LMZ08

microprocessor control

Zator
gluing solutions

USER AND MAINTENANCE MANUAL

ZATOR SRL

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USER AND MAINTENANCE MANUAL
LMZ08_v04

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UE Declaration of Conformity CE

Manufacturer:
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DECLARES
Under its responsibility that the microprocessor control:

Model	Microprocessor control	Code	LMZ08
Serial Number		Year of manufacture	

is in compliance with UE directives, with relation to the following ones and/or parts of them applicable to this product:

- Directive 2006/42/CE of European Parliament and Council of the 17th of May 2006 regarding to machines and that modify directive 95/16/CE (recasting)
- Directive 2014/35/UE of European Parliament and Council of the 26th of february 2014 regarding the harmonization of the UE Countries laws about the the making available on the market of electrical equipment intended to be used within certain voltage limits (recasting)
- Directive 2014/30/UE of European Parliament and Council of the 26th February 2014 regarding the harmonization of the UE Countries laws about the electromagnetic compatibility (recasting)

Cusano Milanino **Legal Representative**

_____ _____

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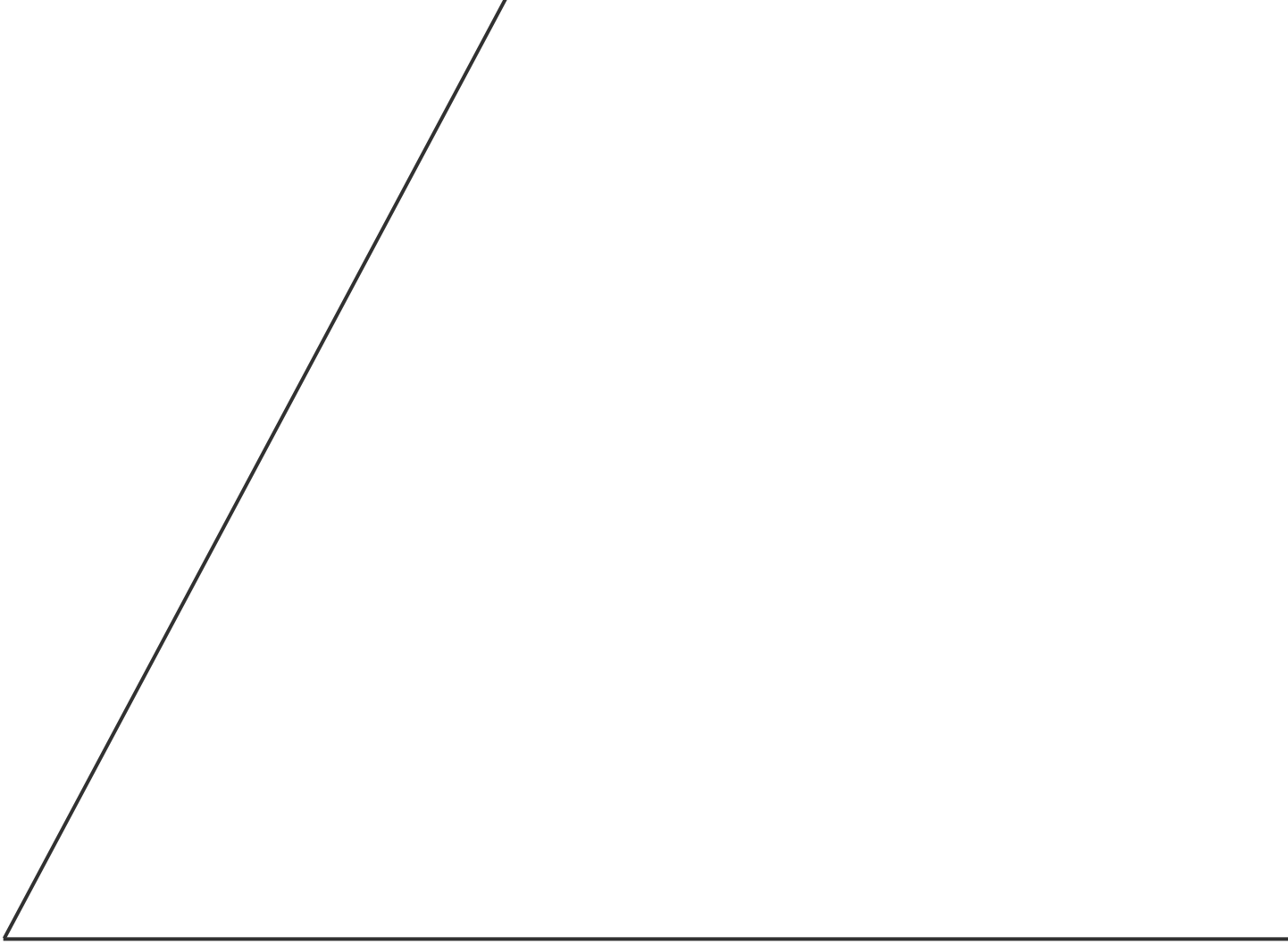


USER AND MAINTENANCE MANUAL

microprocessor control

LMZ08

1 GENERAL INFORMATION

1.1 Introduction

This manual is an essential part of the microprocessor control and is destined to trained and well-informed personnel, which is aware of the machine performance at the risk conditions to which it may be exposed.
This document supposes that in the plants where the machine is destined, are complied the present norms of safety and hygiene of the work.
Zator Srl won't be liable for actions or improper connections made by unqualified and unformed personnel.
Instructions, drawings and documentation contained in this manual are of reserved technical disposition, only for Zator Srl property and may be not reproduced in any way, neither in full or partially reproduction; not translated into another language, or transmitted in any electronic or mechanical means or form, without written permission of Zator Srl.
The data and values expressed in the manual are approximate and variable depending on fluids, applications and methods of use.
Zator Srl doesn't assume any responsibility regarding the accuracy of the contents of this manual.
The drawings and technical data in this document is updated to the date of their publication and Zator srl reserves the right to change, without notice, the contents of this manual.
It is therefore forbidden for Technician and Operators of the maintenance to use this manual for different purposes from those relatives to the care and maintenance of equipment in question.
This manual includes the installation, use and maintenance norms of the microprocessor control in safety.

Test in production workshop

The manufacturer guarantees the machine, that this document refers, has been inspected and tested by his production workshop.

1.2 Warranty

This warranty is valid for 12 months from the actual delivery.
During the warranty period Zator Srl is undertakes to remove in the necessary time the obvious faults and flaws of material and/or production, on condition that machine or equipment has been used properly, according to the best rules of behaviour and maintenance provided in this manual.
The flawed parts under warranty are fixed or replaced free from Zator Srl in the time compatibly necessary, understood that the Zator Srl is exempted from each responsibility for any title, while the buyer give up to ask damages or costs, including those resulting from the temporary not use of the purchased machinery for all the time is necessary to put it back in efficiency; The transport and/or the forwarding costs, the outward and the return trip costs relative to the operation by the Zator's technicians in the Buyer address are always on charge of the buyer.
The labor costs relative to the operation of the Zator's technicians in the Buyer address for the removal of flawed parts under warranty, are on charge of Zator Srl, except these cases when the nature of the flaw can be easily removed on place by the Buyer.
This commitment of Zator Srl excludes each other warranty effects provided by the law.
The warranty for the replaced or repaired spare parts of the microprocessor control finishes the same day of the warranty expiration date of the microprocessor control, the replaced part warranty however doesn't has lifetime less than three months after its installation.
Replaced parts during the warranty period by the seller are free acquired in the same place with new parts.
Are excluded from the warranty all the tools and consumable materials, possibly supplied by Zator Srl with the machine.
It are excluded and renounced by the buyer every pretensions of items/people damages reimbursement on charge to Zator Srl, for any titles, even if the damages were depending from manufacture or material flaws. It's of equal excluded and given up any reimbursement for people and/or items damages depending on the practise of the microprocessor control. Parts replaced free remain of Zator Srl property.
Elapsed the warranty period every operation will be on charge to the buyer.

Application fields

- Packaging machines
- Automation machines
- Paper converting industry
- Case maker industry
- Printing machine
- Tobacco and wood industry
- Assembly
- Food industry

Condemnation of conformity flaw - Goods reception

The original configuration of the microprocessor control never must be changed.
On goods reception, check that:

- The packaging is intact
- The exact correspondence of the commissioned material

In case of damages or wrong delivery contact immediately Zator Srl.
The buyer, on penalty of warranty decadence, must report in writing the flaw conformity or fault of the microprocessor contro to the seller, specifying in detail the nature, within eight days from their discovery.
In no case the condemnation of conformity flaw or fault may be validly made after the expiration date of the warranty terms.
Also the buyer decays from the warranty if doesn't allow each reasonable control that the seller requires.
It's excluded from this warranty the most damage caused to the machine by the failure timely condemnation to the seller of a conformity flaw or fault of the the microprocessor contro.

1.3 Warranty restrictions

This warranty is only valid for products of new construction.
This warranty is limited to the reparation or replacement, by the seller, of each parts of the machine or supplied material that results flawed, after checking the existence of the flaw.
In no case the seller will be liable for every consequential or indirect flaws or otherwise derived from production cycle interruption or machine stoppage.
The seller is not liable for flaws of the microprocessor control derived from the use of devices, equipments, etc. that are enquired and provided by the customer and installed on the machine to change its use compared to the original design.
The seller is not liable for every conformity flaws of the microprocessor control or faults owed for the normal wear of those parts that, by their nature, are subject to rapid and continuous wear.
The seller also is not liable for damages resulting from improper use of the equipment and from the non-observance of the norms expected for the execution of the ordinary periodic maintenance.
The seller is not liable for conformity flaws of the microprocessor control or faults that depends on changes, reparations, alterations or tampering attributed to the buyer and however non-authorized personnel of the buyer.
The costs relative to the wear materials necessary for test and restart the microprocessor control are on charge of the buyer.

1.4 Maintenance service request

Contact:

Technical office of Zator S.R.L.

Via Galvani 11 - 20095 Cusano Milanino (MI) - Italy
e-mail: info@zator.it www.zator.it
Tel.: +39-0266403235 Fax.: +39-0266403215

Always forward the request in writing (fax or email) and give all the information to identify the machine object of the request:

- **Model**
- **Serial number**

Please refers to the frontispiece of this manual or directly to the nameplate on-board to the machine or to the serial number of the microprocessor control.

1.5 Spare parts request

The customer is responsible to purchase original spare parts that guarantee him to keep efficient and safe the microprocessor control.
The disassembly and assembly operations must be performed according to the manufacturer's instructions.
Contact the Technical Office of Zator Srl which will give to you the specifications to do the request of the parts and will provide the information about their replacement.
To order the spare parts is necessary to report completely all identification data of the microprocessor control and those of spare part to be replaced.

The illustrations in this document are for example.

2 SAFETY RULES AND REGULATION

The *LMZ08 control* is designed and manufactured in compliance with the current safety standard. Only trained personnel is authorized to install and use the control. For the LMZ08 control are provided only and exclusively the application fields describe in this manual. All data and parameters indicated in this manual must be respected. Any other use is considered improper.

All operation with the LMZ08 control must be carry out in compliance with the following current safety norm written in part:

1. Rules of fire prevention
2. Directive 2006/42/CE of European Parliament and Council of the 17th of May 2006 regarding to machines and that modify directive 95/16/CE (recasting)
3. Directive 2014/35/UE of European Parliament and Council of the 26th of february 2014 regarding the harmonization of the UE Countries laws about the the making available on the market of electrical equipment intended to be used within certain voltage limits (recasting)
4. Directive 2014/30/UE of European Parliament and Council of the 26th February 2014 regarding the harmonization of the UE Countries laws about the electromagnetic compatibility (recasting)
5. Rule 2016/425/UE of the 9th of March 2016, about the personal protection equipment and that abrogates the directive 89/686/CEE of the Council

2.1 Safety and environment general informations

Before the start-up of the microprocessor control unit the personnel must be adequately informed and trained on its use, direction and start-up process, as well as the safety norms to be performed and also observe how it is prescribed in this document and in other documents possibly attached to the microprocessor control unit.
The employer must provide to instruct the personnel on the risks of injury, on safety devices and accident prevention general rules provided by the community directives and the legislation of the country where the microprocessor control unit is installed.

CAUTION: Always disconnect the power supply before proceed to carry out any maintenance or adjustment operations. Discharge the fluid pressure before to proceed to carry out any maintenance or adjustment opertions.

2.2 P.P.E. Personal protective equipment

For personnel who will work on the microprocessor control, for any functions (installation, assembly, demolition, maintenance and operation) they will be provided with appropriate **P.P.E.** - Personal protective equipment of type approved and certificate by C.E.:

- **anti-solvent gloves**
- **cut resistant gloves**
- **masks**
- **coverall (no floating coverall)**

CAUTION: The clothes of who will operate on the microprocessor control for any functions must be in compliance with the essential safety requirements defined by the regulation 2016/425/UE of 9th of May 2016 and by the actual laws in the country of use.

2.3 Risks, protections, warnings and cautions

2.3.1 General safety

It means for:

DANGER ZONE = area within or near the microprocessor control where the presence of an exposed person make a risk to the safety and health of himself.

EXPOSED PERSON = any person that is placed entirely or partially inside a danger zone.

OPERATOR = person who is appointed to install, operate, adjust, perform ordinary maintenance and clean the machine.

All risk areas of the microprocessor control have been checked and consequently have been taken the necessary precautions to avoid risks to people and damage to the components of the microprocessor control.

Safety glossary

Intended purposes
By this term it refers to the use of the machine as described by the manufacturer.
For “intended purposes” also refers to the use of the unit through its design, its construction and function.

Secondary risks
Secondary risk are unavoidable despite all the preventive measures that are taken.

Trained personnel
A person is competent when it acquired sufficient knowledge in a specific field both through the professional instruction and with the experience. A competent person must get to know with the specific norms for the safety on work and for the accident prevention and generally with the technical knowledge rules.

Trained personnel
A person is trained when informed by a competent person about the activities it must perform and the risks relative to improper behaviour and, if necessary, it has received the required training. Also a trained person must be informed about the safety devices and protective measures.

Skilled personnel
A skilled person is a competent one or sufficiently trained.
The operator must be informed of the position and operation of all commands and features of the microprocessor control unit.
The maintenance and start-up operations must be performed by qualified technicians after properly setting up the microprocessor control unit.
The unauthorized tampering or replacement of one or more product parts, the adoption of accessories that modify the original use of the microprocessor control unit and the purpose of different consumer product from those recommended in this manual, can become a cause of injury risks.
The protective devices must not be removed or tampered for the risk to reduce the accident prevention features of our products.

To highlight particular situations for the safety of the microprocessor control unit, the following graphic symbols are used:

CAUTION and/or DANGER – Accident prevention rules for the operator

R. R. – RESIDUAL RISKS

WARNING - There is the possibility to damage the machine and/or its components
PRECAUTION - Further information about the operation in progress
NOTE - Provides useful information

2.3.2 Unavoidable dangers and risks unavoidable

On the microprocessor control unit also equipped with protection systems remain the following **R. R. RESIDUAL RISKS**:

A - Danger due to electricity in general

B - Danger due to inhalation of dangerous vapours to health and fire danger

C - Danger due to problems/malfunctions of microprocessor control unit
This can lead an excessive increase of dispensing of glue as well as a fire danger or dangers due to inhalation of dangerous vapours to health.

D - Risk due to the projection of fluids under pressure
In case of improper maintenance of the hydraulic system parts.

E - Risk of fire
Prohibition of smoking and/or high temperature objects near the microprocessor control unit.

2.3.3 Safety devices adopted

In order to safeguard the health and security of the exposed people, the microprocessor control unit is equipped with:

- Fixed guards: removable only by tools
- Mobile guards: depending on the model of microprocessor control

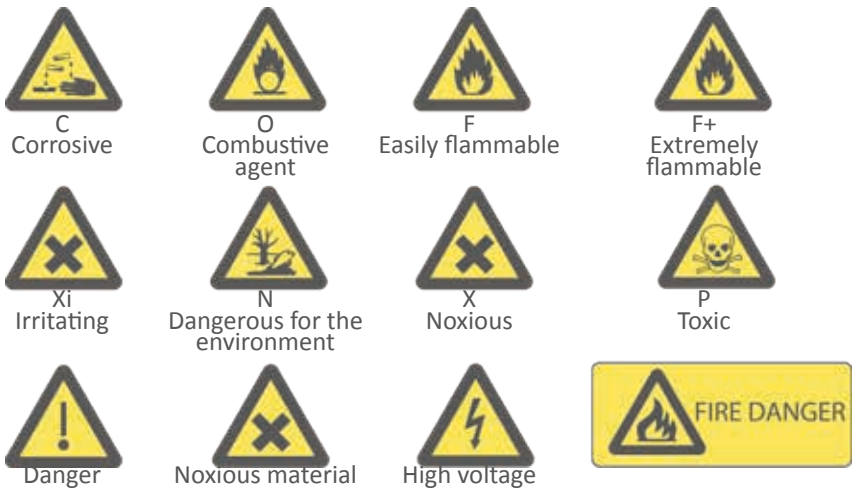
The microprocessor control unit can be equipped with area delimiters that prevent operator access to dangerous areas (see **R.R.**).

2.3.4 More general safety precautions

CAUTION: The maintenance operations must be peremptorily carry out by qualified and authorized personnel, only and exclusively with microprocessor control unit turned off: power switch in “OFF” position.
Make sure the passages around the microprocessor control unit are not hindered by misplaced cables and dangerous for personnel.
The user must always put available to the operators, in the areas that require it, safety googles, gloves, and any other necessary protections; it must also make sure that these safeguards are being used.
The areas that require the use of protective clothing must be marked with warning signs and pictograms indicating the residual risk.

CAUTION: is ABSOLUTELY FORBIDDEN to tamper or remove the plates and the protections on the microprocessor control unit.
The manufacturer declines all responsibility for the safety of the microprocessor control unit in case of omitted observance of the prohibition.

CE norms signage: examples of danger symbols



2.4 Environmental condition

Operating environmental conditions
The microprocessor control unit is designed to operate in a closed local, protected from the atmospheric agents, with all the safety requirements resulting from the laws in force.

Waste disposal
The buyer is responsible to follow the correct process and the norms in force in the country for the disposal of waste and residual material.

Disposal
The pick up of special and/or toxic-noxious waste must be committed with contract to specifically authorized companies and who do the transport materially must be in ownership of the required authorizations and must be turn out to be registered in the haulers register.
It's absolutely forbidden to throw waste in the environment.
For the disposal of the packaging, the user must follow the laws in force in the country of plant installation.

Fire material
There is no fire dangers by the operation of the microprocessor control unit.

CAUTION: The customer must provide an appropriate fire-fighting system, evaluating its internal situation and respecting the laws in force. In case of fire, disconnect immediately the power switch to interrupt the power supply.

CAUTION: explosive atmosphere
The electromagnetic valve is not designed to operate in explosive atmosphere. It is forbidden to use the machine in an explosive atmosphere, even if only partially explosive.

Lighting
The customer is responsible for ensuring an appropriate lighting of the local where the microprocessor control unit is installed, according to the laws in force in your country and the UE directives.

Vibration
The microprocessor control unit doesn't make vibrations.

2.5 Installation - General instructions

Zator's products are manufactured in compliance with the laws in force during its construction.
The personnel will be trained and qualified to take advantage of the installed microprocessor control unit requirements.
The personnel must operate in a comfortable space that could be guarantee safety and hygiene for the operator.
In case of a different destination or necessity of use of the microprocessor control unit, it's appropriate to refer to the technical offices of the Zator Srl.

Goods in packaging
Outside the package are indicated all the information about the content identification and the safety movement:

- address of the sender and the addressee
- dimensions: length – width – height
- gross – net – tare weight
- annotations and pictograms (ex. brittle, handle with care, high)

CAUTION: The customer must check the condition of the goods upon its arrival.

Predispositions: choose the installation space
Without prejudice to specific dispositions, the customer will be provide to:

- Appropriate logistic arrangement for the placement and conduction of the microprocessor control unit
- Power supply, including the protective conductor usually called "GROUNDED"
- Electrical equipment arrangement and possible pneumatic system, if required
- Wear materials

For the electrical connection it is necessary to have a preferential line of power supply with the features listed in "technical features".

3 TECHNICAL DESCRIPTION

3.1 Instrument functions

The *LMZ08 microprocessor control* has been designed and realized for the use on various kind of production machines operating at high speed.
Its design and versatility make it ideal whenever a production process requires that manufactured products need **precision applications** of cold glues by means of programmable glue valves.

The control unit can store up to **50 different gluing pattern programs** and may operate up to **four independent glue valves (channels)**, each one having the possibility to produce **four or eight different glue patterns**. The glue valves may deposit **glue lines or glue dots** up to a programmed speed at which dots will, automatically, convert to lines.

The microprocessor control can be used with two different modes:
- **Encoder mode**: with the use of a machine speed detector (encoder) whenever machines may run at variable speeds;
- **Timer mode**: without encoder, if the production machines are designed to run at constant speed.

The working cycle begin with the “start” (photocell) reading the first blank to glue: at this point, the control unit will activate the glue valves as defined by the programme set for each valve. The same sequence is then repeated for all following single blanks.
Positioning and quantity of glue dots or lines are all exactly obtained thanks to the encoder device which, permanently feeding the control unit with the current machine speed, will permit the constant monitoring of correct gluing at any speed. Being the control unit provided with two single photocells or start sensors input, each glue valve may be employed with a specific own “start”.

The **window function** allow appropriate gluing of blanks carrying parts in absence of carton’s continuity (windows, cuts, etc) which, otherwise, would cause misreading of a start signal.

The equipment is also provided with a **0-20 mA output** for the employment of a proportional valve which will permit to compensate the pressure and, consequently, the quantity of the glue output in function of speed variations.
To compensate the displacement of the glue patterns at different speed, can be set **compensation values** in milliseconds, dependent by the type of valve and the distance between the valve and the product to be glued.
It also has an additional output for a signalling lamp, or the activation of a 24Vdc relay, useful to keep glue level under control in pressurized tank with pneumatic pumps provided with a sensor for the signalling of low glue level.
If the glue valves utilize a nozzle protection shutter device, the equipment will automatically activate the shutter device in absence of units to be glued or when the machine is stopped.

The **test function** can run directly from the control a valve cleaning cycle required after long periods of rest or to verify the efficiency of the valves.

The **simple and intuitive design** of graphical interface, combined with a **touch panel display** with different languages (where messages are displayed on the various menus), simplify programming and learning of the basic functions instrument.

3.2 Technical data

power supply

Supply voltage	Single phase 230Vac ±10%
Frequency	50/60 Hz
Connected output	250 W

input

Start sensors	8
Encoder	1
Reset	1
Glue level	1
Voltage	+24 Vdc
Type	pnp

output

Glue valves (channels)	8
Voltage	+ 24/48 Vdc
Max power for each channel	25 W
Proportional valve	1
Type	0÷20 mA
Aux output (Nr.1)	Glue level Shutter Aux1 Aux2
25 poles multi-connector for valves	1
Switching voltage	24 Vdc
Max current	0,5 A

data connection

Ethernet plug	1

working models

- encoder
- timer

programmable versions

- packaging
- collator

machine features

Max machine speed	700 m/min
Application accuracy	± 1 mm
Max glue pattern programs stored	50

operating conditions

Temperature	0÷50°C
Relative humidity	20÷60%

weight

8 kg

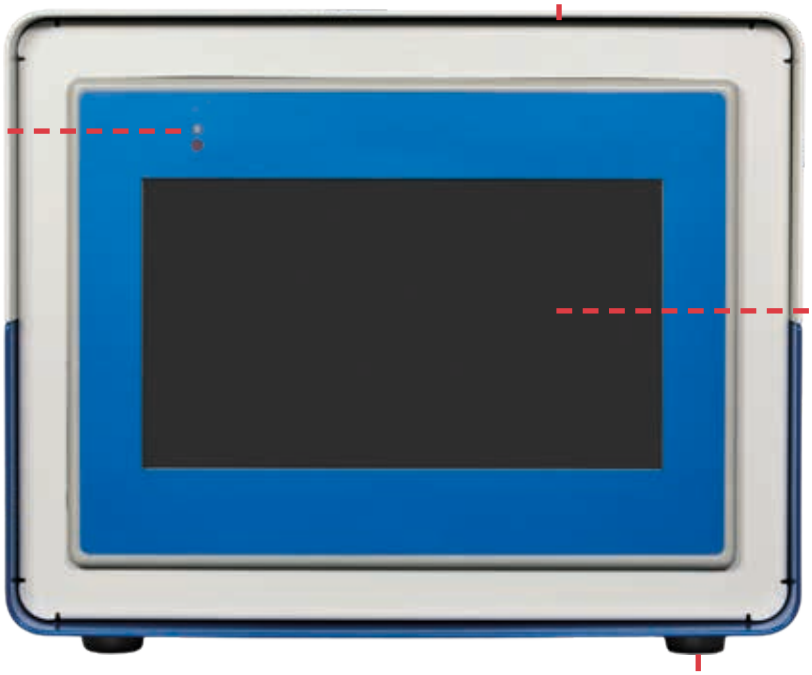
display

Dimension	10“ TFT
Resolution	800 x 480 pixels
Brightness	350 cd/m²
Contrast	500:1
Touch type	4 wires resistive
Power consumption	300 mA @ 24V
Frontal protection	IP 65

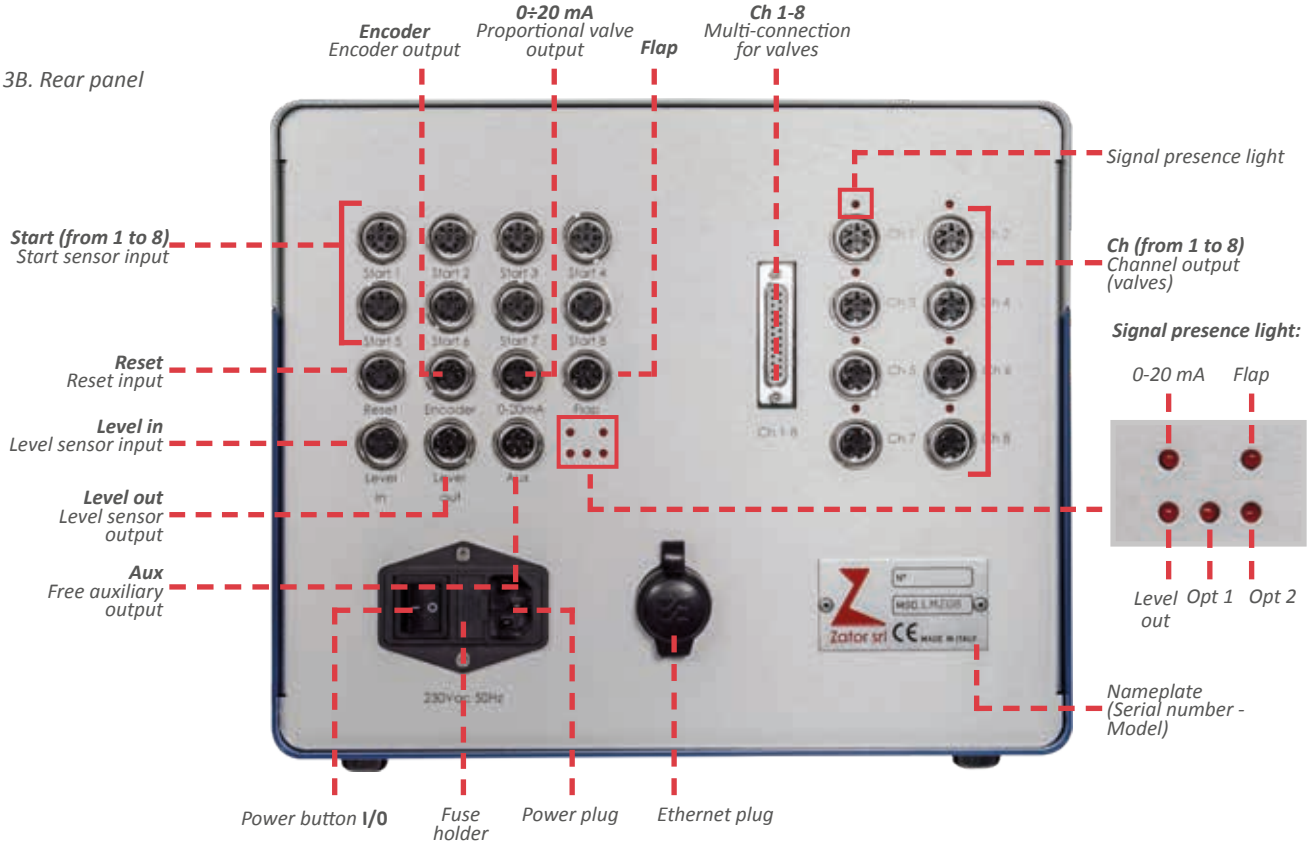
3.3 Instrument overview

Entering/editing of the parameters and access to all menus and sub-menus of the software take place from the ***front panel*** [3A] thanks to touch screen. On the ***rear panel*** [3B] there are all inputs/outputs and relative presence signal lights, the power button, the power plug and the instrument nameplate.

3A. Front panel



3B. Rear panel



3.4 Icon legend

The following list shows all the icons displayed on the screen, divided according to the various menus of the instrument. Each icon has a identification number that it will be used on the following pages of this manual as a reference to this paragraph.

01  HOME screen

02 
TIMER MODE

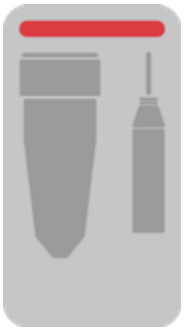
03 
ENCODER MODE

04 
PROGRAM N°

05 
VERSION

06 WINDOW mm
EDIT WINDOW LENGTH
(only for PACKAGING and PACKAGING 2 version)

07 FORMAT mm
EDIT FORMAT LENGTH
(only for COLLATOR version)

08 
VALVE OFF

09 
VALVE ON

10 
PHOTOCELL SIGNAL

11 
GLUE DISPENSING IN PROGRESS

12 
TEST

13 
SETUP

14 
VALVES

15 
PROGRAM MENU

16 
COMPENSATION

17 

PRESSURE
(only for ENCODER mode)

valve PROGRAMMING MENU

18

VALVE ON

19

VALVE OFF

20

No. PHOTOCELL ASSIGNED

21

START GLUE PATTERN DISABLED

22

END GLUE PATTERN DISABLED

23

SPACE BETWEEN GLUE DOTS DISABLED
(only for dots valve type)

24

START GLUE PATTERN ENABLED

25

END GLUE PATTERN ENABLED

26

SPACE BETWEEN GLUE DOTS ENABLED
(only for dots valve type)

27

LINE GLUE PATTERN DISABLED

28

DOTS GLUE PATTERN DISABLED

29

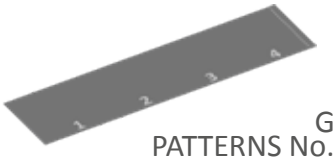
LINE GLUE PATTERN ENABLED

30

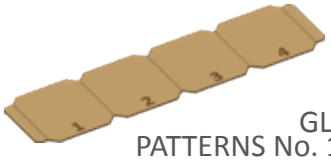
DOTS GLUE PATTERN ENABLED

31

VALVE-PHOTOCELL OFFSET

32


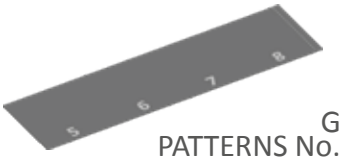
GLUE PATTERNS No. 1-4
(COLLATOR version)

33


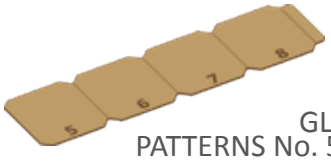
GLUE PATTERNS No. 1-4
(PACKAGING and PACKAGING 2 version)

36

TAPE WORK DIRECTION

34


GLUE PATTERNS No. 5-8
(COLLATOR version)

35


GLUE PATTERNS No. 5-8
(PACKAGING and PACKAGING 2 version)

37

TAPE ROLLER

38

NEXT PAGE
(only for GLUE PATTERNS No. 5-8 ENABLED)

39

PREVIOUS PAGE
(only for GLUE PATTERNS No. 5-8 ENABLED)

40 

WRITE PARAMETERS (mm)
(ENCODER mode)

41 

WRITE PARAMETERS (ms)
(TIMER mode)

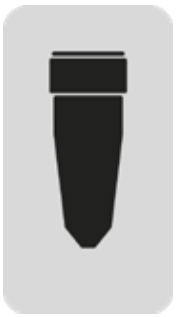
42 

COPY VALVES MENU

42  COPY VALVES menu

43 

SOURCE VALVE PROGRAM

44 

DESTINATION VALVE PROGRAM

45 

DIRECTION OF DATA TRANSFER

46 

PREVIOUS PAGE

47 

CONFIRMATION COPY

48 

COPY IN PROGRESS - WAIT

49 

COMPLETED COPY

12  TEST menu

50 

FREQUENCY (dots/second)
(only for DOTS TEST)

51 

TEST MODE

52 

DOTS TEST

53 

LINE TEST

54 

SELECTION BUTTON DISABLED

55 

SELECTION BUTTONS ENABLED

56 

VALVE TEST ON

57 

VALVE TEST OFF

13

SETUP menu

58

SECURITY CODE

59

SELECTION BUTTONS

60

FUNCTION OFF

62

ENCODER RATIO (mm/imp)

63

CONVERSION FROM DOTS GLUE TO LINE GLUE (m/min)

61

FUNCTION ON

64

mm/imp

EDIT ENCODER RATIO

65

m/min

EDIT CONVERSION FROM DOTS GLUE TO LINE GLUE

66

No. OF GLUE PATTERNS PROGRAMMABLE

67

SOFTWARE (INFORMATION)

68

LANGUAGE SELECTION

69

REMOTE TEST

67

SOFTWARE menu

70

SOFTWARE VERSION INSTALLED

71

HARDWARE CODE OF INTERFACE CARD

46

PREVIOUS PAGE

68

menù SELEZIONE LINGUA

72

SELECT DESIRED LANGUAGE

46

PREVIOUS PAGE

14 

VALVES menu

73 
VALVE N°

74 ------ Line
VALVE TYPE ASSIGNED

75 
OPEN DROP-DOWN MENU

76 
VALVE SETUP

76 

VALVE SETUP menu (only for ENCODER mode)

77 
USER N°

78 
ACCESS CODE

46 
PREVIOUS PAGE

79 
LOGIN DISABLED
(insert correct CODE and USER No.)

80 
LOGIN ENABLED
(correct CODE and USER No.)

81 
WRITE PARAMETERS

82 

VOLTAGE (%)

83 

PEACK TIME (ms)

73 
VALVE N°

84 

AMPERE LIMIT (A)

85 

DOTS GLUE SIZE
(only for dots valves type)

86 
LOGOUT - EXIT

15 PROGRAMS menu

87 PROGRAM VIEW	88 WRITE/MODIFY PROGRAM NAME	89 LOAD PROGRAM
90 SCROLL UP PROGRAMS (-1)	91 SCROLL DOWN PROGRAMS (+1)	92 CONFIRM LOADING PROGRAM
93 TEXT BOX	94 LOADING IN PROGRESS WAIT	95 CANCEL LOADING PROGRAM

87 PROGRAMS VIEW menu

96 GLUE PATTERN N°	73 VALVE N°	97 START GLUE PATTERN
100 OPEN PROGRAM	90 SCROLL UP PROGRAMS (-1)	98 SPACE BETWEEN GLUE DOTS (only for dots valve type)
101 NEXT PAGE	91 SCROLL DOWN PROGRAMS (+1)	99 END GLUE PATTERN
102 PREVIOUS PAGE		

16

COMPENSATION menù

81

WRITE PARAMETERS

103

OPENING COMPENSATION (ms)

104

CLOSING COMPENSATION (ms)

73

VALVE N°

17

PRESSURE menu (only for ENCODER mode)

81

WRITE PARAMETERS

105

SPEED (m/min)

106

PRESSURE (%)

107

MINIMUM SPEED - LOCK DISPENSING GLUE

108

SPEED 1 / PRESSURE 1

112

SPEED/PRESSURE DIAGRAM

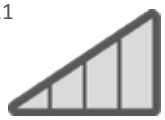
109

SPEED 2 / PRESSURE 2

110

SPEED 3 / PRESSURE 3

111



SPEED 4 / PRESSURE 4

QUERTY keyboard

113

UPPER-CASE QUERTY KEYBOARD

114

LOWER-CASE QUERTY KEYBOARD

115

ENTER / CHANGES CONFIRMATION

116

ESC

CLOSE WINDOW / CANCEL CHANGES

118

BACKSPACE

117

SPACE BAR

119

UPPER-CASE ACTIVATED

120

LEFT ARROW

121

RIGHT ARROW

122

LOWER-CASE ACTIVATED

NUMERIC keypad

123

NUMERIC KEYPAD
(for integer value)

124

DECIMAL NUMERIC KEYPAD
(for decimal value)

115

ENTER / CHANGES CONFIRMATION

116

ESC

CLOSE WINDOW / CANCEL CHANGES

118

BACKSPACE

125

VALUE SETTABLE LIMITS
(LOWER LIMIT and UPPER LIMIT)

4 BASIC KNOWLEDGE

4.1 Turning on/off

1. Check the power cable is plugged in the power supply and in the power plug of the instrument. Turning on the control with ***power button I/0***[4A] on the rear panel.

4A. Power button I/0:
Push I for turning on
Push 0 for turning off

2. After you press the power button, from the front panel the ***power presence signal light***[4B] turns on.

4B. Power presence signal light: the light turns on when you push the power button

Light OFF - Instrument OFF

Light ON - Instrument ON

3. Wait a few seconds the software loading until the ***home screen*** [4C] appears on screen: now you can operate on the instrument through the display with your fingers.

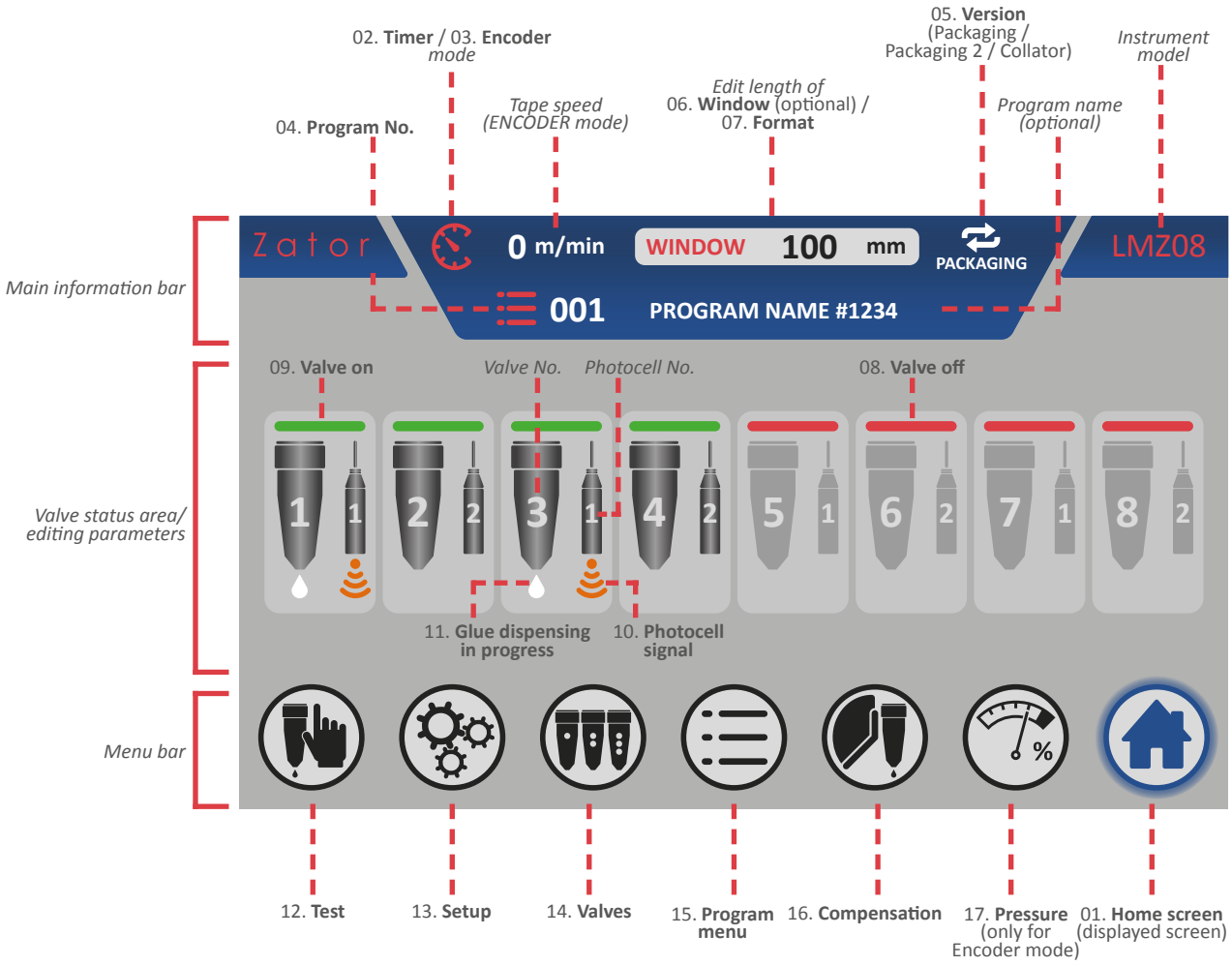
4C. Home screen: home screen example, also used during the production.

The touch-sensitive area is included in the display dimension.

4.2 Home screen

The home screen shows the main information of the instrument and you can control the valve working. The screen is divided in three different area:

- *main information bar* (top)
- *valve status area/editing parameters* (centre)
- *menu bar* (bottom)



Through the *menu bar* you can go in the different main menu of the instrument. When you tap on the relative icon, the selected icon lights up blue, so it indicates the present displayed screen.

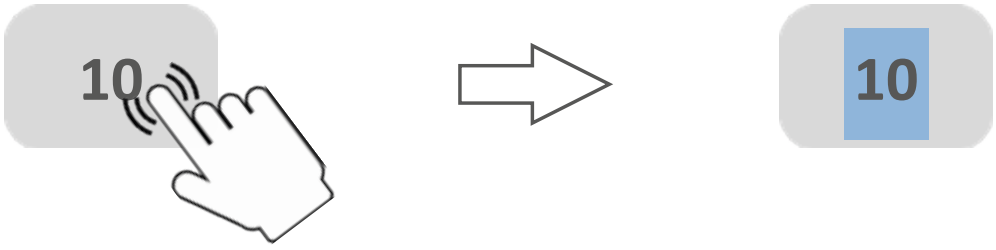
4.3 Insert/modify parameters

In the different menu are displayed the setting parameters that control the instrument. Likewise, in some screen is requested an access code. These parameters are displayed in a ***data box*** [4D].

4D. Examples of data boxes that you can find in different menu of the instrument.

To modify or insert a parameter in the data box:

1. Tap on the relative data box you want to edit. The value is selected by the system;

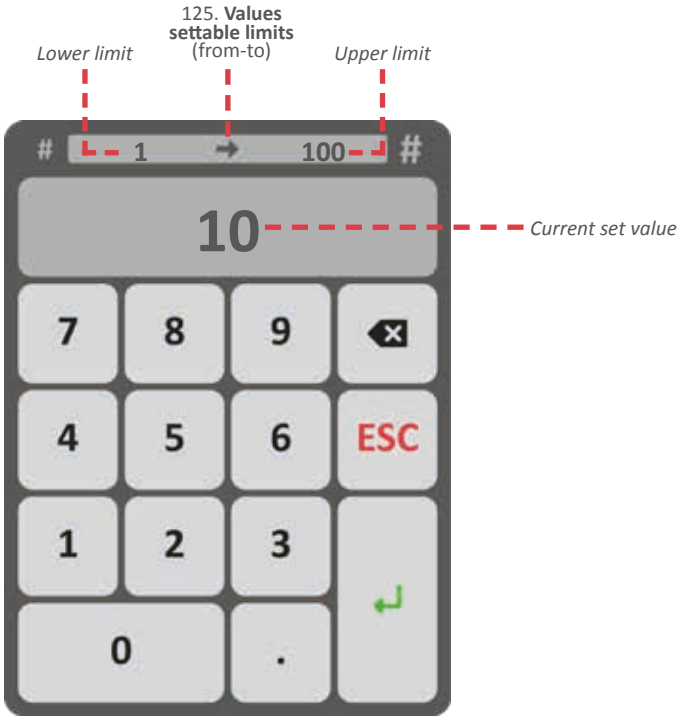


2. Depending on the selected parameters, it appears on screen the ***numeric keypad*** [4E] (for integer values) or ***decimal numeric keypad*** [4F] (for decimal values);

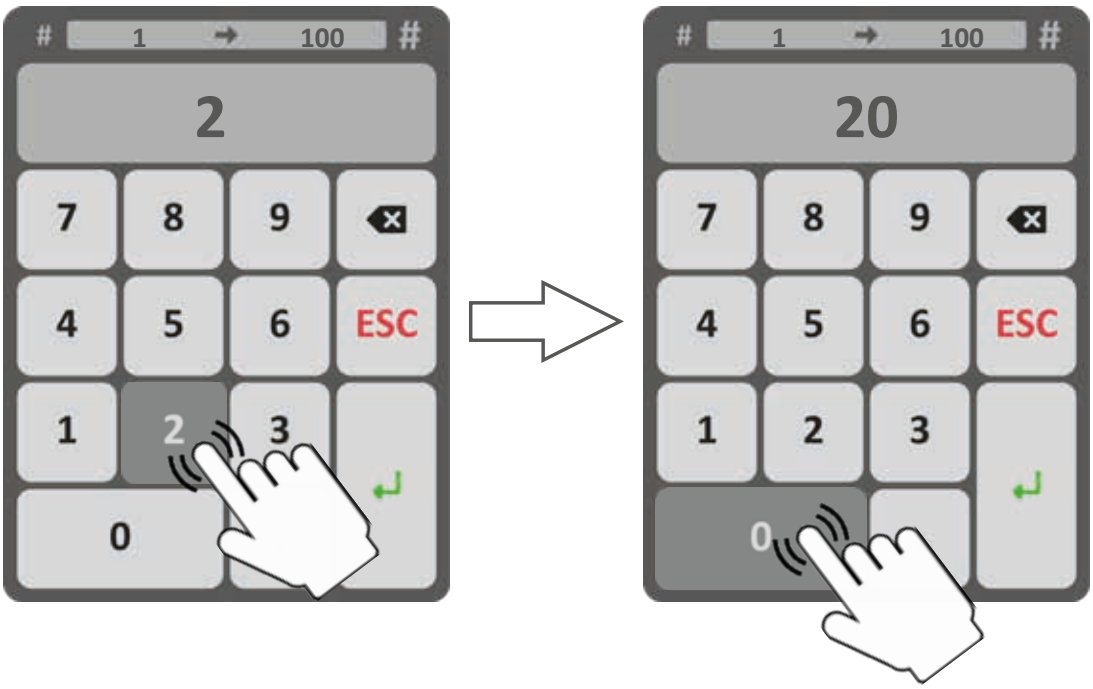
4E. Numeric keypad for integer values

4F. Numeric keypad for decimal values

3. To know which values you can enter, there is a bar on the top of the numeric keypad that shows the ***values settable limits***: the instrument not allow to write some values outside of these limits;



4. Then insert your desired value using the number (ex. 20). The system overwrite last value with the new value;

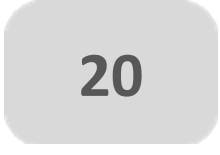


5. To cancel a number/some numbers, tap ***backspace***;

6a. Tap ***Enter*** to confirm the changes and exit from the window;

6b. Or tap ***ESC*** to exit from the window and cancel the changes;

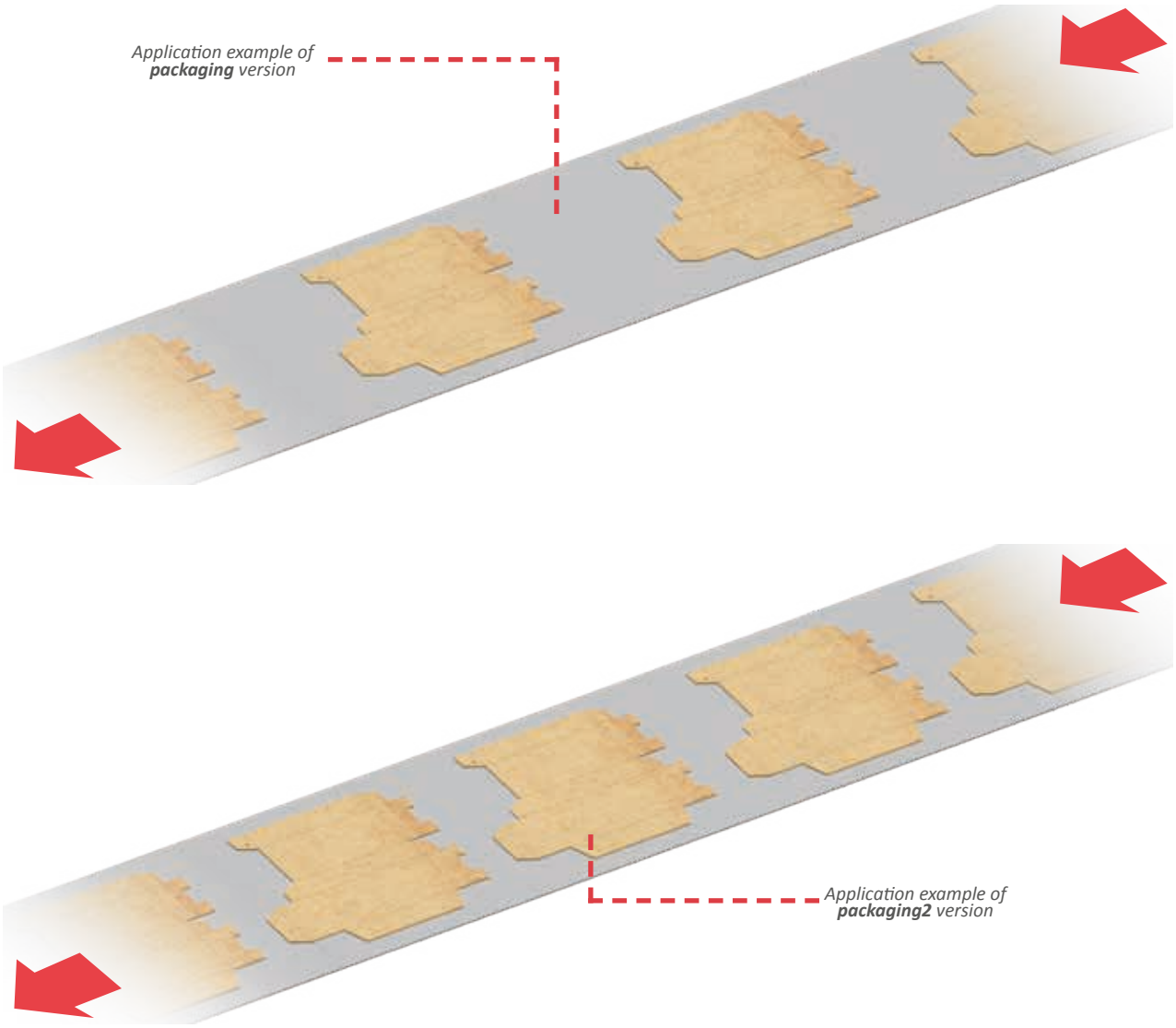
7. The new value of parameter is showed into the data box.



5 VALVES PROGRAMMING – ENCODER MODE

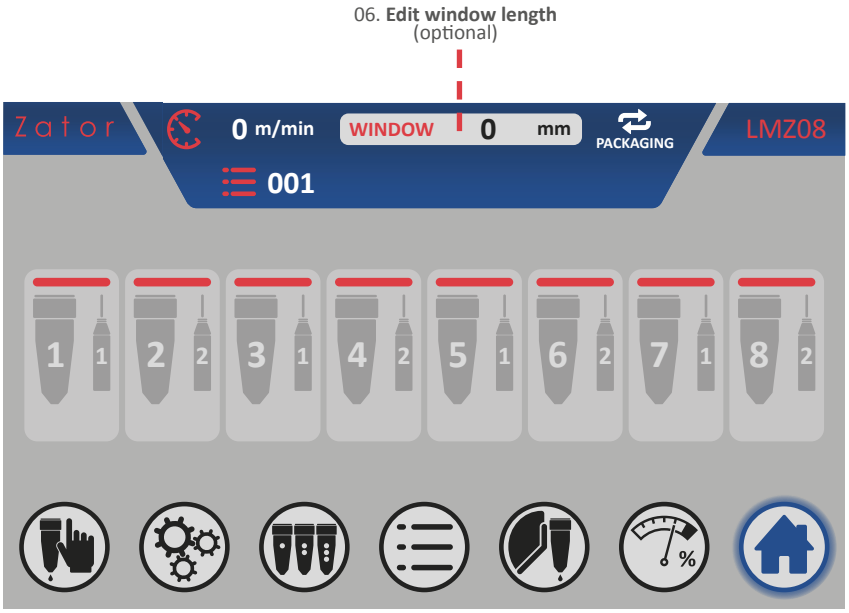
5.1 PACKAGING - PACKAGING2 version programming

The *packaging* version programming has to be used in case of single boxes, separated from each other. Likewise, the *packaging2* version programming has to be used when the single separated boxes are very close to each other.



5.1.1 Window function (optional)

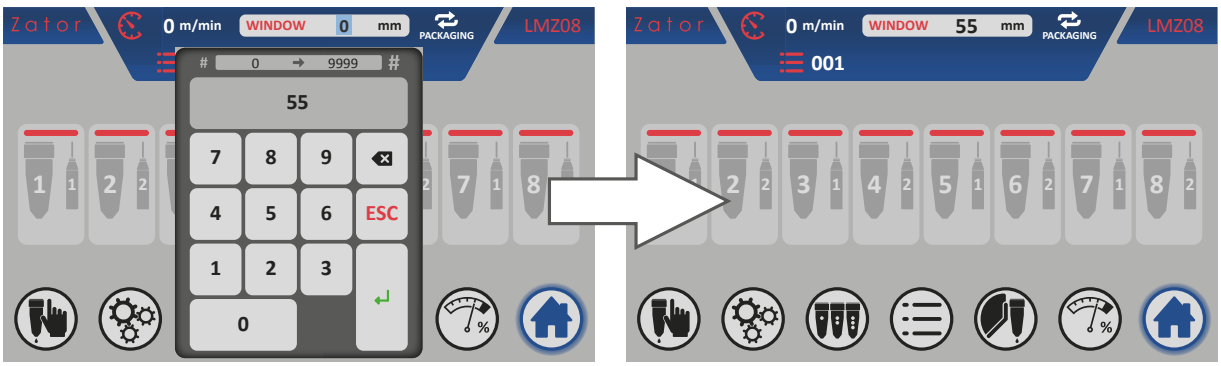
In case of glue application on boxes with window or other cuts near the start sensor, the instrument could receive the start signal several times, then could work the glue pattern program as much times on the same box.
By activating the ***window function*** (see *section 13.4 - Window*), every start signals that will come after the first, they will be ignored for all through window length setted (in mm) and displayed in the *home screen*.



To insert/modify the *window length*:

1. From *home screen* tap **WINDOW mm** ;
2. By the on screen *numeric keypad* insert/modify the value (ex. 55 mm), then tap *enter* to confirm;

Settable values: from 0 to 9999 mm



3. In the *home screen* the changed value of the parameter is updated.

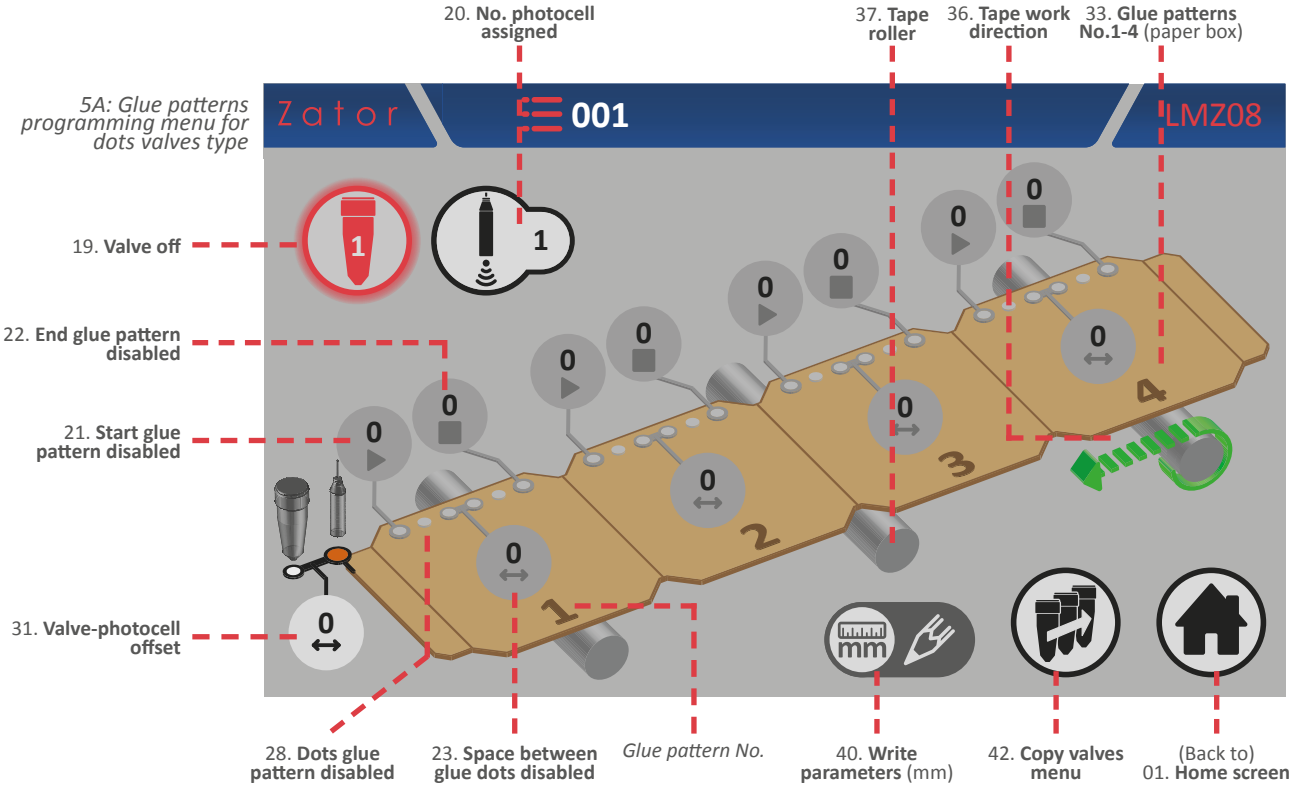
5.1.2 Programming menu with 4 glue patterns

From the *home screen* tap  or tap  to enter the *glue patterns programming menu* of desired valve.

Depending on the valve type assigned (see *section 9.1 - Change the valve type*) is displayed the ***glue patterns programming menu for dots valves type*** [5A] or the ***glue patterns programming menu for line valves type*** [5B] (see following page).

These menu show with a schematic way a three-dimensional view of the machine and the type of application is setted (relative to the current setting of the instrument) that consist of:

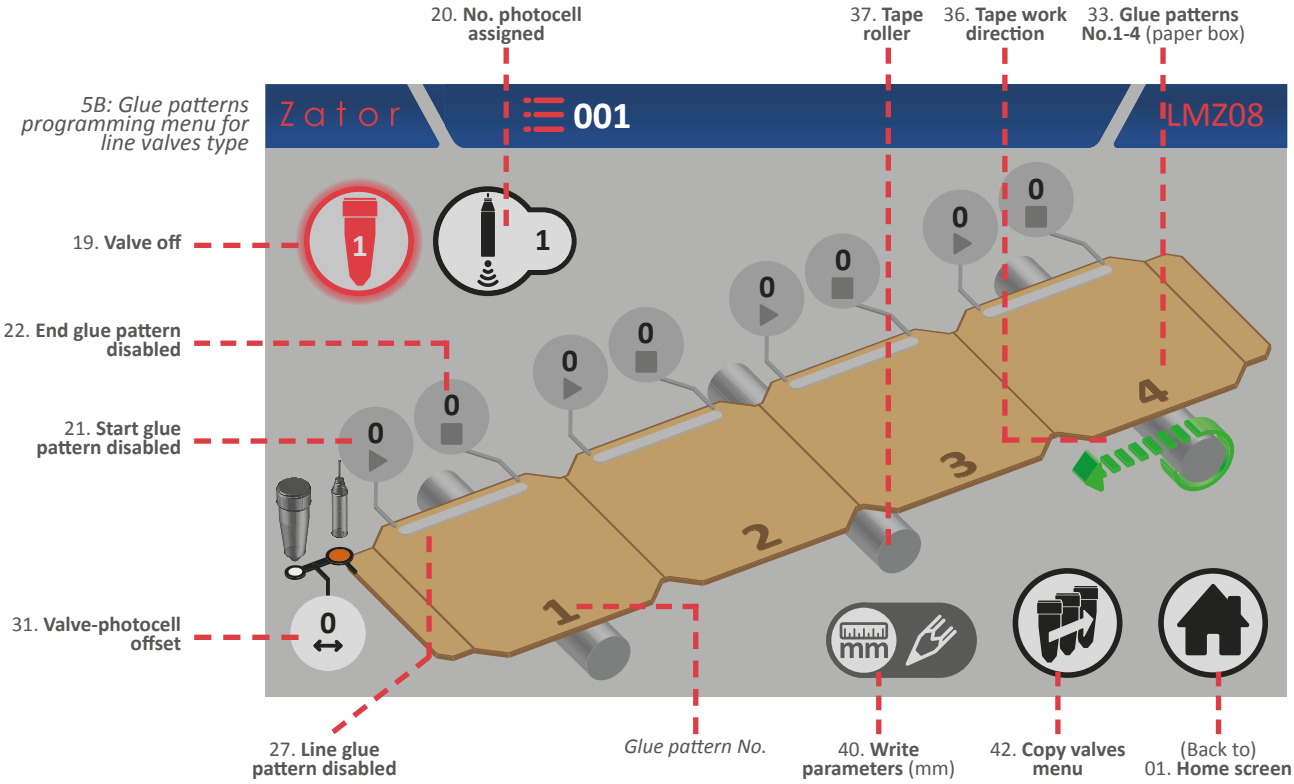
- on/off valve button;
- start sensor number assignment (photocell);
- box to be glued;
- glue patterns programmable (*dots or lines*) and relative distances;
- tape roller and tape work direction;
- valve and start sensor (photocell) and relative offset distance;
- copy valve program button.



The ***write parameters*** icon indicates the measurement unit of the glue pattern programmable distances and the valve-photocell offset distance, which in the encoder mode is millimetres.

A *dots glue pattern* is defined by:

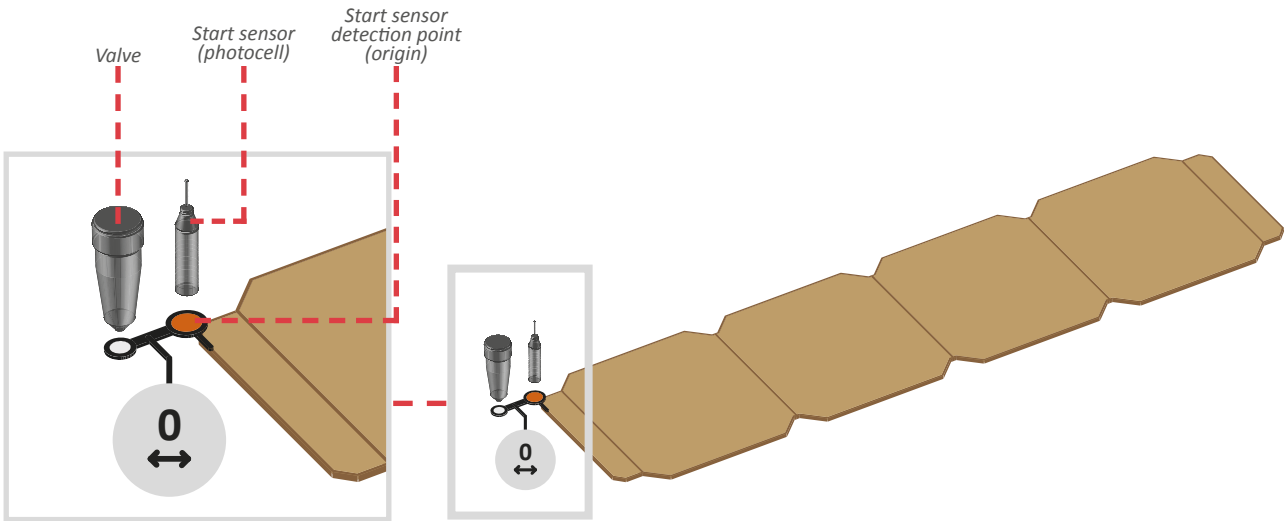
- Start: starting distance of single glue pattern (mm)
- Space: distance between dots in the pattern (mm)
- End: final distance of single glue pattern (mm)



A *line glue pattern* is defined by:

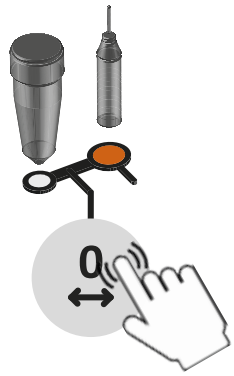
- Start: starting distance of single glue pattern (mm)
- End: final distance of single glue pattern (mm)

To determinate the correct dots/line glue pattern position (therefore their distances) the **measures have to be calculated from the beginning of the box** (which can be defined as the origin) where the start sensor (photocell) detect it.



5.1.3 Offset

This parameter (default value is set to 0) indicates the distance (in mm) between the start sensor (photocell or similar device) and the nozzle of the valve. The start sensor must be installed before or on the same line of the valve nozzle.



Insert/modify offset

To determinate the offset value, measure its distance: to enter or modify the value, tap on the relative data box and with on screen *numeric keypad* insert/modify data, then tap *enter* to confirm.
This parameter must be insert for each installed valve.

Settable values: from 0 to 9999 mm

5.1.4 Start sensor

The control is provided with two inputs for start sensor (photocell, magnetic sensors, contacts,etc.). According to different applications, it's possible to use one or two sensors, then for each valve is necessary to link a start sensor.

Assign/modify No. photocell assigned

To assign/modify the value, tap on relative data box and with on screen *numeric keypad* insert/modify data, then tap *enter* to confirm.

Settable values: from 1 to 8

5.1.5 Turning on/off the valves

After enabling the glue pattern (see *sections No.1 glue pattern programming*) it's possible to switch on the selected valve. From the *glue pattern programming menu*:

- Tap  to **turning on the valve**;
- Tap  to **turning off the valve**;

From the *home screen* it's possible to check if the valve is on  or off  .

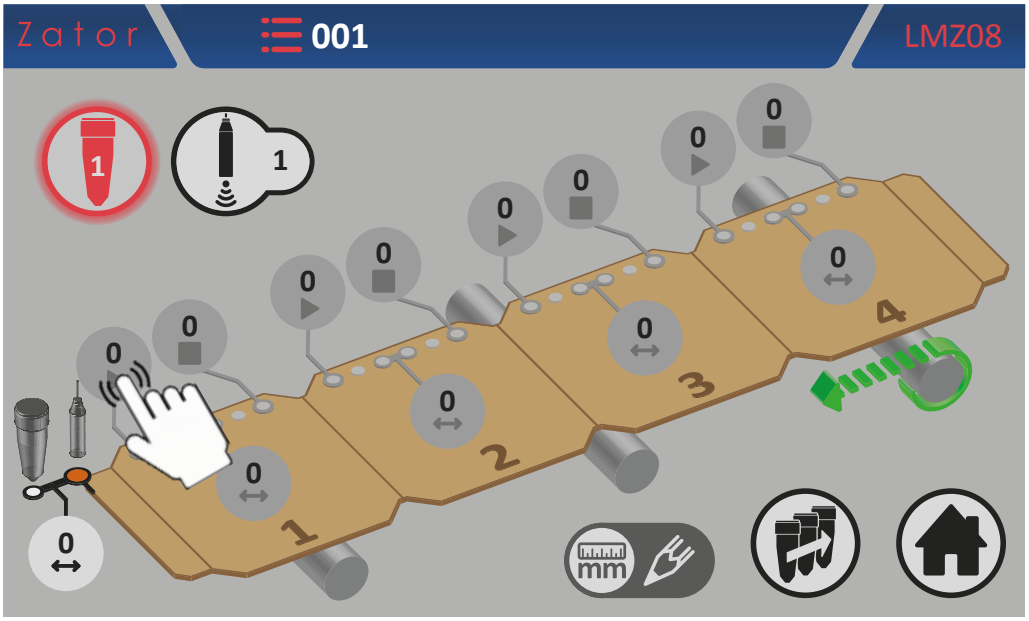
5.1.6 Glue patterns programming for dots valves type

5.1.6.1 No.1 glue pattern programming - Enable glue pattern

Every glue pattern distances are setted with default values to 0. Then the glue patterns are visible but they are disabled. **Is not possible to activate the selected valve until the glue patterns are enabled.**

To enable the glue patterns is necessary insert the *start* parameter of the glue pattern No.1:

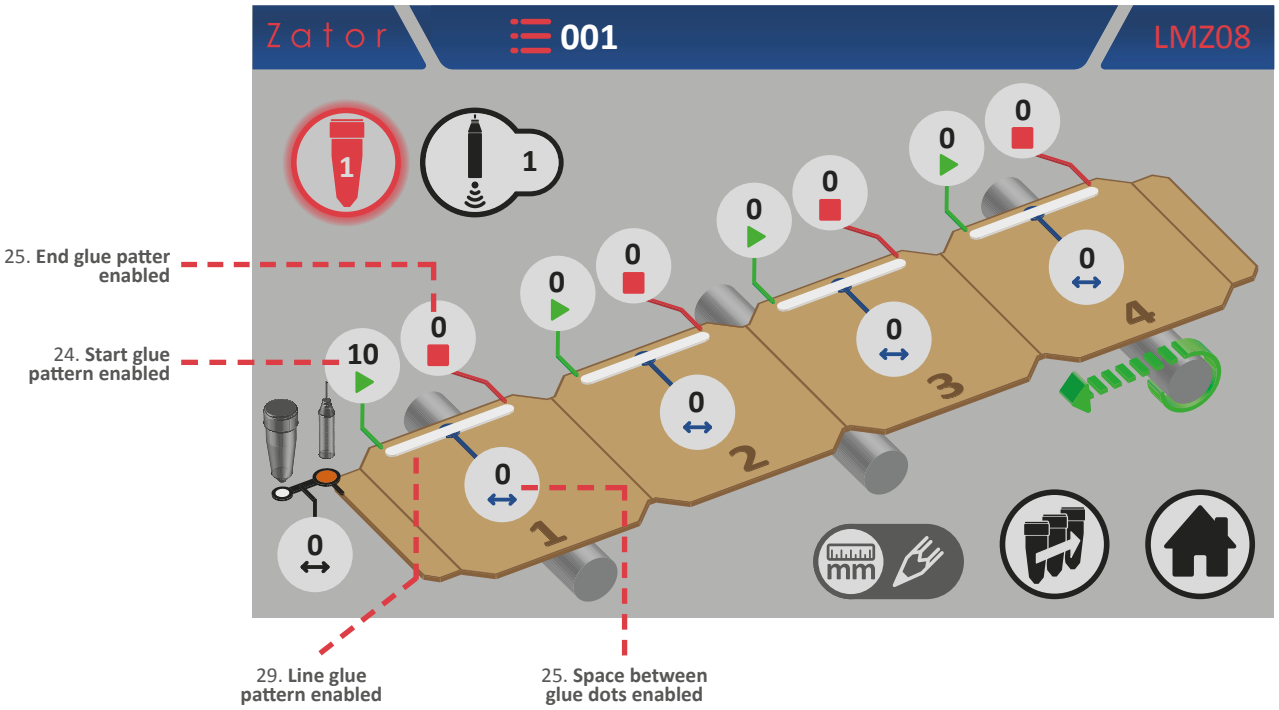
1. Then tap  of the No.1 *glue pattern start parameter*;



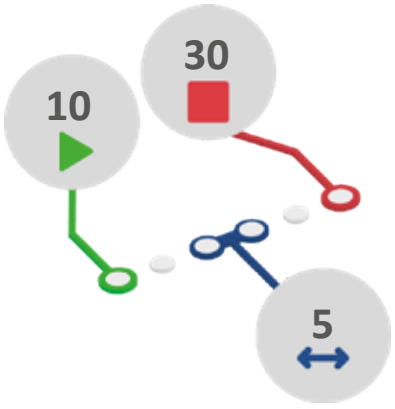
2. With the on screen *numeric keypad* insert/modify data (ex. 10 mm), then tap *enter* to confirm;

Settable values: from 0 to 9999 mm

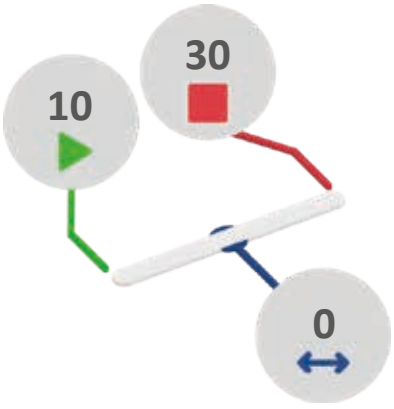
3. Once you have confirmed the data, the glue pattern will be enabled. The single dots *glue patterns* now are displayed with a line glue*;



***NOTE**: *dots valves type can dispense* **dots glue patterns** [5C] setting the *space* parameter to a value greater than zero, and **line glue patterns** [5D] setting the *space* parameter to a value equal to **zero**.

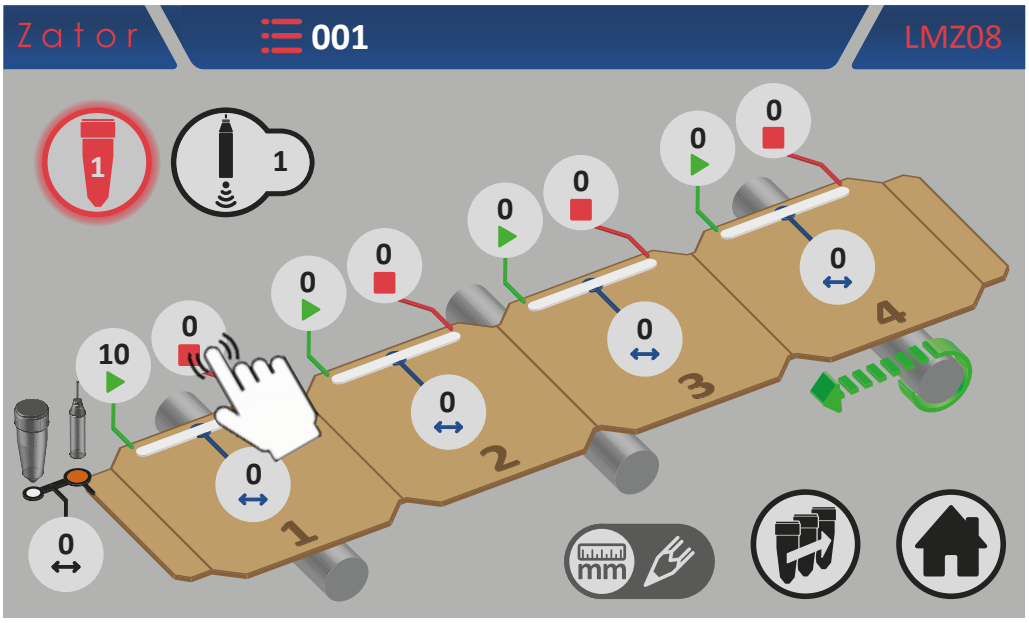


5C: Example of a dots glue pattern with space between dots equal to 5 mm



5D: Example of a line glue pattern with space between dots equal to 0 mm

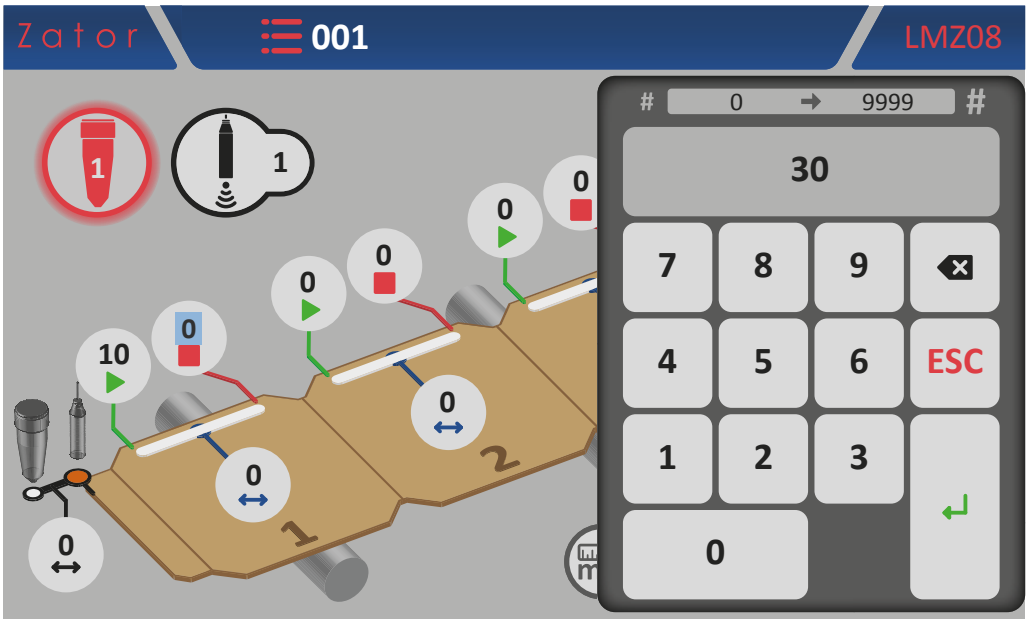
4. Then is necessary to insert the *end glue* pattern parameter*. Tap  of the No.1 glue pattern *end* parameter;



***NOTE**: If the glue pattern end parameter is left with a value equal to zero, the instrument will control the valve that dispensing a continuous glue line pattern, overlooking the start sensor signal.

5. With the on screen *numeric keypad* insert/modify data (ex. 30 mm), then tap *enter* to confirm;

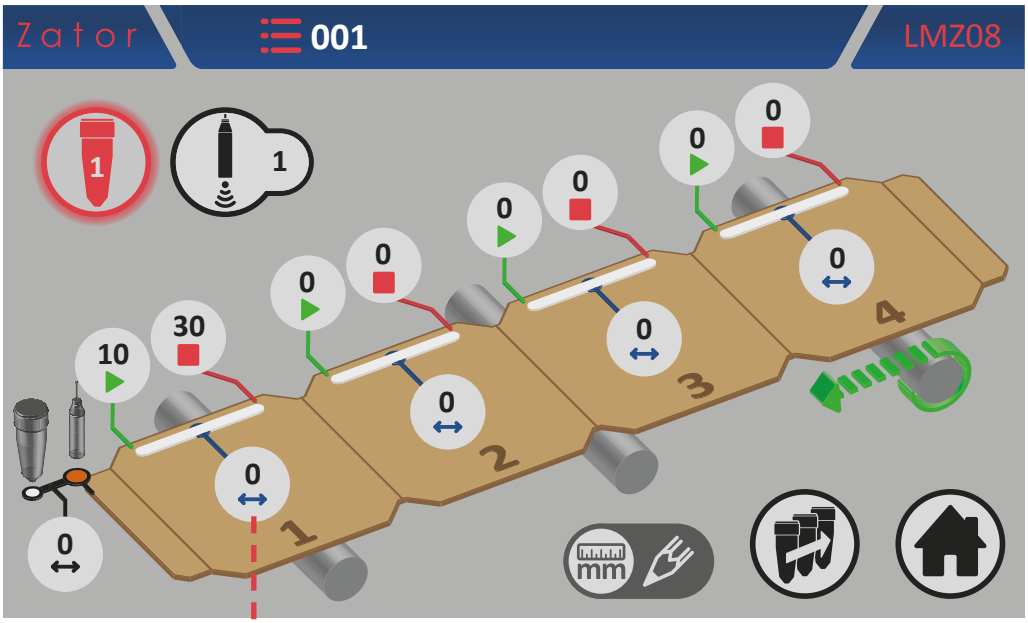
Settable values: from 0 to 9999 mm



6. Once you have confirmed the data, to complete the No.1 glue pattern programming it's possible choose if set up the glue pattern with ***dots*** or with a ***line***;

For the ***line glue pattern*** programming:

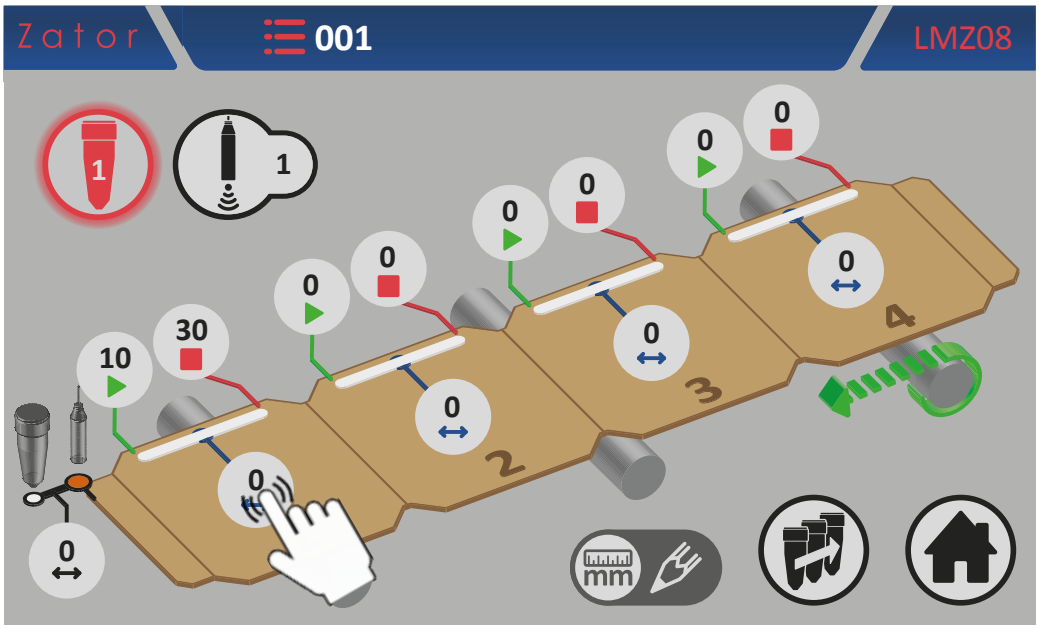
7a. The No.1 glue pattern *space* parameter must be equal to zero. Then the glue pattern programming is completed.



Leave the glue pattern space parameter equal to zero

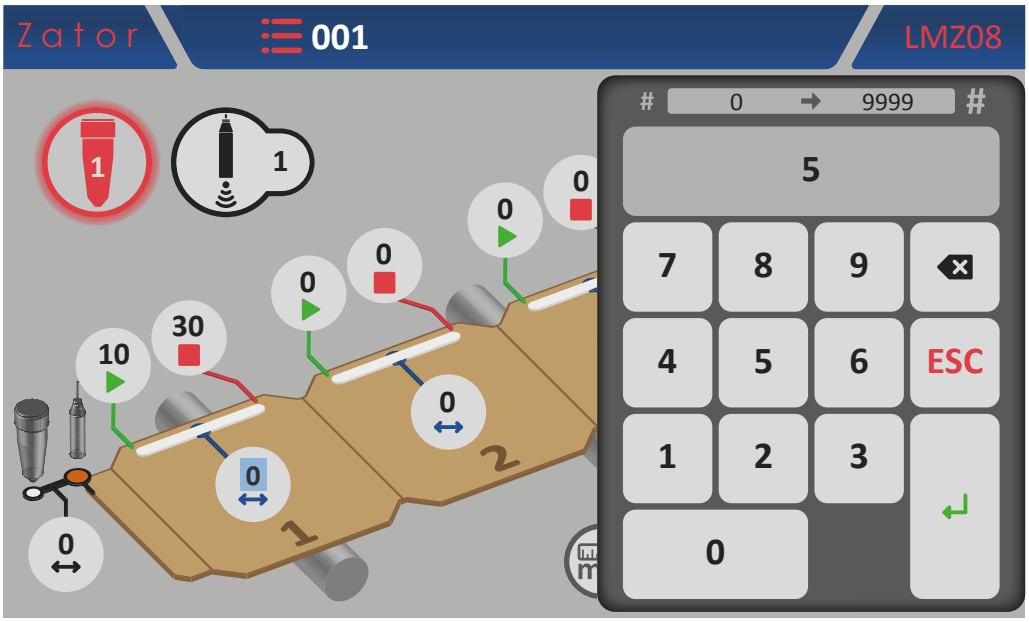
For the ***dots glue pattern*** programming:

7b. Tap ↔ of the No.1 glue pattern *space* parameter;

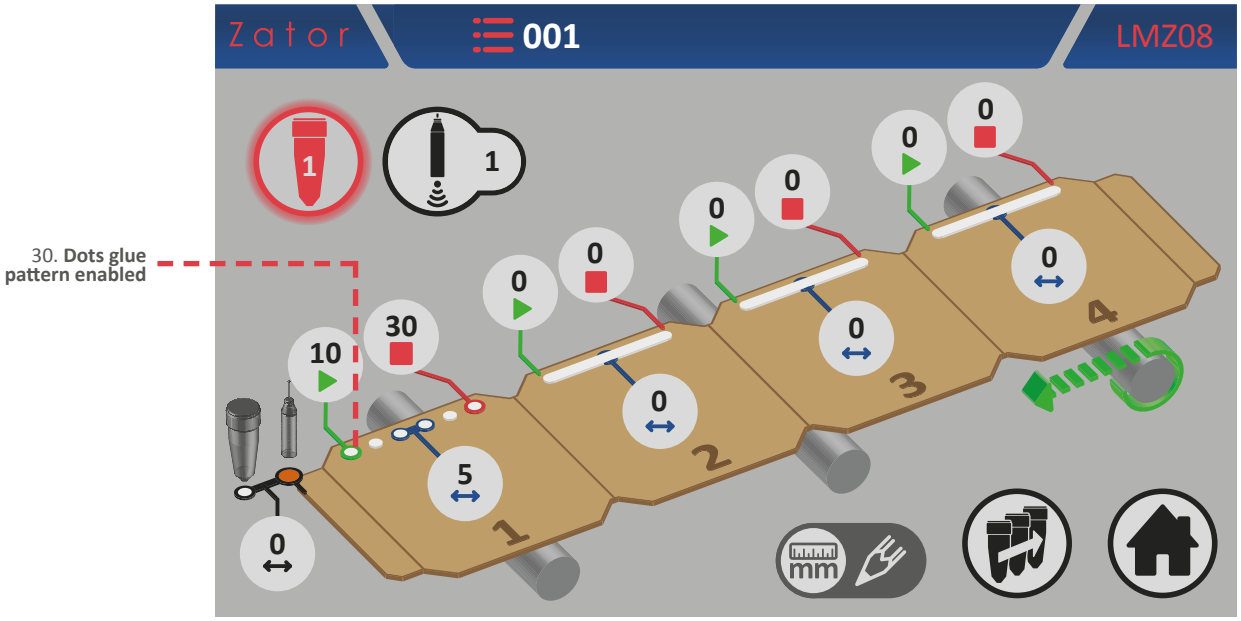


8b. With the on screen *numeric keypad* insert/modify data (ex. 5 mm), then tap *enter* to confirm;

Settable values: from 0 to 9999 mm



9b. Once you have confirmed the data, the No.1 glue pattern will be changed in a dots glue pattern. The glue pattern programming is completed.



5.1.6.2 Add a glue pattern

For add a glue pattern in the program, similarly to the No.1 glue pattern, is necessary insert the start, the end, and in case, the space parameters of the glue pattern you want to add:

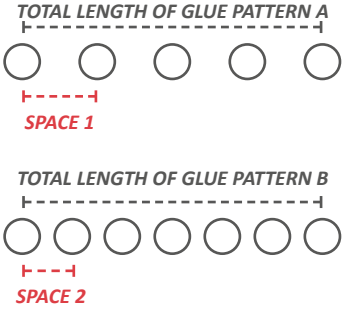
- tap  of the new glue pattern *start* parameter* and with the on screen *numeric keypad* insert/ modify data, then tap *enter* to confirm;
- tap  of the new glue pattern *end* parameter* and with the on screen *numeric keypad* insert/ modify data, then tap *enter* to confirm;
- tap  of the new glue pattern *space* parameter* and with the on screen *numeric keypad* insert/ modify data, then tap *enter* to confirm;

***NOTE**: to add a new glue pattern in the program, pay special attention to respect the programming sequence, following the progressive sequence *glue pattern No.1 - glue pattern No.2 - glue pattern No.3 - glue pattern No.4*. For example, if you program the glue pattern No.1 and No.3 (leaving the glue pattern No.2 with their parameters equal to zero), the instrument will ignore automatically the following glue patterns after No.1 even if they have been programmed.

5.1.6.3 Edit a glue pattern

To **modify** and/or **correct** the **position** of a glue pattern, tap the data box relative to glue pattern *start* or *end* parameters desired. With the on screen *numeric keypad* modify data, then tap *enter* to confirm.

To **modify** the **dots quantity** in a glue pattern, tap the data box relative to glue pattern *space* parameter desired. If the space value is high, the dots quantity will be lower. If the space value is low, the dots quantity will be higher. With the on screen *numeric keypad* modify data, then tap *enter* to confirm.

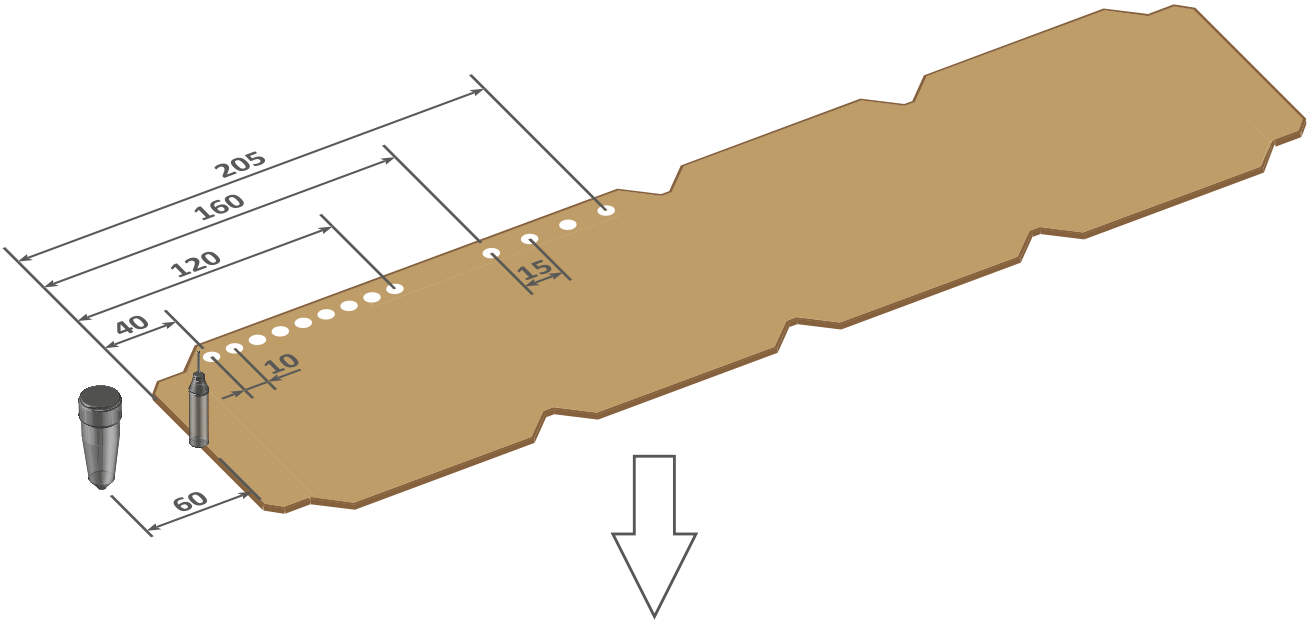
TOTAL LENGTH OF GLUE PATTERN A = TOTAL LENGTH OF GLUE PATTERN B ***SPACE 1 > SPACE 2***	

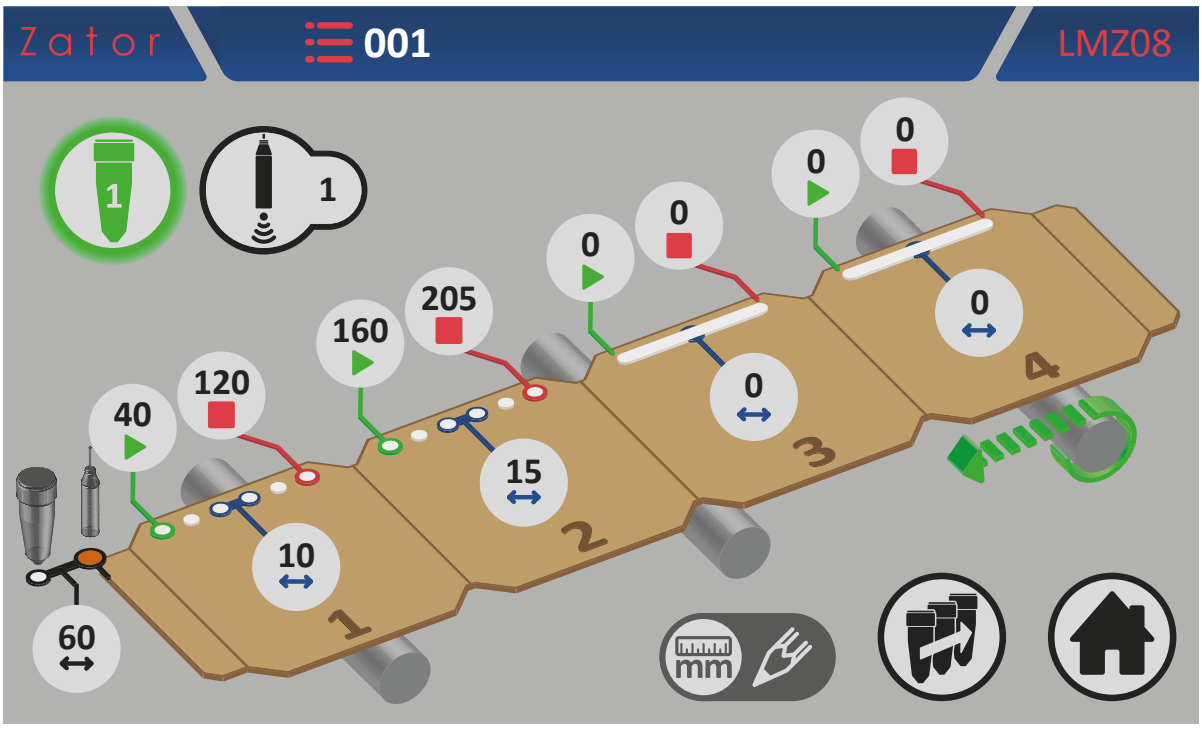
To **convert** from *dots glue pattern* to *line glue pattern*, set the space parameter to zero.

5.1.6.4 Programming examples

Example No.1:

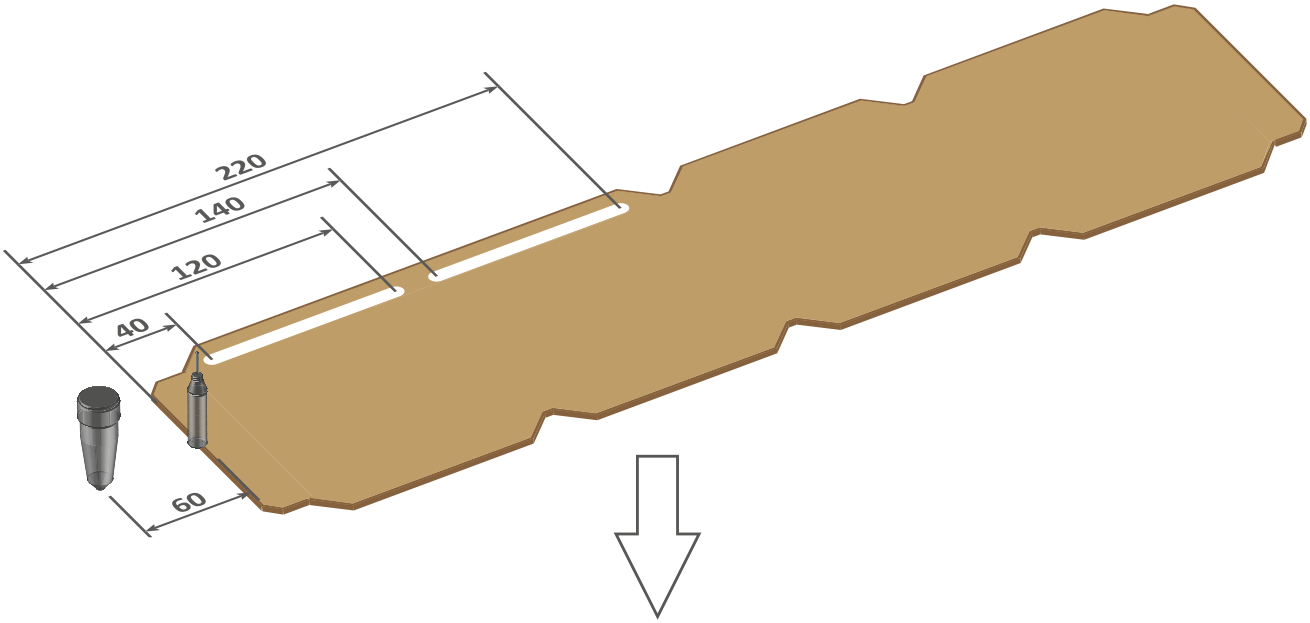
Two dots glue patterns programming with
dots valve type

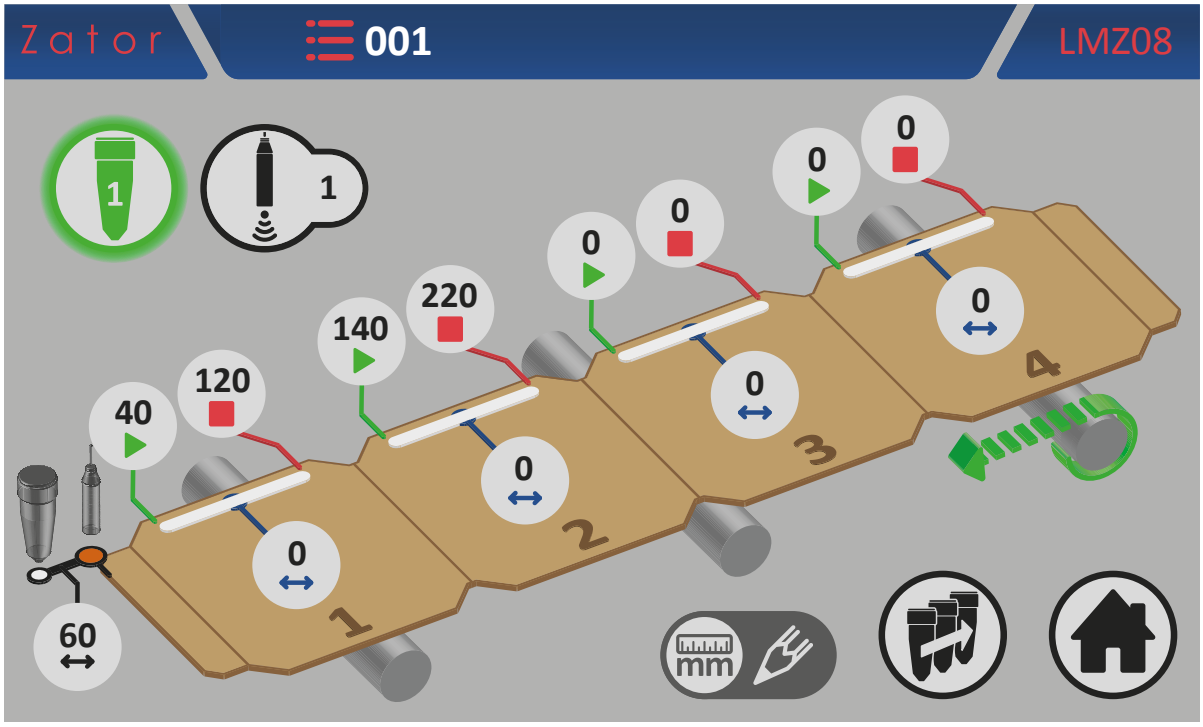




Example No.2:

Two line glue patterns programming with dots valve type





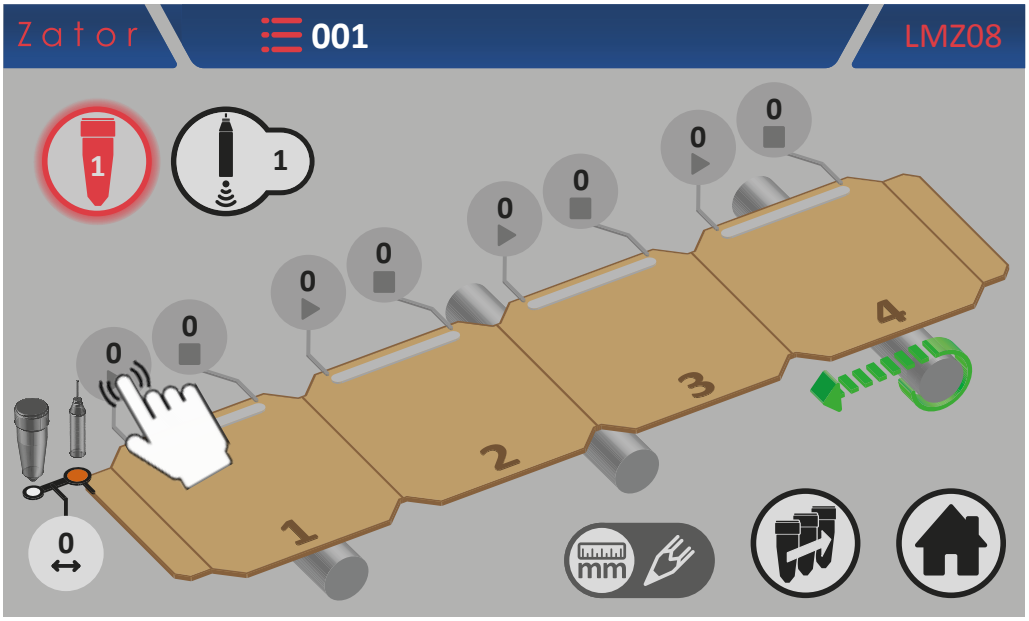
5.1.7 Glue patterns programming for line valves type

5.1.7.1 No.1 glue pattern programming - Enable glue pattern

Every glue pattern distances are setted with default values to 0. Then the glue patterns are visible but they are disabled.
Is not possible to activate the selected valve until the glue patterns are enabled.

To enable the glue patterns is necessary insert the start parameter of the glue pattern No.1:

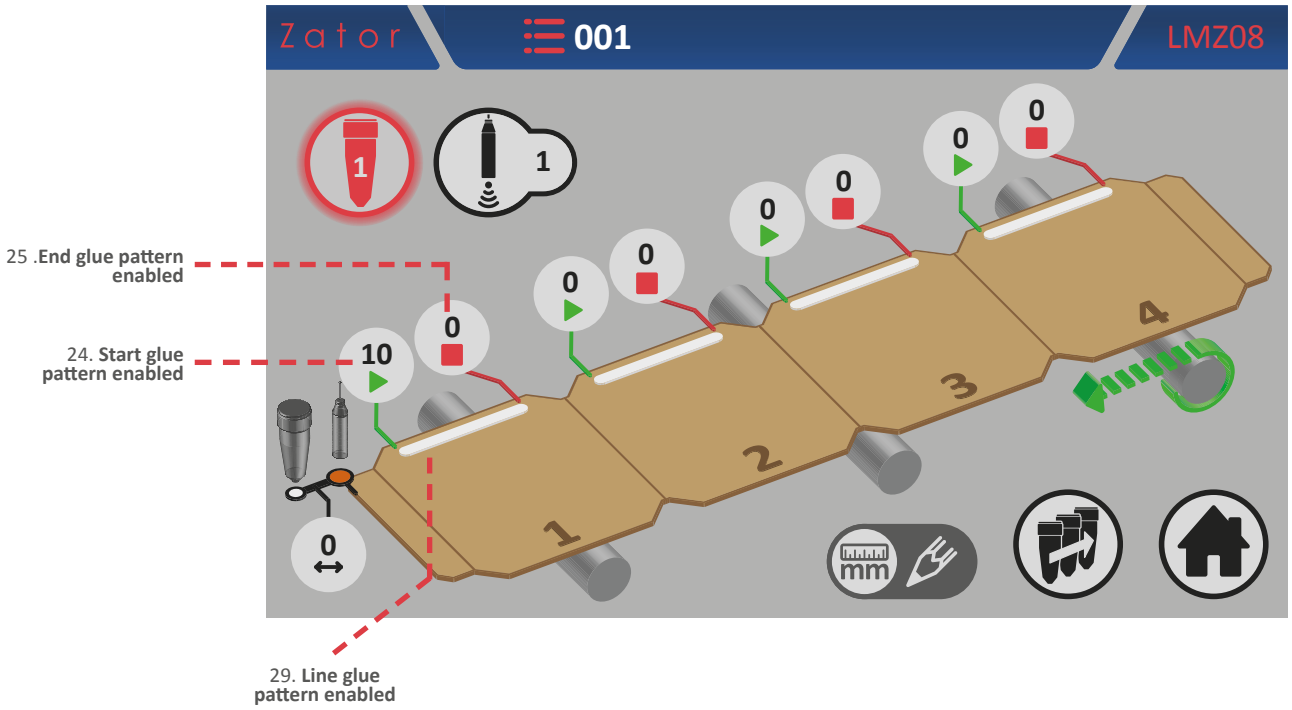
1. Then tap  of the No.1 glue pattern *start* parameter;



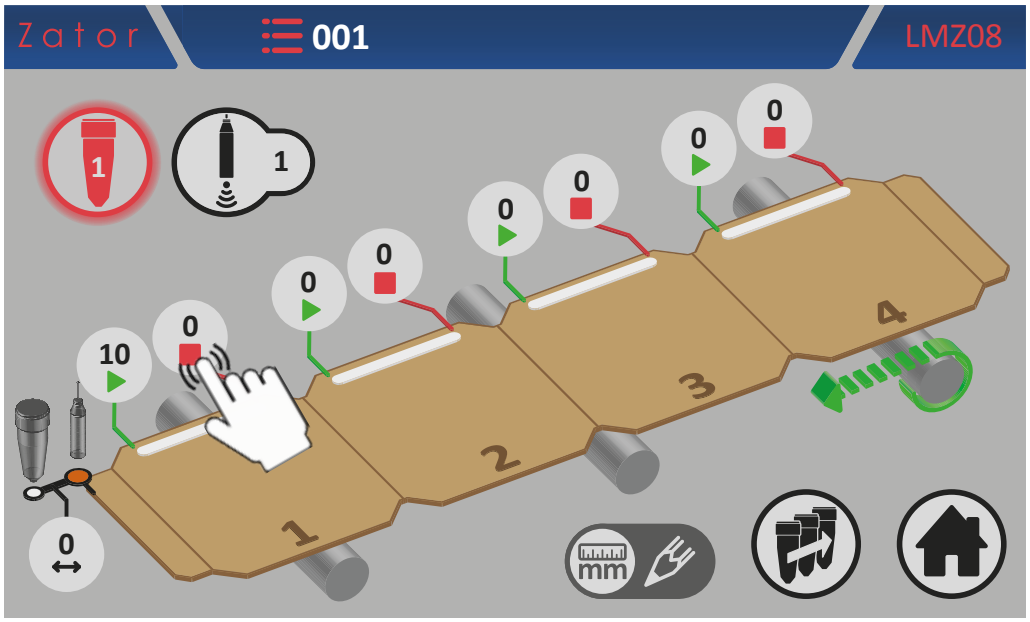
2. With the on screen *numeric keypad* insert/modify data (ex. 10 mm), then tap *enter* to confirm;

Settable values: from 0 to 9999 mm

3. Once you have confirmed the data, the glue pattern will be enabled;



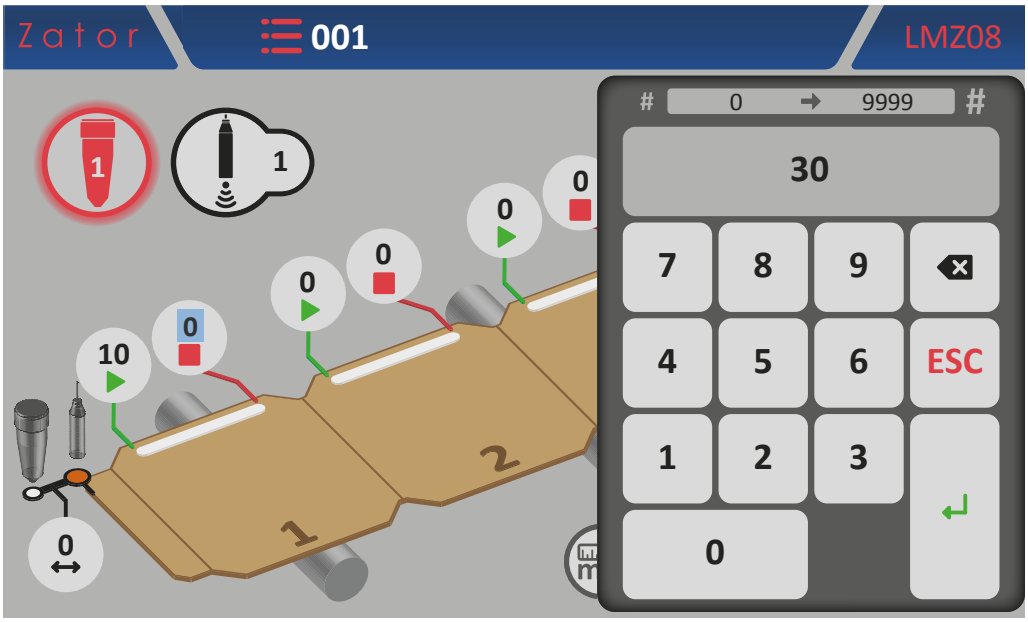
4. To complete the No.1 glue pattern programming is necessary to insert the *end* glue pattern parameter*. Then tap  of the No.1 glue pattern *end* parameter;



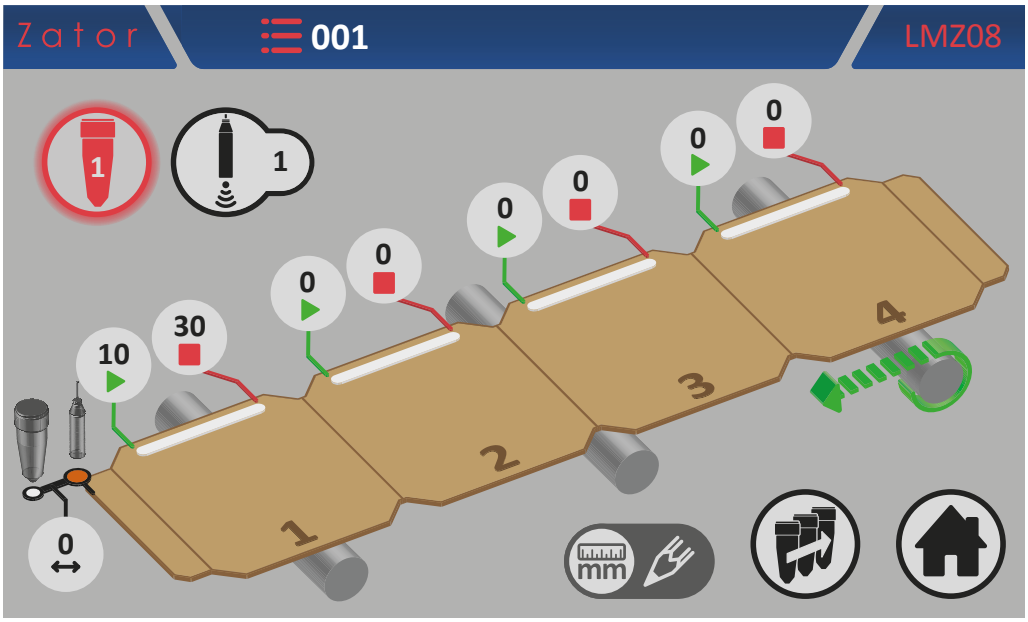
***NOTE**: If the glue pattern end parameter is left with a value equal to zero, the instrument will control the valve that dispensing a continuos glue line pattern, overlooking the start sensor signal.

5. With the on screen numeric keypad insert/modify data (ex. 30 mm), then tap enter to confirm;

Settable values: from 0 to 9999 mm



6. Once you have confirmed the data, the No.1 line glue pattern programming is completed.



5.1.7.2 Add a glue pattern

For add a glue pattern in the program, similarly to the No.1 glue pattern, is necessary insert the start, the end, and in case, the space parameters of the glue pattern you want to add:

- tap  of the new glue pattern *start* parameter* and with the on screen *numeric keypad* insert/ modify data, then tap *enter* to confirm;
- tap  of the new glue pattern *end* parameter* and with the on screen *numeric keypad* insert/ modify data, then tap *enter* to confirm;

***NOTE**: to add a new glue pattern in the program, pay special attention to respect the programming sequence, following the progressive sequence *glue pattern No.1 - glue pattern No.2 - glue pattern No.3 - glue pattern No.4*. For example, if you program the glue pattern No.1 and No.3 (leaving the glue pattern No.2 with their parameters equal to zero), the instrument will ignore automatically the following glue patterns after No.1 even if they have been programmed.

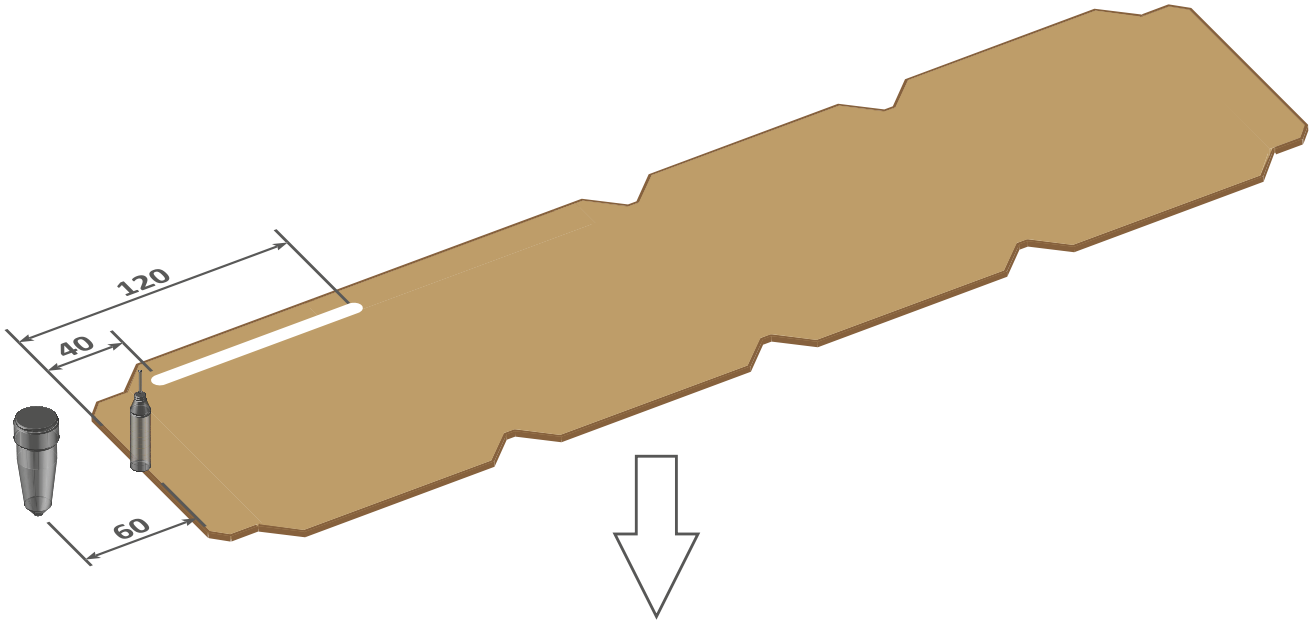
5.1.7.3 Edit a glue pattern

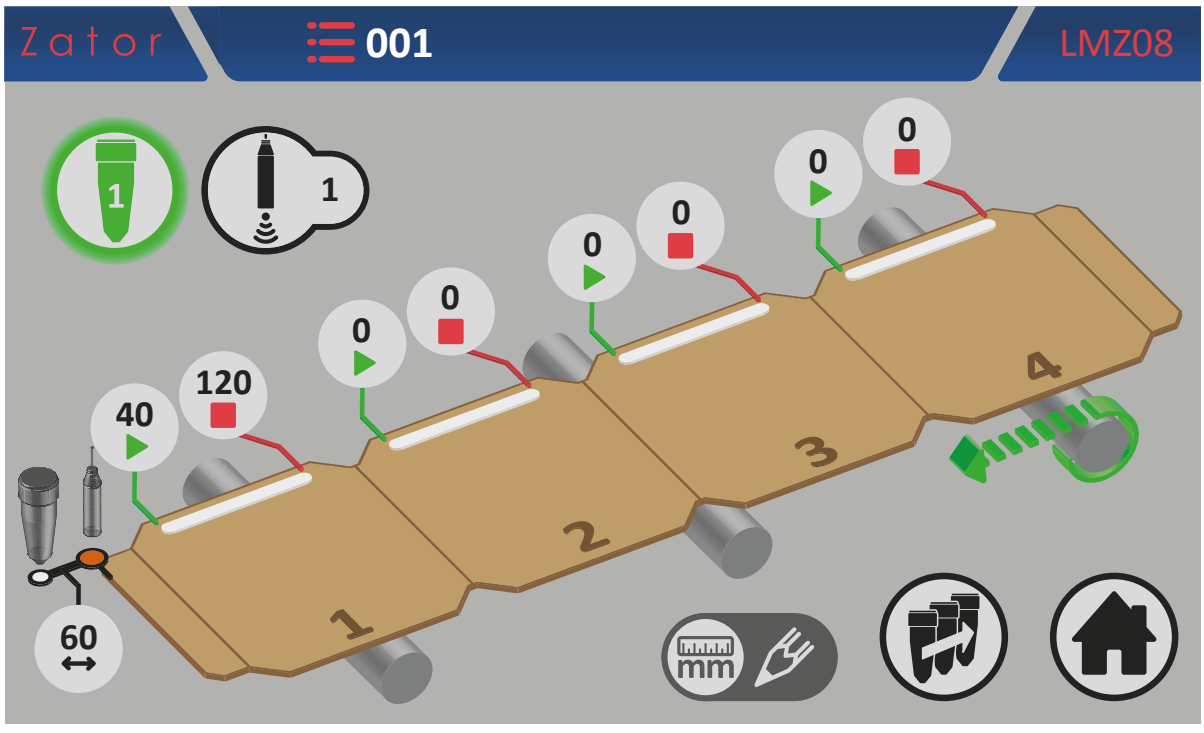
To **modify** and/or **correct** the **position** of a glue pattern, tap the data box relative to glue pattern *start* or *end* parameters desired. With the on screen *numeric keypad* modify data, then tap *enter* to confirm.

5.1.7.4 Programming examples

Example No.1:

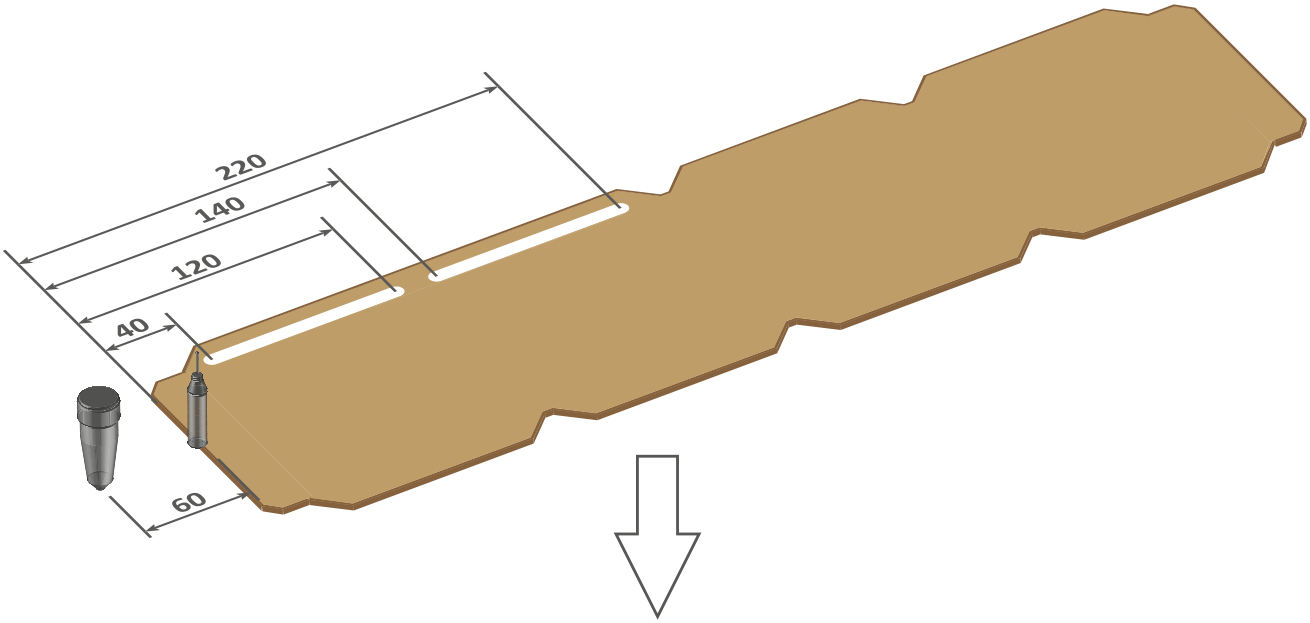
One line glue pattern programming with
line valve type

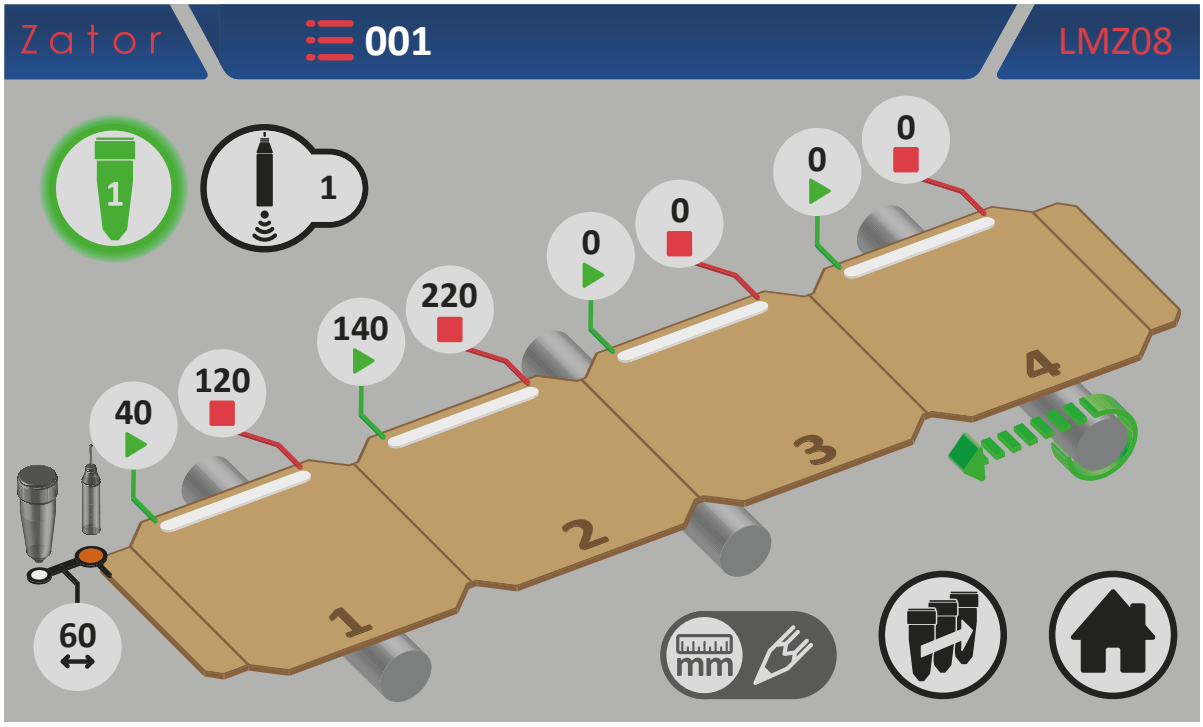




Example No.2:

Two line glue patterns programming with
line valve type



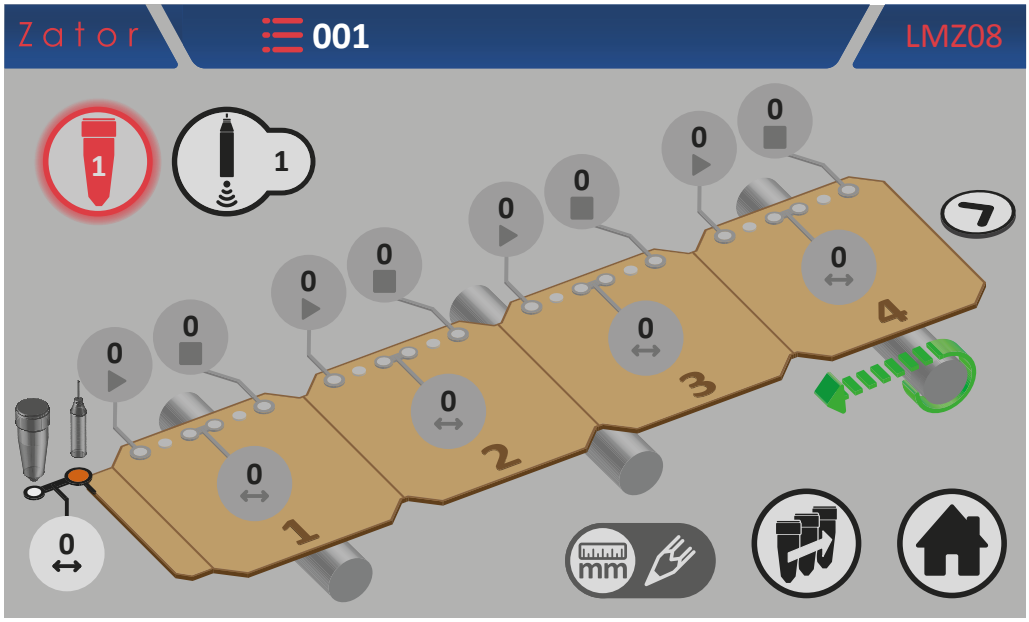


5.1.8 Programming menu with 8 glue patterns

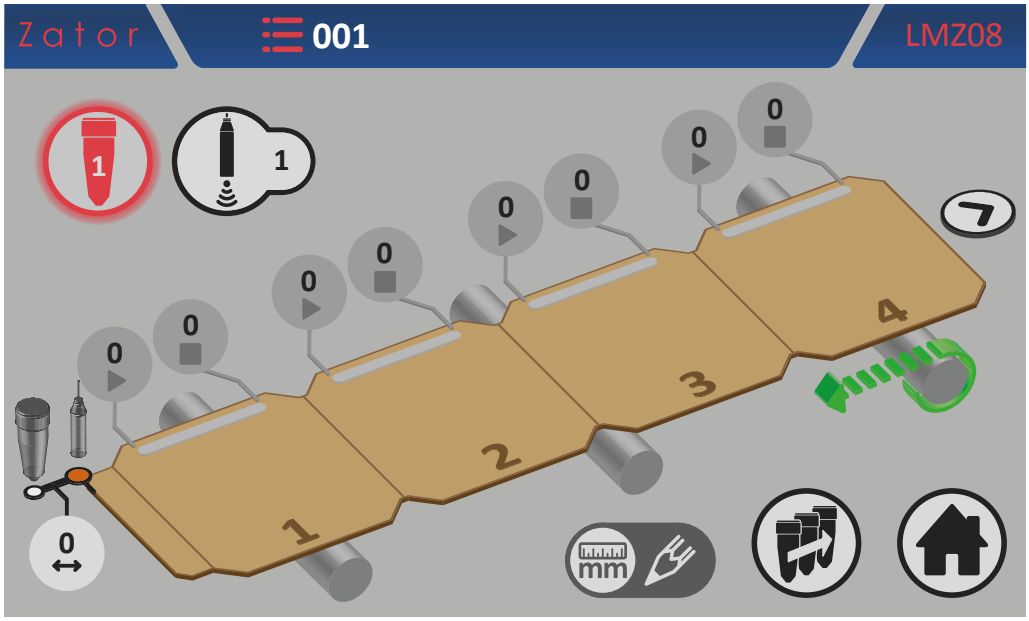
In case of special applications where is required more than 4 glue patterns to dispense on each paper box, the instrument offers the opportunity to program 4 glue patterns in addiction to the standard 4 glue patterns for each installed valve.
To enable No.5-6-7-8 glue patterns see *section 13.5 - No. of glue patterns programmable.*

To access the *No.5-8 glue patterns programming menu*:

1. From *No.1-4 glue patterns programming menu* (for ***dot*** [5E] and ***line*** [5F] valves type) tap  ;



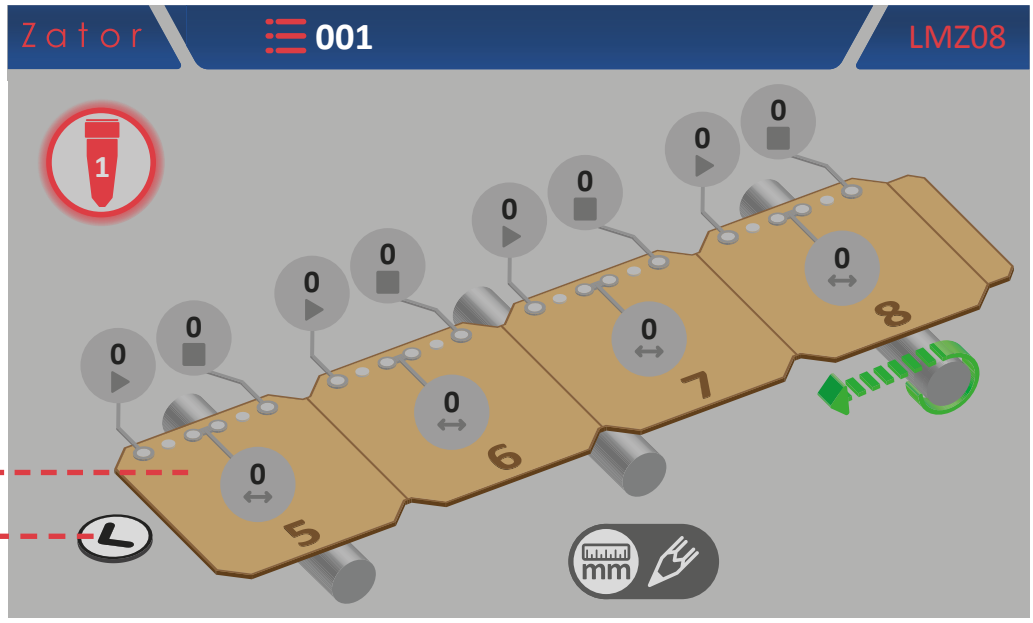
5E: No.1-4 glue patterns programming menu for dots valves type with No.5-8 glue patterns enabled



5F: No.1-4 glue patterns programming menu for line valves type with No.5-8 glue patterns enabled

2. Program the desired glue pattern*;
3. To go back to *No.1-4 glue patterns programming menu* tap  .

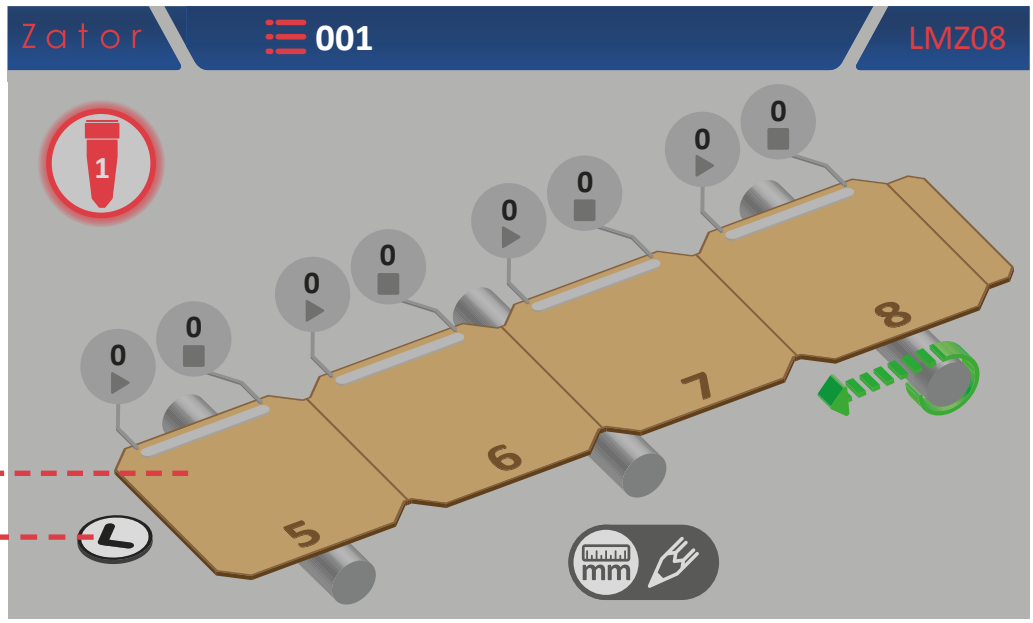
5G: No.5-8 glue patterns programming menu for dots valves type



35. **Glue patterns No.5-8** (paper box)

39. **Previous page** (No.1-4 glue patterns)

5H: No.5-8 glue patterns programming menu for line valves type



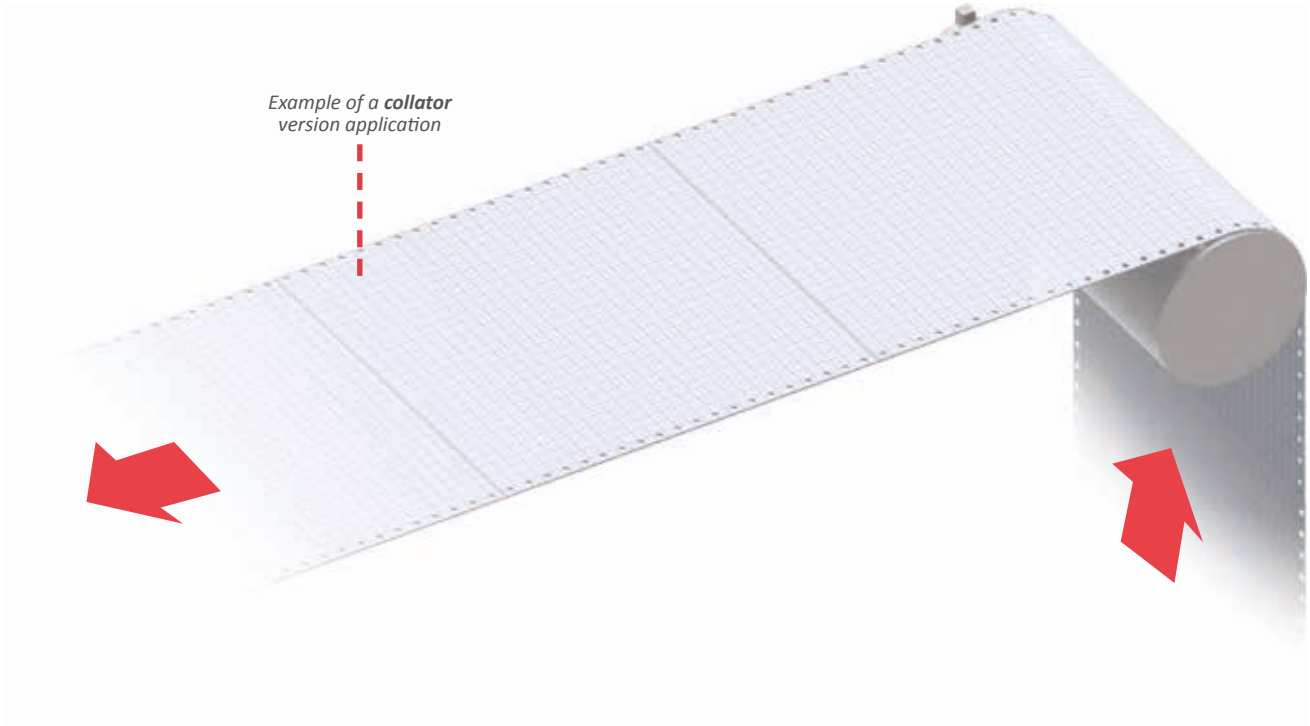
35. **Glue patterns No.5-8** (paper box)

39. **Previous page** (No.1-4 glue patterns)

***NOTE**: to add a new glue pattern in the program, pay special attention to respect the programming sequence, following the progressive sequence *glue pattern No.1 - glue pattern No.2 - glue pattern No.3 - glue pattern No.4*. For example, if you program the glue pattern No.1 and No.3 (leaving the glue pattern No.2 with their parameters equal to zero), the instrument will ignore automatically the following glue patterns after No.1 even if they have been programmed.

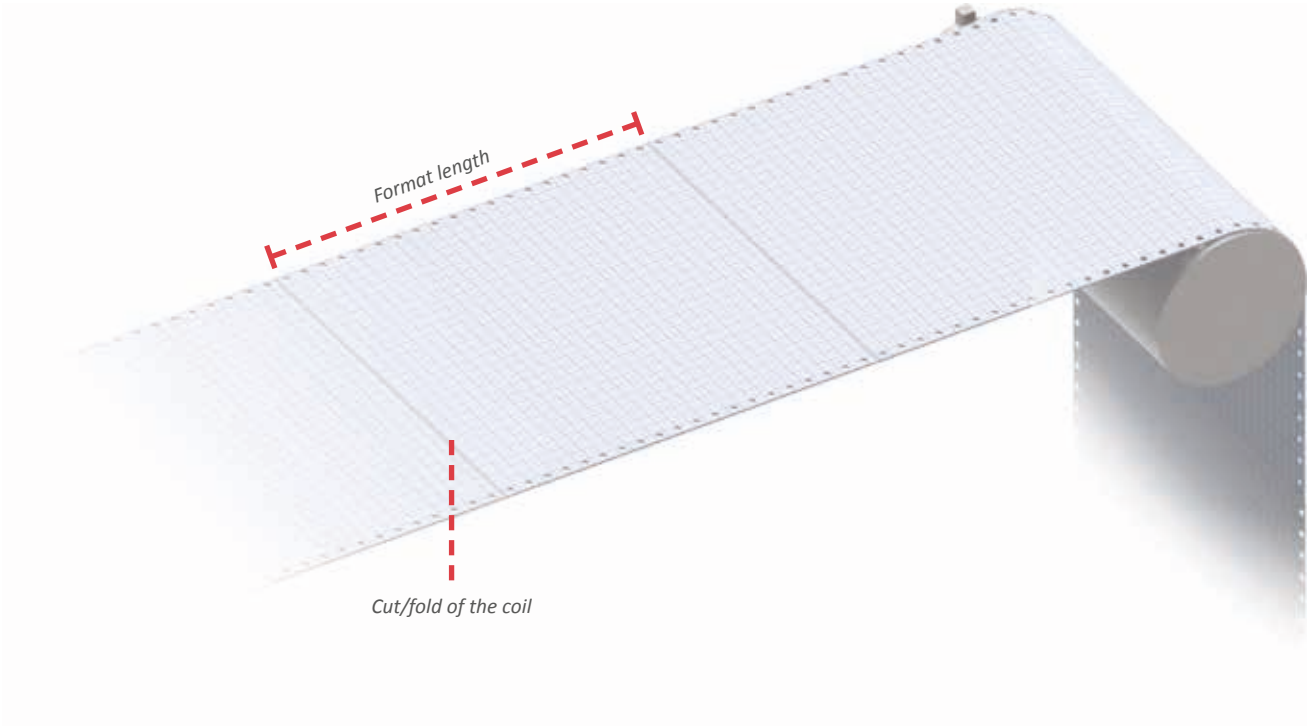
5.2 Collator version programming

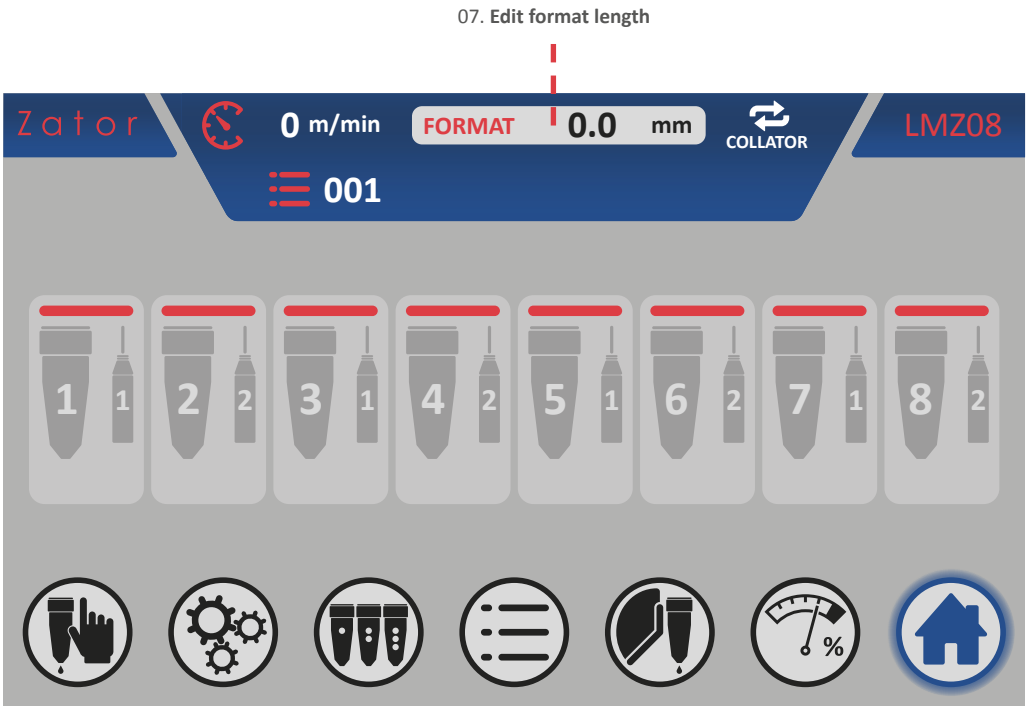
The *collator* version programming has to be used in case of continuous application, not from single boxes, but for example from a coil.



5.2.1 Format function

The ***format*** is the measure (in mm) of the section to be glued between cuts of folds of the continuous coil. This parameter is displayed and editable from *home screen*.

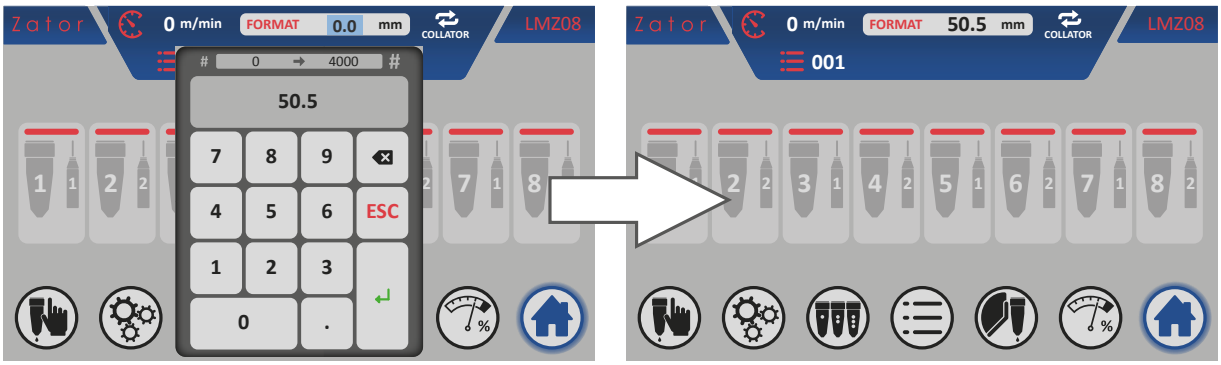




To insert/modify the *format* length:

1. From *home screen* tap **FORMAT mm** ;
2. By the on screen *numeric keypad* insert/modify the value (ex. 50.5 mm), then tap *enter* to confirm;

Settable values: from 0 to 4000 mm



3. In the *home screen* the changed value of the parameter is updated.

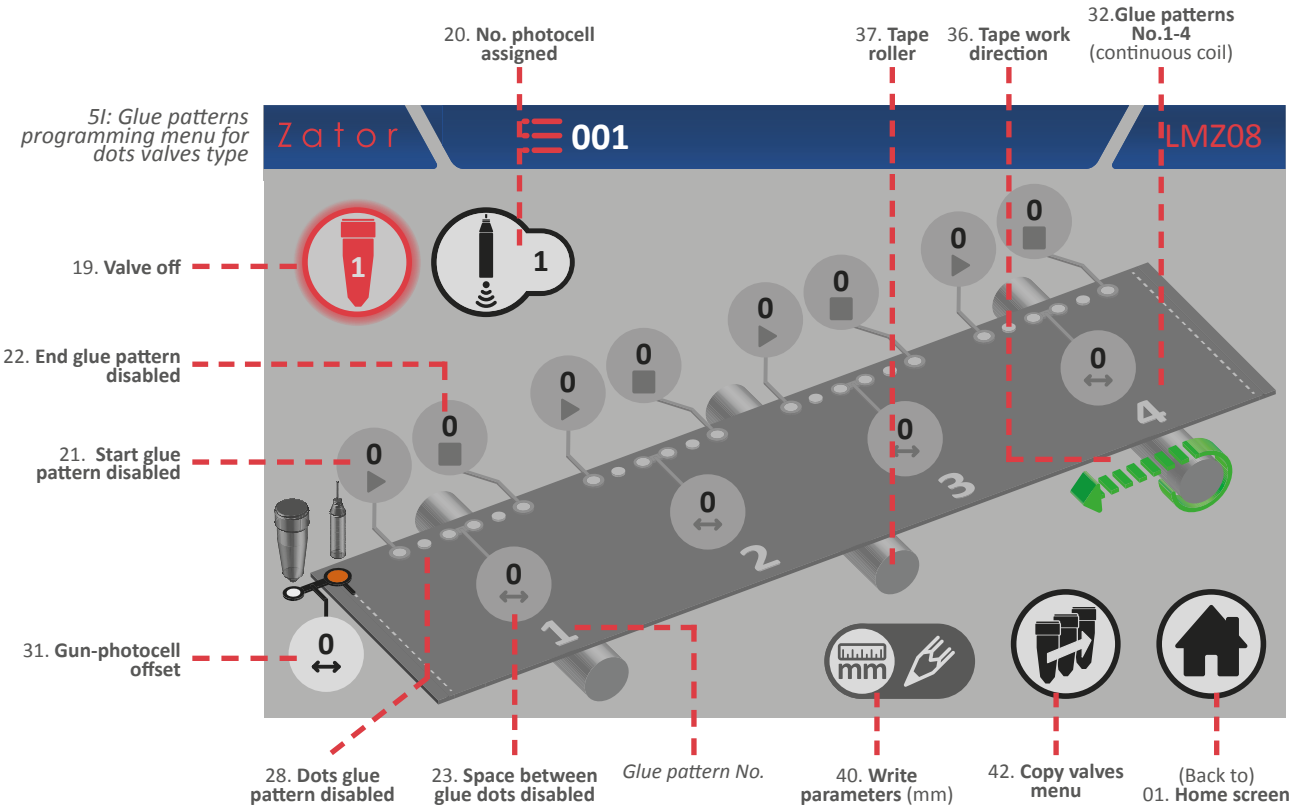
5.2.2 Programming menu with 4 glue patterns

From the *home screen* tap  or tap  to *enter* the *glue patterns programming menu* of desired valve.

Depending on the valve type assigned (see *section 9.1 - Change the valve type*) is displayed the ***glue patterns programming menu for dots valves type*** [5I] or the ***glue patterns programming menu for line valves type*** [5J] (see following page).

These menu show with a schematic way a three-dimensional view of the machine and the type of application is setted (relative to the current setting of the instrument) that consist of:

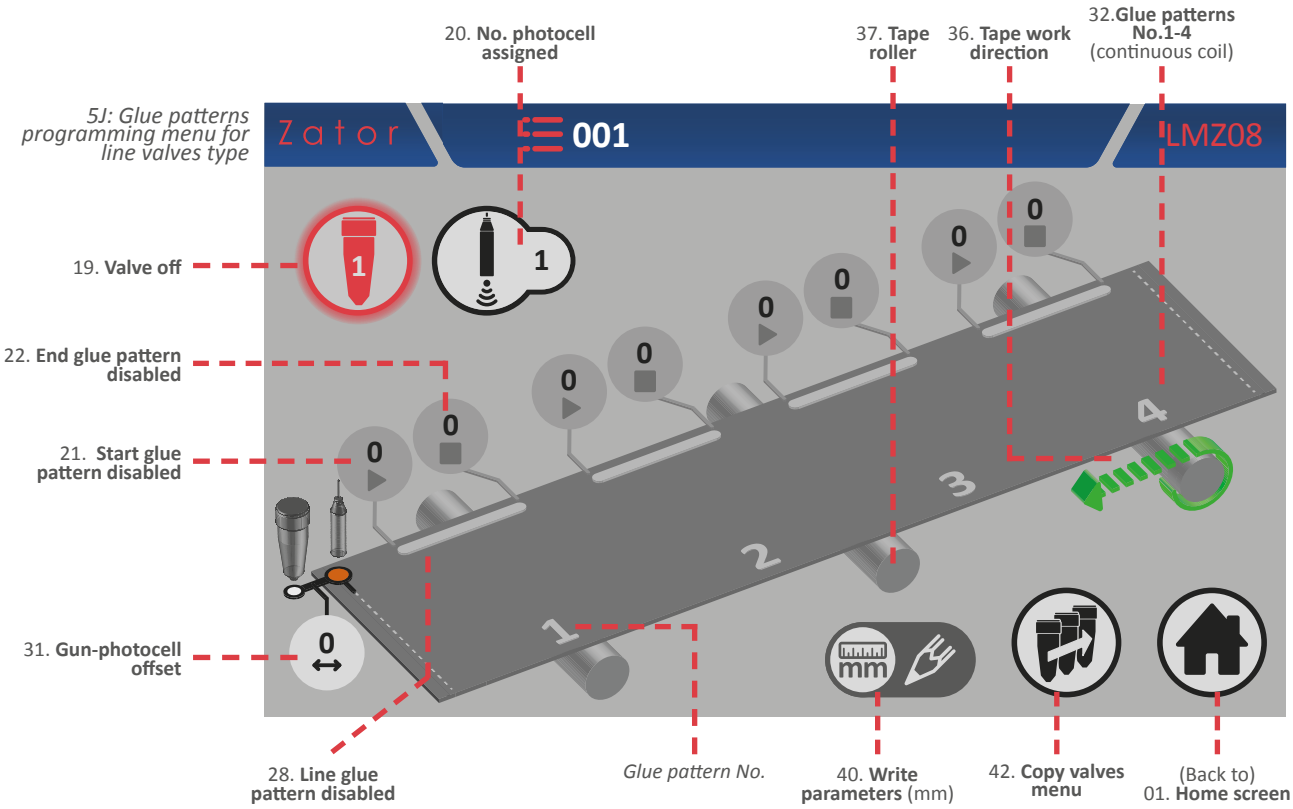
- on/off valve button;
- start sensor number assignment (photocell);
- continuous coil to be glued;
- glue patterns programmable (*dots* or *lines*) and relative distances;
- tape roller and tape work direction;
- valve and start sensor (photocell) and relative offset distance;
- copy valve program button.



The ***write parameters*** icon indicates the measurement unit of the glue pattern programmable distances and the valve-photocell offset distance, which in the encoder mode is millimetres.

A *dots glue pattern* is defined by:

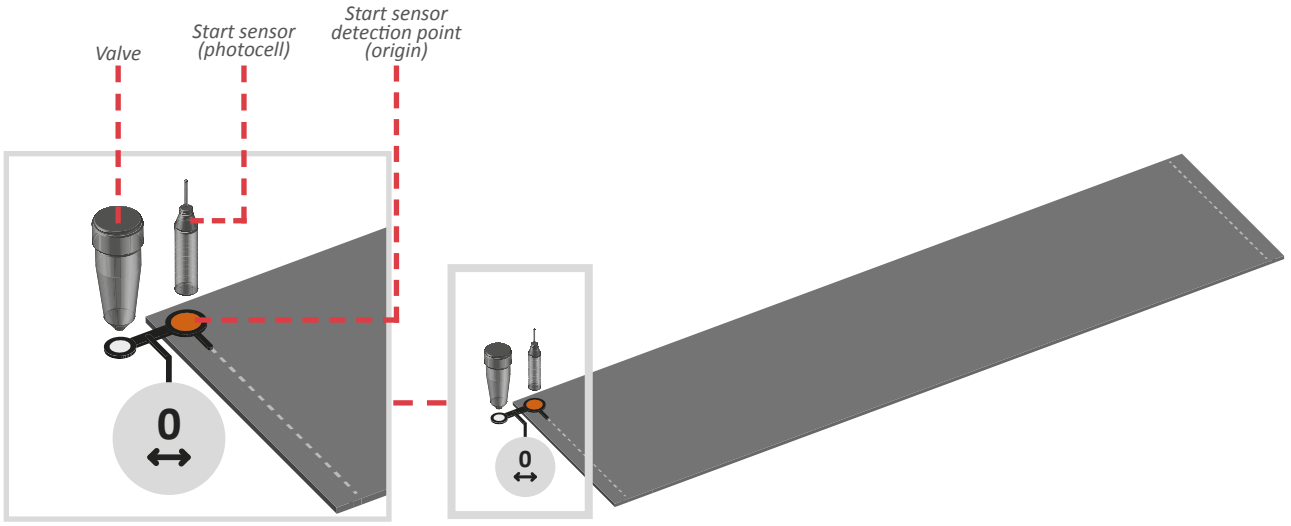
- Start: starting distance of single glue pattern (mm)
- Space: distance between dots in the pattern (mm)
- End: final distance of single glue pattern (mm)



A *line glue pattern* is defined by:

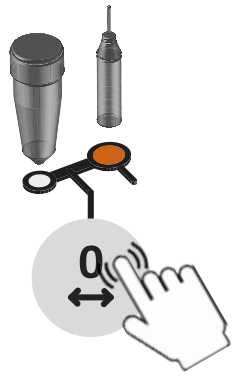
- Start: starting distance of single glue pattern (mm)
- End: final distance of single glue pattern (mm)

To determinate the correct dots/line glue pattern position (therefore their distances) the **measures have to be calculated from the beginning of the cut/fold of the coil** (which can be defined as the origin) where the start sensor (photocell) detect it.



5.2.3 Offset

This parameter (default value is set to 0) indicates the distance (in mm) between the start sensor (photocell or similar device) and the nozzle of the valve. The start sensor must be installed before or on the same line of the valve nozzle.



Insert/modify offset

To determinate the offset value, measure its distance: to enter or modify the value, tap on the relative data box and with on screen *numeric keypad* insert/modify data, then tap *enter* to confirm.
This parameter must be insert for each installed valve.

Settable values: from 0 to 9999 mm

5.2.4 Start sensor

The control is provided with two inputs for start sensor (photocell, magnetic sensors, contacts,etc.). According to different applications, it's possible to use one or two sensors, then for each valve is necessary to link a start sensor.

Assign/modify No. photocell assigned

To assign/modify the value, tap on relative data box and with on screen *numeric keypad* insert/modify data, then tap *enter* to confirm.

Settable values: from 1 to 8

5.2.5 Turning on/off the valves

After enabling the glue pattern (see *sections No.1 glue pattern programming*) it's possible to switch on the selected valve. From the *glue pattern programming menu*:

- Tap  to **turning on the valve**;
- Tap  to **turning off the valve**;

From the *home screen* it's possible to check if the valve is on  or off  .

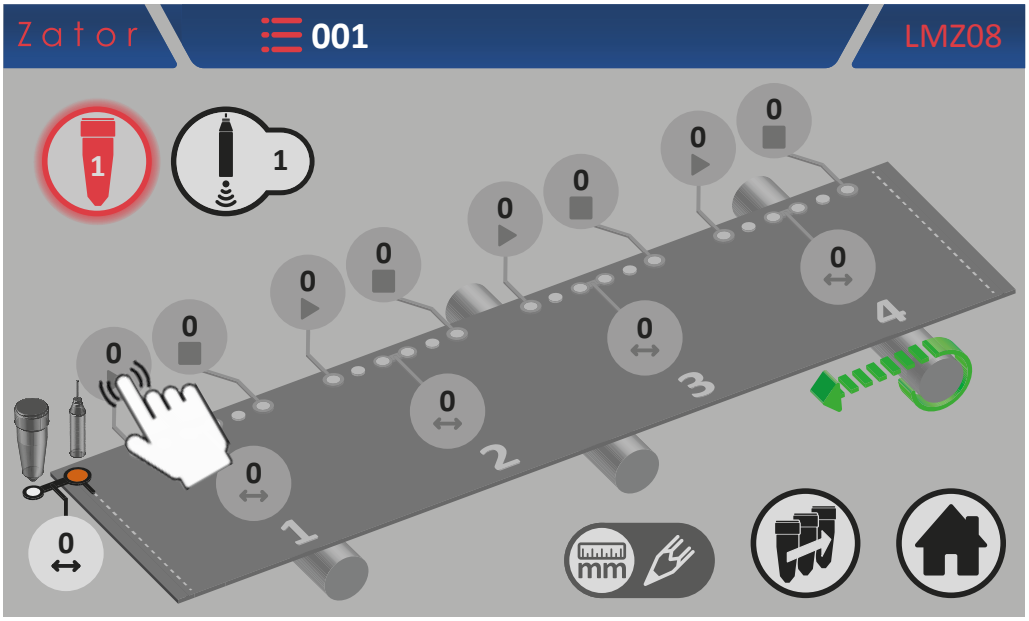
5.2.6 Glue patterns programming for dots valves type

5.2.6.1 No.1 glue pattern programming - Enable glue pattern

Every glue pattern distances are setted with default values to 0. Then the glue patterns are visible but they are disabled. **Is not possible to activate the selected valve until the glue patterns are enabled.**

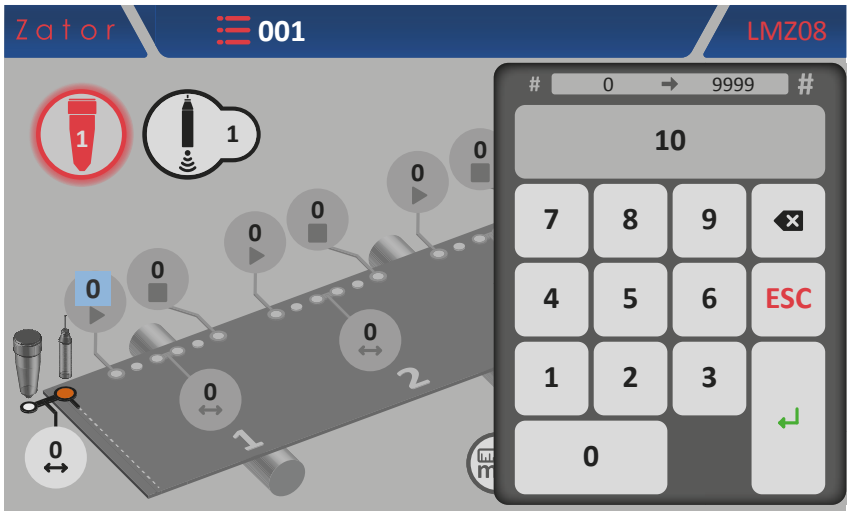
To enable the glue patterns is necessary insert the *start* parameter of the glue pattern No.1:

1. Then tap  of the No.1 *glue pattern start parameter*;

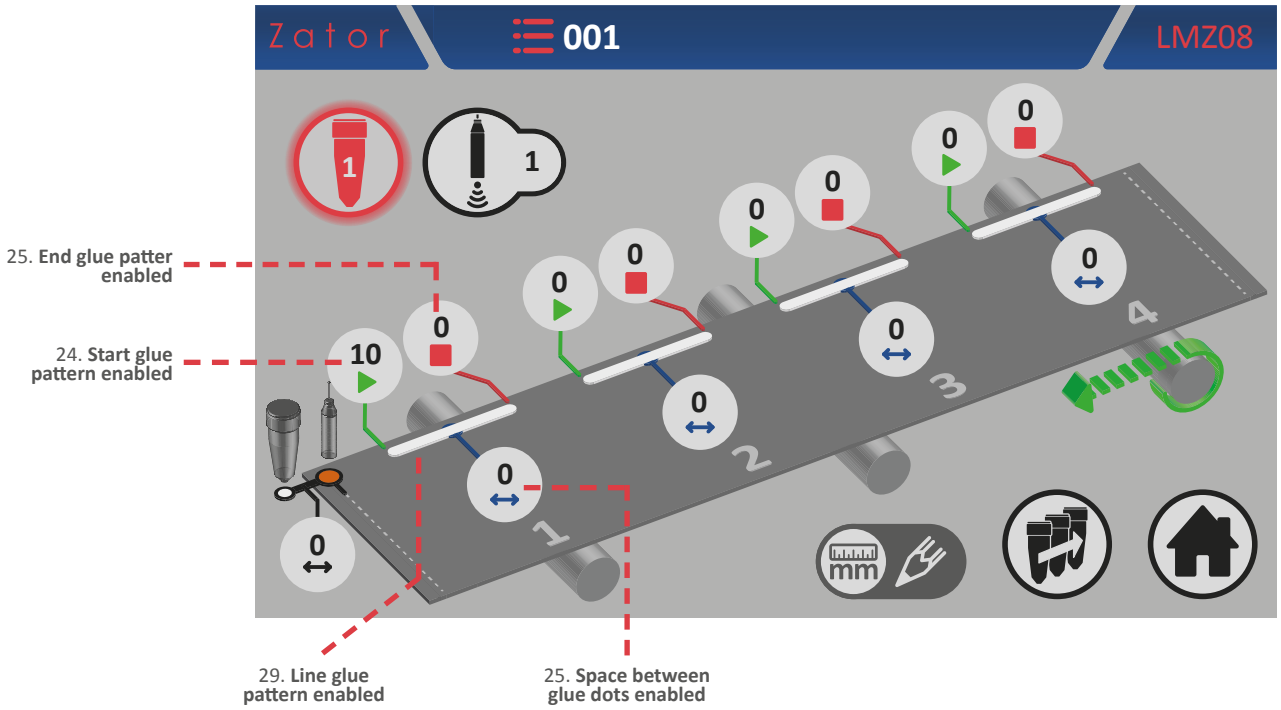


2. With the on screen *numeric keypad* insert/modify data (ex. 10 mm), then tap *enter* to confirm;

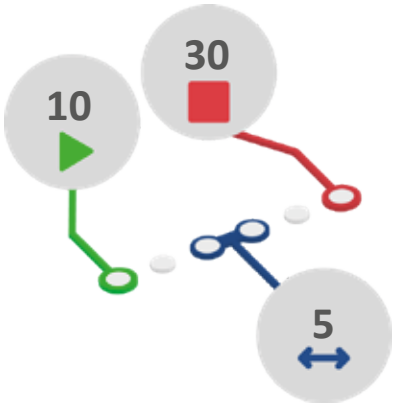
Settable values: from 0 to 9999 mm



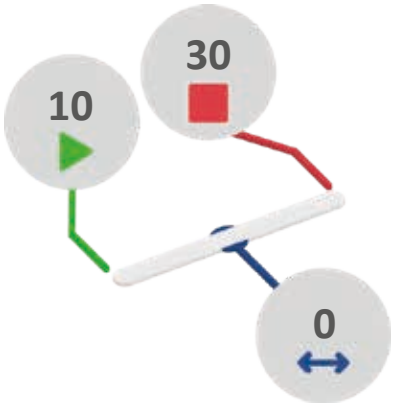
3. Once you have confirmed the data, the glue pattern will be enabled. The single dots *glue patterns* now are displayed with a line glue*;



***NOTE**: *dots valves type can dispense* **dots glue patterns** [5K] setting the *space* parameter to a value greater than zero, and **line glue patterns** [5L] setting the *space* parameter to a value equal to **zero**.

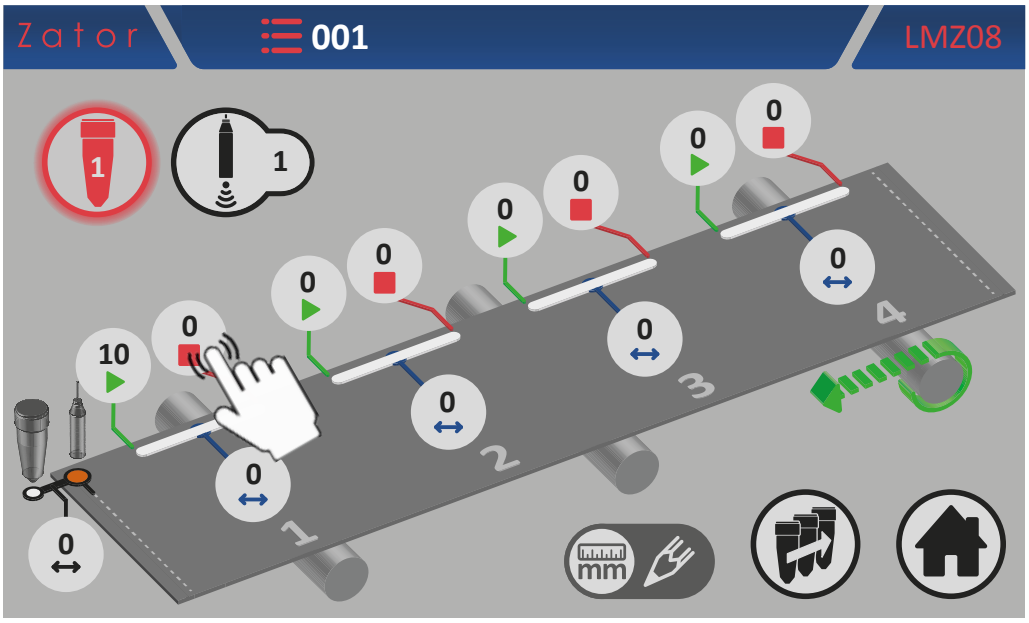


5K: Example of a dots glue pattern with space between dots equal to 5 mm



5L: Example of a line glue pattern with space between dots equal to 0 mm

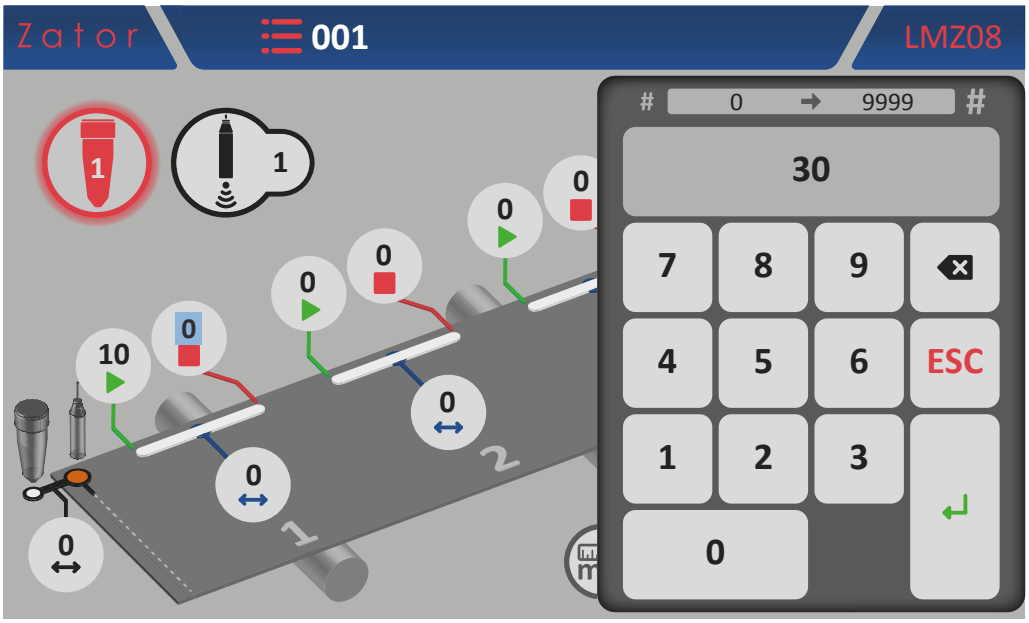
4. Then is necessary to insert the *end glue* pattern parameter*. Tap  of the No.1 glue pattern *end* parameter;



***NOTE**: If the glue pattern end parameter is left with a value equal to zero, the instrument will control the valve that dispensing a continuous glue line pattern, overlooking the start sensor signal.

5. With the on screen *numeric keypad* insert/modify data (ex. 30 mm), then tap *enter* to confirm;

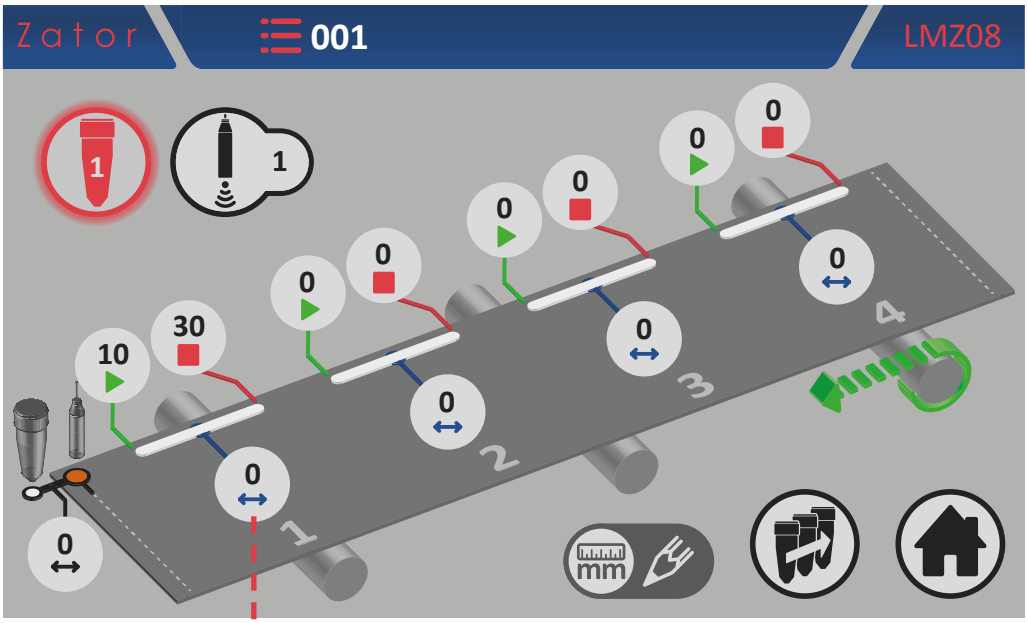
Settable values: from 0 to 9999 mm



6. Once you have confirmed the data, to complete the No.1 glue pattern programming it's possible choose if set up the glue pattern with ***dots*** or with a ***line***;

For the ***line glue pattern*** programming:

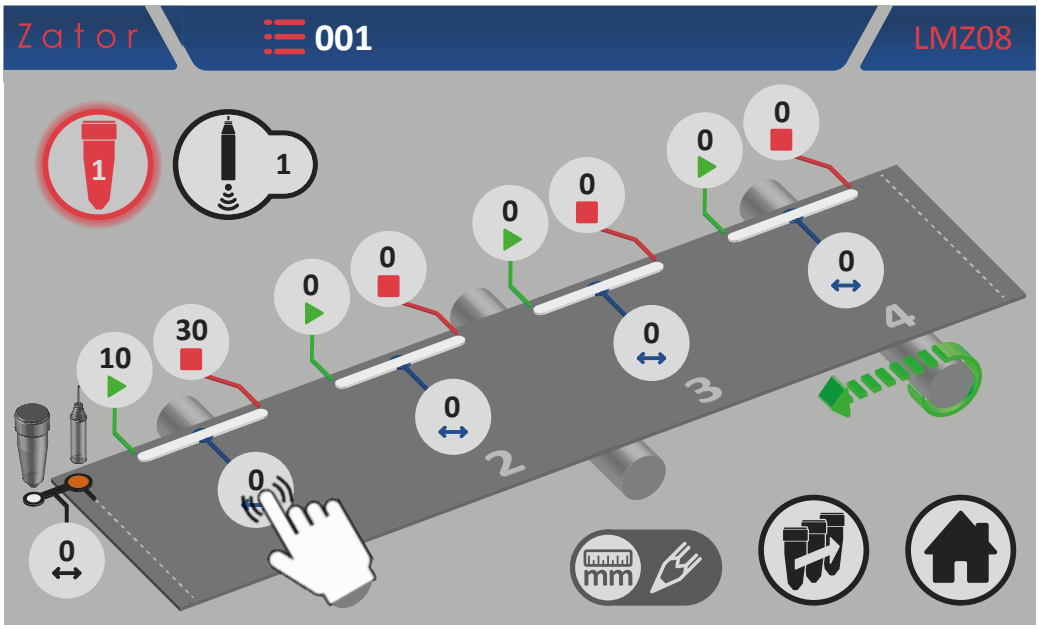
7a. The No.1 glue pattern *space* parameter must be equal to zero. Then the glue pattern programming is completed.



Leave the glue pattern space parameter equal to zero

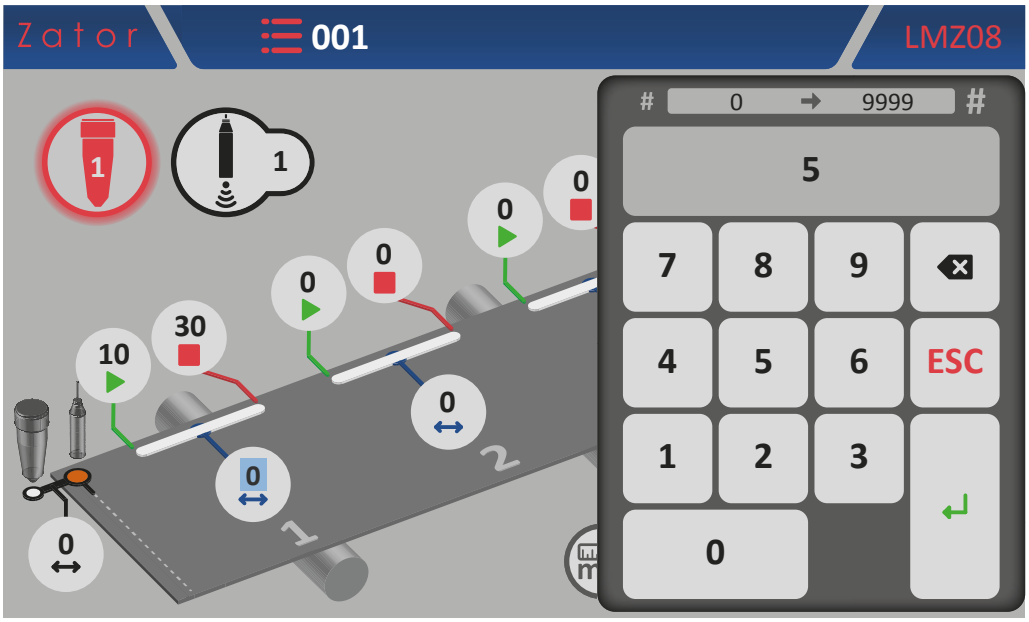
For the ***dots glue pattern*** programming:

7b. Tap ↔ of the No.1 glue pattern *space* parameter;

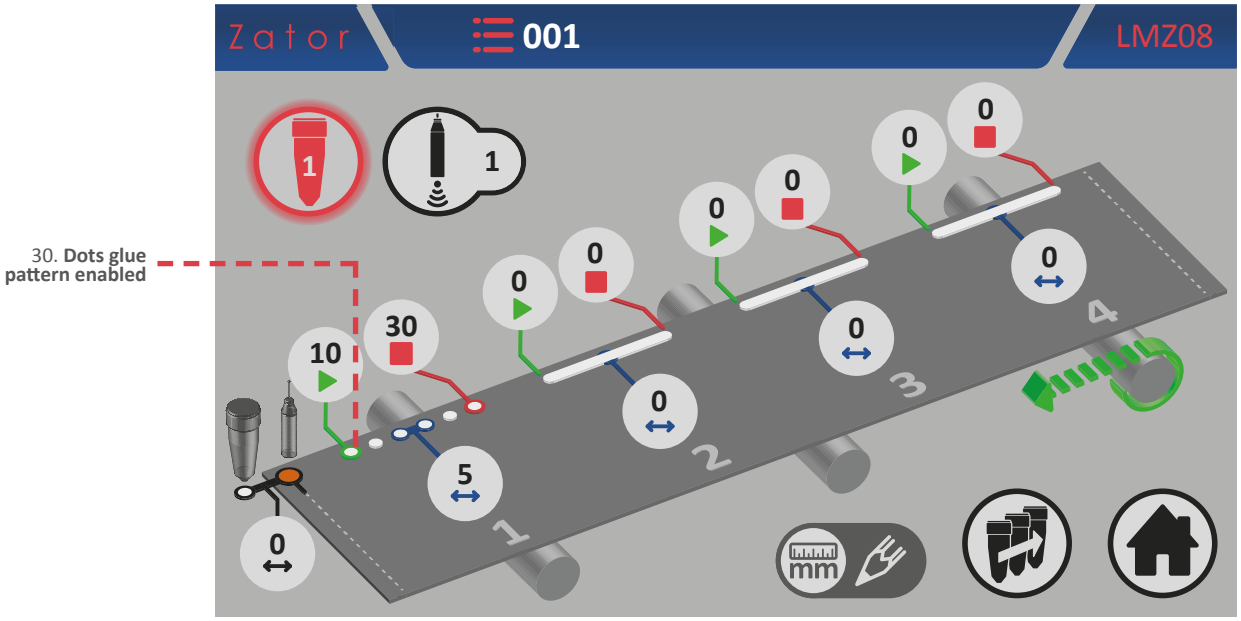


8b. With the on screen *numeric keypad* insert/modify data (ex. 5 mm), then tap *enter* to confirm;

Settable values: from 0 to 9999 mm



9b. Once you have confirmed the data, the No.1 glue pattern will be changed in a dots glue pattern. The glue pattern programming is completed.



5.2.6.2 Add a glue pattern

For add a glue pattern in the program, similarly to the No.1 glue pattern, is necessary insert the start, the end, and in case, the space parameters of the glue pattern you want to add:

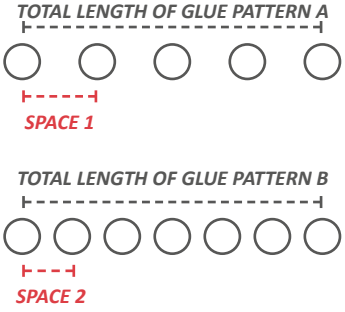
- tap  of the new glue pattern *start* parameter* and with the on screen *numeric keypad* insert/ modify data, then tap *enter* to confirm;
- tap  of the new glue pattern *end* parameter* and with the on screen *numeric keypad* insert/ modify data, then tap *enter* to confirm;
- tap  of the new glue pattern *space* parameter* and with the on screen *numeric keypad* insert/ modify data, then tap *enter* to confirm;

***NOTE**: to add a new glue pattern in the program, pay special attention to respect the programming sequence, following the progressive sequence *glue pattern No.1 - glue pattern No.2 - glue pattern No.3 - glue pattern No.4*. For example, if you program the glue pattern No.1 and No.3 (leaving the glue pattern No.2 with their parameters equal to zero), the instrument will ignore automatically the following glue patterns after No.1 even if they have been programmed.

5.2.6.3 Edit a glue pattern

To **modify** and/or **correct** the **position** of a glue pattern, tap the data box relative to glue pattern *start* or *end* parameters desired. With the on screen *numeric keypad* modify data, then tap *enter* to confirm.

To **modify** the **dots quantity** in a glue pattern, tap the data box relative to glue pattern *space* parameter desired. If the space value is high, the dots quantity will be lower. If the space value is low, the dots quantity will be higher. With the on screen *numeric keypad* modify data, then tap *enter* to confirm.

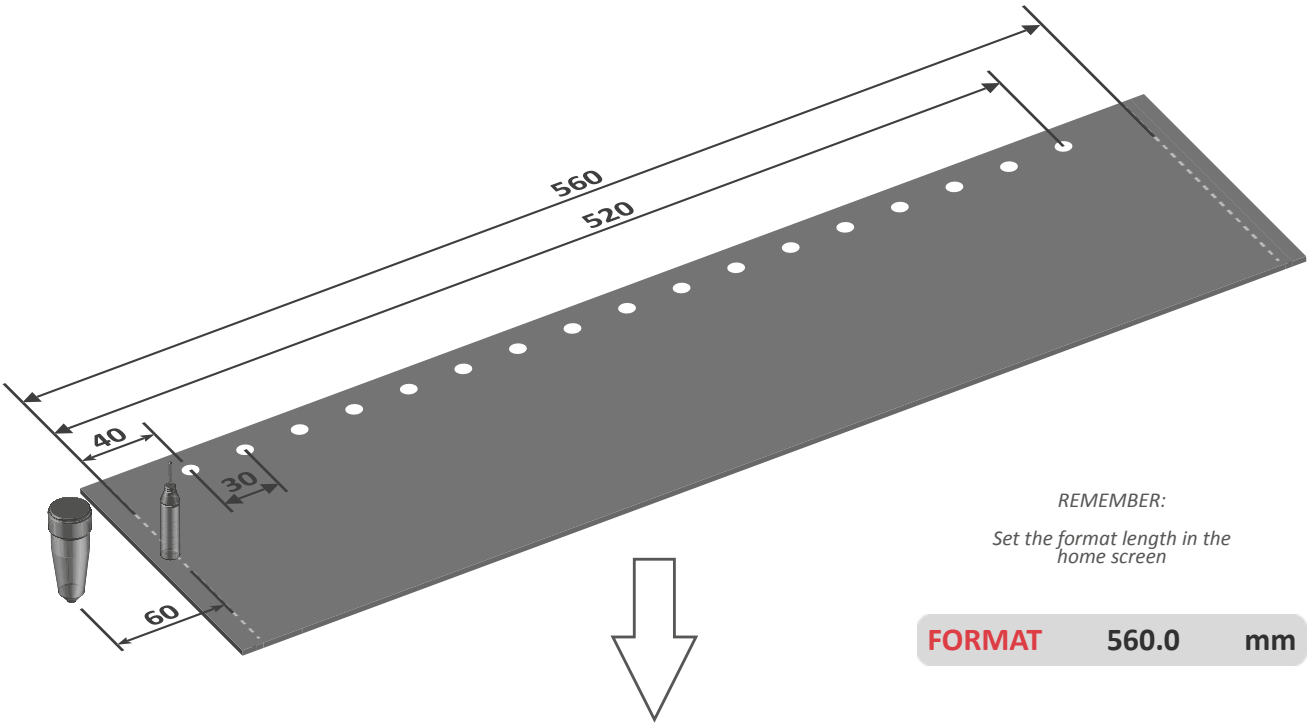
TOTAL LENGTH OF GLUE PATTERN A = TOTAL LENGTH OF GLUE PATTERN B ***SPACE 1 > SPACE 2***	

To **convert** from *dots glue pattern* to *line glue pattern*, set the space parameter to zero.

5.2.6.4 Programming examples

Example No.1:

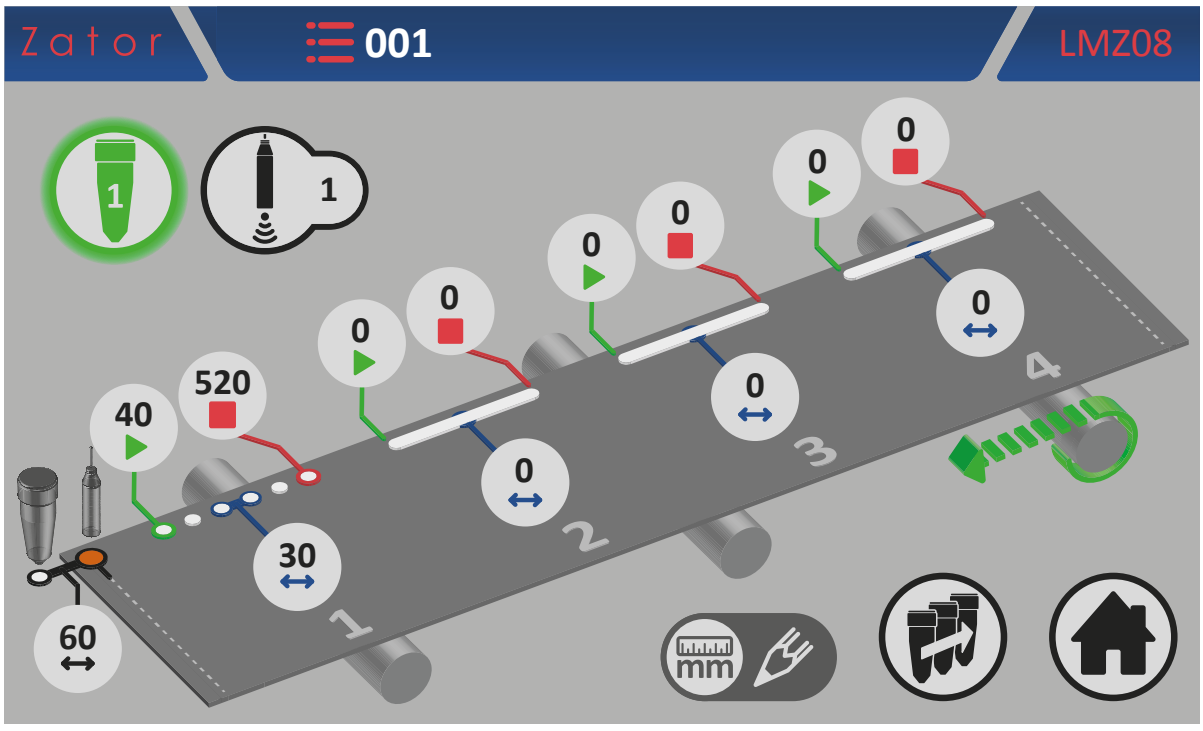
One dots glue pattern programming with dots valve type



REMEMBER:

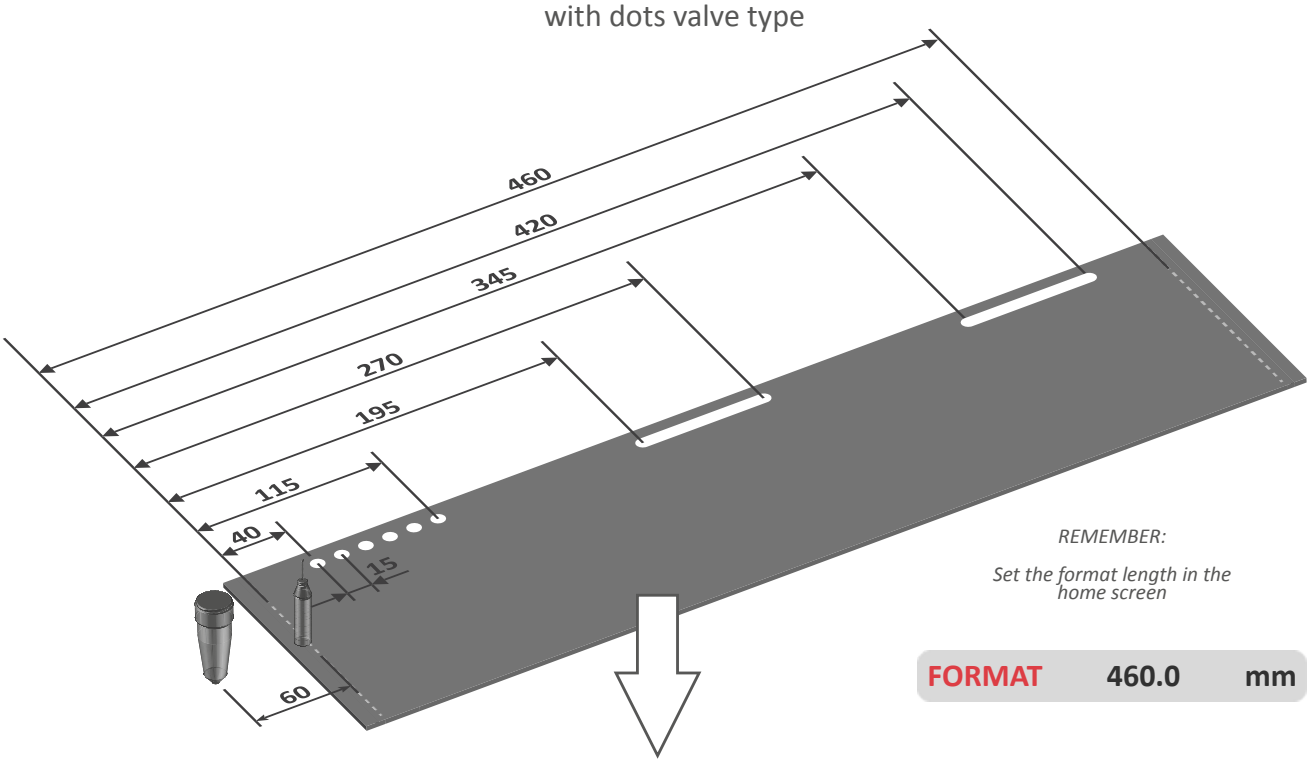
Set the format length in the home screen

FORMAT 560.0 mm



Example No.2:

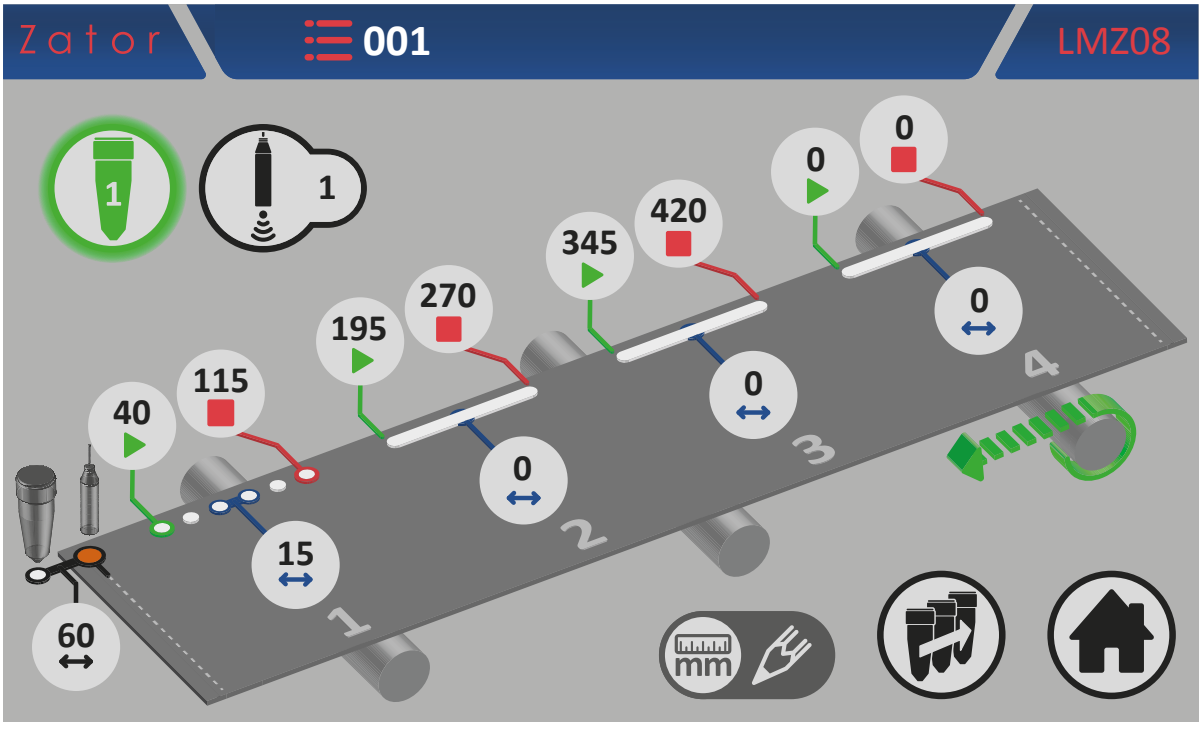
Mix of three glue patterns
with dots valve type



REMEMBER:

Set the format length in the home screen

FORMAT 460.0 mm



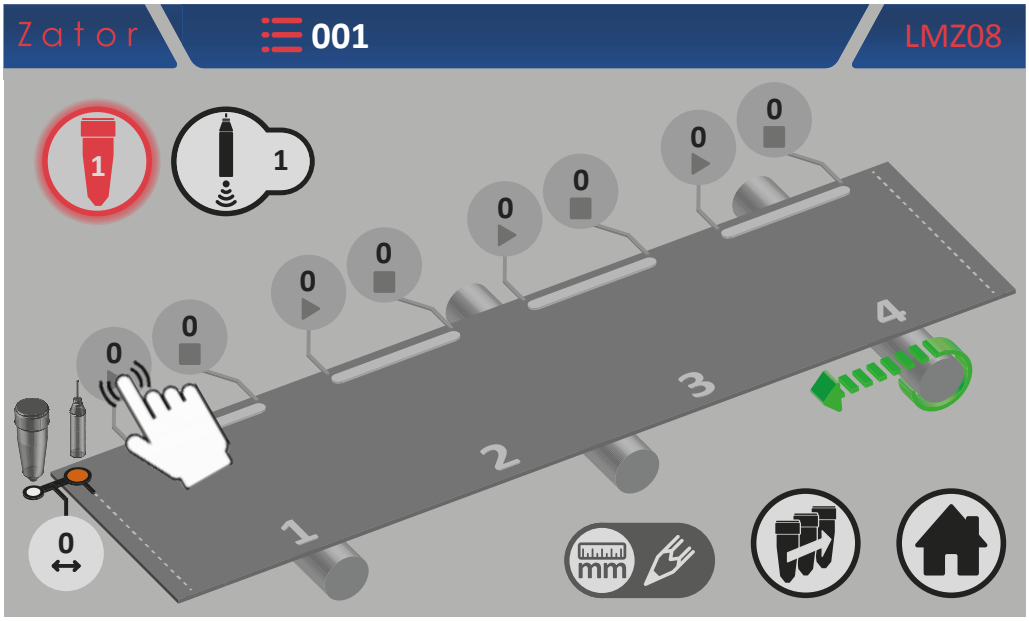
5.2.7 Glue patterns programming for line valves type

5.2.7.1 No.1 glue pattern programming - Enable glue pattern

Every glue pattern distances are setted with default values to 0. Then the glue patterns are visible but they are disabled.
Is not possible to activate the selected valve until the glue patterns are enabled.

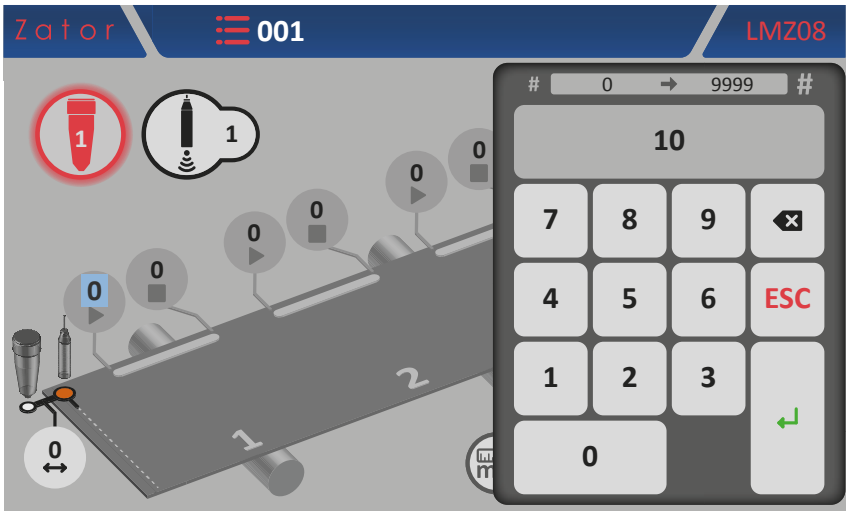
To enable the glue patterns is necessary insert the start parameter of the glue pattern No.1:

1. Then tap  of the No.1 glue pattern *start* parameter;

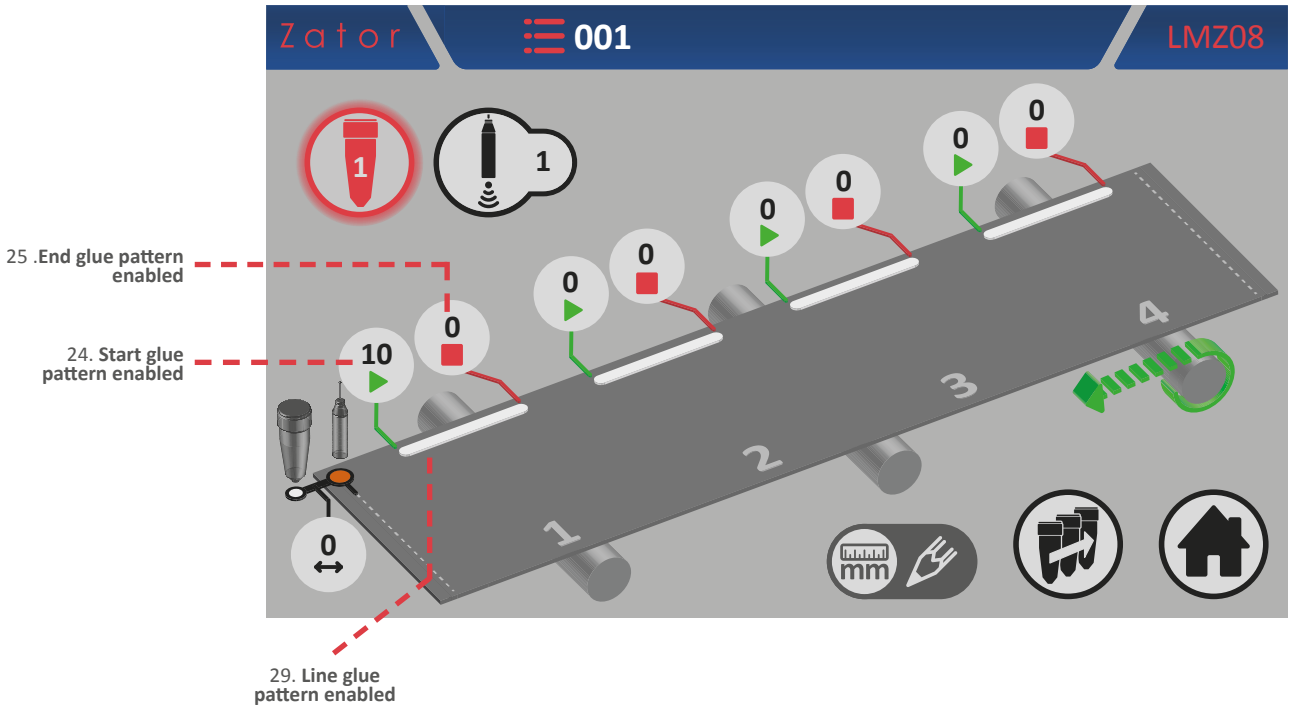


2. With the on screen *numeric keypad* insert/modify data (ex. 10 mm), then tap *enter* to confirm;

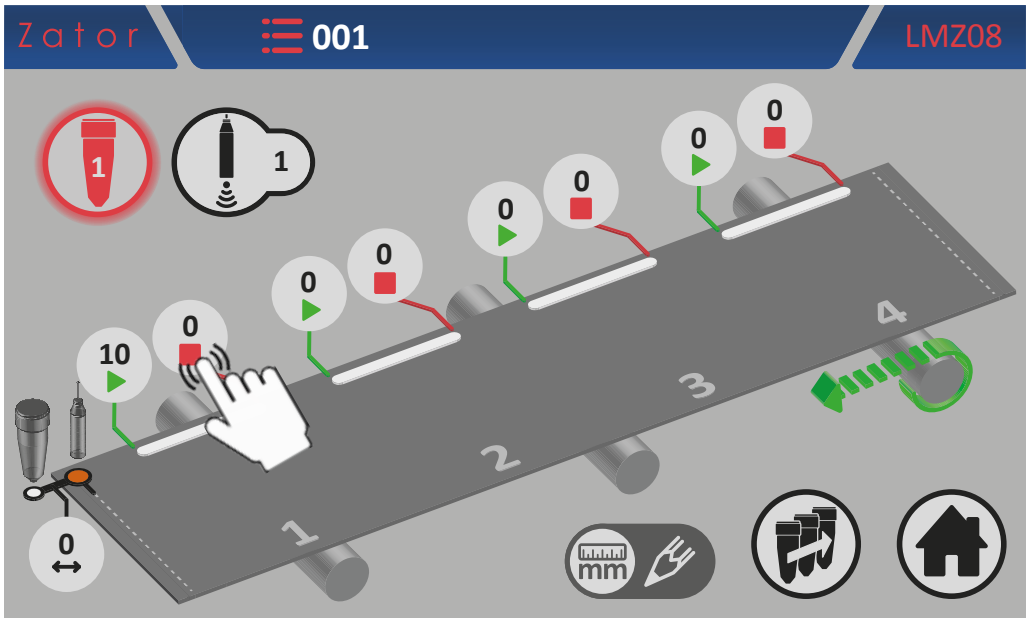
Settable values: from 0 to 9999 mm



3. Once you have confirmed the data, the glue pattern will be enabled;



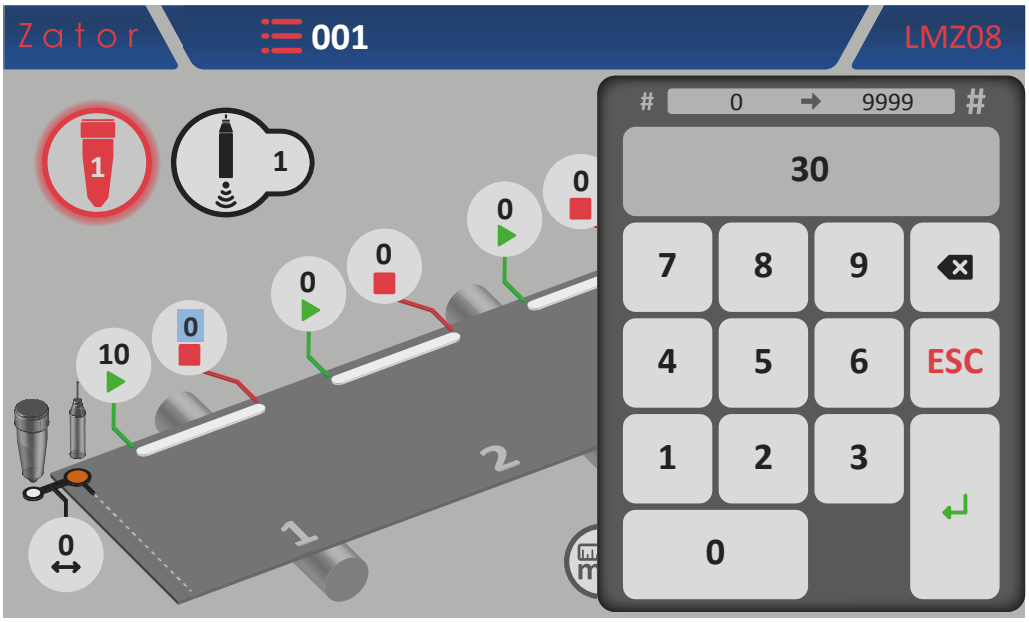
4. To complete the No.1 glue pattern programming is necessary to insert the *end* glue pattern parameter*. Then tap  of the No.1 glue pattern *end* parameter;



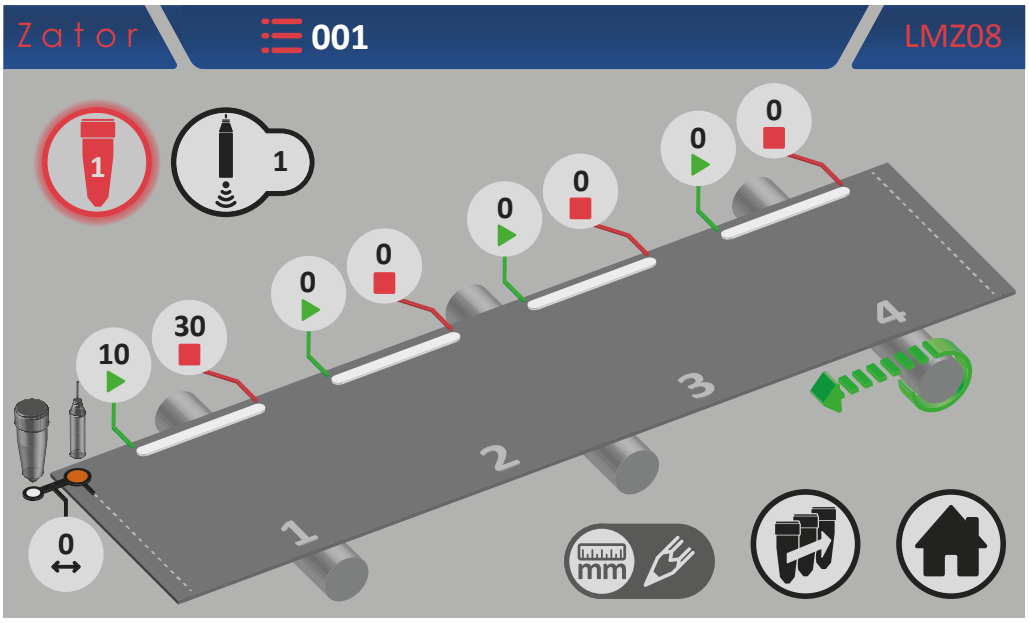
***NOTE**: If the glue pattern end parameter is left with a value equal to zero, the instrument will control the valve that dispensing a continuous glue line pattern, overlooking the start sensor signal.

5. With the on screen numeric keypad insert/modify data (ex. 30 mm), then tap enter to confirm;

Settable values: from 0 to 9999 mm



6. Once you have confirmed the data, the No.1 line glue pattern programming is completed.



5.2.7.2 Add a glue pattern

For add a glue pattern in the program, similarly to the No.1 glue pattern, is necessary insert the start, the end, and in case, the space parameters of the glue pattern you want to add:

- tap  of the new glue pattern *start* parameter* and with the on screen *numeric keypad* insert/ modify data, then tap *enter* to confirm;

- tap  of the new glue pattern *end* parameter* and with the on screen *numeric keypad* insert/ modify data, then tap *enter* to confirm;

***NOTE**: to add a new glue pattern in the program, pay special attention to respect the programming sequence, following the progressive sequence *glue pattern No.1 - glue pattern No.2 - glue pattern No.3 - glue pattern No.4*. For example, if you program the glue pattern No.1 and No.3 (leaving the glue pattern No.2 with their parameters equal to zero), the instrument will ignore automatically the following glue patterns after No.1 even if they have been programmed.

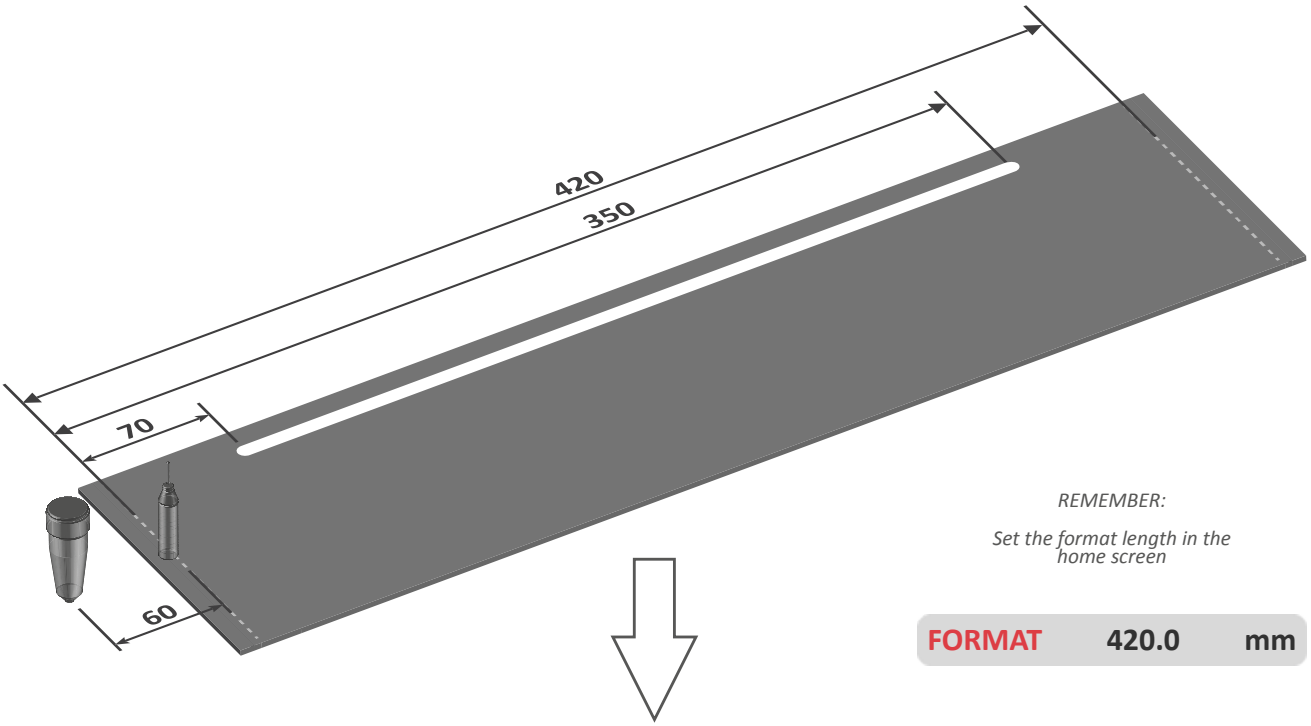
5.2.7.3 Edit a glue pattern

To **modify** and/or **correct** the **position** of a glue pattern, tap the data box relative to glue pattern *start* or *end* parameters desired. With the on screen *numeric keypad* modify data, then tap *enter* to confirm.

5.2.7.4 Programming examples

Example No.1:

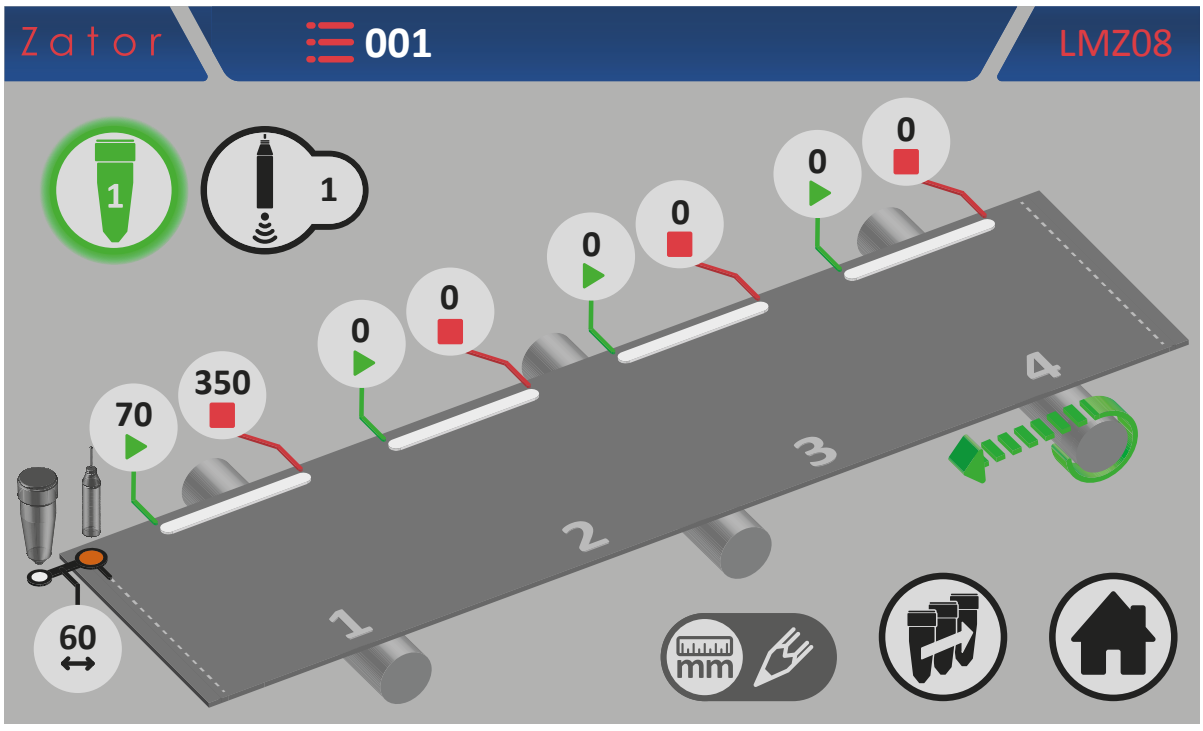
One line glue pattern programming with line valve type



REMEMBER:

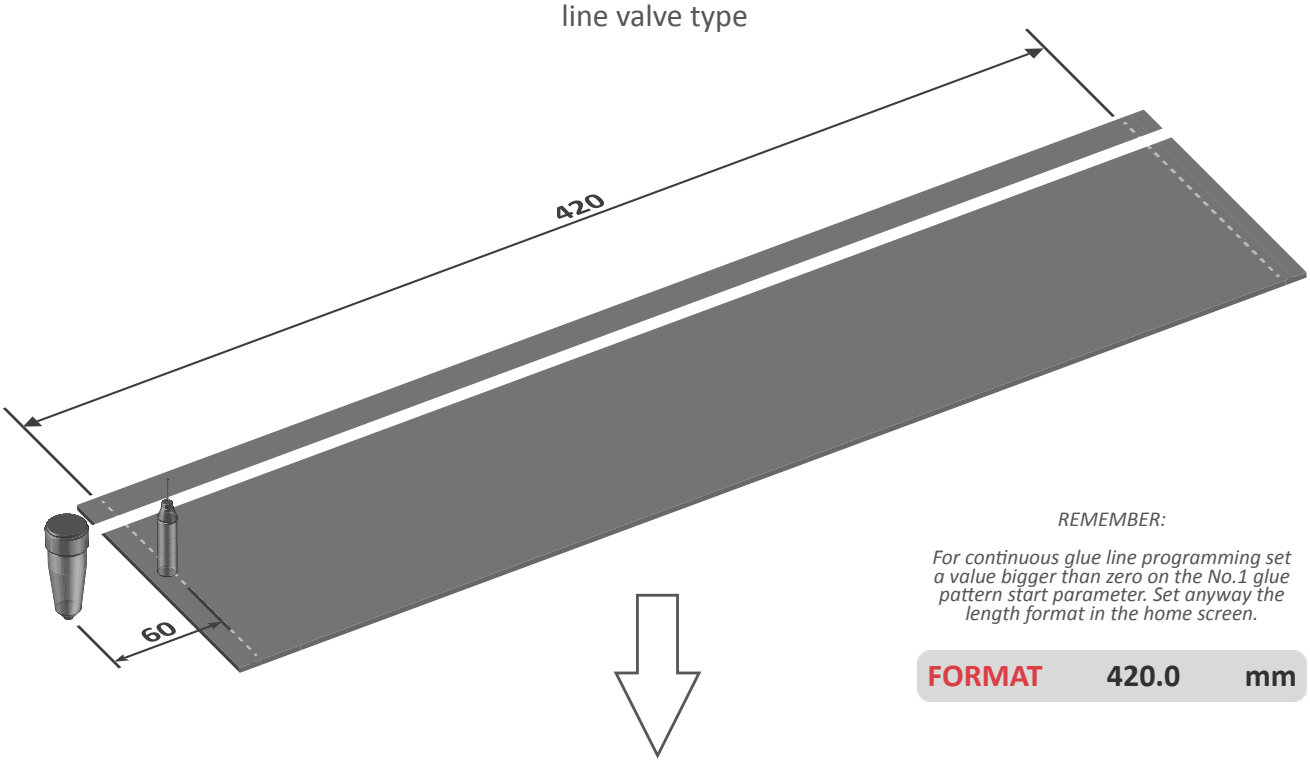
Set the format length in the home screen

FORMAT 420.0 mm



Example No.2:

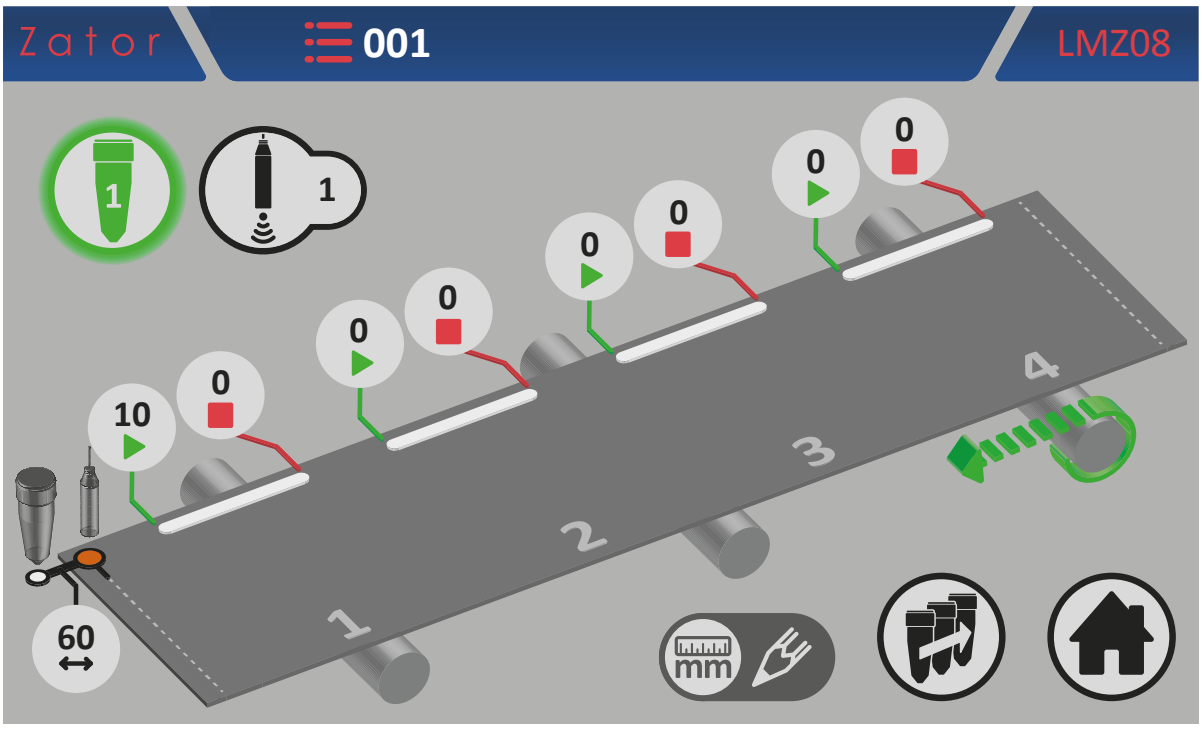
Continuous glue line programming with line valve type



REMEMBER:

For continuous glue line programming set a value bigger than zero on the No.1 glue pattern start parameter. Set anyway the length format in the home screen.

FORMAT	420.0	mm

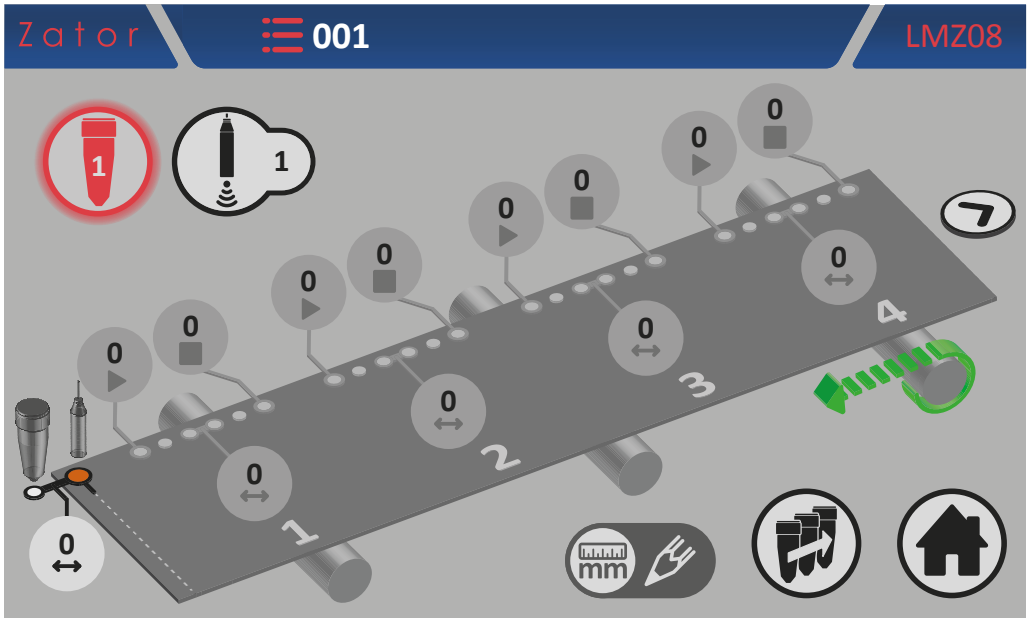


5.2.8 Programming menu with 8 glue patterns

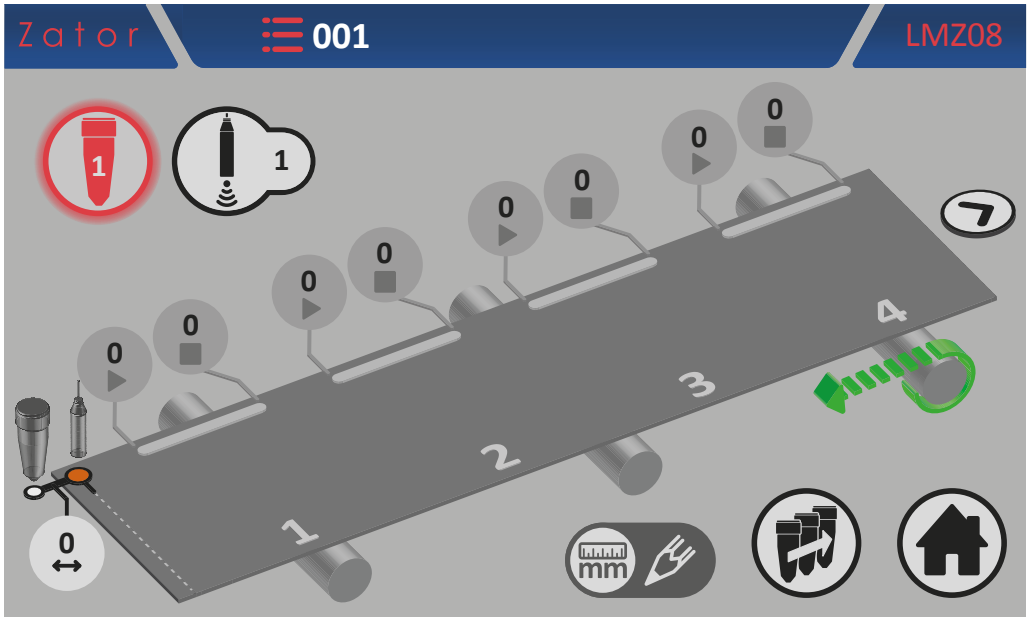
In case of special applications where is required more than 4 glue patterns to dispense on each paper box, the instrument offers the opportunity to program 4 glue patterns in addiction to the standard 4 glue patterns for each installed valve.
To enable No.5-6-7-8 glue patterns see *section 13.5 - No. of glue patterns programmable.*

To access the *No.5-8 glue patterns programming menu*:

1. From *No.1-4 glue patterns programming menu* (for ***dot*** [5M] and ***line*** [5N] valves type) ta 7 ;



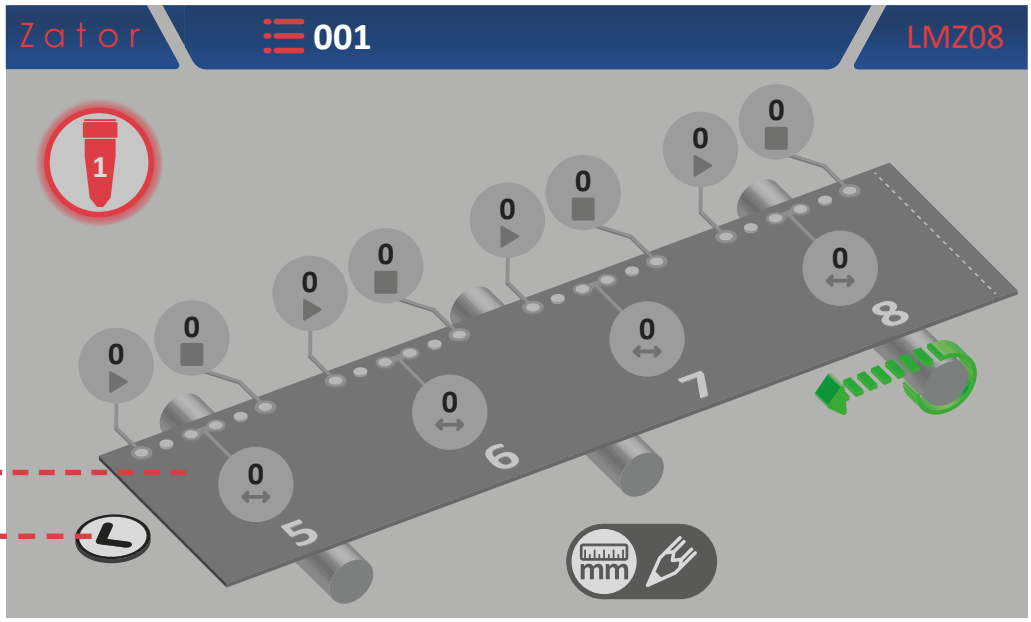
5E: No.1-4 glue patterns programming menu for dots valves type with No.5-8 glue patterns enabled



5F: No.1-4 glue patterns programming menu for line valves type with No.5-8 glue patterns enabled

2. Program the desired glue pattern*;
3. To go back to *No.1-4 glue patterns programming menu* tap .

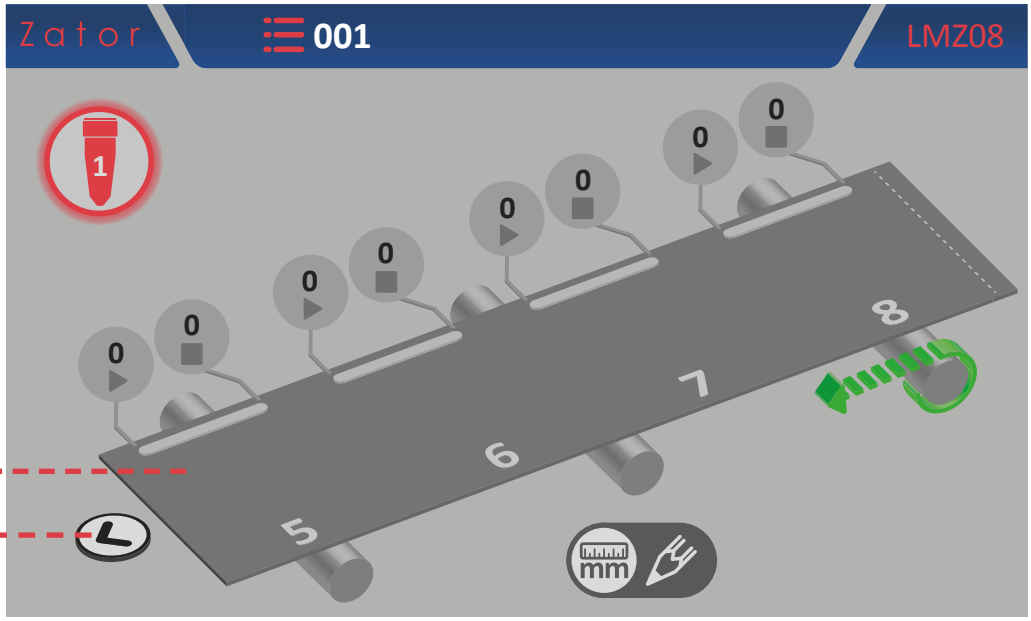
5O: No.5-8 glue patterns programming menu for dots valves type



35. **Glue patterns No.5-8** (paper box)

39. **Previous page** (No.1-4 glue patterns)

5P: No.5-8 glue patterns programming menu for line valves type



35. **Glue patterns No.5-8** (paper box)

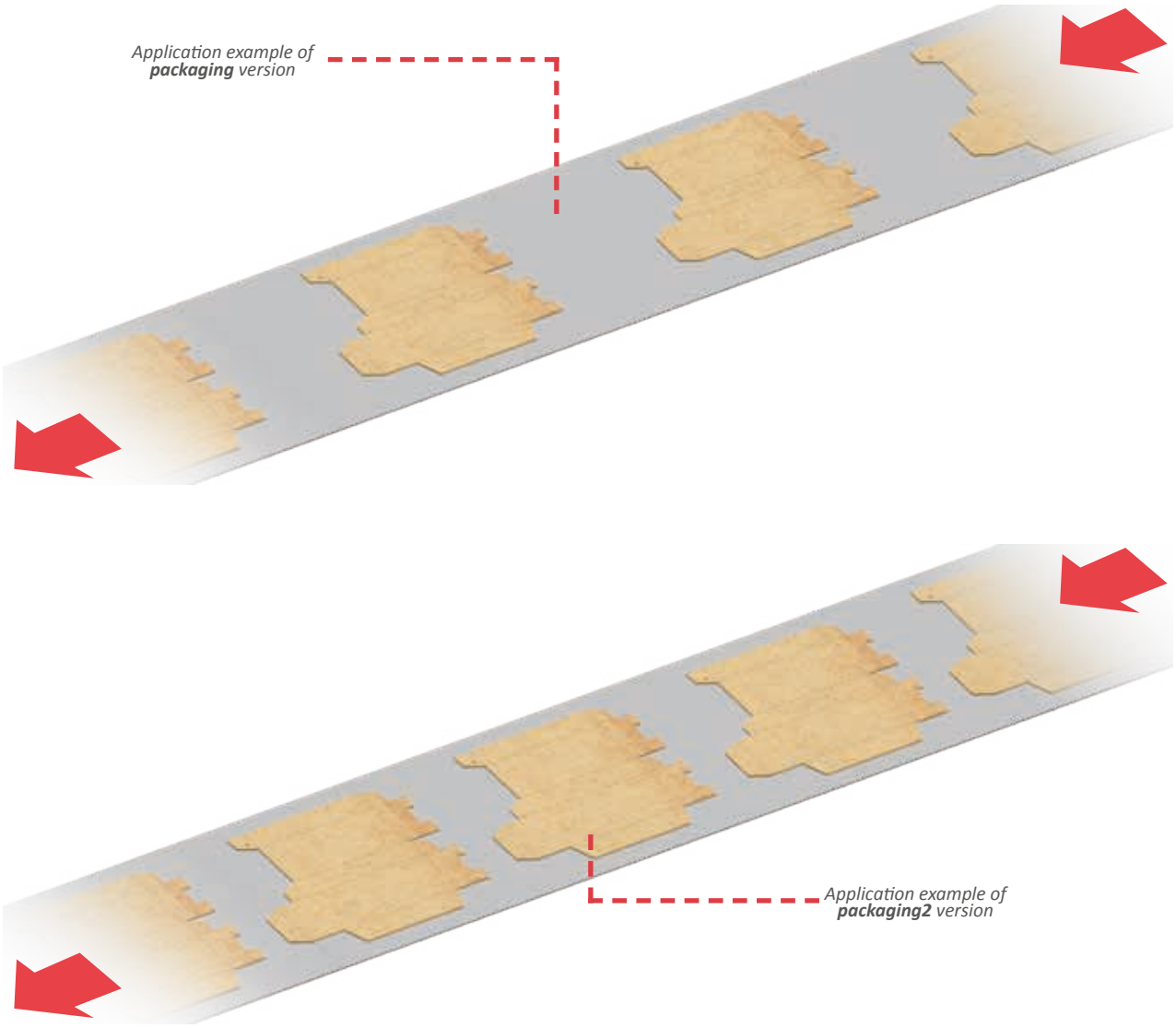
39. **Previous page** (No.1-4 glue patterns)

***NOTE**: to add a new glue pattern in the program, pay special attention to respect the programming sequence, following the progressive sequence *glue pattern No.1 - glue pattern No.2 - glue pattern No.3 - glue pattern No.4*. For example, if you program the glue pattern No.1 and No.3 (leaving the glue pattern No.2 with their parameters equal to zero), the instrument will ignore automatically the following glue patterns after No.1 even if they have been programmed.

6 VALVES PROGRAMMING – TIMER MODE

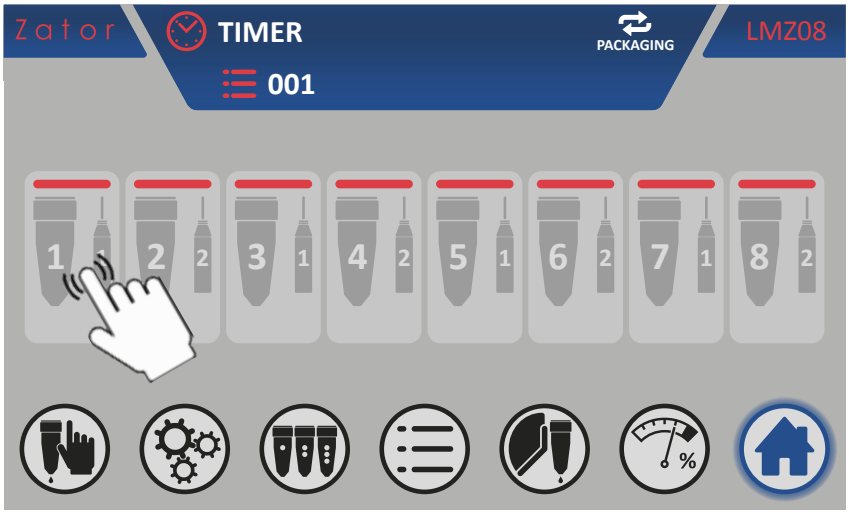
6.1 PACKAGING - PACKAGING2 version programming

The *packaging* version programming has to be used in case of single boxes, separated from each other. Likewise, the *packaging2* version programming has to be used when the single separated boxes are very close to each other.



6.1.1 Programming menu with 4 glue patterns

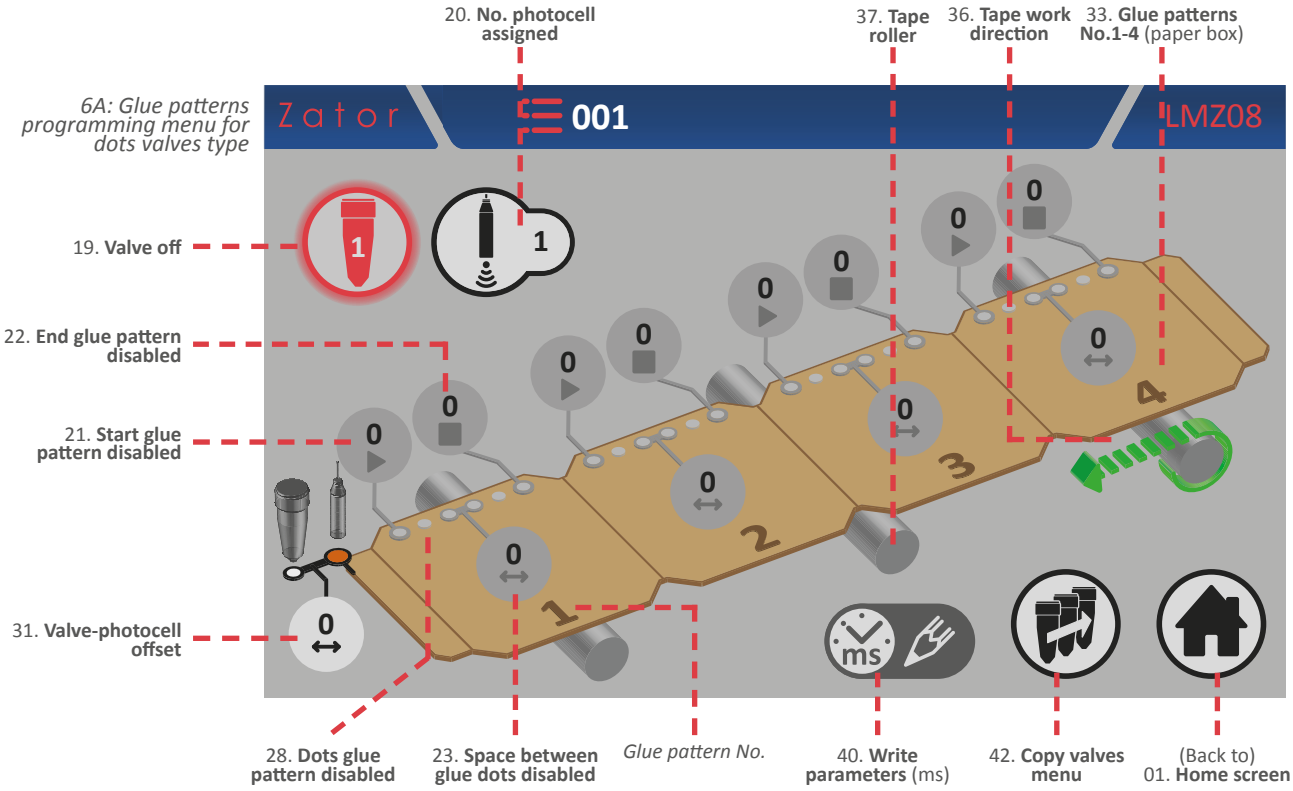
From the *home screen* tap  or tap  to enter the *glue patterns programming menu* of desired valve.



Depending on the valve type assigned (see *section 9.1 - Change the valve type*) is displayed the ***glue patterns programming menu for dots valves type*** [6A] or the ***glue patterns programming menu for line valves type*** [6B] (see following page).

These menu show with a schematic way a three-dimensional view of the machine and the type of application is setted (relative to the current setting of the instrument) that consist of:

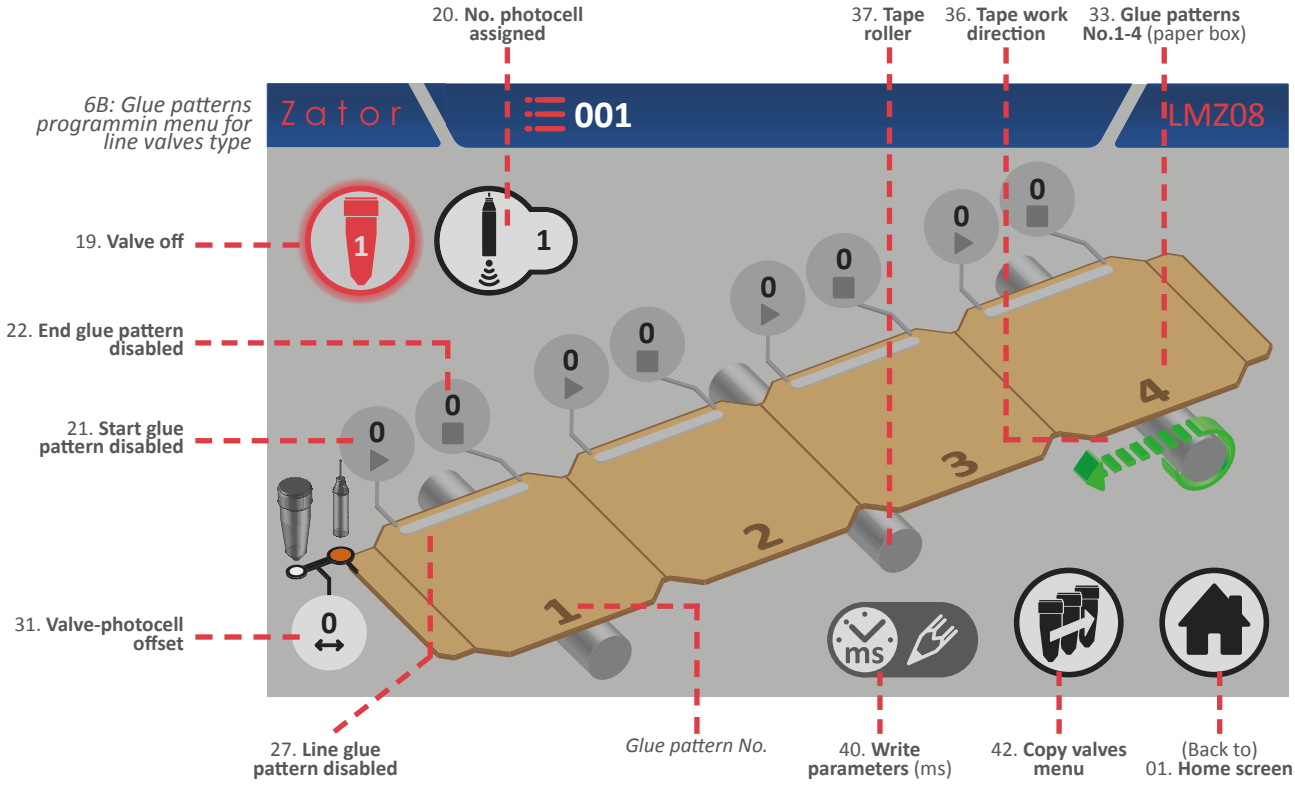
- on/off valve button;
- start sensor number assignment (photocell);
- box to be glued;
- glue patterns programmable (*dots or lines*) and relative distances;
- tape roller and tape work direction;
- valve and start sensor (photocell) and relative offset distance;
- copy valve program button.



The ***write parameters*** icon indicates the measurement unit of the glue pattern programmable distances and the valve-photocell offset time gap, which in the timer mode is milliseconds.

A *dots glue pattern* is defined by:

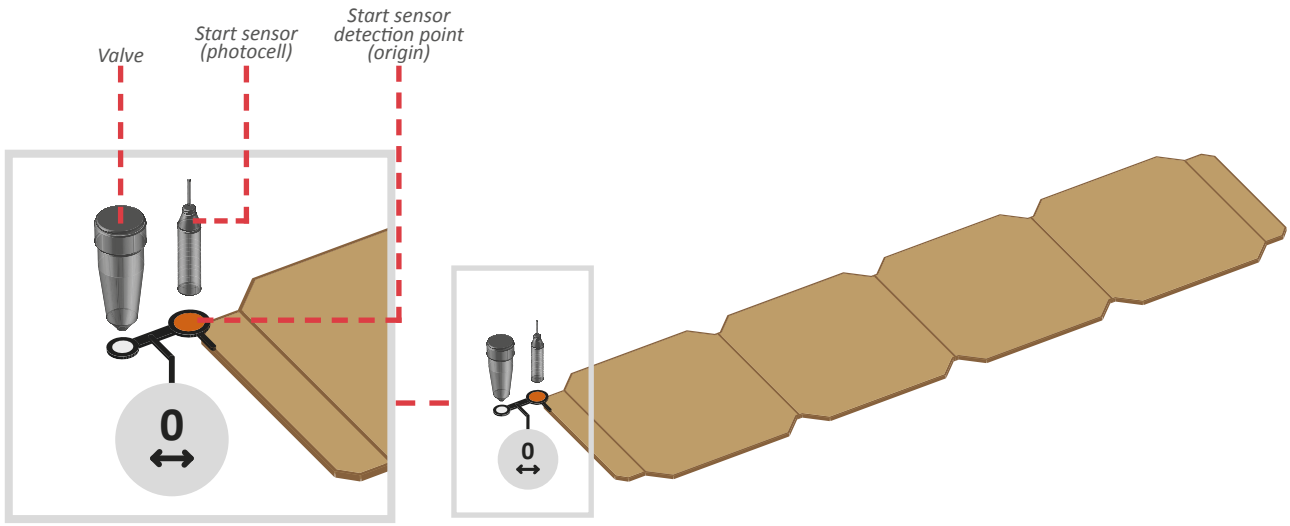
- Start: starting time gap of single glue pattern (ms)
- Space: tome gap between dots in the pattern (ms)
- End: final time gap of single glue pattern (ms)



A *line glue pattern* is defined by:

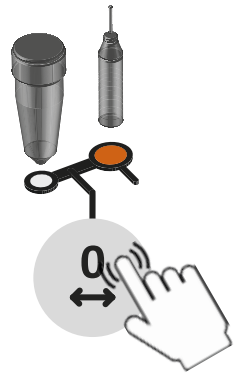
- Start: starting time gap of single glue pattern (ms)
- End: final time gap of single glue pattern (ms)

To determinate the correct dots/line glue pattern position (therefore their distances) the **times have to be calculated from the beginning of the box** (which can be defined as the origin) where the start sensor (photocell) detect it.



6.1.2 Offset

This parameter (default value is set to 0) indicates the time gap (in ms) between the start sensor (photocell or similar device) and the nozzle of the valve. The start sensor must be installed before or on the same line of the valve nozzle.



Insert/modify offset

To determinate the offset value, measure its time gap: to enter or modify the value, tap on the relative data box and with on screen *numeric keypad* insert/modify data, then tap *enter* to confirm.
This parameter must be insert for each installed valve.

Settable values: from 0 to 9999 mm

6.1.3 Start sensor

The control is provided with two inputs for start sensor (photocell, magnetic sensors, contacts,etc.). According to different applications, it's possible to use one or two sensors, then for each valve is necessary to link a start sensor.

Assign/modify No. photocell assigned

To assign/modify the value, tap on relative data box and with on screen *numeric keypad* insert/modify data, then tap *enter* to confirm.

Settable values: from 1 to 8

6.1.4 Turning on/off the valves

After enabling the glue pattern (see *sections No.1 glue pattern programming*) it's possible to switch on the selected valve. From the *glue pattern programming menu*:

- Tap  to **turning on the valve**;
- Tap  to **turning off the valve**;

From the *home screen* it's possible to check if the valve is on  or off  .

6.1.5 Glue patterns programming for dots valves type

6.1.5.1 No.1 glue pattern programming - Enable glue pattern

Follow the instructions on ***section 5.1.6.1*** of the *ENCODER* mode valve programming, remembering that for the TIMER mode programming the measurement unit of the glue patterns parameters is in **milliseconds**.

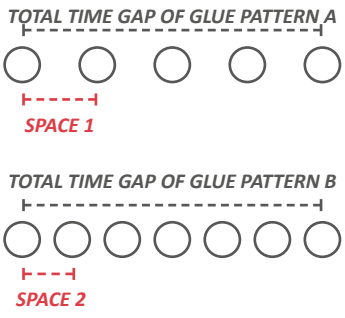
6.1.5.2 Add a glue pattern

Follow the instructions on ***section 5.1.6.2*** of the *ENCODER* mode valve programming, remembering that for the TIMER mode programming the measurement unit of the glue patterns parameters is in **milliseconds**.

6.1.5.3 Edit a glue pattern

To **modify** and/or **correct** the **position** of a glue pattern, tap the data box relative to glue pattern *start* or *end* parameters desired. With the on screen *numeric keypad* modify data, then tap *enter* to confirm.

To **modify** the **dots quantity** in a glue pattern, tap the data box relative to glue pattern space parameter desired. If the space value is high, the dots quantity will be lower. If the space value is low, the dots quantity will be higher. With the on screen *numeric keypad* modify data, then tap *enter* to confirm.

TOTAL TIME GAP OF GLUE PATTERN A = TOTAL TIME GAP OF GLUE PATTERN B ***SPACE 1 > SPACE 2***	

To **convert** from *dots glue pattern* to *line glue pattern*, set the space parameter to zero.

6.1.6 Glue patterns programming for line valves type

6.1.6.1 No.1 glue pattern programming - Enable glue pattern

Follow the instructions on ***section 5.1.7.1*** of the *ENCODER* mode valve programming, remembering that for the TIMER mode programming the measurement unit of the glue patterns parameters is in **milliseconds**.

6.1.6.2 Add a glue pattern

Follow the instructions on ***section 5.1.7.2*** of the *ENCODER* mode valve programming, remembering that for the TIMER mode programming the measurement unit of the glue patterns parameters is in **milliseconds**.

6.1.6.3 Edit a glue pattern

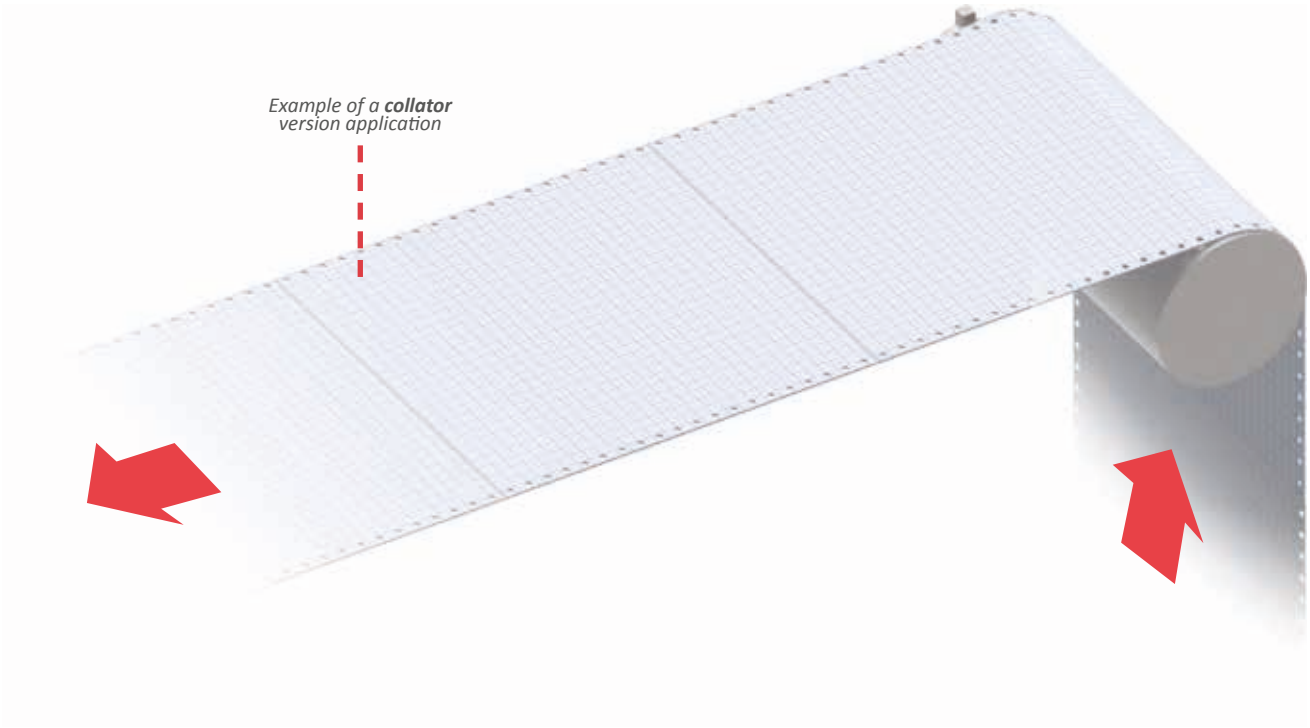
To **modify** and/or **correct** the **position** of a glue pattern, tap the data box relative to glue pattern *start* or *end* parameters desired. With the on screen *numeric keypad* modify data, then tap *enter* to confirm.

6.1.7 Programming menu with 8 glue patterns

Follow the instructions on ***section 5.1.8*** of the *ENCODER* mode valve programming, remembering that for the TIMER mode programming the measurement unit of the glue patterns parameters is in **milliseconds**.

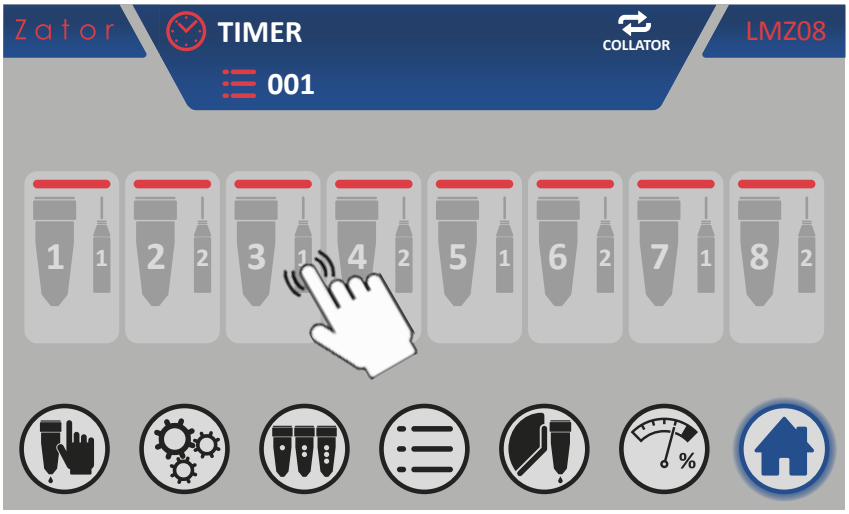
6.2 Collator version programming

The collator version programming has to be used in case of continuous application, not from single boxes, but for example from a coil.



6.2.1 Programming menu with 4 glue patterns

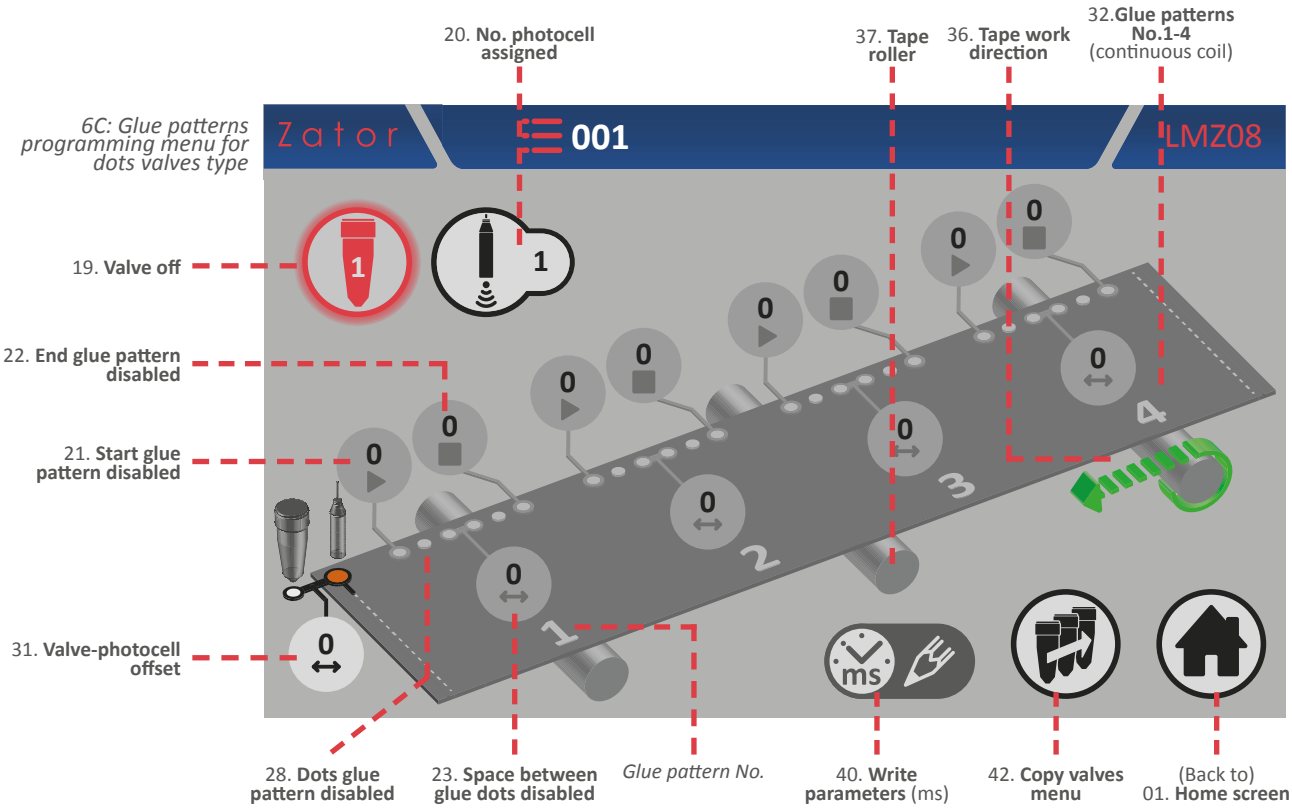
From the *home screen* tap  or tap  to enter the *glue patterns programming menu* of desired valve.



Depending on the valve type assigned (see *section 9.1 - Change the valve type*) is displayed the ***glue patterns programming menu for dots valves type*** [6C] or the ***glue patterns programming menu for line valves type*** [6D] (see following page).

These menu show with a schematic way a three-dimensional view of the machine and the type of application is setted (relative to the current setting of the instrument) that consist of:

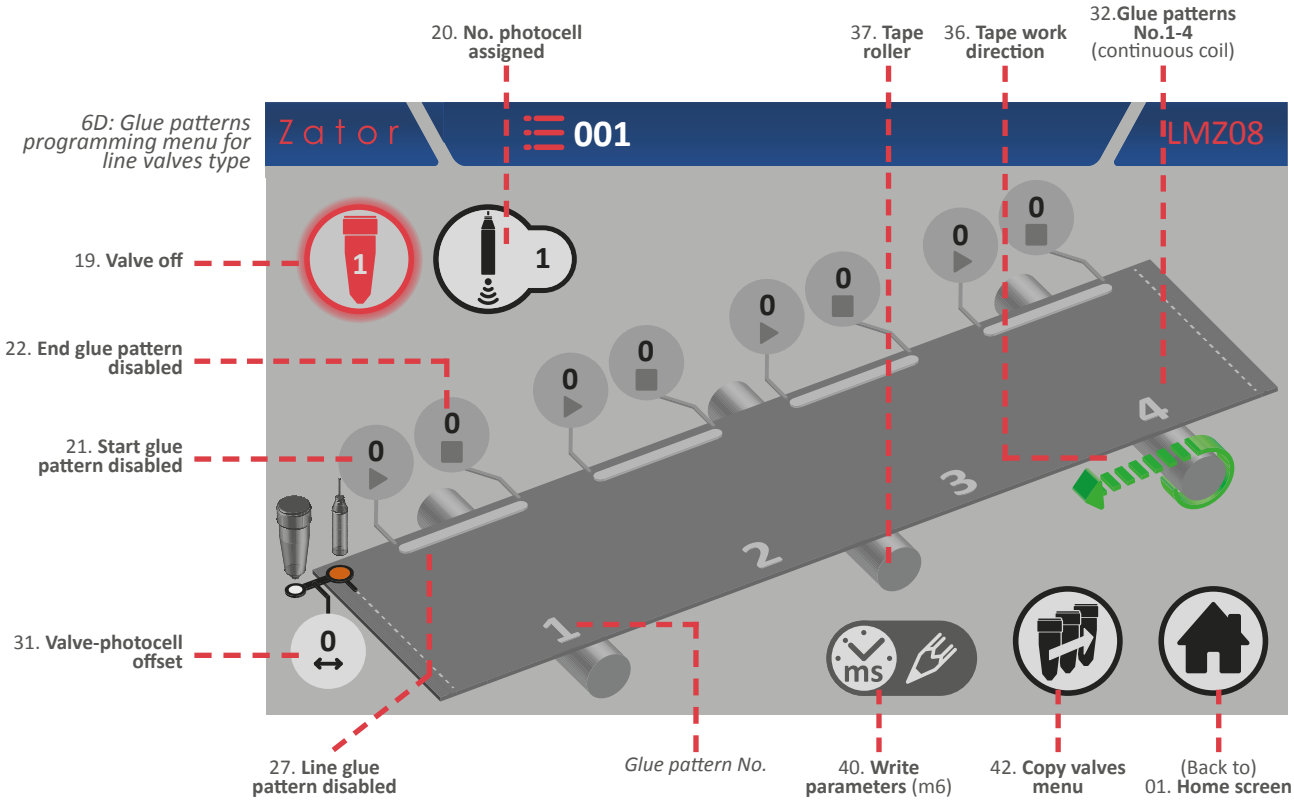
- on/off valve button;
- start sensor number assignment (photocell);
- box to be glued;
- glue patterns programmable (*dots or lines*) and relative time gap;
- tape roller and tape work direction;
- valve and start sensor (photocell) and relative offset time gap;
- copy valve program button.



The ***write parameters*** icon indicates the measurement unit of the glue pattern programmable time gap and the valve-photocell offset time gap, which in the timer mode is milliseconds.

A *dots glue pattern* is defined by:

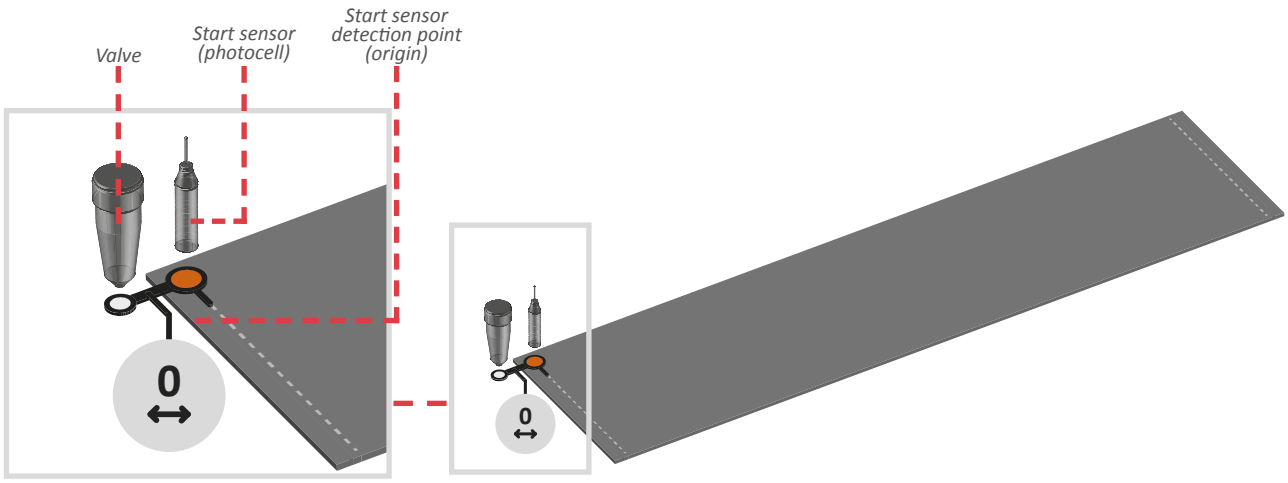
- Start: starting time gap of single glue pattern (ms)
- Space: time gap between dots in the pattern (ms)
- End: final time gap of single glue pattern (ms)



A *line glue pattern* is defined by:

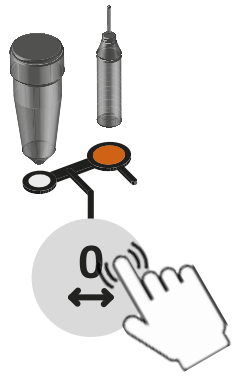
- Start: starting time gap of single glue pattern (ms)
- End: final time gap of single glue pattern (ms)

To determinate the correct dots/line glue pattern position (therefore their time gap) the **times have to be calculated from the beginning of the cut/fold of the coil** (which can be defined as the origin) where the start sensor (photocell) detect it.



6.2.2 Offset

This parameter (default value is set to 0) indicates the time gap (in ms) between the start sensor (photocell or similar device) and the nozzle of the valve. The start sensor must be installed before or on the same line of the cut/fold of the coil.



Insert/modify offset

To determinate the offset value, measure its time gap: to enter or modify the value, tap on the relative data box and with on screen *numeric keypad* insert/modify data, then tap *enter* to confirm.
This parameter must be insert for each installed valve.

Settable values: from 0 to 9999 ms

6.2.3 Start sensor

The control is provided with two inputs for start sensor (photocell, magnetic sensors, contacts,etc.). According to different applications, it's possible to use one or two sensors, then for each valve is necessary to link a start sensor.

Assign/modify No. photocell assigned

To assign/modify the value, tap on relative data box and with on screen *numeric keypad* insert/modify data, then tap *enter* to confirm.

Settable values: from 1 to 8

6.2.4 Turning on/off the valves

After enabling the glue pattern (see *sections No.1 glue pattern programming*) it's possible to switch on the selected valve. From the *glue pattern programming menu*:

- Tap  to **turning on the valve**;
- Tap  to **turning off the valve**;

From the *home screen* it's possible to check if the valve is on  or off  .

6.2.5 Glue patterns programming for dots valves type

6.2.5.1 No.1 glue pattern programming - Enable glue pattern

Follow the instructions on ***section 5.2.6.1*** of the *ENCODER* mode valve programming, remembering that for the TIMER mode programming the measurement unit of the glue patterns parameters is in **milliseconds**.

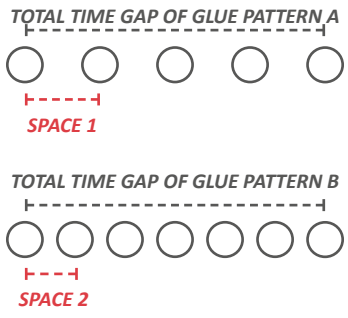
6.2.5.2 Add a glue pattern

Follow the instructions on ***section 5.2.6.2*** of the *ENCODER* mode valve programming, remembering that for the TIMER mode programming the measurement unit of the glue patterns parameters is in **milliseconds**.

6.2.5.3 Edit a glue pattern

To **modify** and/or **correct** the **position** of a glue pattern, tap the data box relative to glue pattern *start* or *end* parameters desired. With the on screen *numeric keypad* modify data, then tap *enter* to confirm.

To **modify** the **dots quantity** in a glue pattern, tap the data box relative to glue pattern space parameter desired. If the space value is high, the dots quantity will be lower. If the space value is low, the dots quantity will be higher. With the on screen *numeric keypad* modify data, then tap *enter* to confirm.

TOTAL TIME GAP OF GLUE PATTERN A = TOTAL TIME GAP OF GLUE PATTERN B ***SPACE 1 > SPACE 2***	

To **convert** from *dots glue pattern* to *line glue pattern*, set the space parameter to zero.

6.2.6 Glue patterns programming for line valves type

6.2.6.1 No.1 glue pattern programming - Enable glue pattern

Follow the instructions on ***section 5.2.7.1*** of the *ENCODER* mode valve programming, remembering that for the TIMER mode programming the measurement unit of the glue patterns parameters is in **milliseconds**.

6.2.6.2 Add a glue pattern

Follow the instructions on ***section 5.2.7.2*** of the *ENCODER* mode valve programming, remembering that for the TIMER mode programming the measurement unit of the glue patterns parameters is in **milliseconds**.

6.2.6.3 Edit a glue pattern

To **modify** and/or **correct** the **position** of a glue pattern, tap the data box relative to glue pattern *start* or *end* parameters desired. With the on screen *numeric keypad* modify data, then tap *enter* to confirm.

6.2.7 Programming menu with 8 glue patterns

Follow the instructions on ***section 5.2.8*** of the *ENCODER* mode valve programming, remembering that for the TIMER mode programming the measurement unit of the glue patterns parameters is in **milliseconds**.

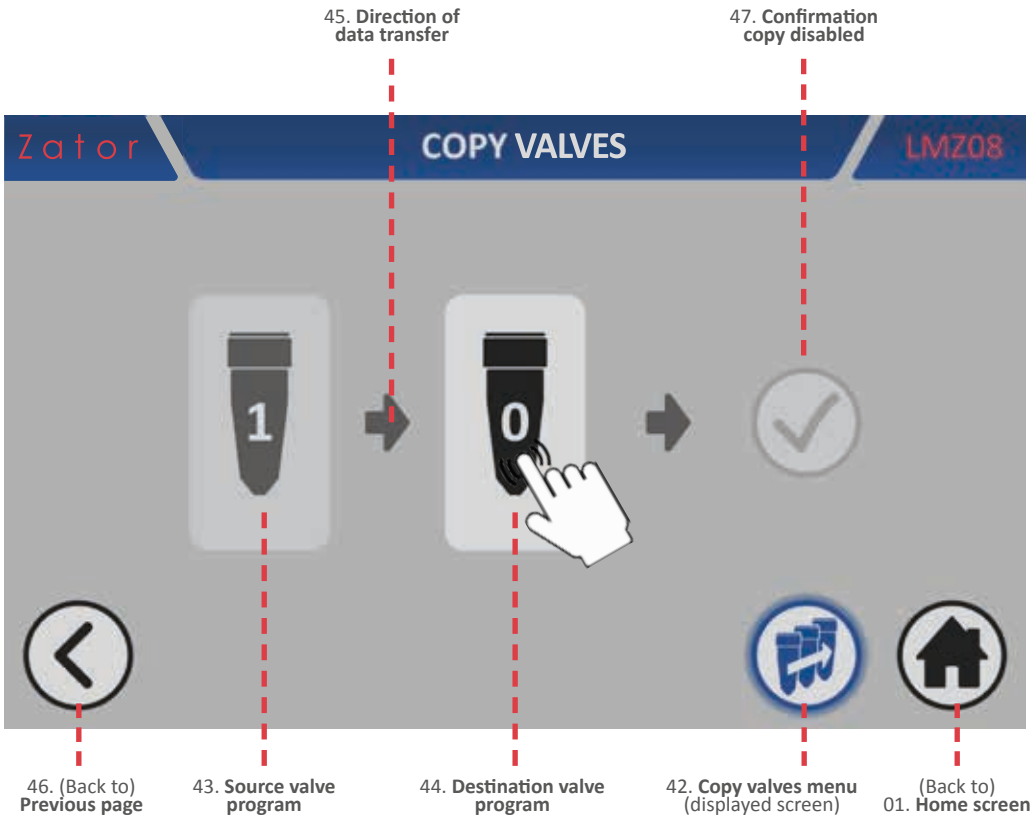
7 COPY VALVES MENU

If some valves must work with the same glue patterns, thanks to the copy valves function it's possible to speed up and simplify the single glue patterns programming.
From the ***copy valves menu*** [7A] you can copy all the distances/time gap relative to the single glue patterns from a valve to another one (the valve-photocell offset is not included in the copy function).

To enter in the *copy valves menu*:

1. After you have programmed the glue patterns, from the *glue patterns programming menu* of desired valve (ex. Gun No. 1), tap  ;
2. From the ***copy valves menu*** [7A] tap  ;

7A: Copy valves menu

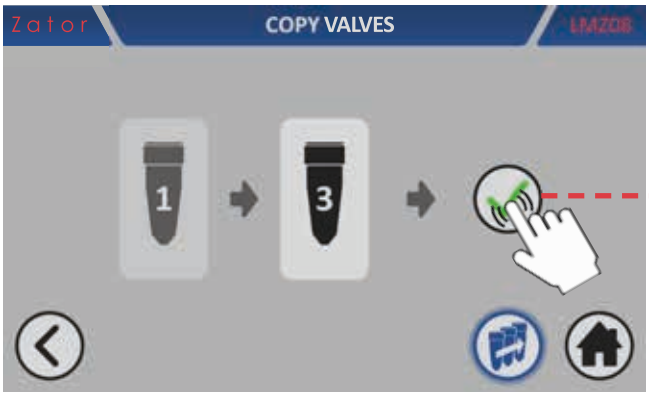


3. With the on screen *numeric keypad* insert/modify the destination valve number where you want to copy the glue patterns data of the *source valve program** (ex. Valve No.3), then tap *enter* to confirm the data;

Settable values: from 1 to 8

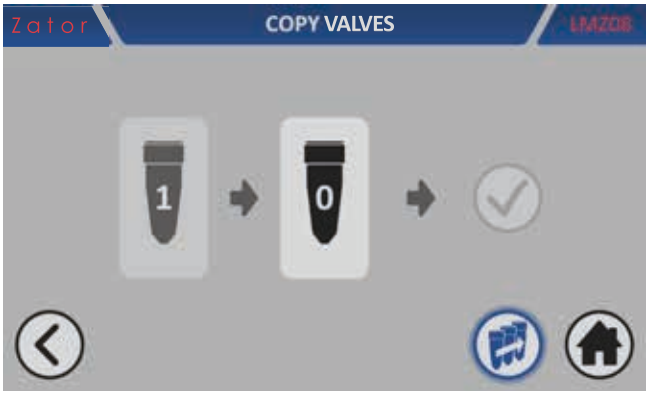
***NOTE**: The *copy valves* function **overwrite** the destination valve data. If there are some glue patterns programmed in the *destination valve program*, these patterns will overwrite with the *source valve program*.

4. To **confirm** and start the copy, tap  that appears on screen;



5. **Wait** the copy process of the data until the icon  disappears;

6. Once the copy is finished, it's possible to **repeat** another copy on others valves without exit to the menu;



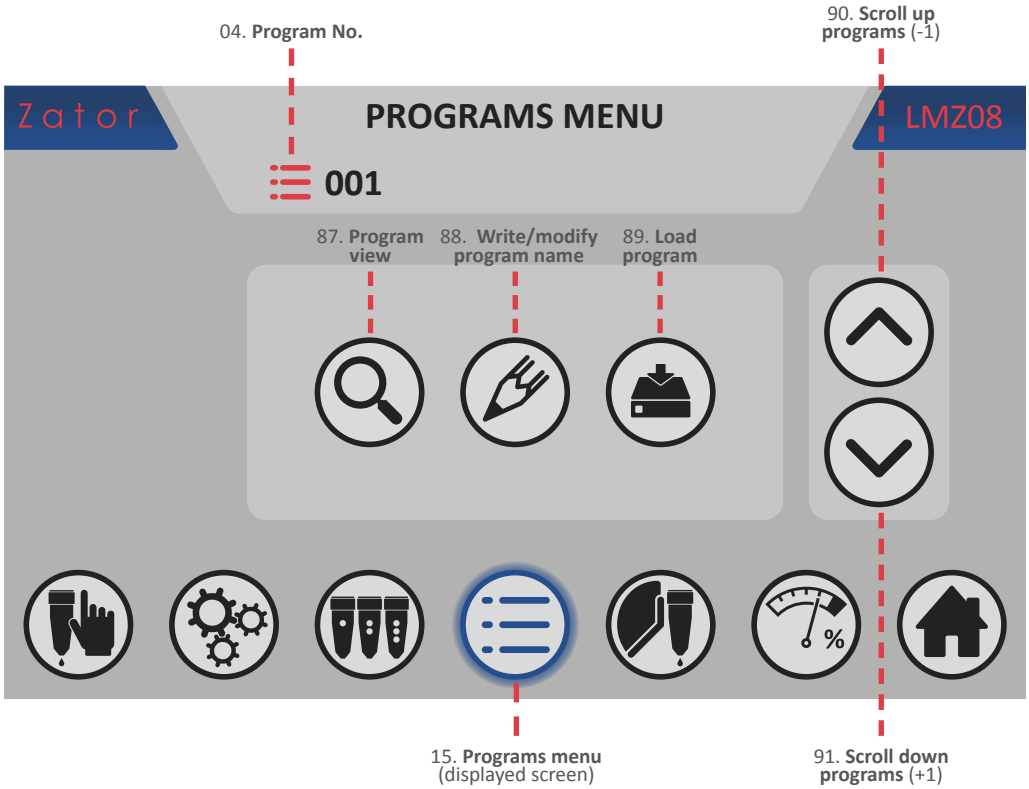
7. To go back to the *previous screen* tap  or tap  to go to *home screen*.

8 PROGRAMS MENU

From the *programs menu* it's possible to operate on the glue patterns programs inside the instrument. All changes made on the glue patterns by the glue patterns programming menu are **automatically saved** (and overwritten) on the currently loaded program. The identification program number never can't be changed.

To enter in the ***programs menu*** [8A], from the menu bar tap  .

8A: Programs menu



From this menu it's possible to:

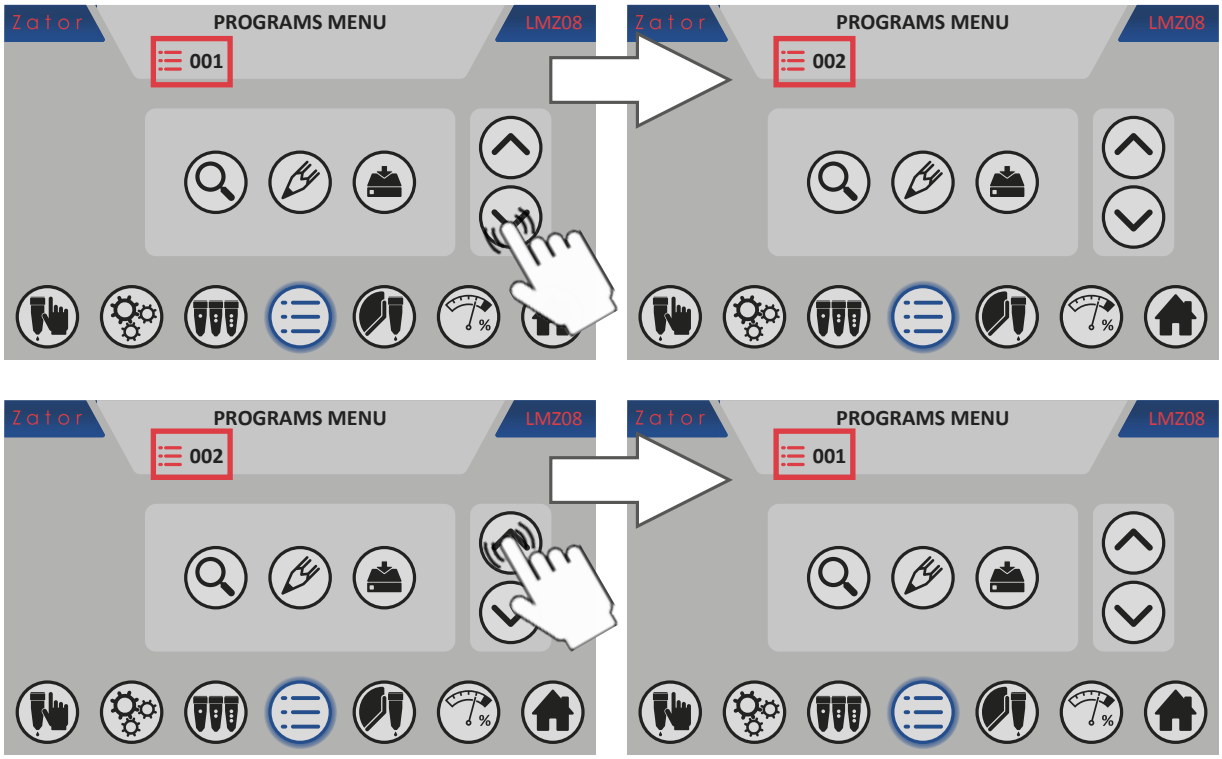
- display the saved and free glue patterns programs;
- write/edit the programs name (optional);
- insert new program;
- load saved program.

8.1 Insert new program/load saved program

The instrument has loaded the program No.001 to default. To insert a new program/load a saved program:

1. From *programs menu* tap  or  to scroll up/down the programs;

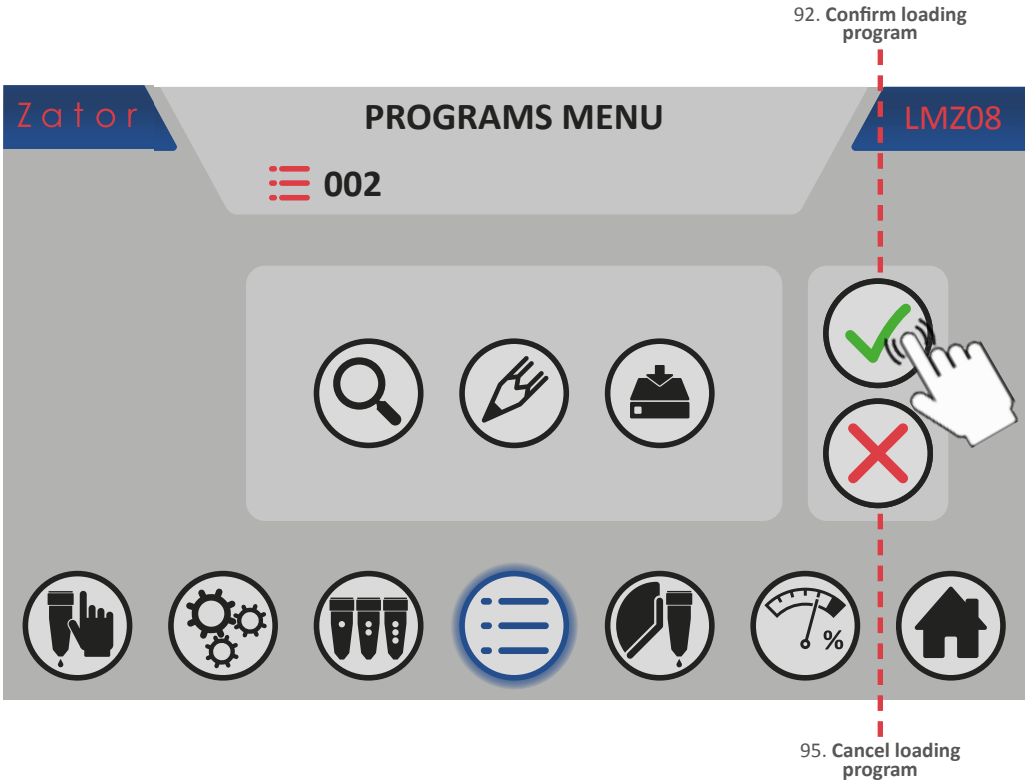
Settable values: from 1 to 50 programs



2. Once you have selected the desired program number (ex. Number 2), tap  to **load** the *new program/the saved program* in the instrument.

***NOTE**: Scroll up/down the programs doesn't involve any changes in the instrument. The program earlier loaded remains in the memory during these actions until won't be loaded another program.

3a. To **confirm** and load the program tap  that appears on screen;



4a. **Wait** the loading process of the data until the icon  disappears;

3b. Otherwise, to **cancel** the operation tap  .

8.2 Write/modify program name

For each program number you can link his *program name* (optional). The program name can be written/ modified whenever is necessary.

To write/modify a program name:

1. From the *programs menu* tap  to display the *text box*;
2. Then tap on the *text box*  to display the ***uppercase QWERTY keyboard***;

3. With the on screen *QWERTY keyboard* tap letters to type the program name. You can enter up to a maximum of 20 characters (include letters, numbers and symbols);

4. To switch to ***lower-case QWERTY keyboard*** tap  ;

114. **Lower-case QWERTY keyboard**

5. To switch back to ***upper-case QWERTY keyboard*** tap  ;

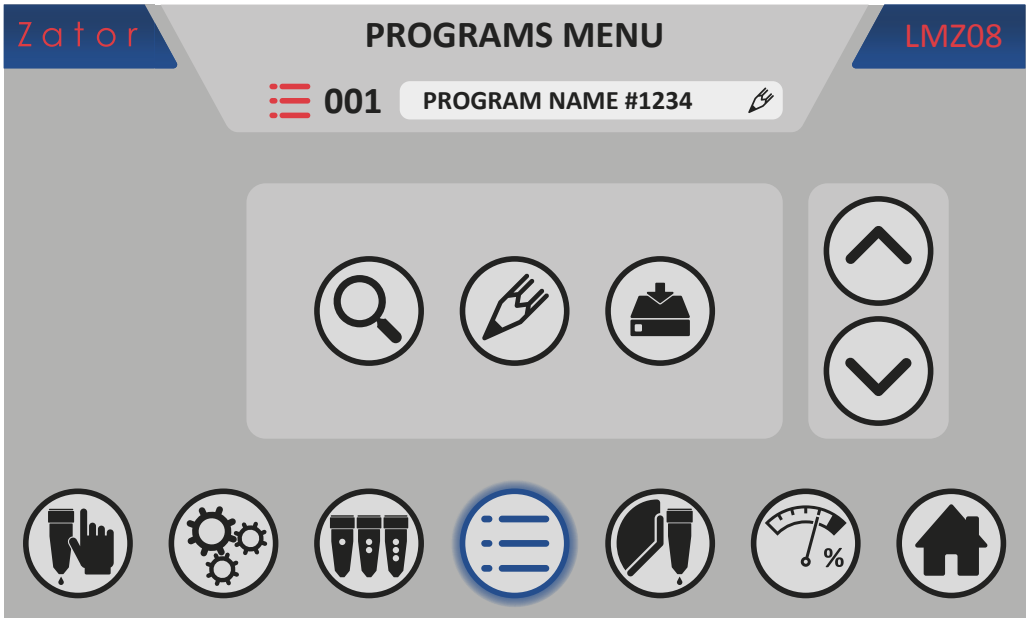
6. To cancel one or more characters tap ⌫ ;

7. To move between characters tap ◀ or ▶ ;

8. To add a space between two characters tap ␣ ;

9a. Tap ↵ to **confirm** the insertion/changes and exit from the keyboard;

The text box closes automatically once you change the displayed screen.



10a.Then the program name will displayed near the program number in the menu where expected;

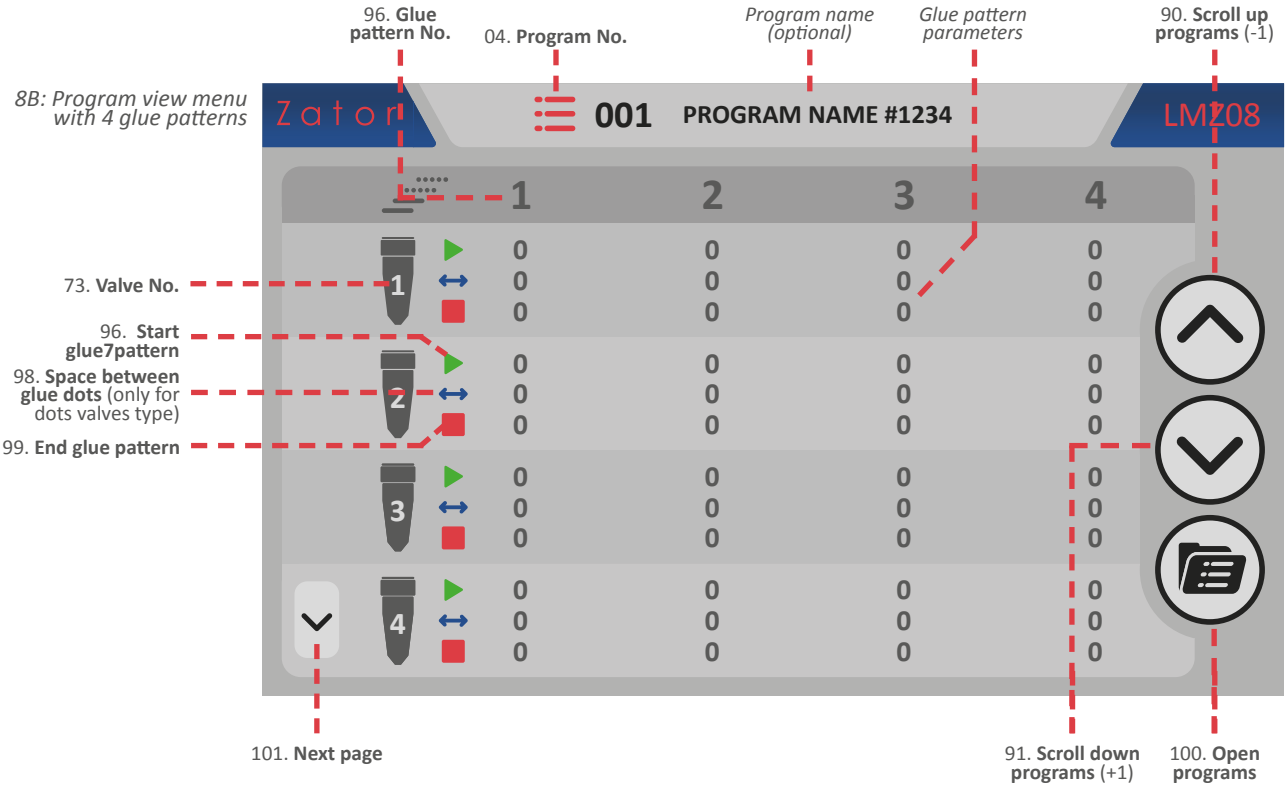
9b. Or tap ESC to **exit** from the keyboard and **cancel** the changes.

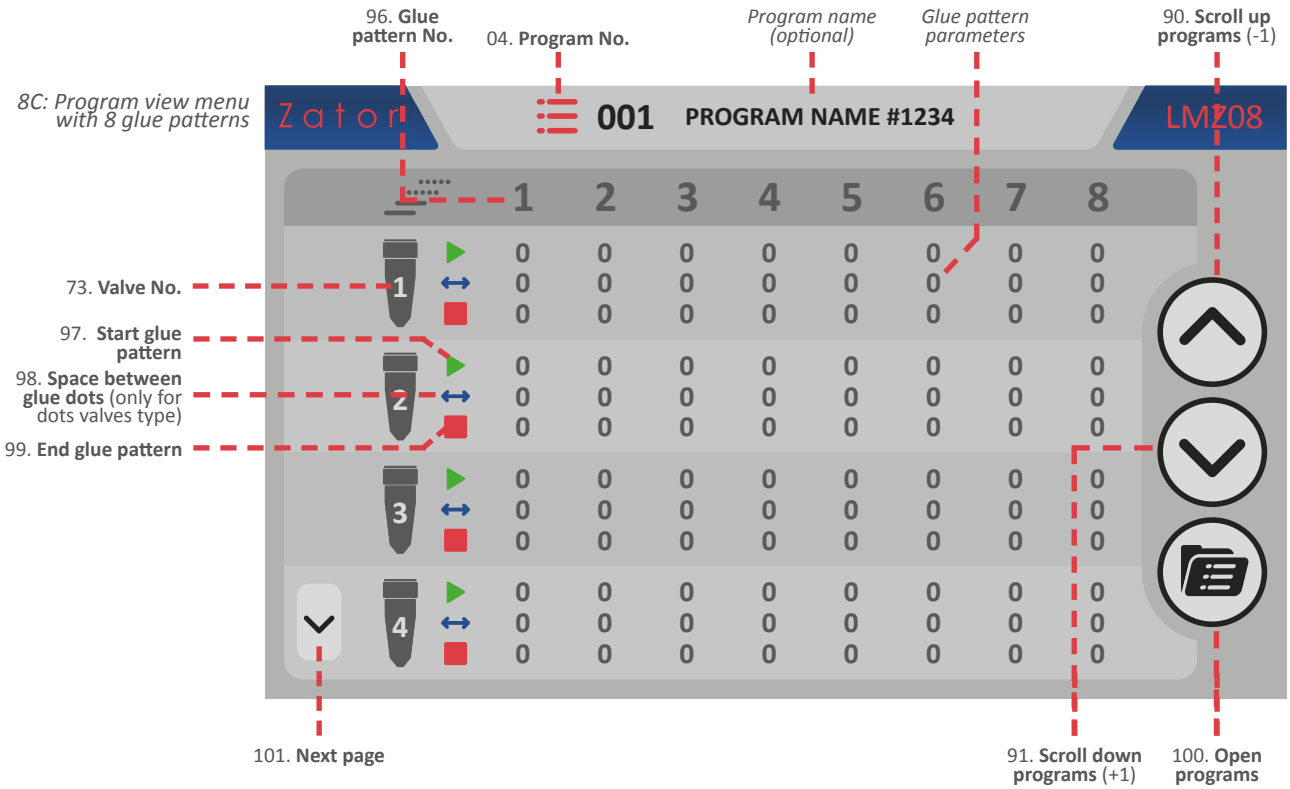
8.3 Display a program

Thanks to the *program view* menu it's possible to display the glue patterns parameters relatives to the saved programs or display and find the free programs, without have to load the program and then stop the production. Depending on the set mode, the unit of measure of the parameters is in **mm** (for the *ENCODER* mode) or in **ms** (for the *TIMER* mode).

To enter in the ***program view menu with 4 glue patterns*** [8B] or in the ***program view menu with 8 glue patterns*** [8C] (to enable No.5-6-7-8 glue patterns see *section 13.5 - No. of glue patterns programmable*):

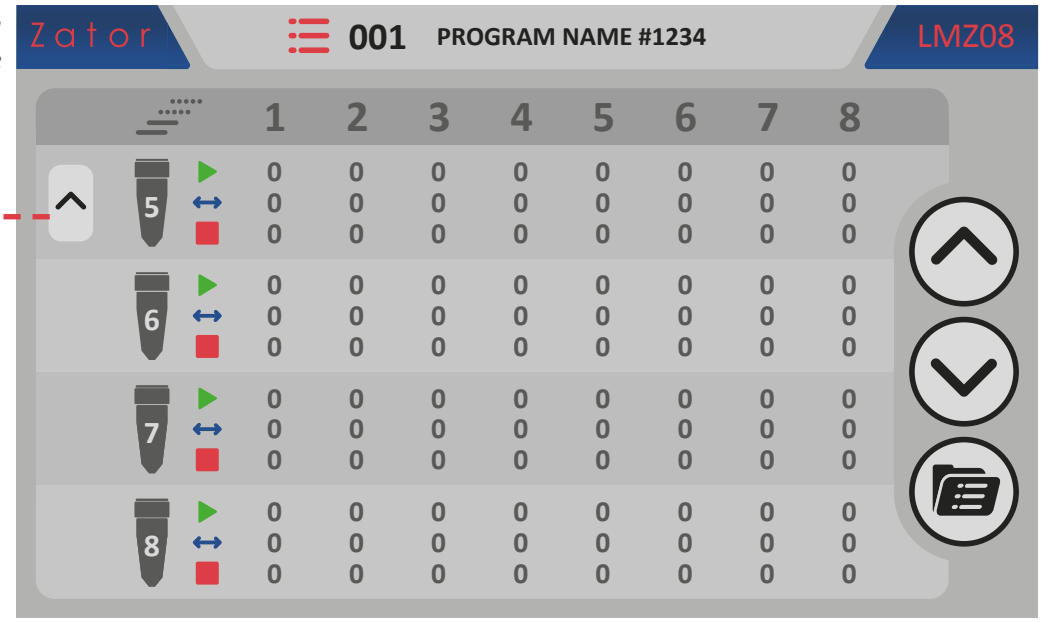
1. From the *programs menu* tap  ;





2. To display ***the other valves*** [8D-8E] tap  to go to the next page;

8E: Program view menu with 8 glue patterns, guns 5-8



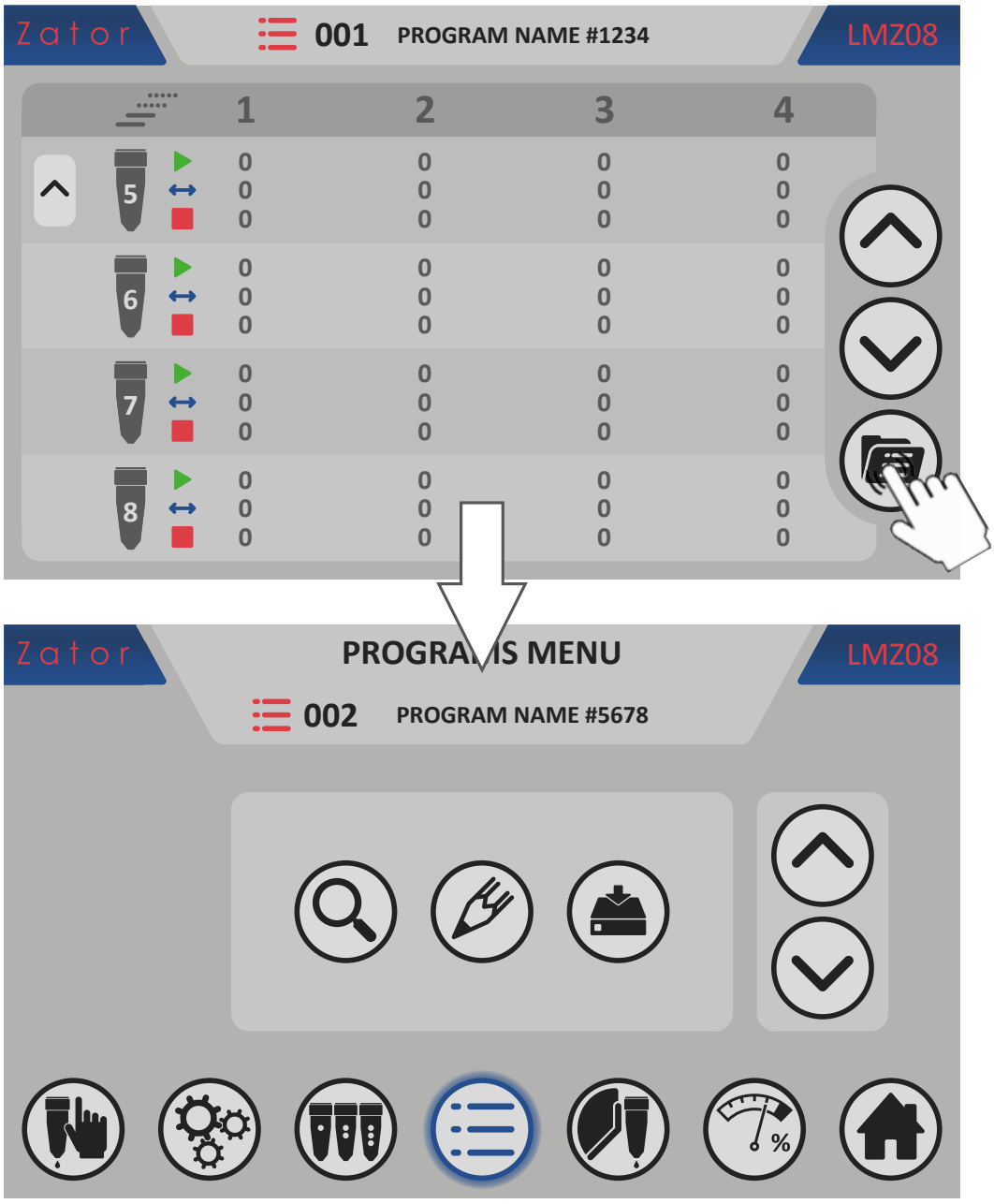
3. Conversely, tap  to go back to the previous page;

4. Tap  or  to scroll up/down* the programs;

Settable values: from 1 to 50 programs

***NOTE**: Scroll up/down the programs doesn't involve any changes in the instrument. The program earlier loaded remains in the memory during these actions until won't be loaded another program.

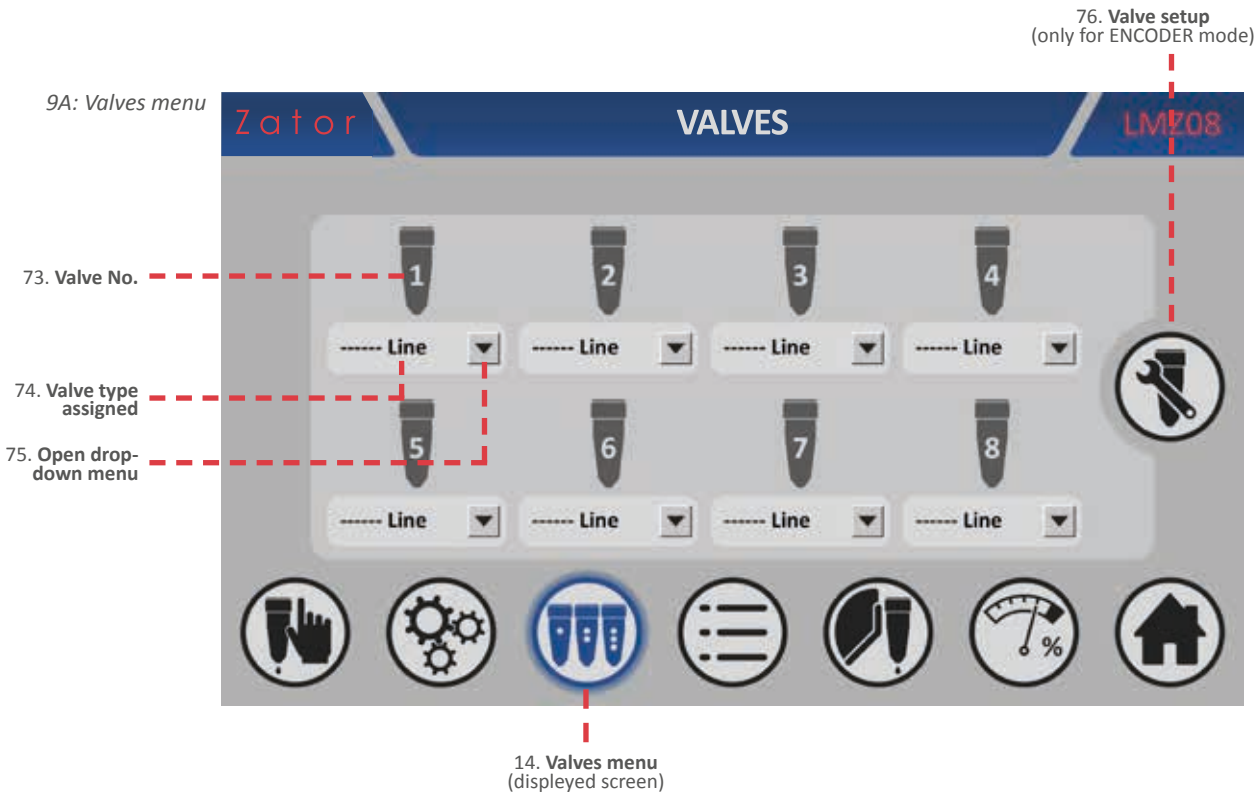
5. Once you have selected the desired program number (ex. Number 2), tap  to **open** the program and **back** to the *program menu*. This action doesn't involve any changes in the instrument. To load the program is necessary follow the instructions in the *section 8.1 - Insert new program/load saved program.*



9 VALVES MENU

The instrument can be controls different types of valves: thanks to this menu it's possible to change the valve type assigned to employ for each channel. Also if is necessary you can modify manually the setting parameters of each valve (only for *ENCODER* mode).

To enter in the ***valves menu*** [9A], from the *menu bar* tap  .



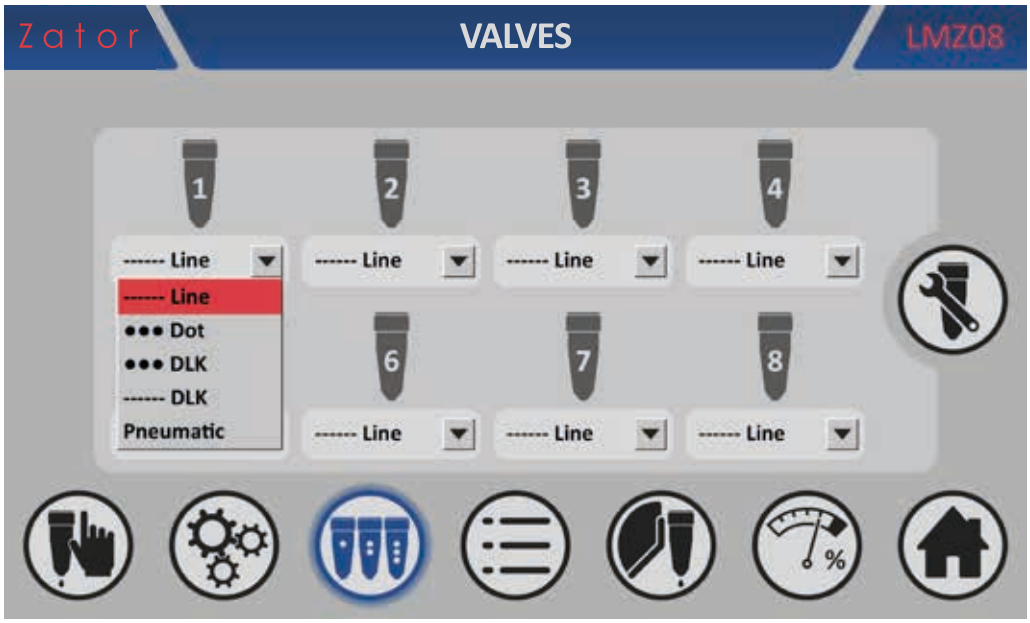
CAUTION: Change the valve type and modify manually the setting parameters of the valves are operations usually carried out during the installation of the instrument. These operations are used to optimize the instrument in relation to the production machine where it's installed. Normally these data don't need to be changed, but if it's necessary these changes **must be performed by AUTHORIZED PERSONNEL**. Every data changes made wrongly may cause **malfunctioning of the equipment.**

9.1 Change the valve type

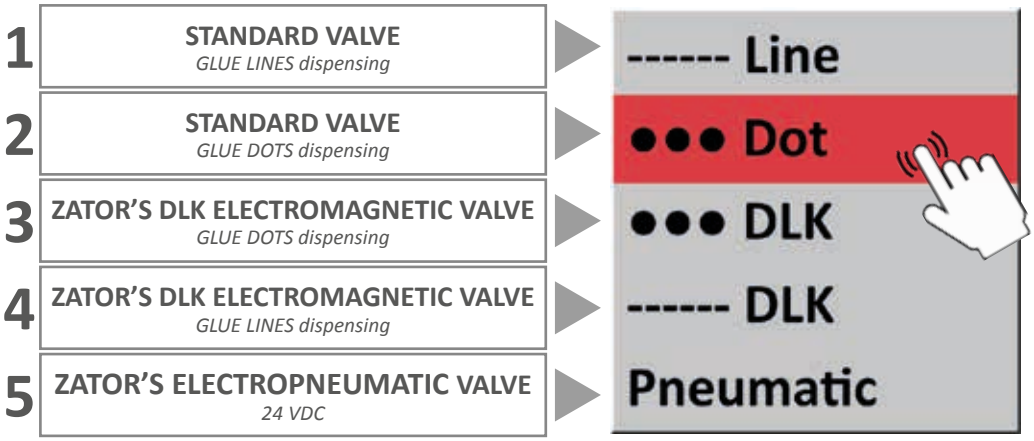
To change the valve type:

1. From the *valves menu* tap  of desired valve (ex. Gun No.1) to open ***drop-down menu*** [9B]. The valve type currently assigned is highlighted from red;

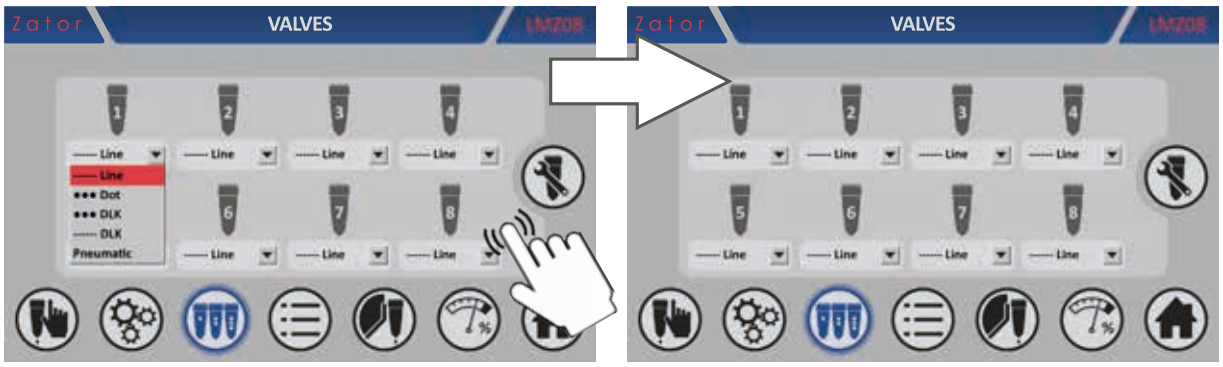
9B: *Drop-down menu of valve No.1*



2a. By *drop-down menu* it's possible to select one of 5 types of different valves (standard or made by *ZATOR production*). To assign a new type of valve tap on your desired type (ex. "●●● Dot");

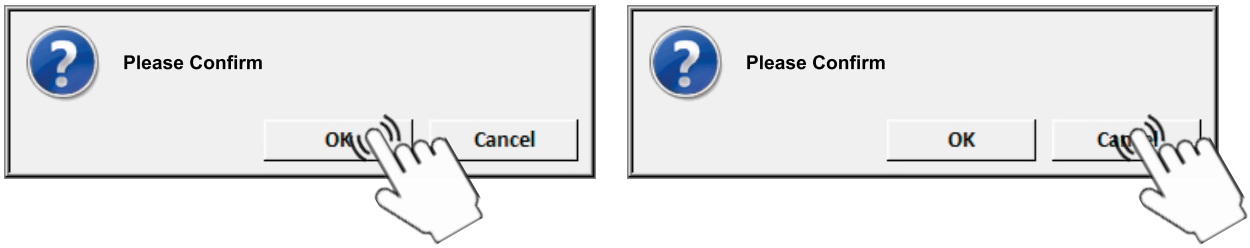


2b. Or to **exit** the *drop-down menu* tap anywhere on the screen. Alternatively, the window will close automatically after 10 seconds;

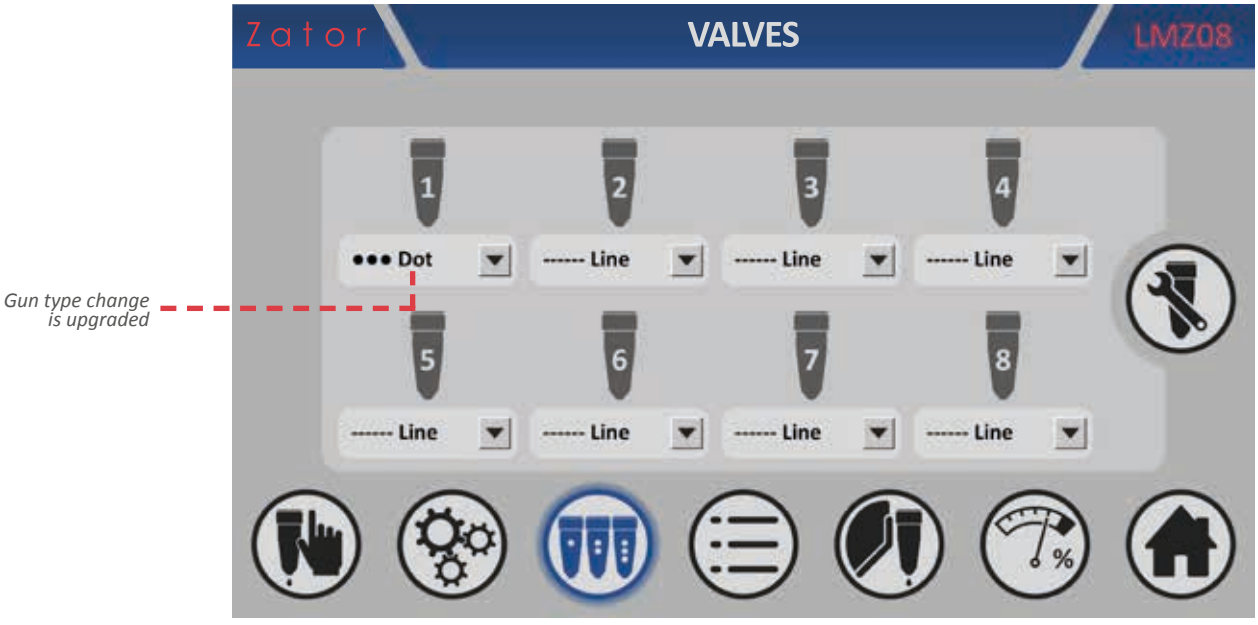


3a. Once the new type of valve is selected, is necessary confirm the change with the pop-up window that will appear. Tap *OK* to **confirm**;

3b. Or tap *Cancel* to **cancel** the changes. Alternatively, the window will close and cancel changes automatically after 10 seconds;



4a. The new type of valve is upgraded under its relative valve icon.



9.2 Change manually the valves parameters (only for ENCODER mode)

If on the production machine some standard valves were replaced with other different valves from those originally installed on during the placing in service of the instrument, it's possible to modify their setting parameters to optimize their work.

CAUTION: The valves parameters are protected by access code (indicated in this section): these parameters must be entered/edited **ONLY BY QUALIFIED PERSONNEL**, as well as the access code **must be issued only to these persons**. Every data changes made wrongly may cause **damages to the valves**.

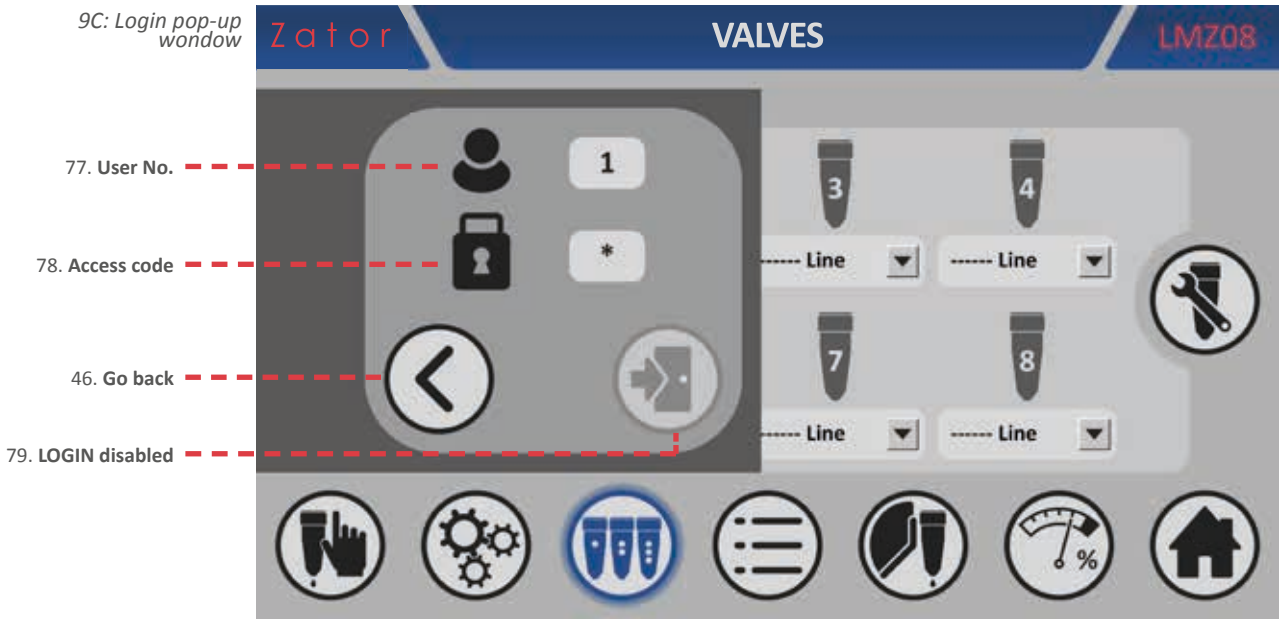
It's advised in all cases to **contact the company before doing any changes.**

To modify manually the parameters of the desired *standard valves* is necessary to *login* into the *valve setup menu*. These changes **can't be made for the Zator production valves**.

9.2.1 Login

To login:

1- From the *valves menu* tap  to open and display the ***login pop-up window*** [9C];



2a. To **close** the *login pop-up window* without log in tap  ;

2b. In order to enable and then log in, **is necessary insert correctly and in this sequence, before** the *user number*, **then** the *access code*, which are indicated below:

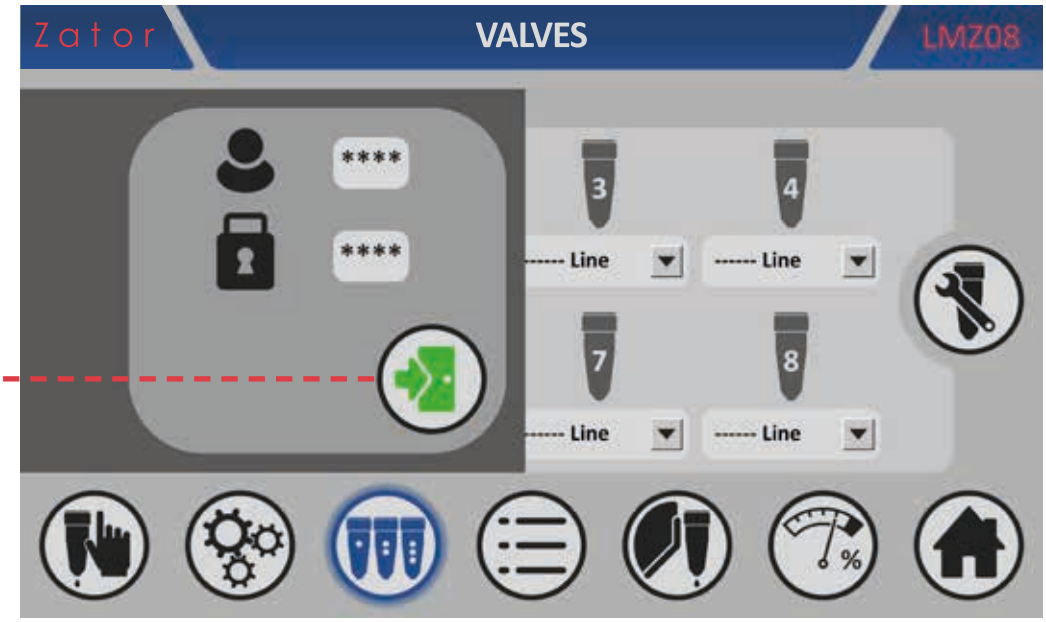
User No.	**2**
Access code	**1009**

3b. Tap on the data box of the user *number/access code*. With the on screen *numeric keypad* insert/ modify data, then tap *enter* to confirm;

4b. Once you have entered the login credentials, if they have been inserted correctly , they will enable the login icon*. Conversely it will be necessary to insert again the correct login credentials.

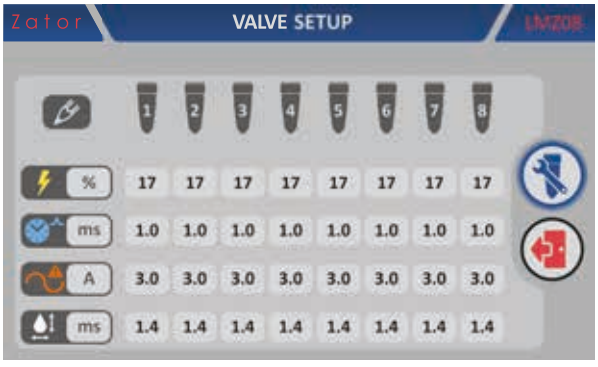
Then you can tap  that will appear to **log in**.

***NOTE**: Once the login is enabled, it is not possible to close the login pop-up window.



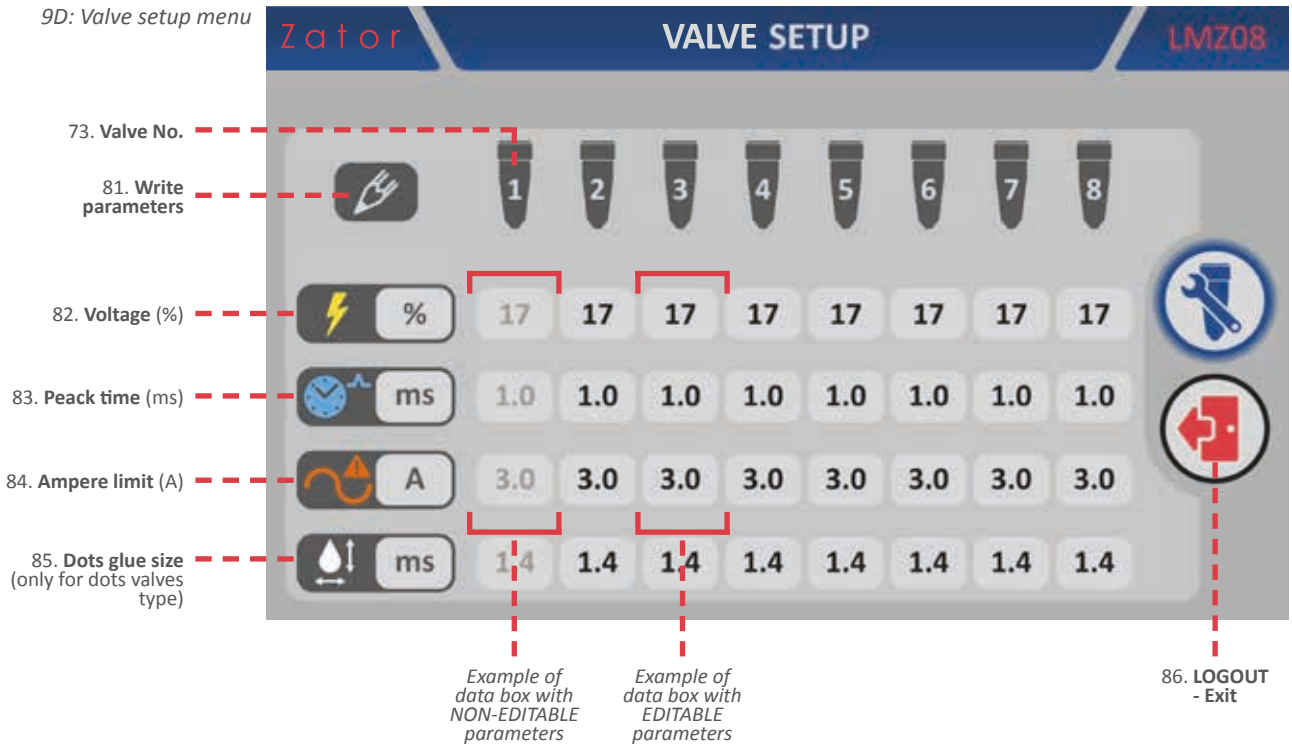
80. **LOGIN enabled**
User number and access code have been entered correctly. Tap the button to login.

5b. After you have logged in, you will enter into the ***valve setup menu*** [9D] (see following section).



9.2.2 Gun setup menu

Once you have logged in, from the ***valve setup menu*** [9D] it's possible to change **ONLY the *standard valves* parameters** (dot type or line type) assigned to their relatives channels (to change the valve type assigned to a channel see the *section 9.1 - Change the valve type*). Non-editable parameters are displayed in grey colour.



From the *valve setup menu*, to modify a parameter:

1- Tap the data box relative to the editable parameter that you want to modify;

1. 2- With the on screen *numeric keypad* insert/modify data, then tap *enter* to confirm;

Settable values:

- VOLTAGE: from 1 to 100 %
- PEAK TIME: from 0 to 3 ms
- AMPERE LIMIT: from 0 to 5 ms
- DOT GLUE SIZE (only for dots valves type): from 0 to 50 ms

3. Once you have finished the changes, to **exit and logout** tap  .

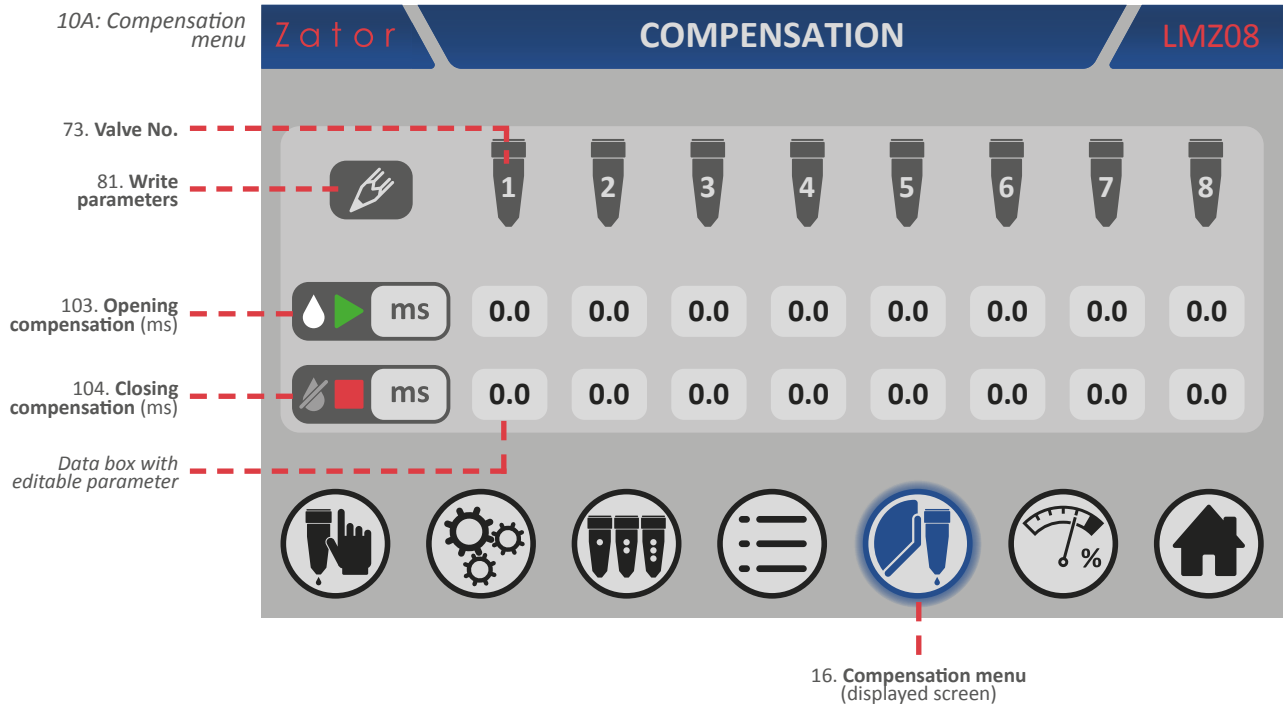
To access again into the *valve setup menu* it will be necessary log in another time (*see section 9.2.1 - Login*).

10 COMPENSATION MENU

At different speeds the line or dots glue patterns may change their position: to avoid this inconvenience, the instrument has the possibility to set some values, called *times of compensation* (with measurement unit in milliseconds), in order to compensate the opening/closing glue dispensing delays of the different installed valve. In addiction to a “mechanical” compensation of the valves, you must also keep in mind the distance between the valve and the product to be glued: the increase of this distance will have to be compensated with higher times of compensation.

The compensation values may change in relation to the different valves types that are used.
Approximately, you can set values between 1.0 and 25.0 ms.

To enter in the ***compensation menu*** [10A], from the bar menu tap  .



CAUTION: The changes of the compensation parameters are operations usually carried out during the installation of the instrument. These operations are used to optimize the instrument in relation to the production machine where it’s installed.
Normally these data don’t need to be changed, but if it’s necessary these changes **must be performed by AUTHORIZED PERSONNEL**. Every data changes made wrongly may cause **malfunctioning of the equipment.**

To c**alculate the correct value of the** (opening/closing) **compensation**:

1. Proceed with the application of glue pattern (dots or lines) at the **minimum** and **maximum speed** of the production machine;

2. **Measure the gap position** (ΔS) of the glue pattern applied at the minimum speed and at the maximum speed;

3. Use the following formula to calculate the correct value of the (opening/closing) compensation to set:

   $At = 60 \times \Delta S / (V_{MAX} - V_{MIN})$

   Where:At = (opening /closing) compensation [ms]
   ΔS = gap position of the glue pattern [mm]
   V_{MAX} = maximum speed [m/min]
   V_{MIN} = minimum speed [m/min]

4. To modify/insert the correct value of the compensation resulting from the previous formula, tap the data box relative to the parameter that you want to modify;

5. With the on screen *numeric keypad* insert/modify the desired data, then tap *enter* to confirm;

Settable values:
- OPENING COMPENSATION: from 0 to 100 ms
- CLOSING COMPENSATION: from 0 to 100 ms

6. Once you have confirmed the data, **try to glue and check** if the value is correct and if is necessary do some little adjustments on the opening or on closing compensation parameter (usually these values are similar but sometimes they may be different).

11 PRESSURE MENU (ONLY FOR ENCODER MODE)

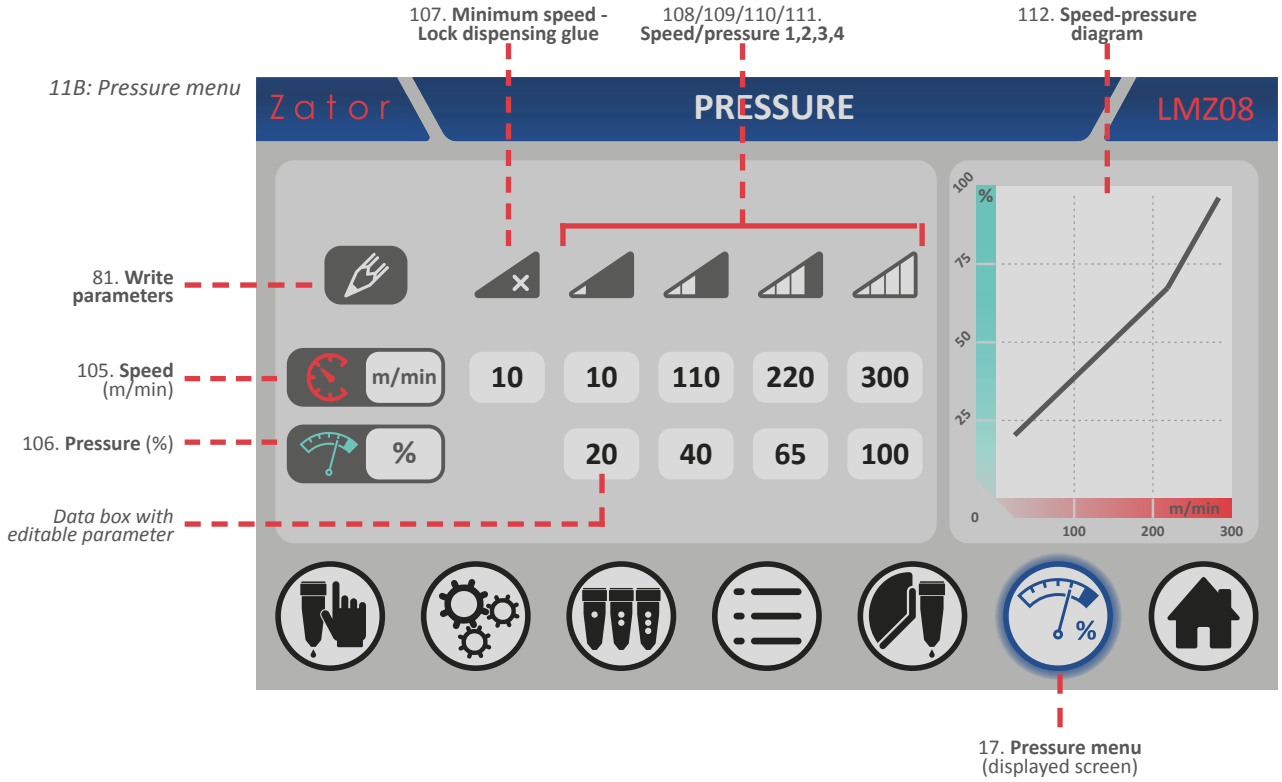
To obtain a constant and homogeneous dispensed glue quantity, with the increase of the production machine speed where the instrument is installed, the **glue pressure must increase proportionally to the speed.**

The instrument is equipped with a ***0÷20 mA output*** for the connection of a current/pressure converter (***proportional valve*** [11A]), that can be installed on the glue feed unit. Depending on a specific speed it's possible to link their specific pressures (with measurement unit in percentage) according to the needs of the situation.

11A: The output for the proportional valve connection is placed on the rear panel.

To enter in the ***pressure menu*** [11B], from the *menu bar* tap  .

CAUTION: The changes of the speed/pressure parameters are operations usually carried out during the installation of the instrument. These operations are used to optimize the instrument in relation to the production machine where it's installed.
Normally these data don't need to be changed, but if it's necessary these changes **must be performed by AUTHORIZED PERSONNEL**. Every data changes made wrongly may cause **malfunctioning of the equipment.**



The *proportional valve* control is performed by ***4 different speed/pressure parameters*** that you can set: infact, to the single speed V1, V2, V3 and V4 it's possible to link their relative pressures P1, P2, P3 and P4. By the ***speed-pressure diagram*** is possible to display the trend of the speed in relation to the pressures.

The ***minimum speed*** parameter is a specific production machine speed (with measurement unit in m/min), below this value the instrument stops automatically the dispensing of glue.

To modify/insert a parameter:

1. Tap the data box relative to the parameter that you want to modify;

2. With the on screen *numeric keypad* insert/modify data, then tap *enter* to confirm;

Settable values:
- MINIMUM SPEED: from 0 to 300 m/min
- SPEED 1,2,3,4: from 0 to 800 m/min
- PRESSURE 1,2,3,4: from 0 to 100 %

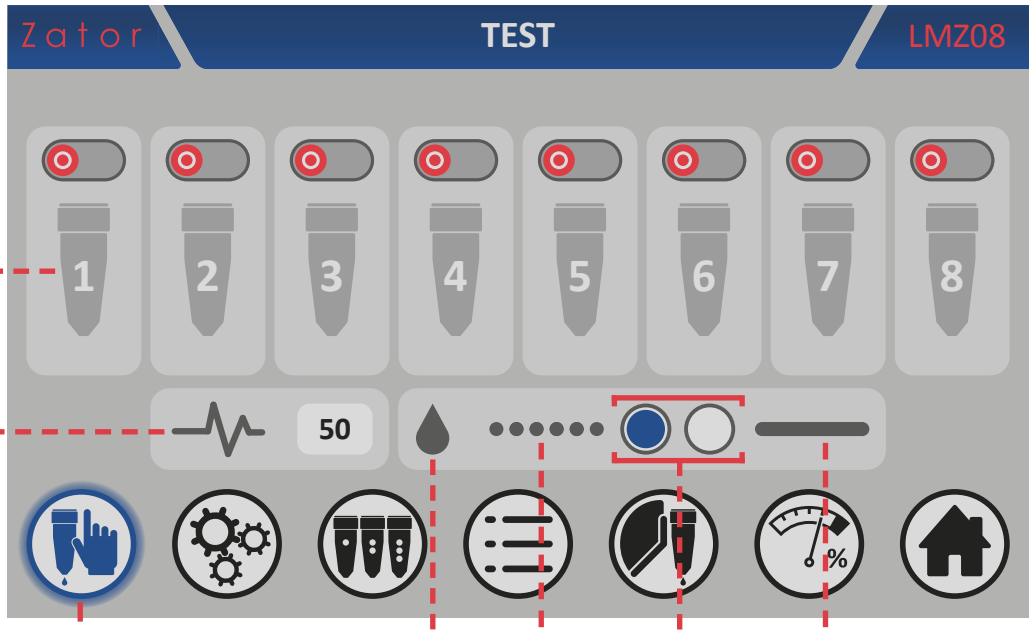
12 TEST MENU

For the correct operation of the valves, it's a good practise to test or to do a valves cleaning cycle after long stop periods or just a verification of the valves efficiency.
The instrument has a test mode in order to perform this operation on one or more valves simultaneously.

It's possible to run the test in two modes:
- *dots test*: continuous dots mode
- *line test*: continuous line mode

To enter in the ***test menu*** [12A], from the *menu bar* tap  .

12A: Test menu



57. **Valve test OFF**

50. **Frequency (dots/second)** *(only for DOTS TEST mode)*

12. **Test menu** (displayed screen)

51. **Test mode**

52. **Dots test**

55. **Selection buttons enabled**

53. **Line test**

12.1 Dots test mode

To run the *dots test* on one or more valves:

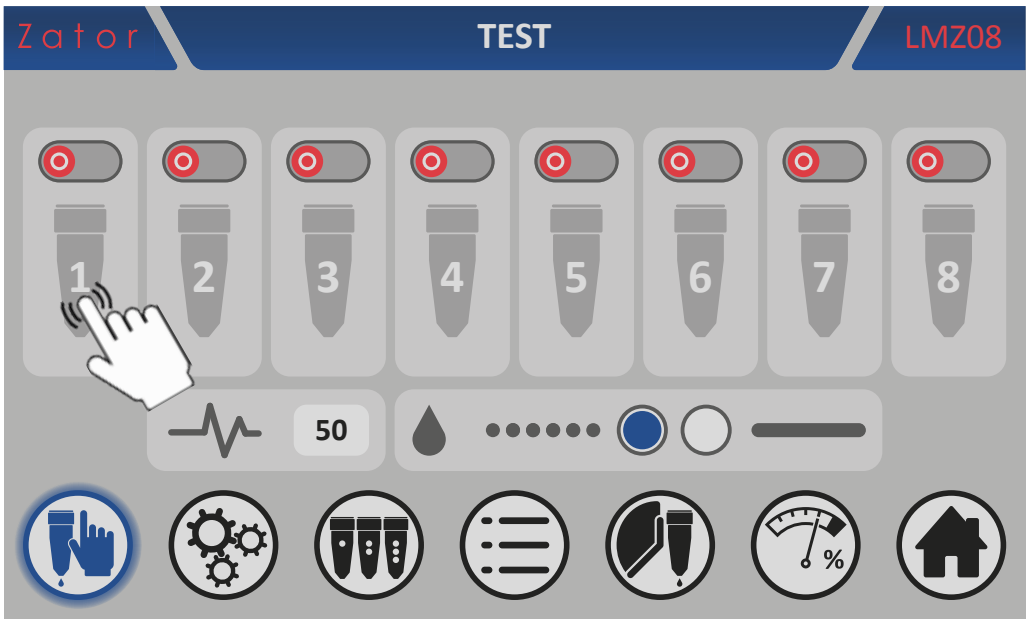
1. From the *test menu* **select** the ***dots test mode*** [12B] with the selection button ;

2. Tap on the data box relative to the ***frequency*** (dots/second) and with the on screen *numeric keypad* insert/modify data (ex. 50 dots/sec), then tap *enter* to confirm;

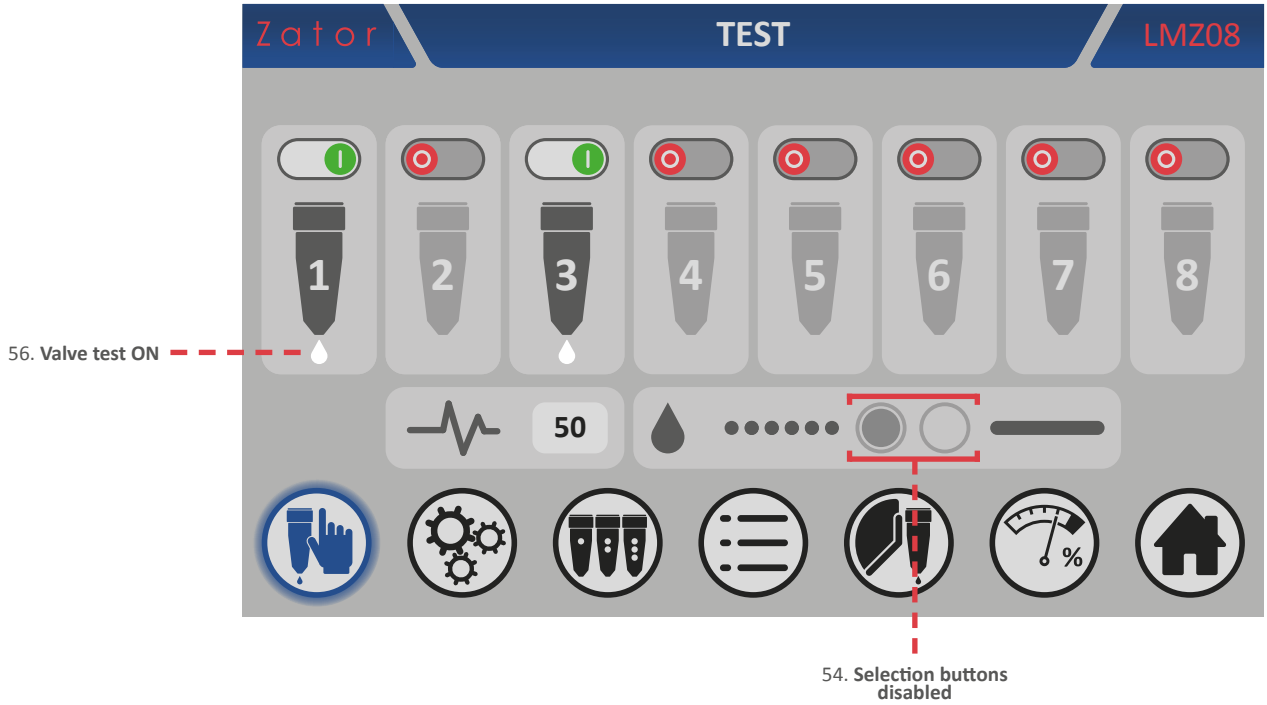
Settable values:
from 1 to 100 dots/second

3. To **start** the test tap  of your desired valves to activate them (ex. Gun No.1). To start the test you must activate **at least one valve**;

12B: Dots test mode



4. Once the test has been started, the valves which have been activated, change their appearance and start to dispense glue/fluid according to the selected test mode. The selections buttons will be disabled. In fact, during the test operation it is not possible to change the test mode;



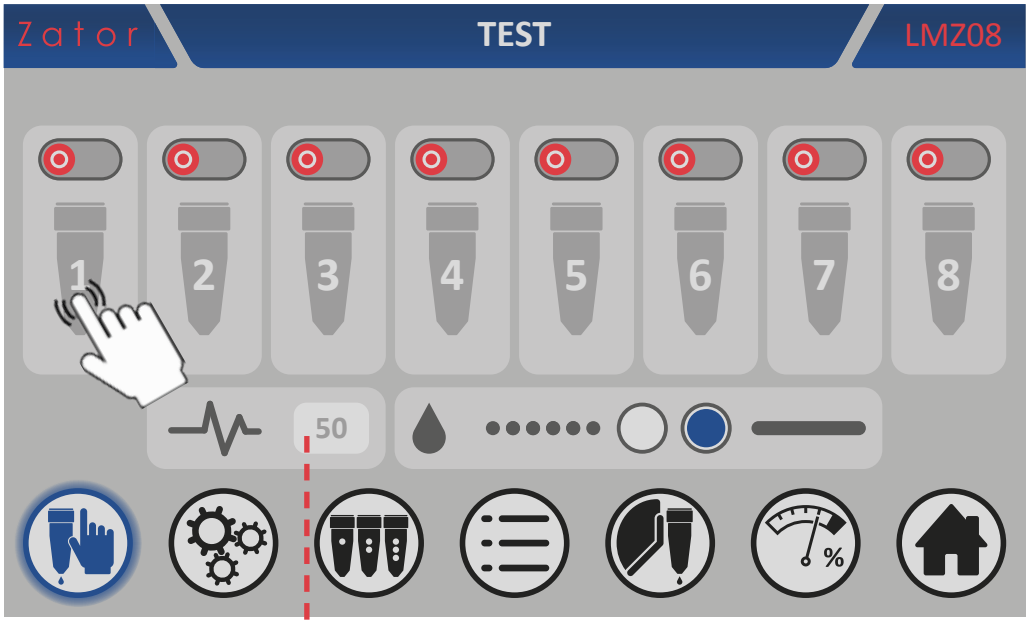
5. It's possible to **increase or decrease** the *frequency* during the test running (see the point description 2 to modify the frequency value);
6. To deactivate a valve tap  of desired valve;
7. It's possible to **turn on/turn off the desired valves** also during the test running;
8. To **end** the test just turn off all the valves that are still active, or alternatively you can change the displayed screen from the *menu bar*.

12.2 Line test mode

To run the *line test* on one or more valves:

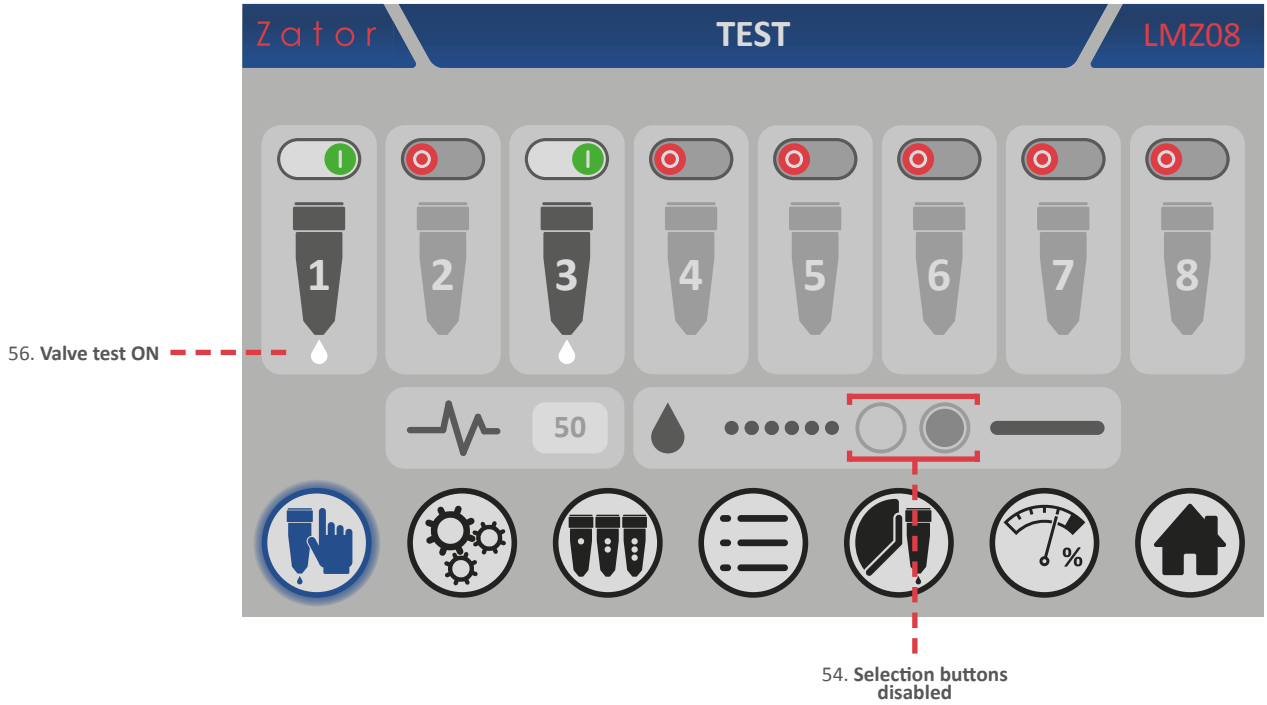
1. From the *test menu* **select** the ***line test mode*** [12C] with the selection button ;
2. The value set in the data box relative to the frequency is not considered by the instrument then it will be disabled once you will selected the line test mode;
3. To **start** the test tap  of your desired valves to activate them (ex. Gun No.1). To start the test you must activate **at least one valve**;

12C: Line test mode



In the line test mode the frequency parameter is disabled

4. Once the test has been started, the valves which have been activated, change their appearance and start to dispense glue/fluid according to the selected test mode. The selections buttons will be disabled. In fact, during the test operation it is not possible to change the test mode;



5. To deactivate a valve tap  of desired valve;

6. It's possible to **turn on/turn off the desired valves** also during the test running;

7. To **end** the test just turn off all the valves that are still active, or alternatively you can change the displayed screen from the *menu bar*.

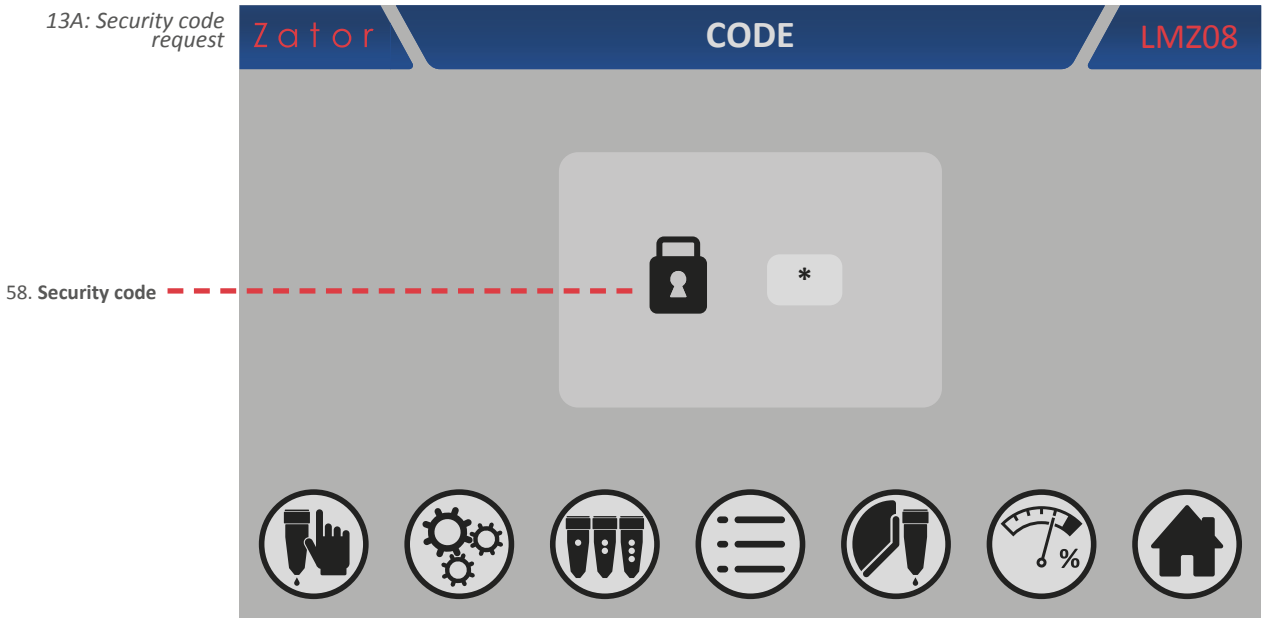
13 SETUP MENU

By the *setup menu* it's possible to access and modify all the setup parameters of the instrument combined to the production machine, after entering the *security code*.

CAUTION: Change the setup parameters are operations usually carried out during the installation of the instrument. These operations are used to optimize the instrument in relation to the production machine where it's installed.
Normally these data don't need to be changed, but if it's necessary these changes **must be performed by AUTHORIZED PERSONNEL**. Every data changes made wrongly may cause **malfunctioning of the equipment.**

To access to the *setup menu*:

1. From the *bar menu* tap  ;
2. Then you must insert the ***security code*** [13A];



CAUTION: The setup parameters are protected by security code (indicated in this section): these parameters must be entered/edited **ONLY BY QUALIFIED PERSONNEL**, as well as the security code **must be issued only to these persons**. Every data changes made wrongly may cause **damages to the valves.**

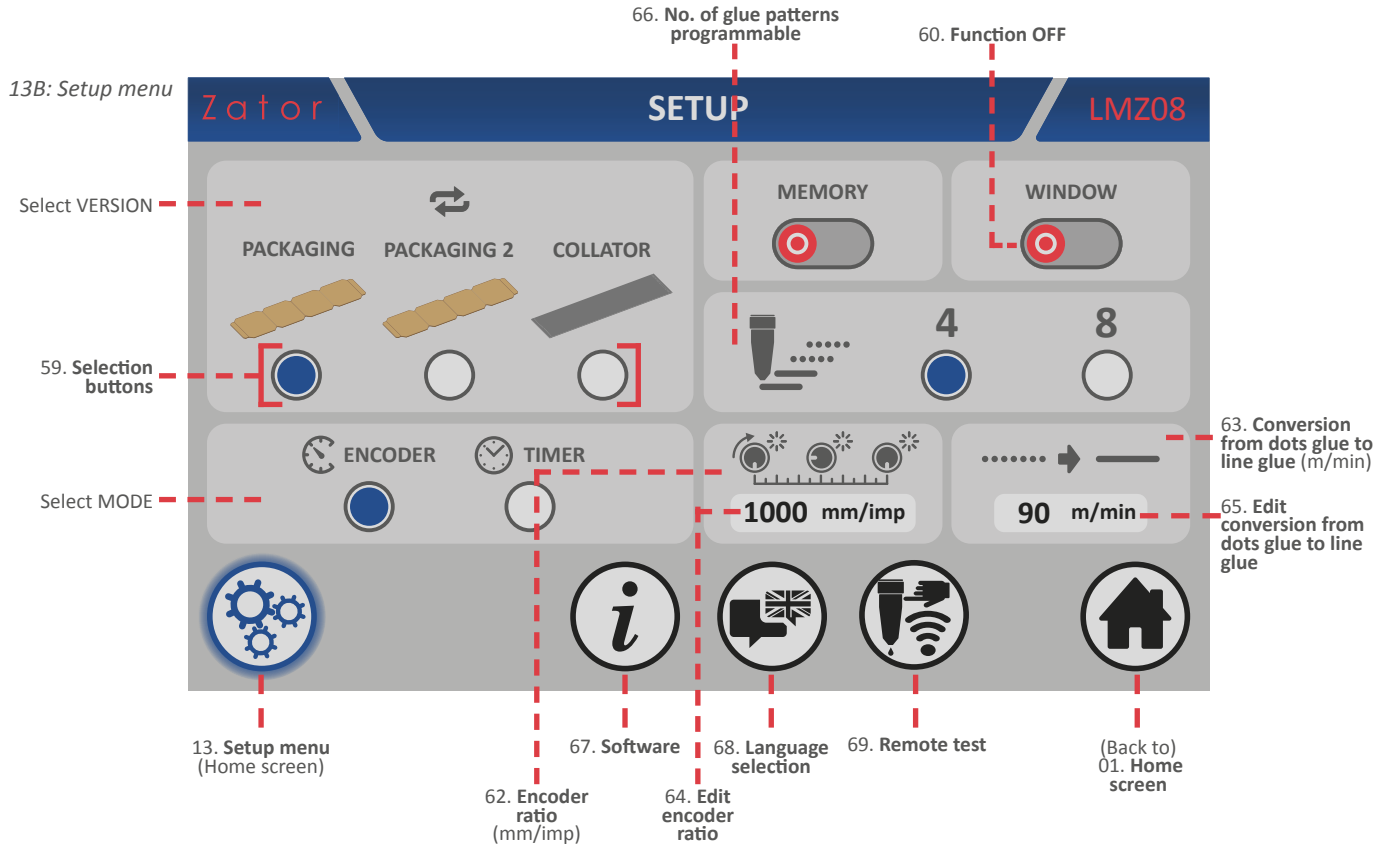
It's advised in all cases to contact the company before doing any changes.

Security code	**9822**

3. Tap on the data box of the *security code*. With the on screen *numeric keypad* insert/modify data, then tap *enter* to confirm;

4. If the *security code* has been **entered correctly**, once you tap enter button you will have access to the ***setup menu*** [13B]. Conversely, it will be necessary to insert again the correct code.

***NOTE**: Once you have entered into the *setup menu,* no longer you need to enter the *security code* to access again in this menu (if you come back to the *home screen*) up to 10 minutes from the last input code. For safety reasons it is recommended **to turn off then turn on** the instrument once you have finished the changes.



13.1 Version

To change the currently ***version*** in use, select your desired version by the *selection buttons* .

The selectable options are:

- **PACKAGING**: single boxes separated from each other;
- **PACKAGING 2**: single boxes separated from each other but very close to them;
- **COLLATOR**: continuous application, not from single boxes, but for example from a coil.

13.2 Mode

To change the currently ***mode*** in use, **select** your desired mode by the *selection buttons*   .

The selectable options are:

- **ENCODER**: it is to use for variable speed machines equipped with encoder like speed sensor;
- **TIMER**: the instrument work as a programmable timer, with programming in milliseconds.

13.3 Memory
(only for ENCODER mode)

Thanks to the ***memory*** function enabled, if the production machine is stopped and the instrument has already received the start input without finish the loaded glue patterns program, once the instrument will restart, it will run the program from where it earlier left off.
If the ***memory*** function is disabled, the start input won't be stored. When the production machine will restart, the loaded glue patterns program won't be finished but will restart from the beginning.

To **enable** the *memory* function tap  near this function;

To **disable** the *memory* function tap  near this function;

13.4 Window FINESTRA mm
(only for PACKAGING e PACKAGING 2 version)

To **enable** the *window* function tap  near this function;

To **disable** the *window* function tap  near this function;

(To insert/modify the window length see the *section 5.1.1 - Window function*).

13.5 No. of glue patterns programmable

The glue patterns programmable for each valve can be **4** or **8**.
To **enable** the glue patterns No. 5-6-7-8*, **select** No.8 by the selection buttons   .

***NOTE**: If the glue patterns No. 5-6-7-8 just have been enabled and they have been programmed for one or more valves, if later they will be disabled, they will also remain in memory without being erased.

13.6 Encoder ratio (only for ENCODER mode)

In order to adapt the encoder to various types of production machines, the instrument offers the possibility to set electronically an *adjustment value* (also called ***encoder ratio***).

To calculate and set the ***encoder ratio***:

1. Use the following formula:

   $R_{encoder}$ = (C / IMP) x 1000

   Where: $R_{encoder}$ *= encoder ratio [mm/imp]*
   C = linear length of one encoder revolution (circumference) [mm]
   IMP = impulses included in one encoder revolution [imp]

   Example:
   C = 254 mm
   IMP = 1000 imp
   $R_{encoder}$ *= (254 / 1000) x 1000= 254*

2. To modify/insert the value resulting from the previous formula, tap the data box relative to the *encoder ratio*;

3. With the on screen *numeric keypad* insert/modify the desired data, then tap *enter* to confirm.

Settable values:
from 0 to 9999 mm/imp

13.7 Conversion from dots glue to line glue (only for ENCODER mode)

The function of ***conversion from dots glue to line glue*** indicates a specific linear speed of the production machine (with measurement unit in m/min), above which all the *dots glue patterns* of the valves are converted automatically in *line glue patterns* by the instrument.

To modify/insert the speed of *conversion from dots glue to line glue*:

1. Tap on data box relative to the *conversion from dots glue to line glue* parameter;

2. With the on screen *numeric keypad* insert/modify the desired data, then tap *enter* to confirm.

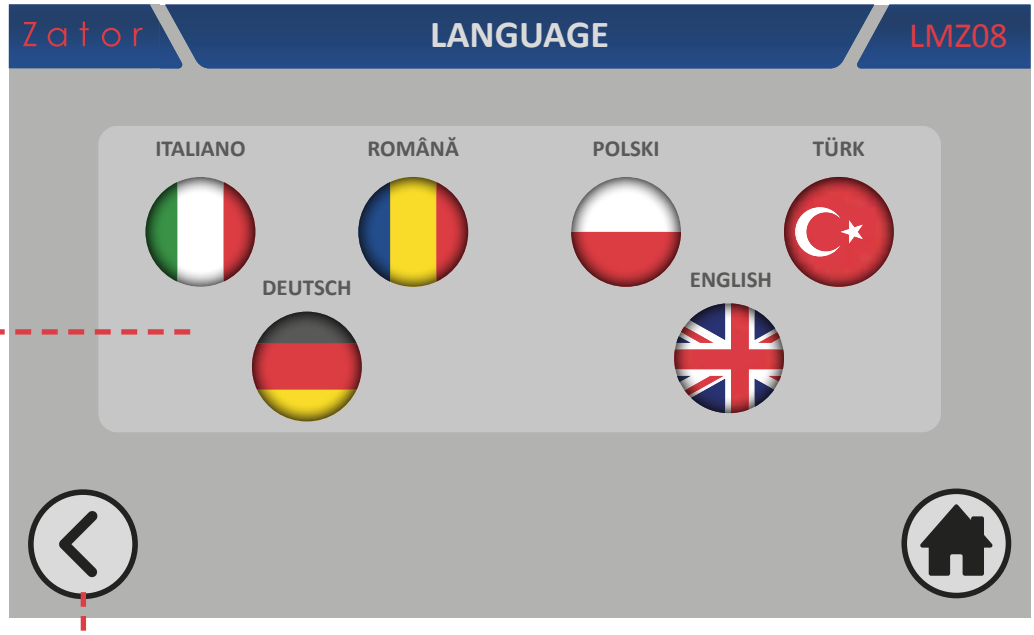
Settable values:
from 0 to 999 m/min
If the value is setted to **zero**, the function is **disabled**.

13.8 Language selection

From the ***language selection menu*** [13C] is possible to change the language of the text that are displayed on the different instrument menu.

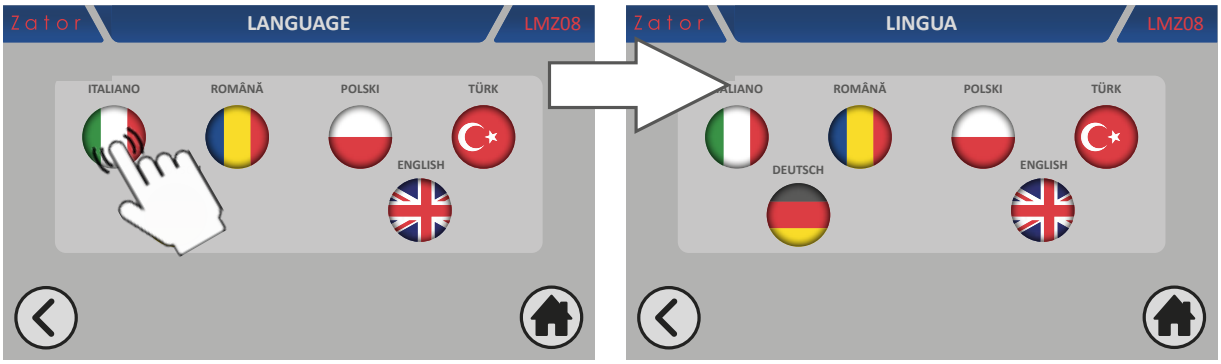
To enter in this menu:

1. From the setup menu tap  ;



13C: Language selection menu (European version)

2. Tap the icon of your desired language (ex. Italian);
3. Then the text on the m*ain information bar* is updated with the selected language;

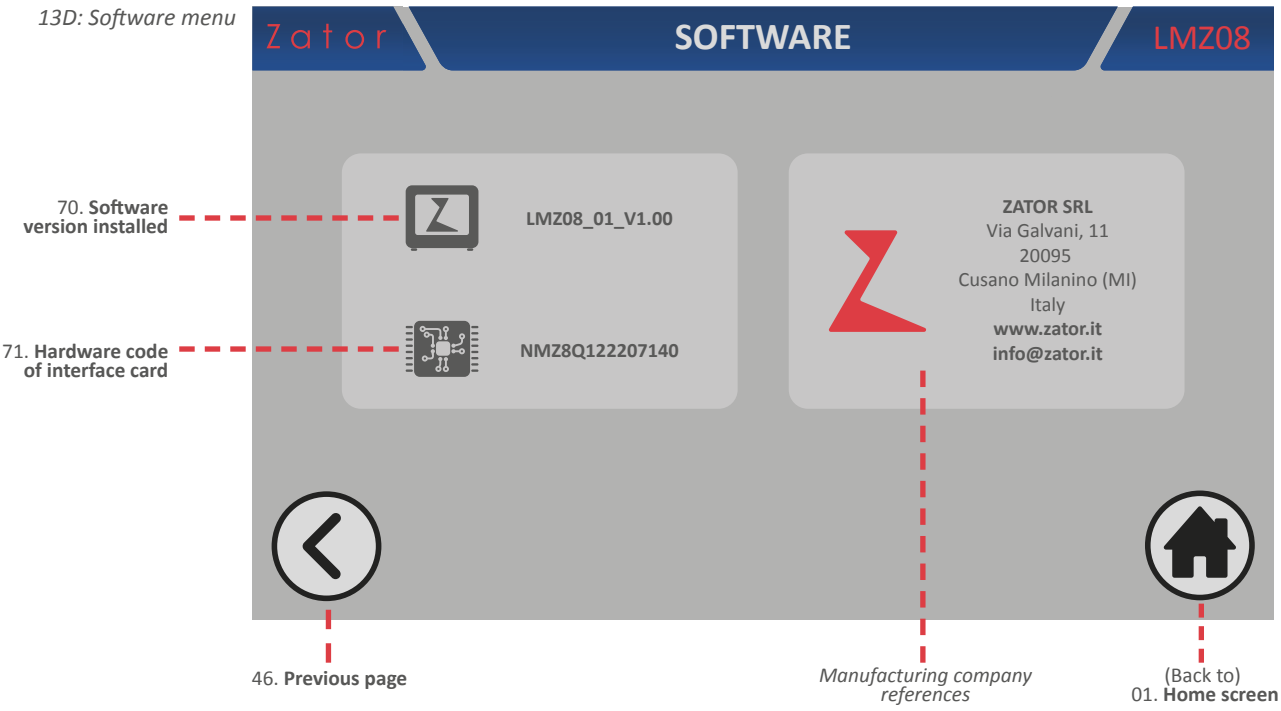


4. To go back to the *previous page* tap  .

13.9 Software

From the ***software menu*** [13D] is possible to display and see the *software version installed* of the instrument and the *hardware code of interface card*. There are also the references of the manufacturing company. To enter in this menu:

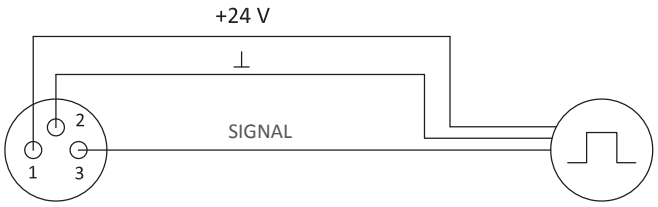
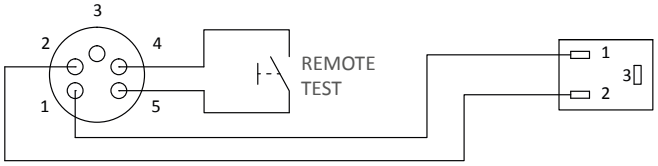
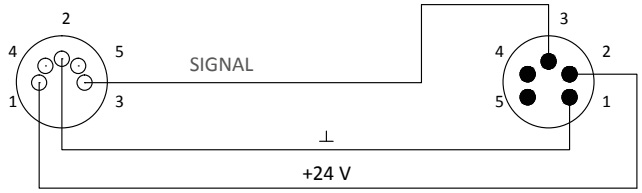
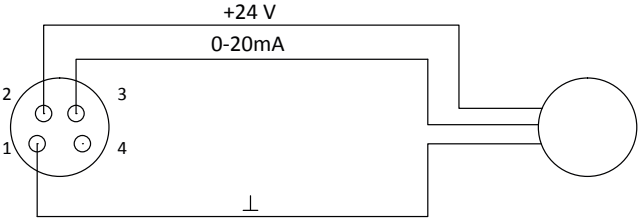
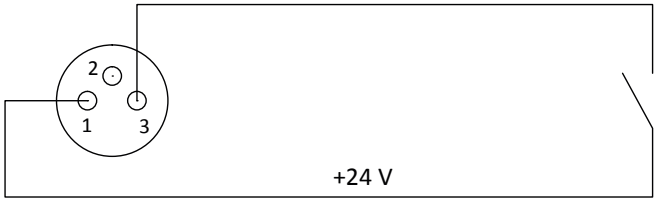
1. From the *setup menu* tap  ;

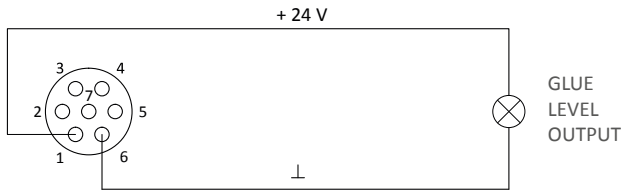
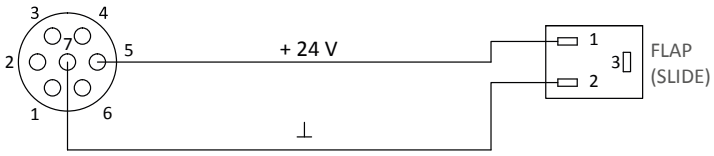
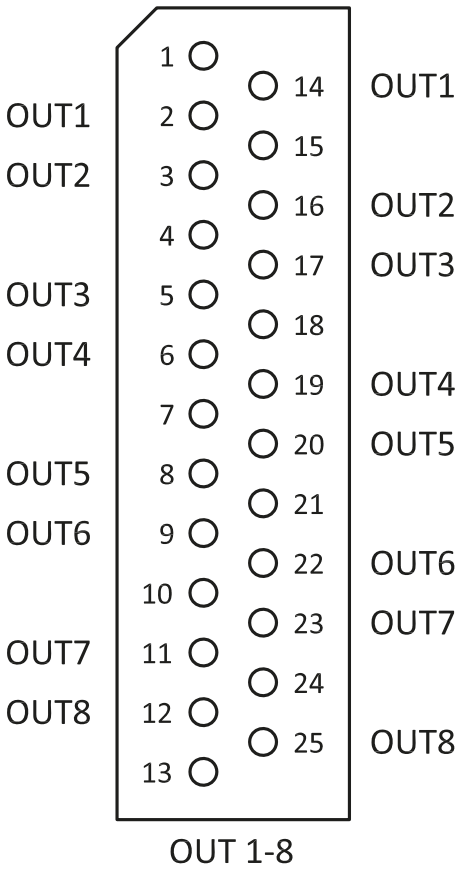


2. To go back to the *previous page* tap  or tap  to go back to the *home screen*.

14 CONNECTIONS

14.1 Electrical connections

START (PHOTOCELL SENSOR)	
CHANNEL (VALVE)	
ENCODER	
0-20 mA	
RESET	
GLUE LEVEL INPUT	

<table>
<tr><td rowspan="3">AUX OUTPUTS</td><td colspan="3"> 
</td></tr>
<tr><td colspan="3"> 
</td></tr>
<tr><td>6 - 2 = +24V</td><td>7 - 3 = OPT 1</td><td>6 - 4 = OPT 2</td></tr>
<tr><td>MULTI-CONNECTION
FOR GUNS</td><td colspan="3"> 
</td></tr>
</table>

14.2 Fuse replacement

CAUTION: the fuses replacement **must be performed only by AUTHORIZED PERSONNEL.**

Always disconnect the power supply before carrying out this operation.
Use only fuses with the same amperage as those installed on the instrument.

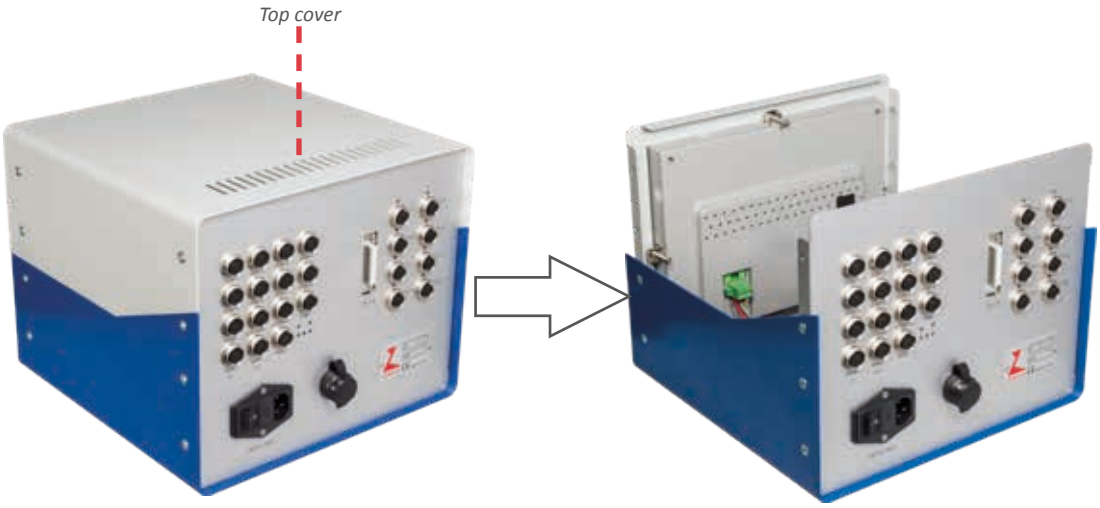
14.2.1 Power plug fuses

To access to *power plug fuses*, from the *rear panel* remove the *fuses holder* from its slot placed above the power plug. Then replace the damaged fuses and insert the *fuses holder* in its slot.

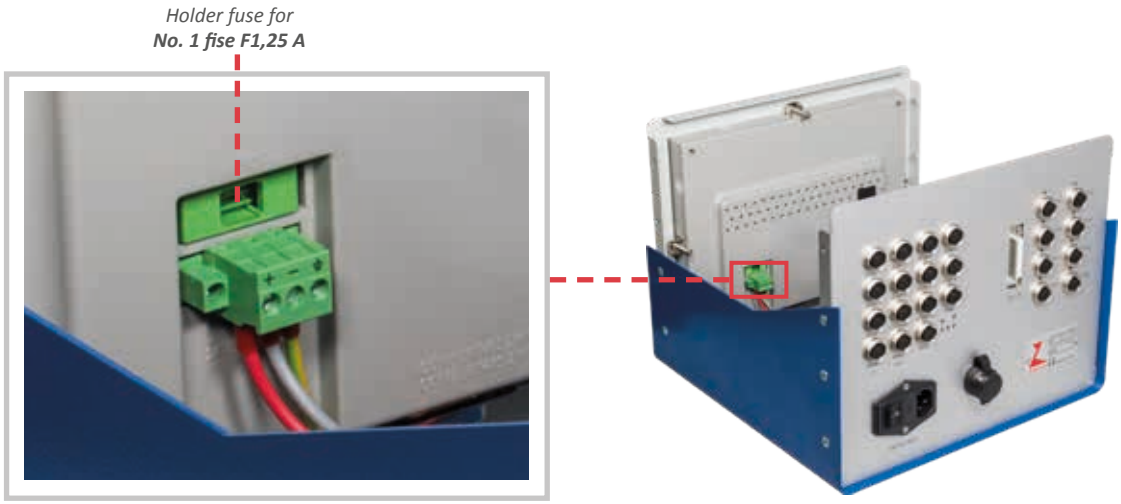
14.2.2 Display fuse

To access to *display fuse*:

1. Remove the *top cover* of the instrument, **being careful to don't tear off** the ground cable connected to it. For its removal, remove the screws of the top cover;



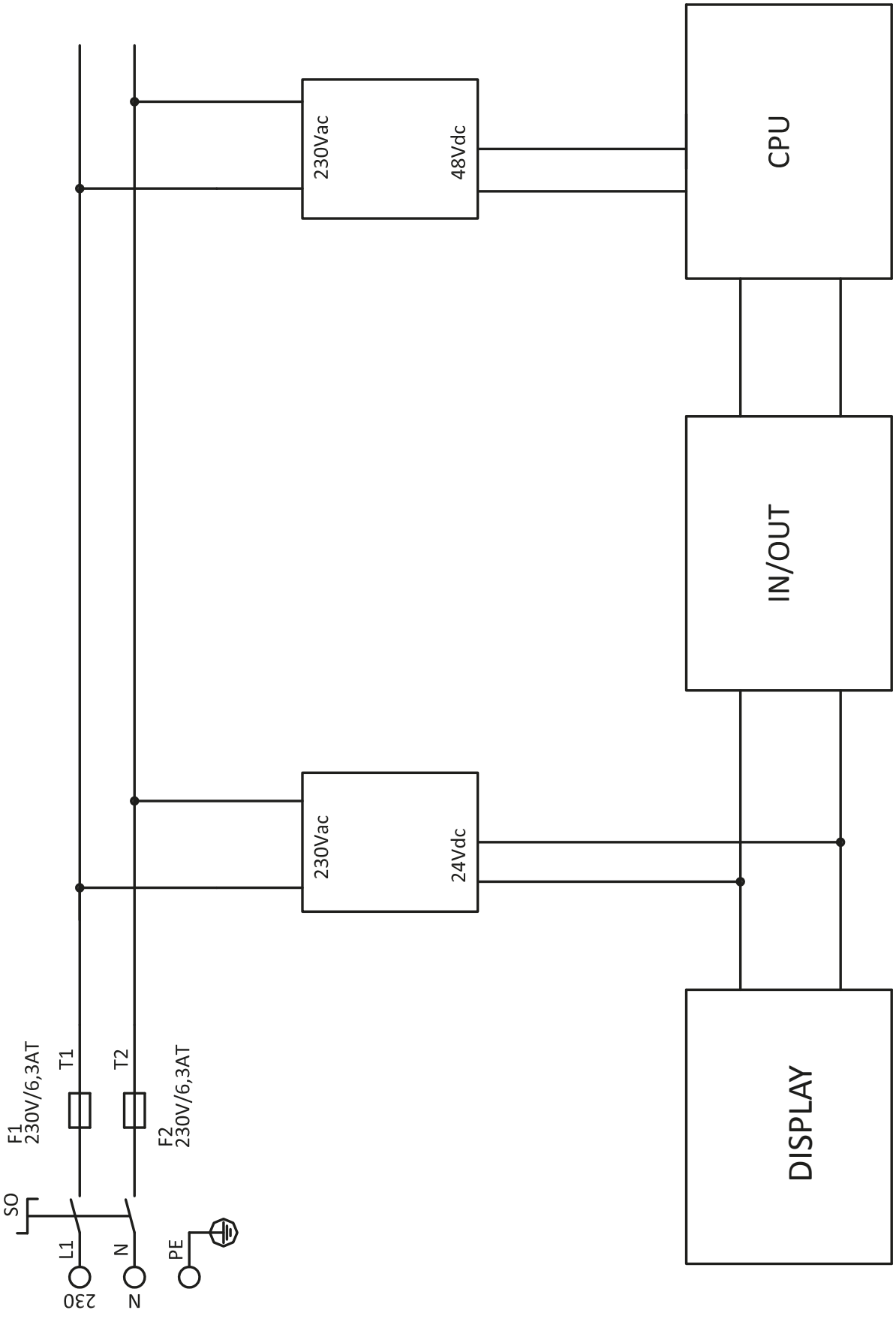
2. The *fuse holder* is placed on the backside of the touch screen display;



3. Remove the *fuse holder* from its slot and replace the damaged fuse;

4. Insert the *fuse holder* in its slot and reassemble the top cover with the screws.

15 CIRCUIT DIAGRAM

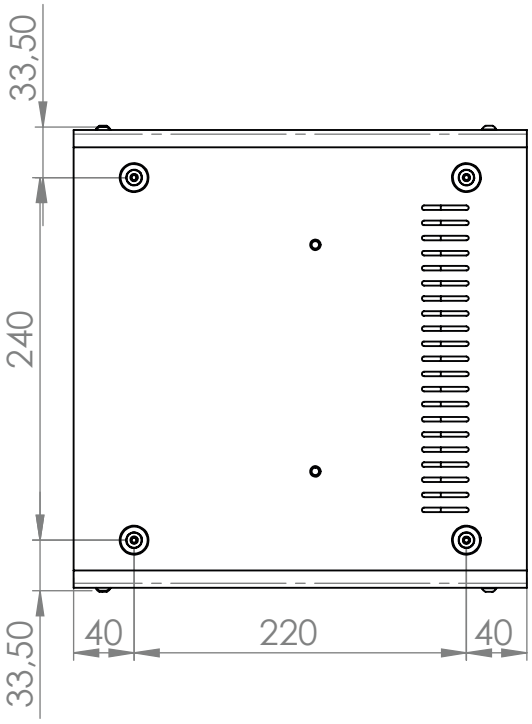


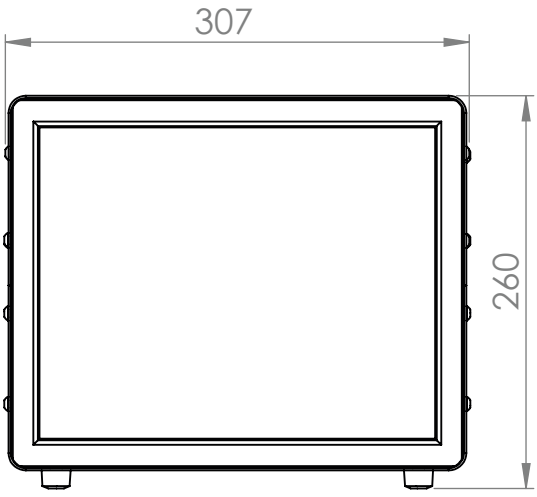
16 TROUBLE SHOOTING

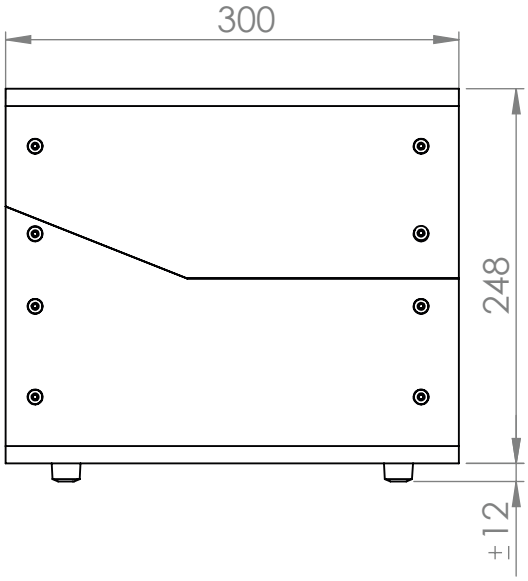
CAUTION: the trouble shooting **must be performed only by qualified personnel** observing the safety norms. For the **unqualified personnel**, the trouble shooting must be limited **only to the fuses inspection**, only after disconnecting the power supply of the instrument.

TROUBLE	POSSIBLE CAUSE	WHAT TO DO
The instrument doesn't turn on	Burned fuses	Check the fuses condition in the power plug or on the backside of the display and replace them if is necessary (*See section 13.2 - Fuses replacement*)
The valves don't perform the setted glue patterns program	Gun is not activated	Check the valve is turned on
	Program error	Check if the program has been loaded
	Photocell don't detect the box	Check the correct positioning of the photocell and the detecting point
		Check the correct association of each start sensor with its relative valve
	Encoder doesn't detect the production machine speed	Check if the instrument shows the machine speed
		Check if the installation and the position of the encoder is ok
	Missing valve drive	Check if the LED of considered channel lights up from the rear panel of the instrument
	Damaged cables	Check the conditions of the valves/encoder/start sensor cables

17 DIMENSIONS







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