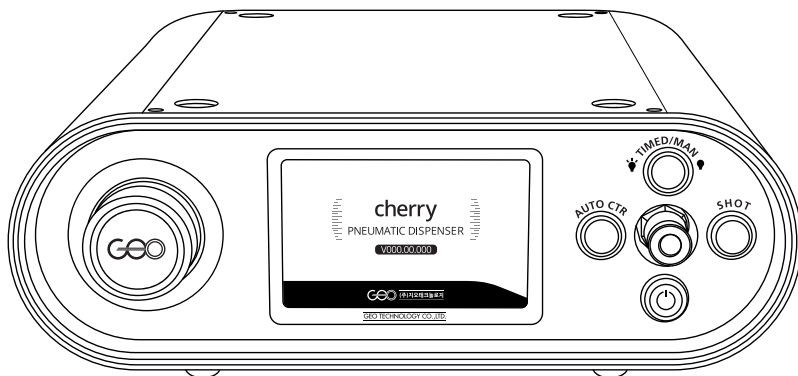


Cherry User Manual

The high-precision pneumatic correction dispenser

This is the real correction technology!



G

Vacuum Pressure
Auto-Calibration

E

Constant
Discharge Amount

O

Additional correction
for abrupt changes
in discharge

cherry®

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I . Precautions

Be familiar with the safety precautions and operating methods listed below to prevent damage to this product and any other products connected to it, and use it within the scope of the regulations of this product to avoid any dangers.

- Turn off the power after completion of use.
- Do not disassemble the machine personally and avoid the risk of electric shock.
- Product grounding: This product's power grounding wire must use a reliable grounding wire outlet.
- Power line suitable for use: Use the dedicated electric wire enclosed with this product, check that the power is correct before use, and check that there is no damage or short circuit before use.
- Keep the surface of the product clean and dry, and do not operate it in an environment vulnerable to moisture or corrosion.
- Since the gas source maintains a clean state and there should be no foreign matter and water in the organic matter, it is recommended to attach a filter paper to the gas source. In addition, it is recommended to use a separate regulator for the stable supply of compressed air.
- When connecting or disconnecting the compressed air pipe, be careful not to cause air leakage due to damage to the fitting.
- In case of an error, contact our technical sales department.(82-32-832-5920)

II. Product Description

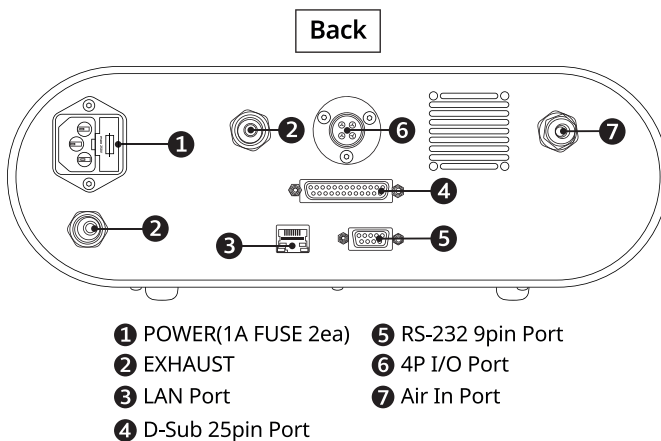
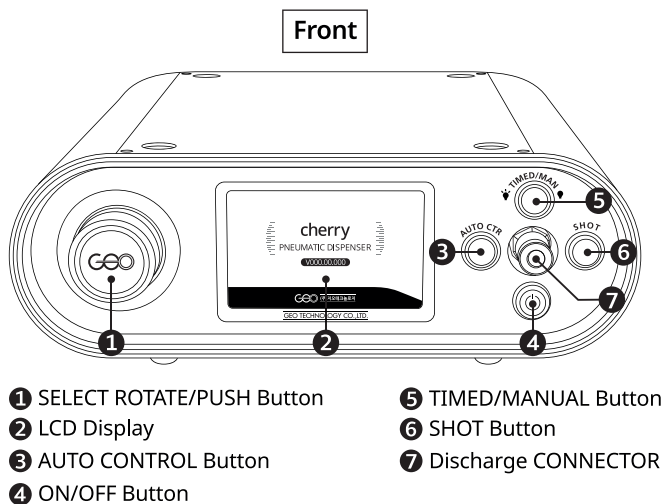
This precision pneumatic dispenser is a fixed-amount liquid dispenser that can be used independently or mounted on equipment for precision machinery and high-tech product manufacturing processes, which maximizes the convenience of operation by applying an intuitive UI.

Connect the syringe containing the liquid and use it after setting the pressure, vacuum, and discharge time so that the desired amount of liquid is discharged. As the liquid agent gradually decreases during the discharge process, if the amount of vacuum or discharge increases or decreases, use after correcting it through fine correction.

1. Product Specifications

Item	CHERRY BLUE/RED
Format	High precision pneumatic dispenser
Discharge Method	AIR PULSE TYPE
Control Method	Differential head correction, liquid spill prevention, fine correction (GEOX correction), Discharge counter, jog dial menu selection, residual liquid warning
Discharge Mode	AUTO(CORRECT)/TIMED/MANUAL
Discharge Pressure Adjustment Range	BLUE: 5~100kpa (10-100kpa for automatic correction mode) RED: 10~500kpa (100~500kpa for automatic correction mode)
Discharge Time Setting Range	5 ~ 99999ms (BLUE / RED: Min.100ms for automatic correction mode)
Vacuum Pressure Setting Range	BLUE: -10.0~0.0kpa RED: -20.0~0.0kpa
Display Section	4" LCD Display (480x272 pixel, TFT Color LCD)
Data Communication	RS-232 Serial communication
Supply Air Pressure	BLUE: Min.200 ~ Max.300kpa RED: Min.600 ~ Max.700kpa
Power Power Consumption	AC240V/30W
Dimension	BODY: 300W x 100H x 300D TOTAL: 300W x 108H x 322D (Including Connector)
Weight	Approximately 6kg

2. Product Exterior and Parts Names






















3. Components

No.	Item	Quantity
1	Cherry Body	1set
2	4P I/O Connector	1set
3	Power Line	1set
4	1m Adapter (For 50cc Syringe)	1set
5	User Manual	1set

4. GUI Description

List	Screen	
Loading Screen		When the power is applied, the loading screen (cherry blue/red) is displayed as shown in the figure, and during that time, each part is checked and converted to the operation screen when OK.
Syringe Setting Screen		<ol style="list-style-type: none"> Select between 10/30/50 Select between 0.5/1.0/1.5/2.0 Sample actually used Full syringe 15 times (At SKIP, it is set as the full capacity of the set syringe) Set the remaining alarm rate: 0-40 EXIT
Menu Screen		<ol style="list-style-type: none"> Home menu Channel display from 1~99 Discharge pressure(kpa) Vacuum pressure(-kpa) Discharge time(ms) Syringe size(cc)
Operating Screen		<ol style="list-style-type: none"> Channel CC Channel CC CHANNEL: 1~99 AUTO/TIMED/MANUAL Discharge pressure(kpa) Vacuum pressure(-kpa) Syringe capacity(volume ratio) :0~100%(5%units) Discharge time(ms) Channel discharge count Residual warning volume ratio(%)

HOME MENU					
Operation Screen	Channel	Input	Settings	Data	
					
Operation Screen	Liquid discharge can only be performed on this menu screen. Each menu and the operation screen				
Channel Submenu	 Channel selection and creation	 Channel delete	 Channel list	 Syringe setting	
Input Submenu	 Discharge pressure	 Vacuum pressure	 Set discharge time	 Viscosity	 Reset channel discharge account
Settings Submenu	 Language setting	 Fine correction(GEOX) setting		 Manufacturer setting	
Data	 Data history		 Check total discharge count		

5. How To Operate a Jog Dial

The jog dial, which is a menu selection and numerical input device of this equipment, can be moved to the desired menu by turning the knob left and right, and the menu is selected by pressing the push button located in the center of the knob. The menu is moved up and down as the knob is rotated, and the selectable menu is located in the center of the LCD screen. The size is also enlarged so that it is easy to check whether it is a menu waiting to be selected.

The input of various values can be selected by turning the knob from 0 to 9 for each unit. When editing is in progress, the value turns red, and when it is selected by pressing the push button, it turns black. When completed, the setting is completed with the input value and stored in the channel.

III. How To Install And Operate Equipment

1. Equipment Preparation

- ① Connect the air supply source to the AIR IN CONNECTOR at the rear of the equipment to supply air to the equipment.
- ② Connect the syringe of the desired size and the adapter tube to the discharge connector on the front of the equipment.
- ③ Connect the discharge interlocking device such as a robot to the 4P connector on the rear of the equipment.
- ④ After connecting the power cord to the AC power at the rear, turn it on by pressing the front ON/OFF switch.

2. Discharge Mode

(1) AUTO Mode

This is a mode that detects the remaining amount of liquid and automatically corrects the discharge time. Press the AUTO CTR button on the front of the equipment to activate it. As the remaining amount of liquid decreases, the discharge amount decreases when discharged at the same pressure and at the same time. This is compensated by increasing the discharge time.

(2) TIMED Mode

Whenever the shot button is pressed, it is discharged for a preset time. With the AUTO mode off, operate it with the TIMED/MANUAL button on the front of the equipment in the TIMED state.

(3) MANUAL Mode

This is a mode that allows liquid to be discharged while the shot button is pressed. Operate with the TIMED/MANUAL button on the front of the equipment in the MANUAL state with the AUTO mode off.

3. How To Operate

- ① After selecting the desired channel, select the syringe size (10, 30, 50CC) to be used, the adapter tube length (0.5, 1, 1.5, 2M), and the remaining warning level ratio (0-40%) in the SYRINGE SETTING window. After connecting the syringe filled with the liquid solution, execute AUTO SAMPLING. This is a process to facilitate the setting of the correction value, and if sampling is not performed, the sampling value is stored as the full charge capacity of each syringe.
(Channel>Channel selection/syringe setting, the first time is automatically popped up and saved in Channel 1)
- ② Enter discharge pressure, vacuum pressure, discharge time, and viscosity values according to the desired discharge volume.
(Input>discharge pressure, vacuum pressure, discharge time, viscosity)
- ③ After switching to the operation screen, set to TIMED mode (front button), press the SHOT button to discharge, and check the discharge amount.
- ④ Repeat ②-③ until it is set according to the desired discharge amount.
- ⑤ When discharging in AUTO mode after the setting is completed, adjust the G correction value if the vacuum is too strong or insufficient as the discharge is performed, and adjust the E correction value if the discharge amount gradually decreases or increases. (Settings>Fine correction>G/E/O/X correction, see 3. Detailed setting method)

NOTE

1. Discharging is done only on the operation screen, and the operation screen is placed at the top of each menu screen for easy access. You can exit from the operation screen state to the menu screen by pressing the push button of the rotary switch once.
2. In AUTO mode(automatic time correction mode), the discharge time should be set to more than 100ms.
3. All settings can be saved and used for each channel.
4. If the syringe is replaced with a new one, press the Shot Button for 2 seconds or longer to initialize the syringe level.

4. Detailed method to set the main discharge conditions

(1) SYRINGE SETTING



You can set the syringe size, tube length, and remaining amount alarm and start AUTO SAMPLING. When the device is used for the first time, it is automatically connected after the loading screen, and from the next use, it is automatically connected in the step of creating a new channel. When resetting an existing channel, it can be set in the syringe setting menu in the channel submenu. Take precautions because the remaining amount detection and automatic correction are possible only when the syringe size and tube length to be applied are correctly input. The volume alarm is to set the remaining amount ratio that the user wants to be warned when the remaining amount is between 0 to 40%. When the remaining amount ratio is reached, the remaining amount indicator bar on the LCD screen is displayed in red, an alarm sounds, and the signal is sent through D-sub. The alarm continues to sound until the remaining amount is detected above the set volume ratio. If you want to turn off the sound, replace the syringe or turn the jog dial to the right or left once.

AUTO SAMPLING makes it easier to set the correction value during fine correction by sampling the buffered syringe actually used by the user and discharging it at the initially set time when the amount of the sampled liquid is sampled so that the optimum condition can be found more quickly. When sampling, fill the liquid material of the maximum capacity to be used with this equipment, insert the needle cap, and sample. Sampling automatically proceeds 15 times and then switches to the menu screen. The initial sampling value is stored in Channel 1. If you exit the syringe setting screen without the sampling process, the full capacity of the set syringe size is stored in the channel.

(2) How to set up a channel

- ① After clicking the channel selection icon in the Channel menu of the Home menu, use the jog dial to designate the channel number to be set.
- ② In case of modifying an existing channel, if the pressure, vacuum, discharge time, etc. in the input menu are set to the desired values while the channel is selected, it is immediately reflected in the channel. When a new channel is selected, it automatically goes to the SYRINGE SETTING screen. You can select the syringe size, tube length, and residual amount warning ratio. Then put the needle cap on the syringe to be used, and while connected, press the AUTO SAMPLING button to proceed with sampling. You can enter and use the desired setting values such as pressure, vacuum, and time of the new channel.
- ③ Saved channel information can be checked in Channel>Channel List.

(3) Fine correction(GEOX correction: Home>settings)

Fine correction is additionally performed when the amount of discharge is not constant according to the change of the remaining amount of liquid during the automatic correction in the AUTO mode or if you want to increase or decrease the amount of discharge.

- ① G correction: Vacuum ratio correction. Adjust when the vacuum is too strong or too small as the discharge progresses. The initial value is 100 and is adjustable from 50 to 999
 - When the vacuum gradually increases: Decrease the value.
 - When the vacuum gradually weakens: Increase the value.
- ② E correction: Time ratio correction. Used when the discharge volume tends to increase or decrease as the discharge proceeds. The initial value is 100 and is adjustable from 0 to 999
 - When the discharge volume gradually increases: Decrease the value.
 - When the discharge volume gradually decreases: Increase the value.

- ③ O correction: Additional correction to change the correction ratio once when a section in which the discharge volume changes rapidly depending on the liquid agent occurs.

For the initial value 010, the first digit (hundreds place) is the remaining amount of the liquid to be applied O correction(%), and the second digit (tens place) and below indicates sets the correction ratio. Refer to the table below for the remaining amount and correction ratio by value.

000(Hundreds place, 0~9)		000(Tens place, 0~99)	
0	No O correction	00	Time correction afterwards
1	10% remaining	• •	
2	20% remaining		
3	30% remaining	09	90% Time correction afterwards
4	40% remaining	10	Default, no O correction
5	50% remaining	20	200% Time correction afterwards
6	60% remaining	• •	
7	70% remaining		
8	80% remaining	99	990% Time correction afterwards
9	90% remaining	ex) When 435 is set, from 40% remaining time correction 350%	

- ③ X correction : Corrects the value when the volume ratio of the remaining liquid volume detected while the device is stabilized continuously shows a difference from the actual value. When the initial value of 550, and the cc error of the full syringe and the empty syringe is not the same, the value of the hundreds place is raised or lowered. If the cc error of the full syringe and the empty syringe is the same (if there is only an offset of the cc value), the value below the tens digit is changed and corrected.

000(Hundreds place, 0~9)		000(Tens place,, 0~99)	
1	-40% correction	1	Decrease displayed cc by 49%
2	-30% correction	• •	
3	-20% correction		
4	-10% correction	49	Decrease displayed cc by 1%
5	Default	50	Default, uncorrected
6	+10% correction	51	Increase displayed cc by 1%
7	+20% correction	• •	
8	+30% correction		
9	+40% correction	99	Increase displayed cc by 49%

Set the CC at the bottom first with an empty syringe, and adjust the ratio if the top does not match.

- When it detects more than the actual remaining amount: Decrease the value.
- When it detects less than the actual remaining amount: Increase the value.

5. Warning messages and measures

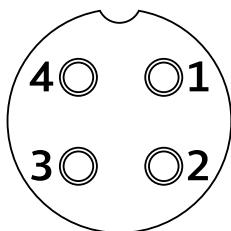
Warning message	Cause	Measure
MAIN PRESSURE AIR IS LOW	When the supply pressure is lower than the recommended pressure	Adjust the supply pressure to the recommended pressure
PLEASE REPLACE SOLENOID VALVE	Time to replace the solenoid valve is approaching	The solenoid valve may be used continuously, but replacement is recommended. (Contact us for replacement)
SOLENOID VALVE ERROR	The solenoid valve must be replaced.	The solenoid valve must be replaced. (Contact us for replacement)

6. Contextual response manual

Abnormal situation	Response
When the vacuum becomes weaker than the set value	<ol style="list-style-type: none"> 1. Check if anything is blocking the rear exhaust port and remove it 2. Check if the air supply is smooth 3. Settings>Fine correction>Adjust G correction value (refer to 4.(3)①)
When you press the shot button or give a discharge signal, but the discharge does not work	<ol style="list-style-type: none"> 1. Check if the display shows the operation screen 2. Check if the air supply is smooth 3. Check if the discharge time is properly entered 4. Check if the pressure setting is correct
When the remaining liquid ratio on the LCD screen does not match the actual	<ol style="list-style-type: none"> 1. Check if the air supply is smooth 2. Check if the connected syringe size and tube length are the same as the setting 3. Check if the discharge time is set to more than 100ms 4. Check if the pressure setting is correct 5. Check if the vacuum is set excessively 6. Check if the X correction value is different from the default value when it has not been additionally set (Settings>Fine correction>X correction) 7. Set the X correction value appropriately (refer to 4.(3)④)
If the discharge time does not fall below 100ms	<ol style="list-style-type: none"> 1. Check whether it is in AUTO mode : In AUTO mode, it must be discharged over 100ms 2. If you want to discharge less than 100ms, use TIMED mode or the MANUAL mode
If the remaining liquid formulation was not found right away although the syringe was replaced with a new one	Press the Shot Button for two seconds or longer to initialize the syringe level before discharge
<ul style="list-style-type: none"> • In the event of an abnormal situation, take measures in order from the first response method. • If the LCD screen is corrupt, turn the power off and on again. • If the abnormal situation is not resolved after taking the above measures, or if any other abnormality occurs, please contact our technical sales department. 	

7. External input/output signal

(1) I/O 4 PIN



PIN No.	Func.
1	GND(SHOT)
2	I/O IN(SHOT)
3	OUT(END)
4	GND(END)

(2) RS232

Cherry

PIN No.	Func.
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

Baud rate	115200bps
Data bits	8
Parity	None
Stop bits	one
Append	LF

(3) Dsub 25PIN

D-Sub 25Pin	I/O Type	Signal Name	Function
1	—	—	Forbidden
2	—	24V	24V
3	O	Discharge completed	Signal for discharge completion
4	O	Solenoid valve alarm	Solenoid valve alarm
5	O	Booting completed	System drive completed
6	O	Discharge preparation completed	Discharge preparation completed
7		Discharge signal	Discharge operation signal
* 8		Change channels	Maintain for 10 minutes
9		Channel 2 [^] 0	1
10		Channel 2 [^] 0	2
11	—	—	Forbidden
12	FG	GND	GND
13	—	—	Forbidden
14	—	24V	24V
15	O	Remaining amount alarm	Remaining amount alarm
16	O	NONE	NONE
17	O	NONE	NONE
18	O	NONE	NONE
19		Channel 2 [^] 0	4
20		Channel 2 [^] 0	8
21		Channel 2 [^] 0	16
22		Channel 2 [^] 0	32
23	—	—	Forbidden
24	FG	GND	GND
25	—	—	Forbidden
<p>* A method of changing channels :Call a desired channel (LOW) and keep the PIN No. 8 low. (The default value is HIGH)</p> <p>ex) If you want to change the channel into No. 5 : No. 9 (1) & No. 19 (4) LOW (1+4=5) → No. 8 LOW If you want to change the channel into No. 10 : No. 10 (2) & No. 20 (8) LOW (2+8=10) → No. 8 LOW If you want to change the channel into No. 14 : No. 10 (2) & No. 19 (4) & No. 20 (8) LOW → No. 8 LOW</p> <p>(Make a combination to make the total of function figures the same as a desired channel number and call for change in the channel)</p>			



GEO TECHNOLOGY CO.,LTD.

032-832-5920

geo5920@geotechnology.co.kr

www.geotechnology.co.kr

323, Incheon tower-daero, Yeonsu-gu, Incheon, Republic of Korea