



18 January 2005

Call Martens Farms, 877.585.6761, for more information.
We not only sell and support the EZ-Steer, we also use it on our own farm.

AgGPS EZ-Steer Assisted Steering System

What is the AgGPS EZ-Steer system?

The Trimble® AgGPS® EZ-Steer™ assisted steering system is an affordable assisted steering upgrade for the AgGPS EZ-Guide® Plus lightbar guidance system. The system consists of a steering controller and an electric motor with a foam wheel which attaches to the vehicle steering column, and turns the steering wheel to keep the vehicle on line as a driver would.



What vehicles can the EZ-Steer system be installed on?

The EZ-Steer system can be installed on any Trimble approved agricultural vehicle with power steering. This includes tractors, articulated tractors, sprayers, spreader trucks, and combines. Contact your local EZ-Steer Reseller or check www.EZ-Steer.com to see if your vehicle is approved for use with the EZ-Steer system.

More vehicles are being approved every week so check www.EZ-Steer.com regularly.

Who should use this system?

If you have a Trimble approved agricultural vehicle with power steering you can use the EZ-Steer system. It is a low cost assisted steering device that is more accurate than foam markers and can be used on older vehicles such as the John Deere series 4000 tractor. Contact your local EZ-Steer Reseller or check www.EZ-Steer.com to see if your vehicle is approved for use with the EZ-Steer system.

Why use the EZ-Steer system?

The EZ-Steer system reduces the stress of manually keeping the vehicle on line, which results in better accuracy. The driver has more time to monitor implements, spray booms or other controllers in the cab or even check for blocked nozzles and that the correct material is being applied at the correct rate.

Martens Farms dealers & consultants
www.123farmworks.com Inman, Kansas
877.585.6761

Trimble Navigation Limited, Agriculture Business Area, 9290 Bond Street, Suite 102, Overland Park, KS 66214, USA

© 2005, Trimble Navigation Limited. All rights reserved. Trimble, the Globe & Triangle logo, AgGPS, and EZ-Guide are trademarks of Trimble Navigation Limited registered in the United States Patent and Trademark Office and other countries. Autopilot and EZ-Steer are trademarks of Trimble Navigation Limited. All other trademarks are the property of their respective owners.



How is the EZ-Steer system different from the Autopilot system?

The EZ-Steer system is an assisted steering upgrade for the EZ-Guide Plus lightbar guidance system. It uses an electric motor to turn the steering wheel and it mounts on the steering column of the agricultural vehicle. The electric motor turns the wheel to keep the farm vehicle on-line as determined by the EZ-Guide Plus lightbar.

In contrast, the AgGPS Autopilot™ system is a fully featured automated steering system which interfaces to the hydraulic system of the vehicle. It uses a 6-axis inertial measurement unit (IMU) for tilt compensation and steering angle sensors to provide very accurate vehicle control.

The AgGPS Autopilot system is ideal for row crop planting on any terrain, while the EZ-Steer system is more suited to spreading and spraying applications on broadacre crops where extremely accurate positions are not required.

Will the EZ-Steer system void my vehicle warranty?

The EZ-Steer system does not void your vehicle warranty. You can remove the EZ-Steer system from a vehicle in a few minutes and never know it was fitted.

How does the EZ-Steer system attach to my vehicle?

There are a range of brackets available for installation of the EZ-Steer system for a wide range of agricultural vehicles. For information on the correct bracket for your vehicle, check www.EZ-Steer.com.

Vehicle brackets are US\$75 each, making it affordable if you need to transfer the system between vehicles.

You can remove the EZ-Steer system from a vehicle in a few minutes and never know it was fitted.

How accurate is the EZ-Steer system?

The EZ-Steer system will give 6-12 inch pass-to-pass accuracy 95% of the time¹ in fields with minimal slopes.

If the slope in the field is constant you will also get 6-12 inch pass to pass accuracy.

If the slope changes along a swath or between swaths then 1-2 inches of cross track error per degree of slope change along the swath is typical.

Will the EZ-Steer system drive around curves and headlands?

Yes. The EZ-Steer system can automatically steer the vehicle on curves, headlands, and pivots.

The EZ-Steer system can give sub-foot pass to pass accuracy on gentle curves at low-medium speeds with 2WD/MFD tractors, in fields with minimal slope². Curve steering accuracy will degrade at higher

¹ Straight line cross track error over 15 minutes, 95% of the time, speed ≤ 25 mph in US Midwest with at least 5 satellites, PDOP ≤ 6, SNR ≥ 6, Elev Mask = 8 using WAAS differential corrections. WAAS is a free service available in the US.

speeds, on tight curves, or sloping fields, and may not be achievable on vehicle types such as 4WD articulated tractors, sprayers, floaters, and trucks.

For higher accuracy on tight curves, sloping fields, and at high speeds an *AgGPS* Autopilot system is recommended.

Will the EZ-Steer system give 4 inch pass-to-pass accuracy?

Yes, 4 inch pass-to-pass accuracy can be obtained on fields with minimal slope by using the EZ-Steer system with the EZ-Guide 252 system and OmniSTAR HP corrections³.

Will the EZ-Steer system give 1 inch pass-to-pass accuracy?

No, 1 inch pass-to-pass accuracy is obtained by using the *AgGPS* Autopilot RTK automated steering system. The Autopilot system is more accurate than the EZ-Steer system due to extremely accurate tilt compensation and additional sensors that allow greater accuracy.

What is the installation time for the EZ-Steer system?

The EZ-Steer system can typically be installed into most vehicles in less than 30 minutes.

How do I configure the EZ-Steer system?

The EZ-Steer system needs very little configuration. Simply use the EZ-Guide Plus lightbar to enter the vehicle measurements from a supplied sheet and you are ready to go. If you need to adjust the steering sensitivity, you can easily do this using the EZ-Guide Plus lightbar. You do not need any other computers or devices in the field to configure the system.

Can I move the EZ-Steer electric motor out of the way?

If you do not need the EZ-Steer system you can latch the motor a few inches away from the wheel. Alternatively you can quickly remove it from the vehicle by unscrewing two screws, and leave the bracket attached for quick re-installation.

It is not necessary to remove the EZ-Steer system's motor during turns or short-term manual steering because the soft-foam rubber wheel on the edge of the steering wheel is designed so fingers can easily pass under the drive wheel with no discomfort. Alternatively, you can attach an inexpensive spinner knob to the steering wheel so that you can steer the tractor without the need to touch the outer rim.

Can I upgrade the EZ-Steer system to do roll compensation?

All EZ-Steer system controllers will be able to be upgraded with a roll compensation module which is currently being developed.

² Curve line cross track error over 15 minutes, 95% of the time, speed ≤ 8 mph in US Midwest with at least 5 satellites, PDOP ≤ 6 , SNR ≥ 6 , Elev Mask = 8 using WAAS differential corrections. WAAS is a free service available in the US.

³ Four inch cross track error over 15 minutes, 95% of the time, in US Midwest, speed ≤ 10 mph, with at least 5 satellites, PDOP ≤ 6 , SNR ≥ 6 , Elev Mask = 8 using OmniSTAR HP corrections. OmniSTAR HP is a subscription based service.

The EZ-Steer system roll compensation upgrade will provide correction for slowly changing cross slopes. It will not compensate for vehicle rocking in bumpy fields, or for sudden changes in slope such as driving through a grassed waterway.

If you need an automated steering system that compensates for bumps or sudden slope changes in the field, the AgGPS Autopilot system with 6-axis tilt compensation is recommended.

Does the EZ-Steer system need a remote keypad?

No. You can operate the EZ-Steer system using the three buttons on the top of the EZ-Guide Plus lightbar. The OK button is used to define a reference AB line in the field to engage the EZ-Steer system. You can disengage the system by manually turning the steering wheel.

There is an optional remote keypad so the buttons are located where you need them. The remote keypad also has dedicated buttons for engaging and nudging which can make operation easier.

What safety features does the EZ-Steer system have?

The EZ-Steer system has the following safety features:

- Manually turning the steering wheel automatically disengages the EZ-Steer system.
- The electric motor can be latched away from the wheel when the EZ-Steer system is not in use.
- Fingers can easily pass under the soft foam drive wheel with no discomfort.
- The shaft of the electric motor is covered by a tough plastic shroud.
- In the unlikely event of anything getting caught around the drive shaft, the EZ-Steer motor will automatically disengage.
- The optional remote keypad contains a warning buzzer that can sound when approaching the end of the swath.
- An optional accessory kit contains a loud Sonalert buzzer and also a seat switch so that the system will not engage without someone sitting in the driver's seat.
- Steering column brackets are custom designed to fit each approved vehicle without interfering with any controls, or blocking entry or exit from the cab.
- The system will not engage if the vehicle speed is below 2 mph, or stationary.
- The system will only engage if it is within a user defined distance and angle from the swath.
- The EZ-Steer system will not operate above a maximum speed determined by the vehicle type.
- The EZ-Steer system requires the operator to acknowledge they are still in the cab after it has been engaged for 10 minutes. If the operator doesn't acknowledge their presence then the system will disengage.