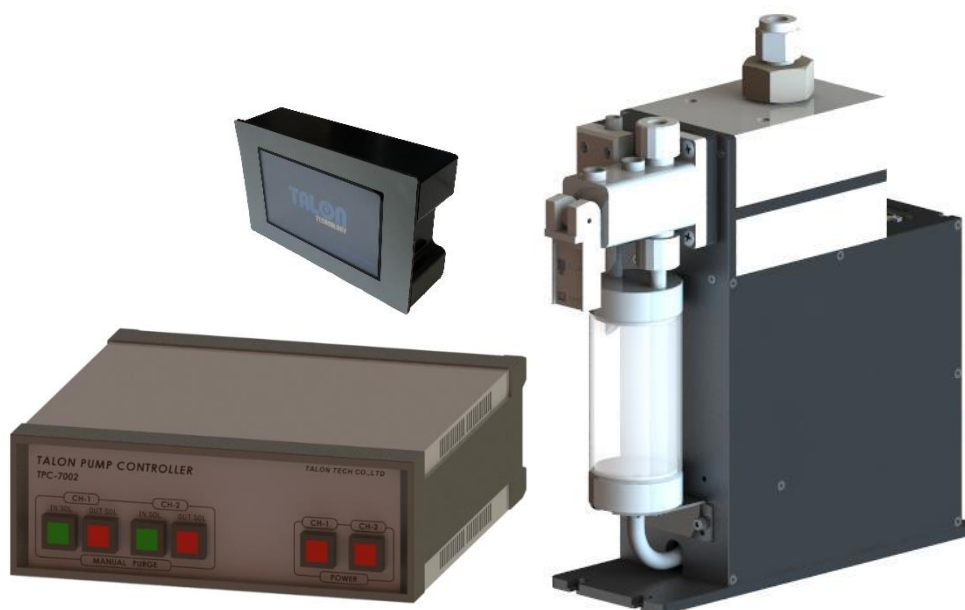


HIGH VISCOSITY & HIGH CAPACITY PR PUMPPump& Controller System

PUMP MANUAL

MODEL : TP-70BS



TALON TECH CO. LTD.

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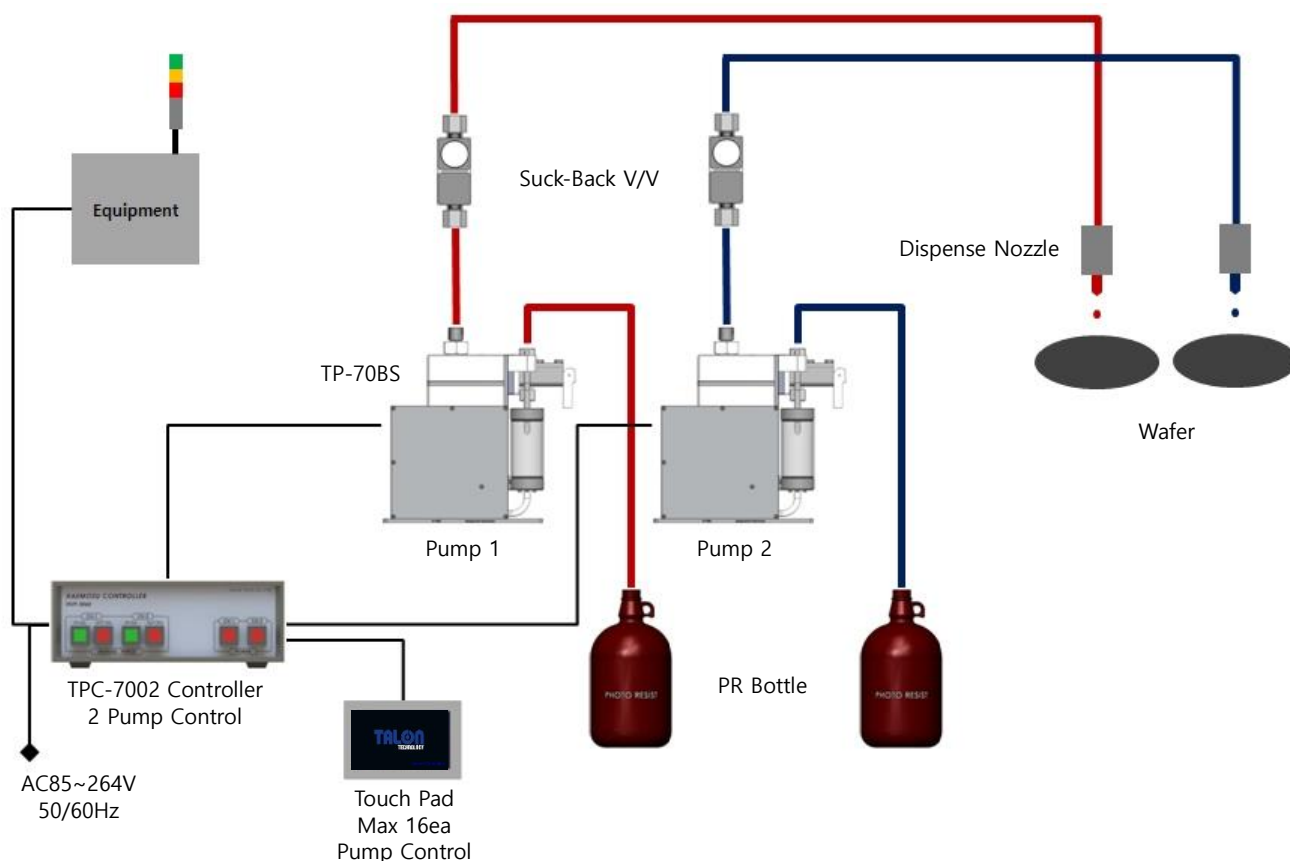
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1

System Configurations



TP-70BS pump can be used as the above configuration and has been developed for the semiconductor system's automation by operating RS422 communication. Especially, the adoption of servo motor is good for the high degree of PR dispense. The basic communication between the touch pad and the pump is RS422 Multi Drop method. By synchronizing with Windows CE Operating System, Touch Pad MMI 2.0 Software operates TP-70BS pump.

Be careful to use the pump by following this manual or Talon Tech's acceptance. Or, other defects should be paid even under the warranty period.

※ Features & Merits

1. All the PR contacting points are made by Teflon
2. Driving Method: Cylinder & bubble trap technology / Outer type edgeless bellows.
3. Micro bubble control. (No Leak point)
4. Touch pad has the same function of controller & it can control upto 16 pumps.
5. Encompass or Normal trigger signal.

2 System Specifications

2-1 Pump [TP-70BS]

ITEM	SPEC	REMARKS
Dispense Volume Range	1.0cc ~ 20cc	
Dispense/ Reload Rate	0.3 cc/sec ~ 1.2 cc/sec	
Dispense Volume Resolution	0.01 cc	
Dispense Repeatability	$\leq \pm 0.04$ (Polyimide PIX/PIQ)	
Viscosity	50cp ~ 20,000cp	
Drive System	DC Servo Motor	
Pump Type	Outer Type Edgeless Bellows	
Motor Power	DC 24V (current consumption : 1.4A)	
Air	0.1 ~ 0.3Mpa	
Resist In/Out/Vent tube	$\frac{3}{8}$ " Inch Teflon	
Ambient Temperature	5 ~ 40 °C	
Weight	6.65kg	
Pump Dimension	W : 87mm, D : 299mm, H : 313mm	

2-2 Controller [TPC-7002]

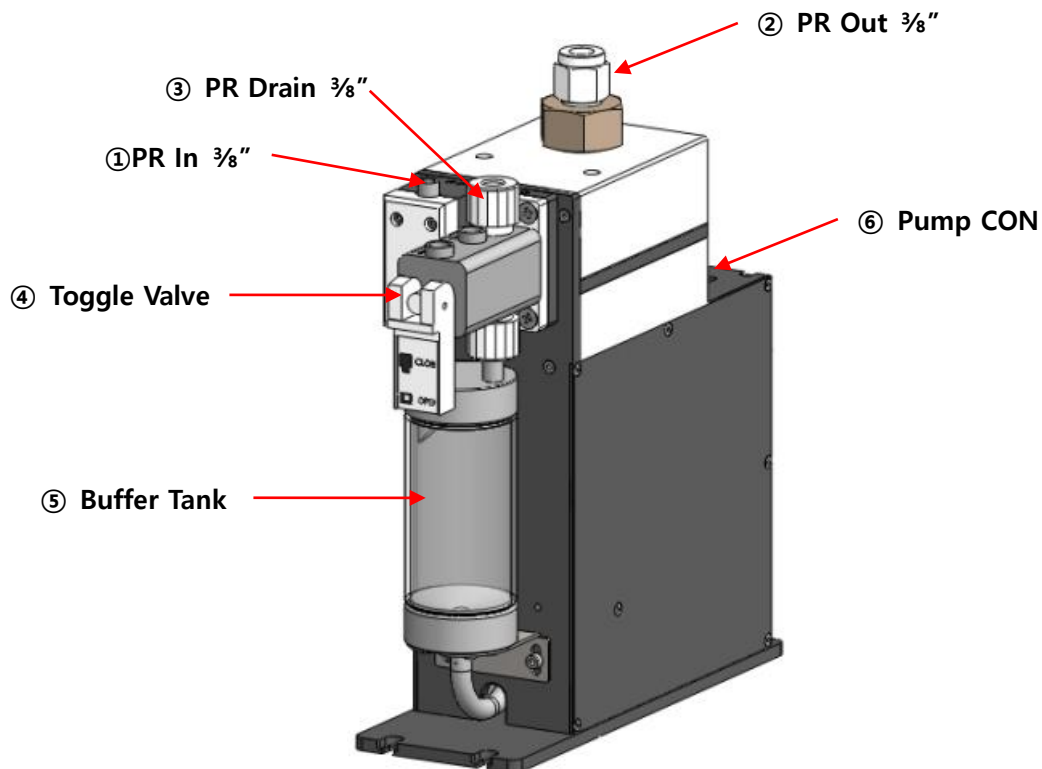
ITEM	SPEC	REMARKS
Electric Power	85VAC ~ 264VAC, 50~60Hz	
Controller Power	DC 24V (current consumption Max 1A)	Panel Use
Drive Pump No.	2 Pumps	
Pump Operation Mode	Fixed Mode	
Main CPU	80c296 (16bit Processor)	
Input Signal	1. Pump Driving Signal From Track M/C- Pump Start Signal.	
Output Signal	1. Home Signal & Pump Operation Completion Signal To Track M/C. 2. Air V/V controlled Sol V/V Signal. 3. Alarm Signal on Pump Error. 4. Outside Communication (RS422).	
Weight	3.30kg	
Dimension	W : 250mm, D : 261mm, H : 94mm	

2-3 Touch Pad[TTP-7008]

ITEM	SPEC	REMARKS
Main CPU	32Bit ARM920T	
Ram	64Mb (OS:32Mb/App:32Mb)	
Flash	NAND Flash 64Mb (OS:32Mb/App:32Mb)	
LCD Size	4.3 Inch TFT Wide (480*272)	
RTC Function Built-in	Exchangeable Coin Battery	
Max. Connecting Pump No.	8 Pumps	
Communication	RS422	
Touch Pad Power	DC12~24V, current consumption: 5W (400~700mA)	
Ambient Temperature	-10 ~ 55C	
Weight	0.64kg	
Dimension	W : 140mm, D : 44mm, H : 88mm	

3 SystemIn/Exterior Names

3-1 Pump In/Exterior Names



3-1-1 Pump Name Explanation

① PR In

- Chemical Supply. (3/8 Inch Teflon)

② PR Out

- Chemical Dispense. (3/8 Inch Teflon)

③ PR Drain

- Chemical Drain. (3/8 Inch Teflon)

④ Toggle Valve

- One Touch Toggle Valve for chemical drain.

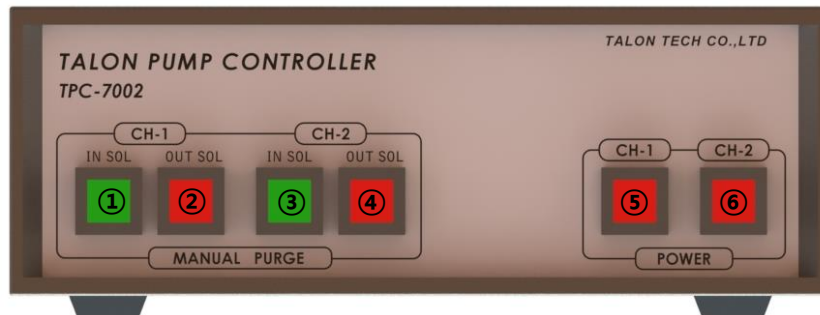
⑤ Buffer Tank

- Bubble removal and buffering function

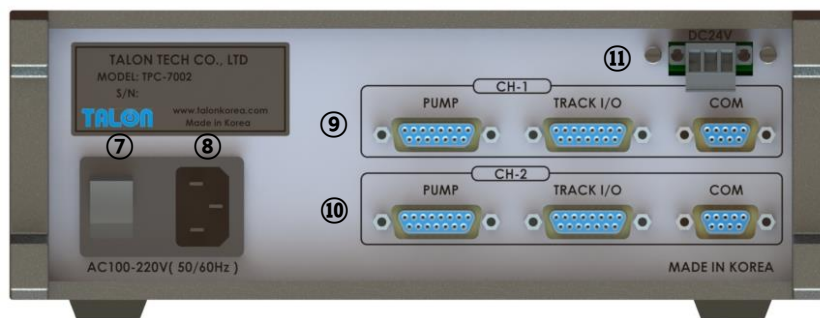
⑥ Pump CON

- Pump to Controller. Connector for Pump Operation. (D-SUB 15P Female)

3-2 Controller Exterior Names



[TPC-7002Front View]



[TPC-7002Rear View]

3-2-1 Controller Name Explanation

- ① **CH-1 In Sol S/W**
 - After CH-1 Pump Dispense, LED Lamp Switch for Reload Operation Condition.
- ② **CH-1 Out Sol S/W**
 - After CH-1 Manual Purge, Suck-Back Valve On-Switch.
- ③ **CH-2 In Sol S/W**
 - After CH-2 Pump Dispense, LED Lamp Switch for Reload Operation Condition.
- ④ **CH-2 Out Sol S/W**
 - CH-2 Manual Purge 시 Suck-Back Valve On/Off Switch.
- ⑤ **CH-1 Power S/W**
 - CH-1 Power On / Off Switch
- ⑥ **CH-2 Power S/W**
 - CH-2 Power On / Off Switch.
- ⑦ **Controller Main S/W**
 - Main Power Switch for controller.
- ⑧ **Main AC-IN**
 - AC100~220V(50 / 60Hz) Power Connector.
- ⑨ **CH-1 Pump, Track I/O, COM**

- CH-1 Pump Connector. (D-SUB 15P Female)
- CH-1 Track I/O Connector. (D-SUB 15P Female)
- CH-1 Touch Pad RS-422 Communication Connector. (D-SUB 9P Female)

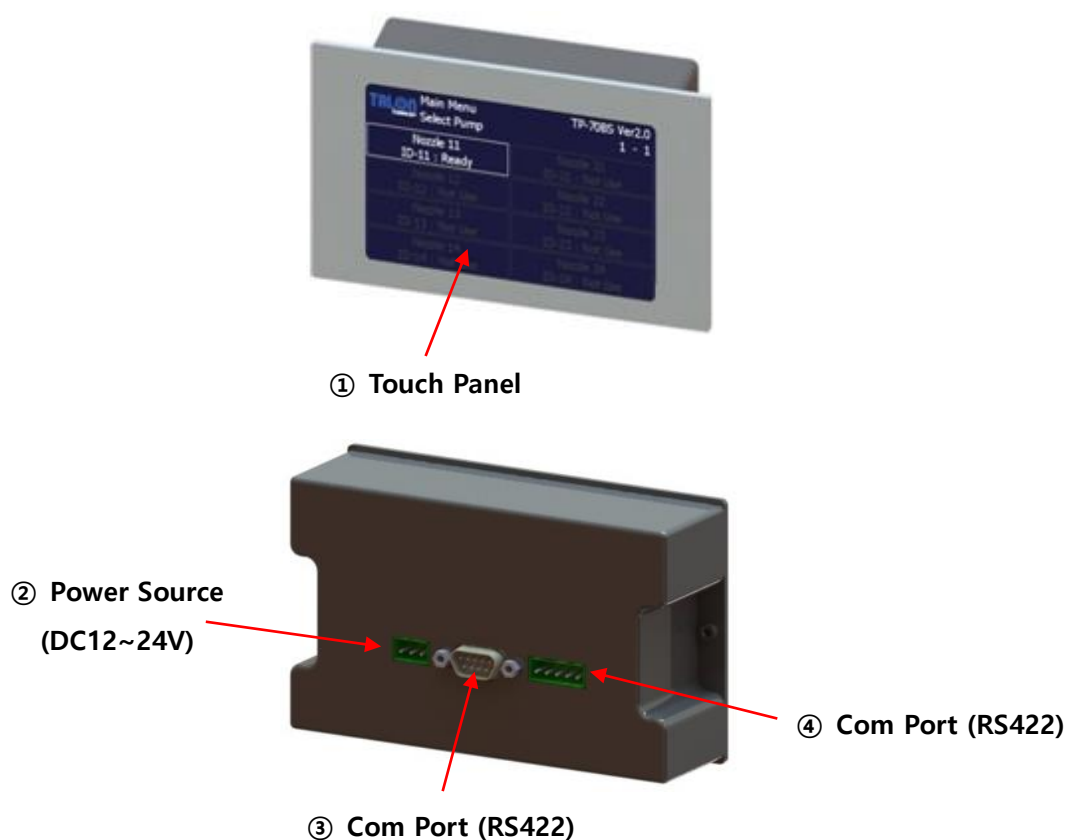
⑩ CH-2 Pump, Track I/O, COM

- CH-2 Pump Connector. (D-SUB 15P Female)
- CH-2 Track I/O Connector. (D-SUB 15P Female)
- CH-2 Touch Pad RS-422 Communication Connector. (D-SUB 9P Female)

⑪ DC 24V

- Touch Pad Power Connector.

3-2 Touch Pad Exterior Names



3-2-1 Touch PadName Explanation

① Touch Panel

- Touching area

② Power In

- Touch Pad Power DC12~24V Connector

③ Com Port

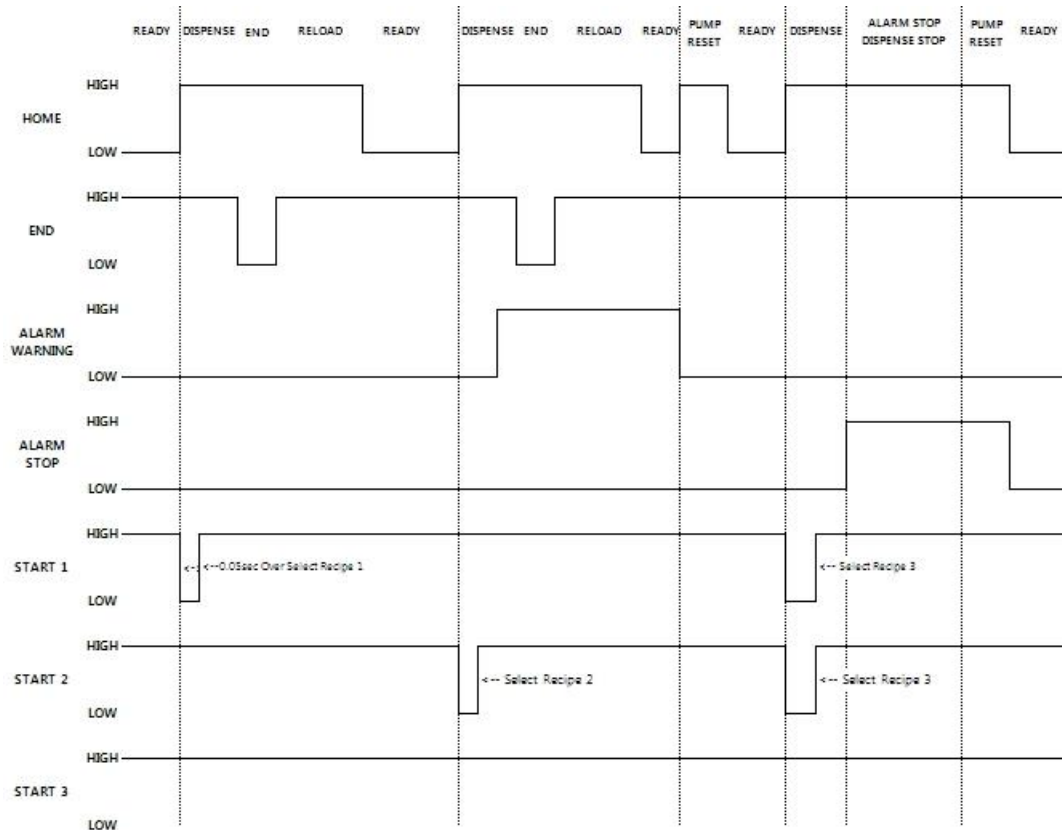
- Touch Pad RS422 communication Connector (D-SUB 9P Male)

④ Com Port

- Touch Pad RS422 communication Connector

4 Track / Auxiliary Interface

4-1 Track Interface Signal



Recipe Select Trigger

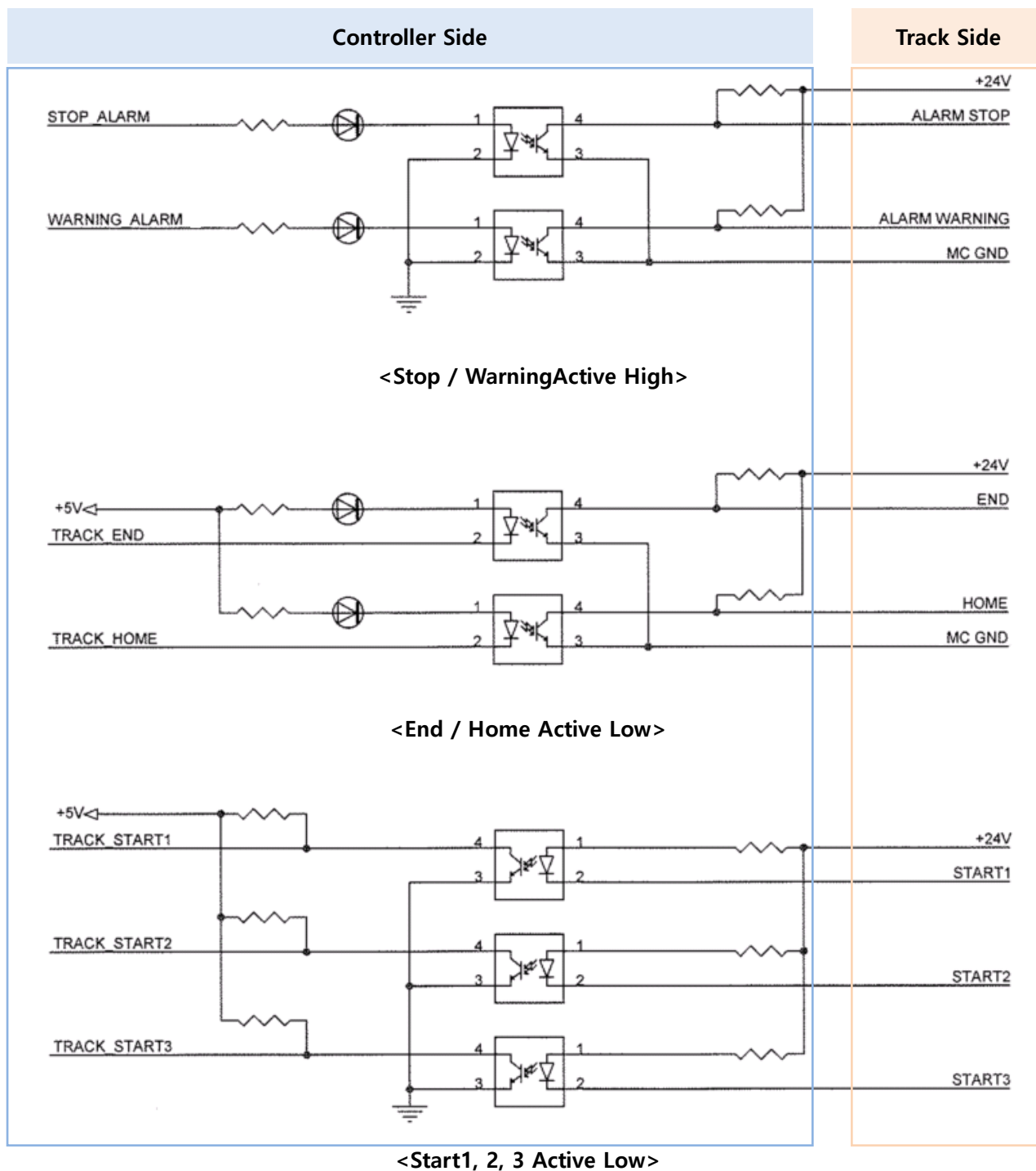
"0" Trigger Off

"1" Trigger On

Recipe Select	Start1 [1]	Start2 [2]	Start3 [3]	Remark
1	1	0	0	
2	0	1	0	
3	1	1	0	
4	-	-	-	Not support
5	1	0	1	
6	0	1	1	
7	1	1	1	

It is Timing Chart. On Readycondition, when Start Signal becomes active, each signal is same as the chart. When Stop Alarm occurs, all stop even during dispensing. But, the warning alarm does dispense. The alarm becomes clear by reset after pump clear.

4-2Track InterfaceWiring



4-3 Cable Pin Assign

4-3-1 Pump Cable

Pin Number	Standard Type(D-SUB 15P)	
	Controller	Pump
1	+5V	1 : 1
2	PUMP_CW	1 : 1
3	PUMP_CCW	1 : 1
4	+24V	1 : 1
5	E_HOME_SIGNAL	1 : 1
6	E_END_SIGNAL	1 : 1
7	E_MOTOR_ALARM	1 : 1
8	E_MOTOR_INPOSITION	1 : 1
9	GND	1 : 1
10	GND	1 : 1
11	Not Use	1 : 1
12	EX_IN_SOL V/V +24V	1 : 1
13	E_SUCK_BACK_SOL_V/V +24V	Suck-Back Output (+)
14	EX_IN_SOL V/V -24V	1 : 1
15	E_SUCK_BACK_SOL_V/V -24V	Suck-Back Output (-)

4-3-2Track Cable

Pin Number	Standard Type(D-SUB 15P)		
	Signal Name	I/O	Description
1	N.C	Output	Option Alarm
2	COM	Output	
3	N.O	Output	
4	START 3	Input	Recipe Select Signal
5	START 1	Input	
6	START 2	Input	
7	OUT SOL	Output	
8	ALARM STOP	Output	Pump Alarm(Pump Stop)
9	ALARM WARNING	Output	Pump Alarm(Pump Run)
10	HOME	Output	Pump Ready
11	END	Output	Pump Dispense End
12	IN SIOL	Output	Reload Signal
13	MC VCC	Input	MC POWER VCC (+5V~24V)
14	START VCC	Input	Dispense Trigger(+5~24V)
15	MC GND	Input	MC POWER GND

Pin Number	Track Cable(D-SUB 15P)	N2 Type	Connecting Way
	Controller	Track (ACT-12)	Track(ACT-12)
1	N.C	Not Use	<p>Alarm is only for Stop. After disconnecting EXT High 5, link NO/COM with EXT 2P cable.</p> <p>Dispense Trigger links Suck-Back V/V Cable from the system after checking (+, -).</p>
2	COM	EXT High 5 (link after disconnect)	
3	N.O	EXT High 5 (link after disconnect)	
4	START 3	Not Use	
5	START 1	Dispense Trigger (-) 2P	
6	START 2	Not Use	
7	OUT SOL	Not Use	
8	ALARM STOP	Not Use	
9	ALARM WARNING	Not Use	
10	HOME	Not Use	
11	END	Not Use	
12	IN SOL	Not Use	
13	MC VCC	Not Use	
14	START VCC	Dispense Trigger(+5~24V) 2P	

15	MC GND	Not Use	
----	--------	---------	--

Pin Number	Encompass Type(Hirose 20P)		
	Controller	Track (ACT-12)	Connecting Way
1	Not Use	X	<div>Pump I/O Board ↓ Pump I/O CONN Board ↓ I/F Board ↓ CN3, 4, 6, 7 ↓ J164~167(Track1~4) (Refer to Electric Diagram)</div>
2	Not Use	X	
3	Not Use	X	
4	Not Use	X	
5	START 1	18	
6	START 2	17	
7	OUT SOL V/V	6 => Jump to END 7	
8	ALARM STOP	5	
9	ALARM WARNING	4	
10	HOME	3	
11	END	7 => Jump from 6	
12	IN SOL V/V	8	
13	+5VA	2	
14	MC POWER		
15	GND	20	

4-3-3 Touch Pad Cable

- TOUCH PAD(STANDARD) CABLE WIRING DIAGRAM

PIN NUMBER	COLOR	PARTS	WIRE PIN NAME	CABLE NAME	CABLE NAME	WIRE PIN NAME	PARTS	COLOR	PIN NUMBER
4	YEL(황)	D-SUB 15P MALE		TP-70BS/COM(CH-1) TP-70BS/COM(CH-2)	TP-70BS/TOUCH PAD CABLE	RX+	MRT8P3.81- 05P	YEL(황)	5
5	GRN(녹)					RX-		GRN(녹)	4
6	WHT(백)					TX+		WHT(백)	1
7	BLU(청)					TX-		BLU(청)	2
1	RED(적)	MSTB 2,5/3- STF-5.08	+24V			+24V	MRT8P3.81- 03P	RED(적)	1
3	BLK(흑)		GND			GND		BLK(흑)	3

- TOUCH PAD CABLE WIRING DIAGRAM(In case of over 3 pumps in use)

PIN NUMBER	COLOR	PARTS	CABLE NAME	CABLE NAME	LABEL NAME	WIRE PIN NAME	PARTS	COLOR	PIN NUMBER
3	YEL(황)	MOLEX 6P (701070005)	TP-70BS/ COM	TP-70BS/ TOUCH PAD CABLE	RS422	RX+	MRT8P3.81- 05P	YEL(황)	5
4	GRN(녹)					RX-		GRN(녹)	4
5	WHT(백)					TX+		WHT(백)	1
6	BLU(청)					TX-		BLU(청)	2
1	RED(적)				DC POWER	+24V	MRT8P3.81- 03P	RED(적)	1
2	BLK(흑)					GND		BLK(흑)	3

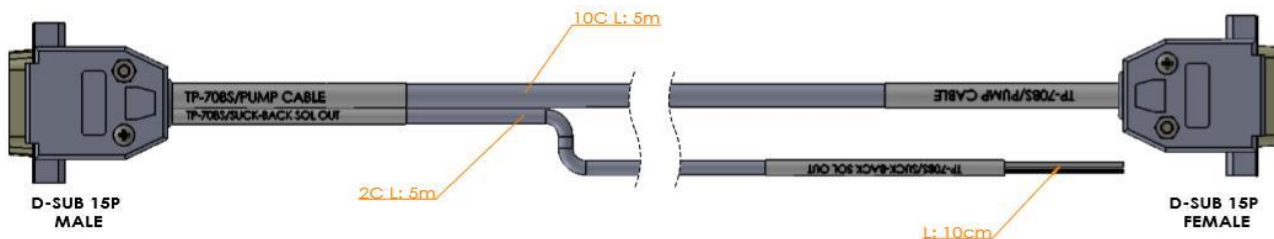
4-3-4COM Cable

- COM CABLE WIRING DIAGRAM(In case of over 3 pumps in use)

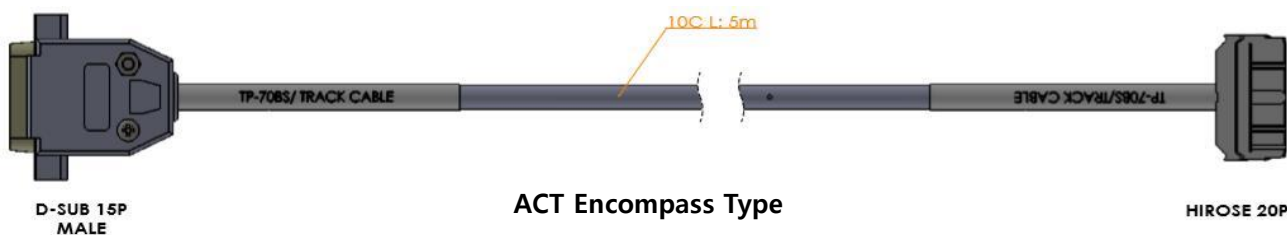
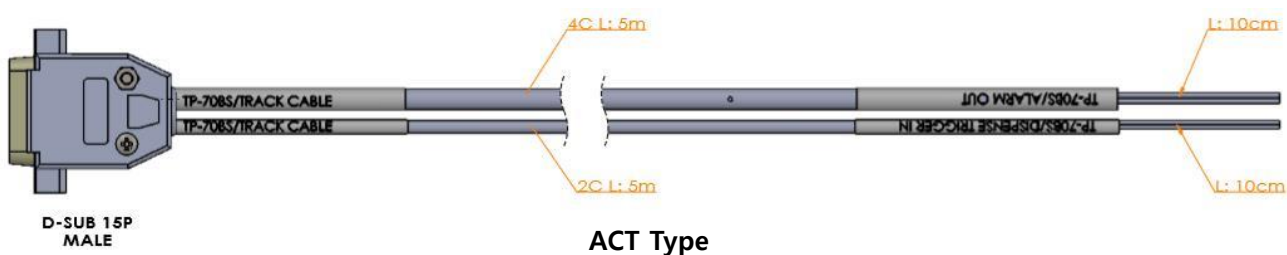
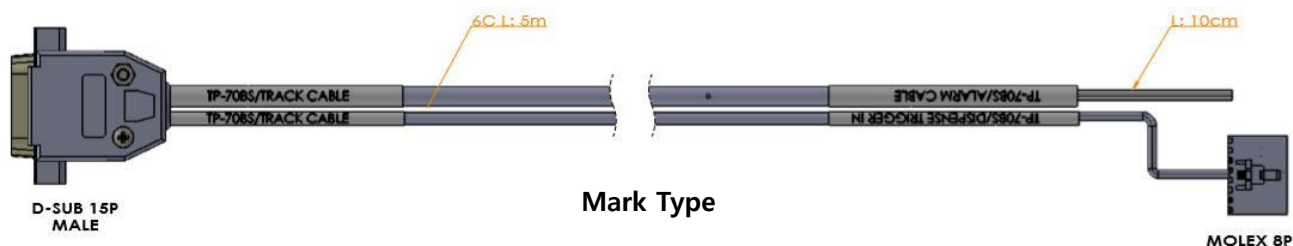
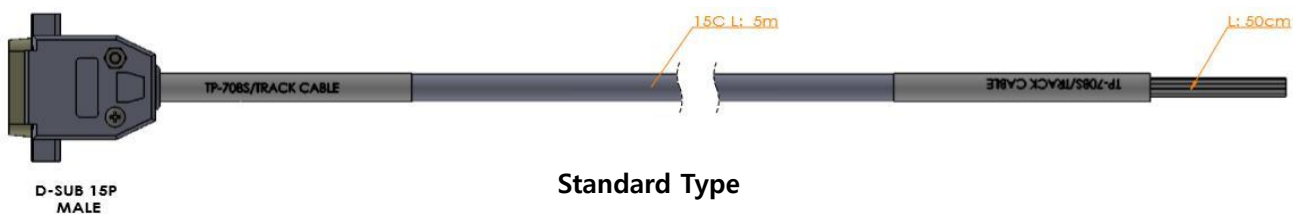
PIN NUMBER	COLOR	PARTS	CABLE NAME	CABLE NAME	WIRE PIN NAME	PARTS	COLOR	PIN NUMBER
4	YEL(황)	D-SUB 9P MALE	TP-70BS/COM(CH-1) TP-70BS/COM(CH-2)	TP-70BS/COM CABLE	RX+	MOLEX 6P (50-57-9406)	YEL(황)	3
5	GRN(녹)				RX-		GRN(녹)	4
6	WHT(백)				TX+		WHT(백)	5
7	BLU(청)				YX-		BLU(청)	6
1	RED(적)	MSTB 2,5/3-STF- 5.08	TOUCH PAD POWER		+24V		RED(적)	1
3	BLK(흑)				GND		BLK(흑)	2

5 External Cable Length

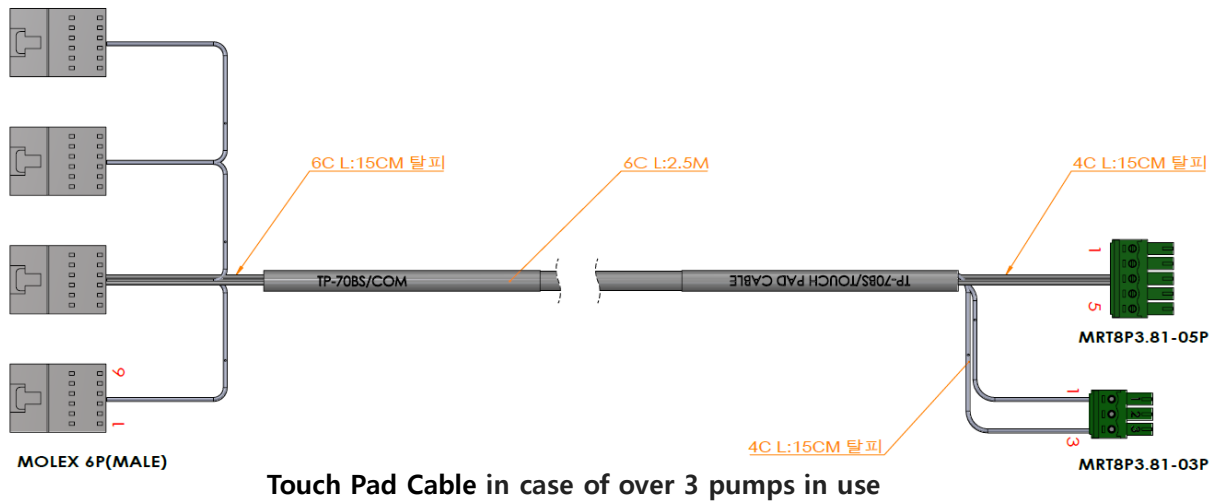
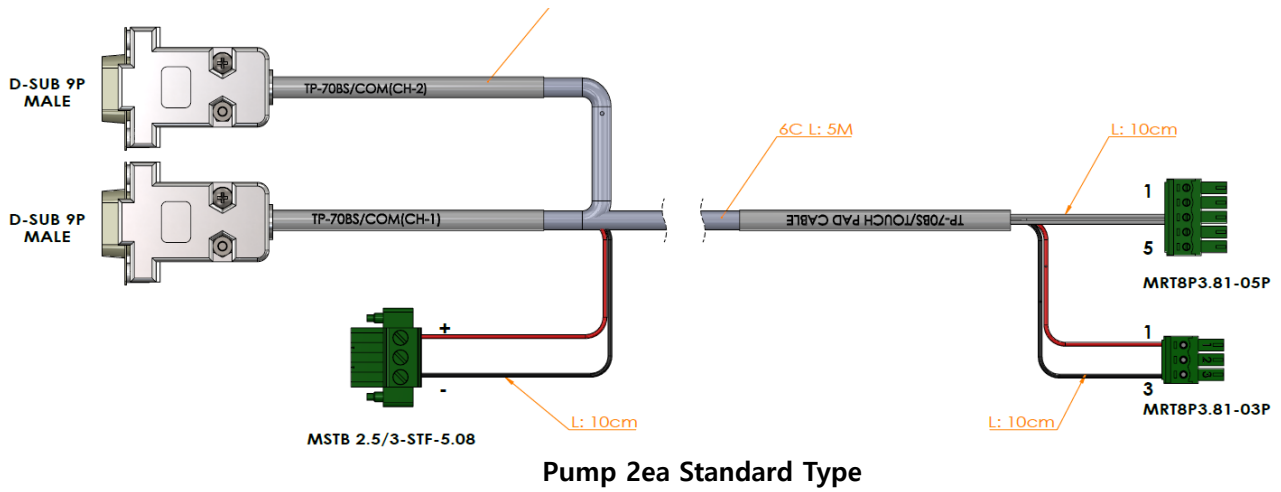
5-1 Pump Cable



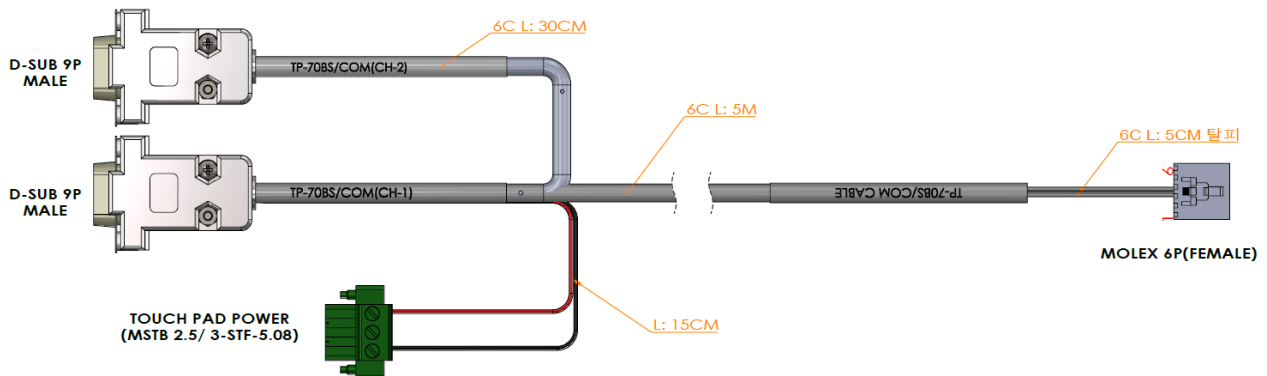
5-2 Track Cable



5-3 Touch Pad Cable



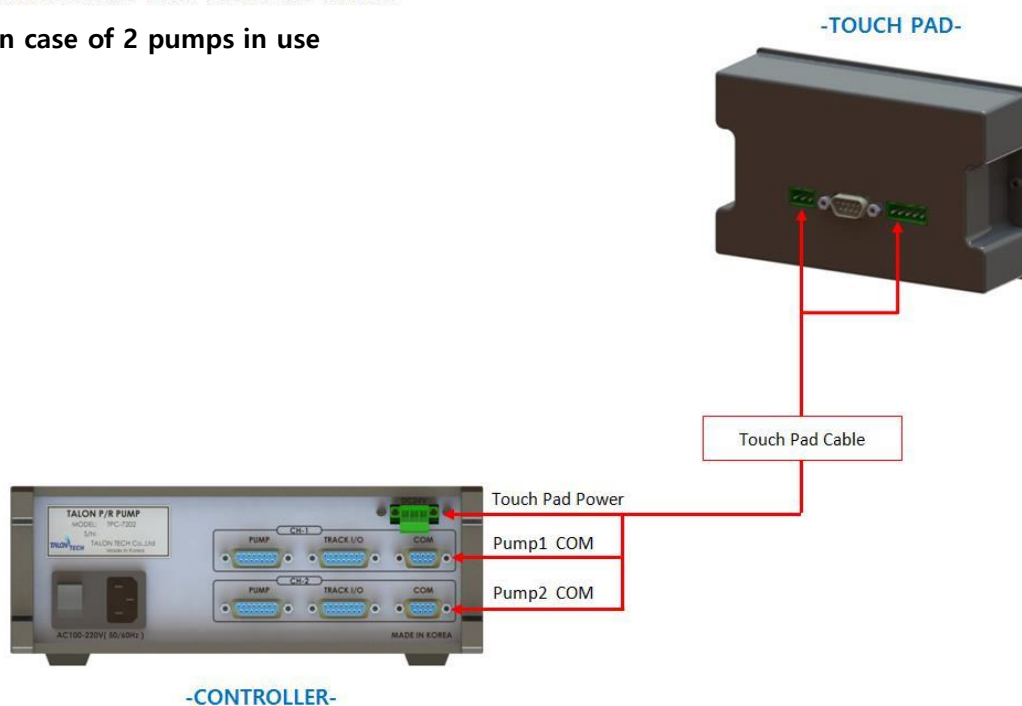
5-4 COM Cable



5-5 Communication Cable Connection Method

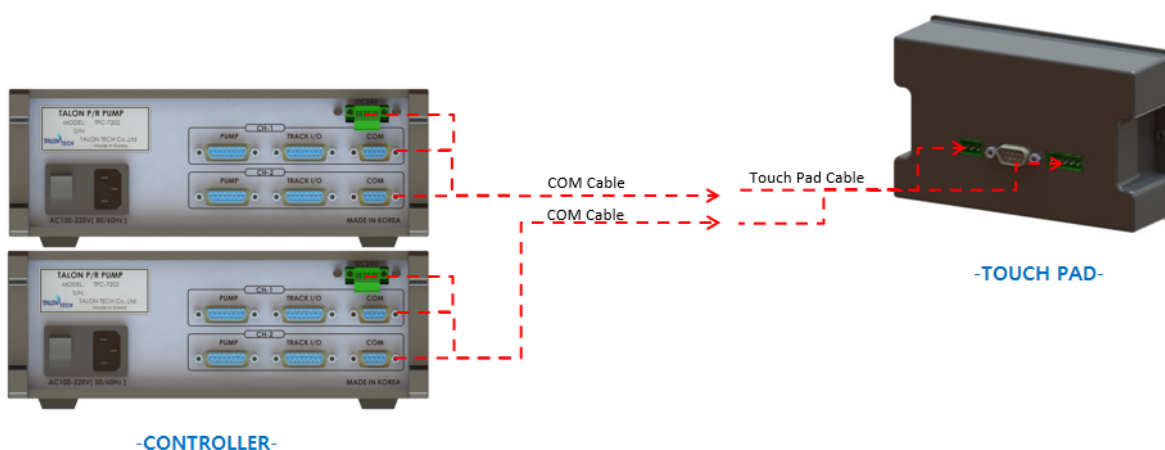
Communication Cable Connection Method

In case of 2 pumps in use



Communication Cable Connection Method

In case of over 3 pumps in use



6 Touch Pad Operation

6-1 Operation

6-1-1 Initial Screen

<div> <div>TALON TECHNOLOGY</div> <div>Main Menu Select Pump</div> </div> <div>TP-70BS Ver2.0 1 - 1</div>	
Nozzle 11 ID-11 : Ready	Nozzle 21 ID-21 : Not Use
Nozzle 12 ID-12 : Not Use	Nozzle 22 ID-22 : Not Use
Nozzle 13 ID-13 : Not Use	Nozzle 23 ID-23 : Not Use
Nozzle 14 ID-14 : Not Use	Nozzle 24 ID-24 : Not Use

The pumps' ID, which are cable-connected to touch pad, are auto-searched every 5 sec. On every lower menu, if there isn't any input for 1 min, the initial screen is back. The pump, which is not searched, cannot be chosen.

6-1-2 Pump Condition Indicate In Use

Nozzle 11 ID-11 : Ready	Ready
Nozzle 11 ID-11 : Busy	Dispense
Nozzle 11 ID-11 : Alarm	Pump Alarm
Nozzle 11 ID-11 : Count Over	Pump Count Over
Nozzle 12 ID-12 : Not Use	Not Connect

6-1-3 Select Function

ESC	Select Function	1 - 1
Dispense	Config	
Recipe	Calibration	
Degas	Counter	

When ID is chosen, the above screen is shown.

- ESC - Go to the previous menu.
- Dispense - Dispense by touching the pad.
- Recipe - Run Recipe & Dispense Recipe Setting.
- Config - Pump Mode, Reset, Error & ID Setting.
- Calibration - Each recipe's calibration setting.
- Counter - Dispense # & Setting

6-1-4 Dispense

ESC	Dispense	1 - 1
Start Run		
Start Cycle	Stop Cycle	

On executing Start Run, Run Recipe runs one time dispense. In case of Start Cycle, Cycle Recipe (4th Recipe) works as many as set counts.

6-1-5 Recipe Setting

ESC	Recipe Setting 1 - 1		<	>
No.	Step :	Disp.	Reload	Count
1	Volume :	350	350	
Set	Time :	400	700	0
Run Recipe No. :		1	Set	

For Recipe Setting, touch # under No. and input recipe # that you want to go in and touch 'Ent'. At this time, Recipe Data is automatically shown on the screen. And you can input the data that you want and touch 'set' button for setting. 'Count' is only for 4threcipe(cycle recipe). Total recipes are 1~7. Recipes are automatically chosen by each trigger signal.

However, 4th recipe is for cycle recipe and which works only by Start Cycle of Dispense on touch pad.

Run Recipe No. is Recipe No. used by Start Run under Dispense menu.

6-1-6 Config Pump

ESC		Config Pump		1 - 1	
	Vital	Error Status			
	Name	Set ID			
	Maint Mode	Run Mode			
	Pump Reset	Error Mask			

On Config Pump, the password needs for the important items' set.

The password is set as '0901'.

- | | | |
|--------------|---|--|
| Vital | - | Check pump's response and in case of response, 'vital' window activates and disappears right away. At the left window, the response data is shown. |
| Error Status | - | Shown Error Code Data. |
| Name | - | Input the pump name of Main Menu. |
| Set ID | - | Change Pump ID. |
| Maint Mode | - | Change Pump Mode to Maint. |
| Run Mode | - | Change Pump Mode to Run. |
| Pump Reset | - | Reset Pump. It means Pump Restart, not Data Reset. |
| Error Mark | - | Not Use |

6-1-6-1ID Setting

ESC		Config Pump		1 - 1	
	Vital	Error Status			
	Name	Set ID			
	Maint Mode	Run Mode			
	Pump Reset	Error Mask			

ESC		Enter Password		Ent	
		****		C	
1	2	3	0		
4	5	6			
7	8	9			

ESC		Enter ID Range: [11 - 24]		Ent	
		11		C	
1	2	3	0		
4	5	6			
7	8	9			

On Config Pump screen, when you touch 'Set ID', Password input screen shows and input '0901' and touch Ent. And then, 'Check ID' 'Set ID' screen shows and disappears right away so the initial starts.

TALON TECHNOLOGY		Main Menu Select Pump		TP-70BS Ver2.0 1 - 1	
Nozzle 11 ID-11 : Not Use		Nozzle 11 ID-21 : Ready			
Nozzle 12 ID-12 : Not Use		Nozzle 22 ID-22 : Not Use			
Nozzle 13 ID-13 : Not Use		Nozzle 23 ID-23 : Not Use			
Nozzle 14 ID-14 : Not Use		Nozzle 24 ID-24 : Not Use			

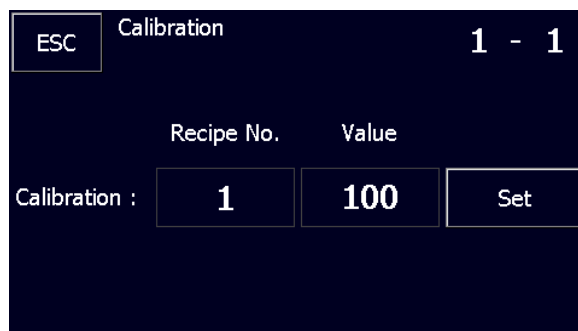
If there is no response from the pump, the window keeps showing. If there is already the same pump ID, the window -'Conflict' shows and push 'OK' and reset.
Nozzle Name Re Check.

6-1-6-2 Maint Mode, Run Mode, Pump Reset Setting

Main Mode is to show the message of pump operation on the text window. Run Mode only shows as data code. The setting method is to touch Maint Mode, Run Mode button and input password and touch 'Ent'. In case of no response from pump, message of mode keeps showing. Pump reset works right after input password. It goes to the initial screen same as power off and on.

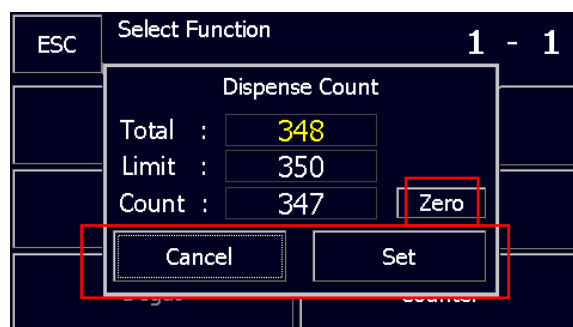
6-1-7 Calibration

Calibration –Per each Recipe, it is possible to set the calibration value. If there is the differences between the real value and the setting value, set the calibration value higher or lower % at the standard- 100..



6-1-8Counter

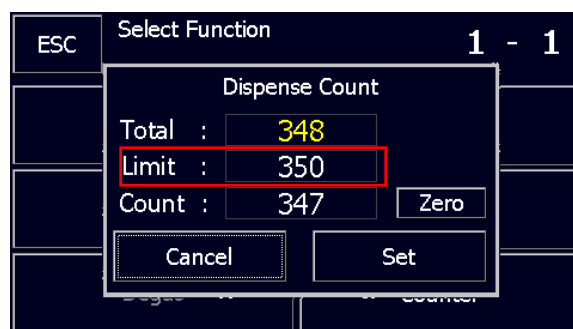
Counter means to show Pump's accumulated dispense #.



In order to initialize the count, touch 'zero' button ->'Set' button.

Limit – In order to check out Pump Maint, set "Dispense Count Limit".

Total – Pump's Total Dispense #. Total # goes up every dispense.



In case '0' is set, no more Counter Limit function.

Touch # of Limit and input Counter.

ESC		Counter Limit Range: [0 - 99999999]		Ent	
				350	
				C	
1	2	3	0		
4	5	6			
7	8	9			

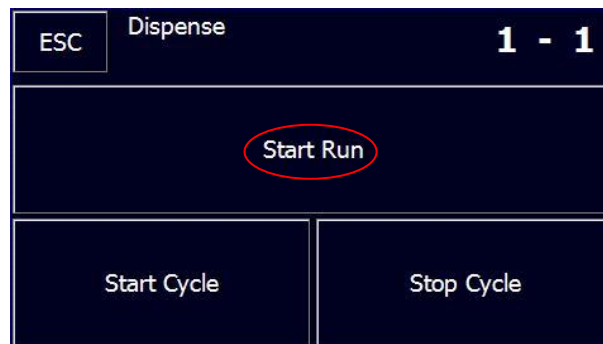
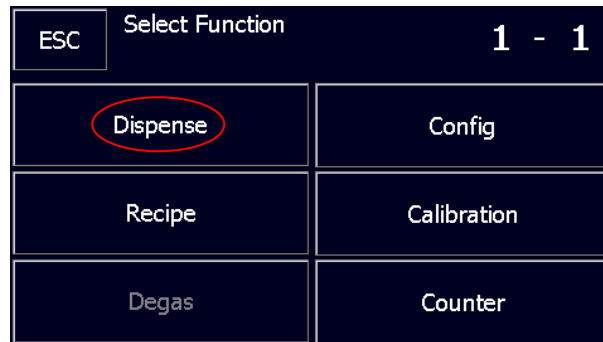
ESC		Select Function		1 - 1													
<table border="1"> <tr> <td colspan="2">Dispense Count</td> </tr> <tr> <td>Total :</td> <td>348</td> </tr> <tr> <td>Limit :</td> <td>350</td> </tr> <tr> <td>Count :</td> <td>347</td> </tr> <tr> <td colspan="2">Zero</td> </tr> <tr> <td>Cancel</td> <td>Set</td> </tr> </table>						Dispense Count		Total :	348	Limit :	350	Count :	347	Zero		Cancel	Set
Dispense Count																	
Total :	348																
Limit :	350																
Count :	347																
Zero																	
Cancel	Set																

TALON TECHNOLOGY		Main Menu Select Pump		TP-70BS Ver2.0 1 - 1	
Nozzle 11 ID-11 : Count Over		Nozzle 21 ID-21 : Not Use			
Nozzle 12 ID-12 : Not Use		Nozzle 22 ID-22 : Not Use			
Nozzle 13 ID-13 : Not Use		Nozzle 23 ID-23 : Not Use			
Nozzle 14 ID-14 : Not Use		Nozzle 24 ID-24 : Not Use			

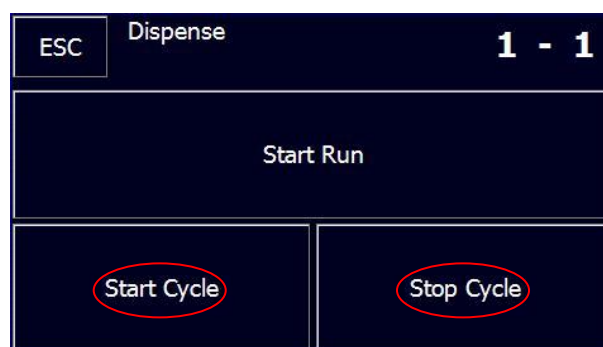
After clicking Set, the window goes to Password window. The setting value is adopted after inputting "2580". Cancel button means no application even Limit change & Count Zero click. When dispense # goes over Limit Setting value, "Count Over" shows on Main Menu and also shows on Touch pad. But, when the trigger signal occurs, pump dispenses normally.

6-2 Example

6-2-1Dispense



If you want to dispense one time, use Start Run. This recipe is Run recipe which set on Recipe menu. Start Cycle below is 4th Recipe.



Stop Cycle only works the case of using Start Cycle. Keep touching Stop Cycle button.

6-2-2 Recipe

ESC	Select Function	1 - 1
Dispense		Config
Recipe		Calibration
Degas		Counter

ESC	Recipe Setting		<	>
1 - 1				
No.	Step :	Disp.	Reload	Count
1	Volume :	300	300	
Set	Time :	350	450	0
Run Recipe No. :		1	Set	

Choose the recipe # and touch 'Ent' button. The chosen recipe data is automatically read from the pump.

ESC	Recipe No.		Ent
Range: [1 -7]			
1		C	
1	2	3	0
4	5	6	
7	8	9	

Set the recipe's volume & time and touch 'Set' button.

ESC	Recipe Setting		<	>
1 - 1				
No.	Step :	Disp.	Reload	Count
1	Volume :	300	300	
Set	Time :	350	450	0
Run Recipe No. :		1	Set	

6-2-3ID Setting

ESC	Select Function	1 - 1
Dispense		Config
Recipe		Calibration
Degas		Counter

ESC	Config Pump	1 - 1	
		Vital	Error Status
		Name	Set ID
		Maint Mode	Run Mode
		Pump Reset	Error Mask

ESC	Enter Password			Ent
			****	C
1	2	3	0	
4	5	6		
7	8	9		

ESC	Enter ID Range: [11 - 24]			Ent
			11	C
1	2	3	0	
4	5	6		
7	8	9		

Choose ID # which you want to change from 11~44. ID consists of 2 digits. The 2nd digit means Coater# and the 1st digit means Nozzle#. Total 16 ID setting is possible. [Password :0901]

Main Menu Select Pump		TP-70BS Ver2.0 1 - 1	
Nozzle 11 ID-11 : Not Use	Nozzle 11 ID-21 : Ready		
Nozzle 12 ID-12 : Not Use	Nozzle 22 ID-22 : Not Use		
Nozzle 13 ID-13 : Not Use	Nozzle 23 ID-23 : Not Use		
Nozzle 14 ID-14 : Not Use	Nozzle 24 ID-24 : Not Use		

When ID changes, check the automatic pump initialization and the change is applied on Main Menu.
Nozzle Name Re Check.

6-2-4Name Setting

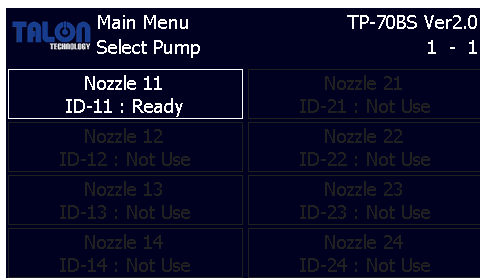
ESC	Config Pump		1 - 1
		Vital	Error Status
		Name	Set ID
		Maint Mode	Run Mode
		Pump Reset	Error Mask

ESC	Input Name												Nozzle 11		Ent
1	2	3	4	5	6	7	8	9	0	-	=	BS			
Q	W	E	R	T	Y	U	I	O	P	[]	₩			
A	S	D	F	G	H	J	K	L	;	'	shift				
Z	X	C	V	B	N	M	,	.	/	space					

ESC	Input Name															Ent
!	@	#	\$	%	^	&	*	()	_	+	BS				
q	w	e	r	t	y	u	i	o	p	{	}					
a	s	d	f	g	h	j	k	l	:	"	shift					
z	x	c	v	b	n	m	<	>	?	space						

The pump name can be changed on Main Menu and the max digit is 18~25.

6-3 Cycle Purge Method

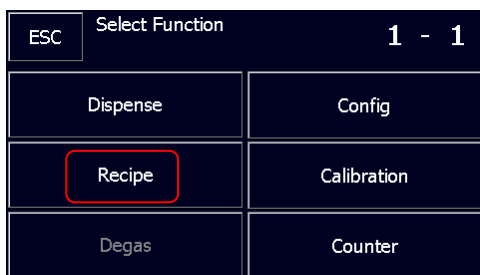


[PIC1]

1. Choose the pump nozzle for the cycle purge.

- Pump condition is same as Ready of [PIC 1].

* On Busy condition, Cycle Start cannot be done on the screen.



[PIC2]

2. Under Select Function, touch Recipe button.

- Move to [PIC 3] and automatically, No.1 Recipe Data is shown.

* In case of no read Data, Recipe window cannot disappear.



[PIC3]

3. Touch # under no. to read Cycle Recipe.

* Dispense Recipe can be changed on this menu. So, watch out.



[PIC4]

4. Touch #4.

- Each # means Recipe Number.

* Run Recipe: 1 or 2, Cycle Recipe: 4.



[PIC5]

5. Touch Entbutton.

- When touch Entbutton, the related Recipe shows automatically.

* In case of no read Data, Recipe window cannot disappear.

ESC	Recipe Setting 1 - 1				<	>
No.	Step :	Disp.	Reload	Count		
4	Volume :	700	700			
Set	Time :	700	2400	0		
Run Recipe No. :		1	Set			

[PIC6]

ESC	Recipe Setting 1 - 1				<	>
No.	Step :	Disp.	Reload	Count		
4	Volume :	700	700			
Set	Time :	700	2400	10		
Run Recipe No. :		1	Set			

[PIC7]

ESC	Select Function	1 - 1
Dispense	Config	
Recipe	Calibration	
Degas	Counter	

[PIC8]

ESC	Dispense	1 - 1
Start Run		
Start Cycle	Stop Cycle	

[PIC9]

ESC	Dispense	1 - 1
Start Run		
Start Cycle	Stop Cycle	

6. Input Recipe Data to be changed.

- Count means Dispense #.
- In case of Count #10 and Start Cycle on Dispense menu, Recipe #4 executes 10 times of Dispense.
- Reload Volume inputs same as Disp. Volume automatically.

7. Touch Set button.

- When touch Setbutton, the related Recipe Data stores on Pump.

8. Touch ESC button.

9. Touch Dispense button under Select Function.

10. Touch Start Cycle button.

- #4 Recipe(Cycle Recipe), which input on [PIC 6],[PIC 7], executes as many as Dispense counts.

11. Touch Stop Cycle for a forced Dispense finish.

- In case 'Stop Cycle..Busy' window shows, keep touching Stop Cycle button until disappear.

6-4 Reset on Pump Error

Main Menu Select Pump		TP-70BS Ver2.0 1 - 1	
Nozzle 11 ID-11 : Alarm	Nozzle 21 ID-21 : Not Use		
Nozzle 12 ID-12 : Not Use	Nozzle 22 ID-22 : Not Use		
Nozzle 13 ID-13 : Not Use	Nozzle 23 ID-23 : Not Use		
Nozzle 14 ID-14 : Not Use	Nozzle 24 ID-24 : Not Use		

1. Choose the alarmed pump.

[PIC1]

ESC	Select Function	1 - 1
Dispense	Config	
Recipe	Calibration	
Degas	Counter	

2. Touch Config button on Select Function menu.

[PIC2]

ESC	Config Pump	1 - 1
	Vital	Error Status
	11	Set ID
	Maint Mode	Run Mode
	Pump Reset	Error Mask

3. Touch OK button "Are you Sure?" window.

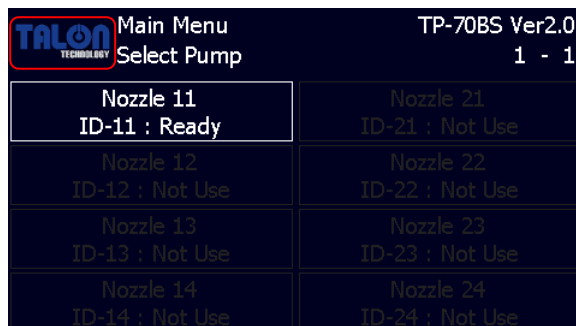
- Right after touching OK, Reset progresses and Alarm is clear.
- On left Text window, #0 means Initial finish.

* 'Reset & Power OFF' makes the system occur the alarm.
Never use this function when the alarm doesn't happen.

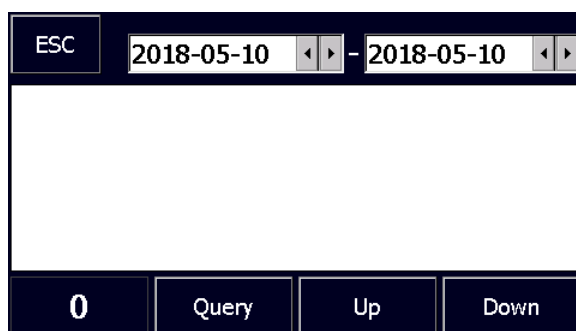
[PIC3]

6-5Log Data

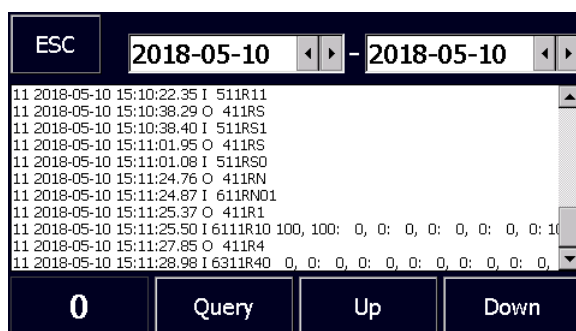
As per the hidden function of Touch Pad, the communication between controllers, data for setting & Alarm can be checked out.



Double click Talon Logo on this window.



1. Set the date to check out.
2. Set ID to check out. (In case of ' 0 ', search all ID)
3. Click Query.



The contents are shown as Text /Code. Contact Talon for detail.

6-5-1Log Data Analysis

At the right of date & time, there are ' O ' , ' I ' , & ' U ' .

1. [O] Touch Pad(Command) -> Controller.
2. [I] Touch Pad <- Controller. (Response)
3. [U] User Log.

★ Order/Response Code

Data length, ID, order/response Code.

Code – when the below functions happens, these functions are stored as Code.

1. Start Run.
2. Start Cycle/Stop Cycle.
3. Recipe Set.
4. Calibration.
5. Pump Error

Contact Talon for detail.

★ Order/Response Text

Text –shows below.

1. Pump Error.
2. Counter Over.
3. Change Name.
4. Counter Reset.

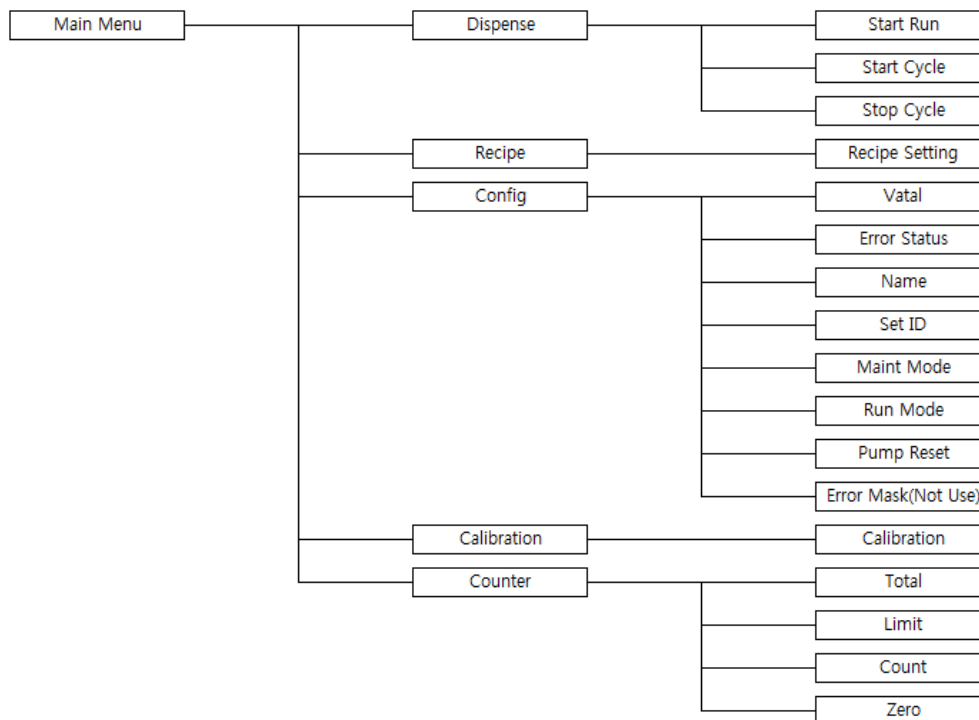
Pump Error show both Code&Text.

ex) Pump Dispense Log Analysis

112016-02-23 12:33:12**I** 511SR0

Pump ID: 11, 2016, Feb. 23, 12(hr)/ 33(min)/ 12(sec), **Controller Response**, Pump Dispense

6-6Touch Pad Menu Tree



6-7Notice

6-7-1 Dispense Cycle

During the system or the manual dispense, the pump doesn't save Recipe changes and setting changes. At this time, 'Busy' window is shown normally.

6-7-2 Pump ID Setting

The basic ID is '11'. If pump & touch pad is set in the first time, connect pump & touch pad as 1:1 not to double ID. ex) Pump1 : [11], Pump2 : [12], Pump3 : [13], Pump4 : [14], Pump5 : [21]. Otherwise, pump cannot be searched or although pump is searched, the setting data are overlapped or Data Error / System Error occur. Before setting Pump ID, check that ID is valid or not.

6-7-3 Recipe Setting

In case Recipe is not set properly, there is "Write Recipe Error" window.

But, this window is shown in only case each total dispense volume is not same as reload volume.
Other cases are applied as normal. So, be careful for "Dispense Time" setting.

6-8Notice on Pump Operation

1. During Pump is under process (RUN OR CYCLE) don't try to modify the data.

(Please do it after Pump had stop properly)

- ▶ In this term of "modify data" means changing recipe, cycle, CAL value etc. If you modified the data during pump operation, BUSY screen will be pop-up and it will be not saved.
- ▶ Screen moving in touch pad is OK.
- ▶ **In case of Encompass type, during dispensing with key pad / Touch pad, the pump works properly even if the warning alarm occurs. After the pump stops, the alarm is clear automatically (Alarm Auto Clear). (During revising data, when the alarm occurs, the data under modification don't store but the previous data back-up.**

2. Caution for pump setting

- ▶ Dispense Volume => set the volume range between 100(1cc) ~ 1000(10cc)
- ▶ Reason :For protect the pump , upper limit alarm set.
- ▶ Dispense Time =>It should be bigger than Dispense Volume.It should be smaller than system recipe step time.
- ▶ Reason :As using the high cp PR , sudden pump operation could have the motor damaged and could cause the MICRO BUBBLE.
- ▶ Reload Time =>depend on PR cp.
- ▶ Typically, high cp PR case, adjust 3~8 times reload time than dispense volume.

ex) Dispense Reload 900 ~ 2400
 Vol[300] Time[500] Vol[300] Time[900]

▶ **This would be main reason of bubble issues. So please watch out for this.**

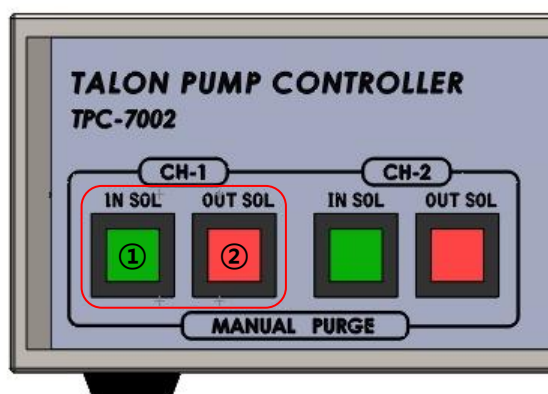
3. Please do not press too hard to any of pump inner joint or others.

4. Please do not press too hard to Buffer Tank.

7-1 Manual Purge Method



[PIC 1]



[PIC 2]

In order to purge, press N2 into PR bottle as per [PIC 1] and push ②(OUT SOL) Button of Manual Purge S/W as per [PIC 2] to open Suck Back Valve.

After Purge finishes, push ②(OUT SOL) Button of Manual Purge S/W to close Suck Back Valve and stop N2 pressure into PR Bottle.

7-2 Pump Parts Dis/Assembly

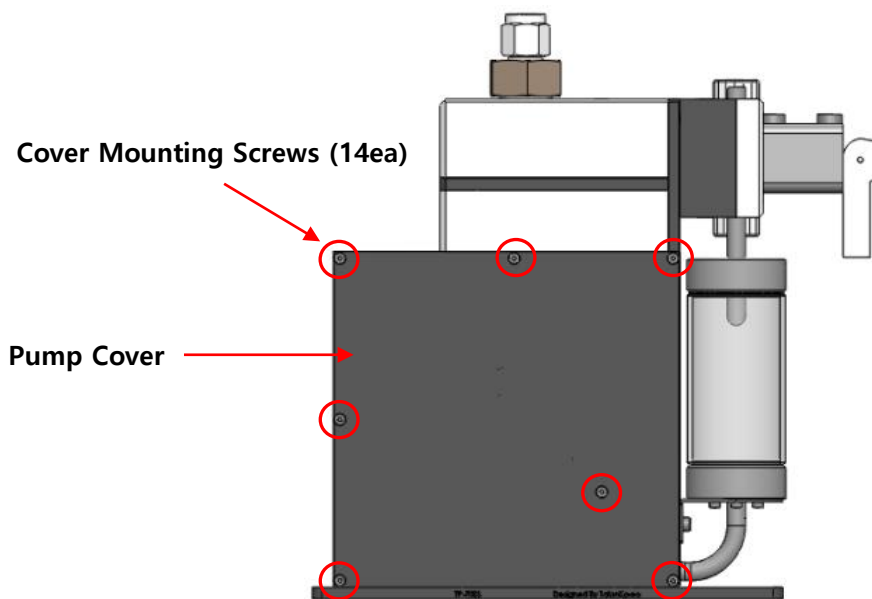
7-2-1 Pump Cover Dis/Assembly

1. As per the below [PIC 1], use 2mm wrench to release Pump Cover Mounting M3Screw(14ea) to open the cover.
2. The assembly is the reverse order of the disassembly.

[Notice]

When the cover opens, be careful not to cut the finger.

Don't dis/assemble the interior parts inside the pump.

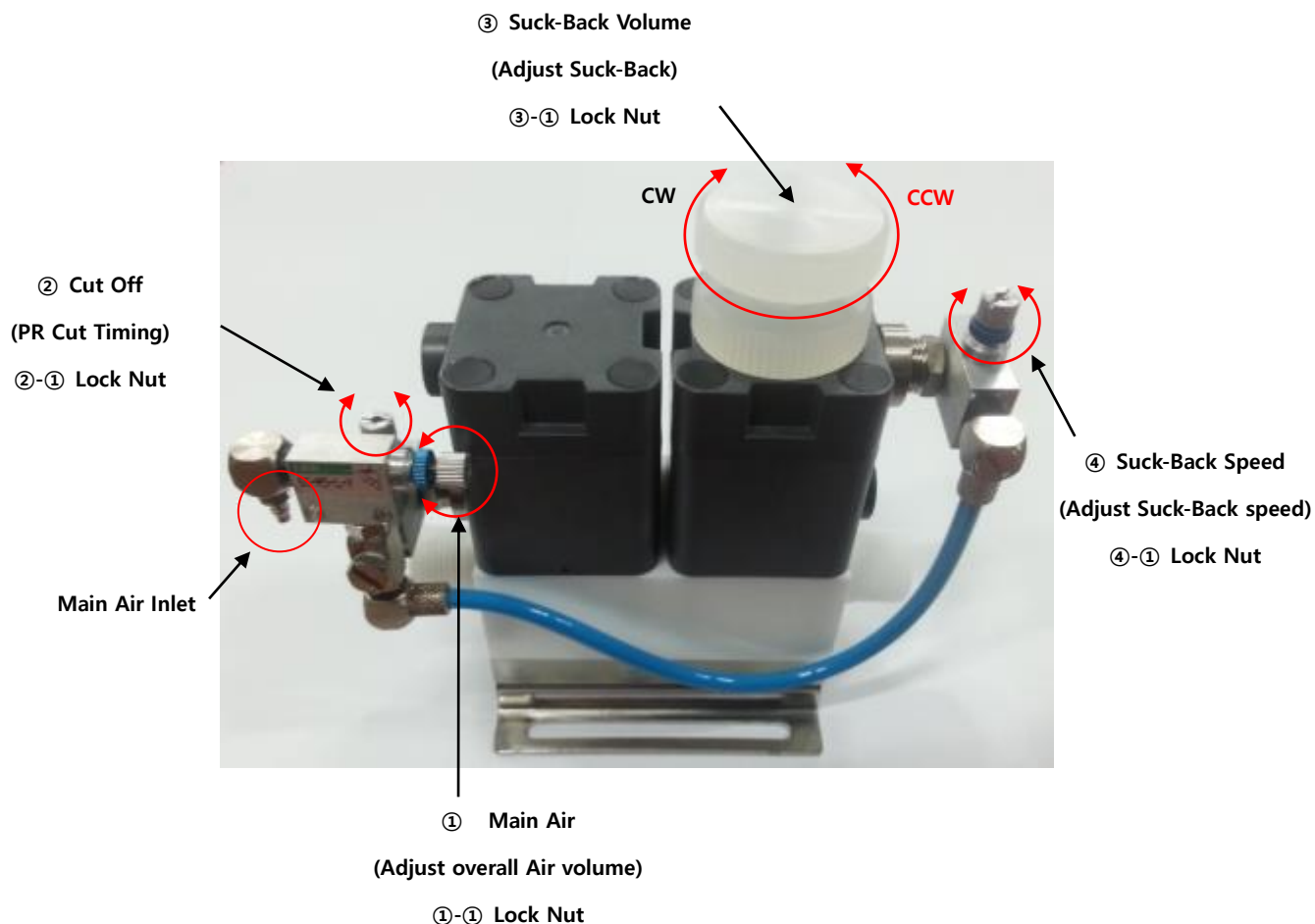


[PIC 1]

7-2-2 Driving Shaft Condition Check & Grease up on Ball Screw

1. Check the motor's vibration & noise when the pump works.
2. Check the bolts tightening condition and ball screw worn-out condition.
3. Check any interruption between cables & moving parts.
4. Check the conditions of linear bushing /shaft when the pump works.
5. Grease up on ball screw & LM linear bushing.
6. Grease up every 6 months.

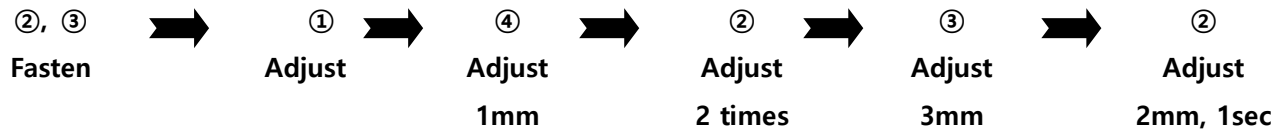
7-3 Suck-Back Setting



1. Un-fasten Lock Nut②-①, ③-① and fasten the knob ②, ③ make it close perfectly.
2. Once Dispense signal is on, un-fasten lock-nut①-① to dispense PR and adjust speed control knob①
(Want to delay dispense timing rotate the knob to CW, want to make quick dispense rotate CCW)
3. Once Dispense signal going "Off" please un-fasten Lock nut④-① for consume the liquid just 1mm ahead of nozzle, rotate speed control knob④ and adjust.
4. Un-fasten Lock Nut②-① and close speed control knob②, rotate 2 times toward CCW.
5. Un-fasten Lock Nut③-① and rotate the suck-back control knob③, resist in nozzle will move up and down. Please make resist place about 3mm from nozzle tip.
((Increase Suck-Back flow, turn CW, decrease suck-back flow, turn CCW))
6. Un-fasten Lock Nut②-① and after 1 sec open the operate suck-back, make the suck-back about 2mm in 1 sec to rotate the speed control knob②.
7. If Suck-Back Speed ④ is too fast, turn it CW, too slow, turn it CCW.
8. Fasten every knob's lock nut. (①-①, ②-①, ③-①, ④-①)
9. Dispense resist again to final check.

10. If value is not correct, go back to order NO.3.

● REFERENCES FOR WORKING SEQUENCE

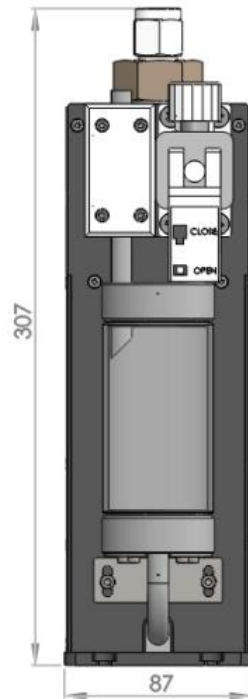


8-1TP-70BS Spare Parts

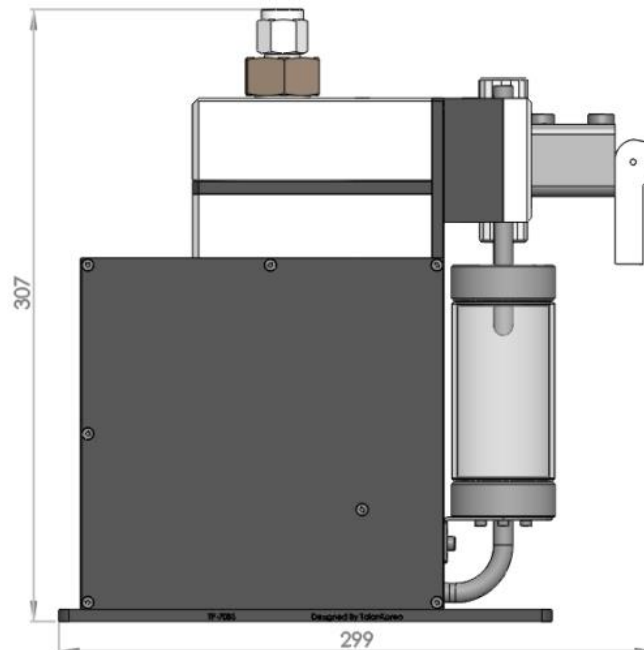
Division	Part NO.	Description	Qty
Pump	TL-70BS-TA-001	Cylinder	1
	TL-70BS-TA-006	Outer Type Edgeless Bellows	1
	TL-70BS-CA-001	Toggle Valve	1
	TL-70BS-MA-001	Ball Screw	1
	TL-70BS-MA-002	Support Unit	1
	TL-70BS-EB-001	Motor	1
	TL-70BS-MA-003	LM Guide	1
	TL-70BS-ET-001	Timing Belt	1
	TL-70BS-CA-002	Sol Valve	1
	TL-70BS-ET-003	O-Ring (144)	1
	TL-70BS-ET-004	O-Ring (018)	1
	TL-70BS-EA-001	Photo Sensor	1
	TL-70BS-CA-003	Suck-Back Valve	1
Controller	TL-70BS-EB-002	SMPS	1
	TL-70BS-EA-003	Push Switch (Red, Green)	1
	TL-70BS-EA-004	Fuse (5X20 5A)	1
	TL-70BS-EB-003	Controller Main Board Ass'y	1
Touch Pad	TL-70BS-EB-004	Touch Pad Ass'y	1
CONN B/D	TL-70BS-EB-005	Touch Pad Connection Board Ass'y (Option)	1

8-2 Pump Dimensions

8-2-1 Front View

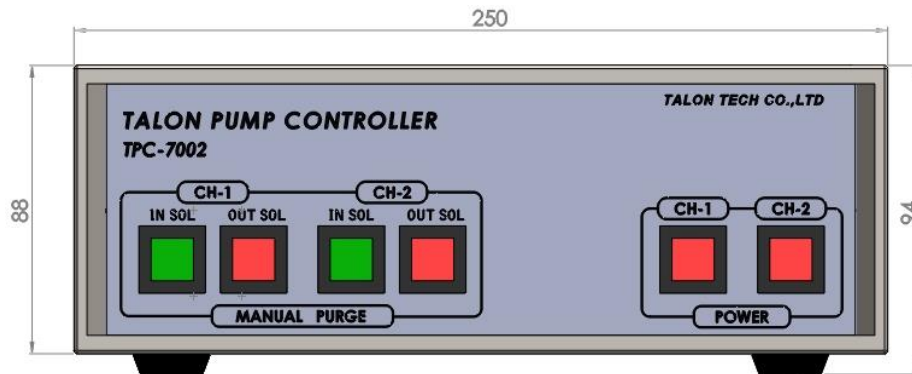


8-2-2 Side View

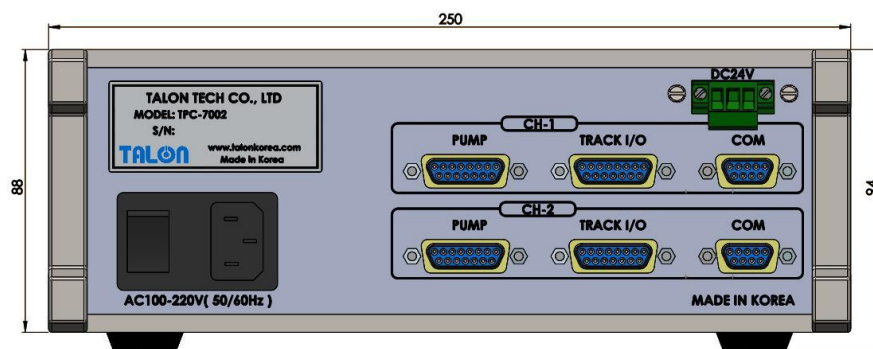


8-3 Controller Dimensions

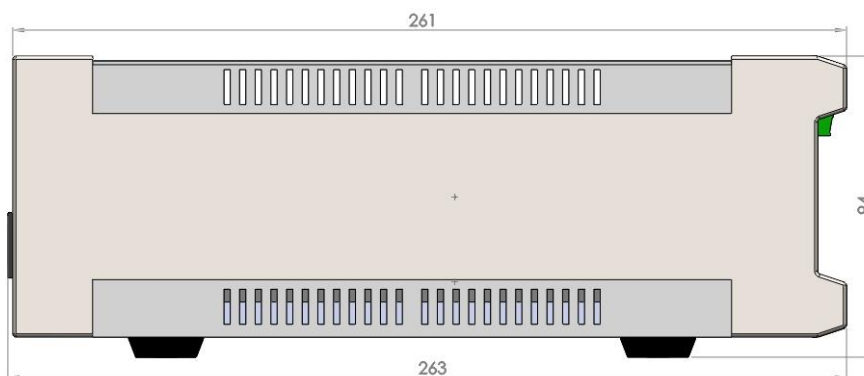
8-3-1 Front View



8-3-2 Rear View

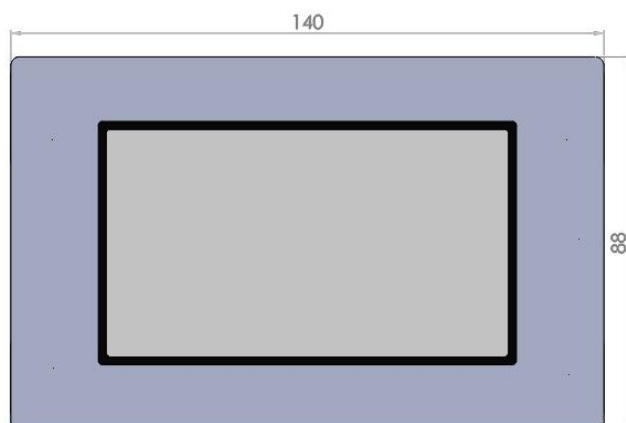


8-3-3 Side View

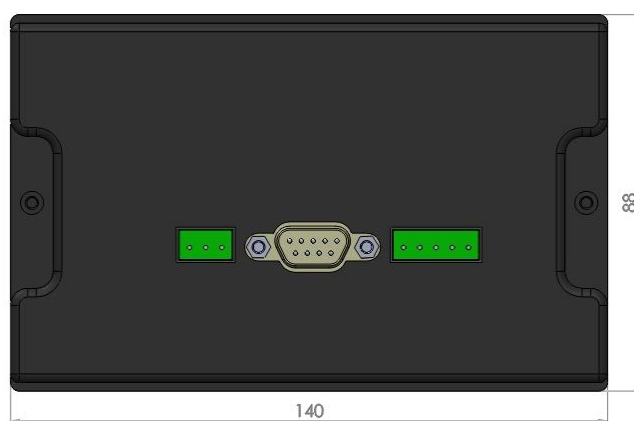


8-4 Touch Pad Dimensions

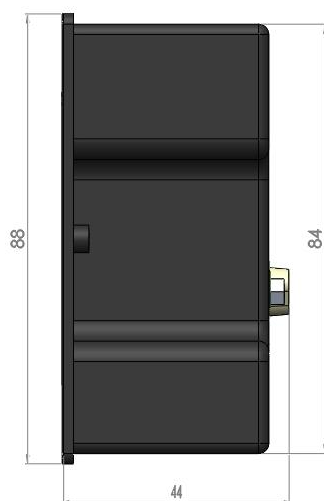
8-4-1 Front View



8-4-2 Rear View



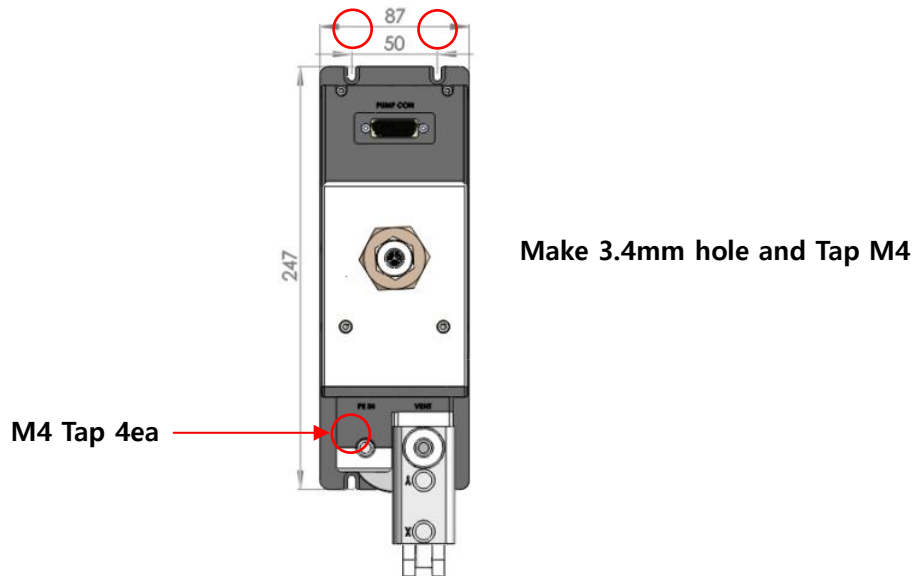
8-4-3 Side View



8-5 Installation Method

8-5-1 Pump Installation Sequence

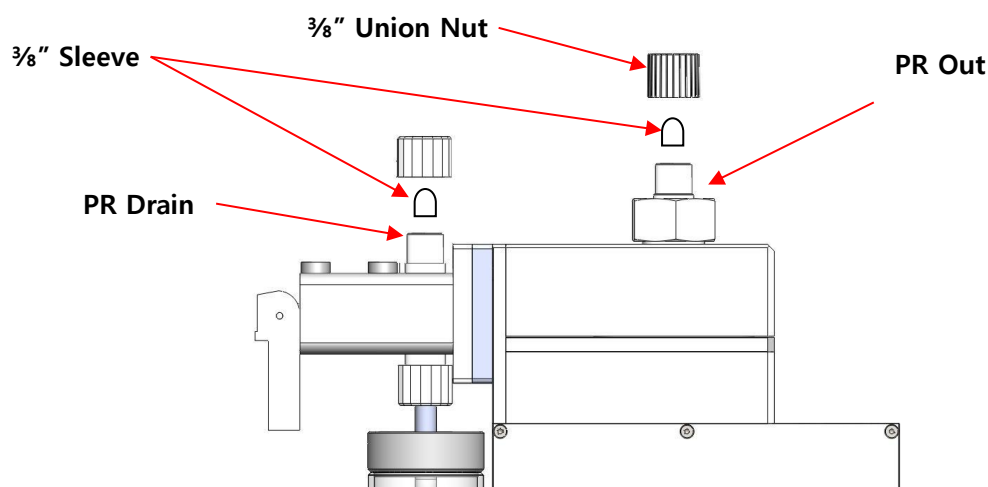
1. Prepare the space for the pump installation.
2. As per the below picture, tighten the panel base plate with 4 pieces of M4 screw.



8-5-2 Piping Method

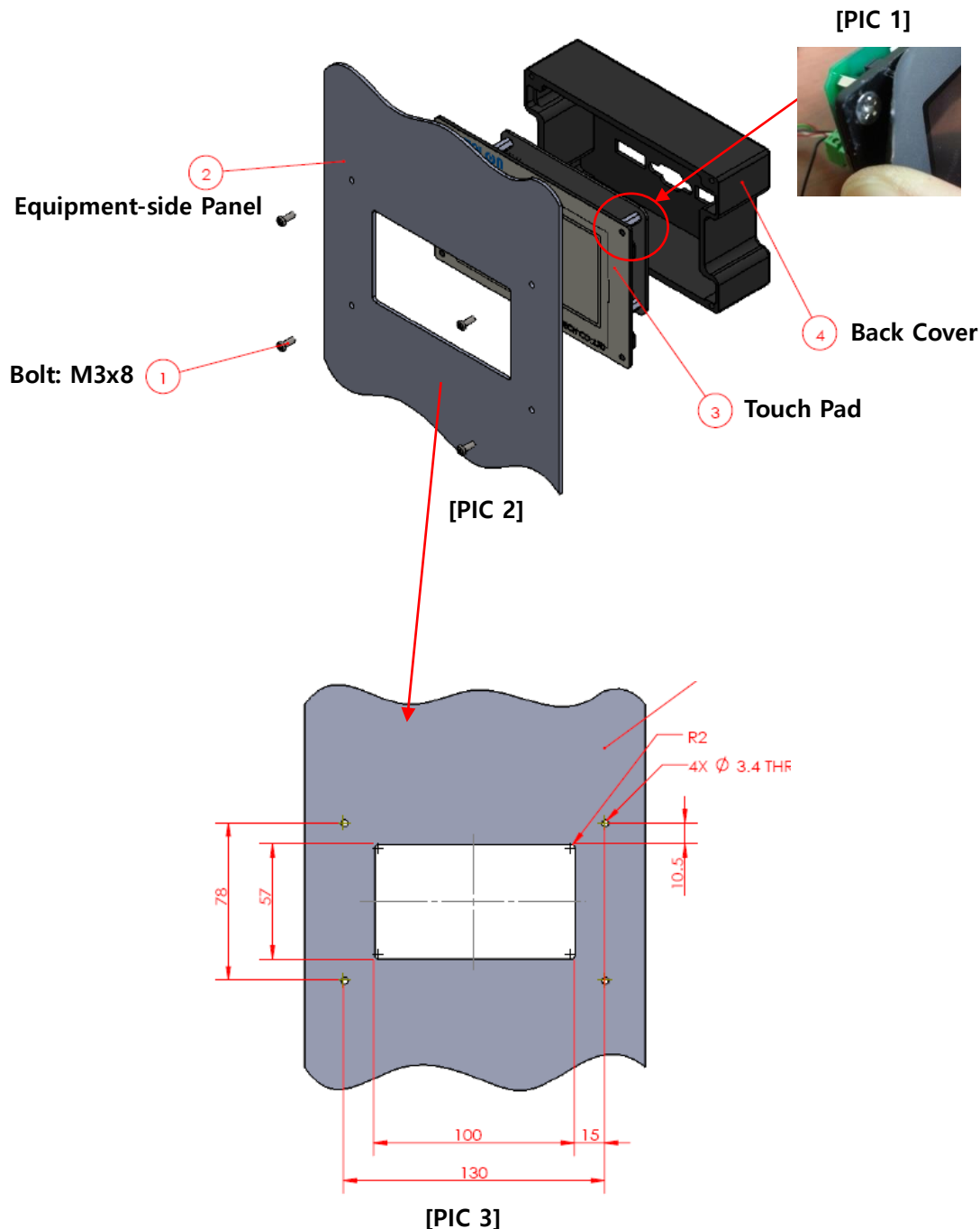
1. PR Tube Piping

- 1) Insert $\frac{3}{8}$ " union nuts on tube at PR In/Out / Vent areas.
- 2) When "PR IN" is connected, the tube length must be less than 1.2meters.
- 3) At the vent area, insert $\frac{3}{8}$ " sleeve into tube after enlarging tube with the tube expansion tool and then tighten nut.



8-5-3 Touch Pad Installation Method

EX)

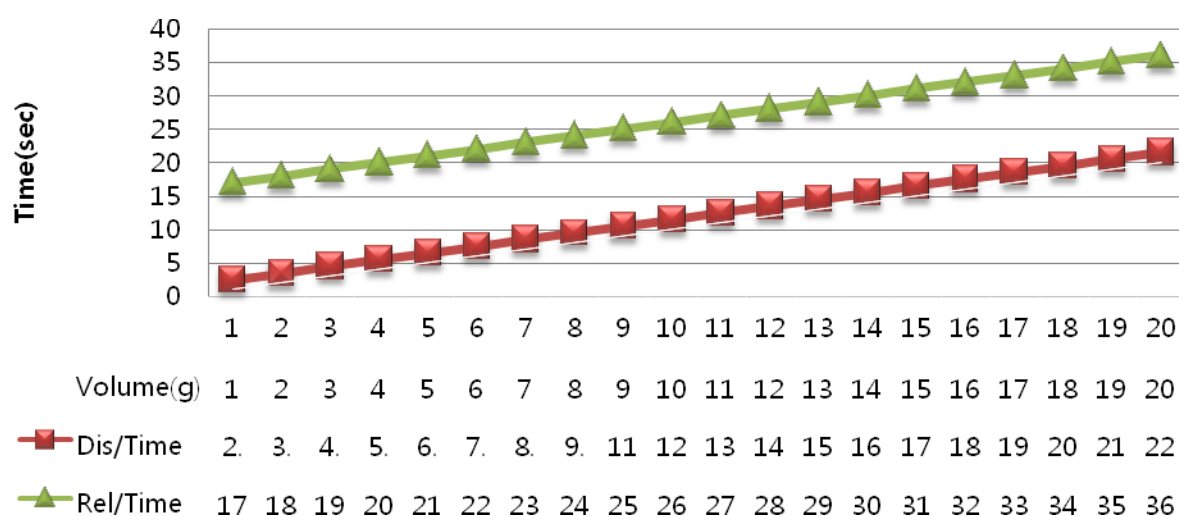


1. As per [PIC 1], peel the sticker a little until the screw is seen. And loose the screw to take the back cover apart.
2. Prepare the panel to make the square hole by matching [PIC 3].
3. As per [PIC 2], install the touch pad on the equipment.
4. The panel type can be changed up to the equipment's position.

8-5-4 Suggested Recipe Setting Value (PR viscosity: 1,800cP)

Volume (g)	Data Input	Dispense/Time (Sec)	Data Input	Reload/Time (Sec)	Data Input
1	100	2.5	250	17	1700
2	200	3.5	350	18	1800
3	300	4.5	450	19	1900
4	400	5.5	550	20	2000
5	500	6.5	650	21	2100
6	600	7.5	750	22	2200
7	700	8.5	850	23	2300
8	800	9.5	950	24	2400
9	900	10.5	1050	25	2500
10	1000	11.5	1150	26	2600
11	1100	12.5	1250	27	2700
12	1200	13.5	1350	28	2800
13	1300	14.5	1450	29	2900
14	1400	15.5	1550	30	3000
15	1500	16.5	1650	31	3100
16	1600	17.5	1750	32	3200
17	1700	18.5	1850	33	3300
18	1800	19.5	1950	34	3400
19	1900	20.5	2050	35	3500
20	2000	21.5	2150	36	3600

Suggested setting value as per time



Dispense time(D/T) formula : $\text{Volume(g)} + 1.5 = \text{D/T} \Rightarrow \text{ex } 18 + 1.5 = 19.5$

Reload time formula : $\text{Volume(g)} + 16 = R/T \Rightarrow \text{ex) } 18 + 16 = 34$

※ The above data is based on 1,800cP. It is supposed to be changed upon cP.

<THEN END>