Tractor Implement Management (TIM)

The implement controls the tractor

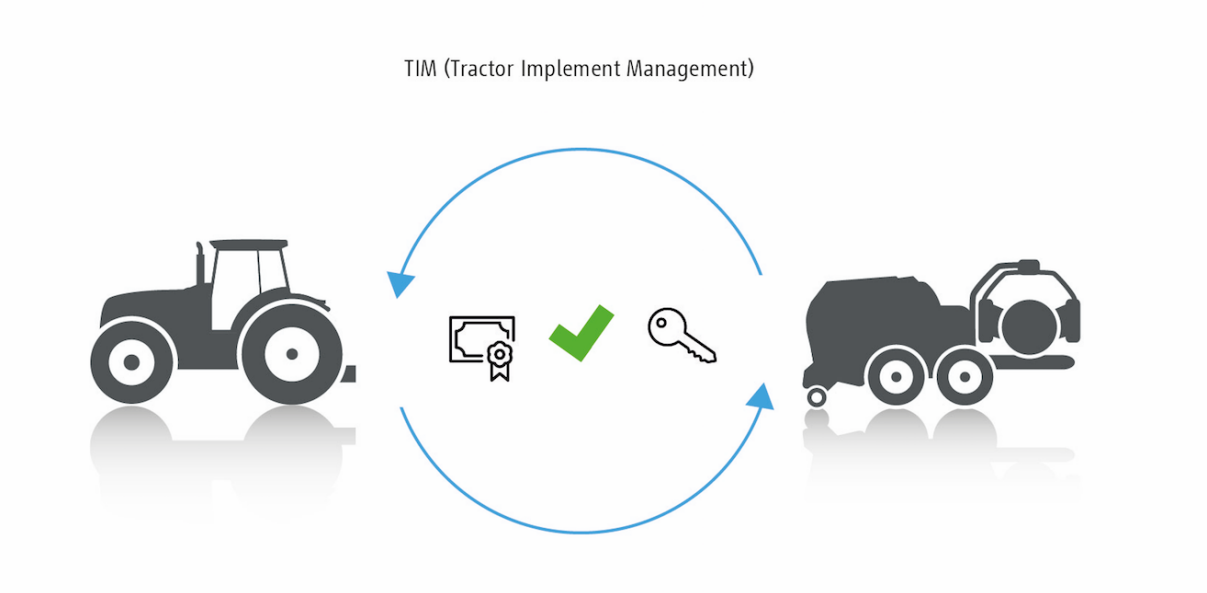
TIM (tractor implement management system) is an ISOBUS-based solution for a barrier-free and cross-vendor agricultural technology system where the implement can control certain tractor functions. TIM's main concept is to use the intelligence of the entire combination – i.e. tractor and implement. With other solutions, the tractor controls the implement, whereas with TIM experts speak of bidirectional communication, i.e. a transfer of control in both directions. That is to say: using TIM an implement is also capable of automatically controlling certain functions of a tractor – for example the forward speed or the remote valves. By requesting certain tractor functions the implement optimizes its operation themselves.

What are the benefits of TIM?

- TIM optimizes the quality and efficiency of the entire system "tractor and implement".
- TIM improves the driver comfort: automatic processes replace manual operation and prevent excessive demands while working.
- The implement "knows" the field operation being performed (e.g. baling straw or spreading manure) and its operational sequence: sensors and algorithms take control of the operation while the tractor provides the power.

The background:

With ISOBUS tested devices, farmers expect that the coupling of tractor and implement through "plug & play" works. This means: after an ISOBUS connection is established, the control between devices from the same manufacturer, but also devices from different manufacturers shall always be possible. This applies in particular for machines that are equipped with TIM. They are tested according to AEF guidelines and additionally have to observe the legal safety rules by which they are bound.



What does TIM aim to achieve?

The AEF has set up the project team „ISOBUS Automation" in order to accomplish TIM's goals together with other project teams.

- TIM shall be used as an "open" ISOBUS solution. That means establishing multi-brand ISOBUS-automation.
- The legal security requirements related to operator safety shall be met. Thus, a safe and controlled connection of the TIM combination (tractor and implement) must be established.
- TIM equipped machines have to be diagnosed by the AEF diagnostic solution and are visible inside the AEF ISOBUS database as well.

How does it work technically speaking?

In order to obtain an AEF certification, ISOBUS devices have to pass a conformance test and provide evidence of the compatibility according to the ISOBUS standard and the AEF guidelines. Moreover, the product must meet the safety standards.

As soon as the conformance test has been successfully completed, the AEF also 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 combination of tractor and implement. Only if the result is positive, the farmer will be able to use TIM. Only then, the device will automatically control the tractor without intervention from the driver.

Should you have any questions about TIM or its costs? Then please send them to office@aef-online.org.