

# Noptel Displacement and Alignment measurement Technology

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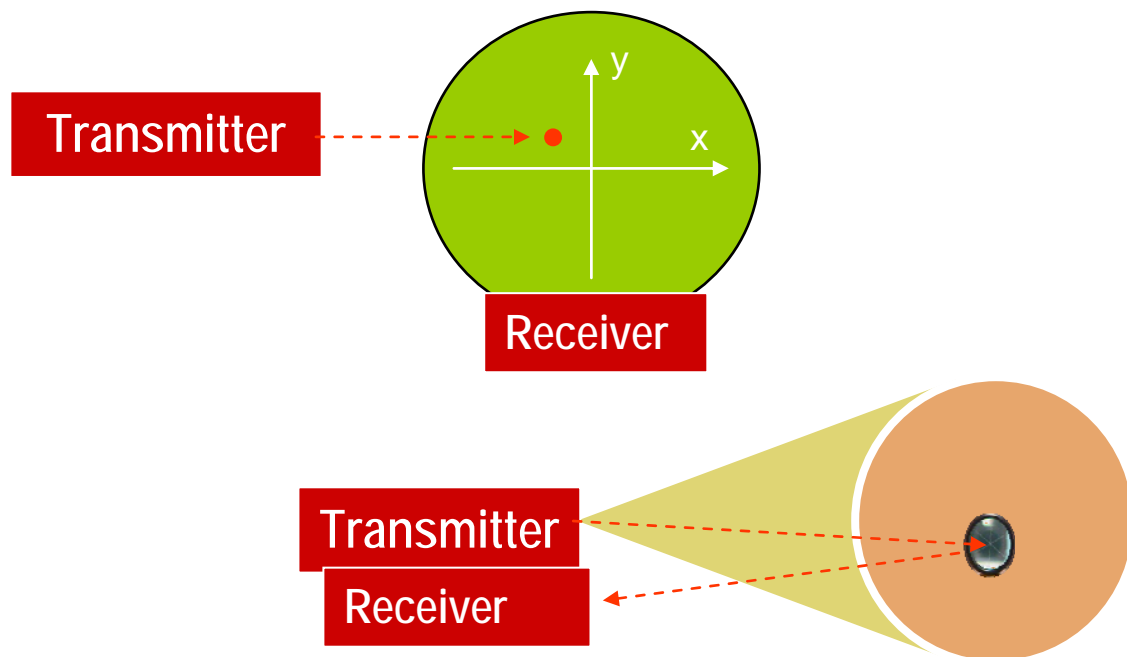
- One or two dimensional measurement
  - Separate transmitter and receiver or combined transceiver
  - Measurement to active receiver or prism reflector
  - Fast positioning
  - Dynamics measurement
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Noptel position measurement technology allows measurement of small deviations from the reference line in X/Y direction. It permits operating distances of several hundred meters.

Measurement devices employing Noptel technology are light in weight, robust and very suitable for outdoor use. The resulting measurements can be transferred to a computer through a serial interface.

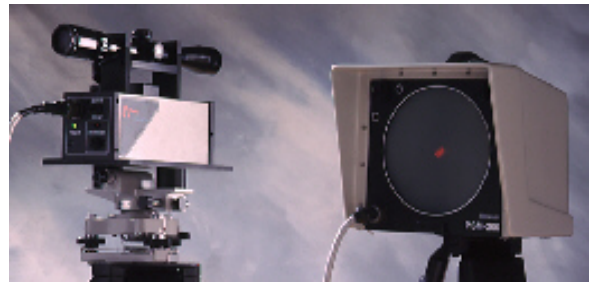
Noptel products represent two basic operating principles: Laser transmitter with active optoelectronic receiver and optoelectronic transceiver with prism target.

Noptel detection technology allows reliable measurement under variable environmental conditions. This is achieved mainly by proper beam modulation and the special properties of the receiver, which eliminates the influence of sunlight, temperature, fog, rain, snow etc. on measurement accuracy.



# Noptel displacement measurement technology

Noptel position measurement technology permits operating distances of several hundred meters, giving a resolution of up to 0.01% of the measuring range. The range can vary from a few millimeters to several meters, and the measuring speed can be over 1000 readings/second on one or two axes.



## BUSINESS CONCEPT

A customer specific product means a combination of marketing and technology resources and the know-how of two co-operating partners to find the most satisfying solution to fulfill the well-specified, known needs of a certain market.

Noptel offers its partners the necessary specialized technology and R&D know-how together with competitive manufacturing, and can also work as part of the customer's own product or system design initiative.

The development of a customer specific product may include slight modifications to an existing technology or it may mean the development of a totally new product. The sharing of the work, rights, risks, costs and profits are agreed case by case with the partners.



## APPLICATIONS

This technology has been used in products intended for measuring the dynamic and static behavior of large structures, the alignment of rails, the trajectories of robots and the bending of the mechanical parts in machinery.

### Railway track control

Laser alignment measurement technology has been applied to railway track maintenance in a system that employs Noptel's highly advanced laser beam hit point detection technique to measure the position of a railway track in two dimensions with a high degree of accuracy. This helps the vehicle's track reinforcement mechanism to adjust the rail rapidly and precisely to the reference position.



### TYPICAL SPECIFICATIONS

- Operating distances of several hundred meters
- Resolution of up to 0.01% of the measuring range
- The range can vary from a few millimeters to several meters
- The measuring speed can be over 1000 readings/second on one or two axes.
- Suitable for harsh environments

### APPLICATIONS

- Deflection of bridges
- Movement of towers, masts and chimneys
- Displacement of structures
- Stability of constructions
- Alignment of rails
- Bending of a bar