



**MILLIMETER
GPS™**

Millimeter GPS™ featuring LazerZone™ technology

Imagine entering a zone where your GPS elevation is instantly 3 to 5 times more accurate. Imagine the new applications you can now use your GPS for.

Just stop imagining. It's here. Topcon's practical, affordable Millimeter GPS™ featuring Topcon's LazerZone™ technology. Only from Topcon!

With Topcon's unique LazerZone™ technology added to your RTK GPS set, instantly, elevation accuracy is increased from centimeter, to millimeter level! You have now turned your GPS rover into a super precise measuring device that rivals a robotic total station. Your 3D GPS machine control system can now perform at millimeter accuracy level, making it useful for even the highest accuracy finishing work. And without the single-user limitation, that's the power of Millimeter GPS™. At the heart of the Millimeter GPS™ system is Topcon's LazerZone™ technology.

This revolutionary system brings together the speed and ease of use of a rotating laser, the accuracy of a robotic total station and the flexibility and multi user capabilities of GPS into one, compact jobsite solution! Just by adding a PZL-1 Positioning Zone Laser to your existing Topcon GPS Survey or 3D GPS Machine Control system, you get millimeter accurate elevation control.

Unlike a standard rotating laser that can only work in a flat (horizontal or tilted) plane, the PZL-1 LazerZone™ transmitter transmits a revolutionary 'wide beam' laser signal, which generates a 10 meter high 'Zone of laser light'.

The special LazerZone™ sensor can pick up this beam (anywhere within this 10 meter range!) and accurately calculate the elevation. By combining Topcon LazerZone™ technology with a regular Topcon RTK GPS set, you achieve accuracies, that are comparable to total station results!

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Millimeter GPS™ for Survey

The PZL-1 transmitter can be used to increase accuracy of your Topcon RTK set for all survey and stake out work.

Set up the GPS+ Base and Rover as you normally do, add the PZS-1 sensor to your GPS+ rover pole (or multiple poles), and set up the PZL-1 transmitter. You get instant millimeter accurate elevations.

Millimeter GPS™ for Machine Control

As an add-on to Topcon's modular, state of the art 3D-GPS machine control systems, the PZS-MC can be added to the mast holding the GPS antenna on the machine. Set up the PZL-1 laser and you get instant millimeter accurate elevations, for high accuracy finishing.

Multiple Transmitters possible

One PZL-1 transmitter has a horizontal working range of 300 meters (diameter 600m), and a vertical working range of 10 meters.

The transmitter can be quickly and easily transported to another point.

It's possible to use upto 4 transmitter simultaneously, as one receiver can distinguish the signals of upto four different transmitters.





3D-GPS Machine Control with MM accuracy

A tracking robotic total station has until now been the only real solution to control a machine's blade with Millimeter accuracy. GPS could never offer the same accuracy. Until now. By using the PZL-1 transmitter, and the PZS-MC sensor on the machine, you can finish grade with all the benefits of GPS, and the accuracy of a total station.

GPS Survey, Stake Out and Inspection with MM accuracy

The use of GPS for survey, stake out and inspection is in many cases limited by the accuracy limitations of GPS. Especially in vertical, where best achievable GPS accuracy is in the 1 to 4 cm range. Just add the PZS-1 survey sensor to your GPS rover, set up the PZL-1 and you have millimeter accurate elevation control.

The LazerZone™ system is comprised of three components



PZL-1

The Positioning Zone Laser sets up and operates with the great ease of use of a standard rotating laser. Set it up, measure the height and go. The Laser transmits a wide beam with a 10 meter vertical range coverage!



PZS-1

The Positioning Zone Sensor mounts to your GPS range pole, receives the laser signal and transmits the signal to your GPS rover controller. There is no need for a moveable mast or grade rod!



PZS-MC

The Positioning Zone Sensor for machine control replaces your machine GPS antenna. The PZL-1 transmitter can operate an unlimited number of machines working within it's receiving range.

GPS reference networks and DGPS service

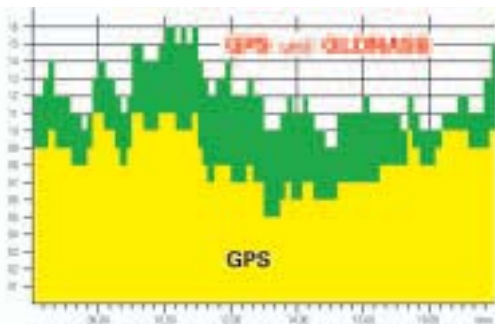
The use of GPS reference networks, or DGPS services like Omnistar, offer high levels of flexibility and coverage for your GPS measurements, but normally at accuracies around (sub) decimeter level. Just add your own LazerZone™ to your rover set to increase accuracy in a smart, easy and economical way.



Topcon GPS+GLONASS; All satellites currently available

Today, two different satellite constellations are available; the American GPS system which offers the use of 24 satellites, and the Russian GLONASS system, offering 11 satellites. Topcon is the only one today that offers the use of all satellites available. For better accuracy, for better coverage, for better reliability. The additional use of 11 more satellites over any other system is that you will:

- have better accuracy in especially vertical;
- are able to work in areas where the sky is partially blocked due to buildings or trees and GPS satellites only will not be enough;
- have quickest possible fixes (typically 3 times faster) when starting up or re-initialising.



Topcon Millimeter GPS™

Topcon's revolutionary Millimeter GPS system only works with Topcon GPS+ Machine Control systems and Hiper Survey solutions and can be added anytime in the future. To get millimeter accurate GPS when you need it, get Topcon GPS+ today!

SPECIFICATIONS

PZL-1 Transmitter

Zone Width	±10° (5-30m), ±5m (30-300m)
Zone Radius	300 meters
Lazer Zone Accuracy	Vertical: mm resolution at 200m
Self-Leveling Range	±5°
Rotation Speed	600 rpm
Laser Class	Class 1
Channels	4
Plumb Beam	YES
Bluetooth	YES
I/O port	RS-232C
Power Supply	Rechargeable Ni-MH (w/runcharge) 4 D-Cell Alkaline
Operating Time	about 20 hours (Alk), 15 hours Ni-MH
Waterproof	IPX6
Operating Temp	- 20° to +50° C

PZS-1 Rover sensor

Beam Detection	±10° by ±10° window
Channels	4
I/O port	RS-232C
Mounting	5/8x11 Thread
Waterproof	IPX6
Operating Temp	- 20° to +50° C
Power Supply	BT-59Q Camcorder battery
Operating Time	about 8 hours
Weight	about 1kg

PZS-MC Machine Control sensor

Beam Detection	±10° by 360°
Channels	4
Waterproof	IPX6
Operating Temp	- 20° to +50° C
Power Supply	DC8V~DC32V
Weight	Less than 3kg

Specifications as of 10/3/2004 and are subject to change without notice



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