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QTIS control software and QTIS-ECU

QTIS has developed an almost universally applicable ISOBUS software for you, which is certified by the AEF. The objective was that, in addition to regulating tire pressures, the software can also ensure reliable compressed air production and quality improvement, and offers you the freedom to use your existing components as much as possible.

A full-fledged tire pressure control system consists of 4 parts in our approach: compressed air generation and improvement (yellow), measuring and uploading tire pressures, temperatures and battery status (green), data processing, presentation and user interface (purple) and the actual tire pressure setting (blue)
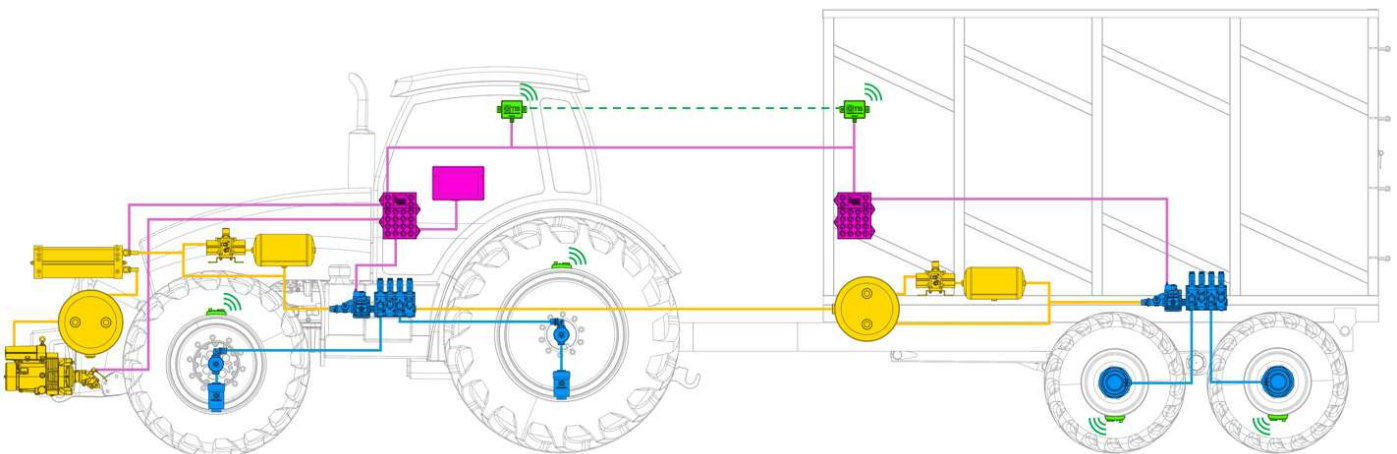
For OEM the software is also available in a version where you can adjust the design to your house style. Of course, it is up to you to choose which parts you want to purchase from QTIS. This also gives you total freedom as to which and where you place certain components such as the compressor or dryers. The screen layout is simple and intuitive to operate. With three short taps you have made and confirmed the new setting.

System structure

The starting point of the QTIS tire pressure control system is that each vehicle gets its own ECU, and the vehicles supply the measured tire pressures and other information to the ECU's and the central screen VT of the tractor via the CANBUS system. You record the tire pressures per vehicle in advance in a matrix for different usage situations. The instructions that the ECU's execute are instructed at the VT: change tire pressure, switch on compressor, etc.

Example of choosing tire pressures for an extremely wet field.

Preparing tire pressure settings:

By connecting a trailer with a QTIS ECU to the tractor, it will automatically be visible on the tractor display VT. In order to be able to quickly and clearly set the tire pressure during work, you need to make a few preparations once the installation of all QTIS system hardware components has been completed.

This of course takes time, but you get a lot in return: lower fuel consumption, less tire wear, more traction and the highest possible safety: No small advantages in our opinion. The OEM supplier probably already records all the data for the user in the ECU.

Recording vehicle layout: You simply select the vehicle from the ECU library with the correct axles and tire layout. You can also select vehicles with tires and tracks. You can select up to 8 tires per vehicle. A small selection:
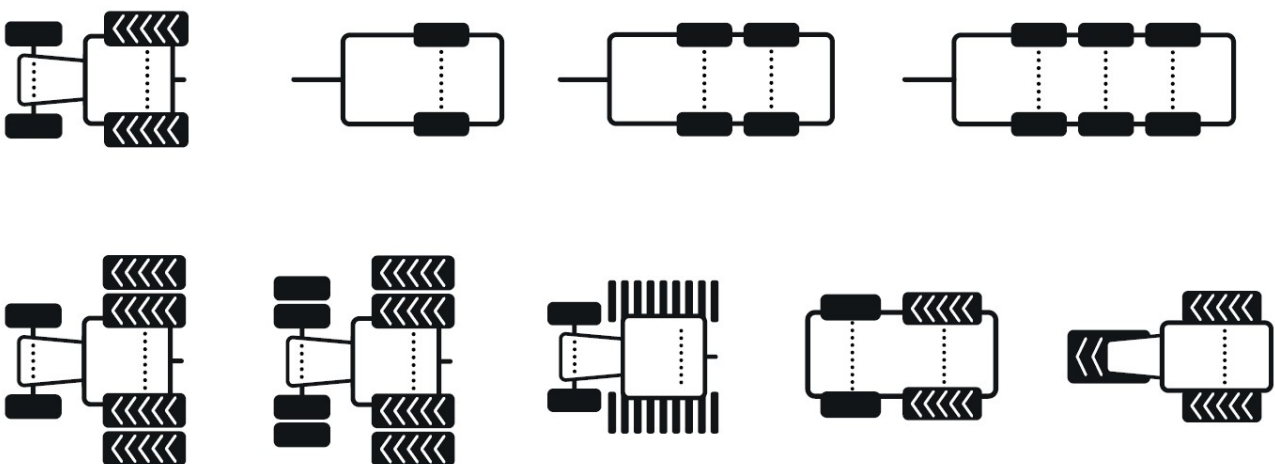
Linking the TPMS sensors to the tire location.

By calling up this functionality in the menu, the tires are temporarily changed in pressure so that the TPMS sensor can react, and its signal is recognized and linked to a location of the tire. We then know which TPMS sensor is responsible for a tire. The tires are not yet at the correct pressure.

Record tire pressures in a matrix.
Depending on the tires used, a tire pressure can be recorded per axle (tyre type). Ask your vehicle OEM and/or tire supplier to provide you with the correct data. Thanks to this matrix, you can easily and quickly call up the correct tire pressures later. And if you don't like a setting, you can always adjust it. Permanently or temporarily.
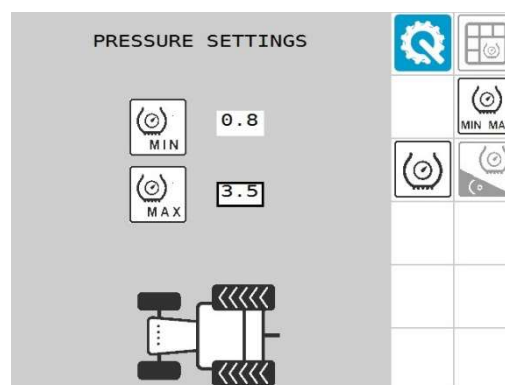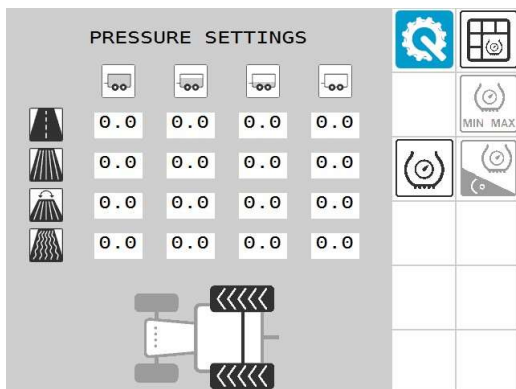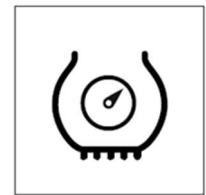

Setting tire pressures in operation:

With the QTIS software you can easily call up the preset tire pressures on the go, which are then set as quickly as possible by the QTIS valves. Optionally we could include controls over your system limitation of the rotary joints like Pressure x RPM X Duration combinations.

The selected tire pressures can be determined by three variables:

Choice of surface.

Make a selection of the paved road, multiple field conditions or a headland function, where only the rear axle of the tractor is adjusted in pressure.
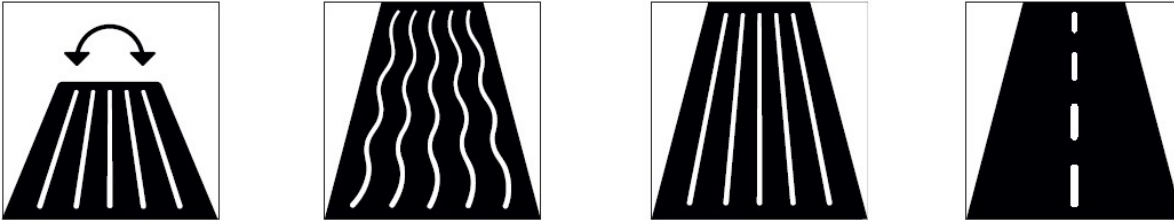
Loading degree selection: As the load increases or decreases, the tire pressure can be adjusted at the touch of a button. We have 4 loading degrees to which you can set the tire pressures.
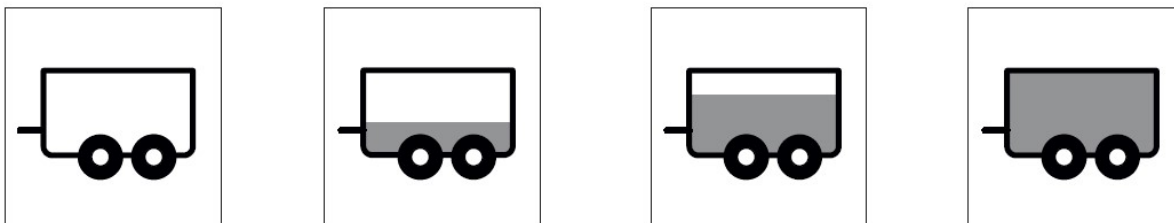
Terrain slope: To prevent leakage and even sliding of the tire from the rim, the tire pressure must be adjusted to the slope of the terrain. We offer several possibilities to increase the tire pressure on one side of the vehicle. A choice of the driver, optionally with the help of a tilt sensor.
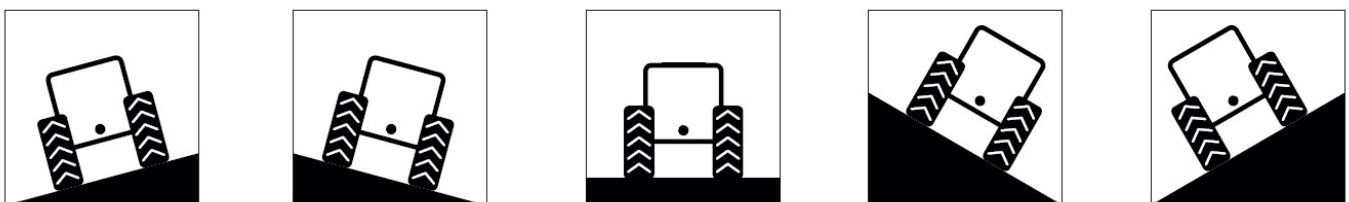
Warnings

We have also included a number of warnings in the software to help you get the most out of the QTIS tire pressure change system.

We monitor for tire leaks so that you don't unexpectedly end up with a flat tire after a few days of rest. You won't notice much of this during use, we keep the tire at the right pressure by re-inflating it at intervals.

We warn you of a fatal leak that we cannot compensate for with the present compressed air installation. In any case, you can adjust your driving behaviour or take action. Perhaps the tire can still be saved.

We warn you about underinflating your tires at higher speeds. You probably drove off the field without inflating your tires. Your roadholding and braking are now very poor and you should inflate your tires or adjust your speed.

We warn you about underinflated tires that are still cold. If you have reason to believe that they will not warm up and increase in pressure, you can initiate inflating yourself with QTIS software. While driving, your tires will be at the right pressure in about fifteen minutes (10°C increase in tire temperature gives 0.1 bar pressure change.)

We warn you of too high tire temperatures because this is very damaging to your tires. You can check the pressure and load, adjust speed or take other measures. You will get two warnings. One at 75°C and one at 90°C.
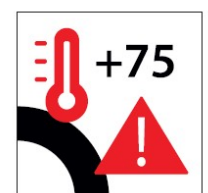
We warn you in time for low battery voltage of the TPMS sensor. You can then replace the sensor and reconnect it to your tire and digitally remove the old sensor. Note the two models of TPMS sensors we offer for easy replacement.
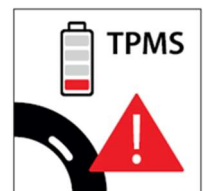
Additional functionalities

We have also included in the software the basic requirements for producing compressed air and improving compressed air quality. This gives you all the flexibility to improve your compressed air system, now or in the future.

Pressure sensors: you can connect two pressure sensors to the ECU. This allows you to monitor both the largest pressure tank and a tank for increased pressure. We have made the software adjustable to the sensor signal so that you can choose either 4-20mA or 0-10V to use your own approved pressure sensors. This way you always have sufficient pressure available for inflating or deflating your tires, brakes or other applications.

Dewpoint sensor: With a dewpoint sensor you can determine how dry (wet) your compressed air is. We can also use the dewpoint sensor to control a two-column adsorption dryer with sufficient capacity, so that you can produce really dry air.

Tilt sensor: (inclinometer) to keep situations on slopes under control, you can build in a tilt sensor that can warn the driver for side forces on the tyre walls. The QTIS software will suggest a pressure adjustment for the driver to accept or ignore.

Adsorption dryer control: with two valves and a dew point sensor we can dry compressed air so you don't have to have moisture in your tires and systems anymore, regardless of the ambient temperatures.

Compressor control: In addition, you can control and monitor your compressor via the QTIS software. The software switches the compressor on or off based on pressure settings, and monitors the temperature of your compressor, to switch it off in time before overheating. It keeps track of operating hours for you, and indicates when you need to replace the compressor oil or improve the oil by really letting the compressor run warm. QTIS provides control of cooling to cool the compressed air and thus remove condensation from the air. It is a small effort for QTIS because compressed air has been our trade for over 35 years.
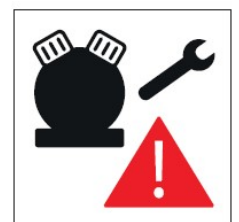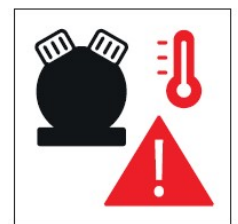
The QTIS ECU's

The software can be completely designed, but hardware is always needed to use the software. QTIS has entered into a partnership with an experienced German electronics supplier and has been able to make a very favourable agreement for you. We can offer the QTIS control software installed and tested on two ECU models, based on your wiring harness requirements.

QTIS-ECU-DEUTSCH (130 x 180 x 32mm) Is mainly intended for the situation where loose wiring, not integrated in a wiring harness, will be used. This ECU is especially useful when only few options are connected.

We offer the user 20 possible Deutsch plug IP65 connections, for the connections to the 8-32 VDC power supply, CANBUS, control valves, compressor, pressure sensors, dew point sensors, tilt sensors and the valves of the adsorption drying.

You can specify your own sensors in the QTIS menu (4-20mA, 0-5V, PWM) so that you do not have to test and approve new sensors.

Maximum output 25A, ISOBUS, AEF, ISO16750-3. ECE R10 E1, ISO14982, ISO 13766-2
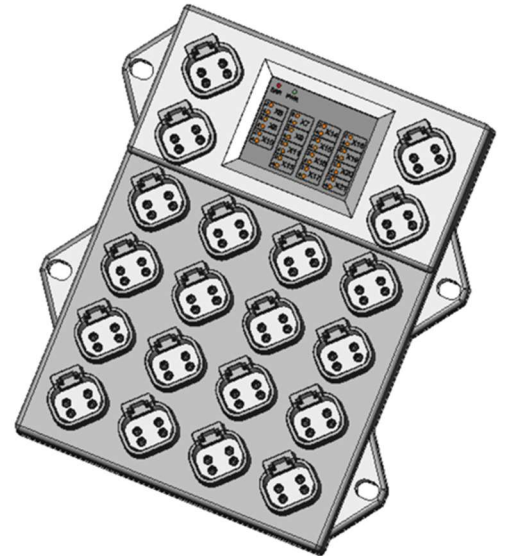
QTIS-ECU-MOLEX (140 x 95 x 43 mm)

Is intended for use in a wiring harness where one connector is used to plug into the ECU. Molex has a pre-wired connectors available for this. In principle we use the same software, the same options and the same components as with the QTIS-ECU-DEUTSCH.
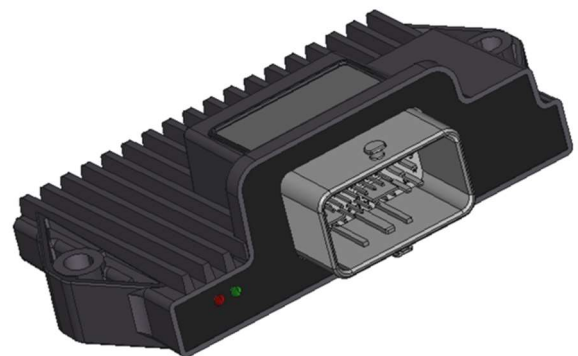
Here too you can specify your own sensors in the QTIS menu (4-20mA, 0-5V, PWM) so that you do not have to test and approve new sensors. Maximum output 25A, ISOBUS, AEF, ISO16750-3. ECE R10 E1, ISO14982, ISO 13766-2.

On request: ECU connection diagrams

OEM Privat-label design software

Parts numbers Deutsch and Molex plugs.

STEP files

Project quote

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