REM)

This feature measures the height where a prism can not be placed directly. Measurement can be extended along the plumb line as the height is continuously displayed.



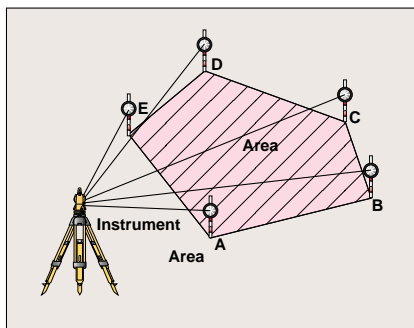
## Z COORDINATE OF OCCUPIED POINT (BENCHMARK ELEVATION)

Z coordinate and direction angle of the instrument can be calculated and reset by measuring Z coordinate of known points (Max. 10 points)



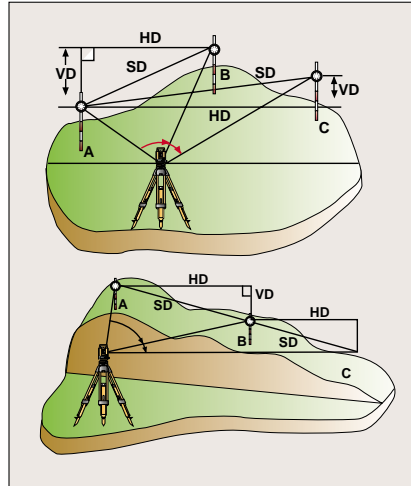
## AREA CALCULATION

Area can be calculated using measured data or file data (Coordinate data)



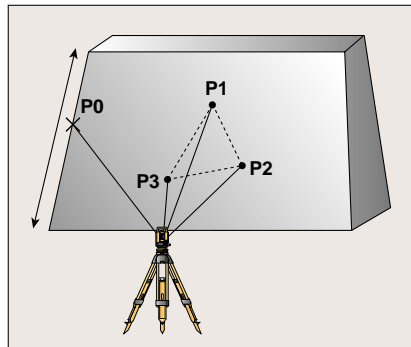
## MISSING LINE MEASUREMENT (MLM)

Multiple lines can be drawn between;  
 1. the first point and the last point.  
 2. the last 2 points.  
 Horizontal distance, difference in height and slope distance are calculated.  
 Coordinate file data and manual input data are available to be used.



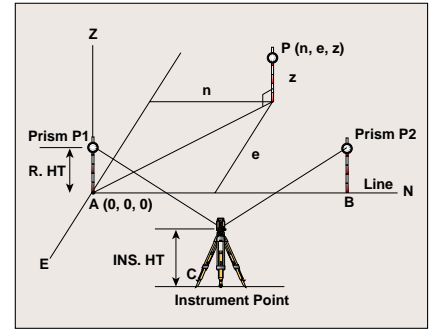
## PLANE OFFSET MEASUREMENT

Coordinates can be calculated for points where direct measurements to a prism can not be taken, for example measurements to points on a wall or plane. Three random points (P1, P2, P3) on the plane will be measured first to determine the measured plane and their angles and distances temporarily stored. Then sight the unknown point on the plane and the instrument calculates and displays coordinates and distance values of desired point.



## POINT TO LINE MEASUREMENT

Create a new coordinate by measuring to two points. The 1st point becomes the origin and the 2nd point becomes the N axis direction.



## STANDARD COMPONENTS



- GTS-220 series .....1 each
- Battery BT-52QA.....1 each
- Battery charger BC-27BR (120V) or 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 reticle-6



● DK-7



# ***TOUGHEST DURABILITY AGAINST THE ENVIRONMENT-WATERPROOF IPX6!!***

The GTS-220 Series can stand up to any wet weather condition that can occur in the field, giving the great benefit of not experiencing down time due to inclement weather. The waterproofness (IPX6) of the GTS-220 Series assures durable performance in the field under all conditions as an "All Weather" Total Station. Bad weather is no longer an excuse for lost productivity!

\* Degree of protection against water for TOPCON's GTS-220 Series is based on the standard IEC529, defined as "Water projected in powerful jets" against enclosure from any direction shall have no harmful effects. (IPX6)



## **Long Life Battery : 10 hours!**

TOPCON's new BT-52QA Ni-MH on-board battery allows 10 hours of continuous measurement in the angle/distance mode, and can last 45 hours on the job for angle measurement only. This long life battery will eliminate the need for multiple batteries on the job. One(1) BT-52QA will be sufficient for most full day surveying work.

# SPECIFICATIONS

	GTS-223	GTS-225	GTS-226	GTS-229		GTS-223	GTS-225	GTS-226	GTS-229
<b>TELESCOPE</b>					Measuring time	Less than 0.3 sec.			
Length	150mm				Diameter of circle	71mm			
Objective lens diameter	45mm (EDM: 50mm)				<b>DISPLAY</b>				
Magnification	30×				Display unit	Dot matrix LCD 20 characters × 4 lines with Backlight			
Image	Erect					2 sides		1 side	
Field of view	1°30'				Keyboard	10 function keys			
Resolving power	2.5"				<b>TILT CORRECTION (AUTOMATIC INDEX)</b>				
Minimum focusing distance	1.3m				Tilt sensor	Dual axis		Single axis	
<b>DISTANCE MEASUREMENT</b>					Method	Liquid type			
Condition 1					Compensating range	±3'			
1 prism	3,000m (9,900ft)		2,000m (6,600ft)		Correction unit	1" (0.1mgon)			
3 prisms	4,000m (13,200ft)		2,700m (8,900ft)		<b>OTHERS</b>				
9 prisms	5,000m (16,400ft)		3,400m (11,200ft)		Instrument height	176mm (6.93in)			
Condition 2					<b>LEVEL SENSITIVITY</b>				
1 prism	3,500m (11,500ft)		2,300m (7,500ft)		Circular level	10'/2mm			
3 prisms	4,700m (15,400ft)		3,100m (10,200ft)		Plate level	30"/2mm		40"/2mm	
9 prisms	5,800m (19,000ft)		4,000m (13,200ft)		<b>LASER PLUMMET: STANDARD</b>				
Condition 1: Slight haze with visibility about 20 km (12.5 miles) moderate sunlight with light heat shimmer.					<b>OPTICAL PLUMMET TELESCOPE (OPTION)</b>				
Condition 2: No haze with visibility about 40 km (25 miles), overcast with no heat shimmer.					Magnification	3×			
Accuracy	±(2mm + 2ppm×D)m.s.e.		±(3mm + 3ppm×D)m.s.e.		Focusing range	0.5m to infinity			
D: Measuring distance (mm)					Image	Erect			
<b>DIMENSIONS</b>					Field of view (at 1.3m)	5° (114mm∅)			
Least count in measurement					336(H)×184(W)×150(L)mm [13.2(H)×7.2(W)×5.9(L)in.]				
Fine mode	1mm (0.005ft.) / 0.2mm (0.001ft.)				Weight				
Coarse mode	10mm (0.02ft.) / 1mm (0.005ft.)				Instrument (with battery)	4.9kg (10.8 lbs.)			
Tracking mode	10mm (0.02ft.)				Plastic carrying case	3.2kg (7.1 lbs.)			
Measurement display	11 digits: max. display 9999999.9999				<b>DURABILITY</b>				
Measuring time					Water protection	IPX 6 (with BT-52QA)			
Fine mode	1mm: 1.2 sec. (Initial 4 sec.) 0.2mm: 2.8 sec. (Initial 5 sec.)				Ambient temperature range	-20°C to +50°C (-4°F to +122°F)			
Coarse mode	0.7 sec. (Initial 3 sec.)				<b>BATTERY BT-52QA</b>				
Tracking mode	0.4 sec. (Initial 3 sec.) (The initial time will be different by a condition and setting EDH off time.)				Output voltage	7.2V			
Atmospheric correction range	-999.9 to +999.9ppm (By 0.1ppm)				Capacity	2.7AH (Ni-MH)			
Prism constant correction range	-99.9 to +99.9mm (By 0.1mm)				Maximum operating time at +20°C (+68°F)	10 hours (12,000 points)			
<b>ANGLE MEASUREMENT</b>					Including distance measurement	45 hours			
Method	Absolute reading				Angle measurement only	45 hours			
Detecting system	H: 2 sides	V: 1 side	H: 1 side	V: 1 side	Weight	0.3kg (0.7 lbs.)			
Minimum reading	1"/5" (0.2mgon/1mgon)		5"/10" (1mgon/2mgon)		<b>BATTERY CHARGER BC-27BR/27CR</b>				
Accuracy*	3" (1mgon)	5" (1.5mgon)	6" (1.8mgon)	9" (2.7mgon)	Input voltage	AC120V(BC-27BR) AC230V(BC-27CR)			
					Frequency	50/60Hz			
					Recharging time (at +20°C/+68°F)	1.8 hours			
					Operating temperature	+10°C to +40°C (+50°F to 104°F)			
					Weight	0.5kg (1.1 lbs.)			

\* Standard deviation base on DIN18723.

• 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.



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