PSM-200
Displacement sensor

- **Fast and accurate instrument for displacement and alignment measurement**
- **Traverse line of a vehicle**
- **Displacement of the object**
- **Deflection of a bridge**
- **Alignment of a bar**
- **Vibration of a bridge, mast or tower**
- **Bending of a bar**

The PSM-200 measuring device has been developed especially for measuring the alignment of the rails or other metal structures, and it is also widely used for the measurement of displacement or vibration of large structures.

It is based on a laser transmitter and an optoelectronic receiver connected to the object. The operator directs the safe, visible laser beam at the receiver and locks it in a steady position.

The receiver recognizes the beam on the optical screen and measures its position accurately up to 500 times a second.

The transmitter can be at a distance of 1 to 350 meters from the receiver, depending on the environmental conditions. The measuring range may be limited by beam oscillation caused by air movement.

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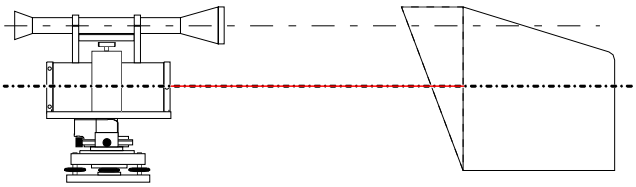
The very good environmental durability of the equipment is achieved mainly by proper modulation of the laser beam and the detection technology employed in the receiver, which eliminates the influence of sunlight, temperature, fog, rain, snow etc. on the accuracy over a wide measurement range.



Receiver

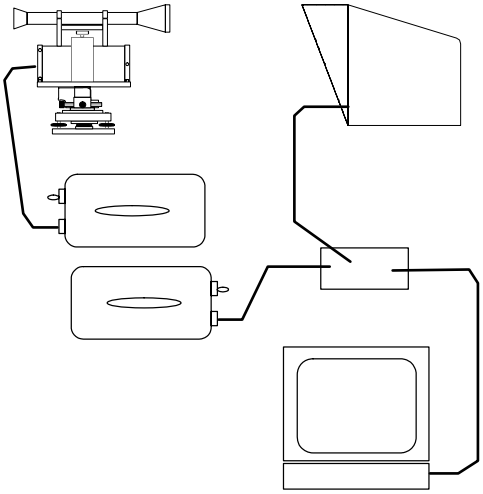
The receiver is a splash proof unit, which is fixed with the screw on its base. The brim of the receiver protects against rain falling directly onto the optical surface and also against direct sunlight and knocks. The receiver withstands mechanical vibrations coming from the object and dust and moisture coming from the environment. Three signal lights on the front panel show the location of the beam on the optical screen.

The receiver measures the optical centre of gravity of the laser beam on the screen. When using a fixed transmitter the receiver measures both orthogonal co-ordinates simultaneously. When using the sweep transmitter the receiver measures the position of the beam in the cross direction when it passes the central axis of the receiver.

Transmitter

The transmitter is a separate unit functioning on a 12 volt DC supply, which transmits a modulated laser beam either in a fixed direction or in a sweep beam in a plane, depending on the transmitter type and operation mode. The transmitter is accumulator-powered and operates when power is switched on.

Point transmitter



Typical measurement set-up

RECEIVER

- Power supply: 11 - 30 VDC
- Start-up current: 450 mA (@12V)
- Supply current: < 150 mA (@12V)
- Operating temperature: -20 ... +50*C
- Measuring area diameter: 200 mm
- Nonlinearity (+-70mm) :< +-1 mm
- Resolution: < 0.2 mm
- Beam hit angle range: 90degr +-10degr
- Serial communication: RS 232
- Analog output, 2 ports: +-10V, 10V, 4-20mA
- Max. measur. rate: 500 meas./sec
- Weight: 8 kg
- Dimensions (H W L): 27 / 31 / 32 cm

TRANSMITTERS

- Power supply: 10.5 to 15 VDC
- Operating temperature: -20 ... +50 degrC
- Laser wave length: 670 nm +-10 nm
- Laser class (EN 60825): 2 (Eye safe)

LINE TRANSMITTER

- Laser spot size at 100 m: 10 mm
- Sweep rate: 20 / sec.
- Weight 2.0 kg
- Transm. dimensions (Max. H W L) 8.4 / 8.4 / 20 cm

POINT TRANSMITTER

- Laser spot size at 100 m: 30 mm
- Weight (transm.): 0.5kg
- Transm. dimensions (Max. H W L) 35 / 80 / 135 mm

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