

DTM/NPL -502 Series

DTM-522 and NPL-522 Total Stations

Fast, accurate EDM and superior Nikon optics



The Nikon® DTM-502 Series total stations from Tripod Data Systems™ (TDS), including the DTM-522 and reflectorless NPL-522, deliver a versatile, easy-to-use platform to help you get the job done right. Popular features include Nikon's famous optics that give you brighter, clearer images. The fast, accurate EDM helps you move quickly from point to point. A long-lasting battery means you can work all day with no battery changes. And its light-weight and all-weather construction ensures reliable performance in tough field conditions.

Faster, more accurate distance measurement

The 502-Series is one of the fastest total stations in its class. The DTM-522 features a 1.0-second (NPL-522 is 2.0s) initial measurement and 0.5-second (NPL-522 is 0.8s) updates in normal mode. This fast EDM helps you move quickly through your survey routines so you spend less time in the field. The 502-Series is also extremely precise. Distance accuracies in precise mode are $\pm(2+2 \text{ ppm} \times D)$ mm for the DTM-522 and $\pm(3+2 \text{ ppm} \times D)$ mm for the reflectorless NPL-522.

Lumi-Guide puts you on line

The 502 Series features a Lumi-Guide tracking light which helps the rodman to locate the correct line quickly and easily. Also, during stakeout Lumi-Guide's blinking cycle changes to indicate the stakeout direction – “come” or “go” – helping the rodman reach the point quickly.

See the difference

You'll see the difference when you look through a Nikon total station. Nikon's optics effectively let in more light. The result is brighter, sharper images, even in the low-visibility conditions typical in the field.



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tdsway.com

502 Series Specifications		DTM-522	NPL-522
Telescope	Tube Length	6.22 in (158 mm)	6.02 in (153 mm)
	Image	Erect	Erect
	Magnification	33 x (21 x/41 x with optional eyepieces)	26x (16x/32x with optional eyepieces)
	Effective diameter of objective	1.77 in (45 mm)	1.57 in (40 mm)
	Field of view	EDM: 1.97 in (50 mm)	EDM: 1.97 in (50 mm)
	Resolving power	1°20' (2.3 ft at 100 ft) (2.3 m at 100 m)	1°30' (2.6 ft at 100 ft) (2.6 m at 100 m)
	Minimum focusing distance	2.5"	3"
	Reticle illumination	4.26 ft (1.3 m)	5.3 ft (1.6 m)
		3-level variable	3-level variable
Distance measurement		Range with Nikon specified prisms	
	Reflectorless mode (white target)*	--	5.3 ft to 680 ft (1.6 m to 210 m)
	Good conditions	(no haze, visibility of over 25 miles (40 km))	(no haze, visibility of over 25 miles (40 km))
	With reflector sheet	16.4 ft to 328.1 ft (5 m to 100 m)	5.3 ft to 980 ft (1.6m to 300 m)
	With mini prism	3,600 ft (1,100 m)	5.3 ft to 9800 ft (1.6 m to 3,000 m)
	With single prism	8,900 ft (2,700 m)	5.3 ft to 16,400 ft (1.6 m to 5,000 m)
	With triple prism	11,800 ft (3,600 m)	--
	With nine prisms	14,400 ft (4,400 m)	--
	Normal conditions	(ordinary haze, visibility approx. 12.5 miles (20 km))	(ordinary haze, visibility approx. 12.5 miles (20 km))
	With reflector sheet	16.4 ft to 328.1 ft (5 m to 100 m)	5.3 ft to 980 ft (1.6m to 300 m)
	With mini prism	3,100 ft (950 m)	5.3 ft to 9800 ft (1.6 m to 3,000 m)
	With single prism	7,900 ft (2,400 m)	5.3 ft to 16,400 ft (1.6 m to 5,000 m)
	With triple prism	10,200 ft (3,100 m)	--
	Accuracy (Prism/Precise mode)	±(2 + 2 ppm x D) mm	±(3+2 ppm x D) mm
	-4 to +14°F, 104 to 122°F (-20 to -10C, 40 to 50C)	±(4 + 2 ppm x D) mm	±(3+3 ppm x D) mm
	Accuracy (Reflectorless/Precise mode)	--	±(3 + 2 ppm x D) mm
	-4 to +14°F, 104 to 122°F (-20 to -10C, 40 to 50C)	--	±(3 + 3 ppm x D) mm
	Readout display	29999.999 ft (9999.9999 m)	29999.999 ft (9999.9999 m)
	Prism offset	-999 mm to 999 mm	-999 mm to 999 mm
Measuring interval**			
	Prism mode		
	Precise mode	1.0 sec. (initial 1.0 sec.)	1.3 sec. (initial 2.0 sec.)
	Normal mode	0.5 sec. (initial 1.0 sec.)	0.5 sec. (initial 1.6 sec.)
	Reflectorless mode		
	Precise mode	--	1.6 sec. (initial 2.6 sec.)
	Normal mode	--	0.8 sec. (initial 2.0 sec.)
Least count			
	Precise mode	0.0005 ft/0.002 ft (0.1 mm/1 mm) selectable	0.0005 ft/0.002ft (0.1 mm/1 mm) selectable
	Normal mode	0.002 ft/0.02 ft (1 mm/10 mm) selectable	0.002 ft/0.02 ft (1 mm/10 mm) selectable
Environmental specifications			
	Ambient temperature range	IPX4	IPX4
	Atmospheric correction	-4 °F to 122 °F (-20 C to 50 C)	-4 °F to +122 °F (-20 C to 50 C)
	Temperature range	-40 °F to 140 °F (-40 C to 60 C)	-40 °F to +140 °F (-40 C to 60 C)
	Barometric pressure	400 mm Hg to 999 mmHg	400 mm Hg to 999 mmHg
		533 hPa to 1,332 hPa/15.8 in.Hg to 39.3 in.Hg	533 hPa to 1,332 hPa/15.8 in.Hg to 39.3 in.Hg
Angle measurement			
	Reading system	Photoelectric detection by incremental encoder	Photoelectric detection by incremental encoder
	Circular diameter	3.1 in (79 mm)	3.1 in (79 mm)
	Horizontal angle	Diametrical	Diametrical
	Vertical angle	Diametrical	Diametrical
	Minimum increment (Degree, Gon, MIL6400)	Degree: 1/5/10"	Degree: 1/5/10"
		Gon: 0.2/1/2 mgon; MIL 6400: 0.005/0.02/0.05 mil	Gon: 0.2/1/2 mgon; MIL6400: 0.005/0.02/0.05 mil
	DIN 18723 accuracy (horizontal and vertical)	3"/1 mgon	3"/1 mgon
Tilt sensor			
	Type	Dual-axis	Dual-axis
	Method	Liquid-electric detection	Liquid-electric detection
	Compensation range	±3'	±3'
	Setting accuracy	1"	1"
Lumi-Guide			
	Visible range	330 ft (100 m)	330 ft (100 m)
	Positioning accuracy	within approx. 2.4 in (6 cm) at 330 ft (100 m)	within approx. 2.4 in (6 cm) at 330 ft (100 m)
Level vials			
	Plate level vial	30"/2 mm	30"/2 mm
	Circular level vial	10/2 mm	10/2 mm
Optical plummet			
	Magnification	3x	3x
	Focusing range	1.6 ft (0.5 m) to ∞	1.6 ft (0.5 m) to ∞
	Field of view	5°	5°
Display			
	Graphic LCD (128 x 64 dot); both sides		Graphic LCD (128 x 64 dot); both sides
Point memory			
	10,000 records		10,000 records
Dimensions (W x D x H)			
	6.5 in x 6.1 in x 14.4 in (166 mm x 156 mm x 365 mm)		6.5 in x 6.1 in x 14.4 in (166 mm x 156 mm x 365 mm)
Weight (approx.)			
	Main unit (without battery)	10.8 lb (4.9 ka)	10.8 lb (4.9 ka)
	BC-80 clip-on battery	1.3 lb (0.6 ka)	1.3 lb (0.6 ka)
	Carrying case	6.8 lb (3.1ka)	8.8 lb (4.0 ka)
On-board Ni-MH battery BC-80	Operating time		
	approx. 10.5 hours (continuous distance/angle meas.)		approx. 6 hours (continuous distance/angle meas.)
	approx. 24 hours (distance/angle meas. every 30 sec)		approx. 12 hours (distance/angle meas. every 30 sec.)
	approx. 30 hours (angle meas. only)		approx. 25 hours (angle meas. only)
	Output voltage	7.2V DC	7.2V DC
	Recharging time	Approx. 3.0 hours for full recharge	Approx. 3.0 hours for full recharge
Communication ports			
	1 x serial		1 x serial

*White objects with high reflectivity. Measuring distance may vary depending on targets and measuring conditions.

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