

# PENTAX | Reflectorless Total Station

## R-2500NS Series

R-2501NS | R-2502NS

R-2503NS | R-2505NS



Increase your work efficiency

TI Asahi Co.,Ltd  
Focusing on True Performance

- + Long EDM range measuring distance: reflectorless up to 600 m and in prism mode up to 7,000 m
- + Dual display as standard equipment
- + Easy transfer to a PC via SD card, USB mini and RS-232C data port
- + Pre-loaded PowerTopoLite software which offers a package of versatile application functions
- + Guiding lights for easy & fast stakeout



- + Trigger key on the side cover for quick & light measurement key stroke



- + Dual battery system for long operation time in the field



# TOTAL STATION SPECIFICATIONS

Model		R-2501NS	R-2502NS	R-2503NS	R-2505NS
<b>Telescope</b>	Magnification		30X		
	Effective Aperture		45mm (EDM45mm)		
	Resolving Power		3"		
	Field of View		1°30' (2.6%)		
	Minimum Focus		1.0 m		
<b>Distance Measurement</b>	<b>Laser Class</b>		Laser Pointer: Class 2, When measuring: Class 3R		
	<b>Measurement Range Good Conditions *3</b>				
	Reflectorless *1		0.5m ~ 600m		
	Reflector Sheet *2		1.5m ~ 600 (800) m		
	1P		1.5m ~ 7000 (9999) m		
	3P		1.5m ~ 9000 (9999) m		
	Mini Prism		1.5m ~ 2500 (3000) m		
	<b>Measurement Accuracy *4</b>				
	Reflectorless	0.5 ~ 100m	±(3+2ppm×D) mm		
		100 ~ 300m	±(5+2ppm×D) mm		
		300m ~	±(7+2ppm×D) mm		
	Prism /Reflector Sheet *5		±(2+2ppm×D) mm		
	<b>Minimum Count</b>				
			Normal Meas.: 1 mm or 0.1 mm/Fast Meas.: 10 mm		
	<b>Measurement Time *5</b>				
Initial Meas.	Reflectorless	Approx. 1.0 sec.			
	Prism/Refl. Sheet	Approx. 1.2 sec.			
Continuous Meas.	Reflectorless	Approx. 0.8 sec.			
	Prism/Refl. Sheet	Approx. 0.8 sec.			
<b>Weather Correlation</b>					
		Auto, Temp., Pressure input /PPM No-Input Selectable		Temp., Pressure Input /PPM No-Input Selectable	
<b>Laser Pointer</b>					
		Yes			
<b>Angle Measurement</b>	Measuring Method	Absolute Rotary Encoder			
	Detection Method	H: 2 Sides Detection V: 2 Sides Detection			
	Minimum Count	5"/1" Selectable			
	Accuracy (ISO 17123-3)	1"	2"	3"	5"
	Tangent Screw	2 Speed		1 Speed	
<b>Display Type</b>	2 Sides with Illumination				
<b>Compensator *7</b>	Compensator Type	Float Type Level		Capacitance Type Level	
	Compensator Axis	3 Axis		2 Axis	
	Compensator Range	± 3'			
<b>Special Function</b>	Measurement/Calculation	File Management, Measure, View & Edit, Free Station, Stakeout, Traverse, VPN, I/O, Calculation, RDM, Preference, Load Design, PegSurvey (Mining Software)*optional			
<b>Data Process</b>	Data Recording Method	Internal Memory/SD Card			
	Capacity (Coordinates/Observation Data) *8	Approx. 60,000 points			
<b>Interface</b>		SD Card Slot, Mini USB Port, RS-232C, Bluetooth Class 2			
<b>Sensitivity of Vials</b>	Electrical Level	30"/1 div.		N/A	
	Circular Level	8"/2 mm			
<b>Laser Plummet</b>		Brightness and Optical Axis Adjustable			
<b>Base</b>		Detachable			
<b>Dust &amp; Water Protection</b>		IP56 (instrument only)			
<b>Operating Temperature Range</b>		-20 °C ~ +50 °C			
<b>Dimensions</b>		190 (W) x 343 (H) x 177 (L) mm			
<b>Weight (incl. Battery)</b>		5.7 kg			
<b>Battery Pack (BP07)</b>	<b>Power Source</b>	Li-ion 7.4V 3350mAh, equipped with 2 batteries as standard, Hot-Swappable			
	<b>Operation Time/Charge</b>				
	Continuous Meas.	Approx.. 15 hrs. (Measured once every 30 sec) *6			
	Angle Meas.	Approx. 47.5 hrs.			
	<b>Charging Time</b>	1 battery: approx. 2 hrs. / When charging 2 batteries at the same time: approx. 4 hrs.			

\*1 The measurement range and accuracy of reflectorless, and time required to measure may vary by the shape, size of surface area and reflection rate of the target and its environment. The measurement range of reflectorless is determined by the white side of the KODAK Gray Card (KODAK is a registered trademark of Eastman Kodak Company).

\*2 Reflector sheet: based on PENTAX Genuine Reflector sheet.

\*3 Normal or good weather conditions are based on the following conditions.  
Normal conditions: 20km visibility with slight shimmer, weak sunlight and moderate wind.

\*4 During the automatic weather correction, the value of ppm error is 10ppm in case of the prism or reflector sheet measurement. Also in case of the reflectorless measurement, it will be 18ppm depending on the distance (300m or more) and change in environmental conditions, shape, area and reflectance of targets.

\*5 EDM measuring time is determined in good conditions. It may take longer than usual to measure the distance exceeding 4000m in prism mode and 300m in reflectorless mode.

\*6 When EDM energy saving setting is "Yes".

\*7 The 3-axis correction is a function to correct the orthogonal error between the horizontal axis and the collimation axis and the orthogonal error between the vertical axis and the horizontal axis in addition to the XY 2-axis correction.

\*8 The number of recorded points varies depending on the observation method and it is the number of observed points when the coordinate, one pair of observation and pairs of observation are used separately, but not combination of each of them. The pairs of observation is a typical number of observation points in the case of one pair of five-direction observation. Maximum number of recorded points in one site: 3,000 points Maximum number of sites created: 20 sites Maximum number of data transfer points from personal computer to total station 1,000 points.

**TI Asahi Co., Ltd.**

**International Sales Department**

4-3-4 Ueno Iwatsuki-Ku, Saitama-Shi

Saitama, 339-0073 Japan

Tel.: +81-48-793-0118

Fax. +81-48-793-0128

E-mail: International@tiasahi.com

**DANGER**

LASER RADIATION - DO NOT STARE INTO BEAM OR VIEW DIRECTLY WITH OPTICAL INSTRUMENT INTO SUNLIGHT  
620-690 nm/4.75mW max.  
CLASS IIIa LASER PRODUCT  
Laserclass IIIa, conform FDA 21 CFR Ch. 1 § 1040



[www.pentaxsurveying.com/en/](http://www.pentaxsurveying.com/en/)

Your Official Pentax Dealer



The CE marking assures that this product complies with the requirements of the EC directive for safety.



**CAUTION**

LASER RADIATION - DO NOT STARE INTO BEAM  
620-690 nm/0.95mW max.  
CLASS II LASER PRODUCT  
Laserclass II, conform FDA 21 CFR Ch. 1 § 1040



**JSIMA**  
Japan Surveying Instruments Manufacturers' Association

Member symbol of the Japan Surveying Instruments Manufacturers' Association representing the high quality surveying products.