

## **Scharmüller and Mobil Elektronik focus on operator's comfort**

The corona pandemic is leaving considerable traces in the economy.

The area of agricultural vehicles is still in quite a – if we can call it “good” position with only a slight minus compared to the previous year and is an exception, which is due to the unrelenting demand for food, even in Corona times.

In addition to the big well known global players, the agricultural vehicle industry is characterised by a large number of small and medium-sized manufacturers.

The suppliers Scharmüller GmbH & Co. KG from Austria and ME Mobil Elektronik GmbH from Germany are also medium-sized family businesses. The two companies are using the current difficult times to drive one or the other innovation forward.

Scharmüller is the world market leader for connections in agricultural machinery technology between tractor vehicle and trailer and Mobil Elektronik is the world market leader for electro-hydraulic auxiliary steering systems, which are now widely used in agricultural trailers. Therefore it is obvious that the two companies will produce common ideas for this industry.

In medium-sized companies, ideas or innovations are often triggered by customer requirements - as in this case, which concerns the connection between tractor vehicle and trailer.

For electro-hydraulic auxiliary steering of one or more axles of the trailer, it is important to identify the angle between the towing vehicle and trailer in order to be able to realize the steering geometry of the axles according to Ackermann. Only in this way the main advantages such as reduced tyre wear and high manoeuvrability can be fully exploited.

Currently, a very robust safety angle transducer mounted to the drawbar from Mobil Elektronik is used for this purpose (Figure 1).

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**Figure 1: Stainless steel drawbar encoder with connection to the K50 ball**

A redundant angle transducer is built into the robust stainless steel housing. To be able to measure the angle, the lever of the angle transducer must be connected to the K50 steering ball of the tractor via a linkage.

This connection is of course very robust and can withstand the extreme conditions in the field, but many users complain about the complicated work during coupling and uncoupling when different towing vehicles are used.

The task was to create a simpler connection between tractor vehicle and trailer when a EHLA TRAILER steering system from ME Mobil Elektronik is being used.

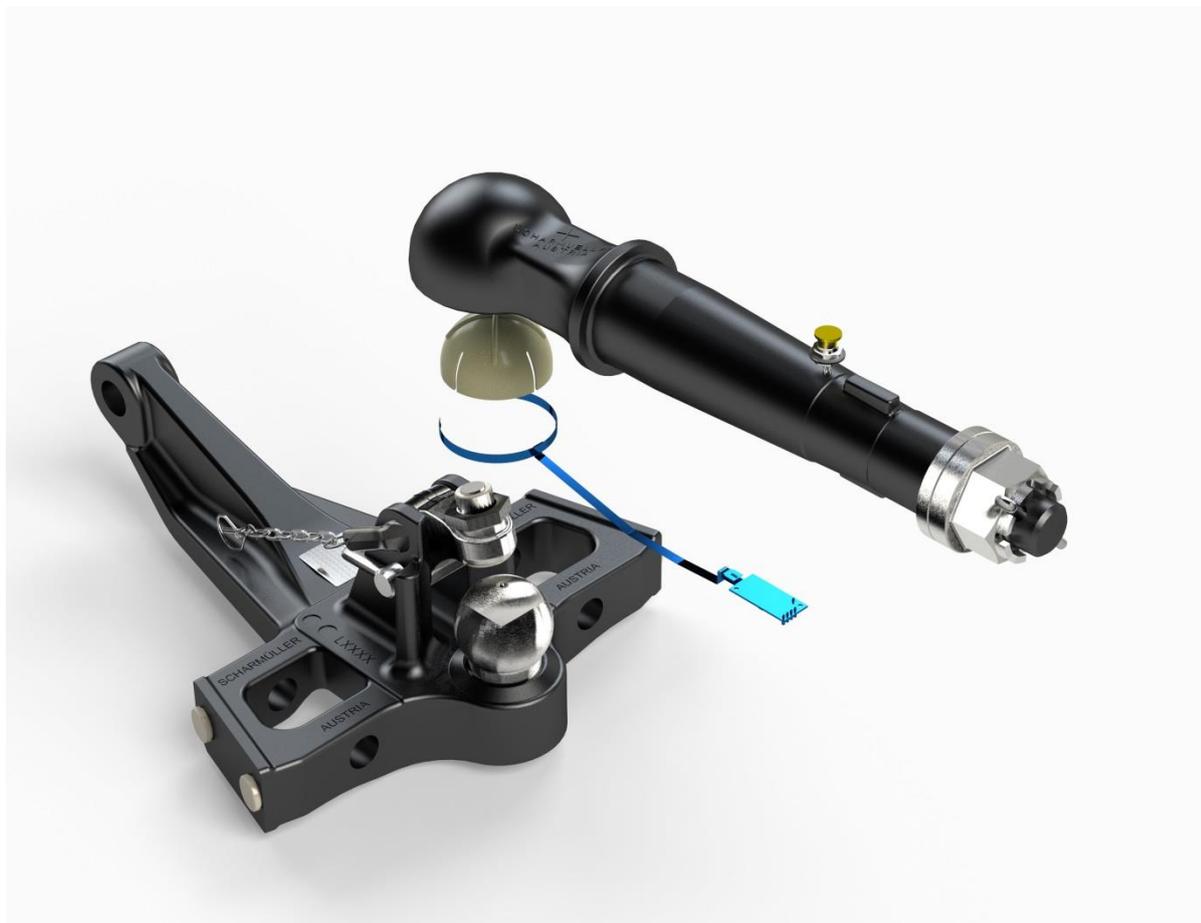
This sounds quite trivial at first, but it is not so easy to implement: the kink angle between the two vehicles must still be able to be determined redundantly in order to fulfill On Highway regulations (EC 79-R).

The solution that Scharmüller has come up with and patented is a ball head connection with integrated sensor technology (Figure 2).

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**Figure 2: Scharmüller clutch system with sensor ball and integrated sensor element**

This concept requires a sensor ball on the tractor side, which can be exchanged very easily in Scharmüller coupling systems and retrofitted in other systems.

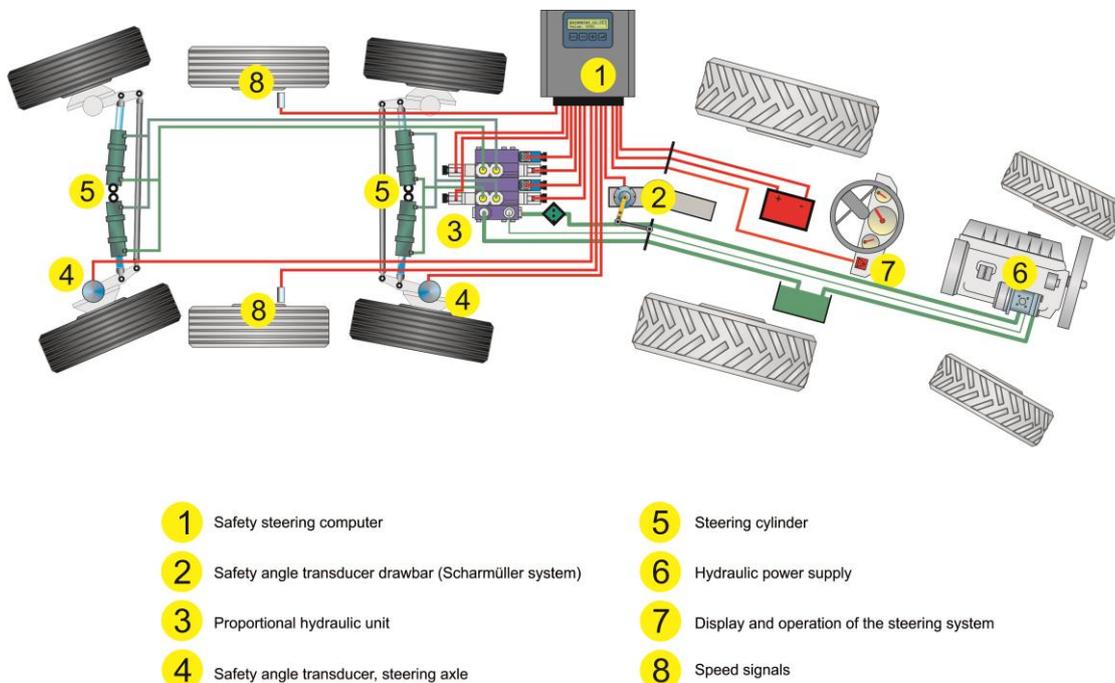
The towing ball coupling on the trailer side is equipped with a sensor element. When the towing eye is turned on the towing ball, the magnetic field changes. The so-called Hall effect generates a signal which is transmitted via CAN to the safety steering computer of Mobil Elektronik's steering system.

Figure 3 illustrates in detail how the EHLA TRAILER steering system works.

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**Figure 3: Schematic diagram of an EHLA TRAILER steering system for a tridem trailer**

"This solution is fantastic and meets the demands of farmers and contractors for easy coupling and uncoupling of different vehicles," says Thomas Beckert, sales engineer at Mobil Elektronik.

The two companies assume that Scharmüller's new concept will be available on the market this autumn, as the first field tests with vehicles from well-known manufacturers will be carried out shortly.

Another innovation that Mobil Elektronik will make available to customers in autumn is the connection of the steering system to the tractor via ISOBUS - a further step towards simpler handling and more operating comfort.

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### Sources:

ME MOBIL ELEKTRONIK GmbH

Scharmüller GmbH & Co. KG

### Press text and picture for download:

[www.mobil-elektronik.com/presselinks](http://www.mobil-elektronik.com/presselinks)

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### About MOBIL ELEKTRONIK

MOBIL ELEKTRONIK develops and produces complex steering systems for well-known manufacturers of mobile machines, commercial and special-purpose vehicles worldwide for 45 years now. Meanwhile the system provider has more than 130 highly qualified employees in Langenbrettach. Through a passion for innovation, commitment and creativity the expert from Langenbeutingen sets standards. As regards diversity and know-how MOBIL ELEKTRONIK is pioneer and global market leader for electronic steering systems (steer-by-wire).

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