

November 2005

## TOPCON/SAUER-DANFOSS JOINT-VENTURE WILL MAKE INTEGRATED POSITIONING CONTROL A REALITY

TSD Integrated Controls, a Topcon/Sauer-Danfoss joint-venture company, is introducing TruPath™, the world's first fully integrated auto-steering system for use in agricultural vehicle applications. With TruPath, TSD Integrated Controls will offer OEMs a single-source performance and positioning control solution that meets the end-user need for very high accuracy, round-the-clock operations, more efficient use of machine implements, and multi-function control.

As the bottom-line benefits of GPS-based precision farming become more and more apparent, the OEM need for an integrated vehicle performance and positioning control system increases. End-users require integrated, turn-key solutions to avoid time-consuming, and sometimes costly, retrofitting. TruPath will enable OEMs to provide such solutions.

“TruPath will be the first fully integrated auto-steering system aimed at the agricultural machinery industry”, explains Michael Gomes, Product Manager, TSD Integrated Controls. “We have brought together high-performance hydraulics and satellite-based positioning and inertial control in one integrated system. OEMs will no longer have to spend time on in-house retrofitting to equip their tractors or combines with the positioning equipment farmers demand. We have done the complicated engineering work already, thereby saving time and money for the OEMs.”

For operators, TruPath will add new meaning to the term precision farming. The reason is that the system not only tracks signals from the 24 US-operated GPS satellites, but also from the 13 GLONASS (Global Navigation Satellite System) satellites launched and run by the Russian government. This means that TruPath has access to 50 percent more satellites than conventional GPS based systems which – depending on geographical location – often experience downtime due to missing satellite signals.

“One of TruPath's most remarkable features is its ability to track both GPS and GLONASS satellites, thus allowing for true round-the-clock operation of equipment”, says Gomes. “It takes simultaneous signals from a minimum of five satellites to calculate vehicle position with centimeter level (RTK) accuracy. With conventional positioning systems – able to receive signals from GPS satellites only – there will be times each day when the receiver has less than five satellites in view. The result is vehicle downtime or, at best, inaccurate positioning data. TruPath eliminates this problem. Receiving signals from both GPS and GLONASS satellites at the same time, our system provides the highest degree of accuracy. This is especially apparent when

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operating near tall trees or in northern latitudes where GPS-based systems can have difficulties. We offer 24-hour uptime, regardless of geographical position.”

TruPath features other benefits as well. Following a range of set coordinates, the system offers fast, repeatable performances, one benefit being that farmers can use wider implements and thus improve tractor productivity. It also enables operators to work in low-visibility conditions or during the night, thereby avoiding costly time-losses. Another advantage is multi-function control. As steering is done automatically, operators can focus elsewhere and begin to combine multiple machine work functions. They can carry out tilling, sowing, and spraying operations in a single pass, saving both time and money.

The TruPath system will consist of a receiver box that detects and decodes GPS and GLONASS satellite signals to accurately calculate vehicle position. A controller in the receiver box calculates position, along with inertial data regarding direction and acceleration, and sends it to a steering controller and wheel position sensor. Mounted on an electro-hydraulic steering valve, the controller manages oil flow to the cylinders, and thereby vehicle direction, while a graphical terminal provides feedback to the operator. Everything works automatically – hydraulic components and positioning equipment seamlessly integrated. As Gomes puts it, “TruPath is a fully integrated, fully automatic mobile hydraulic and positioning control solution featuring the best mobile hydraulic performance and most accurate positioning control available today.”

TruPath was presented at the recent Agritechnica fair in Hanover, Germany, and will be introduced to tractor, combine, and sprayer OEMs in Europe and the USA during 2006. A more general market launch will follow later.

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Sauer-Danfoss Inc. is a worldwide leader in the design, manufacture, and sale of engineered hydraulic and electronic systems and components for use primarily in applications of mobile equipment. Sauer-Danfoss, with approximately 8,500 employees worldwide and revenue of more than \$1.5 billion, has sales, manufacturing and engineering capabilities in Europe, the Americas, and the Asia-Pacific region. The company’s executive offices are located near Chicago in Lincolnshire, Illinois. More details online at [www.sauer-danfoss.com](http://www.sauer-danfoss.com).