

# Leica Industrial Theodolites & Total Stations – Precision in Large-Scale Measurement



- when it has to be **right**

**Leica**  
Geosystems



## Discoveries in Every Dimension

### **Low-Cost Measurement**

No matter your industrial measurement requirements and no matter the task, the Leica Industrial Theodolites and Total Stations give you an outstanding price-to-performance ratio. Flexible and suitable for a wide range of applications, the Leica Industrial Theodolites and Total Stations give you a superior performance with certifications that meet any standards.

### **World-Class Reliability**

For decades, Leica Geosystems has supplied thousands of Leica Industrial Theodolites and Total Stations worldwide – many in the toughest industrial environments imaginable, indoors and outdoors. Their ease of use and one-man operation capability make them the obvious choice for a large variety of metrology tasks in aerospace and shipbuilding as well as general precision applications.

### **Leica Total Stations: Tracking on a Budget**

The built-in precision distance meter and its ability to locate and track a target make the TDA5005 Total Station perform much like a standard laser tracker. Additional tracker-like capabilities, such as fast and flexible one-man operation, remote control option, along with a measurement volume far above 500m (1,640ft), make it an ideal tool for extremely large part inspection and assembly.

### **Leica Industrial Theodolites: The Industry Standard**

The Leica Industrial TM5100A Industrial Theodolite brings precision to your site. With unrivalled precision and superb optics, our Theodolites have become the standard instrument of choice in the aerospace industry for satellite alignment as well as for system and head-up display alignment.



# Unmatched Build Quality for Years of Trouble-Free Operation

## Service and Support

With our network of global service stations and an employee network directly dedicated to service and support, you can enjoy local service commitment from a global market leader.

## Precision in Perspective

The Leica Theodolite and Total Station technology is the proven result of our 150-year long dedication to innovative and reliable quality and continues to take industrial measurement to new levels. Team up with Leica. When it has to be right.

## ACTIVE customer care

- Re-Certification
- Annual Inspection
- Maintenance Contracts
- Standby Instruments On Loan
- Instruments and Systems for Hire

## Open Software Architecture

The Leica Geosystems instruments' open software architecture allows you to use any control and data software you wish, even simple operator systems with remote control.

Equally efficient with integrated software for off-line data capture, a PC-based analysis tool for online tasks and links to third-party solutions, the instruments offer full flexibility when it comes to analyzing your collected data.

## Offline or Online?

Do the conditions of use exclude using a PC? Do you only require 3D coordinates? In that case, the **offline mode** is the ideal solution. The software is integrated into the instrument, thus reducing the number of ancillary units to a minimum and providing maximum flexibility. The data is logged on a PCMCIA card and is later evaluated on a PC.

Do you require shape-fit geometries and additional geometrical evaluations? Do you want surface measurements or specific repetitive measurements for serial production? Do you want to use your instrument together with existing software or arrange for the development of special software? With the open system architecture, the **online mode** allows operation in conjunction with Windows® software.

## Customer benefits at a glance

### TM5100A & TDM5005/TDA5005

Proven track record with far over 1,500 TPS5000 instruments on the market give you the highest reliability possible.

Highest angle and distance accuracy make Leica Industrial Theodolites the most precise instruments worldwide in their category.

Completely open and programmable software interface seamlessly integrates with your standard software or with automated processes via serial communication.

Motorization & Automation features offer completely guided and highly automated measurement of inspection and assembly processes.

Minimal setup time within just a few minutes guarantee minimal downtime in production and assembly processes.

Wide range of accessories and targets give you the best adaptation to your part inspection, building and tooling applications.

Use your instrument under almost all conditions – both indoors and outdoors.

### TDM5005/TDA5005

Measurement range beyond 500m (1,640ft) with TDM5005 and TDA5005 – a truly large-scale transportable measurement system for large assembly and inspection processes.

Remote control option with TDA5005 makes this instrument a true single-operator system, controlled from the point of interest.

Built-In Automatic Target Recognition ATR within the TDA5005 allows for fatigue-free, fast and consistent pointing with no need to look through the telescope, for "Point-and-Shoot" as well as tracking in "Step-and-Go."

### TM5100A

Built-In Autocollimation Eyepiece – a recognized global standard tool for direction and coordinate-based precision alignment tasks.

# One-Stop Solution for All Your Measurement Needs



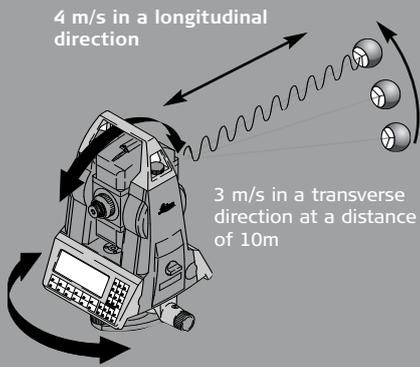
All the instruments in the TPS5000 series can be fitted with **various accessories**, so that they can be individually adapted to your particular applications or ambient conditions. The available accessories include a DL2 diode laser pointer, laser roller alignment kits, diagonal eyepiece, 1.5" Corner Cube Reflector (CCR), reflective tape targets, autocollimation eyepiece, PCMCIA memory card, industrial tripods and RCS1100 remote control unit for one-man operation.

#### ■ Our customers say...

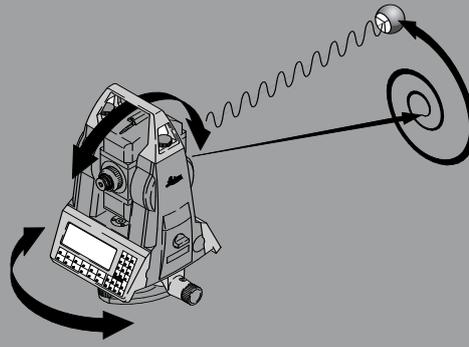
"The Leica Roller Alignment kits are going great. Last week we knocked out about 25 rolls per half day with two crews using 2 TDA5005s. Measuring to a ruler this would take a long day (10-12 hours), a lot more sweat and probably leave some rolls out because of access difficulties."

**Gavin Smith, Advanced Dimensional Solutions  
Albury, N.S.W., Australia**

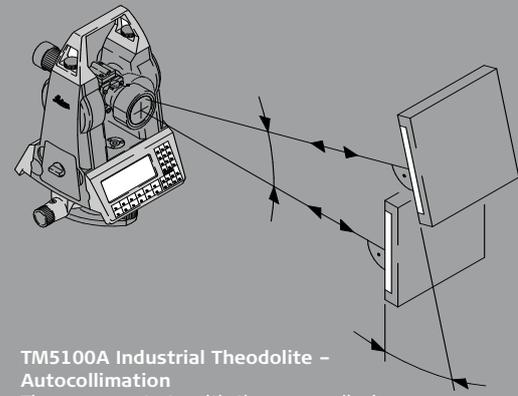




**TDA5005 Total Station – Lock-In mode** with target tracking from one measuring position to the next.



**TDA5005 Total Station – ATR mode** with automatic target recognition and measurement.



**TM5100A Industrial Theodolite – Autocollimation**  
The process starts with the perpendicular alignment of a plane mirror. For this purpose, the operator brings a projected reticule into alignment with the standard reticule. Any change in the inclination of the mirror fixed to the object causes the reticules to be displaced with respect to one another. This allows the change in inclination to be precisely measured with the theodolite.



**TDM5005/TDA5005, TM5100A – Common Features**

- 1 Best angle accuracy of 0.5" (1 Sigma)
- 2 Motorization and automation
- 3 Online data storage or offline via PCMCIA card
- 4 Separate drive for ergonomic, fatigueless and vibration-free operation
- 5 Completely open and programmable software interface

**TDA5005 & TDM5005 only**

- 6 Highest distance measurement accuracy (typical distance accuracy up to 120m/365ft measuring volume  $\pm 0.2\text{mm}$  (0.079") with corner cube reflector
- 7 Built-in Automatic Target Recognition ATR within the TDA5005

**TM5100A only**

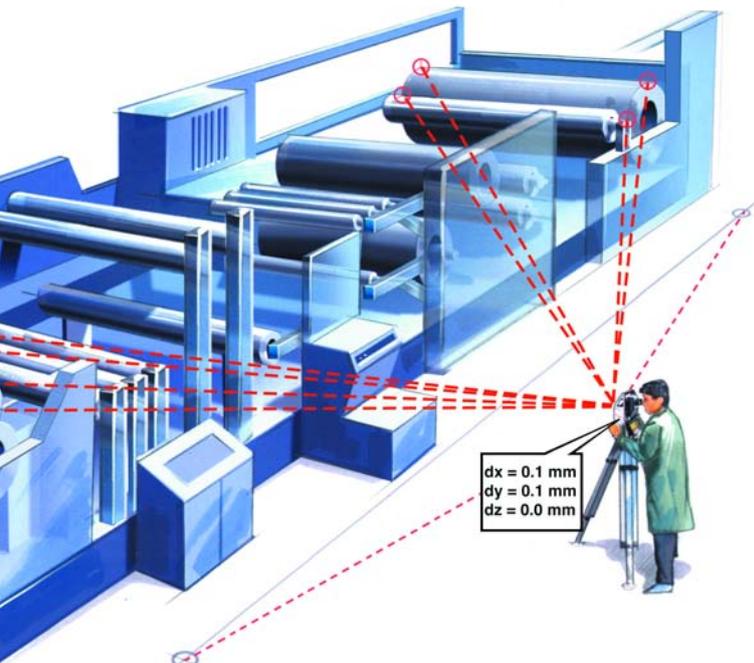
- 8 Built-in autocollimation eyepiece within the TM5100A
- 9 Precision telescope with minimum focusing distance of 0.6m (2ft)

# Best-Practice Industry Standard Bar None

## Leica Industrial Total Stations

### One-Man Operation With Remote Control

The use of Leica Total Stations can make significant contributions to productivity when assembling large aluminum and steel structures. The most effective results can be achieved by deploying the **remote-controlled measuring system** in conjunction with **automatic target recognition**, allowing dimensional checks to be performed by one operator from the target point location.

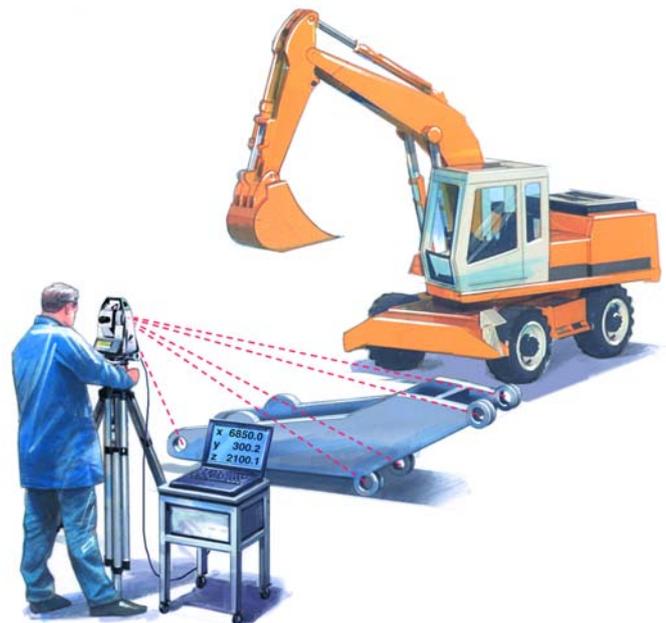


### Automated Operation

High production rates demand regular inspections of production tools, including the alignment of rollers or coils. **Rapid and flexible setup** of Leica Total Stations, combined with **automated measurements**, means that data can be recorded under a variety of conditions, a benefit that conventional measuring methods have so far been unable to offer with the same degree of precision.

### Quality Inspection On the Production Line

**Production line measurements** of large components can result in major savings in manufacturing costs. At the same time, you can reduce the number of geometrical checks on the finished component. In this case, **control of repetitive measurements** is done by a user-defined macro part program.





## Absolute Freedom and **Unrivaled** **Precision**

### Leica Industrial Theodolites

#### Open Software Architecture

Leica Industrial Theodolites master rapid and accurate logging of 3D data with ease. This applies equally to the configuration of on-board systems and head-up displays, as well as symmetry measurements carried out during maintenance work. The **open software architecture** means that units can be used in conjunction with **customized software**.

#### Maximum Precision

With its **unrivaled precision**, the Leica Industrial Theodolite with **autocollimation function** is recognized as the industrial standard by leading satellite manufacturers. Assisted by the non-contact measuring method using autocollimation onto mirror cubes, satellite components can be assembled with extreme precision – unequalled by any other measuring process.



#### ■ Our customers say...

"Our Leica Industrial Total Stations and analysis software are a key element in section assembly monitoring and guidance. In combination with organization and management improvements, our dimensional control systems have increased our productivity by 50 percent."

Volkmar Schumacher, Mech. Engineer, Flensburger Shipyard (FSG), Flensburg, Germany



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Whether building the fastest car, the biggest plane, or the most precise tooling, you need exact measurements to improve quality and productivity. So when it has to be right, professionals trust Leica Geosystems Metrology to help collect, analyze, and present 3-dimensional (3D) data for industrial measurement.

Leica Geosystems Metrology is best known for its broad array of control and industrial measurement products including laser trackers, Local Positioning Technology (LPT) based systems, hand-held scanners, 3D software and high-precision total stations. Those who use Leica Metrology products every day trust them for their dependability, the value they deliver, and the world-class service & support that's second to none.

Precision, reliability and service from Leica Geosystems Metrology.

**When it has to be right.**

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