

TPS1100 Professional Series Technical data

Define your requirements

Overview of the models and options

	TC	TCR	TCRM ⁺	TCA ⁺	TCRA ⁺	TCRA ⁺ Power Search
Angle measurement	•	•	•	•	•	•
Distance measurement (IR)	•	•	•	•	•	•
Reflectorless and Long Range distance measurement (RL)	•	•	•	~	•	•
Motorized			•	•	•	•
Automatic Target Recognition (ATR)			~	•	•	•
PowerSearch (PS)				~	~	•
Electronic Guide Light (EGL)	○	○	○	•	•	•
Remote Control RCS1100	○	○	○	○	○	○

• Standard ○ Optional ~ Later upgrade possible - Option: standard range + plus



Angle measurement

Accuracy	Type 1101	Type 1102	Type 1103	Type 1105
Hz, V (ISO 17123-3):	1.5" (0.5 mgon)	2" (0.6 mgon)	3" (1 mgon)	5" (1.5 mgon)
Display resolution:	1" (0.1 mgon)	1" (0.1 mgon)	1" (0.5 mgon)	1" (0.5 mgon)
Method	absolute, continuous, diametrical			

Distance measurement (IR)

Range (average atmospheric conditions)	
Round prism (GPR1):	3000 m
360° reflector (GRZ4):	1500 m
Mini prism:	1200 m
Reflective tape (60 mm x 60 mm):	250 m
Shortest measurable distance:	0.2 m to round prism (GPR1) / 1.5 m to a 360° reflector (GRZ4)

Accuracy (ISO 17123-4) / time for a measurement

Standard mode:	2 mm + 2 ppm / 1.0 sec
Quick mode:	5 mm + 2 ppm / 0.5 sec
Tracking mode:	5 mm + 2 ppm / 0.3 sec
Quick mode tracking:	10 mm + 2 ppm / < 0.15 sec
Display resolution:	1 mm

Method Principle of phase measurement (coaxial, invisible infrared laser)

Reflectorless and Long Range distance measurement (RL)

Range (average atmospheric conditions)	
Reflectorless (extended range):	170 m (Kodak Gray Card, white side)
Reflectorless (standard range):	80 m (Kodak Gray Card, white side)
Shortest measurable distance:	1.5 m
Long Range to round prism (GPR1):	1000 m – 5000 m

Accuracy (ISO 17123-4) / time for a measurement

Reflectorless (standard mode):	3 mm + 2 ppm / typ. 3–6 sec, max. 12 sec
Reflectorless (tracking mode):	10 mm + 2 ppm / typ. 3–6 sec, max. 12 sec
Long Range:	5 mm + 2 ppm / typ. 2.5 sec, max. 8 sec

Laser dot size

At 50 m:	approx. 10 mm x 20 mm
At 100 m:	approx. 15 mm x 30 mm
At 200 m:	approx. 30 mm x 60 mm

Method Principle of phase measurement (coaxial, visible red laser)

Motorized (M)

Maximum speed

Rotating speed:	50 gon / sec
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Automatic Target Recognition (ATR)

Range ATR mode / LOCK mode (average atmospheric conditions)	
Round prism (GPR1):	1000 m / 800 m
360° reflector (GRZ4):	600 m / 500 m
Mini prism:	500 m / 400 m
Reflective tape (60 mm x 60 mm):	65 m / --
Shortest measurable distance:	1.5 m to 360° reflector (GRZ4)

Accuracy / time for a measurement

Distances < 300 m:	3 mm / 3 sec
Distances > 300 m:	1.5", 2", 3", 5" (equivalent type) / 3–4 sec

Maximum speed (LOCK mode)

Tangential (standard mode):	25 m / sec at 100 m
Tangential (tracking mode):	18 m / sec at 100 m
Radial (tracking mode):	4 m / sec

Method Digital image processing (laser beam)



High-End Surveying
Precise, Quick, and Intelligent

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PowerSearch (PS)

Range (average atmospheric conditions)	
Round prism (GPR1):	200 m
360° reflector (GRZ4):	200 m (optimal when aligned with the instrument)
Mini prism:	100 m
Shortest measurable distance:	5 m
Search time	
Typical search time:	< 10 sec
Maximum speed	
Rotating speed:	50 gon / sec
Method	
	Digital signal processing (laser swath)

Electronic Guide Light (EGL)

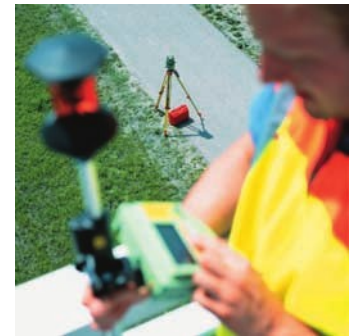
Range (average atmospheric condition)	
Working range:	5 m – 150 m
Accuracy	
Positioning accuracy:	5 cm at 100 m

Remote Control RCS1100

Method	Transfer via integrated radio modem
Control unit	
Display:	8 lines with 32 characters 256*64 pixels, graphic LCD
Keyboard:	30 keys (6 function keys, 12 alphanumeric keys)
Interface:	RS232
Battery	
Type:	Nickel Metal Hydride (NiMH)
Voltage:	6 V
Capacity (GEB111):	1.8 Ah
Weight	
RCS1100:	0.77 kg
Battery (GEB111):	0.2 kg
Reflector pole adapter:	0.18 kg
Working environment	
Working temperature range:	-20°C to +50°C
Storage temperature range:	-40°C to +70°C
Dust/water (IEC 60529):	IP54
Humidity:	max. 95% non-condensing

General data TPS1100

Compensator	Type 1101	Type 1102	Type 1103	Typ 1105
Setting range:	4' (0.07 gon)	4' (0.07 gon)	4' (0.07 gon)	4' (0.07 gon)
Setting accuracy:	0.5" (0.2 mgon)	0.5" (0.2 mgon)	1.0" (0.3 gon)	1.5" (0.5 mgon)
Method:	centralized dual axis compensator			
Level	Type 1101	Type 1102	Type 1103	Type 1105
Sensitivity of circular level:	6' / 2 mm	6' / 2 mm	6' / 2 mm	6' / 2 mm
Display resolution of level:	1" (0.1 mgon)	1" (0.1 mgon)	1" (0.5 mgon)	1" (0.5 mgon)
Telescope				
Magnification:	30x			
Free aperture of objective:	40 mm			
Field of view:	1°30' (1.66 gon) / 2.7 m at 100 m			
Focussing:	1.7 m to infinity			
Control unit				
Display:	8 lines with 32 characters 256*64 pixels, graphic LCD			
Keyboard:	30 keys (6 function keys, 12 alphanumeric keys)			
Angle display:	360°', 360° (decimal), 400 gon, 6400 mil, V%			
Distance display:	Meter, Int. Ft, Int. Ft/Inch, US Ft, US Ft/Inch			
Numbers:	1 / 2 (optional)			
Data storage				
Memory card:	PCMCIA ATA Flash (16 MB) / PCMCIA SRAM (512 KB, 2 MB)			
Number of data records:	18000 / 2 MB			
Interface:	RS232			
Laser plummet				
Accuracy:	deviates from the plumb line 1.5 mm (2 sigma) at 1.5 m			
Point diameter:	2.5 mm at 1.5 m			
Endless drive				
Number of drives Hz / V:	1 / 1			
Steps:	infinite			
Battery				
Type:	Nickel Metal Hydride (NiMH)			
Voltage:	6 V			
Capacity (GEB121):	3.6 Ah			
Number of measurements:	400 – 600			
Weight				
Instrument:	4.7 – 4.9 kg (10.4 – 10.8 lbs)			
Battery (GEB121):	0.4 kg (0.8 lbs)			
Tripod (GDF121):	0.8 kg (1.7 lbs)			
Working environment				
Working temperature range:	-20°C to +50°C			
Storage temperature range:	-40°C to +70°C			
Dust/water (IEC 60529):	IP54			
Humidity:	max. 95% non-condensing			



Distance meter (IR), ATR and PowerSearch:
Laser class 1acc.
IEC 60825-1 resp. EN 60825-1
Laser class I acc.
FDA 21CFR Ch. I §1040

Distance meter (RL, standard range) and laser plummet:
Laser class 2 acc.
IEC 60825-1 resp. EN 60825-1
Laser class II acc.
FDA 21CFR Ch. I §1040

CAUTION
LASER RADIATION - DO NOT STARE INTO BEAM
620-690nm/0.95mW max.
CLASS II LASER PRODUCT

Distance meter (RL, extended range):
Laser class 3R acc.
IEC 60825-1 resp. EN 60825-1
Laser class IIIa acc.
FDA 21CFR Ch. I §1040

DANGER
LASER RADIATION - AVOID DIRECT EYE EXPOSURE
620-690nm/4.75mW max.
CLASS IIIa LASER PRODUCT

EGL:
LED class 1 acc.
IEC 60625-1 resp. EN 60825-1

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