UC50 SERIES

UNIVERSAL COMANDS

CONTROL SYSTEM
for seed drills & sprayers

CE

NO. 1702-EN
REV. 2

INSTRUCTIONS FOR USE

EN

CE

This product meets the EMC standards as determined in the 2004/108/EC directive and subsequent amendments and reference to the applied EN ISO 14982 standard

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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 unauthorised personnel to tamper with the product in any way.
The warranty 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 instruction manual provides all specific information needed to know and correctly use the equipment.
After buying the device, 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 OTHER USE IS FORBIDDEN.

1.2 Terms of the warranty

- SUBJECT OF THE WARRANTY: the warranty 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*;
- DURATION OF THE WARRANTY: *MC elettronica* assures the UC50 control and its accessories for the period of **1 year** from the date of manufacture (printed on the identification label on the back of the Monitor).

  The warranty covers the product and any repairs carried out within the agreed terms.

  This warranty does not apply in the event of:
  - accidental damage;
  - improper use;
  - changes which have not been agreed upon, improper installation (or set-up);
  - damage caused when a equipment not manufactured by *MC elettronica*, which is mechanically or electrically connected to our instruments, breaks or does not function properly;
  - force majeure events (lightning, floods, fire or other causes which do not depend on *MC elettronica*).

  Repairs under warranty, which must be carried out in the laboratories of our authorised centres, are entirely free of charge provided the equipment is directly transported to said laboratories or sent carriage free. Transport costs and ensuing risks are entirely borne by the Customer.

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

> ***Warning***
> *MC elettronica* declines any liability for damages or direct or indirect costs caused by improper use or inability of the Customer to use the equipment separately and/or together with other equipment.

1.3 Service

Service is available in all countries where the equipment is officially supplied by *MC elettronica* (during and after the warranty period).
Any kind of operation required on the *UC50 control* must be done in accordance with the instructions stated in this manual or as agreed with *MC elettronica*.
If not, the relative terms of the warranty might become null and void.

2. General description

The UC50 control family can be implemented to control agricultural and industrial machines, equipped with CAN BUS communication.
The following manual is designed to illustrate operation of the standard versions. The applications for excluding sowing rows on precision seed drills and the management of water / oil functions on sprinkler systems are described below.

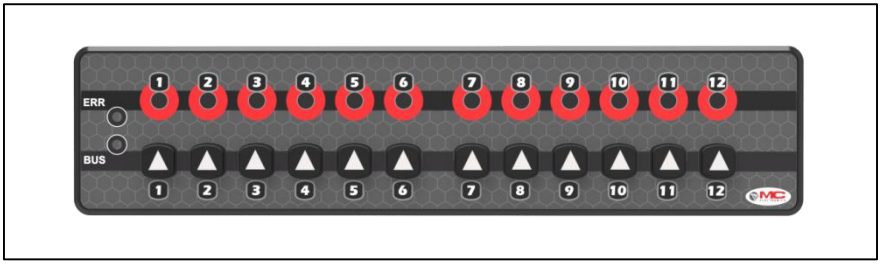


Figure 1. Seeding row exclusion command (code 10COM-0002)

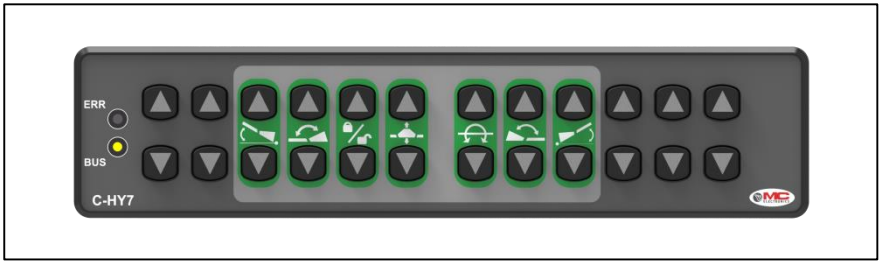


Figure 2. Sprayer command for oil management (code 20COM-0001)

3. Mechanical obstructions

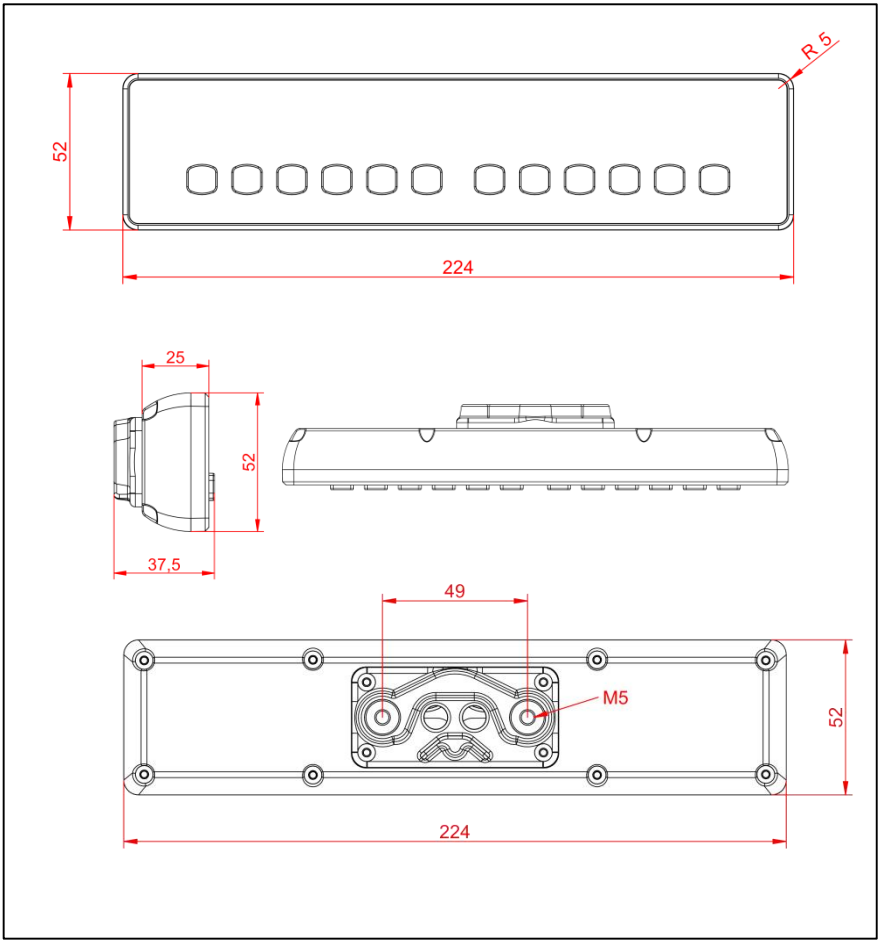


Figure 3. UC50 control obstruction

4. Application for SEEDING (row exclusion)

The “H12-LP” series UC50 exclusion control for precision seed drills, coupled with suitable motorised electric valves, enables exclusion of up to 12 seeding rows.

Closure occurs by simply interrupting the air flow of the seed drill.
The panel has ON/OFF buttons, each controls a motorised electric valve; moreover, a red LED signals when the row of seeds is excluded.

The “H12-LP” row exclusion control, in order to function, must be connected via CAN-BUS to the exclusion unit (code 10CEN-0016) and respectively to the unit, the valves LB100 (code 10VAL-LB100-0002) depending on the row you wish to exclude.

4.1 Fixing system

To assemble the control, fasten the bracket with the suction cup (optional) to the two M3 inserts at the back with the screws not provided.

Note: it is recommended to install the control opposite the operator in order to facilitate its usage during the work cycle.

Figure 4. STF-0010 support bracket

4.2 “H12-LP” row exclusion control operation

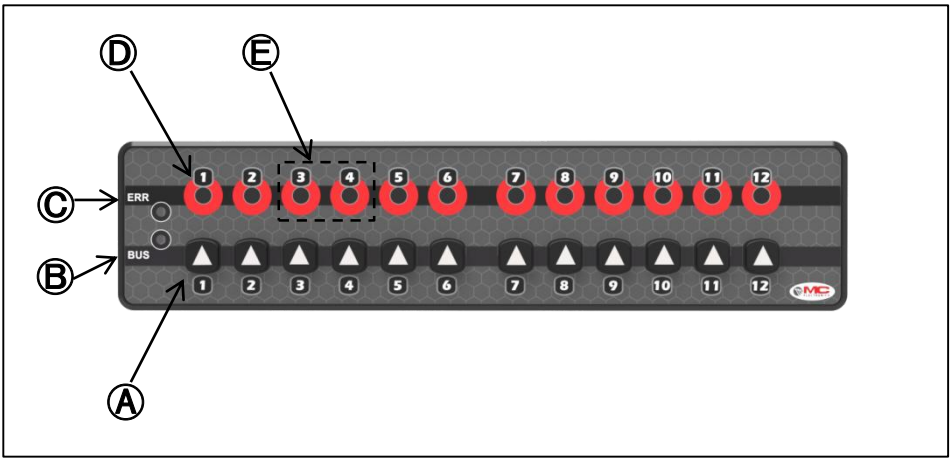


Figure 5. Front view

The following elements can be seen on the panel:

REF.	DESCRIPTION
A.	Row exclusion button
B.	CAN BUS presence, indicated by the green flashing LED on
C.	Presence of an error in the communication, indicated by the red LED on
D.	Excluded row indicator, red colour
F.	If 2 LEDs are fixed on and the row is not excluded, it means valve in error

4.3 Air Valve LB 100

The *LB 100 electric valve* specific for pneumatic precision seed drills, by means of a control on the tractor allows you to close a number of rows at will in order to terminate sowing without wasting seeds.
Placed in series between each single pipe before the seed distributor, the valve shuts by means of a rubber throttle which cuts air flow to the seed distributor of the concerned row.
The valve is supplied with cable and airtight connector with an output signal inside of it in order to connect an indicator light controlling that the valve has shut.

4.3.1 Mechanical measurements

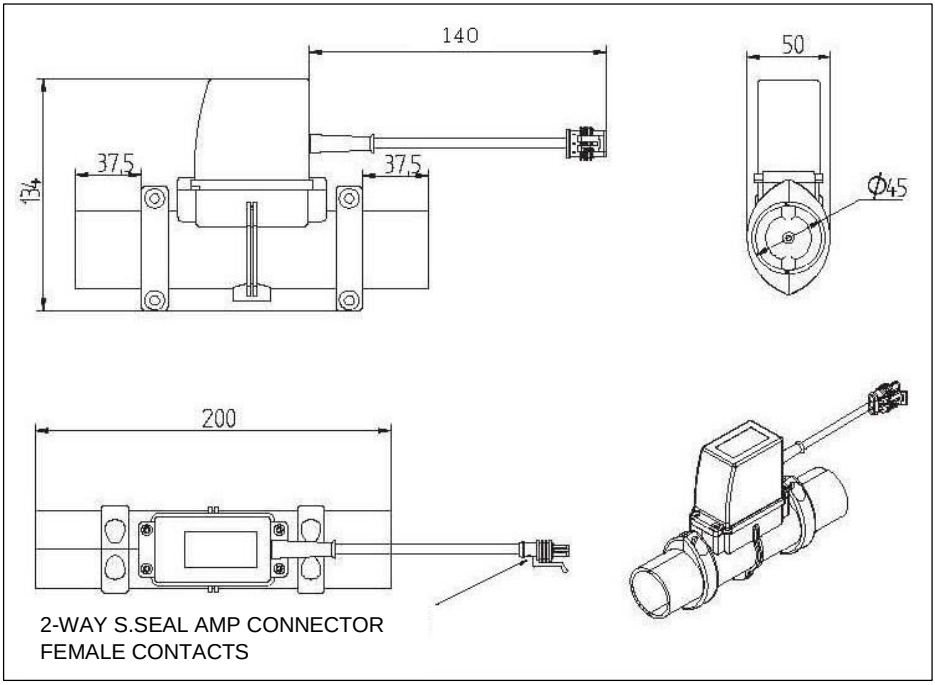
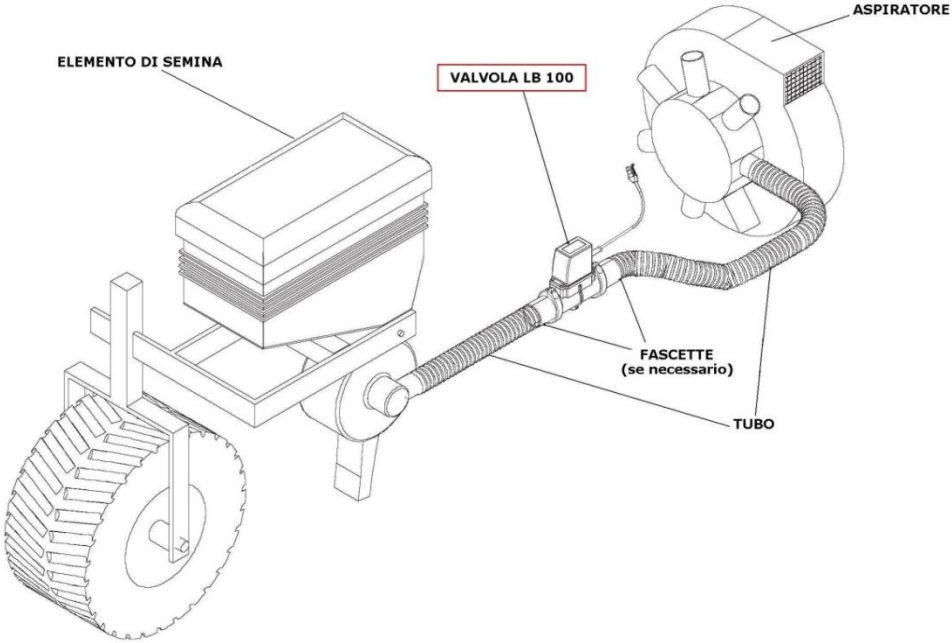


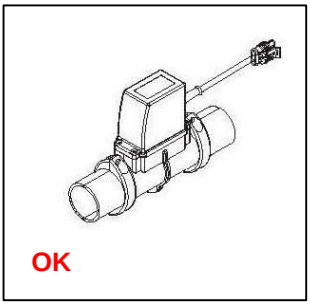
Figure 6 Mechanical measurements

4.3.2 Assembly of LB 100 air valve

1) Place the valve between sowing element and the suction device, positioning it vertically, as shown in the drawing (example. 1);
2) Tighten the tubes to the valve using clamps (not included) if required.

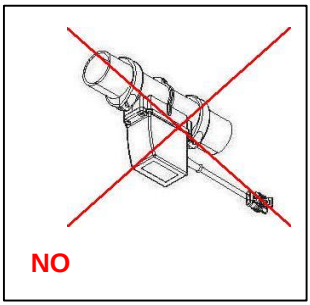


EXAMPLE. 1



CORRECT ASSEMBLY

EXAMPLE. 2



INCORRECT ASSEMBLY

4.3.3 Technical features

TECHNICAL FEATURES	
Power supply voltage	from 10 to 16 Vdc
Max current absorption at 12 Vdc	600 mA
Operating /storage temperature	-20° +75°C / -25° +85°C
Protection rating of electronic part	IP65
Mechanical resistance	2 g
Container material	Black Nylon
Dimensions	200 x 134 x 50 mm
Movement	Throttle with gearmotor
Electrical control	Motor with reversed polarity

ELECTRICAL POLARITY TO CONNECTOR	
Valve open	PIN 1 = GND (mass)
	PIN 2 = +12 Vdc
Valve closed	PIN 1 = +12 Vdc
	PIN 2 = GND (mass)

5. Application for SPRAYING (oil controls)

The “HY7” series UC 50 oil control for spraying bars enables to move the section bar.

In order to function, the “HY7” oil control must be connected, via CAN-BUS, to the al Virtual Terminal HYDRA 590 (code 20VT-HYDRA590-BN) and to the relative water/oil control unit (code 20CEN-HYDRA-0001.20CEN-HYDRA-0001)

5.1 Fixing system

For assembly, fasten the metal bracket (optional) to the two M3 inserts on the back of the "HY7" oil control and to the four M6 inserts on the back of the HYDRA 590 using screws not supplied.

Note: It is recommended to install the monitor / control in front of the operator in order to facilitate its usage during the work cycle.

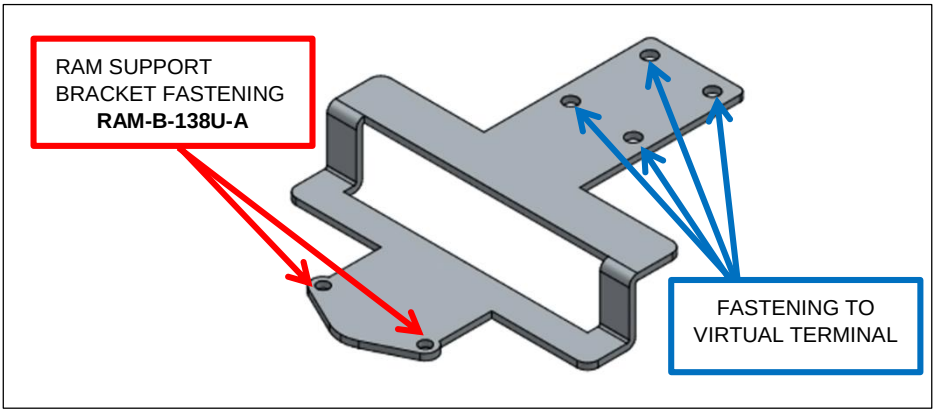


Figure 7. Virtual Terminal HYDRA 590 connection bracket (code MTL-0047)

5.2 “HY7” oil control operation

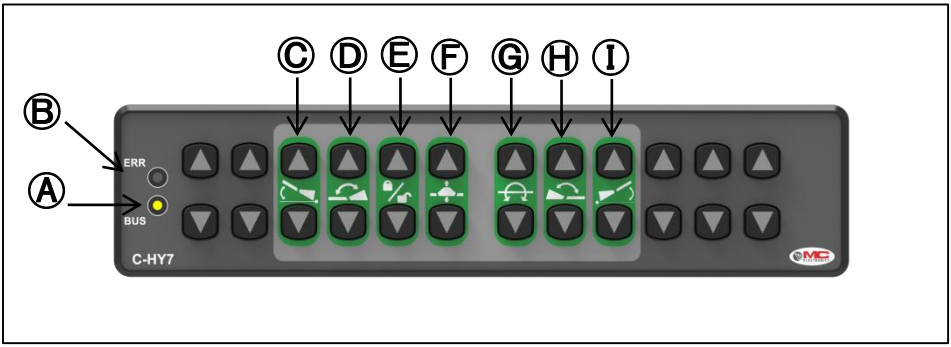


Figure 8 Front view

The following elements can be seen on the panel:

REF.	DESCRIPTION
A.	Presence of an error in the communication, indicated by the red LED on
B.	CAN BUS presence, indicated by the green flashing LED on
C.	**Left side Variable Geo handling**: pressing the key lifts the left side bar section, vice-versa pressing the key lowers the bar section.
D.	**Left side bar opening / closing**: pressing the key opens the left side bar section, vice-versa pressing the key closes the bar section.
E.	**Hydraulic block activation / deactivation**: pressing the key blocks the oil controls of the system, vice-versa pressing the key enables the oil controls of the system.
F.	**Baa height adjustment**: pressing the key lifts the entire bar, vice-versa pressing the key lowers the entire bar.

G.	**Bar inclination adjustment**: pressing the key tilts the entire bar to the left, vice-versa pressing the key tilts the entire bar to the right.
H.	**Right side bar opening / closing**: pressing the key opens the right side bar section, vice-versa pressing the key closes the bar section.
I.	**Right side Variable Geo handling**: pressing the key lifts the right side bar section, vice-versa pressing the key lowers the bar section.

6. Maintenance

This chapter gives instructions on how to carry out routine and special maintenance.
Routine 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.).
Special 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.).

6.1 Routine maintenance

Routine maintenance consists of cleaning the UC50 control.
Clean the control by using a damp cloth and a mild detergent to avoid erasing the serigraphs on the panel.

Warning

- *Do not use pressurised water jets.*
- *Do not use abrasive products, solvents or alcohol.*
- *Do not use hard pointed objects to press on the keyboard.*

6.1.1 Connector protection

In case the control is not used for a long time, disconnect the signal connectors from the wiring, we recommend isolating the connectors from the environment with Nylon protection. If they are not disconnected, no protection is needed.

7. Technical data

7.1 UC50 series controls

Power supply voltage	: 10 – 32 Vdc
Maximum absorbed current (excluding sensors)	: 75 mA
Operating features	
Protection rating	: IP65
Mechanical vibrations resistance	: 2G
Operating conditions	
Room temperature	: -20°C ÷ +70°C
Weather conditions	: Relative humidity 80%
Transport and storage	
Temperature	: -25°C ÷ +75°C

7.2 ECU SEM12-ER

Power supply voltage	: 10 - 16 Vdc
Maximum energy consumption	: 10A (only ECU)
Operating temperature	: -20°C ÷ +70°C 80%
Protection rating	: IP67
Status LED	: 1 x Green - Red
Communication line	: 1 x CAN BUS 2.0B (up to 500 kbit/s)

7.3 Virtual Terminal Hydra 590

Nominal power supply voltage	: 12 Vdc
Maximum energy consumption	: 15A (limited solenoid valve included with SW)
Display	: Backlit monochrome monitor 5.7” res. 320x240
Analogue inputs	: 2 for analogue sensors 4-20 mA
Digital inputs	: 3 for NPN sensors with internal pull-up
Outputs	: 10+1 oil solenoid valve + bypass max 2.5°, 9 with reversed polarity for sections max 2.5 A, Nr. 1 with reversed polarity for general max 2.5 A, Nr. 1 with reversed polarity for pressure adjustment max 5 A
PWM outputs	: Nr. 1 for proportional air sleeve solenoid valve control air, max 2.5 A
Operating temperature	: -20°C ÷ +70°C 80%
Protection rating	: IP65
Status LED	: 1 x Red 1 x Green
Communication line	: 1 x CAN BUS 2.0B (up to 500 kbit/s)
Dimensions	: Monitor: 180x155x71.5 mm ECU: 190x170x60 mm
Weight	: Monitor: 350 g ECU: 400 g

CAUTION!!

DO NOT WASH USING A POWER WASHER WITH PRESSURE JET.

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).

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