

ISOBUS PLUGFEST

AEF organizes interoperability test in USA

The AEF spring plugfest takes place in Lincoln, Nebraska. From May 5 to 8 Isobus devices can be tested on interoperability.

Participants need to be registered in the AEF Isobus database. During the first three days, devices with Isobus interfaces are tested on interoperability. Because some of the ISO 11783 parts specify different implementation classes, it is necessary to prove the interoperability of products. The last day of the plugfest is reserved for AEF project team meetings such as engineering and implementation as well as farm management information systems (FMIS).

The CAN interfaces of the devices to be tested must comply with ISO 11783-2 (physical layer) and ISO 11783-3 (application layer). The application layer is based on SAE J1939-21. Optionally, they comply with one of the other parts of the ISO 11783 series – Virtual Terminals for example with part 6. In most today's Isobus solutions the tractor controls the implement. During the plugfest, also Tractor Implement Management (TIM) functionality will be tested.



Isobus plugfest 2019 in Antibes, France (Source: AEF)

TIM awarded

Recently, AEF received the AE50 award at the Asabe Agricultural Equipment Technology Conference in Louisville, Kentucky. The award is related to the development of the TIM launched in 2019. This approach is a cross-product and cross-manufacturer Isobus solution, it enables an implement to take over control of a tractor. What is new is that the implement sends information to the tractor via standardized and secure communication. The bi-directional communication uses the Isobus network standardized in the ISO 11783 series. The implement is only able to play the leading role, if the data transmission is secure.



Receiving the AE50 award (from left to right): Secretary Mark Benishek, General Manager Norbert Schlingmann, and Chairman Peter van der Vlugt (Source: AEF)

For this purpose, the AEF has developed an infrastructure that enables secure communication based on proven standards, such as electronic banking. This standardized solution – in conjunction with digital certificates – is necessary so that the implement can control certain tractor functions and can actively carry out the work process without driver input. Both, tractor and implement, trust each other so that the farmer can work more efficiently.

At Agritechnica 2009, Isobus Class 3 solutions – where machines of the same manufacturer exchanged data – were presented but there was no secure communication. In the following years, individual agricultural machinery manufacturers tested this technology in various machines until it was ready for the market. The basic idea was: the implement controls tractor functions such as forward speed or control valves to relieve the driver

and to increase machine performance and productivity. However, there was a restriction that a machine combination from different manufacturers was not possible.

The AEF has taken this idea and made decisive progress with a new infrastructure for secure communication. This standardized solution with digital certificates is the only way to ensure manufacturer-independent cooperation between tractors and implements in terms of maximum brand flexibility.

In order to obtain AEF certification, Isobus devices have to pass the AEF Conformance Test. Additionally, the product must meet state-of-the-art safety standards. As soon as the conformance test has been successfully completed, the AEF supplies a “digital certificate”, which will be integrated in the tested TIM machine. With the first connection between the tractor and implement combination, the machines check the validity of their digital certificates. If in agreement, the tractor and implement exchange a shared key. This key will be checked when starting the tractor/implement combination and if the result is positive, the farmer will be able to use TIM. Only then, the implement will automatically control the tractor without intervention from the driver.



With TIM Speed Control the Cargo 9000 and Cargo 8000 loader wagons are able to control the speed of a tractor (Source: Claas)

Kuboto becomes core member

After 11 years of Kverneland Group's direct engagement as AEF founding and core member, the mother company Kubota has taken over the core membership. The Japanese enterprise has identified the importance of this engagement and intends to push technology developments and standardization processes on electronics on a more global horizon. Kverneland continues the AEF engagement as a general member, contributing with its experience on Isobus technology to the AEF projects teams and to the AEF steering committee.

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