




Installation and User's Guide

Hektarmeter

Version : Februar 1996

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1 Description of the system

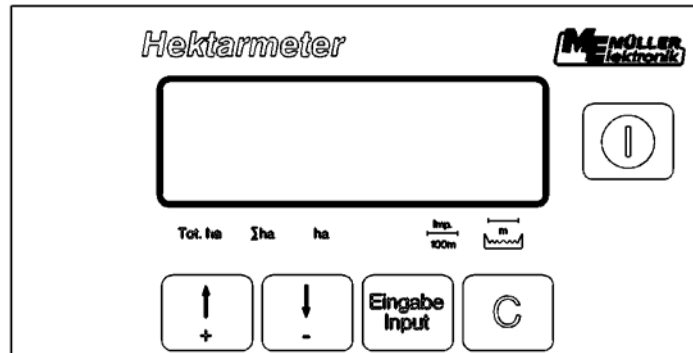


Abbildung 1 : Geräte - Layout

The Hektarmeter can be used on selfpropelling agricultural machines as a measuring instrument.

The Hektarmeter monitor consists of:

- the computer (installed in the driver's cab of the combine harvester or the tractor) and the wiring harness with the sensors.

It is intended to:

- calculate the area and the total worked area
- calculate the lifetime worked area
- enter and change the working width
- enter and calibrate the impulses/100 m
- deleting the area and total worked area
- the lifetime worked area can not be deleted.

- The rugged operating conditions in agriculture have been taken into consideration in the design. The front panel therefore consists of a very robust, but also very serviceable foil keyboard, so that the equipment can be operated rapidly. All the data fed in and detected will remain stored even when the equipment has been switched off. (EEPROM-Memory)

2 Fitting instructions

2.1 Computer

The operating voltage is 12 Volt and it must be taken directly from the battery. Care should be taken when laying the cable and it should be shortened if necessary. The crimp ring terminal for the ground line and the end sleeve for strands for the + line (brown) should be fitted suitable pliers. The end sleeve for strands for the + line are in the connection damp of the fuse holder.

Attention:

The power supply has to be connected directly to the battery.
The minus pole of the battery must be connected with the chassis of the tractor.

2.2 Sensors, general remarks

The Sensor X for the distance consists of an Hall Sensor and the Sensor Y for the working position consists of a Reed-Sensor. Both are magnetic switches. If you move a magnet to the sensor, the switch shuts, which is noticed by the computer.

The installation of the sensors has to fit in the following conditions:

- a) The head of the screw fixing the magnet must look to the end of the switch.
- b) The distance should be 15 mm - 25 mm for reed- and 5 mm - 10 mm for hall-sensors.
- c) The magnet must move in a vertical layer to the switch.
- d) To mount the magnet use the enclosed stainless steel screw or the copper bolt.
- e) The red coloured side of the magnet must be visible.
- f) The free end of the switch has to be longer than 25 mm.

2.3 Sensor X for the distance

- **Fitting to a 4-wheel drive tractor and to a MB-Trac**
Mount hose clamp with the magnet to the cardan shaft.

The sensor should point towards the magnets from a distance of 5 - 10 mm.
It should be fitted when no oscillation occurs.

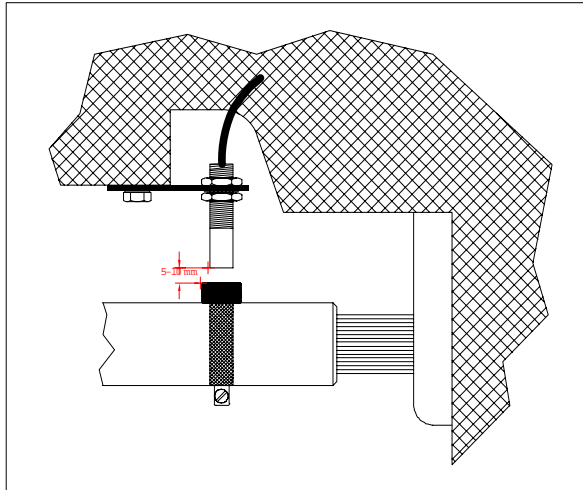


Diagram: 312084.85.1

- **Fitting to tractors without a 4-wheel drive**

Fit the magnet to the shell of the wheel with the V4A screws supplied.

Fit the sensor to the axle steering bearing with the brackets provided in such a way, that the end of the sensor points towards the magnets. The distance should be 5 - 10 mm.

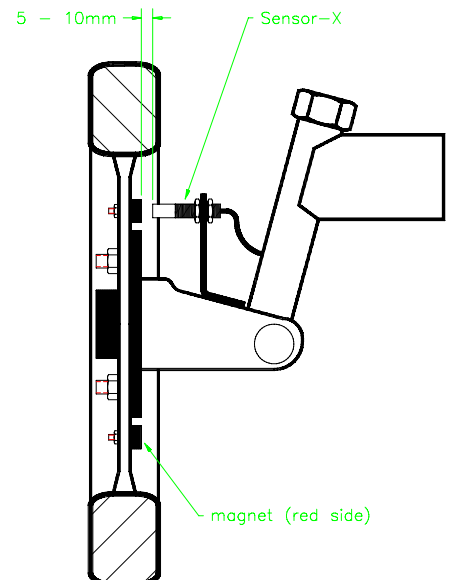


Diagram.: 312 084.83.1

2.4 Sensor Y for the working position

This sensor indicates the computer the working position of the machine. Only in working position the computer accumulates the area processed.

The magnet is mounted with the V4A bolt supplied to a part of the machine, which changes its position from transport to working position. The sensor is then fixed to a static part of the tractor opposite to the magnet. When in operation, the magnet must be exactly in front of the sensor. The arrow at the left side of the display lights up on the computer.

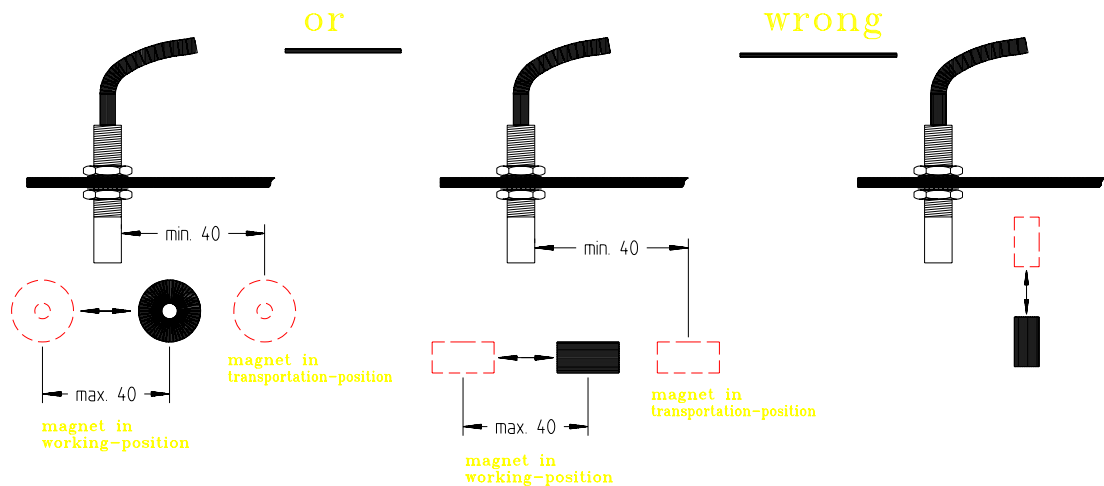


Diagram 312 090.81.1

Whenever the part of the machine which is being monitored varies in working position by more than 4 cm in front of the magnet sensor, a second is fitted in the direction of the movement of the magnet. When the machine is brought into transport position, the magnet should move at least 40 mm away from the magnet switch.

Example: Tractor - three-point hydraulics

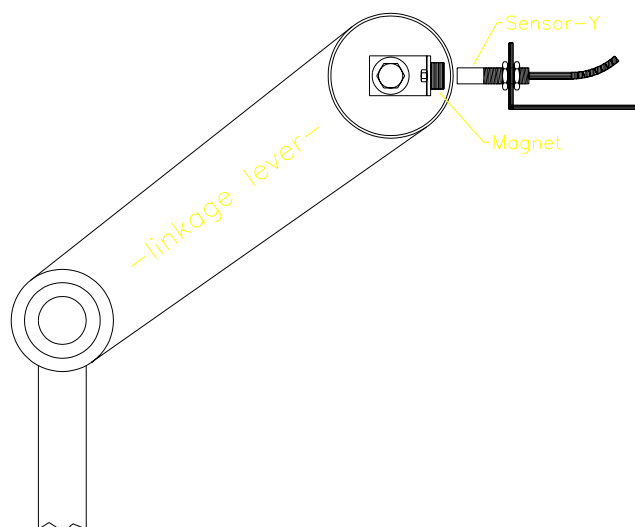


Diagram: 312090.82.1

2.5 Fixing the cables

The cables of the sensors have to be tied up carefully with along the existing cables and pipes. First fix the cable with a tie at the holder right behind the switch. So that tractive power in the cable do not destroy the magnetic switch.

2.6 Safety

2.6.1 Specified implementation

The Hektarmeter is specified only for agricultural use. Use outwith this area is regarded as unspecified.

The manufacturer does not accept liability for damages to persons or property resulting from unspecified use. In such cases all risks are the responsibility of the user.

Specified implementation also includes adhering to the operation and maintenance conditions stipulated by the manufacturer.

The relevant accident prevention regulations as well as other recognized safety, industrial medical and road traffic rules must be adhered to. Neither does the manufacturer accept liability in cases where independent modifications have been made to the Hektarmeter.

2.6.2 Safety instructions


Before working with electrical equipment or carrying out any welding operations at the tractor or the trailed machines, the battery connection must be interrupted.

3 Operating instructions


3.1 Switch on/off

With the key (I) you switch the computer on

After switching on the computer, it checks itself first. Then it shows the ha counter and resumes automatically at the point where it was switched off.

You switch the computer off via the same key . All counters are stored for using it the next time.

3.2 Change of the machine parameter

Via the  key the triangle can be moved to show the counters or to enter parameters.

3.2.1 Change of the working width

You have to feed in the effective working width:

- Push the "Input" key until the triangle is above the symbol.
- Feed in the value via the +/- keys.
- Press the "Input" key

3.2.2 Change of the impulse at 100m

Here you have to enter the number of impulses which the sensor X gets during a 100m drive.

There are two possible inputs:

- Measure out and mark a distance of 100 m in the field.
- Take the vehicle to the starting position.
- Push the "Input" key until the triangle is above the symbol
- Press the "C" key
- Drive the vehicle forward slowly and bring to constant speed
- Stop after 100 m
- Press the "Input" key

The figure (impulses/100 m) has already been determined once for the tractor.

In this case there can be a direct input.

- Push the "Input"-key until the triangle is above the symbol
- Feed in the number of impulses at 100 m for example 165 via +/- keys
- Press the "Input" key

3.3 Deleting the counters

It is possible to delete the "ha" counter and the " Σ ha" counter the lifetime counter "Tot ha" can not be deleted.

If the triangle is above the "ha"-symbol the "ha" counter can be deleted if the "C"-key is pressed.

In the same way the " Σ ha" counter is deleted, if the triangle is above the " Σ ha"-symbol and the "C"-key is pressed.

3.4 Counter limits

The maximum of the "ha"-counter is 999,999 ha. If the maximum is reached, the display start to flash and counts no longer.

The maximum of the " Σ ha"-counter is 9999.99 ha. If the maximum is exceeded the counter starts with zero again.

The maximum of the " Tot ha" counter is 999999 ha. If an overflow really should happen, it starts with zero again.

4 Trouble shooting

Problem	Cause	Remedy
The computer does not work	Voltage too low	Check connections take voltage directly from battery or starter
Area ist not measured	Input of "Working width" or of "Impulses/100m" is missing	Put in figures (according to 3.2.1. and 3.2.2.)
	No impulse from drive sensor for distance (circle does not flash during operaion).	Check plug X and cable towards drive sensor for any damage, possibly drive sensor needs replacing
	There is no working position. Pay attention to the arrow.	Check plug X and cable for any damage and the fixing of the magnet.
The display shows "LLLLLL" and the computer switches off.	The EEPROM-memory does not hold the data	The EEPROM has to be changed.