



## SEEDER MONITOR MCK 8000

MONITOR FOR  
PRECISION SEED DRILLS



NR. 2534-EN  
REV. 5

## 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

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**MC elettronica S.r.l.** is not obliged to give notice of any further modifications to the product.

The Information provided in this manual does not allow unauthorised personnel to tamper with the product in any way.

The guarantee on the equipment will no longer be valid if tampering should be detected.

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# 1. Rules and general warnings

## 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 at hand.

ALL RIGHTS RESERVED. THIS MANUAL IS INTENDED FOR CUSTOMERS ONLY. ANY  
THE 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 *MCK 8000* Monitor for a period of **1 year** from the date of manufacture (printed on the identification label on the rear of the Monitor) and also accessories.

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

The 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 and electrically connected to our instruments, breaks or does not function properly;
- acts of God (lightning, floods, fire or any other causes which do not depend on *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 damage 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 Monitor is officially supplied by *MC elettronica* (during and after the warranty period).

Any kind of operation that is to be carried out on the *MCK 8000 Monitor* 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 *SEEDER MONITOR MCK 8000* is an electronic instrument designed for agricultural pneumatic or mechanical precision seed drills for controlling “monogerm” sowing (corn, soybean, sunflower, beets etc.).

The model MCK 8000 SX is suitable for seed drills which can control up to **8 rows**.

The Monitor controls functioning of the rows by indicating (acoustically and visually) any sowing anomaly.

To perform the functions described above the Monitor uses a series of photocells to count the seeds, installed on every single row of the seed drill.

### 3. How to install the system

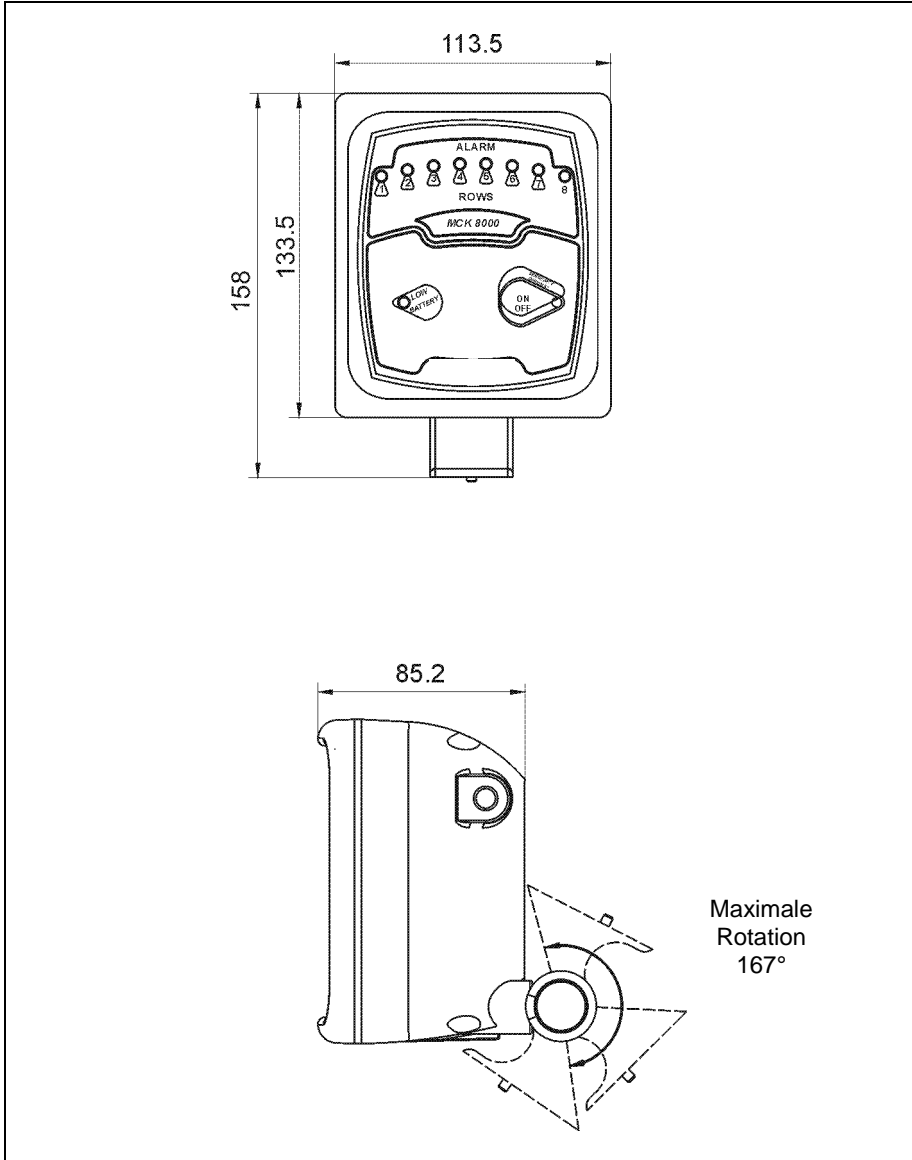


Figure 1. Overall dimensions.

### 3.1 Mounting the monitor

To install the Monitor proceed as follows:

- Drill a hole (D. 9 mm) on a flat surface inside the cab next to those on the bracket **(A)** and using a screw (not supplied), fasten the bracket to the structure of the vehicle securely;
- fasten the Monitor to the bracket using the supplied knobs **(B)**.

**N.B.:** we recommend installing the Monitor in front of the operator to make it easier to use during the working cycle.

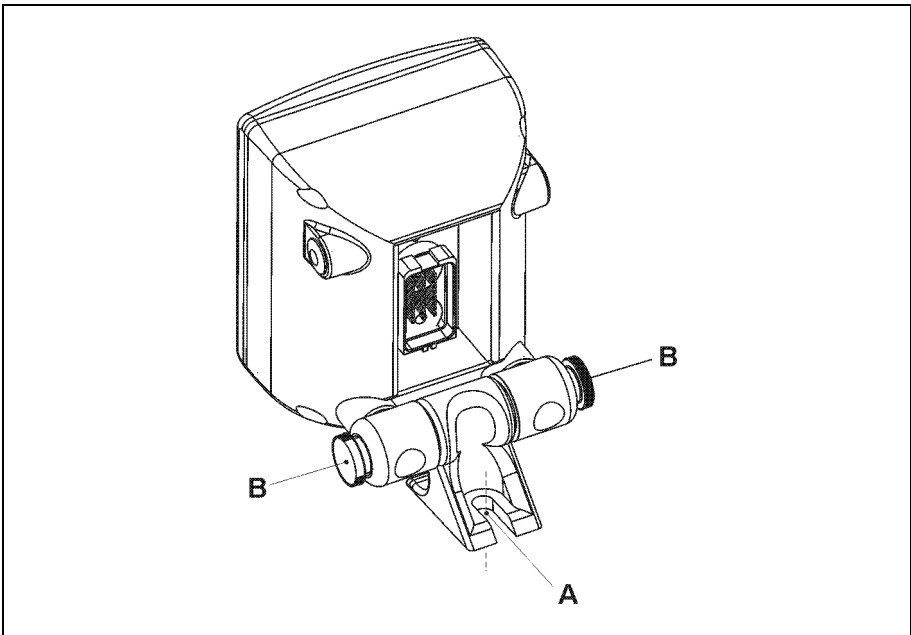


Figure 2. Mounting the Monitor.



### 3.2 Installing the photocells and the wiring

Photocells must be placed on each single row of the seed drill close to the seed-drop area; if seed drills with seed-drop pipes are used, photocells must be placed at about half the length of the pipe.

To install photocells, proceed as follows:

- distribute the photocells cables on the seed drill air pipes, respecting the row numeration (Figure 3): Cable No. 1 corresponds to row 1 on the Monitor, the No. 2 cable row corresponds to No. 2 on the monitor, etc. ... It is important that we consider as "row No. 1" on the front row of the planter (starting from right or left) and the other are connected in sequence. Figure 3 is an example of application of a six-row wiring (cod.CAB-SEM-002) by selecting the first row of the left of the planter;
- fix the junction box (A) at the centre of the seed drill with some clamps held to the machine;

For installation the photocell proceed follows:

- If the seeding has elements of sowing "high" with pipes that carry the seeds fall to the ground, are the ones to install photocell cod. 10FOT-4RXTES (with outside electronics on box) or cod. 10FOT-4RXTIN (with inside electronics) and must be placed at about half the length of the tube (Figure 4).
- If the seeding has elements of sowing "low" and the seed falls to the ground directly from the disk, the photocells are those to install code. 4228 (stirrup depending on the type of seeding) and be mounted directly onto the seed.(Figure 5)



**Warning**

make sure the photocells do not obstruct seed dropping or mechanical operation of the elements.

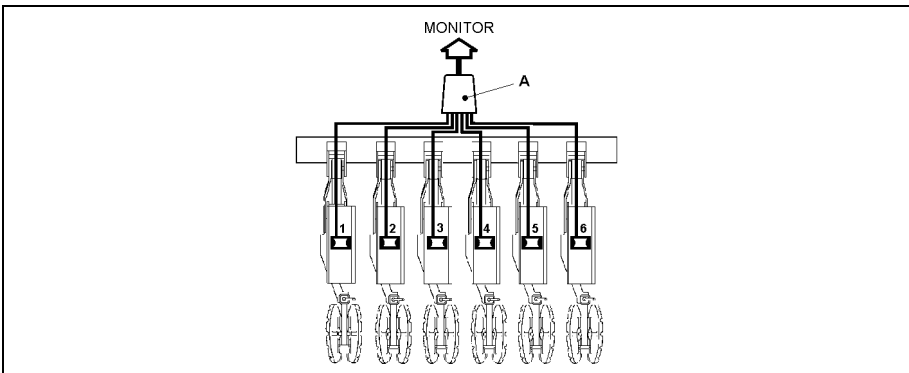


Figure 3. Installing the photocells.

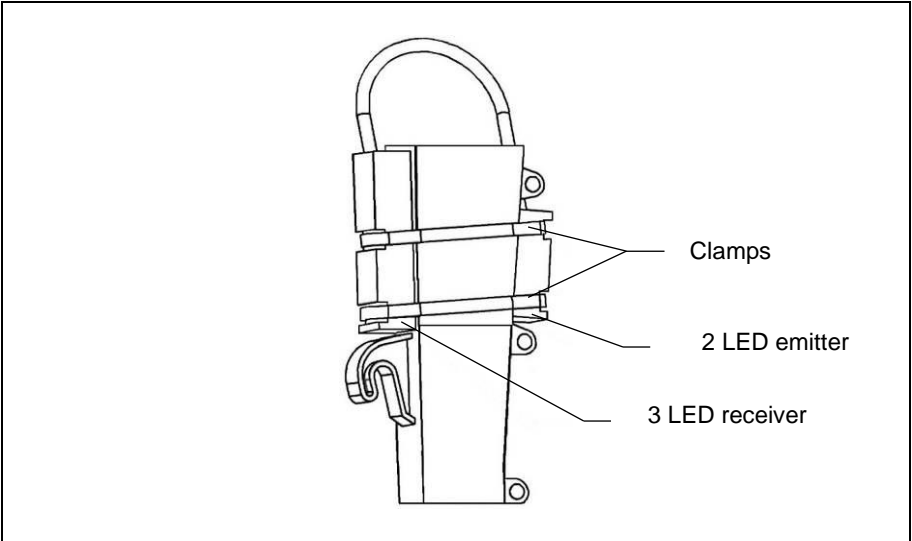


Figure 4. Example of installation on the pipe

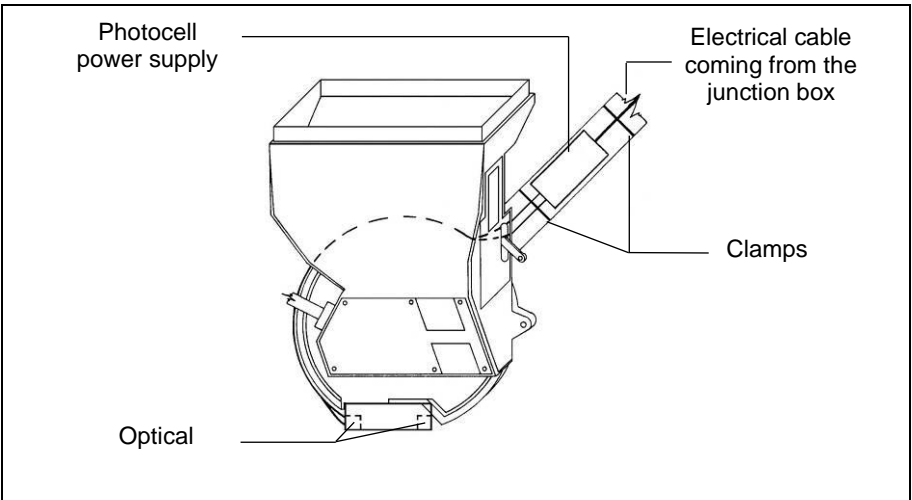


Figure 5. Example of installation on the sowing element.

### 3.3 Front view

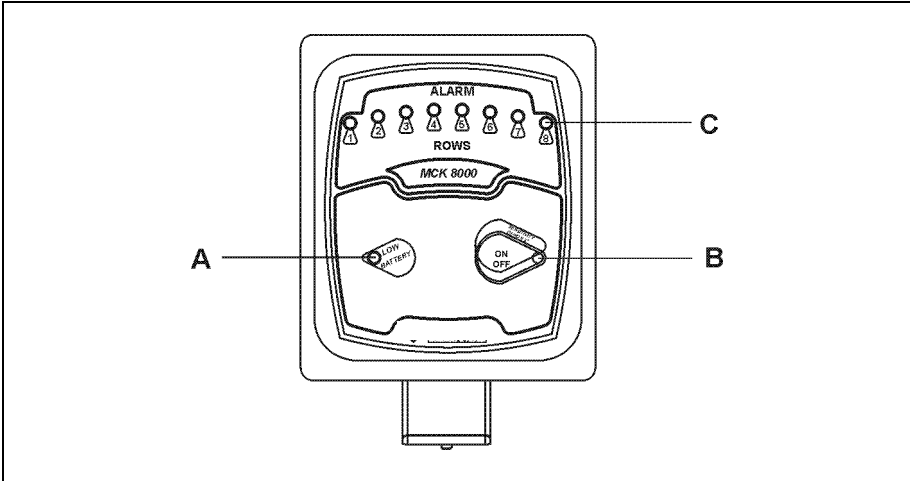


Figure 6. Front view (model MCK 8000).

The front panel allows the user to view all the data relating to the working cycle. The following elements can be seen on the panel:

REF.	DESCRIPTION
A	<p><b>“LOW BATTERY” LED.</b></p> <p>Battery alarm. When the red LED switches on it means the battery is low.</p>
B	<p><b>“ON/OFF” / “SENSITIVITY” (sowing sensitivity) key.</b></p> <p>Multifunction key:</p> <ul style="list-style-type: none"> <li>• Press it shortly to switch the Monitor on or off.</li> <li>• With the Monitor switched off, press and hold this key for about &lt;5&gt; seconds to program the sowing sensitivity (see chapter 5)</li> </ul>
C	<p><b>Row display LEDs.</b></p> <p>They display the alarms in the rows: if sowing is regular these LEDs are normally switched off.</p>

### 3.4 Rear view

The following elements can be seen on the rear of the Monitor:

- A. Buzzer;
- B. SICMA 24-pin female connector for general and signal wiring power supply

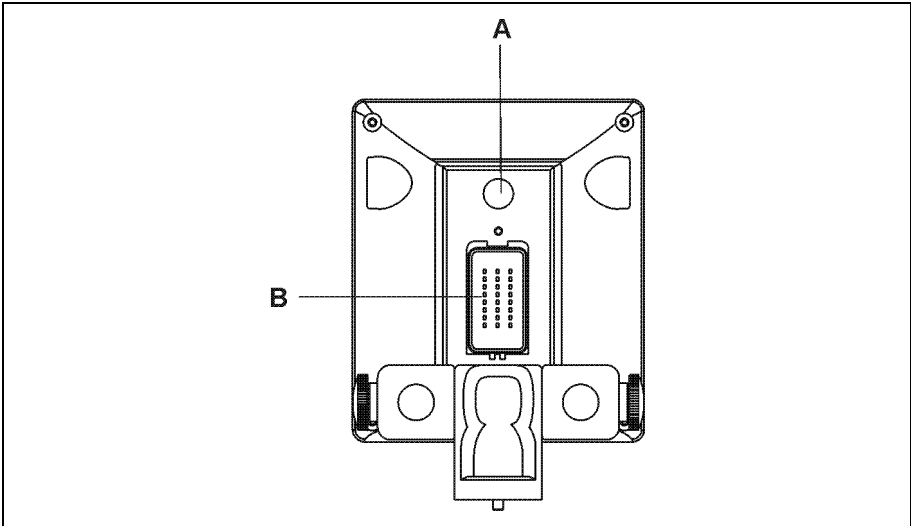


Figure 7. Rear view.

## 4. Accessories

CODE	DESCRIPTION
4228	Photocell sensor for direct assembly on sowing element
10FOT-4RXTES	Photocell sensor for assembly on seed dropping tube (with outside electronics on box)
10FOT-4RXTIN	Photocell sensor for assembly on seed dropping tube (with inside electronics)
CAB-SEM-001	Wiring 4 rows x 80 cm
CAB-SEM-002	Wiring 6 rows x 80 cm
CAB-SEM-003	Wiring for 8 rows x 80 cm

**NOTE:** the electrical wiring and the photocells must be ordered according to the type of seed drill; the data for ordering is:

n° of rows, distance between rows, brand and model of seed drill.

All the accessories of the *SEEDER MONITOR MCK 8000* Kit are standard, and can be transferred from one seed drill model to another. The only exception is the photocell support which depends on the model and brand of the seed drill.

In some cases, when purchasing a new seed drill, you must also purchase a different type of photocells; in this case contact the nearest MC Elettronica authorised service centre.

## 5. Programming the sensitivity.

To access “row alarm sensitivity” programming proceed as follows:

- with the Monitor **SWITCHED OFF** press and hold the <ON/OFF> key for about <5> seconds (Figure 8), until you here a short sound signal; you can now release the key and the row LEDs will display the programmed sensitivity.

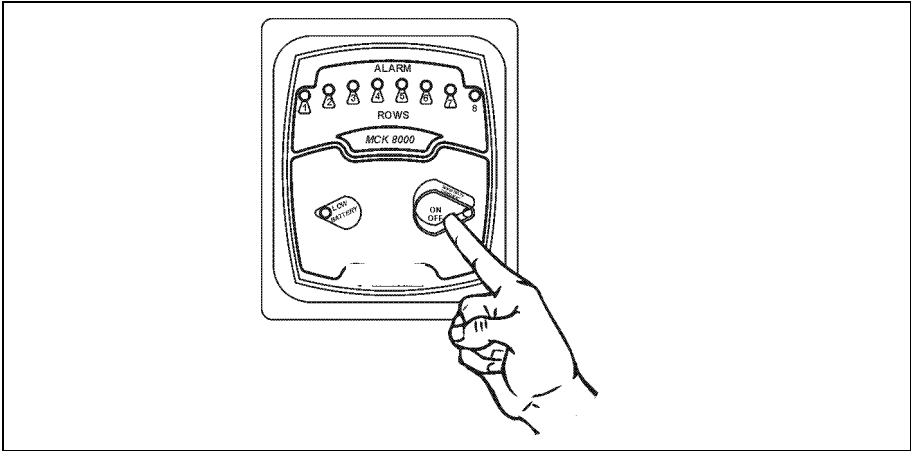


Figure 8.

- within <7> seconds press the <ON/OFF> key in order to vary the number of active LEDs; maximum sensitivity is achieved when all the LEDs are switched off, while minimum sensitivity is achieved when all the LEDs are switched on;
- to store the set sensitivity do not press the key for at least <8> seconds, until the Monitor emits three short sound signals.

The value to be programmed depends on the type of sowing carried out; we recommend following the instructions below:

TYPE OF SOWING	MCK 8000
CORN/SUNFLOWER	0 ÷ 2 LEDs
BEETS	3 or 4 LEDs
SOYA	5 or 6 LEDs
TINY SEEDS	7 or 8 LEDs

## 5.1 Check of photocell operation

Check the photocell operation by proceeding as follows:

Switch the Monitor on (< ON/OFF> key) and wait for <3> seconds

- **Simulated check:**

pass your finger or a small object between the two elements of the photocell fitted on row no. 1; if the photocell is connected properly it will send pulses to the Monitor, which will emit a sound signal and will activate the red LED of row 1.

Wait a few moments: the red LED will switch off and the sound alarm will stop. Repeat the same operation for the next photocells.



***Warning***

between a test and the next, it is important to wait for the red LED, which was switched on, to switch off.

- **Real check:**

if possible, carry out the check as described above, using seeds instead of a screwdriver or hand: this will give you a guarantee of operation during the working cycle.

## 6. Operation

After programming the sowing sensitivity (see chapter 5) follow the instructions below:

- Start sowing and after 5/6 metres switch the Monitor on by pressing the <ON/OFF> key.
- The system runs a short test for <1> second, activating the sound alarm and switching on the red LEDs.
- The photocells on the rows of the seed drill send pulses to the Monitor and the row LEDs light up in 2 different ways:
  - the LEDs which remain lit for <3> seconds represent the rows that have been memorised and will be checked;
  - the LEDs which flash for <3> seconds represent the rows which have not been memorised and which will be excluded from the check.

**N.B.:** it is important that all the rows that are actually sowing are stored; the sowing check on the rows that have not been stored will not be performed

- After the rows have been memorised the monitor starts the constant row control. If the seed drill works properly, within the programmed alarm threshold (row sensitivity alarm), the row LEDs must be switched off.
- When a row is not sowing regularly, the relative red LED flashes and after <4> seconds the intermittent sound signal is triggered, which will last <4> seconds.
- If the LEDs switch on and off continuously with the activation of the sound alarm during sowing, gradually increase the programmed sensitivity until achieving stability with the LEDs switched off.

**Warning:** the programmed sensitivity should in any case observe the indications in the final table of chapter 8: if the stability of the red LEDs is achieved by programming sensitivity values which are too different from those envisioned for the type of seed being used, we recommend checking the operation of the seed drill.

Whenever you wish to vary the number of rows of the seed drill, for example while refinishing the edges of the field, THE INITIAL ROW STORAGE PHASE MUST BE REPEATED, by switching the Monitor off and back on after excluding or adding sowing elements: otherwise, the Monitor will signal the alarm of the elements that have been excluded and will not control sowing of the elements which have been added.



## 7. Maintenance

This chapter describes how to perform routine maintenance and extraordinary maintenance operations.

**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 special operations made necessary by mechanical or electrical failures. They require specific technical skills and should be carried out only by qualified personnel (maintenance staff, etc.).

### 7.1 Ordinary maintenance

Routine maintenance consists in cleaning the Monitor.

Clean the Monitor using a damp cloth and a 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.*

#### 7.1.1 How to protect the main connector

In the event of prolonged disuse of the *SEEDER MONITOR*, and you wish to disconnect the main signal connector from the wiring, it is recommended to isolate both connectors (of the *SEEDER MONITOR* and of the wiring) with Nylon. If they are not disconnected, no protection is needed.

### 7.2 Extraordinary maintenance



#### **Warning**

*Extraordinary maintenance operations must be carried out by authorized personnel only.*

## 8. Troubleshooting

In the event of a Monitor malfunction, perform the simple checks below to check whether repairs are needed. If the problem persists, consult your local dealer or contact *MC Elettronica* Customer Service.

PROBLEM	CAUSE	REMEDY
The Monitor does not turn on	a. The power cable is disconnected	a. Check the power cable
Sowing is acceptable but the LEDs of the rows switch on and off continuously and the Monitor emits a sound signal	The sowing sensitivity is too low	Reprogram the sowing sensitivity by increasing it gradually (see chapter 5).
The Monitor does not store one or several rows; or Though sowing is regular, one or more rows are always in alarm	a. Relative photocell cable interrupted b. Alignment between two cubes of the relative photocell is not correct c. Photocell failure d. Main signal connector dirty .	a. Restore connection b. Position transmitter and receiver correctly c. Replace the photocell d. Clean the contacts of the connector with a specific product (electrical degreaser/deoxidiser).

## 9. Technical data

### 9.1 Seeder Monitor MCK 8000

Power supply voltage	: from 10 to 16 Vdc
Maximum energy consumption	: 10mA
<b>Functioning characteristics</b>	
Protection degree	: IP 67 (front) IP 65 (back)
Mechanical vibrations resistance	: 3 G
<b>Functioning conditions</b>	
Room temperature	: -20°C / +70°C
Weather conditions	: Relative humidity 90%
<b>Transport and storage</b>	
Temperature range	: -25°C / +75°C

### 9.2 Components

#### 9.2.1 Photocell sensor cod. 4228

Power supply voltage	: da 8 VDC a 10 VDC
Output signal	: NPN-NO
Max. working frequency	: 200 Hz
Working temperature	: - 25°/+70°C
Max. operation distance	: 40÷80 mm
Pickup angle range	: 20°
Protection degree	: IP 67

### 9.2.2 Photocell sensor cod.10FOT-4RXTES / 10FOT-4RXTIN

Power supply voltage	: da 8 VDC a 10 VDC
Output signal	: NPN-NO
Max. working frequency	: 200 Hz
Working temperature	: - 25°/+70°C
Max. operation distance	: 40÷80 mm
Pickup angle range	: 20°
Protection degree	: IP 67

### 9.2.3 Cables cod. CAB-SEM-001/002/003

Main connector	: SICMA 24 ways IP 67
Connectors for photocells	: AMP 3 ways Super seal ways IP 67
Cables for connecting photocells	: Coated copper 3x0,50 sq.mm
Main cable	: Coated copper, with junction box
Functioning temperature	: -20°C / +80°C



**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).









**Electronic equipment for agriculture**

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