

TTS™ 300 – Optical Surveying Instrument

PERFORMANCE

Angle Measurement

Type (H/V)	Photoelectric incremental rotary encoder with absolute zero index
Angle units (H/V)	Degrees, Gons, Decimal Degrees and Mils selectable
Display, least count	1" (0.3 mgon)
Accuracy	3" (1 mgon) <i>Standard deviation according to DIN 18723</i>
Automatic dual-axis compensator	ON or OFF selectable Type: dual-axis liquid tilt sensor Range: ±5' with out-of-range warning message
Display mode	H: 0 set and angle setting available V: Zenith 0, Horizontal 0 or Grade (%) selectable
H/V circle positioning system	Dual speed continuous tangents on both axes

Distance Measurement

Type	Pulsed infrared laser
Optics	Transmitting objective shared with telescope. Separate receiving optics to obtain maximum range for reflectorless measurements
Receiving aperture	40 millimeter (1.6")
Measuring range	1 prism (50 mm aperture): Up to 6000 m (20,000') Reflective foil (4"x4"): Up to 800 m (2,620') 90% reflective surface (white): Up to 250 m (820') 5% reflective surface (matte black): Up to 58 m (190') <i>Ranges under average atmospheric conditions</i>
Distance units	Meters, International Feet and US Survey Feet selectable
Display, least count	0.001m (0.001')
Unambiguous measuring range	9999.999 m (32,810')
Accuracy & measuring time	Standard Mode: ±(5mm + 3ppm)/1.3 seconds Fast Mode: ±(10mm + 3ppm)/0.5 seconds Very Fast Mode: ±(20mm + 3ppm)/0.3 seconds <i>Accuracy is the same for reflectorless and non-reflectorless measurements. No additional measurement time required. Minimum distance to reach accuracy specifications is 2 meters</i>
Atmospheric correction	Temperature/Pressure input Temperature input range: -70°C to +70°C (1°C steps)/ -94°F to +158°F (1° F steps) Pressure input range: 375 mmHg to 900 mmHg (equals 500 hPa to 1200 hPa or 14.8 inchHg to 35.4 inchHg)
Prism constant correction	-999 mm to +999 mm (1 mm steps)
Earth-curvature & refraction	ON/OFF selectable (K=0.142 or 0.20)

Power Supply

2 Lithium-Ion batteries	Continuous use at 20°C (68°F). Angle and distance mode: about 16 hours (1 point per 15 seconds). Charging time with P/N 31790-00: 4 hours per battery <i>Instrument can be operated with one or two batteries. Batteries are hot swappable. External Operating Voltage 10.5-22V DC</i>
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TECHNICAL SPECIFICATIONS

Telescope

Type	360° transiting
Objective aperture	40 mm (1.6")
Magnification	30x (erect image)
Resolving power	5 seconds
Field of view	1.5°
Minimum focus	1.5 m (4.9')
Two-speed Focusing ring	Provided

Physical

Instrument Size	20 cm W x 22.5 cm D x 35 cm H (7.9" W x 8.9" D x 13.8" H)
Weight	4.8 kg (10.5 lbs.) <i>Weight includes batteries and tribrach.</i>

Electrical

Power	3W Maximum
Display	128x64 dot matrix LCD. Backlight, non-reflective glass
Keyboard	25 keys (softkeys, edit keys, measure buttons, 4-directional arrow key, illumination, contrast)
Communication	RS232C interface for external connection

General

Sensitivity of level	10'/2mm
Optical plummet (in tribrach)	Erect image. Min focus 0.5m (1.64')
Self-diagnostic functions	Automatic and continuous. Messages/codes displayed
Battery check display	Continuous. Messages/codes displayed
Automatic power cut-off	ON/OFF selectable, delay user-definable
Language versions	Loadable
Certification	FCC and CE Mark approved

Environmental

Operating temperature	-20°C to +50°C (-4°F to + 122°F)
Storage temperature	-30°C to +70°C (-22°F to +158°F)
Water resistance	Class IPX4

Laser Eye Safety

US	Class I laser product in accordance with the United States Food and Drug Administration document 21 CFR Subchapter J <i>The EDM incorporates a class IIIB laser diode permanently attached to an optical fiber.</i>
Europe	Class 3A laser product in accordance with IEC 60825-1; 1997 "Radiation Safety of Laser Products"

Specifications and descriptions subject to change without notice



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