



UC 300

UNIVERSAL COUNTER



NR.1111-EN

USER'S MANUAL





This product complies with EMC requirements as defined by Directives 2004/108/CE and successive modifications in accordance with standard EN ISO 14982 applied

Manufacturer : MC elettronica S.r.l.
Address : Via E. Fermi, 450/486
Fiesso Umbertiano (ROVIGO) – ITALY
Tel. +39 0425 754713 Fax +39 0425 741130
E-mail: mcstaff@mcelettronica.it
Internet: www.mcelettronica.it

Manual code : 1111-EN
Issued : November 2011
Edition : April 2014

MC elettronica S.r.l. is not obliged to give notice of any further modifications of the product. The information given in this manual does not allow unauthorized personnel to tamper the product in any way. The guarantee on the equipment will no longer be valid if tampering should be detected.

© Copyright MC elettronica 2014

Content

1. Rules and general warning	4
1.1 Introduction	4
1.2 Terms of guarantee	5
1.3 Service	5
2. General description	6
3. Description of the panel and electrical connections	7
4. Overall dimensions	8
5. Operation	9
6. Low battery warning	9
7. Standby mode	10
8. Programming	10
8.1 Programming the “Un” (unit of measurement) parameter	11
8.2 Manual programming of parameter “C” (pulses of the speed sensor)	11
8.3 Automatic programming of parameter “C” (pulses of the speed sensor)	12
8.4 Programming parameter “L” (working width)	13
9. Maintenance	14
9.1 Ordinary maintenance	14
9.1.1 How to protect the main connector	14
9.2 Extraordinary maintenance	14
10. Technical data	15

1. Rules and general warning

1.1 Introduction

This manual gives all the specific information that you need for a proper use of the equipment.

After buying the instrument, read the manual carefully and refer to it any time you have doubts on how to use the equipment or when you have to carry out maintenance operations.

Keep the manual on the machine. If this is not possible, keep it ready to hand.

ALL RIGHTS RESERVED. THIS MANUAL IS INTENDED FOR CUSTOMERS ONLY. ANY OTHER USE IS FORBIDDEN.

1.2 Terms of guarantee

SUBJECT OF THE GUARANTEE: the guarantee is applied to the product and to those parts which are marked with the serial number or any other identification number used by *MC elettronica*;

HOW LONG THE GUARANTEE IS EFFECTIVE: *MC elettronica S.r.l.*

guarantees the UC 300 for a period of **1 year** from the manufacturing date (printed on the identification label which is to be found on the rear side of the equipment) and also accessories.

The guarantee covers the product and any repair carried out within the agreed terms.

This guarantee does not apply in the event of:

accidental damage;

improper use;

modifications which haven't been agreed upon, improper installation (or setting);

damage caused when a non-*MC elettronica* equipment, which is mechanically or electrically connected to our instruments, breaks or does not function properly;

act of God (lightning, floods, fire or other causes which do not depend from *MC elettronica*).

Repairs under guarantee, which must be carried out in the laboratories of our authorized centres, are entirely free of charge provided the equipment is directly transported to said laboratories or sent free port. Transport charges and risks are entirely borne by the Customer.

The above-mentioned guarantee is valid unless otherwise stated between *MC elettronica* and the Customer.



Warning

Mc elettronica declines any liability for damages or direct or indirect charges, as a consequence of improper use or inability of the Customer to use the equipment separately and/or together with other instruments.

1.3 Service

Service is available in all the countries where the equipment is officially supplied by *MC elettronica* (during and after the guarantee period).

Any kind of operation that is to be carried out on the UC 300 must be done in accordance with the instructions stated in this manual or as agreed with *MC elettronica*. If not, the relative terms of guarantee might become void.

2. General description

The UC 300 Universal Counter is powered by a rechargeable battery and stores all the main functions of a hectare counter in a small container which can be installed easily on any public works vehicle. You can choose between metric and imperial units of measurement to calculate area, distance and speed. The UC 300 Universal Counter can also count the working hours when the machine is running. Displayed on the screen are:

- 1) independent total counter for surface area (in hectares or acres, in units of 10 m² or 0.001 acres)
- 2) independent partial counter for surface area (in hectares or acres, in units of 10 m² or 0.001 acres)
- 3) speed of travel (in km/h or mph, in units of 0.1 km/h or 0.1 mph)
- 4) counter of distance covered (in metres or feet, in units of 1 metre or 1 foot)
- 5) working hour counter (in units of 0.1 hours)

Provided with the UC 300 are a battery charging cable, a magnetic sensor and a magnet of reference: the code for the complete kit is 00KIT-0014;

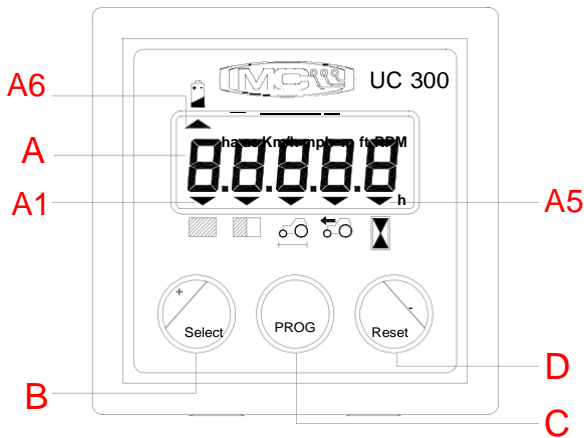
When the battery is running low, this is signalled on the display (refer to the section "Operation"). The user can connect the charging cable to the battery of the tractor and continue working during the charging process, or disconnect the sensor and charge the monitor separately.

Inside the connector of the magnetic sensor is a jumper for powering the UC 300: disconnecting the sensor turns off the monitor, saving on battery power. PLEASE NOTE: it is advisable to disconnect the sensor only when the machine is at standstill to avoid the partial loss of data of the totalizes; the programmable parameters, however, remain saved.

Essential requirements for the Universal counter:

- a) Powered by 3.6V internal rechargeable batteries
- b) Nominal battery charge voltage: 12V (16V max)
- c) Maximum dimensions: 78 mm in width, 78 mm in height and 38 mm in depth.
- d) 5-digit display + indicators, not backlit
- e) External application (IP66).

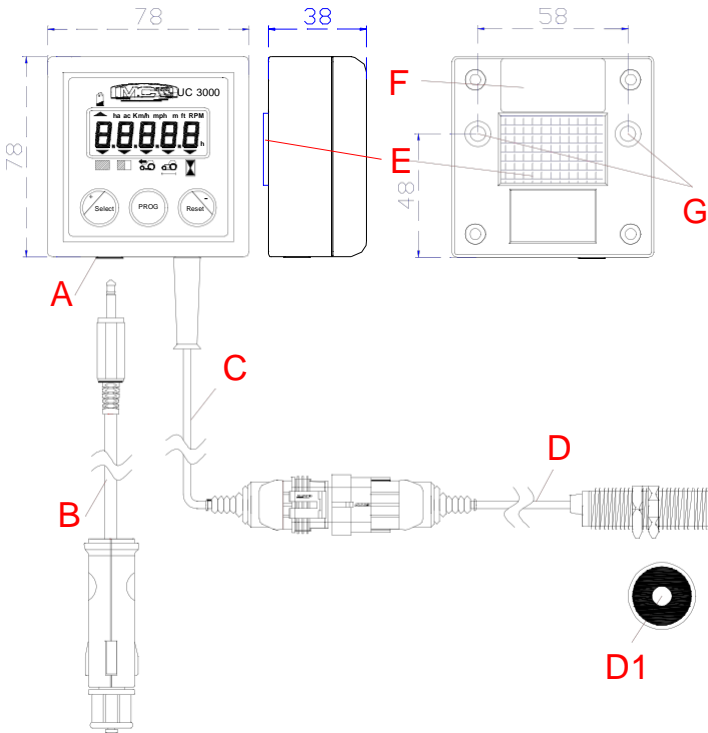
3. Description of the panel and electrical connections



Rif.	Description	signal Type INput/OUTput	Pin connector S.SEAL 4-way
A	LCD Display:		
	A1-A5: arrows indicating the size selected A6: arrow indicating low battery	-	-
B	Selection key size and "-" in programming	-	-
C	Programming key: allows you to enter the phase of programming parameters	-	-
D	Selection key size and "-" in programming	-	-
	Input magnetic sensor (*)	IN NPN NO	4
	Mass for the magnetic sensor	OUT GND	1
	Pin for bridge power monitor	-	2 e 3

(*) = Maximum input frequency 35Hz magnetic sensor

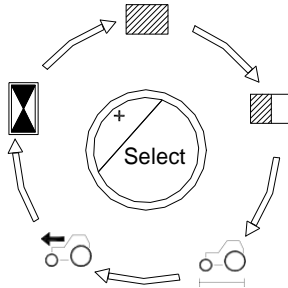
4. Overall dimensions



A	3.5 jack connector panel for battery charging
B	Cable 50 cm with cigarette lighter plug for charging battery (supplied) cod. CAV-0017
C	cable 20 cm with conn. s.seal 4-way for connection the magnetic sensor
D	sens. magnetic supplied cable and magnet diam.20mm (D1)
E	3M DUAL LOCK for removable mechanical attachment
F	label with identification parameters
G	M5 threaded inserts for mechanical fixing to panel

5. Operation

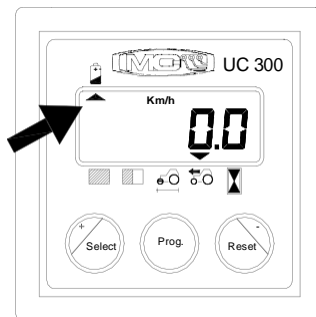
When the counter is started up for the first time (or after the battery is charged after having run down completely), the total area counter is shown on the display. The UC 300 is set by default to show metric measurements: the area is given in hectares, the speed in km/h and the distance covered in metres. The initial sequence is, therefore: Pressing the “select” button during operation shows the next measurement on the display, as follows



After selecting a measurement it is possible to reset it by pressing and holding the "reset" button for 3 seconds (with the exception of the speed of travel, which is instantaneous data).

6. Low battery warning

When the battery is nearly run down, the arrow under the battery symbol in the top left-hand corner lights up;



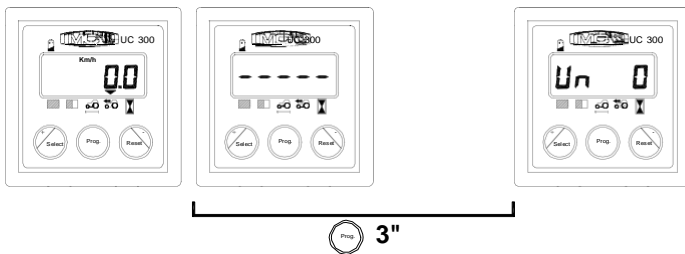
the residual autonomy of the UC 300 before it turns off completely is limited and will depend also on use. If the battery runs down completely and the UC 300 turns off, some of the data may be lost (refer to the previous section); to charge the battery, connect the cable with the jack connector (provided) to a 12V battery: **Do NOT use car battery charging devices.** The charging process generally takes about 10 hours, while the autonomy between a charging cycle and the next is about 2.5 years (although this depends on the extent and conditions of use); it is not necessary for the speed sensor to be connected while the battery is charging.

7. Standby mode

To save on energy and increase the autonomy of the batteries, the UC 300 automatically goes into standby after 5 minutes if it does not receive any pulses from the speed sensor and none of the buttons are pressed. In standby mode, power consumption is less than 30 μ A and the last data remains on the display without any other information. The UC 300 exits standby mode when the next pulse is received from the speed sensor or when you press any button for at least 1 second.

8. Programming

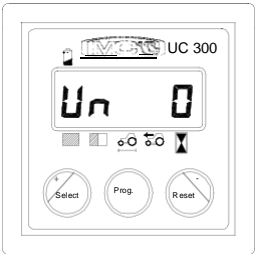
As with the totalizers, either metric or imperial units of measurement can be used for the programmable speed and area parameters. To access the programming phase with the UC 300 turned on, press the “Prog” button for 3 seconds and five horizontal dashes appear on the display. The first programmable parameter, “Un”, then appears as shown below;



During the programming phase, you can use the “+” and “-” buttons to edit the value of the parameter, then press the “Prog” button to confirm your changes and move on to the next parameter;

8.1 Programming the “Un” (unit of measurement) parameter


Programming of this parameter is very important to the work in hand and to the programmable parameters. You need to select either the metric or imperial unit of measurement; you then only need to program the parameters of the UC 300 for the chosen unit of measurement.


	Name of parameter:	Un
	Description:	selection of unit of measurement
	Programmable range:	0 (=metric units) or 1 (=imperial units)
	Default value:	0

8.2 Manual programming of parameter “C” (pulses of the speed sensor)

This parameter represents the number of pulses emitted by the speed sensor after each 100 linear metres (or 328 feet) covered by the public works machine;

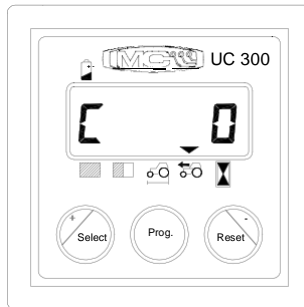
Enter the programming phase as described above and edit the value with the “+” and “-” buttons; pressing and holding either button will speed up the editing process. After setting the required value, press “Prog” to confirm and move on to the next parameter.

<p>with “Un” = 0</p> 	Name of parameter:	C
	Description:	Pulses of the speed sensor after every 100m covered by the machine
	Programmable range:	20 to 999 Steps of 1 pulse
	Default value:	200

<p>with "Un" = 1</p> 	Name of parameter:	C
	Description:	Pulses of the speed sensor after every 330 feet covered by the machine
	Programmable range:	20 to 999 Steps of 1 pulse
	Default value:	200

8.3 Automatic programming of parameter "C" (pulses of the speed sensor)

It is possible to program parameter C automatically: after entering the programming phase as instructed above, and with "C" shown on the display followed by the value currently programmed, press both the "+" and "-" buttons at the same time and the following appears on the display





At this point, travel 100 metres (or 330 feet) in the machine and the number will increase automatically on the display. After covering this distance, press the "Prog" button to confirm the data. It is advisable to repeat this operation at least twice.

If you try to acquire a value of less than 20 pulses, "Err" appears on the display and the UC 300 retains the last valid value to have been saved.

8.4 Programming parameter “L” (working width)

This parameter is the working width of the machine in metres (or feet).

Enter the programming phase as described above and edit the value with the “+” and “-” buttons; pressing and holding either button will speed up the editing process. After setting the required value, press “Prog” to confirm and exit the programming phase.

<p>with “Un” = 0</p> 	Name of parameter:	L
	Description:	Working width in metres
	Programmable range:	00.10 to 30.00 Steps of 0.01m
	Default value:	1.50
<p>with “Un” = 1</p> 	Name of parameter:	L
	Description:	Working width in feet
	Programmable range:	00.32 to 98.40 Steps of 0.01 feet
	Default value:	4.92

9. Maintenance

This chapter gives instructions on how to carry out ordinary and extraordinary maintenance.

Ordinary maintenance refers to those operations which must be carried out periodically. As they do not require specific skills, they can be carried out by the users (operators etc.).

Extraordinary maintenance refers to unforeseeable operations due to mechanic or electric failures. They require specific technical skills, so they should be exclusively carried out by qualified personnel (maintenance personnel etc.)

9.1 Ordinary maintenance

Ordinary maintenance consists in cleaning the instrument. Clean the instrument with a wet cloth and mild detergent to avoid erasing the serigraphs on the panel.



Warning

Do not use pressure water jets.

Do not use abrasive products, solvents or alcohol.

Do not press on the keyboard with pointed or hard objects in order to avoid damaging the polyester film, thus endangering the impermeability of the keyboard.

9.1.1 How to protect the main connector

In case of an extended use of the Monitor it is advisable to disconnect the main signal connector from the harness. It is advisable to insulate both the connectors (of the Monitor and of the Harness) by using a Nylon protection.

If the connectors of the monitor and of the harness are NOT disconnected no protection is needed.

9.2 Extraordinary maintenance



Warning

Extraordinary maintenance must be carried out by authorized personnel only.

10. Technical data

Power supply voltage	3.6 Vdc (internal batteries)
Max. energy consumption in stand by	< 50 μ A
Protection degree	IP 65
Range of operating temperature	-20 / +70 °C
Range of storage temperature	-25 / +85 °C
Mechanic vibrations resistance	2 g random



WARNING: THIS PRODUCT CONTAINS TIN AND LEAD. IT MUST BE DISPOSED OF AT THE END OF ITS LIFE CYCLE AT THE DESIGNATED DISPOSAL FACILITIES OR DELIVERED DIRECTLY TO MC ELETTRONICA SRL (ITALY).