

Instruction manual

Flex Counter Standard



System	Lykketronic Flex Counter Standard
Part number	
Serie number	
Installed by	
Installation date	

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1. Overview of included functions

The Flex Counter can be used for multiple purposes within the agricultural sector. The Flex Counter can measure the following:

- F.1 – Speed indicator
- F.2 – Area counter
- F.3 – Unit counter
- F.4 – Revolution counter
- F.5 – Working hours
- F.6 – Wrap counter

Only one of the functions stated above can be measured at the time.

The individual functions and their characteristics are described below.

Furthermore - please refer to “*Installing the sensor and magnet*”, where the use of the sensor in connection with the different functions of the Flex Counter is described.

1.1 Speed indicator (F.1)

To calculate speed, the computer requires to be programmed with the value of the wheel circumference from which the wheel sensor receives its impulses. It is highly recommendable to mount the wheel sensor on a trailing wheel. However, on four-wheel drives the rear wheel is recommended.

A distance equal to ten (10) wheel revolutions is driven. This distance is measured and divided by ten. The resulting factor is the wheel circumference.

The condition of the soil affects the accuracy of the circumference. It is therefore an advantage to generate a circumference for hard, soft and very soft soil, so that the right factor is available for the various conditions.

- By installing more magnets on the wheel, a faster registration of the actual speed changes (e.g. when starting to drive) can be obtained. In this case it is important that the magnets are placed with equal distance between them and that the number of magnets applied divides the circumference.

Please notice that the Flex Counter require a pulse signal from the sensor every 5 seconds., otherwise the speed is displayed as 0 km/h.

The circumference is to be entered in centimeters. The table right below shows how different circumferences are displayed, and how the comma must be positioned.

Intervals for indicating the wheel circumference	
Interval	Display example
< 100 cm	87,25
=> 100 cm	315,8

1.2 Area counter (F.2)

In order to use the area counter, the wheel circumference and the working width of the machine used must first be entered.

Regarding the wheel circumference - please refer to the previous chapter “*Speed indicator (F.1)*” and chapter 2.3. “*Changing and resetting values*”, that gives instructions on how to enter the circumference.

The working width must be programmed in meters, and the position of the comma is fixed with two digits on both sides (e.g. 12,00).

The area counter contains two counters (Area I and Area II). Both of them are resetable.

A flashing segment in the bottom left corner of the display, indicates when area counting is taking place, that is, when pulse signals are received.

The Flex Counter calculates the area (just as it does units in the *unit counter* mode) with more decimals, than it is able to show on the display. Therefore it may sometimes *appear* that counting errors are occurring, even though that is not the case.

1.3 Unit counter (F.3)

Before the unit counter can be used, the counting factor must be set, i.e. the factor by which the total number is increased when receiving a pulse signal. This factor will usually be 1, but as illustrated in scheme “*The relationship between functions and input-/outputfactors*”, it can be set between 0,001 and 9,999. The unit counter can then be used for the measuring of distance, flow etc.

Measuring distance: Mount the magnet on a trailing wheel, and set the counting factor to the distance driven for each pulse signal (the wheel circumference divided by number of magnets applied). The display will then show the driven distance.

Registrating flow: In case a flowmeter that supplies a set number of pulses per litre is connected to the Flex Counter, the counting factor is set to the amount of flow per pulse. The display will then show the total amount of liquid delivered.

The display will show the total number in 1/1000, e.g. 10 pulses will be shown as 0,010 when the counting factor is set to 1,000. When working with small counting factors the display will only be

updated with rather large intervals. A flashing segment in the bottom left corner will therefore indicate when pulse signals are being received.

The unit counter can be reset - please refer to the paragraph “*Changing and resetting values*”.

1.4 Revolution counter (F.4)

The revolution counter may be used for monitoring the number of revolutions per minut, e.g. on a shaft or sowing wheel. Revolutions per minut are displayed in the interval 12-9999 rpm.

The function also contains a timer, counting up the hours and minutes while the computer is receiving pulse signals from the sensor. The Flex Counter must receive a signal every 5 second - otherwise the timer is paused. Up till 99 hours and 59 minutes, the timer will show both hours and minutes. Thereafter only hours will be displayed.

Intervals for displaying RPM- and working hours	
Interval	Display example
< 100 hours	54:23
=> 100 hours	1275

The RPM timer may be reset according to the instructions given in paragraph “*Changing and resetting values*”.

1.5 Working hours (F.5)

This function counts up the amount of time gone, while the sensor is constantly short-circuited. If the Flex Counter is to be used as a stopwatch, this can be done by short-circuiting the sensor with the magnet, or by installing a switch instead of the sensor. The watch may then be started and stopped using this switch. A flashing segment in the bottom left corner of the displayed indicates when the watch is activated.

Working hours may be reset as described in the paragraph “*Changing and resetting values*”. The previous paragraph “*Revolution counter (F.4)*” describes how different times are displayed.

1.6 Wrap counter (F.6)

The wrap counter is constructed for monitoring the wrapping of bales in folio. It monitors, the number of rotations a bale has been given and gives automatic alarm (the display flashes) when the required numbers of rotations are about to be reached. At the same time, the values of the two bale counters are both increased by one.

The alarm is being activated:

- 1 rotation before the pre-set required number of rotations is reached. When the next pulse signal is received the alarm stops, but are activated again, if one or more pulses are received. The audio alarm automatically stops after one minute.

The values of the bale counters are increased by one when:

- The pre-set required number of rotations is reached.

The wrap counter is reset :

- When the required number of rotations has been reached, and the computer does not receive any more pulse signals within a 10 seconds period.
- The -key is pressed while the display shows the wrap number (PULS function).

2. Operation guide

2.1 Overview

In several functional modes the bottom "bar" will flash during work (when the monitor receives sensor input)

F-key (or C-key)

- Start-up
- Change of active parameter displayed
- Change of the value marked/highlighted
- Turning off the Flex Counter – Press the key for approx. 4 seconds ("stop" is displayed in the monitor)



Display

SET-key

- Start-up
- For activating the change function of the value marked/highlighted

Connector

- Input for sensor signal

The programming rules of the Flex Counter are described below. Furthermore, the paragraph “Overview of included functions” gives a more thorough description of the 6 functions and their attached input- and output factors.

2.2 Change of active function

Changing from one function to another is done in the following manner:

Example: Changing function		
Key	Display	Explanation
	F. 1	The current function number is found on the display.
	F. 1	Press the key for app. 2 sec. - the function number starts flashing, indicating that its value may be changed.
	F. 3	Push repeatedly until the function number is correct.
	F. 3	Press the key for app. 2 sec. - the change is completed.

2.3 Changing and resetting values

The table below shows which values that may be changed and which may only be reset. Values that may be changed (indicated by a C) are all input factors, and values that may only be reset (indicated by an R) are all output factors.

The relationship between functions and input-/output factors					
No.	Function	Factors	Display symbol	May be Reset or Changed	Limits
F. 1	Speed indicator	Speed	—.—.—		0,0 - 999,9 km/h
		Wheel circumference	o	C	00,00 - 999,9 cm
F. 2	Area counter	Area I	HA. 1	R	0,000 - 9999 ha
		Area II	HA. 2	R	0,000 - 9999 ha
		Wheel circumference	o	C	00,01 - 999,9 cm
		Working width	---	C	00,01 - 99,99 m
F. 3	Unit counter	Units	cou.	R	0,001 - 9999 pcs.
		Counting factor	cou.F	C	0,001 - 9,999 pcs.
F. 4	Revolution counter	Rpm	r.		0012 - 9999 rpm
		RPM-hours	--:--	R	00:00 - 9999 hours
F. 5	Working hours	Working hours	--:--	R	00:00 - 9999 hours
F. 6	Wrap counter	Wrap counter	PULS	R	0 - 99 rev.
		Wrap number	PULS	C	2 - 99 rev.
		Bales I	bAL.1	R	0 - 9999 bales
		Bales II	bAL.2	R	0 - 9999 bales

If values (e.g. wheel circumference or working width) are to be changed, the function containing the specific value must first be entered - please refer to the paragraph above “*Change of active function*”.

Following the procedure described below changes values:

Example: Changing the wheel circumference from 87,25 cm to 315,8 cm		
Key	Display	Explanation
	o 87.25	The wheel circumference is found on the display - first the symbol is displayed, then the current wheel circumference value.
	87,25	Press the key for app. 2 sec. - the comma starts flashing, indicating that its position may be changed.
	872,5	Push repeatedly until the position is correct.
	872,5	The first digit starts flashing, indicating that its value may be changed.
	372,5	Push repeatedly until the digit value is correct.
	372,5	The second digit starts flashing.
	312,5	Push repeatedly until the digit value is correct.
	312,5	The third digit starts flashing.
	315,5	Push repeatedly until the digit value is correct.
	315,5	The fourth digit starts flashing.
	315,8	Push repeatedly until the digit value is correct.
	315,8	Press the key for app. 2 sec., leaving programming.

Not all factors contain a comma, just as it is not always possible to change its position. In those cases, please disregard the instructions on changing the position of the comma!

Example: Resetting the Area counter		
Key	Display	Explanation
	HA.1 7.192	The area counter I is found on the display - first the symbol is displayed, then the current accumulated area.
	7,19	Press the key for app. 2 sec. - the comma starts flashing, indicating that its position may be changed.
	0	Press until the area counter is reset.
	0	Press the key for app. 2 sec., leaving programming.

Furthermore, programming-mode is automatically exited, if the Flex Counter does not receive signals from the keys within a 10 second interval.

- All factors will retain their value when changing function. If a value for the wheel circumference has previously been entered, e.g. under speed indication, this procedure will not have to be repeated.

2.4 Turning the Flex Counter on and off - stop-mode

In order to lower the power consumption of the Flex Counter, and thereby increasing the lifetime of the batteries, the computer may be set in stop-mode. The display will then be turned off and the computer is paused until a new signal is received from the sensor or a pressed key.

The Flex Counter may be set in stop-mode manually. This is done by pressing the -key for app. 4 seconds. The display shows 'stop' in app. 1 second, and the display is then turned off.

If the Flex Counter within a period of ½-1½ hour has not received any pulse or key-press signals, the computer is automatically set in stop-mode.

2.5 Power supply

The Flex Counter must be supplied with power from 2 1,5V AA-batteries.

When the Flex Counter is re-started having been in stop-mode, the display first shows the version number of the specific computer.

The computer then checks the power level - if this is too low the display shows '-bL'. If the Flex Counter is then automatically turned off, the batteries must be changed. If the power supply from the batteries are too low the computer will occasionally flash the '-bL-' message during use. The batteries must then be changed, as counting errors may then occur.

If display-problems occur after battery replacement, wait for 2 minutes, and then reinstall the batteries. In case this doesn't help please check the accumulated voltage from the batteries (min. 3V).

2.6 Storing data – The memory of the Flex Counter

The Flex Counter is supplied with a memory facility, which remembers the values of the input- and output factors.

The values of the input-factors (e.g. the wheel circumference) are automatically stored when they are changed.

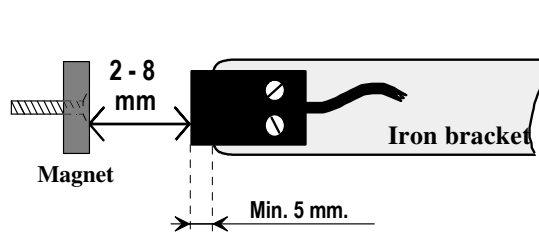
The value of output factors (e.g. area I) is stored once every hour, and when the Flex Counter is automatically or manually set in stop-mode - please refer to the “*Turning the Flex Counter on and off - stop mode*”.

- When changing the batteries, the Flex Counter must first be manually set in stop-mode, using the -key. Then the batteries may be changed without risk of losing data

3. Installing the sensor and magnet

The magnet must be mounted on the rotating element, e.g. the wheel, the shaft, or the rotating table of the wrapper.

The sensor must be installed on a bracket, securing that the magnet passes the sensor end within a distance of 2-8 mm - please see the diagram below.



Please notice:

If the sensor is to be mounted on a mounting bracket which is magnetizable (iron), then the sensor must be placed at least 5 mm beyond the edge of the mounting bracket.

Please take notice that the cable from the sensor will be protected and not break when the tractor is turning, or the hydraulic is activated.

4. Technical data

Display:	4 digit.
Power supply:	2 x 1,5 V (AA).
Temperature limits:	The Flex Counter is fully operational within $-10^{\circ}\text{C} - 70^{\circ}\text{C}$. This does not necessarily apply for all types of batteries – please check with your local battery dealer.
Pulse signals from the sensor:	Max. 167 pulse signals per second. Min. pulse-time: 0,6 ms ~ the magnet must activate the sensor for 1/10 of the time at 9999 rpm.
Area counter:	Max. 0,100 Ha. per second = 360 Ha. per hour.
Unit counter:	Max. 0,167 additions per second = 10.000 pcs./10 m ³ per minute, and 600.000 pcs./600 m ³ per hour.
Clock:	+/- 0,5%. Has influence on the accuracy of the following functions: speed (km/h), rpm and working hours.

5. Final remarks

The controller/monitor is only to be used in connection with the functions described in this instruction manual. Any other use of the controller/monitor can potentially involve significant risk and disclaim the supplier of this controller/monitor for any responsibilities/liabilities.

Please note, that Lykketronic A/S solely is responsible for the electronic controller/monitor and not for the complete function of the machine, including the safety aspects of the entire machine.