

Installation instructions

**fuel consumption gauge
with measuring turbines**

VM-020



| Performance optimization | Consumption optimization
| Process optimization | Repair of control devices

ELECTRONICS
Ilgenfritz
efficiency in agriculture...

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Technical data

Technical data

Supply voltage:
12,5 – 14

*Direct-current
voltage:*
5V

Power input:
~210mA bei 13 V



Please read the instructions attentively before the installation and pay attention to all notes. Don't put the additional electronics from Ilgenfritz Electronics in operation before you read and understood the notes. The installation confirms that the buyer read, understood and accepted the notes.

The electronics may only be installed by electrically or electronically trained experts. The installation of the electronics will be carried out at your own risk and responsibility!

It is imperative to pay attention to the leak tightness of the fuel pipes! Leaking pipes may set the vehicle on fire!

The measuring turbines may only be installed in diesel or biodiesel vehicles according to DIN EN 14214! No release/guarantee for biodiesel and RME which are not covered by DIN EN 14214 as well as vegetable oil, bioethanol and similar fuels!



It is imperative to check the ignition voltage with the multimeter in order to ensure that there is no permanent positive on this wire! If this wire has a permanent positive, it is imperative to use a different wire!

Installation

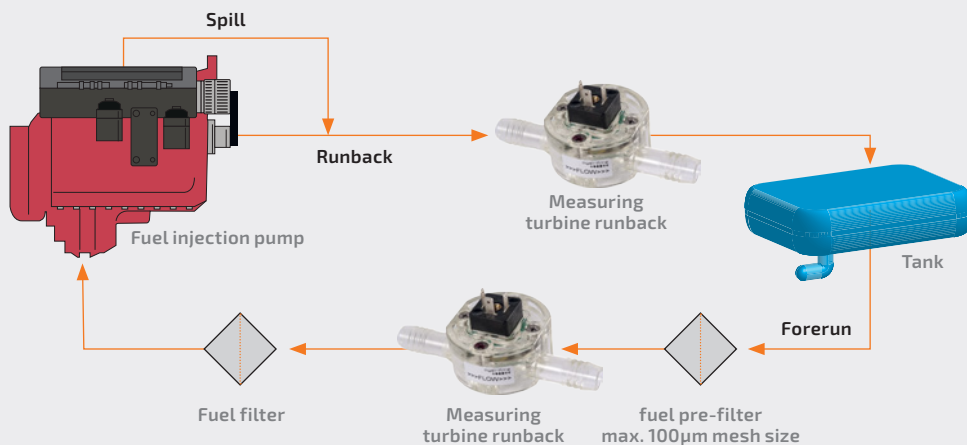
1. Turn off the ignition of the tractor.
2. Install the control unit at a suitable place.
3. Open the engine hood and familiarize yourself with the fuel pipe conduit of the vehicle.
4. Put in every hose nozzle one of the seal rings supplied.
5. Screw the hose nozzles fittingly onto the measuring turbines.



When tightening the hose nozzles, do not place the measuring turbines in a vise or similar, but fix them carefully. The measuring turbine can be held concentrically with a 17 mm fork spanner and the hose nozzle can carefully be fixed with a 19 mm ring or fork spanner. If the measuring turbine gets fixed too strongly, it can be damaged!

6. Install the measuring turbines with the supplied hose clamps according to the fuel-injection system.

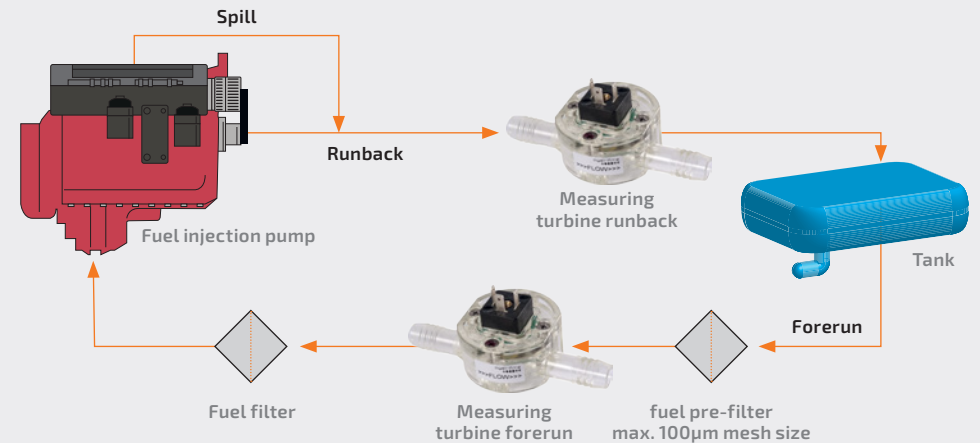
IN-LINE FUEL INJECTION PUMP (MEASURING TURBINES INSTALLED CLOSE TO THE TANK)



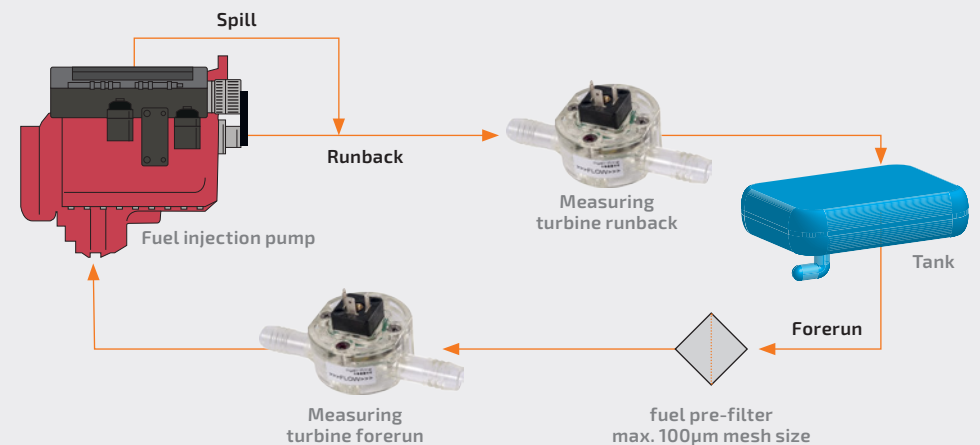
The measuring turbines have to be installed in areas with equal pressure in the fuel system, i. e. both turbines either next to the tank or both turbines close to the fuel injection pump. The place of installation depends on the fuel system!

When installing the measuring turbines it is imperative to pay attention to the correct direction of flow! The direction of flow is marked with a flash at the bottom! Do not fix the measuring turbines directly on the motor in order to prevent emitting heat from destroying the turbines! Pay attention to a good air ventilation.

PUMP PIPE JET (MEASURING TURBINES INSTALLED CLOSE TO THE TANK)



COMMON RAIL (MEASURING TURBINES INSTALLED CLOSE TO THE INJECTION PUMP)



Installation



An irregular engine run can lead to wrong measuring results! Pay attention to a concentric run of the motor and re-adjust the idling mixture if necessary. Make sure that the fuel filters are clean!

7. Run the cable for the power supply and for the measuring turbines.
8. Connect the cables of the measuring turbines and insert the supplied sealings. The cables are marked with forerun and runback.
9. Connect the cables for the power supply in the vehicle. Red > from the ignition lock switched plus, black > mass on the frame.
10. Connect the cables of the measuring turbines and the power supply to the electronics as follows:



Measuring turbines

Power supply



When plugging the connection assembly, make sure that both white points on the plug are opposite each other, put the plug completely onto the socket and only then turn the bayonet socket! If the plug is not fitted correctly onto the socket, the locking nibs may break!



It is imperative to pay attention to the leak tightness of the fuel pipes! Leaking pipes may set the vehicle on fire! Do not run any pipes or hose lines in the area of the exhaust system or other heat sources exceeding the allowed temperatures according to the standards or manufacturer's instructions! Check all connections of the fuel hoses for leak tightness after 10 working hours at the latest and retighten them if necessary!

11. Fix all cables and the flowmeters safely at the vehicle.
12. De-aerate the fuel pipes.
13. Check all connections and fuel hose clamps for tight seat.
14. Your fuel consumption measurement is thus ready for operation. For any further questions, please consult the operating instructions!

INSTRUCTIONS FOR MOUNTING WORKS ON THE VEHICLE

- | Inform yourself by construction drawings where the fuel/hydraulic/pneumatic hoses and electrical cables are located!
- | Avoid damaging of cables or loosening of connectors during the installation/ deinstallation process!
- | Never put borings and installation notches into stabilizing or supporting struts or arbors!
- | Fixing borings may only be carried out in the areas authorized by the manufacturer of the vehicle. Those are e.g. the neutral fibers in the frame profiles of utility vehicles!
- | Pre-bore small installation notches and finish bigger installation notches with a cone milling cutter, a jigsaw or a file. Burr angles. Follow in any case the safety instructions of the tool manufacturers.
- | Carry out any repair/installation works only in workshops or areas which are in accordance with the local building regulations in order to exclude any endangerment to the environment by contamination of water and soil with oils and fuels!
- | Oils and fuels need to be collected in vessels which are big enough and suitable for this purpose. Please dispose them according to the legal regulations! Oils and fuels that are spilt on the soil need to be bond by binder.
- | Before separating fuel pipes or disassembling connections, ensure that the fuel pipes or parts of it are not under excessive pressure! De-aerate the fuel system e. g. by opening the tank cover before starting with the mounting.
- | Open the screwing only slightly in the beginning and cover it for your own protecting with a cloth during opening.
- | During the mounting, always wear safety shoes prescribed by the health and safety at work regulations. Pay attention to oil and fuel resistant shoe soles.
- | When working under the vehicle, make sure to have it secured according to the manufacturer's instructions.
- | When working on a vehicle with inclined cab, make sure that it is completely tilted to the end stop or that it is sufficiently secured against back-tilting.
- | When working on the engine, ensure that it is switched off and prevent a re- ignition by third e.g. through removing the ignition key during the works.
- | Be especially careful when working on the engine and wear only adequate and tight-fitting workwear since there is the risk of injury by bruising and burn.
- | During the installation/deinstallation process or removing of covers or similar, avoid to damage pipes or the loosening of connectors!

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more service, even more products

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(Subject: New Repair catalog) and you will get it free of charge by post.



Certificate of delivery and operation

The customer was briefed about the appropriate application, handling and service by the dealer and was informed about the safety appliances according to the delivered installation and operation manual. The customer was informed about the warranty conditions of the producer by the dealer.

DEALER

Name _____

Address _____

ZIP Code _____ City _____ Country _____

KUNDE

Name _____

Address _____

ZIP Code _____ City _____ Country _____

Part no _____ Serial no _____

Please check whether the following working steps were conducted before delivery and handover:

- | | |
|---|--|
| ☐ Correct fixing of the electronic module? | ☐ Frictionless laying of the wires? |
| ☐ Connectors and crimp connectors checked? | ☐ Functional check conducted? |

- | The delivered electronics may only be used in the manner as described in the installation and operation manual. Each other usage is regarded as inappropriate use and is, therefore, strictly forbidden and doesn't fall into the producer's area of responsibility.
- | With regard to the risk that is associated with the inhalation of exhaust emissions a tractor may not be started in a closed room (article 69 of the safety ruling for the agriculture).
- | The local effective safety regulations for accident avoidance have to be complied at any time.
- | You may not work with a defective component.
- | Maintenance operations and repairs may only be conducted by qualified personnel.
- | The electronic part will be delivered completely with all necessary mounting material and accessories.
- | Please contact your dealer or the producer for information about spare parts, maintenance or repair operations which are not treated in this manual. Pay attention that you have all type plate information at your fingertips.

Date of delivery _____

Customer signature _____

Signature trader _____

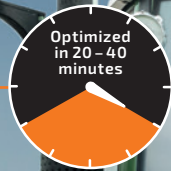
Optimize like a genius Genius i-Flash

Write and Read tool "Genius i-flash" to optimize the original Motor control unit (change in the characteristics).

The Genius i-Flash Tool is a workshop tool for reading and writing the motor control unit via the on-board diagnostic (OBD) socket of the machine.

The data is exchanged via an online platform and optimized to meet customer requirements.

This type of optimization is a "embedded solution" – a solution that is embedded and fully integrated in the control device. For an optimization we typically require 20 to 40 minutes. With this tool you can optimize not only agricultural machines, but also cars, trucks, motorcycles and boats.



From their own accord Performance optimization



"High-end" variant

Supplementary electronics for controlling the injectors without rail pressure increase.

Changing the characteristics

Modification of the original machine software.

**ALL TUNING COMPONENTS + SOFTWARE
PRODUCED IN-HOUSE**



Extra box with cable harness

| Performance optimization | Consumption optimization
| Process optimization | Repair of control devices

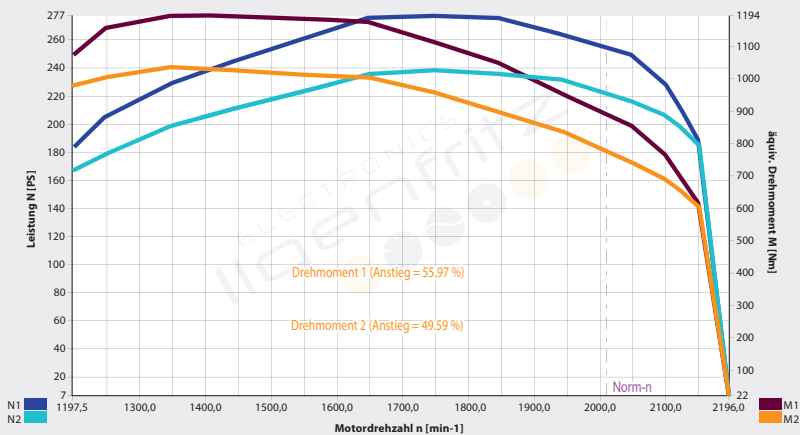


The intelligent performance principle

State-of-the-art performance optimizations are based on intelligence. This starts with the fact that fuel is not consumed continuously but it is only injected if it is actually needed.

The optimization interacts extremely accurately through continuously monitoring the injection parameters as well as the load and the rotational speed. Independent of whether you use auxiliary electronics or change the engine control unit software – **our optimization is provided by preserving the engine and it is lastingly effective!**

This characteristic curve was taken from a John Deere 8245R for which the fuel and the performance were optimized.



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