User manual



MANUAL VER. 1.01 PROGRAM VER. 1.01



ED1.02DT180202

2

CONTENTS

1. Before Installation	4
3. SPECIFICATION	6
3.1. Specification	6
3.2 Display	7
3-2-1. Number Display	7
3-2-2. LED Display	7
3-2-3. LED Display	
3-2-4. Key	
3-2-5. Combination Key	9
3-3. Back Side	
3-3-1. AC power input	
3-3-2. AC FUSE: 250V/7A 2EA	
3-3-3. Serial Interface	
3-3-4. Load Cell Terminal	
3-3-5. External input Terminal	
3-3-6. External Output	
4. Install	
4-1. Size (unit: mm)	
4-2. Cutting Size(unit: mm)	
4-3. Power Reset mode	
5. Set-up	
5-1. Calibration	
5-1-2. Decimal point and Division Setting	
5-1-3. Setting "Capacity of weighing Scale"	
5-1-4. SPAN setting	
5-1-5. Calibration Error condition	
5-2. Function Setting	
5-2-1. Starting F-FUNCTION Mode	
5-2-2. Set up Function	
5-2-3. How to change the function number.	
5-2-4. Function List	
5-3. Test Mode	
5-3-1. How to Enter	
5-3-2. FND Test	
5-3-3. External INPUT Test	

	5-3-4. Relay output test	. 22
	5-3-5. Key Test	. 22
6. E	rror and treatment	. 23
6-1.	Error & treatment during Loadcell installation	. 23
6	-2. Error code	. 23
8	. WARRANTY	. 24

1. Before Installation

1-1. Caution / Warning Marks

<u>Warning</u>	This mark warns the possibility to arrive death or serious injury in case of wrongly used.
	This mark cautions the possibility to arrive serious human body injury or product lose in case of wrongly used.

1-2. Other Marks

4

	Warning for Electric Shock or Damage. Please do not touch by hand		
Ē	Protective Ground(Earth) terminal		
	Prohibition of Operation process		

1-3. Copyrights

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- (2) Any kinds of copy or distribution without SEWHACNM CO., LTD.'s permission will be prohibited.

1-4. Inquiries

(1) If you have any kinds of inquiries for this model, please contact with your local agent or Head

Office

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- 2) Web site: sewhacnm.co.kr
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- 4) TEL: +82 70 4754 6140

2. INTRODUCTION

2-1. Introduction

Thank you for your choice, "SA410DS(SINGLE PACKER CONTROLLER)" for your Production line. This Instruction Manual will help you to operate SINGLE PACKER CONTROLLER (SA410DS) with higher availability and accuracy. Thank you

2-2. Caution

(1) Don't drop on the ground or avoid serious external damage on item.

- (2) Don't install under sunshine or heavy vibrated condition.
- (3) Don't install place where high voltage or heavy electric noise condition.
- (4) When you connect with other devices, please turn off the power.
- (5) Avoid from water damage.

(6) For the improvement of function or performance, we will change the specification without priority notice or permission.

2-3. Features

This SINGLE PACKER CONTROLLER has been used in every kinds of industries.

But, there are a lot of difficulties to develop and produce "AUTOMATIC SINGLE PACKER CONTROLLER" as the all parts are consisted separately, like Indicator(Weight Display), Controller(PLC), Drive Parts(Solenoid Valve, Motor, Feeder), and Power supply units to drive these parts. Therefore we Sewhacnm, developed SA410DS model with searching to maximize processing efficiency and this controller has following features.

Easy to Install

SA410A is composed by two parts. Front Panel and Control Module.

Front Panel is very thin (t=50mm) and designed elegant veneer so it can be installed easily on suitable place where the operator can see clearly.

Additionally, Control Module can be installed on wherever the operator can maintain easily.

• Various Display panel and Elegant Appearance

We verified Display panel to recognize all required information at once, and we use LEXAN Film which is good looking and strong for dust.

SA410DS Controller has sequence Board, which controls Main Control Module and all input / Output signal. And this Sequence Board is programmed to operate with best function. All input/output signal is composed by "Photo-coupler" to cover all noise from external environment and protected by DATA BACK-UP function when the power is out. In addition, it has WATCH-DOG system which can recover automatically when the MICOM has malfunction due to abnormal various from environment or noise.

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3. SPECIFICATION

3.1. Specification

Content			Detail		
	Display Resolution		1/20,000		
	Internal Resolution		1/2,097,152 (±1,048,576)		
	Input Sensi	tivity	Min. 0.1µV/V		
	Max. Input	Signal (mV)	+3.00mV/V		
	Load Cell E	xcitation	+5V DC		
A/D Conversion	Conversion	Method	Sigma-Delta		
	Decimal Se	tup	0, 0.0, 0.00, 0.000		
		ZERO	10PPM/°C		
	DRIFT	SPAN	10PPM/°C		
	Linearity		0.001% of Full Scale		
	A/D Sampli	ng	Max. 60 times / sec		
Environment	Temperature Range		0°C ~ +40°C [14°F ~ 104°F]		
Environment	Humidity Range		40% ~ 85% RH, Non-condensing		
	Weight		7 Segment, 6 Digit, Red LED Display		
			14.1(H) X 8.1(W)mm		
	Set Value		7 Segment, 6 Digit, Red LED Display		
I CD Interface			10.1(H) X 5.8(W)mm		
	P/N		7 Segment, 6 Digit, Red LED Display		
			14.1(H) X 8.1(W)mm		
	Batch Count		7 Segment, 6 Digit, Red LED Display		
	Accumulated Weight		10.1(H) X 5.8(W)mm		
Communication	Serial Interface		RS-232 1EA		
Key pad			27EA		
input	External Inp	out	4EA		
Output	Output		Relay Output 6EA		
Output	Relay		Han-Dok Electronics Power Relay 250VAC/10A/1a		
Power			AC : 110~240V, 50/60Hz, 7A		
Size			250(W) X 161.5(H) X 90 (D)		

6

3.2 Display



3-2-1. Number Display

- 1) Weight : Display the Current weight.
- 2) PRESET Value : Display the Current Set value

(Display the corresponding value at press the Set, Bulk, Drip, Free Fall, Under Value, Over Value key)

- 3) Part No. : Display the current Part No.
- Batching Count : the number of times the weighing operation has been completed is displayed for each part number
- 5) Total weighing Count/Accumulate weight : The total number of weighing operations and the Total weight at which the weighing operation has been completed are displayed

3-2-2. LED Display

- 1) Bulk : Lights up at Setp1 relay operating
- 2) Drip : Lights up at Setp2 relay operating
- 3) Free Fall : Lights up at Setp3 relay operating
- 4) Finish : Lights up when the weighing is completed and the weight is stable
- 5) Pass weight judgement : Lights when the weighing is completed within the lower and upper limits of the weighing Value
- 6) Discharge : Lights up at Discharge relay operating
- 7) Steady : Lights up when the weight is steady
- 8) Zero : Lights up when the weight is Zero.
- 9) Run : light up when the weighing base is operating

8

3-2-3. LED Displ	ау
• RUN	This key used for Run to the controller
AUTO	If the lamp is turn on, the weighed product will be automatically discharged
DCHG	within few Minute after finishing batch process
MANUAL	If you press this key, when the batch process is finished, the discharge gate open
DCHG	And discharge the product
3-2-4. Кеу	•
	You can use this key when you change product no.
P/N	P/N number up to 50 maximum.
	You can use this Key when you determine target weight
PRE	When you press this key, current Preset value will displayed on the
SET	Preset window with blinking.
	Preset value must be bigger than bulk, drib or fall value
BULK	You can use this key when you set or change bulk setting
DRIB	You can use this key when you set or change drip setting
FREE	You can use this key when you set or change free fall setting.
	You can use this key, when you set the under weight error range.
OVER	You can use this key, when you set the over weight error range.
	Current product's batch count and sub-total weight so far if you install interface
GRAND	Print interface, you can print out all product's batch count and
TOTAL	accumulate weight
1 _M ~9 _{F3}	You can use these number keys when you input various data
CLEAR	You can use this key when you delete wrong input data by number key.
ENTER	You can use for final confirmation after input data, which you want to
	change by No. key
ZERO	Set the display of the weight value to '0'.
RUN	Used to start the weighing operation.
STOP	Used to stop the weighing operation.

AUTO	If the lamp is turn on, the weighed product will be automatically discharged within few Minute after finishing batch process
MANUAL	If you press this key, when the batch process is finished, the discharge gate open And discharge the product
	This key is for turning on / off the controller power

3-2-5. Combination Key

CLEAR	If you press "Sub-total key" then "Clear key" with blinking 3 times then current product's batch count and accumulated weight will be deleted
CLEAR	If you press "Gross-total key" then "Clear key" with blinking 3 times then current all products total batch count and accumulated weight will be deleted

3-3. Back Side



3-3-1. AC power input

AC	1	2	3	
AC	R	Т	Earth	

3-3-2. AC FUSE: 250V/7A 2EA

3-3-3. Serial Interface

Interface	1	2	3
RS-232	RxD	TxD	GND

3-3-4. Load Cell Terminal

Terminal	1	2	3	4	5
Load Cell	EXC+	EXC-	SIG+	SIG-	SHIELD

3-3-5. External input Terminal

Terminal	1	2	3	4	5	6
	I/COM	IN1	IN2	IN3	I/COM	Discharge
Input	Com	RUN	STOP	Discharge Input	Com	Discharge Close sensor

3-3-6. External Output

Terminal	1	2	3	4	
	O/COM	1-1st	1-2nd	1-3rd	
Dischet	Com	Bulk	Drib	Free Fall	
Output	5	6	7	8	9
	O/COM	Out1	Out2	O/COM	Discharge
	Com	Finish	Set value	Com	Discharge

4. Install

4-1. Size (unit: mm)





4-2. Cutting Size(unit: mm)



4-3. Power Reset mode

1) When power on, left side of display showing version information and blinking 3 times.

2) Below picture is normal condition.



3) If there is some error, will be shown error code.

X User can check error information on "6. Error Error condition".

5. Set-up

5-1. Calibration

Calibration is the process of adjusting weight balance between "Real Weight" on the Load Cell and "Displayed weight of Indicator". When you replace Load Cell or Indicator, you have to do Calibration process once again.

WEIGHT BATCH COUNT STEADY 5 E E.C.A.L ZERO 9/N P/N PRESET UE r 100	 Press the ENTER key 3times for 3seconds. Press the RUN at the Caliblation
5-1-2. Decimal point and Division Setting	
WEIGHT STEADY ZERO P/N PRESET DI DI DI DI BATCH COUNT SELPDI TOTAL BATCH COUNT / ACC. WEIGHT DI DI DI DI DI DI DI DI DI DI	 Make the division use the key (Division : 1, 2, 5, 10, 20, 50) Make the Decimal point use the key (Decimal point: 0, 0.0, 0.00, 0.000) Push the key and save it
5-1-3. Setting "Capacity of weighing Scale"	
WEIGHT STEADY ZERO P/N PRESET CAPA TOTAL BATCH COUNT / ACC. WEIGHT DI SEE PO2 P/N PRESET SEE PO2 SEE PO2 SE	 Input max capacity with number key. Digit and decimal point must be fulfilled under the below condition. (division value / Max capacity value) cannot be over 1/20,000. If this condition is not fulfilled, " Err-1" will be displayed and move back to capacity setting mode Save & move to next step by press

5-1-4. SPAN setting

WEIGHT STEADYO ZEROO P/N PRESET SPRn SPRn SPRn SPRn SPRn SPRN	 Input SPAN with number key Balance weight should bigger than 10% of maximum capacity or Er-005 displayed.
WEIGHT STEADY Image: Colspan="2">BATCH COUNT ZERO Image: Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">BATCH COUNT ZERO Image: Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2" P/N PRESET Total Batch count / Acc. weight Image: Colspan="2">Image: Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2" P/N PRESET Total Batch count / Acc. weight Image: Colspan="2">Colspan="2"	 Save & move to next step by press ENTER key. Controller will calculate dead weight of scale part automatically about 10 seconds
WEIGHT BATCH COUNT STEADY ZERO 0 P/N PRESET TOTAL BATCH COUNT / ACC. WEIGHT UP	 Load the balance weight. Put key, Calculate span value during 10~20 seconds.
WEIGHT BATCH COUNT STEADYO IOOOO ZEROO IOOOO P/N PRESET CRLEND TOTAL BATCH COUNT / ACC. WEIGHT 9927	3) When calibration is done, put key and save it.

5-1-5. Calibration Error condition

Status	Cause	Solution		
Em. 001	When Max capacity/digit value is over	When Max capacity/digit value is under		
Err -001	20,000	20,000		
Err 004	Standard weight value is over than Max	Powrite the load weight		
EI1-004	Capacity	Re-write the load weight		
Err 00E	Standard weight value is less than 10%	Do write the load weight		
EI1-005	of Max Capacity	Re-write the load weight		
Err 000	There is continuous vibration on the	e Remove the vibration and check the loa		
EI1-009	weighing part during calibration	cell		
Err-006	When Calibration, it is excess than maximum	Check the load cell and weight		
	A/D converting value			
Err-007	When Calibration, it is less than minimum	Check the load cell and weight		
LI1-007	A/D converting value	check the load cell and weight		

5-2. Function Setting

Function setting could set the indicator to operate perfectly with surrounding condition.





5-2-2. Set up Function

Way 1.
Put key can be changed the next function number.
(F01_XX → F02_XX → F03_XX → · · · → F97_XX → F98_XX → F01_XX)

2) Way 2.



 If you want to move to some function number, use the number key.

can be moved exact function number.

5-2-3. How to change the function number.

 Select the function setting part. (Basically both sides of function setting value will be chosen.)

2)

Use the number key for the setting number.

- 2) Put key, "Accumulated weight" showing the "SAVE" and move to next step.
- 3) Press key and back to main display.

※ Putting the value is over the limitation, "ERR-010" will be shown.

5-2-4. Function List

No.	Subject	Default	Content
F01	Weight–back up mode	01	00 : Normal mode
			01 : Weight back up mode(Zero)
F02	Steady range	08	01 ~ 99 (Unit: 0.25 gradation)
F03	Steady condition check time	10	01 ~ 99 (Unit: 0.1 seconds.)
F04	Digital filter	20	01: Weak vibration ~ 50: Strong vibration
F05	Zero key operation range	02	 00: Active within 2% of max capacity 01: Active within 5% of max capacity 02: Active within 10% of max capacity 03: Active within 20% of max capacity 04: Active within 50% of max capacity 05: Active within 100% of maxc capacity 06:No limit
F07	Zero key operation mode	00	00: Always active 01: Active under steady condition only
F08	Auto zero range	00	00 ~ 99 (Unit: 0.25 gradation)
F10	Auto zero at RUN	01	00 : Disuse 01 : Use
F11	Discharge gate sensor use or don't use	01	00 : Disuse 01 : Use
F12	Save set value	00	00 : Disuse 01 : Use
F14	Finish relay output delay time	03	01 ~ 99 ((unit = 0.1sec)
F15	Re-supply operation time in case of shortage	00	01 ~ 99 (unit = 0.1sec)
F16	Discharge gate Relay on time	30	01 ~ 99 (unit = 0.1sec)
F17	Re-weighing delay time	15	00 ~ 99 (0: steady) (unit = 0.1sec)
F20	Weighing count increase point	00	00: Finish , 01: Discharge
F25	Auto Discharge delay time	20	01 ~ 99 (unit = 0.1sec)
F26	Discharge at weighing Error	00	00 : Disuse 01 : Use
F28	Equipment No. setting (ID No.)	01	01 ~ 99
F31	Under UNPASS/OVERLOAD state, weight display	00	00 : Display 01 : No display

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18

No.	Subject	Default	Con	tent
F33	Buzzer sound (External input	00	00 : Buzzer sound	
155	detection)		01 : No Buzzer sound	
F34	Key input delay time	03	01 ~ 50 (Unit : 10milis	seconds)
F35	External input delay time	10	01 ~ 50 (Unit : 10milis	seconds)
F40	External input left Discharge	06	00: Disuse	
F41	External input Left #1	01	02: RON 03: Discharge input	
F42	External input Left #2	02	04: Auto Discharge	
F43	External input Left #3	03	05: Extract Discharge 06: Discharge gate clo	se sensor input(Left)
F44	External input Right Discharge	07	07: Discharge gate clo	se sensor input(Rightt)
F45	External input Right #1	04		
F46	External input Right #2	05		
F47	External input Right #3	00		
F50	Relay Output Standard Auto/ Manual Setting	00	00 : Auto 01 : Mar	nual
F51	Relay output 1 step	01	00: Disuse	r 1_1_L
F52	Relay output 2 step	02	01:Bulk 04: 02: Drip 05: F	Pass weight Judge
F53	Relay output 3 step	03	03: Free Fall 06:	Discharge
F54	Relay output Discharge	06		
F55	Relay output #1	04		
F56	Relay output #2	05		
No.	Subject	Default	Con	tent
	Parity / stop bit	00	00: Data bit8, stop bit	1, parity bit Non
			01: Data bit8, stop bit	1, parity bit Odd
F64			02: Data bit8, stop bit	1, parity bit Even
			03: Data bit7, stop bit1, parity bit Nor	
			04: Data bit7, stop bit	1, parity bit Even
	Communication speed	02	00 : 2,400bps	05 : 28,800bps
E65			01 : 4,800bps	06 : 38,400bps
105			02 : 9,600bps	07:57,600bps
			03 : 14,400bps	08 : 76,800bps

			04 : 19,200bps	09 : 115,200bps	
F66	Communication mode	00	00: Simplex / Stream mode		
F67	Format under stream mode	00	00: Format 1 (20Byte)		
F68	Transference under stream mode	00	00 : Continuously 01: Single time output after weighing finish		
F69	"Check-Sum" under command mode	00	00 : Disuse 01 : Use		
F84	Near zero output setting under tare on state	00	00 : Zero output 01 : Actual zero output except Tare weight		
F87	Zero range check and Modification fo Right	30.0	Use the number key and save it to use enter key		
F90	Zero range check and Modification of Left	30.0	Use the number key and save it to use ent key		
F94	DATE(Y,M,D) check / modification	180101			
F95	TIME(H,M,S) check/ modification	010101			
F96	Function list factory reset		Level -> "YES"-> press enter , then res		
F97	Factory reset		key->"NO" pressenter, then keep the current data		



The "F" setting value can be changed and saved separately for "left weighing base" and "right weighing base"





Time	Fun	Description	Time	Fun	Description
+1	F1 /	Finish weighing output	+ 1	Г16	Discharge gate output time
LI LI	F14	delay time	t4 F16		
42	Г1 Г	Not enough re-supply	+F	F17	Re-weighing start delay
12	FIS	time	τ5	FI/	time
t3	F25	Discharge delay time			

- After weighing [Steady weight≤(Pre-set-Free fall)], 3 steps gate re-running and re-supply. After this step the weighing will be finished.
- 2) Discharge has Auto/Manual mode and user can check with lamp turn on/off. Manual discharge starts when the foot switch is pressed after completion of weighing, and automatic discharge proceeds after time t3 after completion of weighing.
- 3) When user press the "Stop", immediately stop no matter it's running or not. Run signal will be put, then it will be started again.
- 4) When F26 is set to '1' at the time of weight error, the foot switch is not output to the foot switch input but is discharged only by the forced exhaust input.
- 5) When forced re-entry, re-entry will return to the state before forced release.
- 6) If the weighing container is empty even after the power is supplied and the previous condition is met, weighing starts.5-3. Test Mode

5-3-1. How to Enter

WEIGHT BATCH COUNT SELCAL P/N PRESET TOTAL BATCH COUNT / ACC. WEIGHT UEr IOO	1)Press ENTER key 3 times in 3 seconds. 2) "SET.CAL" will be shown.
WEIGHT BATCH COUNT	3) Put key and can enter the test mode.
5-3-2. FND Test	
 After enter the test mode and press Check the FND error or not. Press (stop) key and back to main display 	<i>I.</i>

5-3-3. External INPUT Test

WEIGHT STEADY ZERO P/N PRESET LESE TOTAL BATCH COUNT / ACC. WEIGHT LESE COUNT / ACC. WEIGHT	 After enter the test mode and press 2) Check the error with using external INPUT. 3) Press key and back to main
	display.

5-3-4. Relay output test

WEIGHT BATCH COUNT STEADY DIE ZERO DIE P/N PRESET E E E E			UNT	1) 2)	Enter the key. Put mode.	test mode, p	ress 3 t of the test
1	2	3	4		5	6	0
OUT1 ON/OFF	OUT2 ON/OFF	OUT3 ON/OFF	OUT4 ON/OFF		OUT5 ON/OFF	OUT6 ON/OFF	OUT1~6 Auto Output

5-3-5. Key Test

6. Error and treatment

6-1. Error & treatment during Loadcell installation

Problem	Cause	Treatment	
Weight Value is unstable	1. Load cell broken	Measure input/output resistance of Load cell	
	2. Load Cell isolation	Measure Load cell isolation resistance.	
	resistance error		
	3. Weighing part touches		
	other devices or some weight	Clering weighing part	
	is on the weighing part		
	4. Analog PCB module Error	Check AD Module and change module.	
	5. Load Cell cable Error	Measure Load cell calbe isolation resistance	
Weight Value	1. Load cell Error	Measure Load cell isolation resistance.	
is increased	2. Load Cell connecting Error	check Load cell connecting	
regular rate,	3. Load Cell cable Error	Load cell cable Open/Short Test	
but not return	4. Analog module Error	Check Analog Module and change module.	
to "Zero			
	1. Load cell broken	Measure input/output resistance of Load cell	
"Unpass"	2. Power was "ON" when		
Display	some weight is on the load	Remove weight on the Load cell	
	cell.		

6-2. Error code

Problem	Cause	Treatment	
AD-Err	Load cell broken	Measure input/output resistance of Load cell	
UNPASS	Power was "ON" when some weight is	Remove weight on the Load cell	
	on the load cell.		
OL	Loading over than Max Capacity	Remove over loaded weight	
Err-01	After finish discharge, the re-start	Remove over loaded weight	
	weighing process, at this moment		
	current weight on the scale over		
	to EMPTY range 때		
Err-02	After finish discharge, the re-start	Check the discharge gate	
	weighing process, at this moment		
	discharge gate open or when BULK,		
	DRIB, FREE FALL process going		
	suddenly discharge gate open.		

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8. WARRANTY

WARRANTY CETIFICATION

This product is passed SEWHACNM strict quality test.

If there is defect of manufacturing or abnormal detection within warrantee period, please contact our Agent or Distributor with this Warrantee certificate. Then, we will repair or replace free of charge.

WARRANTY CLAUSE

1. The Warrantee period, we can guarantee, is one (1) year from your purchasing date

2. Warrantee Exception Clause

- Warrantee period is expired.
- Any kinds of Mal-function or defection caused by Modification or Repair without Sewhacnm's permission.
- Any kinds of Mal-function, Defection, or External damage, caused by operator
- Any kinds of Mal-function, Defection, caused by using spare part from Non-Authorized Distributor or Agent.
- Any kinds of Mal-function, Defection, caused by not following Warnings or Cautions mentioned on this manual.
- Any kinds of Mal-function, Defection caused by "Force Majeur", like Fire, Flood.
- Without presentation of this "Warrantee Certification".
- 3. Other
- Any kinds of "Warrantee Certification" without authorized Stamp is out of validity

Manufacturer : SEWHACNM Co.,Ltd.	Product	Single Packer Controller
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