

Leica Industrial Theodolites & Total Stations Highest Industrial Precision



New Standards – More Applications

The Leica Industrial Theodolites and Total Stations of the TPS5000 Series set new standards in portable, large-scale coordinate measurement. Based on proven technology, unrivalled precision and optics, the Leica Industrial Theodolites have, for example, become the standard in Aerospace alignment applications. By incorporating a precision distance meter and automation features, the Industrial Total Stations have spread into all major industries as a true large-scale transportable solution for tooling, inspection and assembly.

Highest Reliability on the Market

- Proven track record with more than 1,500 TPS5000 instruments on the market
- A seamless integration with standard software or with automated processes via serial communication
- Tracker on a budget – “Point-and-Shoot” as well as tracking in “Step-and-Go” built-in Automatic Target Recognition ATR within the TDA5005

- when it has to be **right**

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Specifications

TDM5005, TDA5005 and TM5100A

Angular measurement

Accuracy, standard dev. per ISO17123-3, 1 σ ¹⁾
Units of measurement

0.5" (0.15 mgon)
360° sexagesimal, 400 gon
360° decimal, 6,400 mil
0.01 mgon; 0.1", 0.00001", 0.00001 mil

Display (smallest selectable unit)

Automatic reference to the horizon

Working range, longitudinal/lateral
Setting accuracy

(2-axis liquid compensator)
3' (0.055 gon)
0.3" (0.1 mgon)

Displays

LCD (liquid crystal display)

8 rows of 35 characters each, 6 status fields

Data storage and interfaces

Motor and fine drives

Fine drives

Coarse/fine, motorized, infinite, slip coupling

Motor

Rotation speed
Positioning accuracy

45°/s (50 gon/s)
0.8" (0.2 mgon)

Power supply

Plug-in battery pack
External power supply

12 V/1.8Ah, rechargeable
Any 12V battery (e.g. GEB70)
or mains power supply

Temperature range

Operational
Storage
Protection against water, dust, sand (IEC60529)

-20°C to +50°C (-4F to +122F)
-40°C to +70°C (-40F to +158F)
IP53

TDM5005, TDA5005

Point accuracy (total RMS 1 σ)²⁾
at 20m (65ft) measuring volume

0.3mm (0.012")

Distance measurement

Accuracy, standard deviation (absolute)
per ISO17123-4, 1 σ

(integrated in the TDM5005 and TDA5005)
1mm + 2 ppm (0.04" + 2 ppm)
over the entire measurement range

Typical distance accuracy measuring volume³⁾

Reflective tape
Corner cube reflector
Units of measurement
Display
(smallest selectable unit)

at 100m (330ft)
± 0.5mm (0.02")
± 0.2mm (0.008")
m, mm, feet, inch
0 - 5 decimal places, dependent
on the selected unit

Reflectors (selectable)

Prisms, Corner Cube Reflectors CCR
(1.5" diameter), Leica reflective
tapes, 360° prisms

Measurement range

w/ Corner cube reflector
w/ reflective tapes (target-size dependant)

2 - 600m (6 - 1,900ft)
2 - 180m (6 - 600ft)

ATR - Automatic Target Recognition

Tracking speed lateral (linear)
Tracking speed longitudinal
Measurement range (reflector-dependant)

Integrated in the TDA5005
3m/s (10ft/s) at a distance of 10m (33ft)
4m/s (13ft/s)
2.5 - 1,000m (8 - 3,300ft)

Weight (w/o battery, tribrach)

7.5kg (17.5lbs)

Safety Class

ATR

Laser class 1 in accordance with IEC 60825-1
(2001-08) resp. EN 60825-1:1994 +
A11:1996 + A2:2001 FDA 21 CFR Ch. I §1040
LED class 1 compliant w/ IEC 60825-1
resp. EN 60825-1

Distance meter (Infrared)

More features and benefits than any other Theodolite and Total Station on the market

The most precise instrument worldwide in it's category with a proven track record of far over 1,500 TPS5000 installations in all industries.

- Highest angle and distance accuracy – Completely guided and highly automated measurement of inspection and assembly processes.
- Motorization & automation – Minimal production and assembly process downtimes, minimal setup time within minutes, best adaptation to your part inspection, building and tooling applications.
- A truly large-scale transportable measurement solution for large assembly and inspection processes – Extended specifications for wide-ranging environmental conditions.

Specifications

TM5100A

Telescope type	Pan-focal alignment telescope
Autocollimation device	built-in
Unobstructed lens diameter	52mm (2")
Field of view diameter	2.08m (6.8ft) at 100m 0.26m (10") at 10m, non-linear
Magnification with the FOK53 standard eyepiece ⁴⁾	13x at 0.6m 32x at 10m, non linear
Shortest target range	0.6m (2ft)
Range of inclination, telescope positions I and II	-55° to +47° (-60 gon +52 gon)
Weight (w/o battery, tribrach)	7.3kg (17.0lbs)

1) Producer inspection certificate available as an option

2) In comparison with the Leica Laser Tracker

3) Producer inspection certificate (compliant with ISO 17123) included with the instrument

4) Eyepieces with different magnification factors and diagonal eyepieces are also available

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