SOCIETÀ COOPERATIVA
BILANCIAI
Weighing Instruments and Technologies

WEIGHING TERMINAL D520
USE AND MAINTENANCE MANUAL

CE

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Manual code **81320243**

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1. GENERAL INFORMATION

1.1 DECLARATION OF CONFORMITY

See Quick Start manual.

1.2 FOREWORD

- The aim of this manual is to provide the operator, through the use of text and illustrations, with essential information regarding the installation, safe operation and methodical maintenance of the weighing system.
- Always keep this manual at hand! Always observe the instructions contained in the manual!
- Safe operation of the system is the responsibility of the operator, who must be fully familiar with it.
- The user is responsible for ensuring that the installation conforms to the applicable regulations.
- The equipment must only be installed by specialized personnel who have read and understood this manual.
- **"Specialized personnel"**means any personnel who, by virture of the training they have received and their professional experience, have been explicitly authorized by the "System safety supervisor" to install, operate and service the system.
- Contact your nearest Service Center if problems occur.
- All attempts on the part of unauthorised personnel to dismantle or modify the terminal are prohibited. Any such attempt shall invalidate the warranty and relieve the manufacturer from all liability for any damage or injury to persons or property.
- It is also forbidden to alter or remove the data plates and seals on the terminal. Make sure that all plates and seals are present and legible, if not contact the After-Sales Service.
- The Manufacturer shall not be liable for any damages caused by incorrect handling of the terminal.
- The information and illustrations contained in this manual were up to date at the time of publication.
- The Manufacturer is committed to a policy of continuous product improvement and parts of the system may therefore be subject to modification.
- All the technical information contained in this manual remains the exclusive property of the Manufacturer and may not be disclosed to third parties.
- No part of this document may be reproduced or transmitted in any form, including publication in computerized form or on the

World Wide WEB, without the explicit written permission of the Manufacturer.

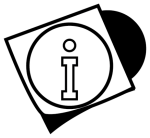
- This manual may not be used for purposes other than those directly related to installation, operation and maintenance of the terminal.

1.3 SYMBOLS

Below is a list of the symbols used in this manual to alert the reader to the various hazards associated with the operation and maintenance of the instrument.

DANGER
Denotes an operation or procedure where failure to observe the instructions will result in death or serious injury.

CAUTION
Information or procedure where failure to observe the instructions could result in minor injury or damage to the instrument.



WARNING
Information or instructions on how the system is to be operated correctly in order to maximize its service life or prevent loss or damage of programmed data or to optimize operation with regard to metrological standards.

1.4 DESCRIPTION OF THE TERMINAL

Terminal D520 allows highly precise and reliable weighing operations to be carried out. It can be used in the piece counting and FILL/EMPTY modes.

It can also be used as a slave and receive data from weighing systems installed some distance away.

1.5 TECHNICAL CHARACTERISTICS OF THE TERMINAL

Power supply	110-240 Vac (-15% … +10%) 50/60 Hz 50 W
	12 Vdc/1A (with external battery) (Min 11 V Max 15 V)
Load cells that can be connected	Up to four 350 Ohm analog cells (or eight of the 700 Ohm type)
Minimum impedance	80 Ohm
Load cell power supply	10 Vdc
Internal resolution	200000 points @ 25 conv/s
Resolution in type-approved version	Up to 6000 divisions or two 3000 ranges
Maximum input signal	15 mV
Sensitivity	1 µV/division
Full scale stability	< 5 ppm/°C
Zero stability	< 5 ppm/°C
Compensated temperature range	From -10 to + 40 °C
Operating range	From -10 to + 40 °C
Protection	IP65
Maximum humidity	85% @ 40 °C

1.6 OVERALL DIMENSIONS AND WEIGHT OF TERMINAL

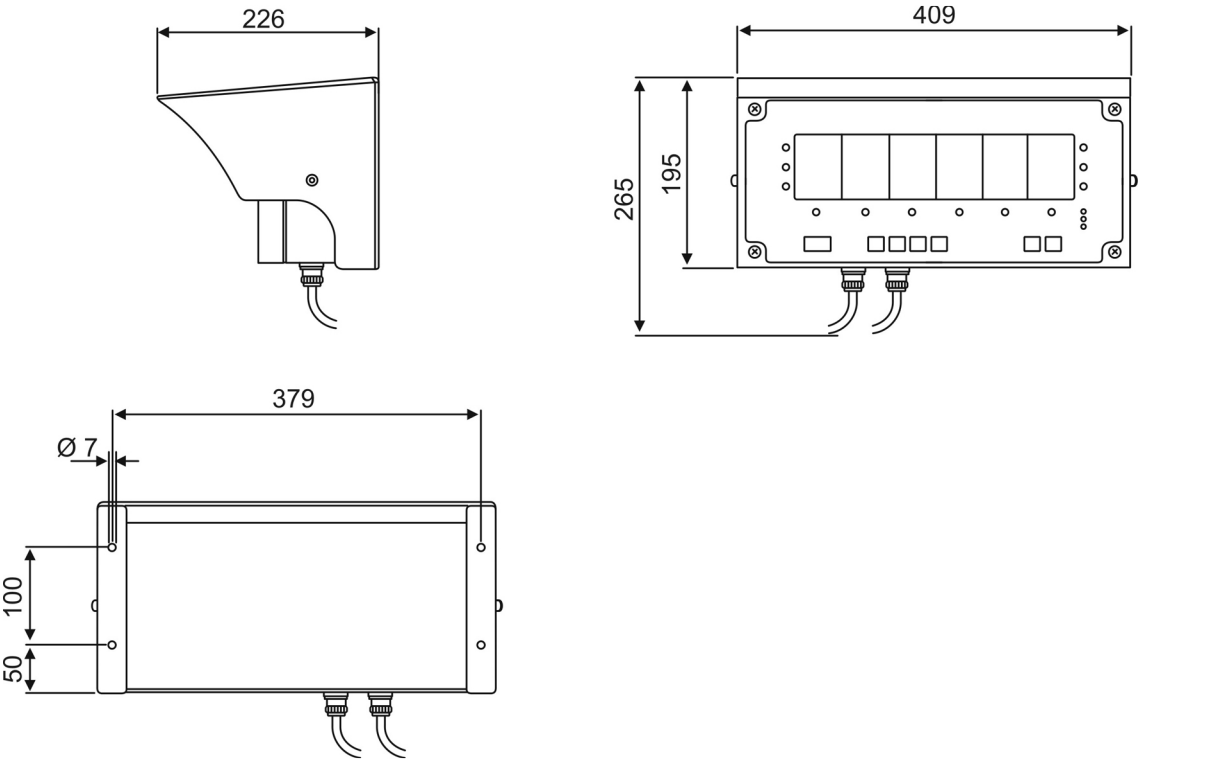
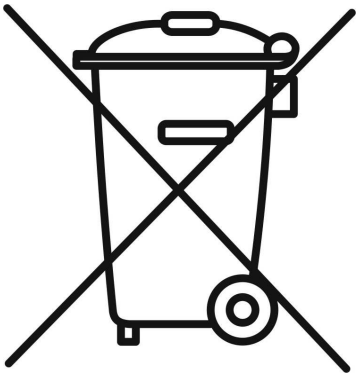


Figure 1.1 – Dimensions of the weighing terminal

- Dimensions (given in mm): see figure 1
- Weight: 5 kg

1.7 HOW TO DISPOSE OF ELECTRIC OR ELECTRONIC WASTE



This symbol on the weighing device purchased means that:

- This electrical or electronic device cannot be disposed of as solid urban waste.
- It must be disposed of separately.
- It can be returned to the dealer when a new one is purchased.
- Improper use or disposal of this device could pollute the environment or damage human health.
- Failure to comply with the aforementioned indications is punishable by law.

In particular:

- The outer casing and the mechanical components are made of plastic and/or metal materials.
- The casing houses printed circuits with electronic components.
- The electrical connections are made with insulated copper conductors.

CAUTION

This device musty be disposed of separately or taken to the dealer or a differentiated waste disposal center.

1.8 HOW TO OBTAIN TECHNICAL ASSISTANCE

In the event of any operating faults requiring the intervention of specialized technicians, contact the Manufacturer or your nearest Service Center. To enable us to deal with your request swiftly, always state the serial number of your terminal, which can be found on the seal label. Also provide information about the system in which the terminal is installed.

1.9 WARRANTY

The warranty conditions are specified in the contract of sale.

1.10 SPARES CODES

CODE	DESCRIPTION
404591	CPU BOARD
57070008	XB24 SER1 RADIO MODULE
46050144	CONVERTER
520536	POWER SUPPLY BOARD
46020014	KEYBOARD AND PANEL KIT
46020017	CABLE CLAMP KIT
46020016	SUNSHADE AND CASING KIT WITH CABLE CLAMP
523624	FUSE T 2.5 A – 250 V

2. SAFETY INSTRUCTIONS

2.1 IMPROPER USES

The instrument you have purchased is a weighing system and has been designed and manufactured as such. The instrument is primarily intended for weighing goods.

- It is forbidden to use the terminal without taking the necessary precautions for safe use.
- Use of the terminal in places with potentially explosive atmospheres or in areas where there is a risk of fire is strictly prohibited.

Any other use shall only be permitted if explicitly authorised by the Manufacturer.

2.2 REGULATIONS

The operating conditions for the electronic terminal are subject to the regulations in force in the country in which the terminal is used. All use of the line in conditions which do not comply with these regulations is prohibited.

2.3 PRESCRIPTIONS FOR USE

- Strictly comply with the instructions in this manual during use.
- In the event of discrepancy between the information in this manual and the instrument purchased, contact your Dealer or the Manufacturer's After-Sales Service for explanations.
- Always observe the indications given on the warning and danger plates on the terminal.
- Make sure that all the safety guards are in place and that the connection cables are in a good condition and connected correctly.

- Make sure that the terminal is connected to an electrical outlet socket equipped with an efficient earth connection. Make sure that the line complies with the applicable regulations. Make sure that there is no difference in potential between the earth and neutral conductors.
- If the terminal is to be connected to other devices (e.g. a computer or other), these devices must be disconnected from the electricity main before connection to the terminal.
- All maintenance work and/or repairs must be carried out by authorized personnel only.
- Always disconnect the terminal from the electricity main and wait a few minutes before accessing the internal components.

3. DELIVERY AND INSTALLATION

Figure 3.1 – Base of the terminal

Key:

1. PG11 cable clamp for cables with external sheath diameter from 5 to 10 mm for powering cable input.
2. PG9 cable clamp for cables with external sheath diameter from 4 to 8 mm for I/O board input.
3. PG9 cable clamp for cables with external sheath diameter from 4 to 8 mm for COM1 input.
4. PG9 cable clamp for cables with external sheath diameter from 4 to 8 mm for COM2 input.
5. PG9 cable clamp for cables with external sheath diameter from 4 to 8 mm for scale input.
6. Data label.
7. Warning and danger label.

3.1 RECOMMENDATIONS FOR INSTALLATION

Use the supplied brackets to fix the instrument.
Avoid direct sunlight on the display if this is installed outdoors.

3.2 CONNECTION OF THE TERMINAL TO THE ELECTRICITY MAIN

DANGER

Check that:

- The voltage and frequency of the electricity main correspond to the indications on the warning plate affixed to the terminal.
- The power socket to which the terminal is connected is equipped with an earth.
- The power socket is in the immediate vicinity of the terminal and is equipped with a disconnector switch.
- The warning and danger plates are affixed to the casing enclosing the instrument.
- Failing this, notify your maintenance personnel or contact our Assistance Service directly.
- The power cable has IP20 protection degree. Prepare an adequately protected connection to the electricity main to suit the environmental conditions.

Proceed in the following way to connect the terminal to the electricity main in the correct way:

- Insert the plug of the power lead into the right power socket.
- Operate the disconnector switch.

The terminal complies with the European Directive governing electromagnetic compatibility, however it is good practice to provide a separate power supply line for the terminal.

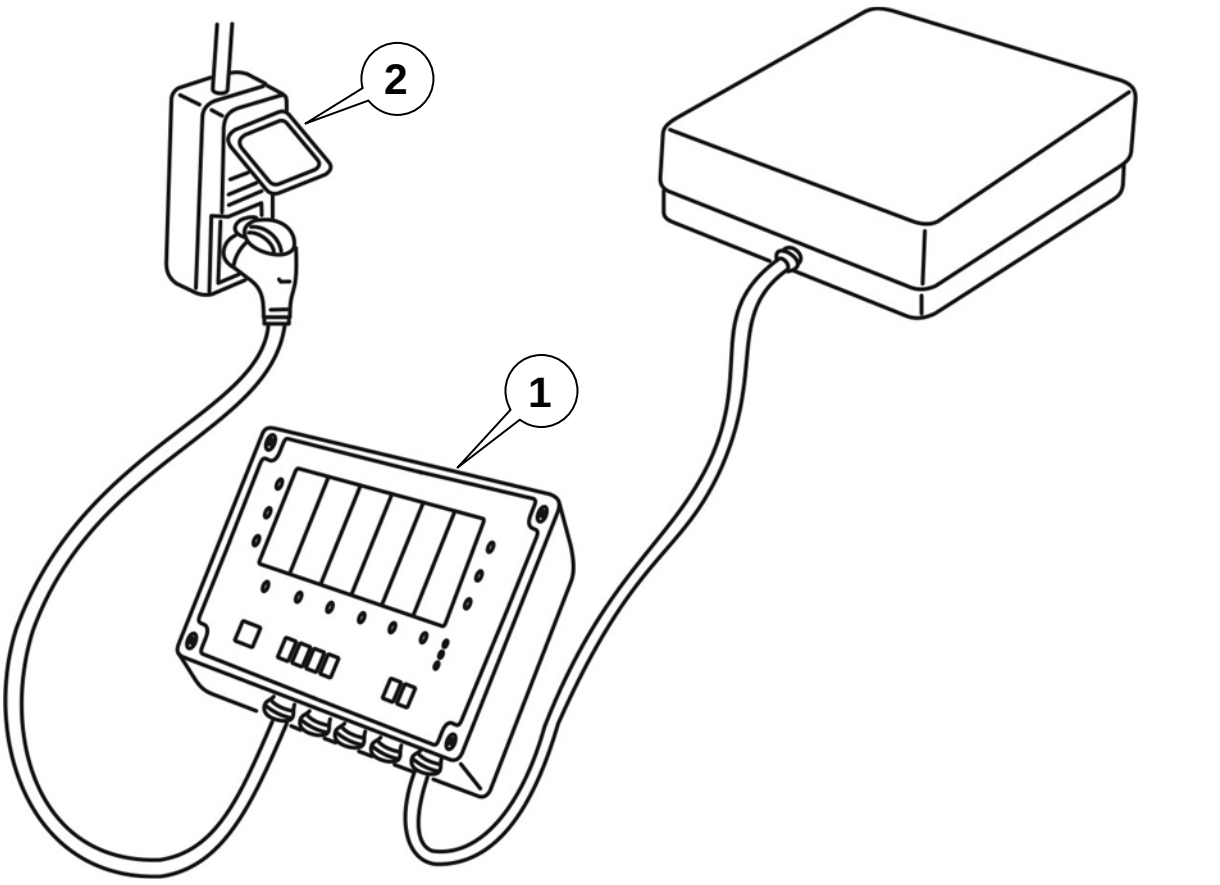


Figure 3.2 – Connection of the terminal to the electricity main

Key:

1. Weight display terminal.
2. Mains socket with knife switch (at the customer's charge).

WARNING

Do not route the terminal connection cables alongside power cables as these could cause interference that could prevent the terminal from operating in the correct way.
Only use the connection cable supplied with the terminal. If the cable supplied is too short, do not attach an extension lead but contact the Manufacturer.

3.3 12 V DC POWER SUPPLY

Weighing terminal D520 can also be powered by a direct current source with 12 V voltage rating.

- The power can be supplied by a lead battery or stabilized power supplier.
- The source must be able to supply 1A.

WARNING
Sizing and routing of the power cable and external knife switch are at the customer's charge.

- The Data Label gives the type of power in use, indicated by a cross.
- If a battery is connected, the voltage can be checked by interrogating the VBAT parameter (par. 5.9 on page 33)

3.4 SERIAL LINKS

3.4.1 JCOM1 serial link

PIN	DESCRIPTION
1	DATA - 485 / RX442 - = Data reception (INPUT)
2	RX232 = Data reception (INPUT)
3	TX232 = Data transmission (OUTPUT)
4	RTS232 = Request to send (OUTPUT)
5	GND = Ground of the signals
6	DATA + 485 / RX422 + = Data reception (INPUT)
7	DATA - 485 / TX422 - = Data transmission (OUTPUT)
8	CTS232 = Clear to send (INPUT)
9	DATA + 485 / TX422 + = Data transmission (OUTPUT)
10	+12V (Imax = 200 mA) Powering of external options

3.4.2 JCOM1 jumpers

SIGNAL	JP5	JP6	JP7
RS232	OFF	OFF	OFF
RS422	ON	OFF	OFF
RS485 First and last device on the backbone network	ON	ON	ON
RS485 Intermediate devices on the backbone network	OFF	ON	ON

3.4.3 JCOM2 serial link

PIN	DESCRIPTION
1	TX232 = Data transmission (OUTPUT)
2	RX232 = Data reception (INPUT)
3	GND = Ground of the signals
4	VACANT
5	VACANT
6	VACANT

CAUTION
Maximum use conditions envisaged by standard RS232:
Maximum transmission distance: 15 m
Maximum voltage at ends: ± 12 Vdc
It is advisable to use a screened cable for connections to external devices. Remember to connect the screen to the metal part of the terminal by means of the input cable clamp.

CAUTION
Limits to use envisaged for standard RS422:
Maximum transmission distance: 1200 m
Maximum voltage at ends: +/- 7V
It is advisable to use a screened cable of the "twisted pair" type for connections to external devices. Remember to connect the screen to the metal part of the terminal by means of the input cable clamp.

3.4.4 Load cell connection

PIN	DESCRIPTION
1	SIG-
2	SIG+
3	EXC+
4	EXC-
5	+SENSE
6	-SENSE

4. CONTROLS, SWITCHING ON AND OFF

4.1 WEIGHT AND ACCESSORY SIGNAL DISPLAY

Figure 4.1 – Front part of terminal

Key:
1. Display.
2. Weighing symbols.
3. Metrological keys.
4. On/Off key.
5. Menu browsing keys.

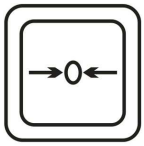
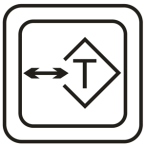
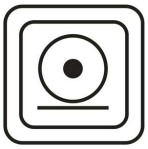
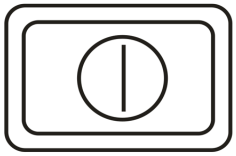
The indications concerning the operations carried out by the indicator are given in the fullest possible form while universally known symbols are used for the weight data.

Besides the weight, the following symbols are displayed on the weight repeater:

	**Stable weight symbol** Indicates that the displayed weight is stable and can be printed and/or transmitted.
	**"Center zero" symbol** Indicates that the weight detected by the platform is near zero, between -1/4 + 1/4 of the division.
T	**Tare symbol** Indicates that there is a tare symbol memorized by acquisition.
PT	**Tare symbol entered via the keyboard** The indication means that a tare has been digitized via the keyboard.
B/G	**Gross weight symbol** When this symbol lights up it means that a gross weight is displayed.
NET	**Net weight symbol** When this symbol is on it means that a tare has been memorized via acquisition. If the PT indication is also on at the same time, it means that a tare has been entered via the keyboard.
W1 W2 W3	**Indication of the weighing range for multiextension instruments (ME)**
kg, g, lb	**Unit of measurement of the weight displayed** If the indication flashes, the weight is within the minimum weight range.
	**Intensity of the remote control radio signal** 1 Led = low signal 3 Leds = good signal The leds also indicate the received signal in the weight repeater mode.

4.2 DESCRIPTION OF THE KEYS

With reference to Figure 4.1 on page 22:

	**Weight reset key** Press this key to reset the weight indication, but only in the following conditions: - The weight value must be within the -1% to +3% of the terminal's capacity if metric verification is obligatory and ± 50% of the capacity for other sorts of terminal. - The weight must be stable. - No tare must have been entered.
	**Tare entry and cancellation key** Press this key to acquire the weight on the weighing platform as the tare value, but only in the following conditions: - The weight must be stable. - The weight value must be positive. - The weight must not exceed the maximum capacity. Press again to cancel the acquired tare.
	**Tare display key** Press this key to display the tare setting.
	**Printing and/or transmission enabling key** Press this key to print the weighing data and/or for serial transmission of a string of data through the configured port.
	**Dual function selector key** Activates alternative functions when pressed in conjunction with the other keys.
	**"Enter" or confirm key** Press this key to confirm the operation you have done.
	**On-off key** Press this key to power or switch off the terminal.

	DANGER Use the relative disconnector or disconnect the mains cable to shut off the electricity supply as the terminal is powered even when off.

WARNING

The functions of the keys may change during use of the terminal. The relative instructions will be given in the manual.

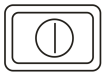
4.3 SWITCHING THE TERMINAL ON AND OFF

DANGER

Before powering the terminal, make sure:

- *That the voltage and frequency of the electricity main correspond to the values required by the terminal*
- *That the protective casings are installed and in a perfect condition.*
- *That the caution and danger labels are affixed.*

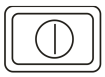
Failing this, notify your maintenance personnel or contact our After-Sales Service directly.

- Press the  key on the terminal (Figure 4.1 - page 22).
- Wait until termination of the initial test (lamp-test), which makes sure that all the display segments function correctly.
- Press the key again to switch off the terminal.

WARNING

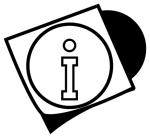
If the terminal is connected to a PC or to some other remote machine, make sure that no data are being transmitted before switching it off. This prevents data transmitted to connected machines from being lost and incorrect data from being acquired. Always wait for the transmission to end before transmitting the next link interruption to these units.

WARNING

The on-off key  *can be disabled during the installation phase. In this case, the customer must install an accessible disconnector. This function is used when the terminal is installed in places that are difficult to access (e.g. at a height of 3 m). In this case, the terminal remains permanently on and the disconnector must be used to switch it off.*

4.3.1 Auto-shutdown

To optimize power consumption, the terminal can be configured in the AUTO-SHUTDOWN mode. In this case, the terminal will shutdown automatically if the stable weight condition persists for 5 minutes.
Before it shuts down, the word OFF will flash on the display for thirty seconds to iondicate that shutdown is imminent.



WARNING
Auto-shutdown will not occur when the batteries are recharging.

To enable this function, select value YES for the TURNOFF parameter and follow the instructions given in par. 5.9 on page 33.

5. USE OF THE TERMINAL

5.1 GENERAL INFORMATION

The EN, 2°F, T keys described in par. 4.2 on page 24 allow you to browse through the menus, submenus and parameters.

In particular:

EN is used for:

- Accessing the submenu or parameter displayed.
- Memorizing the value of the parameter displayed.
- Replying affirmatively to the queries put by the terminal ("save?" "sure?").

2°F is used for:

- Moving through the submenus or parameters displayed.
- Moving through the values of the parameters displayed.
- Replying negatively to the queries put by the terminal ("save?" "sure?").

T is used for:

- Going back to the selected submenu from the parameter of relative value.
- Quitting the submenu display phase and going back to normal operation of the tyerminal.
- Editing the various programming parameters.

5.2 NUMERIC DATA ENTRY (Editor)

Numeric values can be entered by means of the following procedure:

- Select the menu item associated with the required value. The currently memorized value will appear on the display.
- press  to reset the memorized value, then press  to enter the new value. Press  if the value of the memorized data item must not be reset but only modified.
- Press the  key to enter then first figure. If this key is pressed again, it will scroll through numbers 0 to 9, the ”-“ symbol and the decimal separator selected during the installation phase.
- Press  to confirm the entry.
- Press  again if other figures must be entered.
- At the end of the operation, press  to confirm the value entered.
- Use the  key to run through the various figures if the setting must be changed.

WARNING

Do not wait more than 10 seconds between pressing two keys when the data are being entered, otherwise the terminal will quit the procedure and go back to displaying the weight.

5.3 WEIGHT RESET

Press the  key to reset if the display shows a different value from zero when the platform is unloaded. Resetting will only occur in the presence of the conditions described in par. 4.2 on page 24.

5.4 TARE ENTRY FOR ACQUISITION

Place the weight to acquire as the tare value on the platform and press  . The operation will only take place in the presence of the conditions described in par. 4.2 on page 24.

The word NET will appear on the display. If further weights are placed on the scale, the weight value displayed will increase and will represent the net weight value.

In MD terminals, the weight indication will continue using the lower range division.

On ME terminals, the net weight is displayed with the division of the range to which it belongs.

5.5 TARE ENTRY VIA THE KEYBOARD

A tare value can be entered by means of the following procedure:

- Press  .
- Press the  key to edit the first figure of the tare. If this key is pressed again, it will scroll through numbers 0 to 9, the ”-“ symbol and the decimal separator selected during the installation phase.
- Press  to confirm the entry.
- Press  again if other figures must be entered.
- At the end of the operation, press  to confirm the value entered.
- Use the  key to run through the various figures if the setting must be changed.

Once the operation has terminated, the display will show the net weight and the NET and PT indications will light up.

The tare value entered will be automatically rounded off to the scale division of the scale. In MD terminals, the net weight indication will use the division of the range to which the net weight value sets while in ME terminals, the net weight division will be the one of the range to which the gross weight belongs.

For MD terminals, the maximum value of the preset tare will be limited to the maximum capacity of the first weighing extension (value indicated on the data plate with the metrological specifications of the instrument).

5.6 TARE DISPLAY

Press the  key to display the tare setting.

5.7 TARE DELETION

Press  to delete a tare setting from the terminal and return to the gross weight display.

5.8 WEIGHING DATA PRINTING/TRANSMISSION

Press the  key to print the weighing data and/or for serial transmission of a string of data through the configured port.

WARNING
Only on printers of the ASCII type. Other types of printer are not compatible.

5.9 SPECIAL TERMINAL SETTINGS

Whichever operating mode the terminal uses, certain configurations can be changed so as to adapt it to one's personal operating requirements or to display information.

The following parameters can be edited or interrogated by pressing the 2°F key:

VBAT (if the external battery is selected)	Displays the voltage measured at the input of the terminal.
ILLUM	Defines the light intensity of the display.
	HIGH The display operates with the maximum light intensity.
	LOW The display operates with the minimum light intensity.
	TEMPOR The display operates with the maximum light intensity for 10 seconds if: - Any key is pressed. - The weight indication is subjected to a variation of at least 4 divisions.
TURNOFF	Controls the AUTO-SHUTDOWN function.
	NO The AUTO-SHUTDOWN function is not activated.
	YES The AUTO-SHUTDOWN function is activated.

WARNING
Do not wait more than 4 seconds between pressing two keys when the data are being entered, otherwise the terminal will quit the procedure and go back to displaying the weight.

5.10 SCALE MODE OPERATION

The following parameters can be edited or interrogated in the scale mode by pressing the 2°F key:

PIECES	Enables operation in the piece counter mode.

WARNING
Do not wait more than 4 seconds between pressing two keys when the data are being entered, otherwise the terminal will quit the procedure and go back to displaying the weight.

5.11 PIECE COUNTER MODE OPERATION (EPC)

When configured in the piece counter mode, the terminal also provides the following functions:

- Display of the number of pieces, average unitary weight (called AUW from now on) and weight.
- Calculation of the AUW by weight difference.
- Automatic calculation of the number of pieces.

5.11.1 Average Unitary Weight acquisition (AUW)

The average unitary weight is a fundamental data item since it allows the pieces to be calculated correctly. It is therefore very important to take care when it is acquired as the more accurate it is, the more precise will piece counting be.

The average unitary weight can be entered in two ways:

- It can be acquired from the scale by sampling a defined number of pieces.
- It can be transmitted via serial link by a computer, using the remote controls (consult the COMMUNICATIONS MANUAL).

If the AUW is acquired, proceed in the following way:

- Press EN : the terminal will display the number of samples and will meanwhile acquire the first weight for AUW calculation. When the EN key is pressed again, it will display the number of samples that can be selected from a fixed table. Select the number of samples that will be successively loaded.
- The terminal waits 10 seconds before loading or unloading the pieces to or from the scale.
- The terminal checks the stability of the weight and calculates the AUW. The message WAIT appears during the phase when the stability of the weight is checked, which terminates by calculating the average unitary weight. Samples can be loaded and unloaded on and from the scale during the time waited for the stable weight condition.
- Press 2°F to display the average unitary weight calculated. If the unit of measurement selected is kg and the AUW is less than 1 kg, the AUW value will be displayed in g. The AUW is always positive.
- If the weight fails to stabilize, the WAIT message will remain on the display and the operator can quit the procedure by pressing 2°F. The previous AUW will remain (if it has already been calculated).

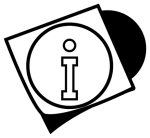
The AUW resets whenever the terminal is switched off.

The calculated AUW is retained in the memory if the operator switches from the PIECES mode to the WEIGHT mode.

5.11.2 Special PIECE COUNTER settings

The following parameters can be edited or interrogated in the piece counter mode by pressing the 2°F key:

n.nnnnn	AUW displayed with relative unit of measurement.
WEIGHT	Return to the scale mode



WARNING
Do not wait more than 4 seconds between pressing two keys when the data are being entered, otherwise the terminal will quit the procedure and go back to displaying the weight.

5.12 FILL/EMPTY MODE OPERATION

The following specific parameters can be edited or interrogated in the FILL/EMPTY mode by pressing the 2°F key:

FILL	This operating mode allows containers to be filled (bags, drums, crates, etc.) by taking material from another sort of container (e.g. silos). The container (e.g. a bag) to be filled is placed on the scale. When START is enabled, it activates a sequence of operations whereby the container is filled (the weight of the bag increases).
EMPTY	Similarly to the FILL mode, this mode allows containers to be filled. However, this time the scale is positioned under the container (e.g. silos) from whence the material is taken. As soon as START is enabled, the scale checks how much weight is extracted and put, for example, into the bag (the silo weight will drop).

WARNING

Do not wait more than 4 seconds between pressing two keys when the data are being entered, otherwise the terminal will quit the procedure and go back to displaying the weight.

5.12.1 FILL/EMPTY special function

This special function allows the terminal to be used in the extraction mode with particular operating characteristics.
The FILL and EMPTY items appear in the main menu and should be selected for the loading and unloading operations, respectively.

FILL loading procedure

1. Press 2°F. The ‘FILL’ message will appear on the display.
2. Press EN to display the last weight value set for this procedure.
3. Press EN to accept the displayed weight value and access the extraction procedure. Press 2°F to change the weight value and access the editor (chap. 5 on page 28).
4. An automatic tare acquisition procedure will take place. Zero weight value will appear on the display.
5. Carry out the loading extraction procedure. Output1 is activated (alarm) on the set weight value.
6. Press EN to deactivate output1 and deactivate the procedure, reset the tare and go back to the main menu.
7. After point 4), you can always quit the extraction procedure by pressing EN.

EMPTY unloading procedure

1. Press 2°F twice. The ‘EMPTY’ message will appear on the display.
2. Press EN to display the last weight value set for this procedure.
3. Press EN to accept the displayed weight value and access the extraction procedure. Press 2°F to change the weight value and access the editor (chap. 5 on page 28).
4. An automatic tare acquisition procedure will take place. Zero weight value will appear on the display.
5. Carry out the unloading extraction procedure. Output1 is activated (alarm) on the set weight value.

6. Press EN to deactivate output1 and deactivate the procedure, reset the tare and go back to the main menu.
7. After point 4), you can always quit the extraction procedure by pressing EN.

The ‘FILL’ and ‘EMPTY’ values can also be entered by means of the remote commands.

5.13 WEIGHT REPEATER MODE OPERATION

Terminal D520 can also receive weight information via radio or cable from a master scale terminal.

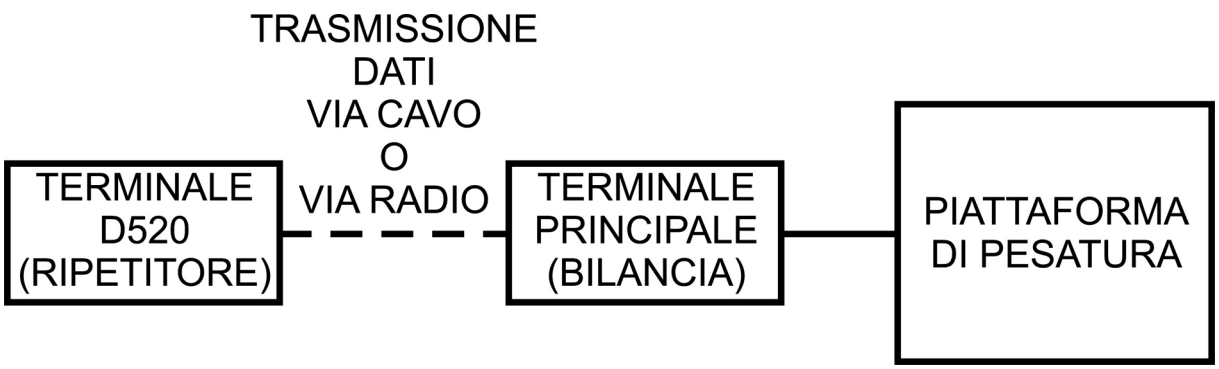


Figure 5.1 – Weight repeater mode

The same information displayed on the master scale will also appear on the display of terminal D520. Commands can also be transmitted to the master terminal.

WARNING
Some functions may or may not be present, depending on the type of master terminal and the communication protocol used.

6. OPTIONS

6.1 RADIO CONTROL

Figure 6.1 – Radio control

Key:
1. Display.
2. Battery charger connector
3. Weighing keys.
4. Alphanumerical keyboard.

6.1.1 Electrical specifications

- Operating frequency 2.4 GHz.
- Internal batteries: 2 in the AA NI-MH format, size 1.2 V/2.5 Ah or 1.5 V Alkaline
- 8-hour autonomy in continuous service, recharges completely in 4 hours.
- Distance from the terminal to control: up to 20 m free from obstructions.

6.1.2 Use of the radio control

- Switch on the remote control by pressing any of the keys.
- Select the scale by pressing key 2°F + the scale number.
- The number of the selected scale will appear on the first lines of the display. The scale number is given on the data label (Ref. 6 in figure 3.1 on page 15).
- Operate the weighing keys as described in chap. 5 on page 28.
- A message on the display will warn when the batteries are low. Connect the adapter to recharge the batteries or replace them.

6.2 INPUT-OUTPUT I/O BOARD

6.2.1 General information

The input-output board is installed on the base of the terminal and is connected to the CPU board.
This board allows 2 inputs and 2 outputs to be used (output operation only as NO, normally open).

6.2.2 Terminal board pin-out

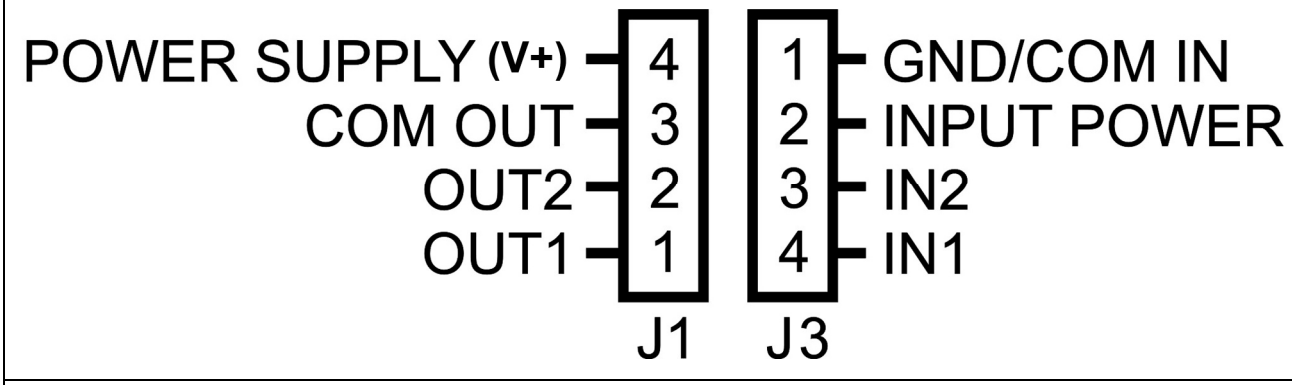


Figure 6.2 – I/O connectors, internal view of the terminal

6.2.3 Internal INPUT power supply

To feed the card I \ O connect in parallel to the CPU power supply wires.

V	CPU d520			Card I\O	
	Connector	pin		Connector	pin
+ 12V	JAL	1	Connected to	J1	4
0V	JAL	2	Connected to	J3	1

Alternatively you can use the connector JCOM1 CPU.

V	CPU d520			Card I\O	
	Connector	pin		Connector	pin
+ 12V	JCOM1	10	Connected to	J1	4
0V	JCOM1	5	Connected to	J3	1

•JP1 = ON

6.2.4 External INPUT power supply

- 12 V < V_{EXT} < 30 V connected externally on J_1-PIN4
- GND connected externally on J_3-PIN1
- JP1 = ON

6.2.5 INPUT connection

- Maximum input voltage rating = 30 Vdc
- Maximum input current = 10 mA

If the terminal is powered by means of the input-output board, jumper JP1 can be closed to provide the same powering voltage to the anode of the optoinsulators (Figure 6.3).

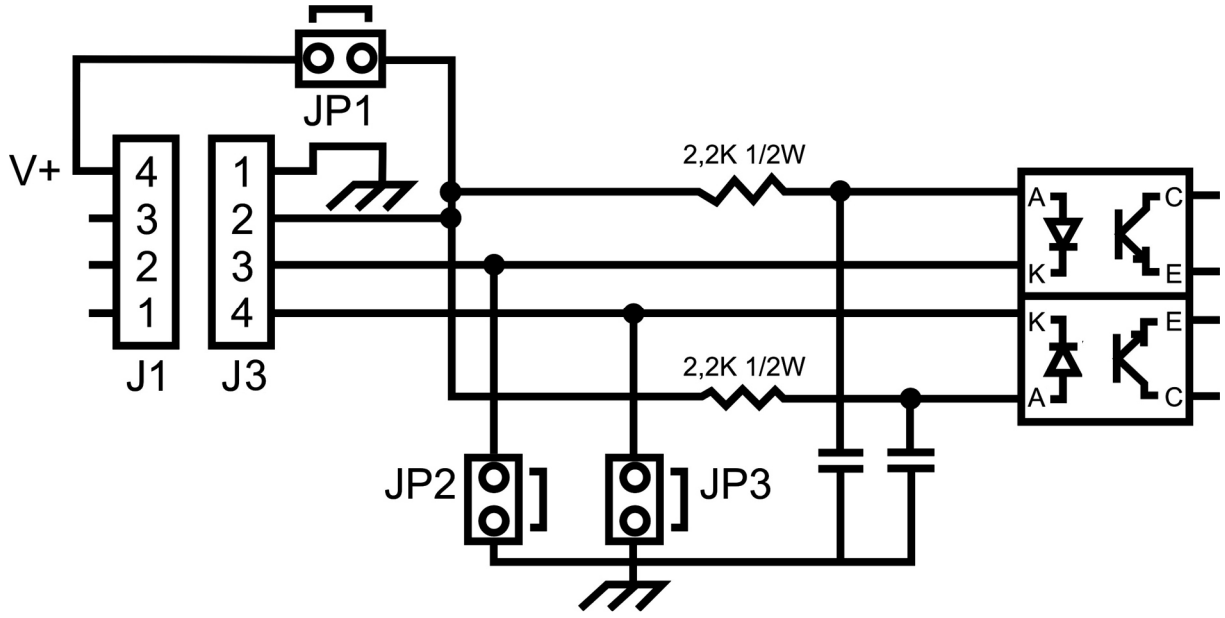


Figure 6.3 – INPUT wiring diagram

If jumpers JP1, JP2 and JP3 are configured in the correct way, they can be controlled by a mechanical contact, by an NPN transistor (negative common contact)(see figure 6.5) or by a PNP transistor (positive common contact) (see figure 6.6). In this latter case, the two inputs can be controlled at the same time if JP2 and JP3 are closed. The same configurations can be obtained for the inputs by wiring the input-output board externally.

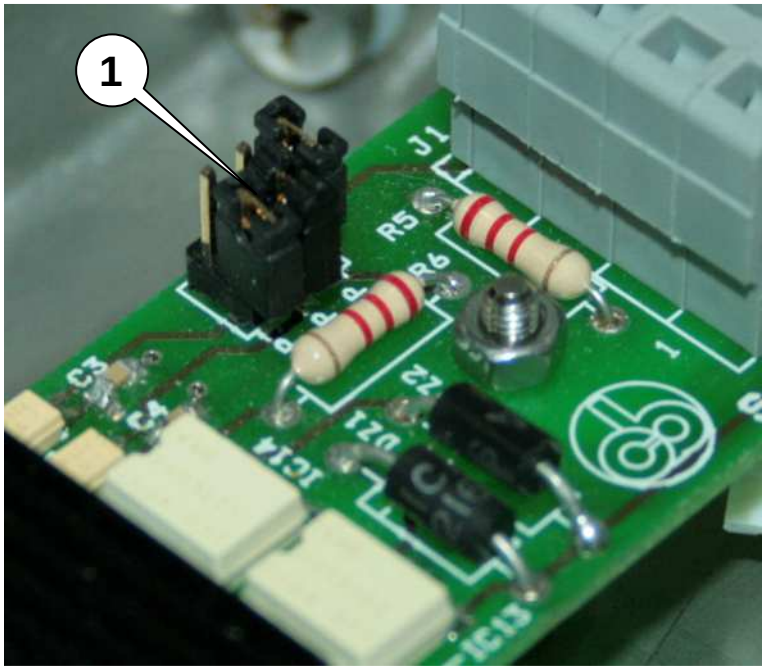


Figure 6.4 – Position of the jumper on the board

JP1	JP2	JP3
ON	OFF	OFF

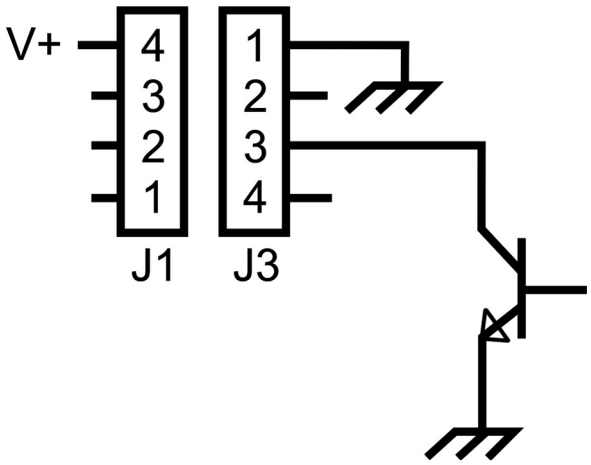


Figure 6.5 – Example of input2 command with NPN

JP1	JP2	JP3
OFF	ON	OFF

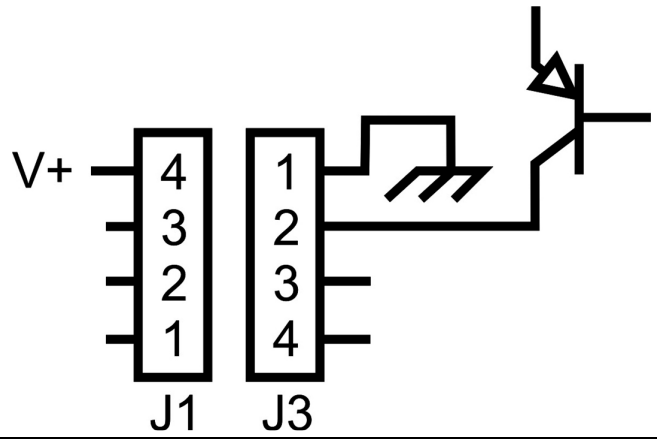


Figure 6.6 – Example of input2 command with PNP

6.2.6 OUTPUT connection

- Transistor contact (OPTOMOS)
- Maximum switchable voltage = 24 Vdc/ac
- Maximum switchable current = 190 ma (ac/dc)

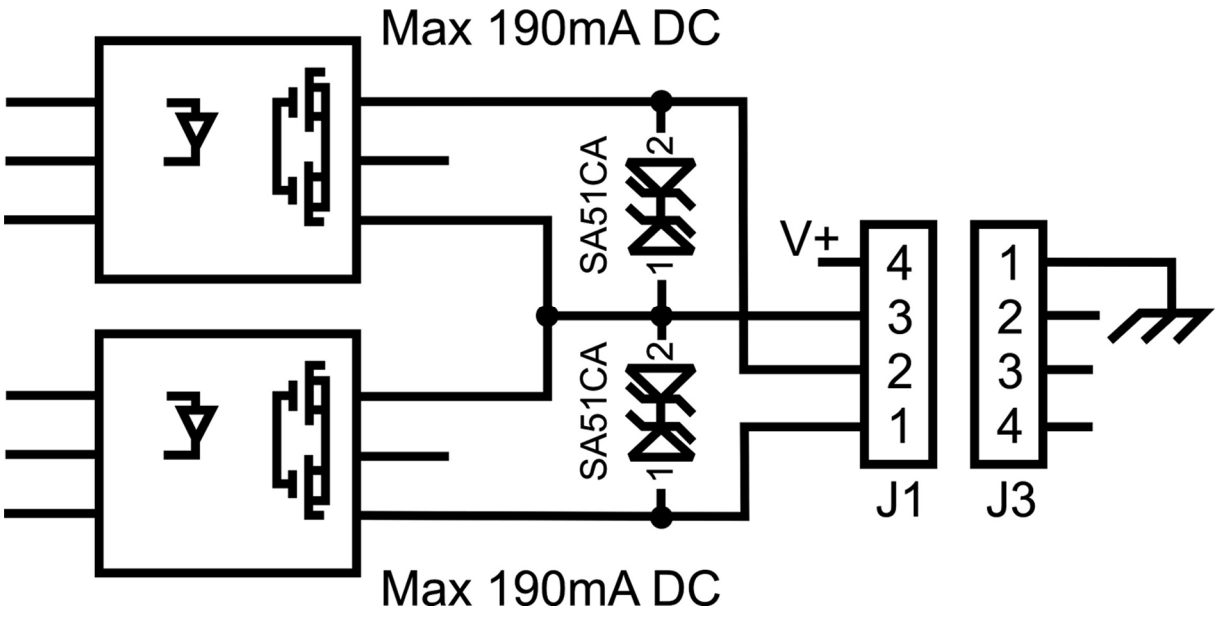


Figure 6.7 – OUTPUT wiring diagram

6.3 WIFI RADIO CONNECTION

Connection of the unit to a WI-FI network requires installation of the optional DIWIFI/IP bridge.

The DIWIFI/IP unit is connected to terminal board JCOM1.

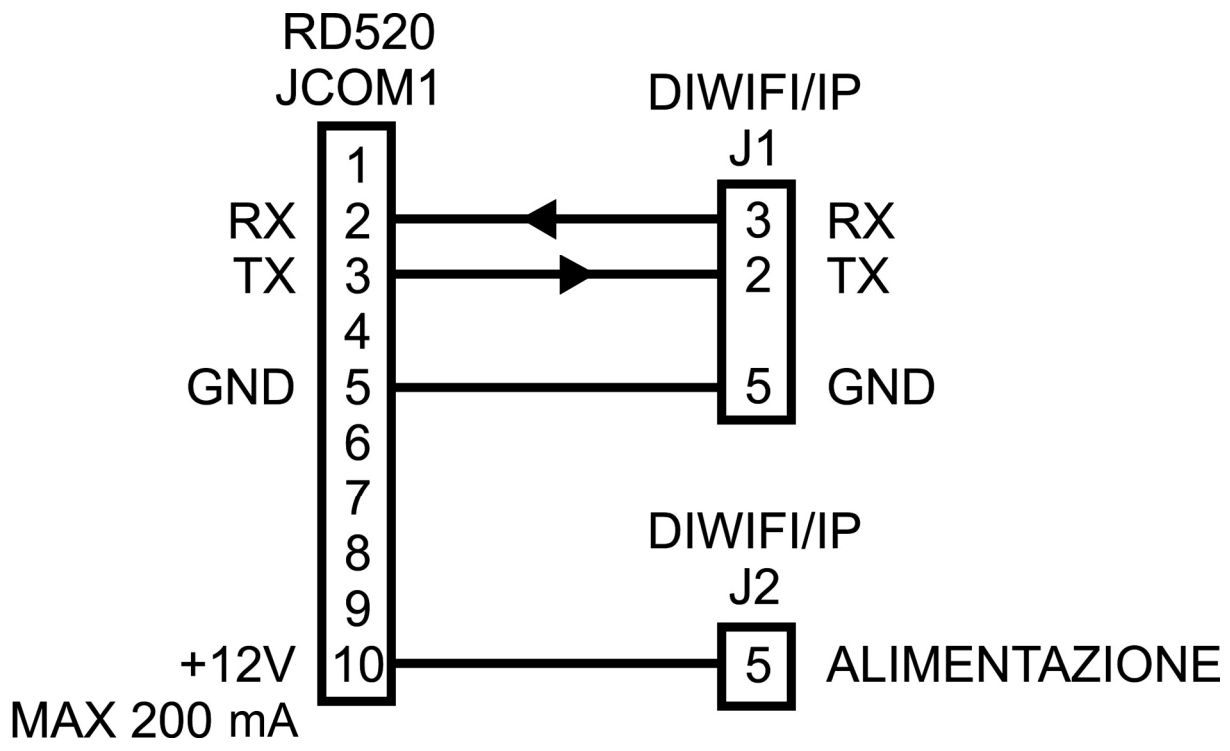


Figure 6.8 – Radio control

Also refer to the DIWIFI/IP operation manual for instructions about how to enter the parameters.

6.4 RADIO DIZIG/IP, DI433 OR DI869 CONNECTION

The connection shown in figure 6.8 allows other devices, such as DIZ1G/IP, DI433 or DI869 for example, to be used via RS232/422/485.

However, remember that up to 200 mA (peak 280 mA) at 12 V can be drawn from PIN 10 or JCOM1.

7. TROUBLESHOOTING

The faults that might affect the terminal, their causes and remedies are listed below:

Fault	Cause	Remedy
The terminal does not switch on	No mains power	Make sure that the current isolating switch has been activated and that there has not been a power failure.
	xternal batteries completely discharged or broken.	Recharge the batteries. Replace the batteries if the fault persists.
Poor battery autonomy	Incomplete charge	Charge the batteries. Replace the batteries if the fault persists.

The messages and error codes that may appear on the display are explained below:

Message/Code	Cause	Remedy
99999999	The scale is overloaded	Reduce the weight to a value below the maximum scale capacity.
	Weight cannot be reset	Unload the scale plate and attempt to power the terminal again.
– –	Weight instable	Eliminate the cause of weight instability and attempt to power the terminal again.
P– – – – – (only piece counter mode)	AUW not calculated	Carry out the AUW calculation procedure (par. 5.11.1 on page 35)

- 01 - Converter faulty	Scale connector disconnected or detached	Turn off the terminal and make sure that the connector has been connected correctly. If necessary, disconnect and then re-connect it, then power the terminal again.
	Faulty conversion board	Contact the After-Sales Service.
- 02 - EEPROM error	Voltage drop during an incorrect operation	Switch off the terminal and power it again. If the error persists, contact the After-Sales Service and have the CPU replaced.
- 04 - RAM checksum error - 05 - EPROM checksum error	Faulty CPU board	Switch off the terminal and power it again. If the error persists, contact the After-Sales Service and have the CPU replaced.

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