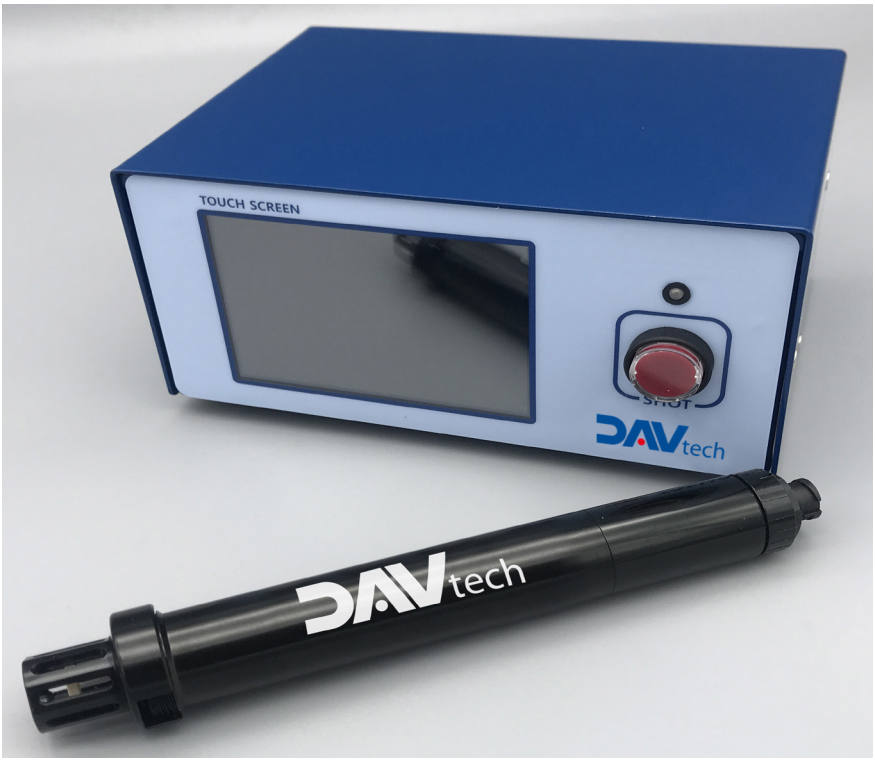
Installation and maintenance guide

DA1000V VOLUMETRIC MANUAL DISPENSING SYSTEM



DAV TECH SRL
Via Ravizza, 30 - 36075 Montecchio Maggiore (VI) - ITALY
Tel. 0039 0444 574510 - Fax 0039 0444 574324
davtech@davtech.it - www.davtech.it

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1 INTRODUCTION

1.1 The manual

The user guide is the document that accompanies the Controller from the time of its construction and throughout the period of use, it is therefore an integral part of the Controller. It requires reading the manual before taking any action involving the Controller. The manual must be readily available for use by staff and maintenance of the Controller. The user and the attendant use are required to know the contents of this manual.

1.2 Warranty

The warranty is valid for a period of 12 months from the date of commissioning and no later than 15 months from the date delivery. The interventions carried out during the warranty period does not extend in any way the validity period of the guarantee. The seller is not liable for defects caused by normal wear of parts which by their nature are subject to wear.

1.3 Goods receiving

The original configuration of the Controller must never be changed. Upon receipt of the goods, check that:

- The packaging is intact
- The exact correspondence of the material ordered.

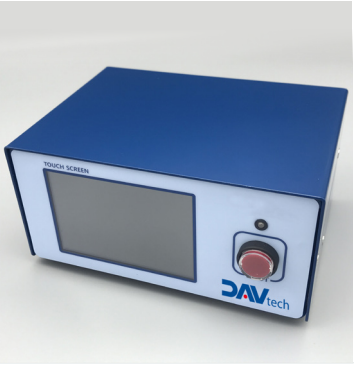
2 TECHNICAL DESCRIPTION

2.1 Description

Volumetric system to dispense micro to nano quantity of fluids from syringes with the highest accuracy.
The system dispense the fluid from the desired size syringe pushing a piston moved by an advanced and accurate linear actuator.

Barrel Size	3cc	5cc	10cc	30cc
Weight (g)	118		300	
Viscosity (cPs)	1~500.000			
Screw Pitch (mm)	0.8	0.8	1.0	1.25
Displacement Step (mm/step)	0.0001		0.0001	0.0003
Section of the barrel (mm2)	70.88	124.69	196.07	401.15
Volume by step (cc)	0.0000073	0.0000128	0.0000250	0.000138

Controller DA 1000V	
Dimensions	150x80x110
Weight (g)	932
Power	DC 9V/2A
Mode	Time, steady, sequence, interval
Display	3.5” Touch screen
Interface	RS485 (MODBUS)
Input signal	Contact Input
Output signal	NPN Open Connector



3 SAFETY PRECAUTION

THE SAFETY PRECAUTIONS HAVE BEEN CLASSIFIED INTO "DANGER" AND "CAUTION".

"DANGER" means that dangerous situations can occur and death or serious injury could result, if handled incorrectly.

"CAUTION" means that dangerous situations can occur if handled incorrectly. Also you may get serious injury or physical damage.

In addition, even if it is indicated as caution, it may lead to serious consequences depending on the situation. Since this is important for the safety of the user, please make sure you follow the instructions.

DANGER

Precautions against electric shock

1. This equipment is kept under high pressure for a while even after the main power supply is cut off. When performing a wiring work or inspection that touches all terminals of the terminal block, leave it for at least five minutes after shutting off the power before you start the work.
2. To prevent electric shock and malfunction, please provide class 3 grounding.
(100Ω or less, wire diameter 1.6mm or thicker)
3. Inspection and maintenance of this equipment must be performed by a qualified technician(specialist).
4. Do not inspect equipment with wet hands, when the floor is wet or if there is too much moisture. It may cause electric shock.
5. Be careful not to damage the cable, place heavy objects on it or fold it. In case it is damaged, it may cause electric shock.

Precautions against Fire

1. Do not install this equipment near inflammables, combustible organic solvents or vapors. The heat and electrical operation can cause fire.
2. If this equipment malfunctions, disconnect the main power supply of the equipment. The high current may cause a fire.

Precautions on Wiring

1. Before conducting wiring work for maintenance etc., be sure to shut off all the external power supplies used by the equipment. Failure to do so may result in electric shock or damage to the equipment.
2. To supply power or operate the equipment after wiring, be sure to attach the covers inside and outside the equipment. Failure to do so may result in infury and electric shock.

CAUTION

1. Do not apply main power supply except for that of the voltage specified in this user manual. It may cause malfunction.
2. Make sure that terminal connections and wiring are correct. It may cause malfunction.
3. While the electric current is being applied, do not change the wiring or detach the connector. It may cause injury or equipment failure.
4. If the power wiring in the driving area is wrong, it may cause injury or damage to the equipment due to malfunction. Be careful.

Precautions on Installation

1. Do not install, store and use in places exposed to conductive dust, corrosive gas, flammable gas, high temperature, condensation, wind and rain, etc.
2. Exposure to direct sunlight for a long time will degrade accuracy of the equipment. Do not install, store, or use in areas where there is direct sunlight.
3. When installing in an enclosed space, install a separate cooling fan to allow the outside air to flow in and out, in order to maintain the temperature around the equipment at 40°C or less. Overheating may cause fire or other accidents.

Precautions on Use

1. Never modify this equipment. It may cause electric shock, injury, fire or breakdown.
2. Once you modify this equipment, it cannot be covered by our warranty for defects.
3. Before use, be sure to check that all covers are properly installed and verify if there is no foreign material inside the equipment. Depending on the circumstances, unexpected operation can occur and may result in injury.
4. If an alarm occurs during use, remove the cause of the alarm, check the safety, and reuse it.

DANGER

1. When the equipment of our company is used including robots(multi-joint robot, rectangular coordinate robot, desktop robot), please be sure to install a safety net in the robot operation area, and never approach the operation area during operation.
2. Equipment of our company include driving and rotating parts. Install a safety net on the rotating parts and never approach it during operation.

CAUTION

Precautions for maintenance and inspection

1. When cleaning or repairing the equipment, be sure to turn off the power and check the internal power supply for complete discharging, and then have it carried out by a qualified maintenance specialist. Maintenance by non-experts can cause breakdown.
2. If there is a breakdown of the equipment, do not disassemble the equipment. Please contact our customer support team.
3. If dust accumulates on the equipment, it may cause malfunction. Clean up the equipment periodically. When cleaning, please shut off the external power completely and check whether the equipment has been fully discharged. There is a danger of electric shock.

CAUTION

Precautions for disposal

1. When this equipment is disposed of, treat it as industrial waste.

PRECAUTIONS

DANGER

1. Be sure to use the designated power supply. The basic power of the equipment is designated as AC220V 50/60Hz.
2. Be sure to use the designated air pressure. The basic air pressure of the equipment is designated as 5kgf/cm2.
3. Do not operate with wet hands. There is a risk of electric shock.
4. During the operation, do not turn off the power or shut down the air pressure unless the equipment is in danger/caution. Serious problems may arise with the use of equipment.

4 DA 1000V

4 .1 Features

DAV 1000 V is a compact dispenser that enables ultra-quantitative dispense regardless of changes in the internal differential head and viscosity of the barrel by adopting a precision linear actuator and a step motor.

- No need air pressure compensation due to applying Full Electronic Control way.
- Easy to control for various dosing condition by applying All Digital Type & Multi Function Controller.
- Possible to nano dispensing precisely.

DA 1000V 3 : 0.0073μl/step, DA 1000V 5 : 0.0128μl/step, DA 1000V 10 : 0.199μl/step,

DA 1000V 30 : 0.275μl/step.

- Simple design & easy to exchange the barrel by applying advanced design as magnetic technology.
- Compact design for applying to automatic inline machine with high speed dispensing application. (Max. 0.2ms/step)
- Apply 3cc, 5cc, 10cc, 30cc barrel with exclusive syringe and plunger.

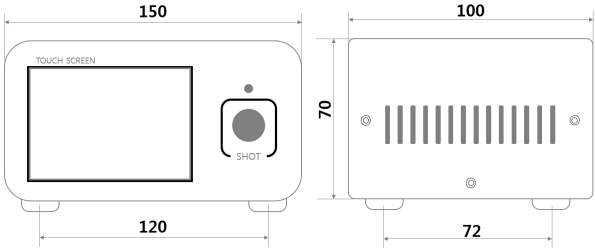
5 DA 1000V CONTROLLER

5 .1 Features

This equipment is applied by using dispenser, and it can be applied to the robot to determine and adjust the application method.

- One-component dispensing DA 1000V Controller is ideal for spot application and precise and versatile operation is possible.
- Data recognition with color touch screen is easy to operate.
- With the external interface function, various tasks can be performed continuously.
- Setting and data change are intuitive and easy to operate.

5 .2 DA 1000V Controller appearance

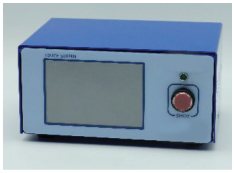


Item	Specification	Remarks
Model	DA 1000V	
Dimension (WxDxH)	150mm x 100mm x 70mm	
Power	DC 9V/2A	
Power Voltage	Adapter : 100-240V , 50/60Hz, 1.5A	
Display	3.5" TFT LCD	Touch Type
Operation	Touch Panel, Switch	
Operation Mode	Time, Steady, Interval, Sequence	4 Mode
I/O Signal	Contact input or NPN Open collector	
I/O Connector	ECH350RM(RP) / ECH350RM(5P)	EC350VM(4P) EC350VM(5P)
Motor connector	21008525-02	
Comm. Connector	DSUB 9Pin	RS-232(Download) RS-485(make use of)

6 BASIC CHECKLIST BEFORE USE

6.1 Checking basic Components

This picture above shows the basic components of the DA 1000V Controller, and their descriptions are as follows.

Picture	Name	Description
	DAV 1000V Controller	This is the DAV 1000V controller.
	DAV 1000V Cable	This is the cable that connects the DAV 1000V to the Controller.
	DAV 1000V	This is the DAV 1000V

Picture	Name	Description
	Plunger & Barrel	The picture shows the liquid container barrel that connects to the DA 1000V, and the plunger(magnet type) that attaches to the DA 1000V.
	Barrel Holder	This is the barrel holder used to connect the DA 1000V and the barrel.
	Power connector & Adapter power connector & Adapter	These are the power connector and adapter used to supply power to the DA 1000V Controller
	Foot Switch	This is the foot switch used to shot the DA 1000V more conveniently.

6.2 DA 1000V CONTROLLER Name and Function of Each Component

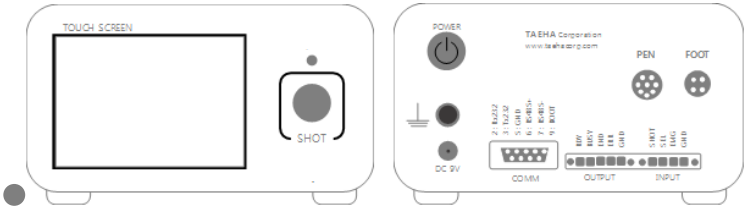
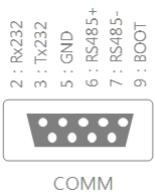
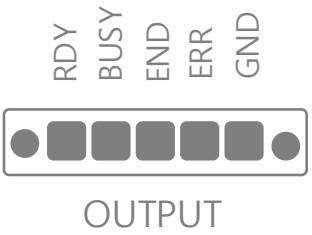
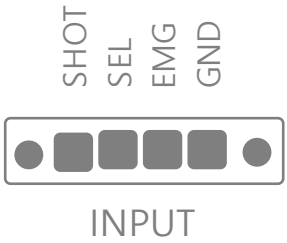


Figure 2. DA 1000V Controller Front / Rear

Table 1. Name and description of each component of the DA 1000V CONTROLLER

Name and Display	Function and Description
<Touch Screen> 	The setting values and operation elements for the operation of the DA 1000V can be conveniently controlled via the Touch Screen.
<State Led> 	This is the LED status indicator that shows the status of DA 1000V Controller. > When status is ~, LED is ON
<SHOT Switch> 	The SHOT Switch can be used to initiate dispensing of the Dispenser. > Dispensing is based on Touch Screen Setting.
<POWER Switch> 	The DA 1000V Controller can be turned on/off using this power switch button.

Name and Display	Function and Description
<Frame Ground> 	This is the grounding connector for the power for the DA 1000V Controller.
<DC Receptacle>  	This can be connected through the Power Adaptor.
<DA 1000V Connector>  	This is the Connector that connects to the DA 1000V Cable.
<FOOT Connector>  	This is the Connector that is connected in order to operate the DA 1000V FOOT Switch.
<POWER Switch>  	This is a D-SUB 9-pin Connector, which allows Firmware Updates as well as 485 communication. This is the Pin Map used when executing Controller Firmware Updates. 2: Rx232 3: Tx232 5: GND 9: BOOT This is the Pin Map used for 485 communication. 6: RS485+ 7: RS485

Name and Display	Function and Description
<OUTPUT Socket>  	**OUTPUT Socket** RDY: Indicates the status when control operation is enabled. BUSY: Indicates the status when control operation is in progress. END: Indicates the end of a control operation. ERR: This signal is indicated when an DA 1000V Controller alarm signal occurs. GND: Set to COMMON to match the DC potential difference between the host controller and the DA 1000V Controller.
<INPUT Socket>  	**INPUT Socket** SHOT: Connected when using the dispense signal from the host controller. SEL: Used to select the mode from the host controller. > Not currently used. EMG: Used to stop the DA 1000V Controller from the host controller. GND: Set to COMMON to match the DC potential difference between the host controller and the DA 1000V Controller.

6.3 Basic Instructions for Operating the HMI Screen

6.3.1 Switching Pages

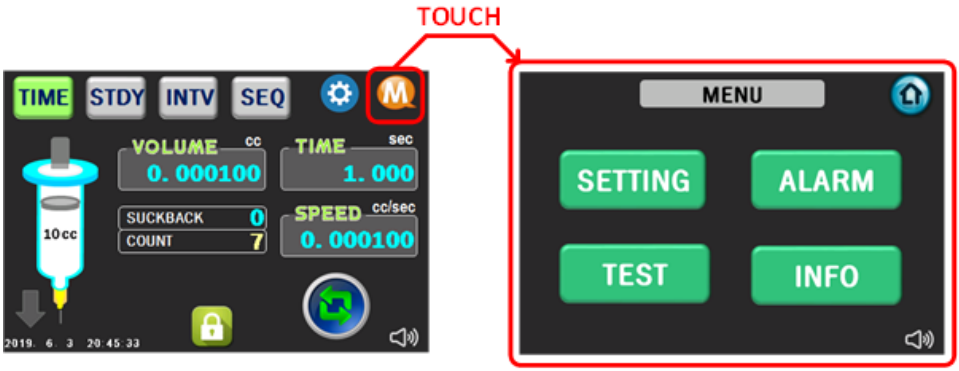


Figure 3. How to switch pages - 1

Touching the PAGE ICON, such as the PAGE ICONs shown above, will switch to the corresponding page.

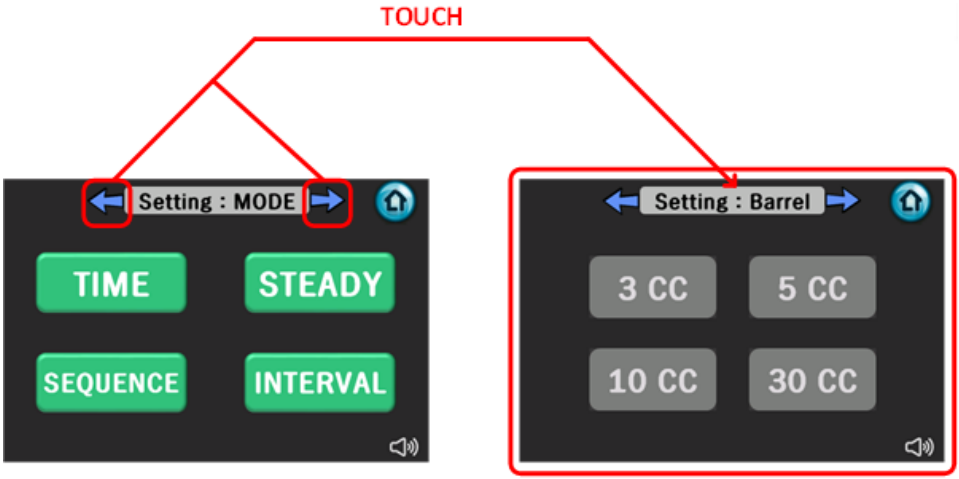


Figure 4. How to switch pages - 2

You can go to the next PAGE on the GROUP PAGE by touching the arrow icon as indicated above in Figure 4.

6.3.2 Changing Settings

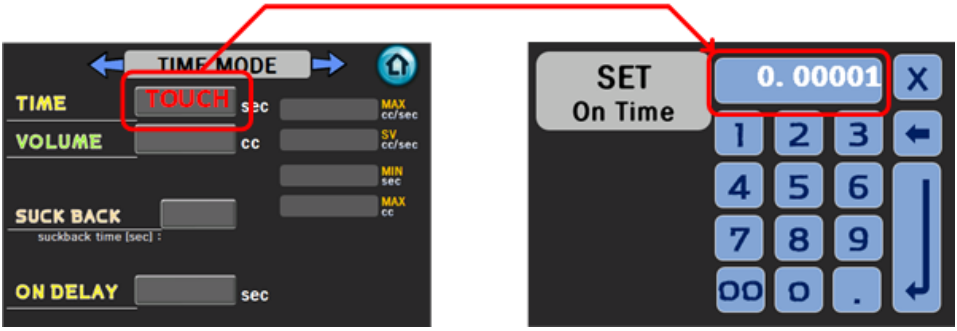


Figure 5. Example of changing setting value

When changing the condition value on the SETTING PAGE, please insert a numerical value as shown in Figure 5.

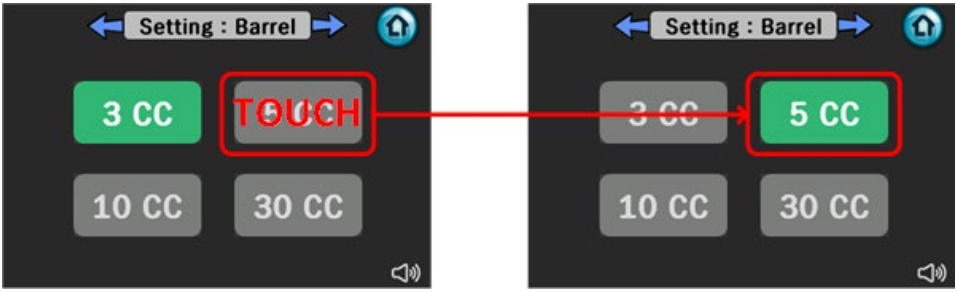


Figure 6. Example of changing settings

When changing the button setting on the SETTING PAGE, touch the button as shown in Figure 6 to change the setting value.

6.4 5.4 Explanation of HMI Screen Structure

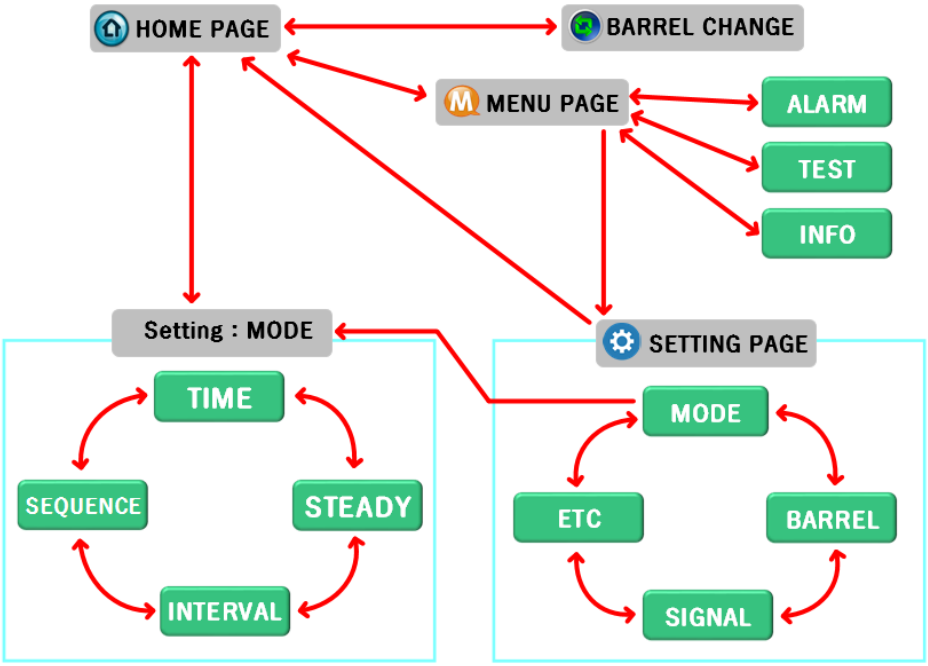


Figure 7. DA 1000V Controller HMI Screen Structure

Figure 7 shows the DA 1000V Controller HMI Screen Structure.

6.4.1 Brief Description of PAGE ICON

ICON	PAGE NAME	PAGE DESCRIPTION
	HOME PAGE	This is the main PAGE that allows the DA 1000V dispensing mode selection and displays the dispensing conditions.
	BARREL CHANGE PAGE	This is the PAGE for the Setup and Replacement of the DA 1000V Barrel.
	MENU PAGE	This is the PAGE to switch to the SETTING, ALARM, TEST, and INFO PAGEs.
	SETTING PAGE	This is the SETTING PAGE for DA 1000V dispensing. > MODE (dispensing condition) > BARREL (DA 1000V capacity) > SIGNAL (dispensing type) > ETC Settings can be configured.

7 OPERATION OF THE EQUIPMENT

7.1 Initial Power Input

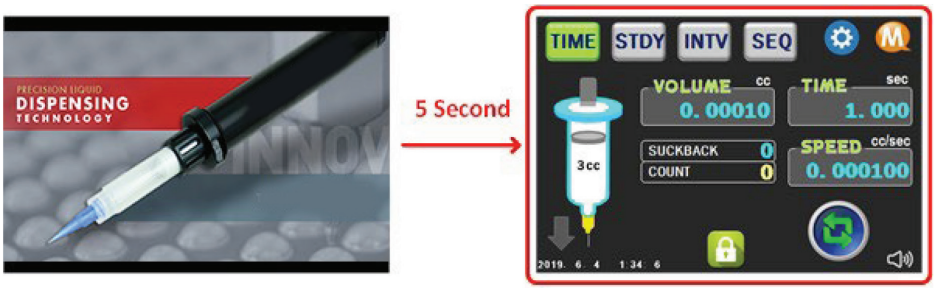


Figure 8. Initial power input screen

When the initial power input is provided by turning on the POWER SWITCH at the back of DA 1000V Controller, the INTRO PAGE will be shown for 5 seconds, after which the screen will switch to the HOME PAGE screen, and information will be shown in each display window.

7.2 DA 1000V Capacity Setting

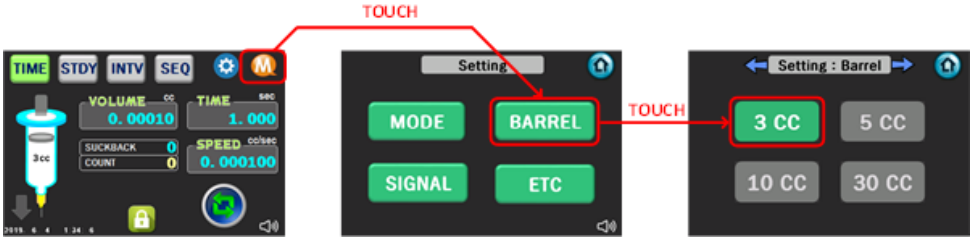


Figure 9. Setting the Capacity before using the Nano Pen

The Capacity can be set for the DA 1000V on the DA 1000V Controller before using the DA 1000V.

> Go to Setting: Barrel PAGE as shown in Figure 9 and set the corresponding capacity value.

7.3 BARREL Assembly

7.3.1 Accessing the CHANGE BARREL PAGE

Figure 10. How to access the Change Barrel PAGE

As shown in Figure 10, touch the Change Barrel icon to access the Change Barrel Page.

7.3.2 Origin position set-up using the auto back

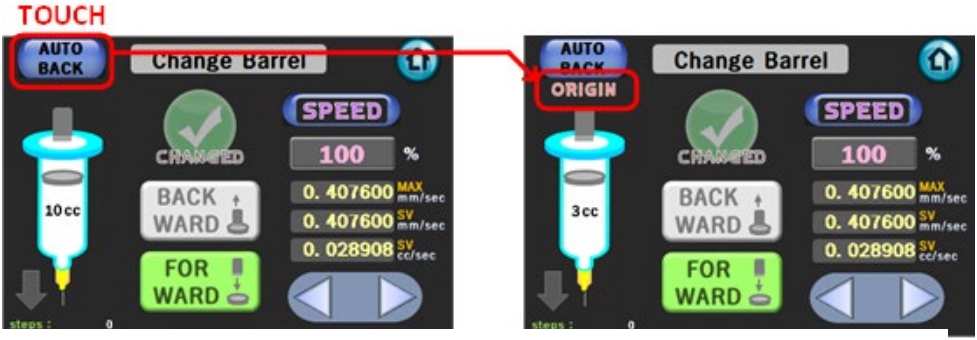


Figure 11. How to use the AUTO BACK function.

As shown in Figure 12, position the DA 1000V at the ORIGIN Position by using the AUTO BACK function.

Figure 12. DA 1000V in ORIGIN Position after using AUTO BACK

7.3.3 Mounting DA 1000V Barrel

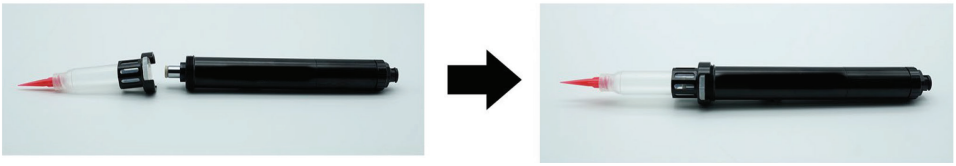


Figure 13. DA 1000V Mounting Order

As shown in Figure 13, mount the Barrel and Barrel Holder (with Plunger and liquid) onto the DA 1000V.

7.3.4 Fastening the Plunger

Figure 14. Locking the Plunger using the SHOT button

After setting the DA 1000V's direction to FORWARD, pressing the SHOT button will be that load is reached to the Plunger which is inside of barrel.

7.3.5 CHANGE SETTING

Figure 15. CHANGE SETTING

Once the Plunger has been connected, set the setting value for the CHANGED button to YES to complete assembly of the Barrel.

7.4 Setting Dispensing Conditions and Discharging

Figure 16. Setting Dispensing Conditions

After setting the dispensing conditions as shown in Figure 16, set the dispensing mode as shown in Figure 17 and execute the dispensing.

> When changing the dispensing mode, change the dispensing mode by releasing the LOCK button at the bottom of the HOME PAGE.

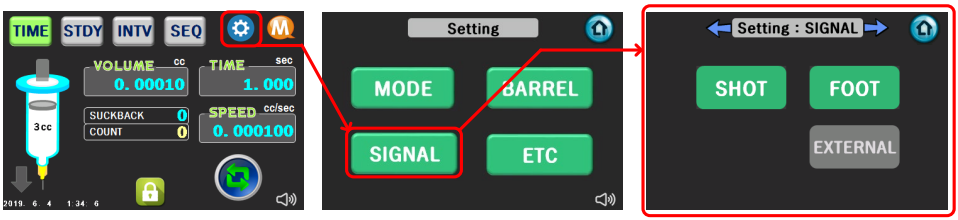


Figure 17. Setting Dispensing Mode

7.5 How to Remove the BARREL

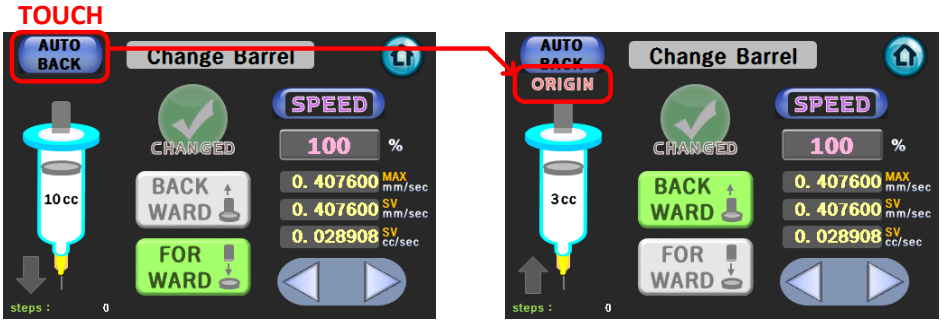


Figure 17. Using AUTO BACK function

Figure 18. Use the SHOT SWITCH or the FOOT SWITCH

As shown in Figure 17, the Plunger and Barrel can be removed by using the AUTO BACK function, or by using the SHOT or FOOT Switch after configuring the setting to BACKWARD.

8 EXPLANATION OF HMI SCREEN PAGE

8.1 HOME PAGE

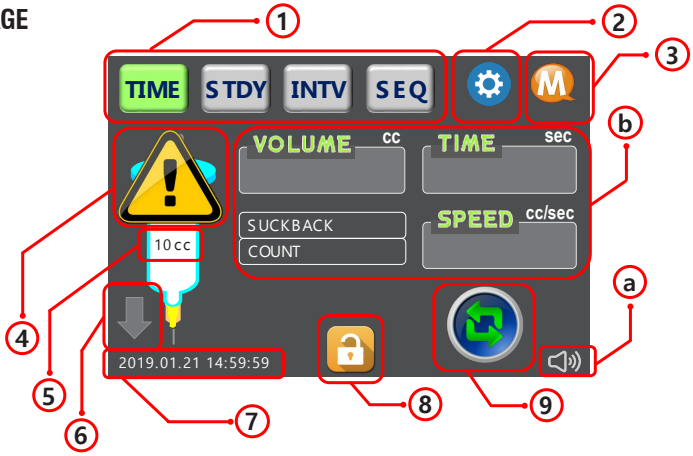


Figure 19. HOME PAGE

NUMBER	DESCRIPTION
①	Mode Change Button, current Mode is highlighted
②	Go to Setting Screen
③	Go to Menu Screen
④	Alarm Indicator
⑤	Shows the current Barrel capacity setting
⑥	Shows Dispensing Operation and Direction : Dispensing, : Not Dispensing
⑦	Shows current time
⑧	Mode Change Lock Button :Locked, :Unlocked
⑨	Go to Barrel Replacement Screen
◯,a	Buzzer ON/OFF
◯,b	Shows the setting and status values corresponding to each Dispensing Operation Mode

8.1.1 TIME MODE

Time Mode is a Dispensing Mode that dispenses a set volume over a set duration.

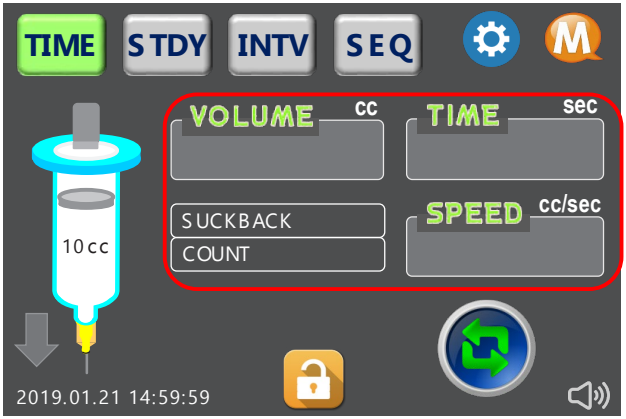


Figure 20. Time Mode

CATEGORY	DESCRIPTION
VOLUME	Shows the set dispensing volume
TIME	Shows the set dispensing time
SPEED	Shows the SPEED value according to the dispensing volume and duration
SUCKBACK	Shows the set number of SUCKBACK steps
COUNT	- Shows the number of dispenses executed in TIME MODE since completion of the last Barrel Replacement. - COUNT value does not increase if Dispensing Mode is changed. - Value is reset after Barrel Replacement.

8.1.2 STEADY MODE

Steady Mode is a Dispensing Mode where discharge is continuously executed at a set SPEED, and it is mainly used for Line Dispensing a certain amount.

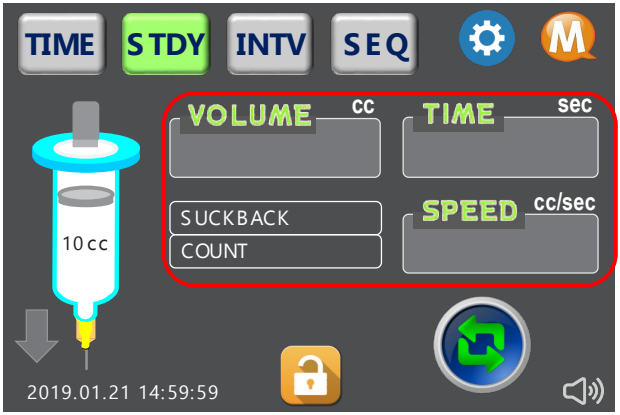


Figure 21. STEADY MODE

CATEGORY	DESCRIPTION
VOLUME	Displays the dispensing volume when discharging
TIME	Shows the elapsed time for dispensing when dispensing
SPEED	Displays the set Dispensing SPEED
SUCKBACK	Shows the set number of SUCKBACK steps
COUNT	- Shows the number of dispenses executed in STEADY MODE after completion of the last Barrel Replacement. - COUNT value does not increase if Dispensing Mode is changed. - Value is reset after Barrel Replacement.

8.1.3 INTERVAL MODE

Interval Mode is a Dispensing Mode used to consecutively dispense in Time Mode.
When selected, the equipment alternates between Dispensing ON/OFF, and during the ON signal, material will be dispensed according to the set TOTAL CH. Additionally, the INTERVAL MODE will stop if the dispensing signal is provided once again while INTERVAL MODE is in progress.

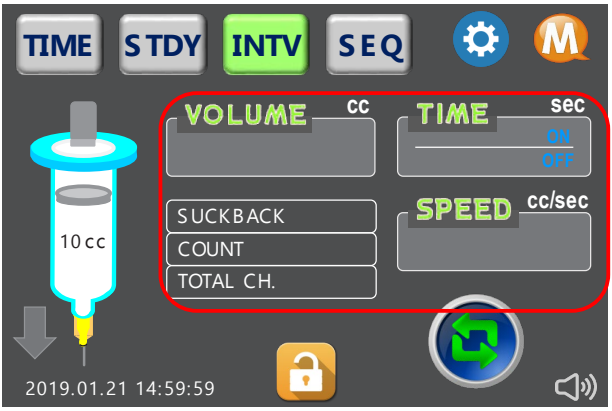


Figure 22. Interval Mode

CATEGORY	DESCRIPTION
VOLUME	Shows the set dispensing volume
TIME	Displays the set dispensing (ON) time Displays the set idle (OFF) time
SPEED	Shows the SPEED value according to the dispensing volume and duration
SUCKBACK	Shows the set number of SUCKBACK steps
COUNT	- Displays the current count number when dispensing in INTERVAL MODE. - COUNT value increases by the set number of TOTAL CH. when the dispensing signal is ON.
TOTAL CH	Shows the number of dispenses executed.

8.1.4 SEQUENCE MODE

Sequence Mode is a Dispensing Mode where up to 16 desired condition values can be configured, and each PROGRAM sequentially dispenses the material according to the various conditions.

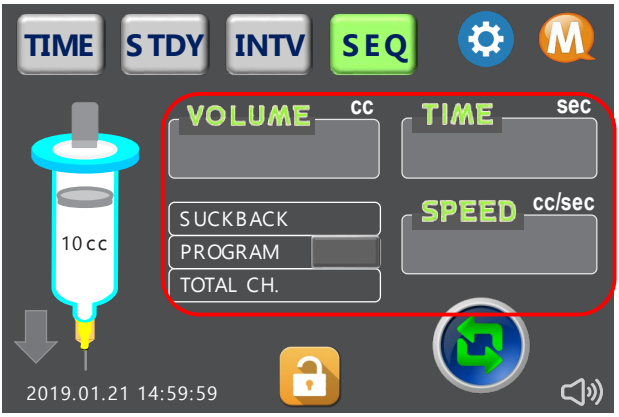


Figure 23. Sequence Mode

CATEGORY	DESCRIPTION
VOLUME	Displays the set dispensing volume for the configured PROGRAM
TIME	Displays the set dispensing time for the configured PROGRAM
SPEED	Displays the SPEED value according to the set dispensing volume and duration for the configured PROGRAM
SUCKBACK	Displays the number of SUCKBACK steps for the configured PROGRAM
PROGRAM	- Displays the PROGRAM number currently planned for dispensing. - When the current PROGRAM dispensing is complete, the PROGRAM value is increased to the next value. - The user can change the PROGRAM number by touching the corresponding PROGRAM area.
TOTAL CH	- Displays the total channels set in Sequence Mode. - TOTAL CH.: number of configured channels (maximum 16)

8.2 CHANGE BARREL PAGE

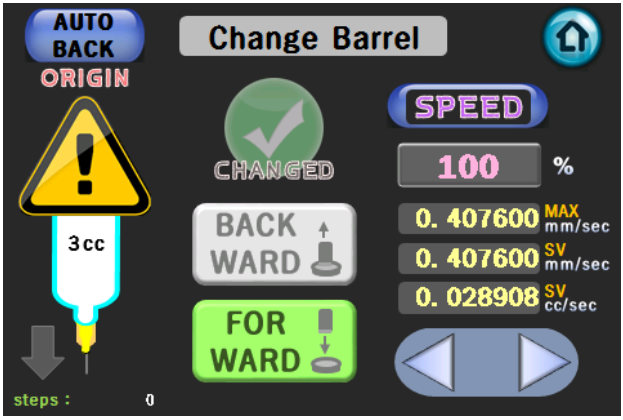


Figure 24. Change Barrel PAGE

CATEGORY	DESCRIPTION
AUTO BACK	This is a function to automatically return to the ORIGIN Position (initial position) when the barrel is replaced. > The AUTO BACK function will stop if the SHOT button is pressed.
ORIGIN	Displayed when the current DA 1000V position is in the ORIGIN Position
CHANGED	Button used when Barrel Change is complete > When the CHANGED button is turned ON, the COUNT value applied to each dispensing mode is reset.
FOR WARD	Indicates that the direction of the DA 1000V is FORWARD > Opposite of BACKWARD
BACK WARD	Indicates that the direction of the DA 1000V is BACKWARD > Opposite of FORWARD
	The DA 1000V Operation Speed can be adjusted by inserting a value.

CATEGORY	DESCRIPTION
	> If the SPEED text box is touched, the setting will switch to STEP.
	The DA 1000V can be operated with the desired number of STEPs by inserting the number of DA 1000V operations. > The pen will operate based on the SPEED value set in the SPEED text box. > If the STEP text box is touched, the setting will change back to SPEED.
	The SPEED is displayed as numerical values for each speed unit. The operating speed of the DA 1000V can be increased or decreased. > Left button: decrease, Right button: increase
	Displays the number of DA 1000V operation steps.
	This is an alarm window that appears when DA 1000V Controller alarm is on. > Go to the ALARM PAGE and check the alarm status.

8.3 MENU PAGE

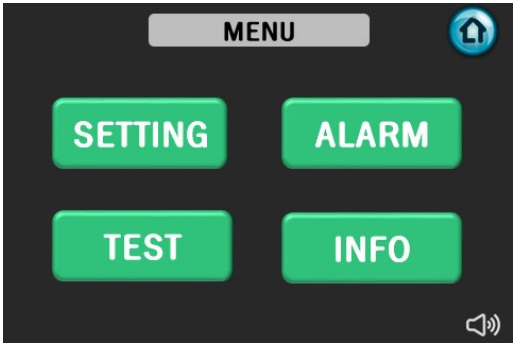


Figure 25. MENU PAGE

CATEGORY	DESCRIPTION
SETTING	Go to SETTING Screen
ALARM	Go to ALARM Screen
TEST	Go to I/O TEST screen
INFO	Go to information display screen

8.4 SETTING : MODE PAGE

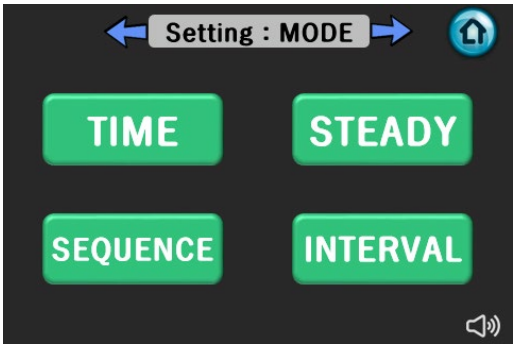


Figure 26. SETTING : MODE PAGE

CATEGORY	DESCRIPTION
TIME	Go to TIME Mode setting screen
STEADY	Go to STEADY Mode setting screen
SEQUENCE	Go to SEQUENCE Mode setting screen
INTERVAL	Go to INTERVAL Mode setting screen

8.4.1 TIME MODE

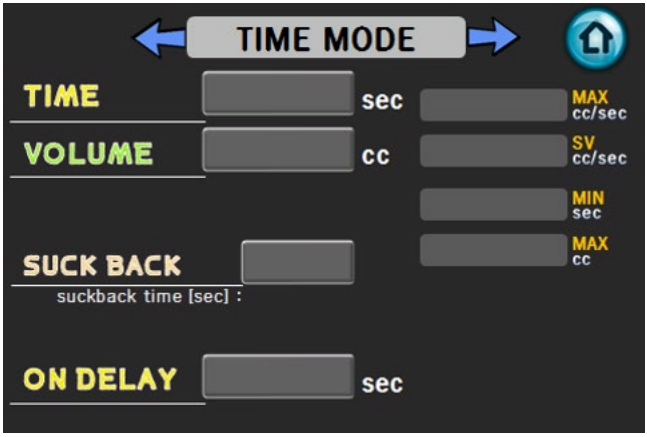
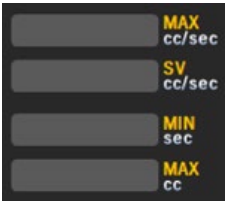


Figure 27. TIME MODE SETTING PAGE

This is the PAGE to configure the elements required for TIME MODE.

CATEGORY	DESCRIPTION
	Sets the dispensing duration
	Sets the dispensing volume
	Sets the number of SUCKBACK steps > If the number of SUCKBACK steps is set, the suckback time will be determined and displayed based on the set DA 1000V capacity.
	When the dispensing signal is ON in TIME MODE, the DA 1000V will wait until the duration specified in ON DELAY before commencing the dispensing.
	MAX (cc/sec) > Displays the maximum speed of the da 1000V based on the set Barrel capacity SV (cc/sec) > Displays the set TIME and VOLUME as speed values MIN (sec) > Displays the minimum number of seconds that can be changed based on the set VOLUME MAX (cc) > Displays the maximum VOLUME that can be changed based on the set TIME

8.4.2 STEADY MODE

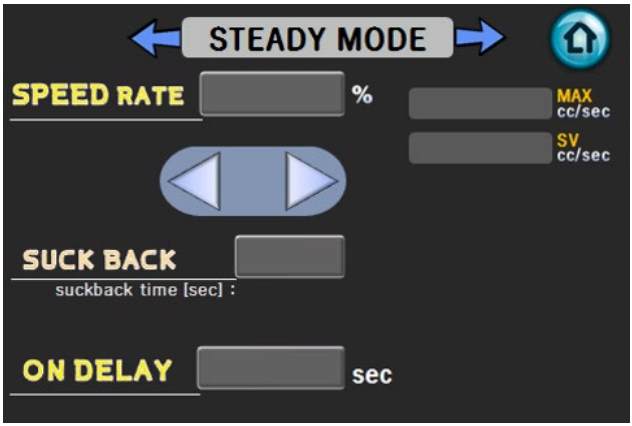
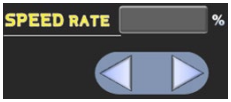


Figure 28. STEADY MODE SETTING PAGE

This is the PAGE to configure the elements required for STEADY MODE.

CATEGORY	DESCRIPTION
	Sets the dispensing SPEED RATE > The % can be input using the buttons, increasing or decreasing the % with the left and right buttons.
	Sets the number of SUCKBACK steps > If the number of SUCKBACK steps is set, the suckback time will be determined and displayed based on the set DA 1000V capacity.
	When the dispensing signal is ON in STEADY MODE, the DA 1000V will wait until the duration specified in ON DELAY before commencing the dispensing.
	MAX (cc/sec) > Displays the maximum speed of the DA 1000V based on the set Barrel capacity SV (cc/sec) > Displays the set TIME and VOLUME as speed values.

8.4.3 INTERVAL MODE

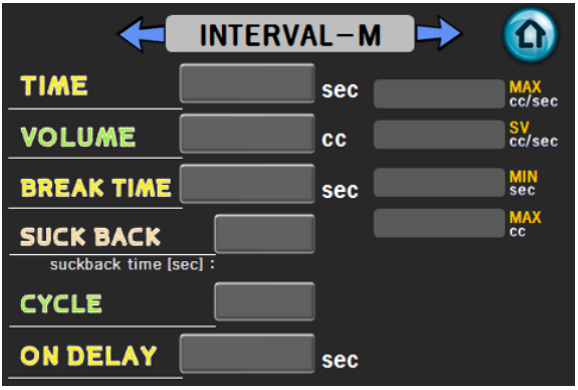
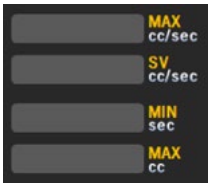


Figure 29. INTERVAL MODE SETTING PAGE

The INTERVAL MODE SETTING PAGE is the PAGE to configure the repeated dispensing conditions.

CATEGORY	DESCRIPTION
	Sets the dispensing duration
	Sets the dispensing volume
	Shows the wait time after one dispensing operation until the next
	Sets the number of SUCKBACK steps > If the number of SUCKBACK steps is set, the suckback time will be determined and displayed based on the set DA 1000V capacity.
	The dispensing operation will be repeated based on the set dispensing conditions for the number of CYCLEs indicated.
	When the dispensing signal is ON in INTERVAL MODE, the DA 1000V will wait until the duration specified in ON DELAY before commencing the dispensing.
	MAX (cc/sec) > Displays the maximum speed of the DA 1000V based on the set Barrel capacity SV (cc/sec) > Displays the set TIME and VOLUME as speed values MIN (sec) > Displays the minimum number of seconds that can be changed based on the set VOLUME MAX (cc) > Displays the maximum VOLUME that can be changed based on the set TIME

8.4.4 SEQUENCE MODE

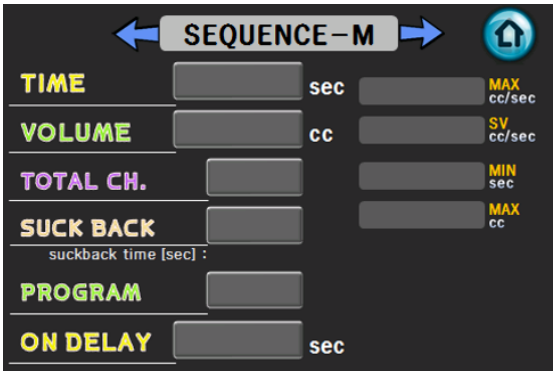
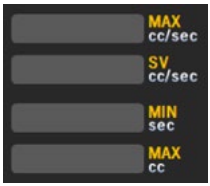


Figure 29. SEQUENCE MODE SETTING PAGE

The SEQUENCE MODE SETTING PAGE is the PAGE for setting each PROGRAM condition.

CATEGORY	DESCRIPTION
	Sets dispensing duration for each PROGRAM
	Sets the dispensing volume for each PROGRAM
	Sets the number of PROGRAMs to be used
	Sets the number of SUCKBACK steps > If the number of SUCKBACK steps is set, the suckback time will be determined and displayed based on the set DA 1000V capacity.
	Selects the PROGRAM to configure
	When the dispensing signal is ON in SEQUENCE MODE, the DA 1000V will wait until the duration specified in ON DELAY before commencing the
	MAX (cc/sec) > Displays the maximum speed of the DA 1000V based on the set Barrel capacity SV (cc/sec) > Displays the set TIME and VOLUME as speed values MIN (sec) > Displays the minimum number of seconds that can be changed based on the set VOLUME MAX (cc) > Displays the maximum VOLUME that can be changed based on the set TIME

8.5 BARREL SETTING PAGE

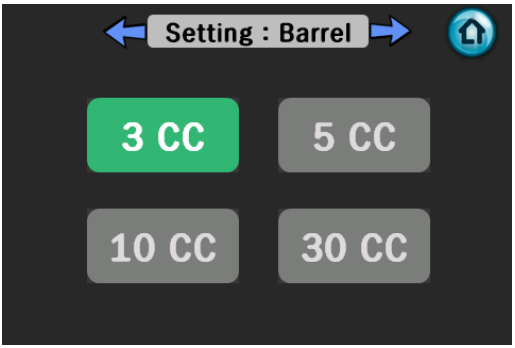


Figure 30. Setting : Barrel PAGE

The INTERVAL MODE SETTING PAGE is the PAGE to configure the repeated dispensing conditions.

CATEGORY	DESCRIPTION
3 CC	BARREL 3 CC setting
5 CC	BARREL 5 CC setting
10 CC	BARREL 10 CC setting
30 CC	BARREL 30 CC setting

8.6 SETTING : SIGNAL PAGE

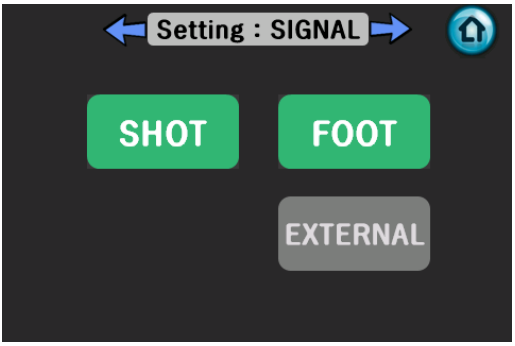


Figure 30. Setting : Barrel PAGE

The INTERVAL MODE SETTING PAGE is the PAGE to configure the repeated dispensing conditions.

CATEGORY	DESCRIPTION
SHOT	Enable/disable the SHOT SWITCH for dispensing on the DA 1000V CONTROLLER front panel
FOOT	Enable/disable the FOOT SWITCH for dispensing on the DA 1000V CONTROLLER rear panel
EXTERNAL	Enable/disable the External INPUT EXTERNAL SHOT for dispensing

8.7 SETTING : ETC PAGE

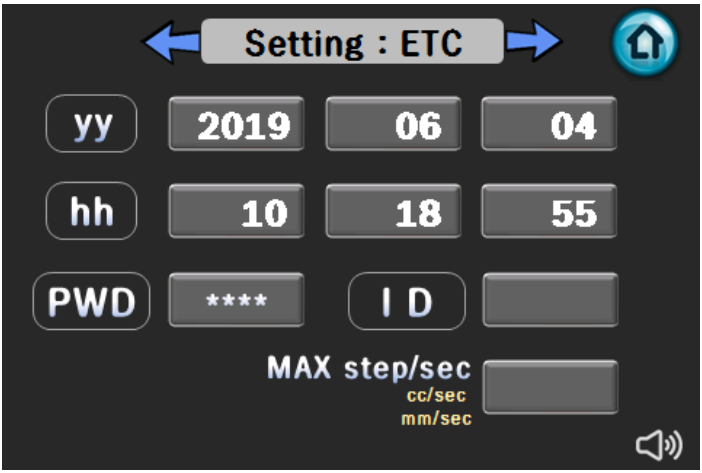


Figure 32. SETTING : ETC PAGE

CATEGORY	DESCRIPTION
yy	Date Setting section, YEAR / MONTH / DAY
hh	Time Setting section, HOUR / MINUTE / SECOND
PWD	Passcode change function (Not used)
ID	Comm. RS-485 communication ID setting
MAX step/sec	Setting the maximum Steps per second for the Motor and > Speed (cc/sec) > Distance (mm/sec) are displayed

8.8 ALARM PAGE

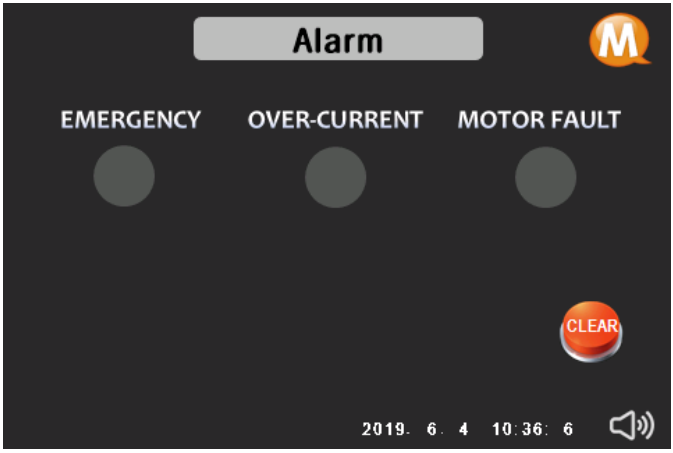


Figure 33. ALARM PAGE

CATEGORY	DESCRIPTION
EMERGENCY	If the external INPUT EMERGENCY signal is ON, all operations of the DA 1000V CONTROLLER will stop.
OVER-CURRENT	Alarm due to over-current during motor operation
MOTOR FAULT	Alarm due to abnormal completion of motor operation

8.9 TEST PAGE

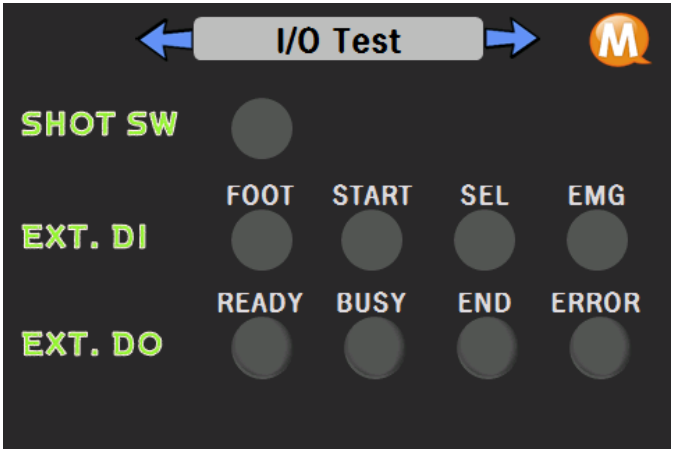


Figure 34. I/O TEST PAGE

CATEGORY	DESCRIPTION
SHOT SW	DA 1000V CONTROLLER front panel switch contact point test
EXT.DI - FOOT	FOOT SWITCH contact point test
EXT.DI - START	External SHOT contact point test
EXT.DI - SEL	External SEL contact point test
EXT.DI - EMG	External EMERGENCY contact point test
EXT.DO - READY	READY signal output test
EXT.DO - BUSY	BUSY signal output test
EXT.DO - END	END signal output test
EXT.DO - ERROR	ERROR signal output test

8.10 INFO PAGE

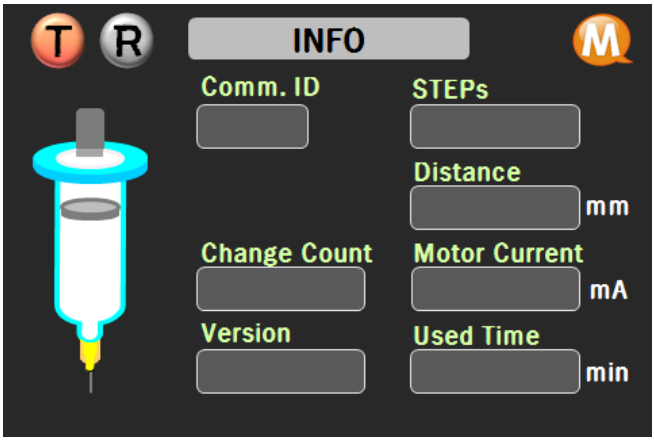


Figure 35. INFO PAGE

CATEGORY	DESCRIPTION
T R	Checks the communication status between the DA 1000V CONTROLLER LCD and the board T > LCD transmits signals to the DA 1000V CONTROLLER board R > LCD receives signals from the DA 1000V CONTROLLER board > Both T and R will be lit when operation status is normal.
Comm. ID	Displays Communication ID
Change Count	Displays number of Barrel Changes
Version	Displays the firmware version
STEPs	Number of STEPs taken from ORIGIN Position
Distance	Distance away from ORIGIN Position
Motor Current	Real-time monitoring of the motor's current consumption
Used Time	Displays the total time that the controller has been used
	Touching this icon will switch to the Barrel Information Screen.

8.10.1 Barrel Information PAGE

	3 CC	5 CC	10 CC	30 CC
steps /pitch	24 x 40.86 x 8	24 x 40.86 x 8	24 x 40.86 x 1	24 x 75.89 x 1
pitch screw [mm]	0.8	0.8	1.0	1.25
section [mm^2]	70.88	124.69	196.07	401.15
mm / step [mm]	0.0001019	0.0001019	0.0010196	0.0006862
volume /step [mm^3]	0.007227	0.012713	0.199914	0.275298
volulme /step [cc]	0.000007227	0.000012713	0.00019914	0.000275298

Figure 36. Barrel Information PAGE

This is the information regarding the dispensing volume for each Barrel capacity. Touching the screen will switch to the INFO PAGE.

DAV TECH SRL Via Ravizza, 30 - 36075 Montecchio Maggiore (VI) - ITALY - Tel. 0039 0444 574510 - Fax 0039 0444 574324
davtech@davtech.it - www.davtech.it