P-EX2002 IP67 Waterproof Indicator User Manual



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Special Notice

The indicator is IP67 waterproof design. Only the cables with ϕ4~ϕ7mm calibre could be used or will affect the waterproof design.

In some certain conditions, the stainless case of indicator would be opened to set up the load cell, to connect the power cable, or to change the new rechargeable battery.

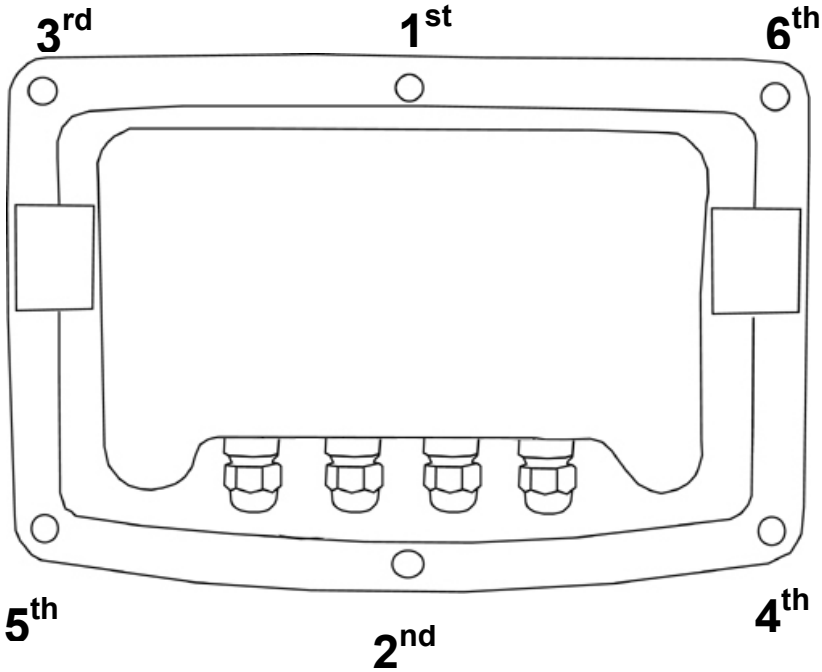
Before open the stainless case, please make sure the indicator is dry, if necessary the liquid should be wiped off.

The assembling notice should be accurately followed to assure the waterproof performance. We also strongly suggest that these procedures should be operated by the technical staff of your supplier.

ASSEMBLING NOTICE:

After the desired steps are done, screw the case with 12 kgf-cm in the following orders. Do not screw tightly before all screws are in the positions.

Screwing orders:



Safety

- When the instrument is installed, connect an earth bonding conductor from FG to the earth connection marked " ⏚ ".

- Disconnect the mains power supply before opening the instrument housing. NOTE: There are no user serviceable parts inside.

- To install the optional interface cards, it is necessary to disconnect the mains power supply and fit a yellow/green earth bonding cable to the rear panel.

- Before turning the power on ensure the supply voltage is within the acceptable range, AC100V ~ AC240V.

- The operating ambient temperature range is -10°C ~ +40°C. (+14°F ~ +104°F)

- The indicator is IP67 waterproof design. Only the cables with

  ϕ4~ϕ7mm calibre could be used or will affect the waterproof design.

Features

P-EX2002 has a wide range of applications from batching to simple weighing.

Features:

IP 67 Waterproof design

Stand alone batching mode or connect to PLC for external system control

Built in batching / dosing functions

Manual / automatic discharge operation

Set cycle times in a batch

Totalise weight and number of cycles

Key in the signal voltage value (mV/V) directly via the keyboard, no need to apply any weight to the bottomwork to calibrate the weigher.

Display load cell output voltage (mV/V) for future maintenance

Adjustable filter

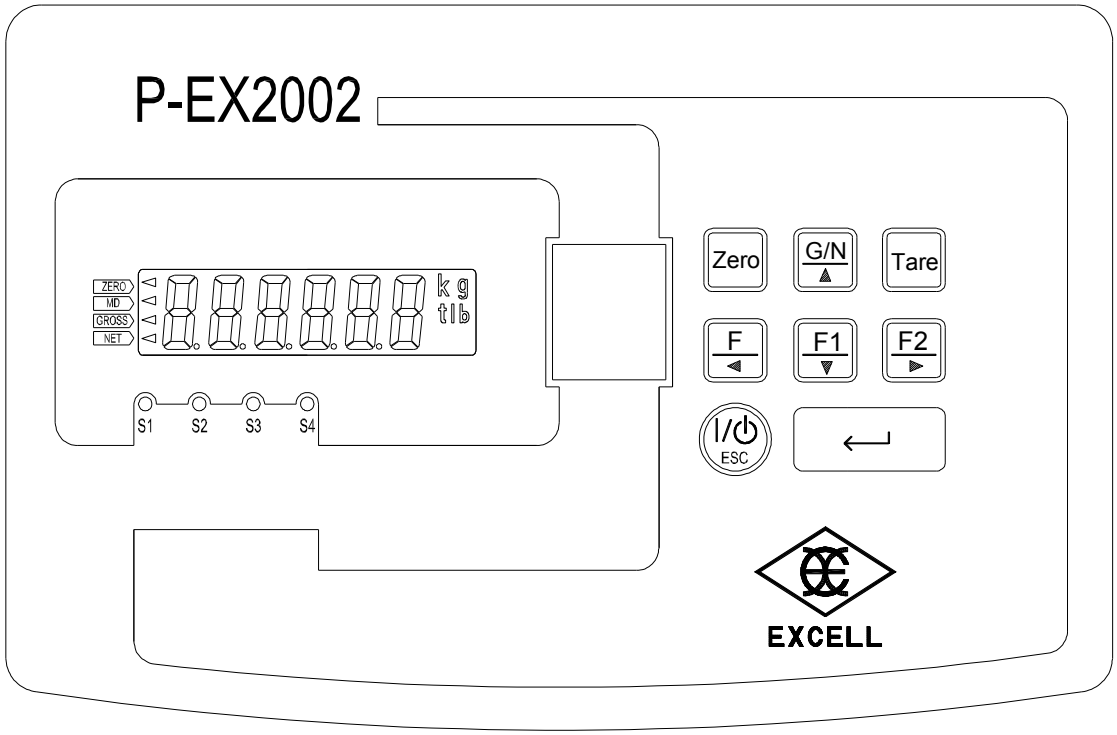
RS232C bi-directional and current loop one way serial interface

Interface options:

OP-01	RS422/485/232 serial interface
OP-03	16 Bit Analogue current/voltage output interface (4 ~ 20 mA / 0 ~ 10V)
OP-04	Control I/O (4In / 4Out) + Setpoint In (BCD code)
OP-05	Control I/O (8In / 8Out)

CHAPTER 1 FRONT AND REAR PANEL SPECIFICATIONS

1-1 Front panel



Display

- 6 digits, bright red, 7 segment LED display, character height 16mm (0.63”). Display can be switched between Gross Weight / Net Weight / Totalised Weight / Number of transactions in the total.

- Indication icons “◄”

ZERO	◄	:	Zero Indication
MD	◄	:	Unstable weight Indication
GROSS	◄	:	Gross weight Indication
NET	◄	:	Net weight Indication

♦ The indicator is supplied with suitable labels to customise the icon displays. Refer to FNC. 07 ~ FNC.10 for the various options available.

Weighing Units

♦ Weighing Units kg / g / t / lb.

1-2 Keyboard description



: When entering data or reference setting, it means “ESC”.
In the normal operation, it puts the indicator in standby mode or escape.
Entering standby mode: All of the display (except ZERO “◂” symbol) and serial data output are disabled.
Escape from standby mode: Re-power on mains for normal operation.



:
In the normal mode, it performs as Zero operation.



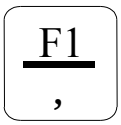
: When parameter setting, it increments the flashing digit or steps up the select item.
In the normal mode, it performs a Gross/Net switch operation.



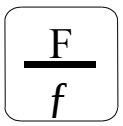
:
In the normal mode, it performs as Tare operation.



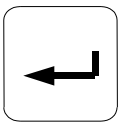
:
When parameter setting, it move flashing to right.
In the normal mode, it accesses the FNC-06 setting.



When parameter setting, it decrements the flashing digit or steps down the select item.
: In the normal mode, it accesses the FNC-05 setting.



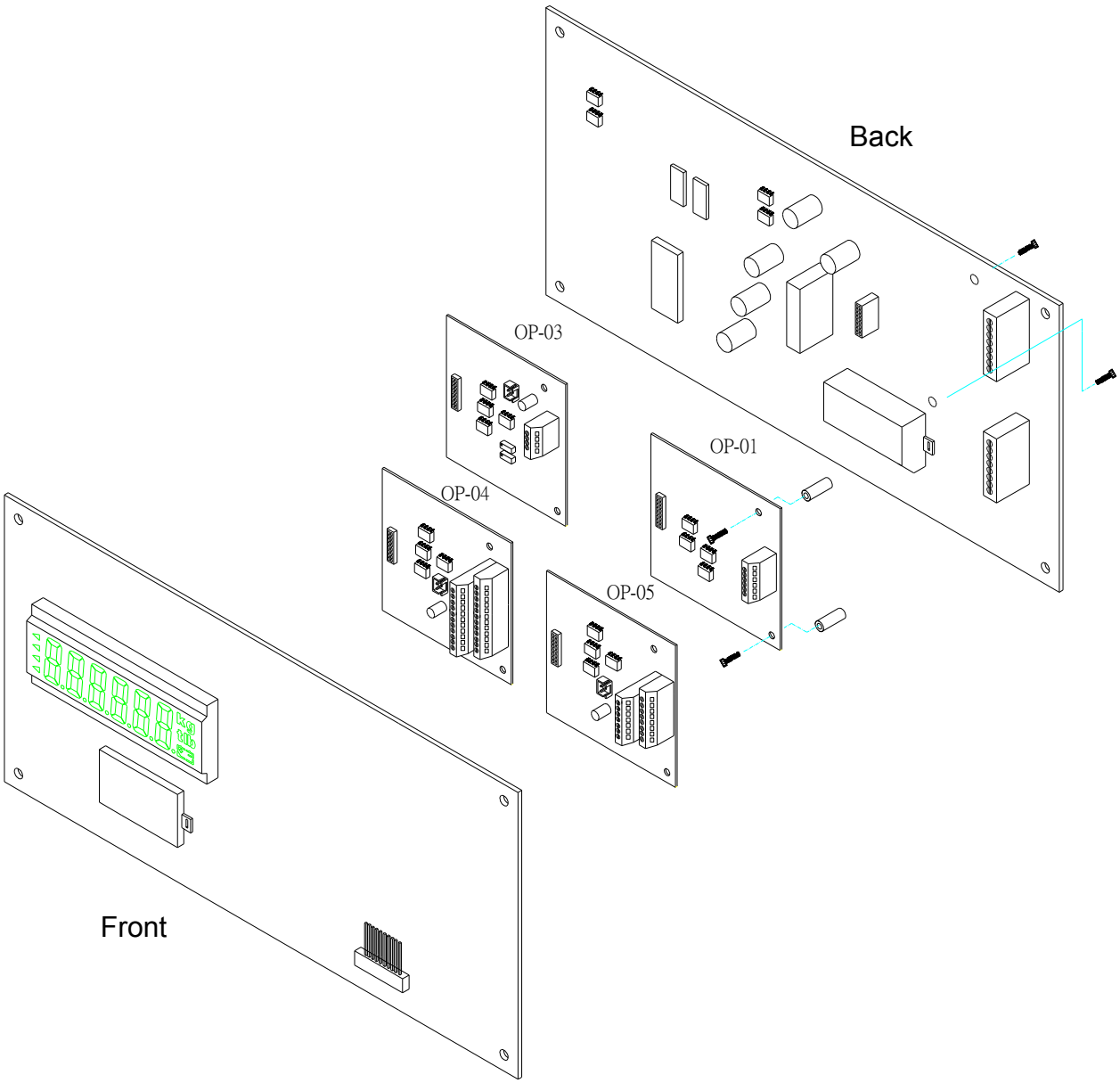
: When parameter setting, it move flashing to left.
In the normal mode, it accesses the FNC-04 setting.



: Confirm / enter key

- Function FNC-03 can be used to selectively disable individual keys.
- Zero operation, will be limited by functions CSP-05 and CSP-10.
- Zero operation, will be limited by functions CSP-10 and CSP-11.

1-3 Assembly diagram



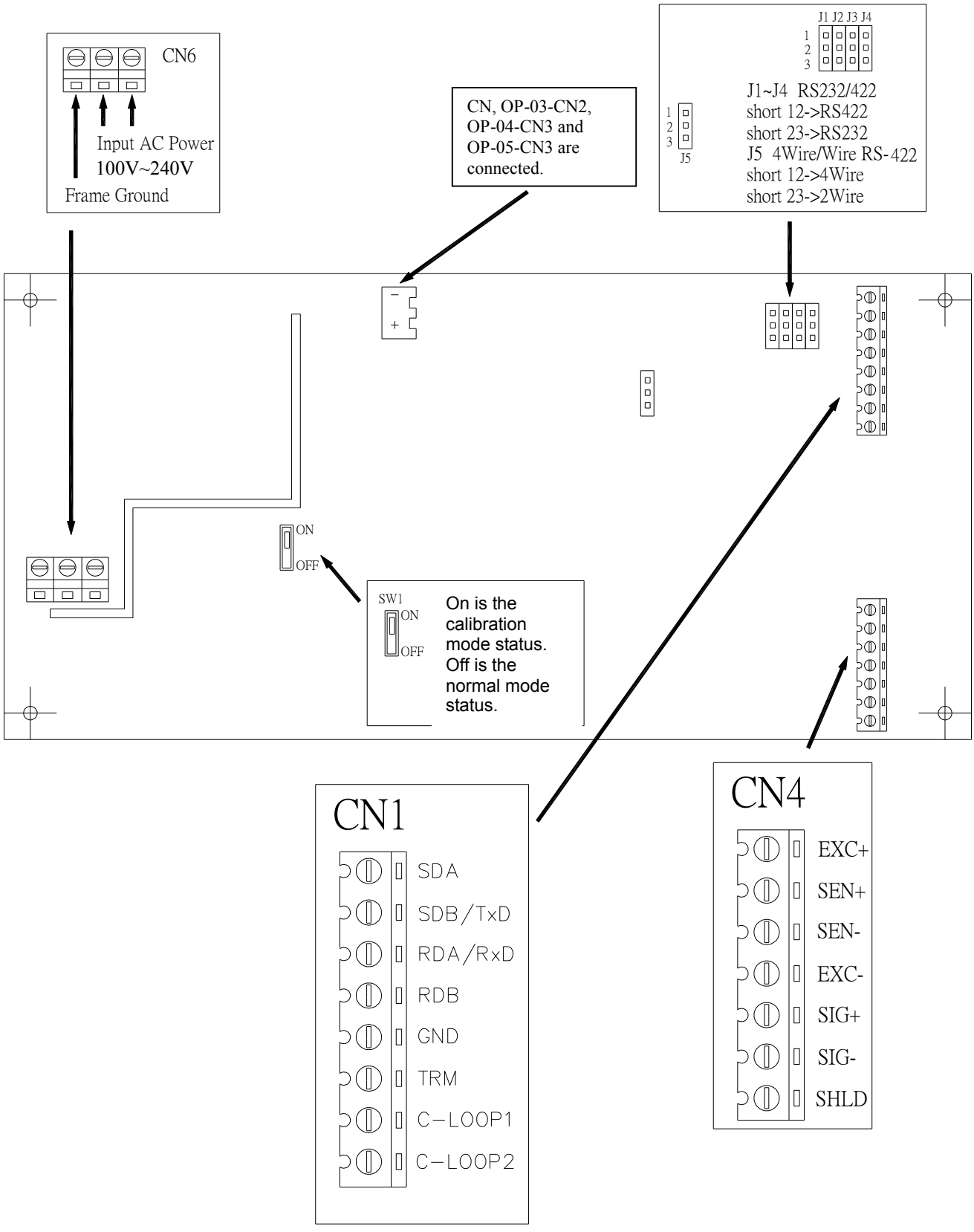
1-4 A/D Conversion

* Input Sensitivity	: Up to 0.12 uV/D
* Internal Resolution	: 1 / 1,000,000
* Max. Sampling Speed	: 120 times/sec.
* Application Range	: - 0.1 mV/V ~ 4.0 mV/V
* Load Cell Excitation Voltage	: 5 VDC ±5%, 120mA (Up to eight (8) 350 Ω load cells can be connected)

1-5 Power supply

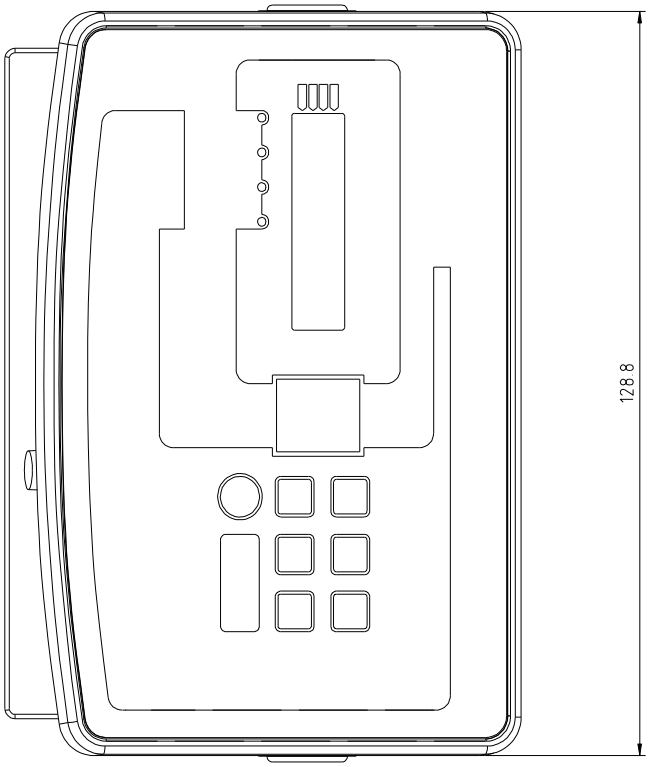
- ♦ AC 100V ~ 240V 50/60Hz
- ♦ Power consumption is about 10VA

1-6 Circuit board description

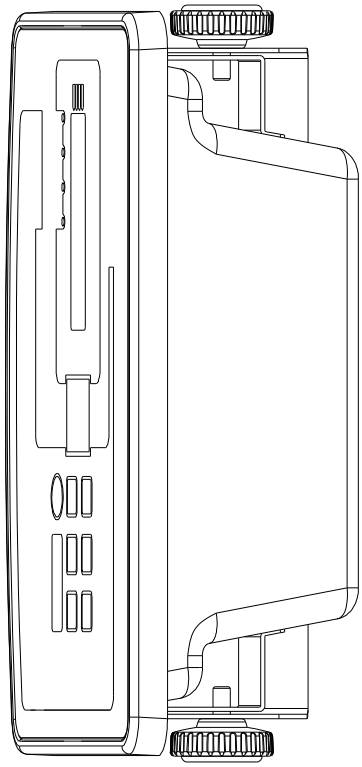


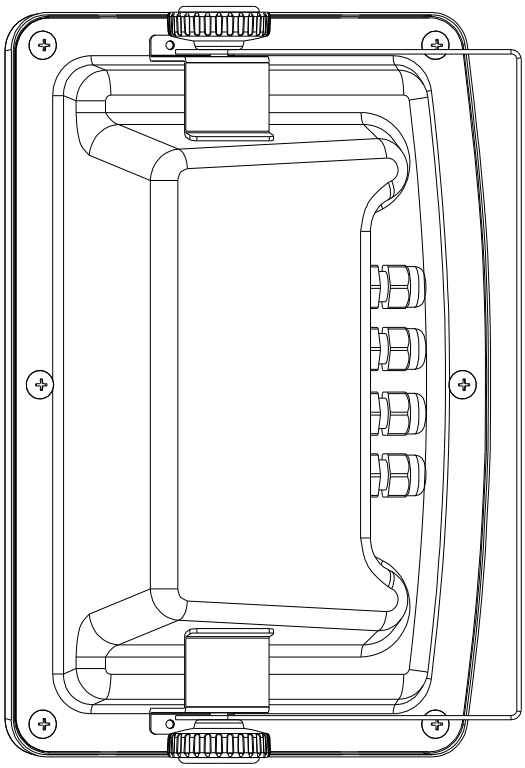
1-7 Indicator appearance

Front view

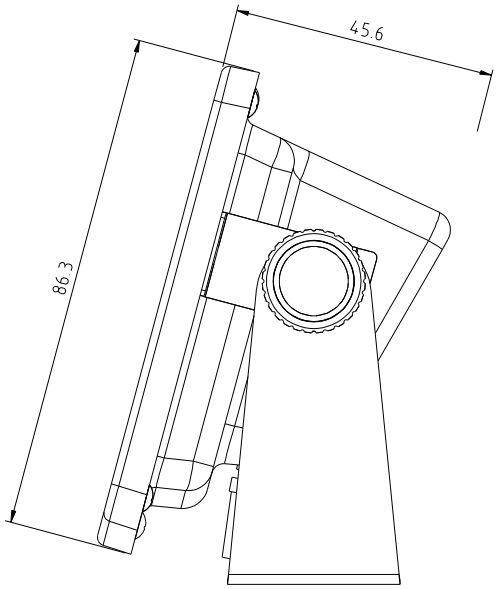


Up view





Back view



Side view

CHAPTER 2 GENERAL FUNCTION GUIDE

2-1 Function setup and operation procedures

Function	Operation	Display	Description
Enter calibration mode	Turn the calibration switch to “ON”		See 3-2 for details
Enter function setting	Press [↵] not release, then press [F/f] key after the power is turned on		See 2-2 for details
Reset all parameters back to default	Turn the power on then turn the calibration switch to “ON” then press and hold the [↵] and [F/f] keys during the self-testing sequence		See 6-1 for details
Reset general function parameters back to default	Turn the power on and Press [↵] and [F/f] keys during self-testing sequence		See 6-2-1 for details
Clear zero point compensation and tare value	Turn the power on and press [F/f] and [↵] keys during self-testing sequence, and then press [G/N •]		See 6-2-2 for details
Clear setpoint parameter setting	Turn the power on and press [F/f] and [↵] keys during self-testing sequence, and then press [G/N •] two times		See 6-2-3 for details
Value of zero point voltage(mV/V)	Turn the power on and Press [F/f] and [↵], then press [G/N •] three times.		See 6-2-4 for details
Value of Span voltage (mV/V)	Turn the power on and Press [F/f] and [↵], then Press [F1 ,]		See 6-2-5 for details
Entering to test mode	Turn the power on and press [I/⏻ ESC] and [↵] keys during self-testing sequence		See 6-3 for details

Function	Operation	Display	Description
Check weighing setpoint parameter setting	Press the F/f key to set the parameter of FUNC.4 to 1 in the normal mode	1.FunAL or 1.tu	See 4-2 for details

Key actions in function set up mode

G/N • ⇒ Increases the number of the flashing digit

F1 , ⇒ Decreases the number of the flashing digit

F f ⇒ Moves the flashing digit one space to the left

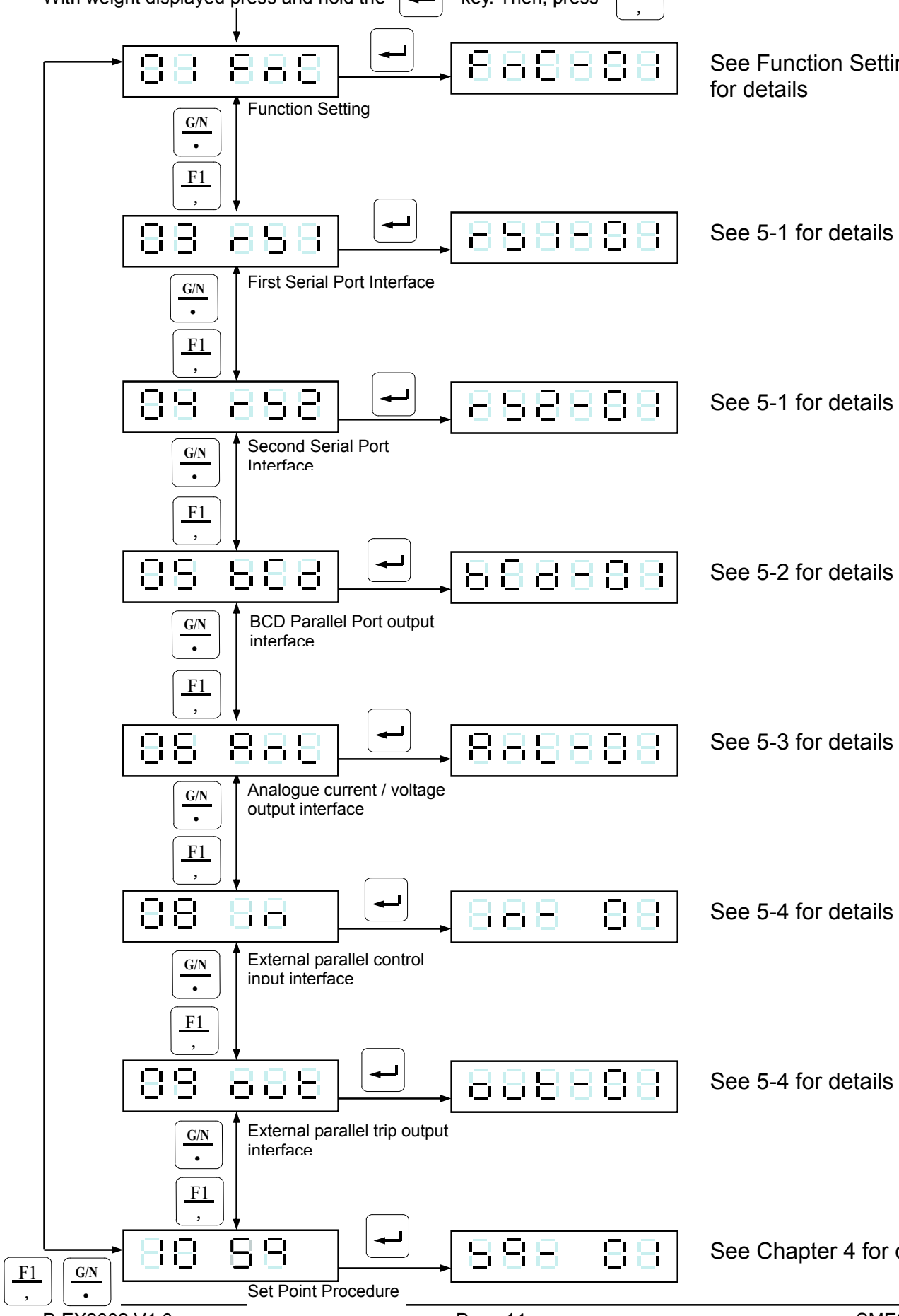
F2 „ ⇒ Moves the flashing digit one space to the right

↵ ⇒ Saves the configuration

I/⏻ ESC ⇒ Quits set up mode / Escape

Function Setting Procedures

With weight displayed press and hold the ↵ key. Then, press F1 ,



See Function Setting 2-2 for details

See 5-1 for details

See 5-1 for details

See 5-2 for details

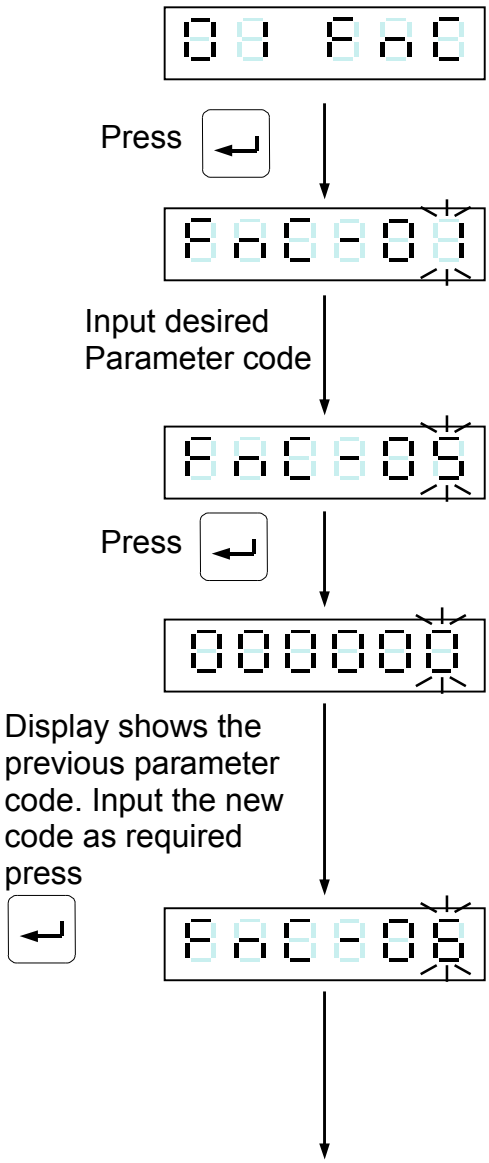
See 5-3 for details

See 5-4 for details

See 5-4 for details

See Chapter 4 for details

2-2 Function setting 0 1 F a C



*Function Parameter code

F a C - 0 1	⇒ Digital Filter I
F a C - 0 2	⇒ Digital Filter II
F a C - 0 3	⇒ Lock keypad function
F a C - 0 4	⇒ “F” function setting
F a C - 0 5	⇒ “F1” function setting
F a C - 0 6	⇒ “F2” function setting
F a C - 0 7	⇒ Front panel indication “S1” setting status
F a C - 0 8	⇒ Front panel indication “S2” setting status
F a C - 0 9	⇒ Front panel indication “S3” setting status
F a C - 1 0	⇒ Front panel indication “S4” setting status
F a C - 1 1	⇒ Terms of back to zero
F a C - 1 2	⇒ Hold
F a C - 1 3	⇒ Display the rate of refreshment

To continue the next function setting

or press I/⏻ ESC to escape

G/N .	⇒ Increment flashing digit
F1 ,	⇒ Decrement flashing digit
F f	⇒ Move flashing point left.
F2 „	⇒ Move flashing point right
↵	⇒ Store data in memory
I/⏻ ESC	⇒ Exit / Escape

FNC Group function setting

Item	Function	Setting value				Default
		Parameter	Description			
FNC-01	Digital Filter I	0	5 Hz			4
		1	4.17 Hz			
		2	2.5 Hz			
		3	2.08 Hz			
		4	1.25 Hz			
		5	1.04 Hz			
		6	0.63 Hz			
		7	0.52 Hz			
		8	0.31 Hz			
		9	0.26 Hz			
FNC-02	Digital Filter II	0	Disabled			2
		1	Less filter ↕ Greater			
		2				
		3				
		4				
		5				
FNC-03	Key – Locked	000000 ↓ 111111	0	Normal **(lock disable)**	0 0 0 0 0 0 Tare G/N Zero F2 F1 F	000000
			1	Close **(lock enable)**		
FNC-04	“F” function setting	Parameter ⇒ Description 0 ⇒ Setpoint parameter setting 1 ⇒ Tare reset 2 ⇒ Manually output of serial, parallel print 3 ⇒ Start load 4 ⇒ Stop load 5 ⇒ Start comparison 6 ⇒ Unload command 7 ⇒ Totalise weight and counts command 8 ⇒ Clear totalised weight and counts 9 ⇒ Hold mode 10 ⇒ Escape Hold mode(I/O DSP) 11 ⇒ Convert to Gross / Net / totalised weight / totalised Count				0
FNC-05	“F1” function setting					1
FNC-06	“F2” function setting					2

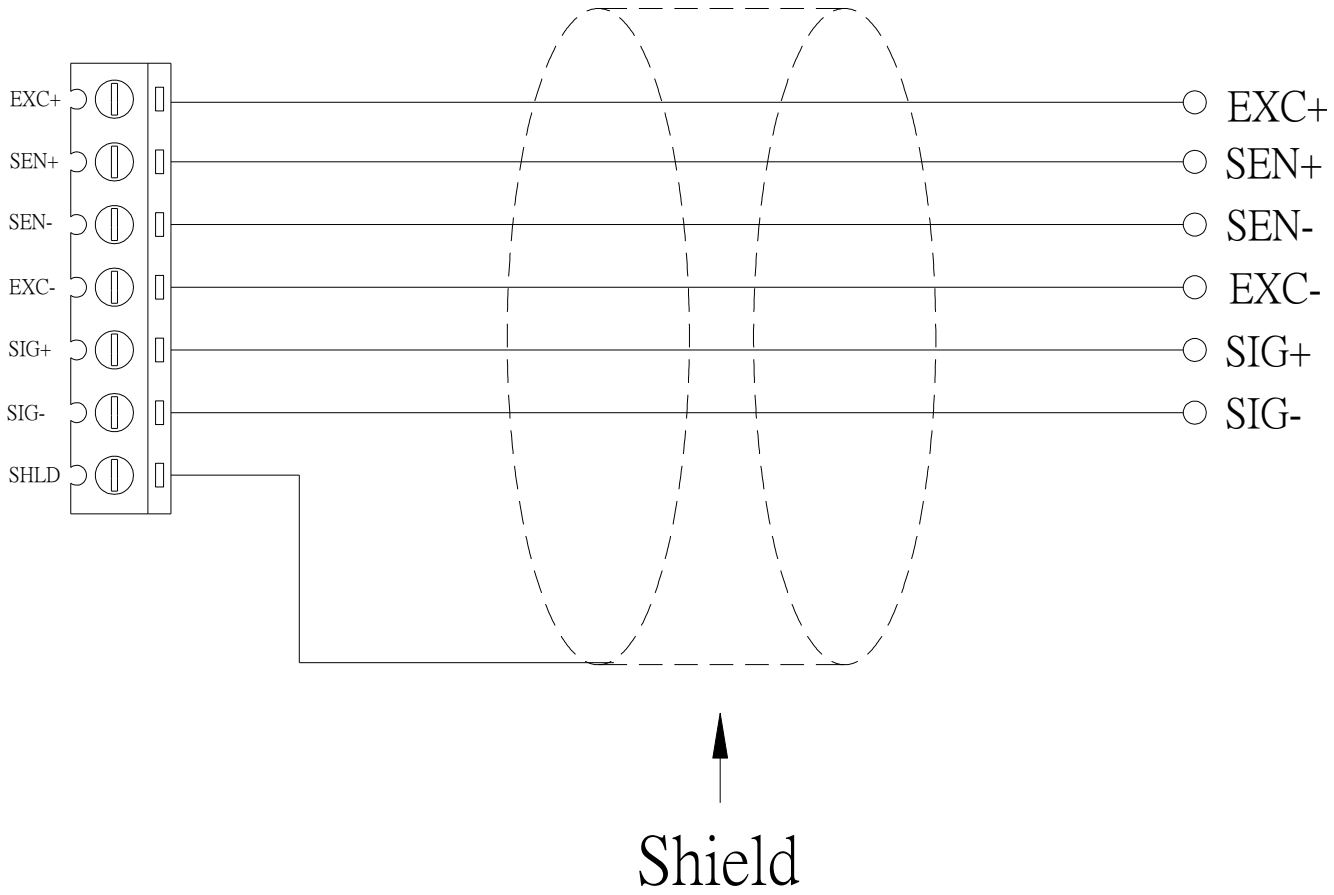
Item	Function	Setting value		Default
		Parameter	Description	
FNC-07	Front panel indication "S1" setting	Parameter ⇒ Description 0 ⇒ Accu. V 1 ⇒ Accu. C 2 ⇒ SP1 3 ⇒ SP2 4 ⇒ SP3 5 ⇒ Hi 6 ⇒ OK 7 ⇒ Lo 8 ⇒ Under 9 ⇒ Over 10 ⇒ Unloading 11 ⇒ Running 12 ⇒ Hold		0
FNC-08	Front panel indication "S2" setting			0
FNC-09	Front panel indication "S3" setting			0
FNC-10	Front panel indication "S4" setting			0
FNC-11	Return to zero band	0	5 d	0
		1	10 d	
		2	20 d	
		3	40 d	
		4	60 d	
		5	80 d	
		6	100 d	
		7	150 d	
		8	200 d	
		9	250 d	
FNC-12	Hold	0	Hold	0
		1	Peak hold (positive)	
		2	Peak hold (negative)	
		3	Peak hold (absolute value)	
FNC-13	Rate for display rewrite	0	No limitation	0
		1	20 times/sec	
		2	10 times/sec	
		3	5 times/sec	
		4	1 time/sec	

The indications of FNC-07~FNC-10 are necessarily operated with OPTION CARD.

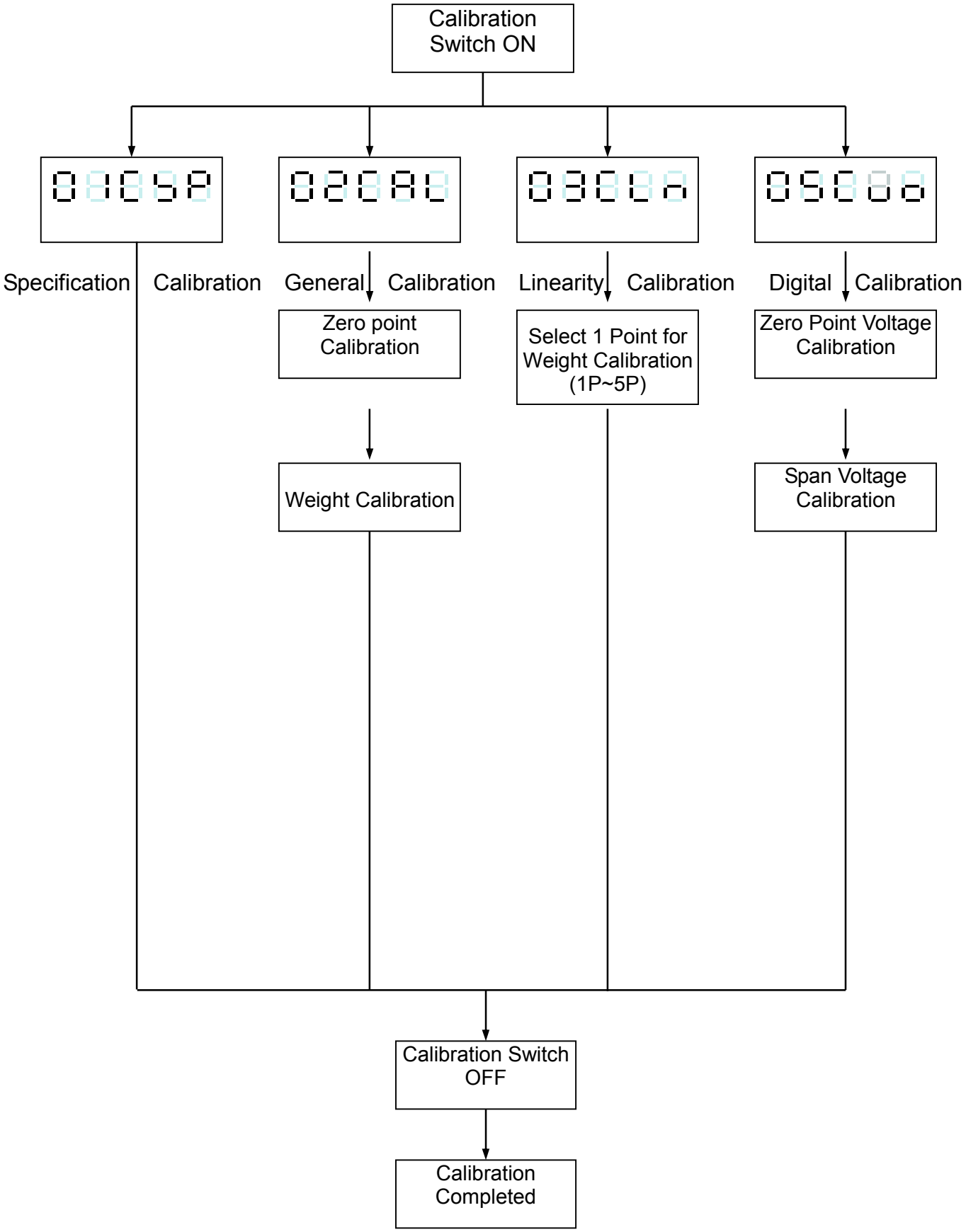
CHAPTER 3 CALIBRATION

3-1 Load cell connection

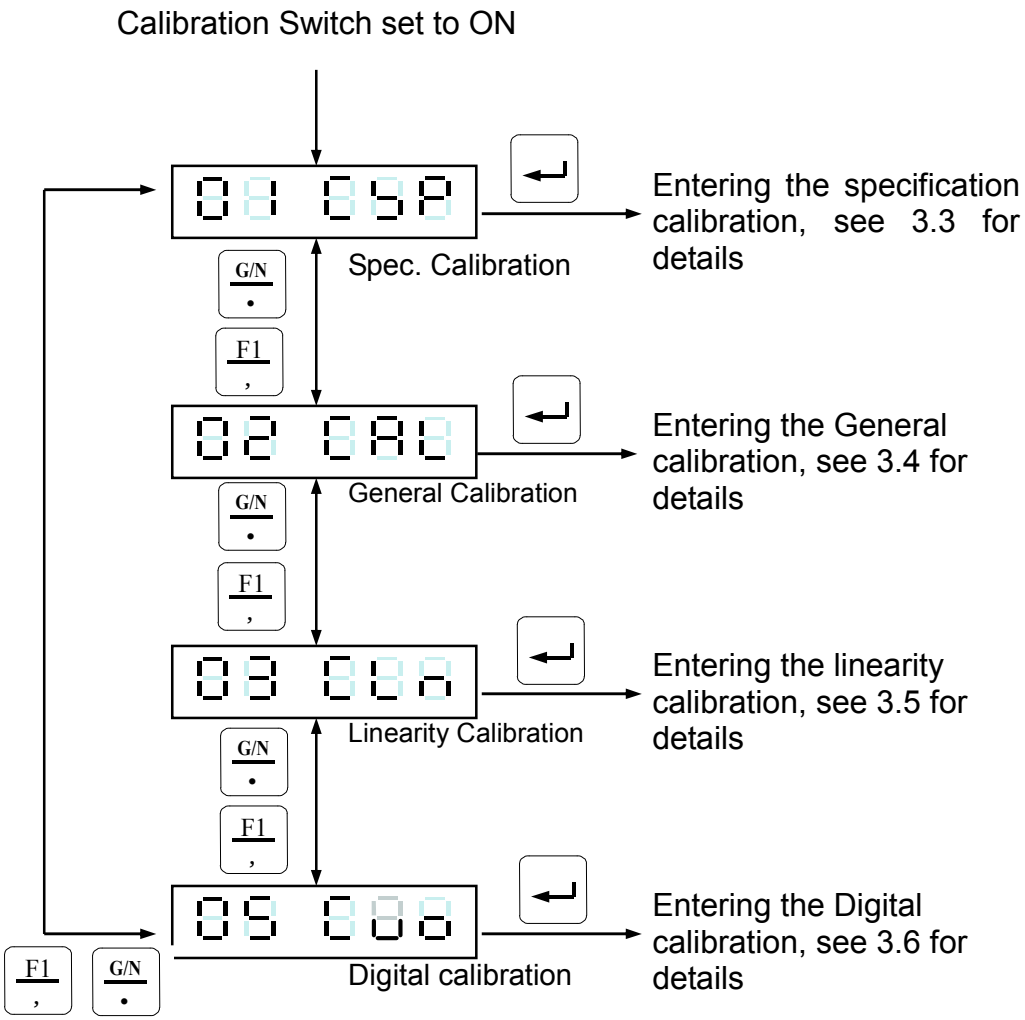
- When using a 6 wire cable to connect the load cell, the SEN+ and SEN- can be left unconnected (see below diagram)



3-2 Parameter setting and calibration flow chart

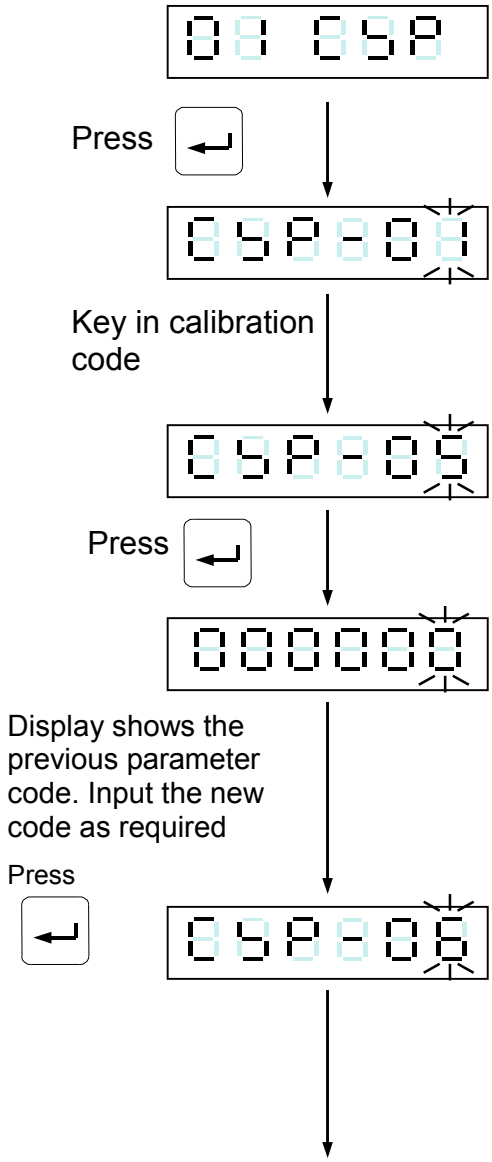


Calibration process



Before the Linearity Calibration, the General Calibration should be completed.

3-3 Specification calibration 01 CAL



*Calibration parameter code

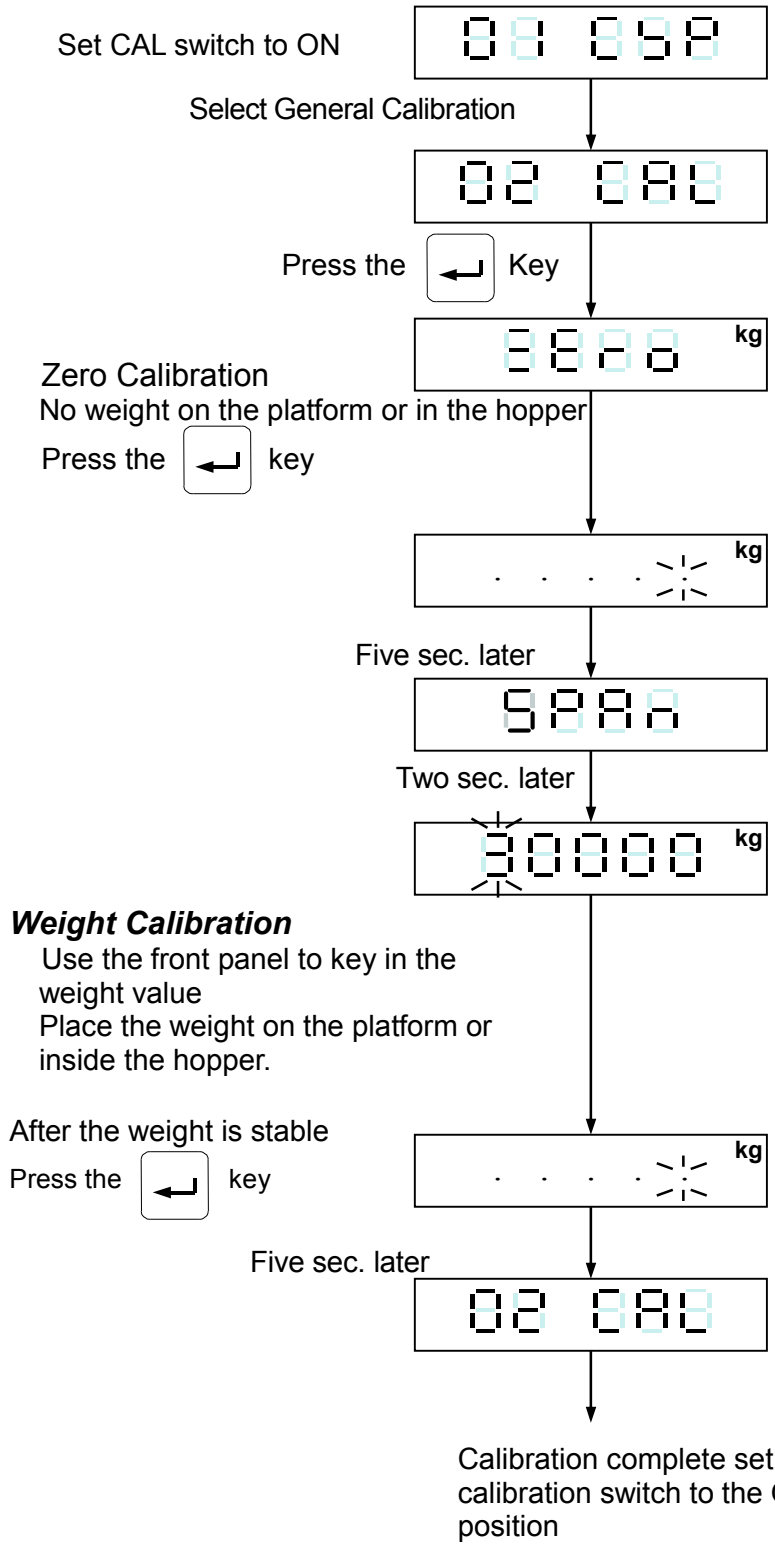
CAL-01	⇒ Unit
CAL-02	⇒ Decimal Point
CAL-03	⇒ Min. Division
CAL-04	⇒ Max. Capacity
CAL-05	⇒ Zero Range
CAL-06	⇒ Time of Zero tracking
CAL-07	⇒ Range of Zero tracking
CAL-08	⇒ Investigate period of unstable
CAL-09	⇒ Investigate range of unstable
CAL-10	⇒ Function Zero and Tare when the weight is unstable.
CAL-11	⇒ Tare function availability when gross weight is negative.

To continue the next function setting or press I/⏻ ESC to escape

G/N .	⇒ Increment flashing digit
F1 ,	⇒ Decrement flashing digit
F f	⇒ Move flashing point left.
F2 „	⇒ Move flashing point right
↵	⇒ Store data in memory
I/⏻ ESC	⇒ Exit / Escape

Item	Function	Setting value		Default
		Parameter	Description	
CSP-01	Unit	0	None	2
		1	g	
		2	Kg	
		3	t	
		4	lb	
CSP-02	Decimal Point	0	None	0
		1	1 Decimal Point	
		2	2 Decimal Point	
		3	3 Decimal Point	
CSP-03	Division	1	Division size	1
		2		
		5		
		10		
		20		
		50		
CSP-04	Max. Capacity	999999 ↓ 000000	Max. capacity	999999
CSP-05	Zero range	0 =full range (±1%~30%)	Zero range = calibration zero point ± (Max. capacity×setting value %)	0
CSP-06	Time of zero tracking	0.0 ~ 5.0 (sec)	Time and range of zero tracking should be use at the same time. If the time is set to 0.0, the zero tracking function is disabled.	1.0
CSP-07	Range of zero tracking	0 ~ 9	Range of zero tracking = (setting value×½)D , D=min. division Range and time of zero tracking should be use at the same time. If the range is set to 0, the zero tracking function is disabled.	2
CSP-08	Investigate time in stable	0.0 ~ 5.0 (sec)	Investigate time and range should be use at the same time. If the time is set to 0.0, the investigate time is disabled.	1.0
CSP-09	Investigate range in stable	0 ~ 9	Investigate time and range should be use at the same time. If the range is set to 0, the investigate range is disabled.	2
CSP-10	Weight unstable, function ZERO and TARE	0	Action	0
		1	None	
CSP-11	Gross Weight is negative, function TARE	0	Action	0
		1	None	

3-4 General Calibration CAL

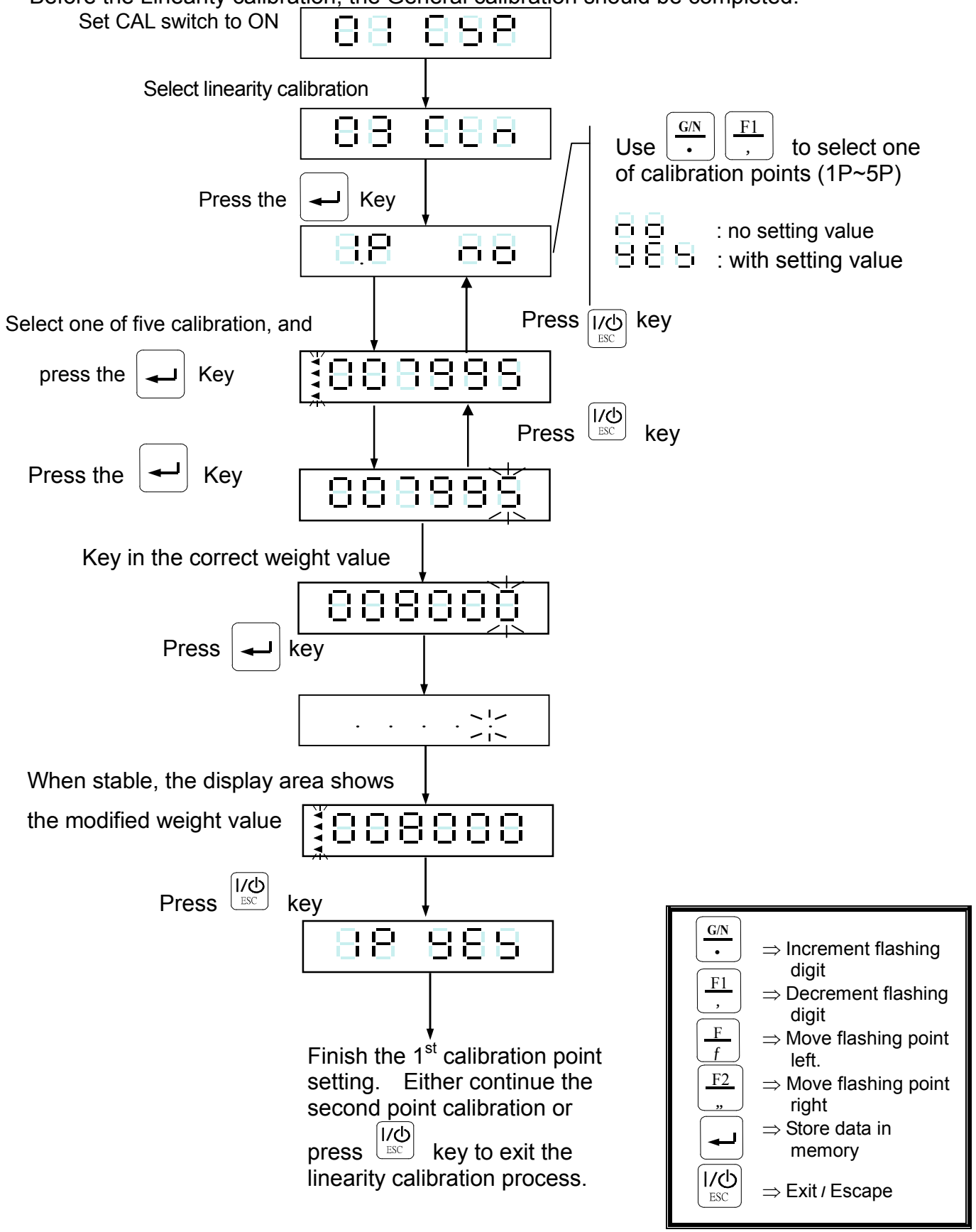


G/N .	⇒ Increment flashing digit
F1 ,	⇒ Decrement flashing digit
F f	⇒ Move flashing point left.
F2 „	⇒ Move flashing point right
↵	⇒ Store data in memory
I/⏻ ESC	⇒ Exit / Escape

- Zero calibration only, press I/⏻ ESC key to escape after the display shows SPAN.
- Span calibration only, press I/⏻ ESC key entering directly to span calibration after the display shows ZERO .
- Please refer to error message during calibration of the display show Err. **X**

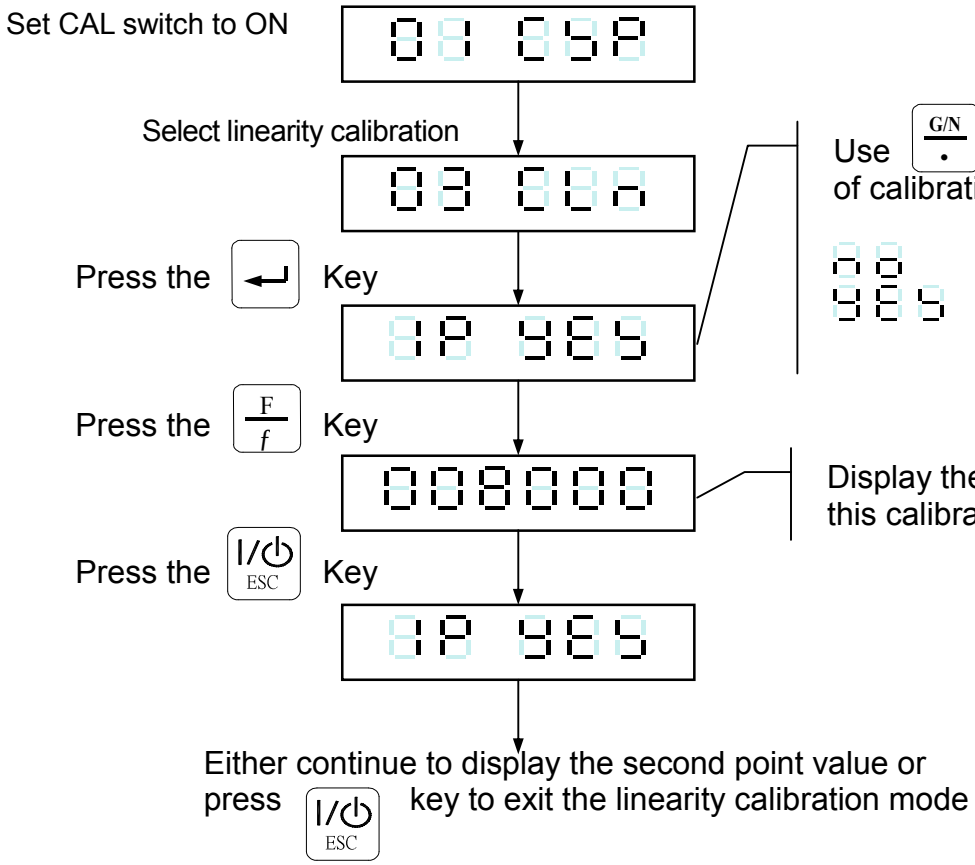
3-5 Linearity calibration

** Before the Linearity calibration, the General calibration should be completed.

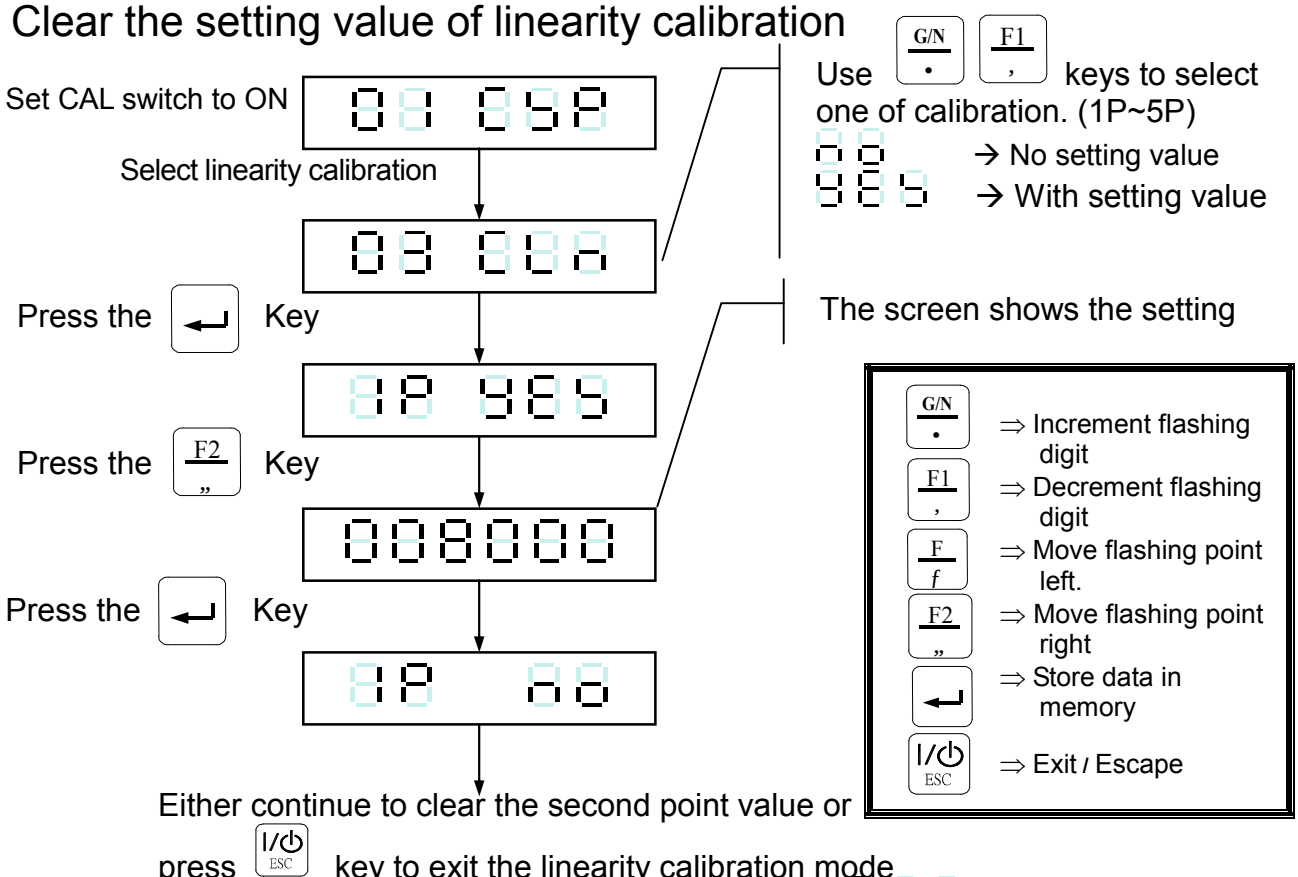


Please refer to the error message list if the display shows **Err.X**

Display the setting value of linearity calibration



Clear the setting value of linearity calibration



Please refer to the error message list if the display shows Err.X

3-6 Digital calibration

Set CAL switch to ON

Select Digital calibration

Press the ↵ Key

Zero voltage calibration.

Two sec. later

Method 1
Input zero voltage

Method 2
With no weight on the platform or in the hopper press the ↵ key to set zero.

Press the ↵ Key

Span voltage calibration

Two sec. later

Input the span voltage

Press the ↵ Key

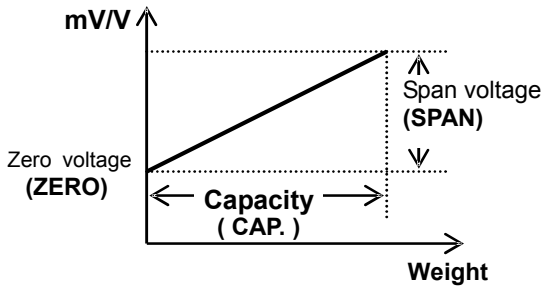
Two sec. later

Enter the weighing capacity

Press the ↵ Key

Calibration completed set calibration switch to the OFF position

Example:

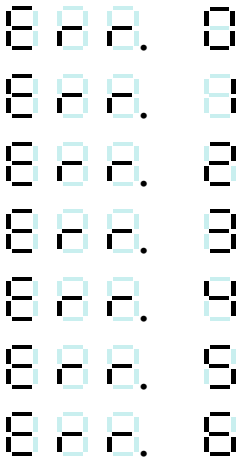


Zero Voltage ⇒ 0.00036 mV/V(incl. dead load)
Span Voltage ⇒ 2.90000 mV/V
Span Capacity ⇒ 30000

G/N •	⇒ Increment flashing digit
F1 ,	⇒ Decrement flashing digit
F f	⇒ Move flashing point left.
F2 „	⇒ Move flashing point right
↵	⇒ Store data in memory
I/⏻ ESC	⇒ Exit / Escape

Please refer to the error message list if the display shows Err.X

3-7 Calibration Error Messages



⇒ Load Cell output voltage < - 0.1mV/V or > 4mV/V

⇒ Weight value ≤ previous weight value

⇒ Actual measured weight value ≤ previous weight value

⇒ Setting value 0

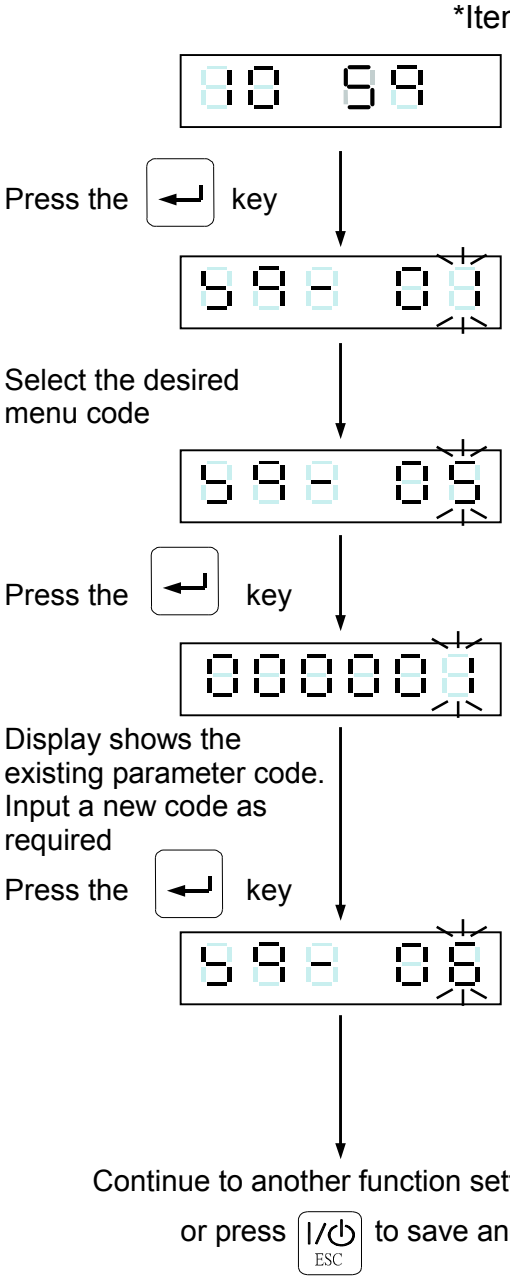
⇒ mV/V value entered > measuring range

⇒ mV/V value entered is too small (SPAN – Zero < 0 mV/V)

⇒ Displayed resolution is less than 0.12μV / division

CHAPTER 4 WEIGHT COMPARISON PROCEDURES

4-1 Function configuration menu



*Item code

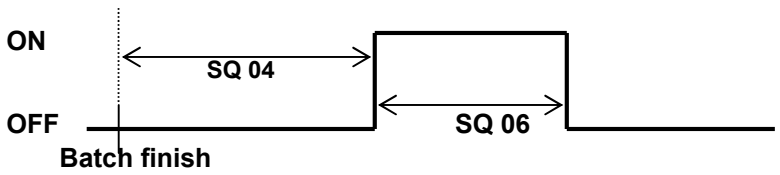
- 59- 01 ⇒ Batching mode
- 59- 02 ⇒ Batching start delay time
- 59- 03 ⇒ Compare SP1 & SP" waiting time
- 59- 04 ⇒ Batch finish output signal delay time
- 59- 05 ⇒ Batch finish condition
- 59- 06 ⇒ Batch finish output signal duration
- 59- 07 ⇒ Supplementary load times
- 59- 08 ⇒ Supplementary loading gate open time
- 59- 09 ⇒ Supplementary loading gate closed time
- 59- 10 ⇒ Discharge start delay time
- 59- 11 ⇒ Discharge stop delay time
- 59- 12 ⇒ Discharge time
- 59- 13 ⇒ Restart delay time
- 59- 14 ⇒ Batching times
- 59- 15 ⇒ Weight completed value in Zero band
- 59- 16 ⇒ Hi, OK, Lo action mode
- 59- 17 ⇒ Auto totalise weight / counts
- 59- 18 ⇒ The parameter source for weight comparison
- 59- 19 ⇒ Weight comparison delay time
- 59- 20 ⇒ Tare auto
- 59- 21 ⇒ Discharge auto

G/N •	⇒ Increment flashing digit
F1 ,	⇒ Decrement flashing digit
F f	⇒ Move flashing point left.
F2 „	⇒ Move flashing point right
↵	⇒ Store data in memory
I/⏻ ESC	⇒ Exit / Escape

Functional Parameter Instruction

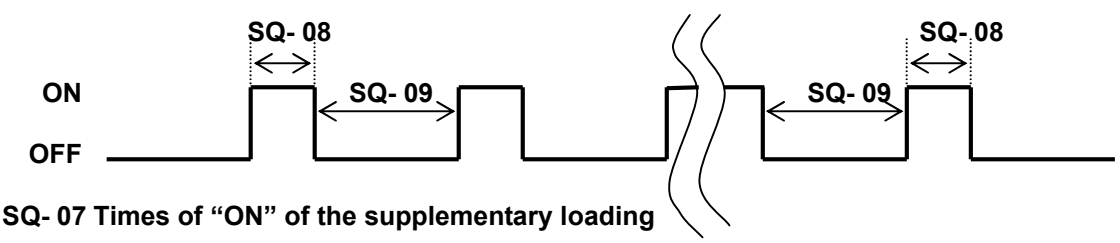
Item	Function	Setting value		Default
		Parameter	Description	
SQ- 01	Batching mode	1	Normal batch	1
		2	Loss-in weight	
		3	Comparison mode	
		4	Normal batch (Built-in program)	
		5	Loss-in weight (Built-in program)	
		6	Hold mode (Built-in program)	
SQ- 02	Batching start delay time	0.0 ~ 25.5 (sec)	The built-in auto-program starts the batch comparison procedure after the input of the batch start signal.	0.0
SQ- 03	SP1,SP2 Waiting time comparison	0.0 ~ 25.5 (sec)	No full flow comparison during this function's set time period. If the set value is 0, indicates this function is not in use.	0.0
SQ- 04	Batch finish output signal delay time	0.0 ~ 25.5 (sec)	Output the batch finished signal after this delay time.	0.5
SQ- 05	Batch finish Condition	0	Wait until the weight is stabilized	0
		1	No need to wait until the weight has stabilized	
SQ- 06	Batch finish Output signal time	0.0 ~ 25.5 (sec)	Batch finished output signal time. If set to 0, the output signal will be off until the next batch start.	1.0

Batch finish signal

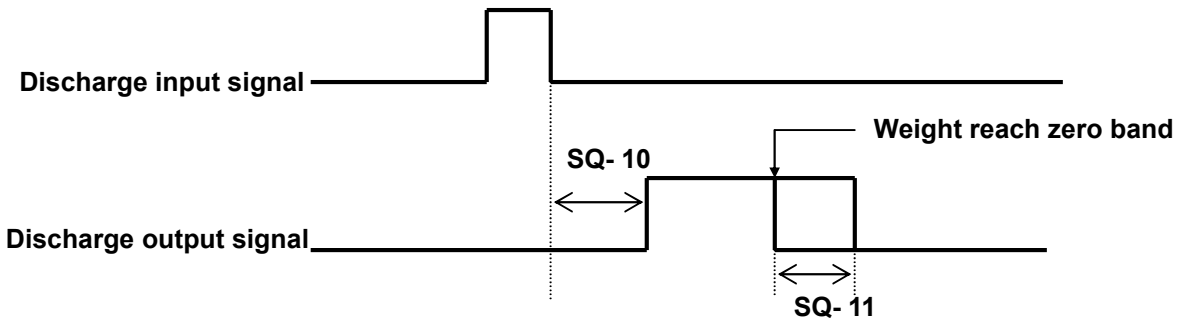


SQ- 07	Number of Times the supplementary loading function operates	0 ~ 255	If the set value is 0, this function is not in use.	0
SQ- 08	Supplementary loading gate open time	0.0 ~ 25.5 (sec)	Must be coordinate with times of supplementary loading, (SQ- 07)	0.1
SQ- 09	Supplementary loading gate close time	0.0 ~ 25.5 (sec)	Must be coordinate with times of supplementary loading, (SQ- 07)	1.0

Supplementary loading signal

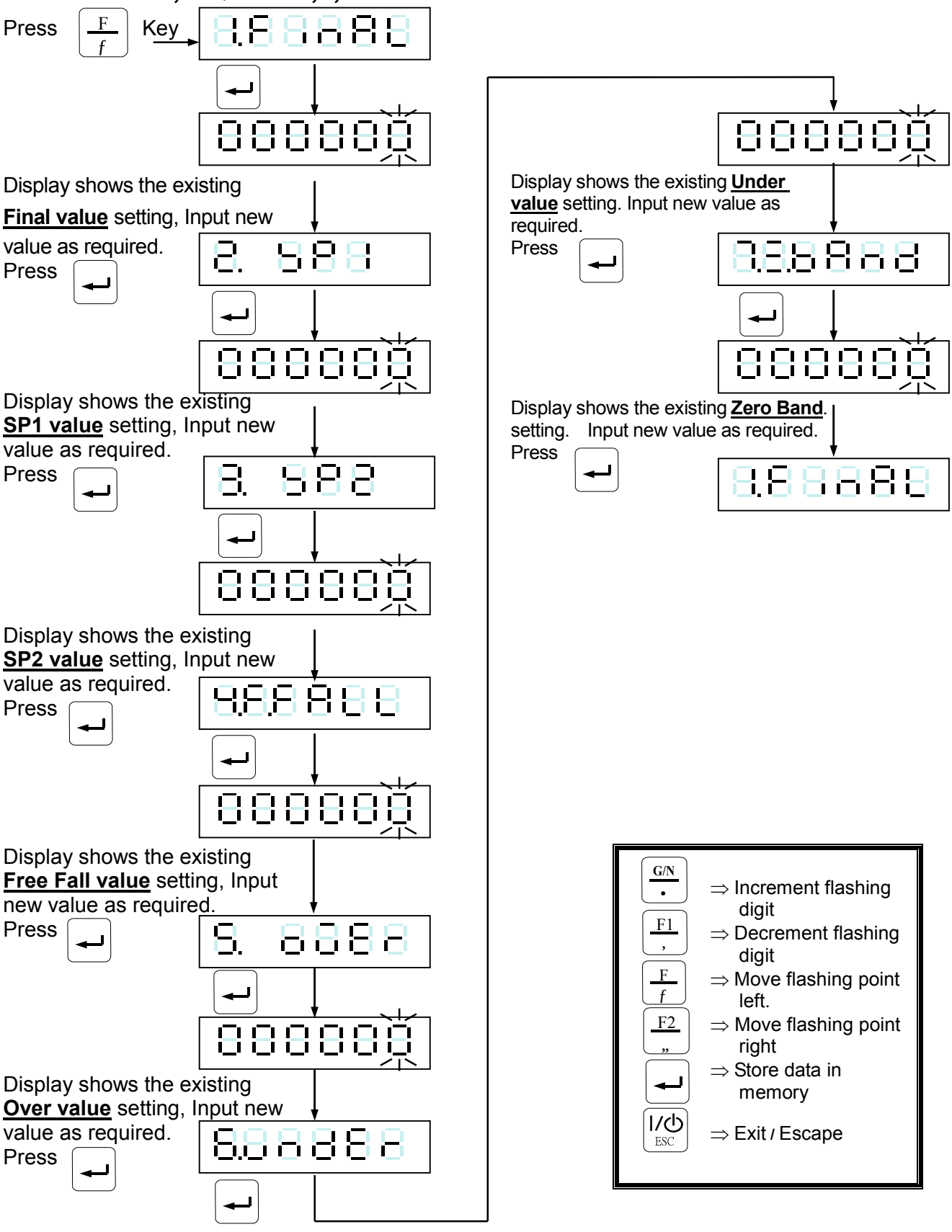


SQ- 07 Times of "ON" of the supplementary loading

Item	Function	Setting value		Default
		Parameter	Description	
SQ- 10	Discharge start delay time	0.0 ~ 25.5 (sec)	Delay time before Discharge signal is ON.	0.0
SQ- 11	Discharge stop delay time	0.0 ~ 25.5 (sec)	Delay time before Discharge signal is OFF.	0.0
SQ- 12	Discharge time	0.0 ~ 25.5 (sec)	Won't activate internal discharge control function, if set to 0.	0
				
SQ- 13	Restart delay time	0.0 ~ 25.5 (sec)	Delay time before Restart signal is ON.	1.0
SQ- 14	Batching counts	0 ~ 255 (times)	Number of batch runs 0 ⇒ one batch only	0
SQ- 15	Set the zero band in to final weighing value	0	No setting	0
		1	Setting	
SQ- 16	Hi, OK, Lo	0	Comparison anytime	0
		1	To compare at batch finish	
		2	To compare at external input signal	
		3	To compare at batching finish and external input signal.	
		4	Comparison auto	
SQ- 17	Auto totalise weight / counts	0	Disabled	0
		1	Enabled	
SQ- 18	The parameter source in weight comparison	0	Key in directly from front keypad	0
		1	Input directly from rear interface	
SQ- 19	Weight comparison delay time	0.0 ~ 25.5 (sec)	Comparison delay time for Hi, OK, Lo	0.5
SQ- 20	TARE auto.	0	Press keypad TARE to TARE	0
		1	TARE auto	
SQ- 21	Discharge auto	0	Input from external input or keypad	0
		1	Discharge auto + manual	

4-2 Check weighing configuration

1. FNC-04 = 1, SQ-01 = 1,2,4 or 5

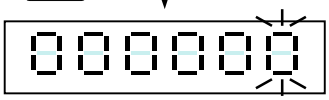


2. FNC-04 = 1, SQ-01 = 3

Press the F/f Key →



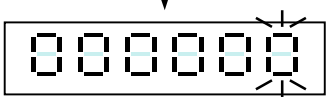




Display shows the existing **Hi value** setting,
Input new value as required.
Press



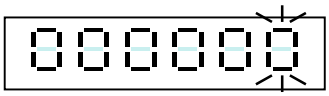




Display shows the existing **Lo value** setting,
Input new value as required.
Press







Display shows the existing **Zero Band** setting. Input new value as required.
Press



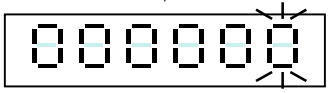
G/N .	⇒ Increment flashing digit
F1 ,	⇒ Decrement flashing digit
F f	⇒ Move flashing point left.
F2 „	⇒ Move flashing point right
↵	⇒ Store data in memory
I/⏻ ESC	⇒ Exit / Escape

3. FNC-04 = 1, SQ-01 = 6

Press the F/f Key →





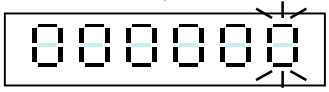


Display shows the existing **Hi value** setting,
Input new value as required.
Press







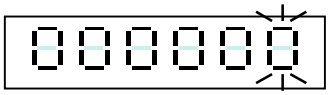


Display shows the existing **Lo value** setting,
Input new value as required.
Press



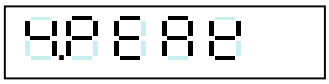




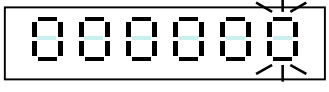


Display shows the existing **Zero Band** setting, Input new value as required.
Press









Display show the existing **Peak Ready value** setting. Input new value as required
Press





G/N •	⇒ Increment flashing digit
F1 ,	⇒ Decrement flashing digit
F f	⇒ Move flashing point left.
F2 „	⇒ Move flashing point right
↵	⇒ Store data in memory
I/⏻ ESC	⇒ Exit / Escape

4-3 Batching signal outputs

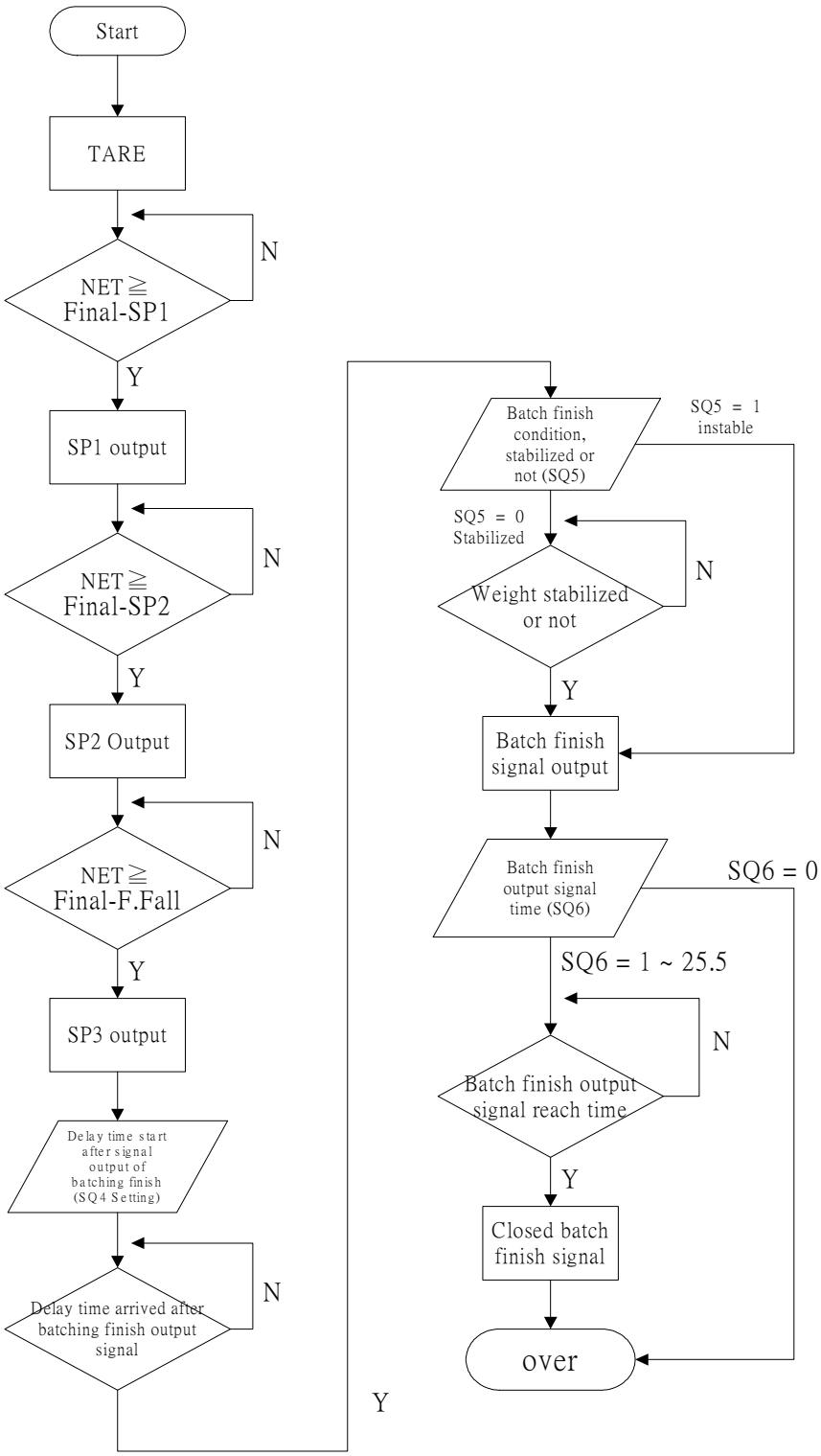
Normal batching signal outputs

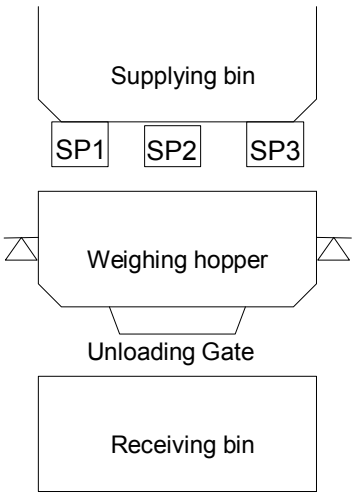
Signal	Output condition
SP1	Net ≥ Final - SP1
SP2	Net ≥ Final - SP2
SP3	Net ≥ Final – Free Fall (in-flight)
Under	Net < Final – Under
Over	Net > Final + Over
Zero Band	Gross ≤ Zero Band

Loss-in-weight signal outputs

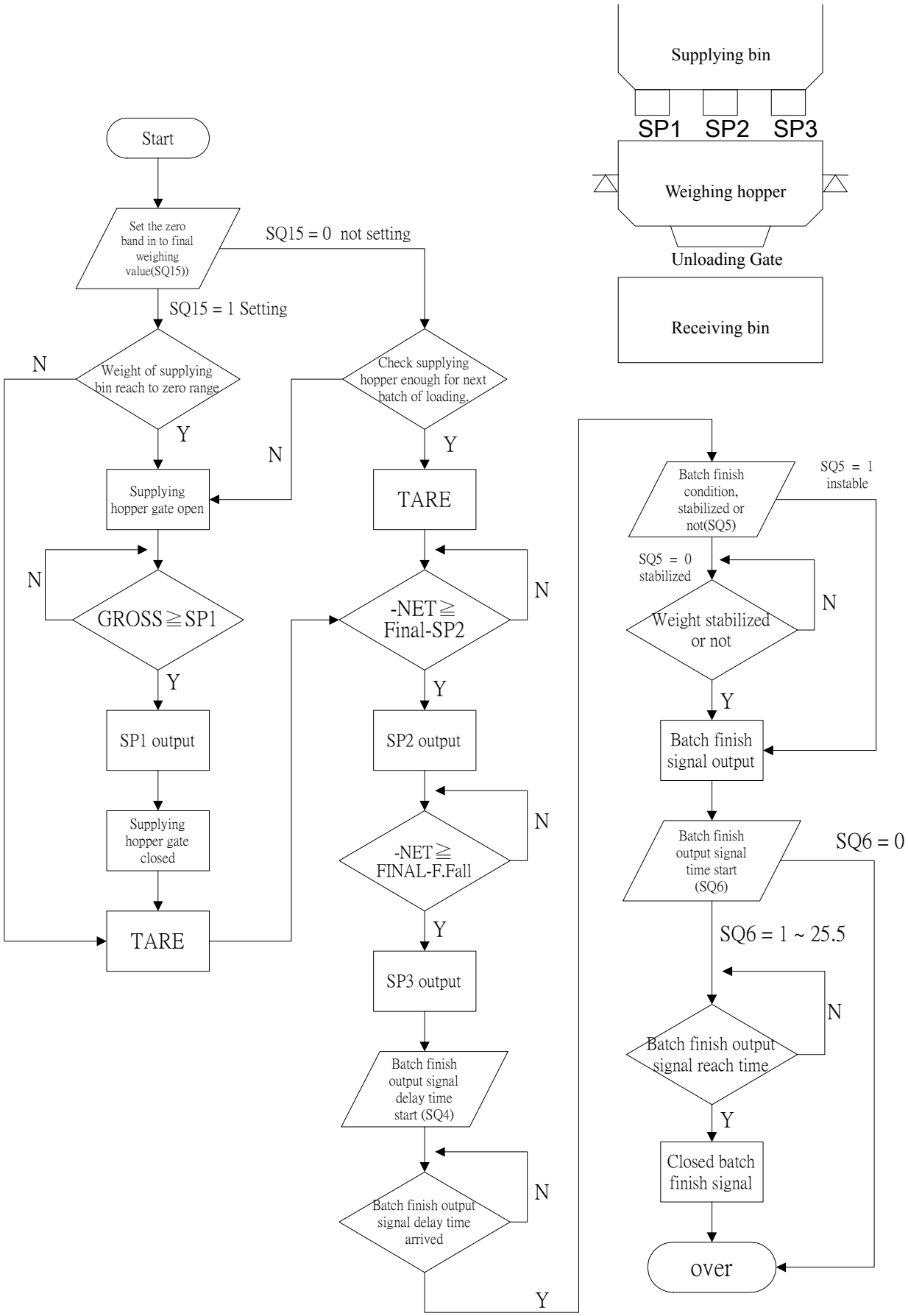
Signal	Output condition
SP1	Gross ≥ SP1
SP2	- Net ≥ Final – SP2
SP3	- Net ≥ Final – Free Fall (in-flight)
Under	- Net < Final – Under
Over	- Net > Final + Over
Zero Band	Gross ≤ Zero Band

4-4 Normal batching flow chart (SQ-01=1)

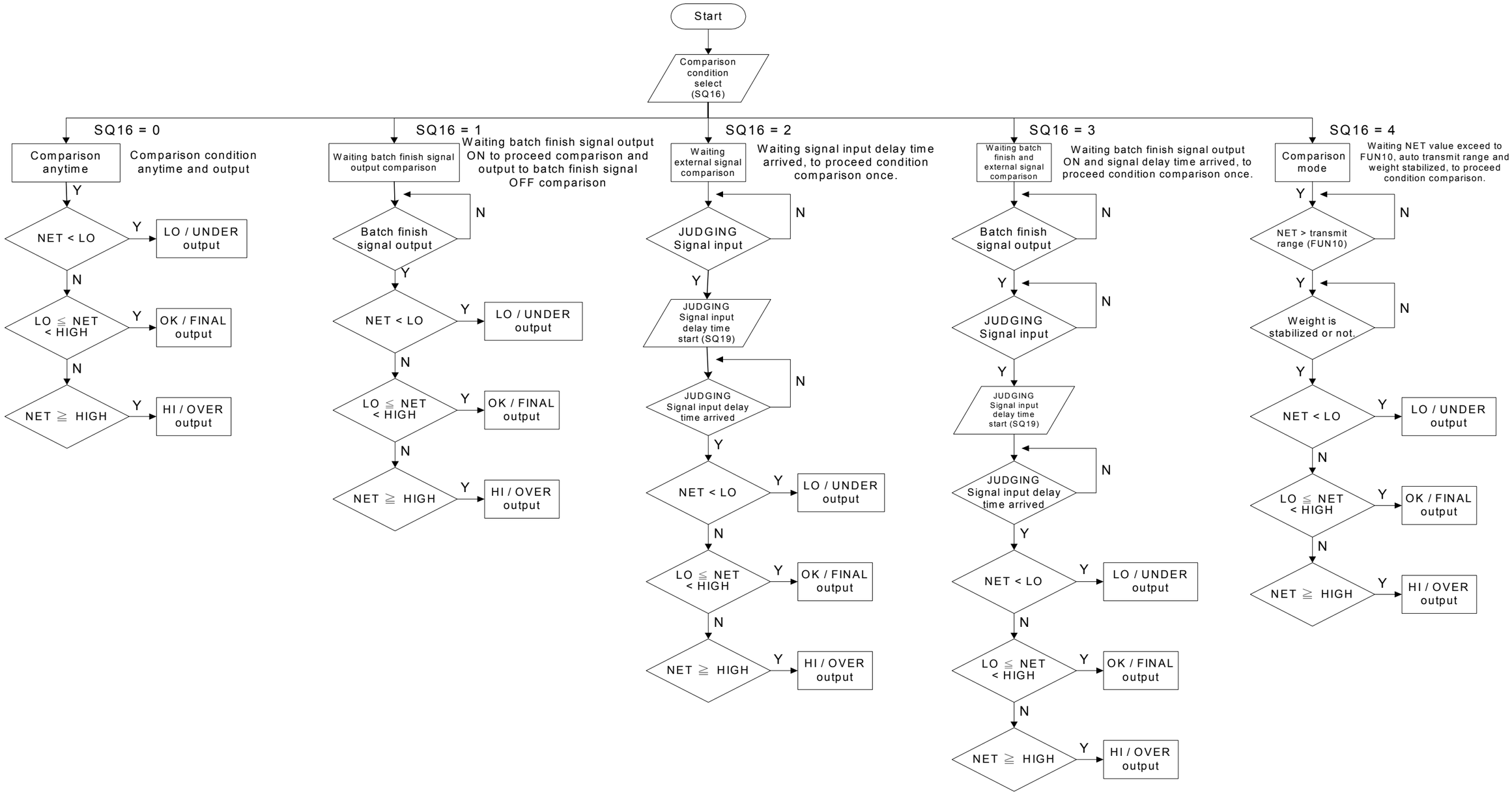




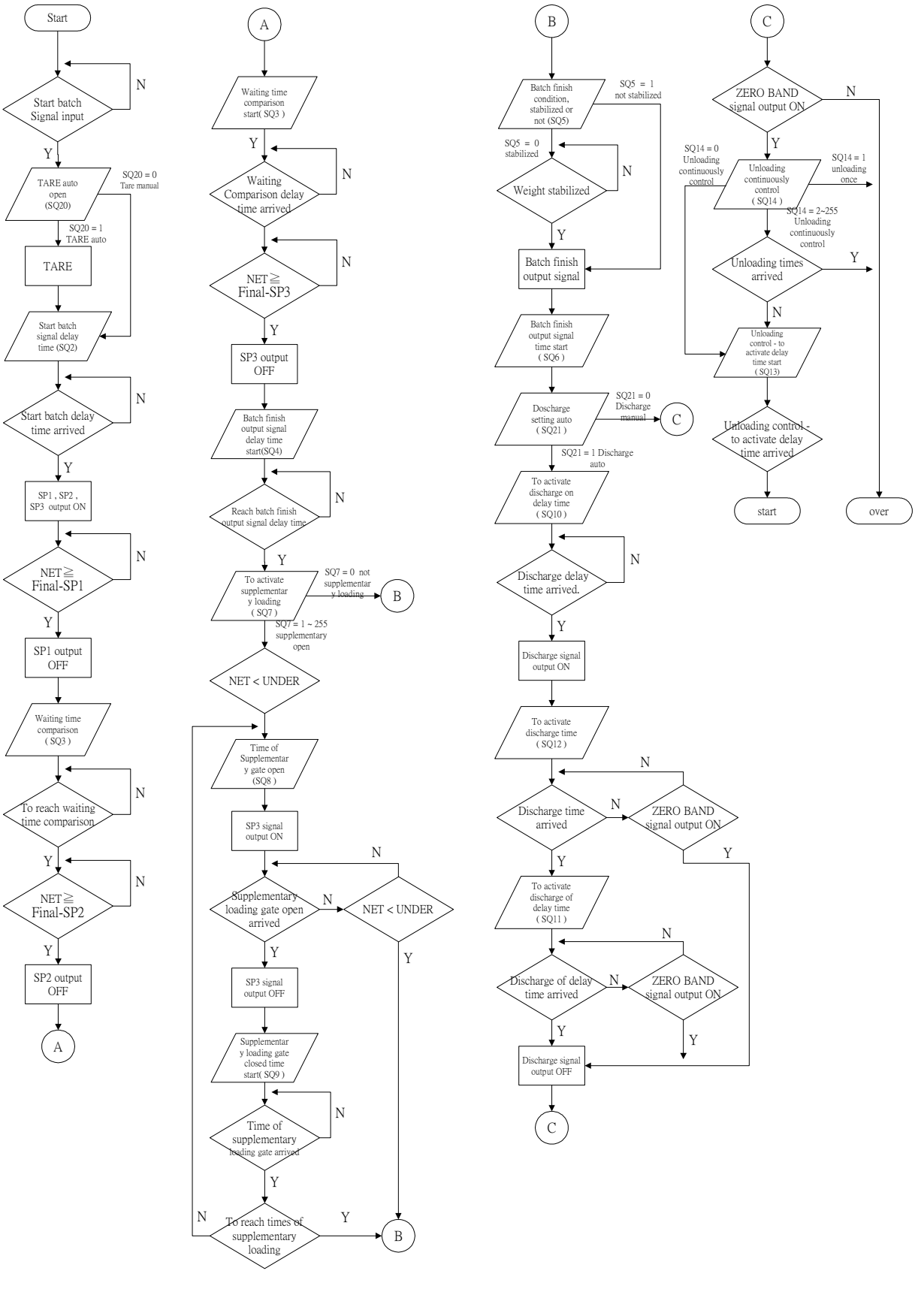
4-5 Loss-in Weight flow chart (SQ-01 = 2)



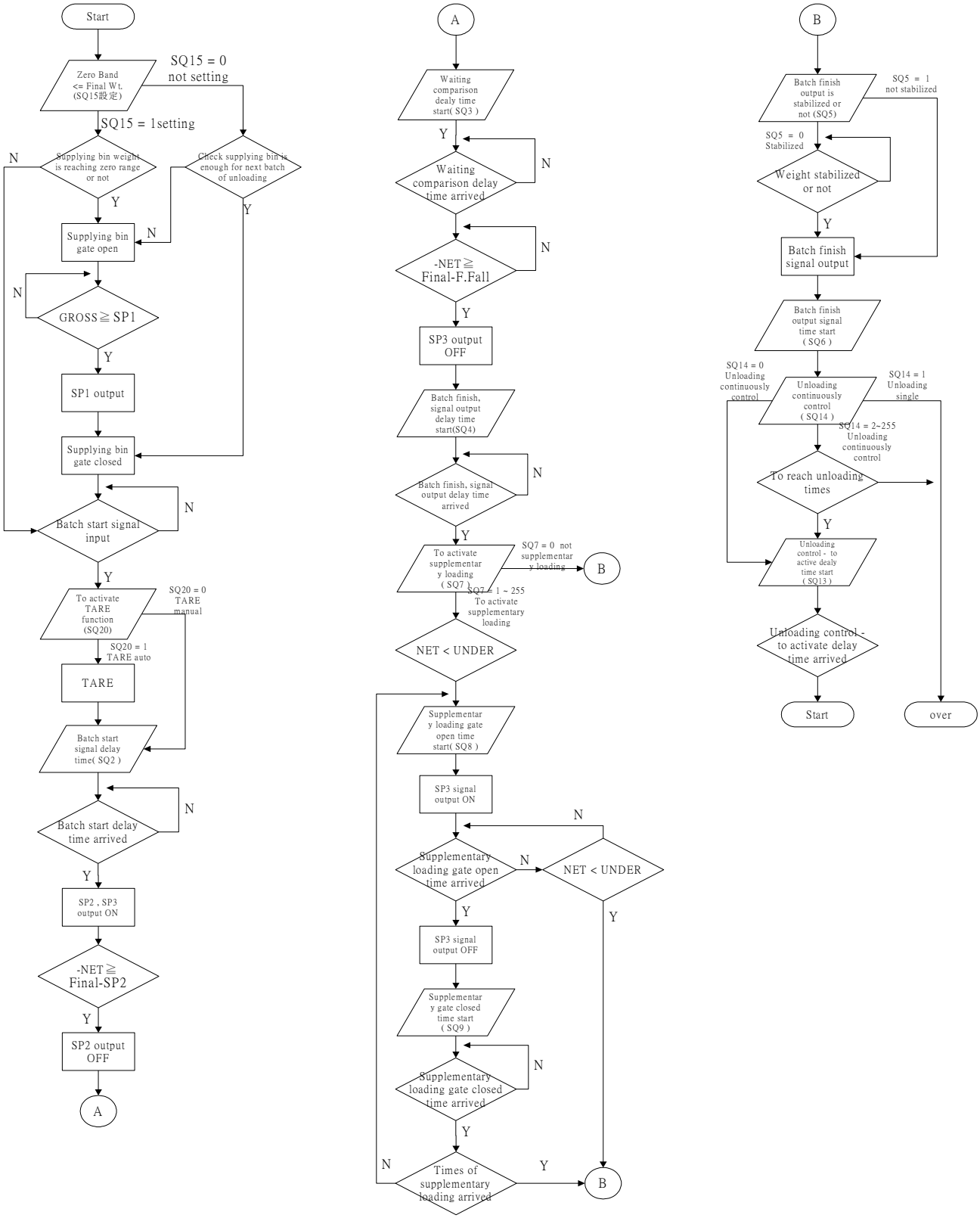
4-6 Hi, OK, Lo output flow chart



4-7 Normal batching (built-in program) flow chart (SQ-01=4)

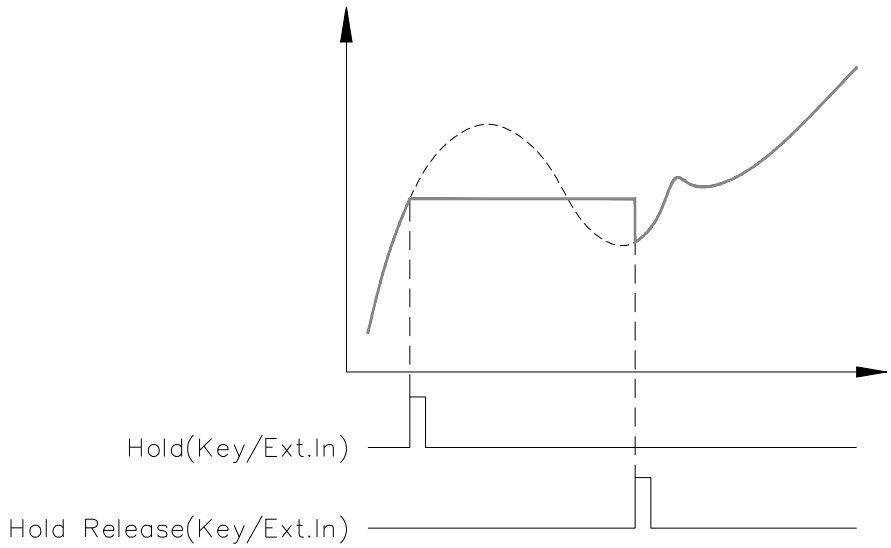


4-8 Loss-in Weight (built in program) (SQ-01=5)

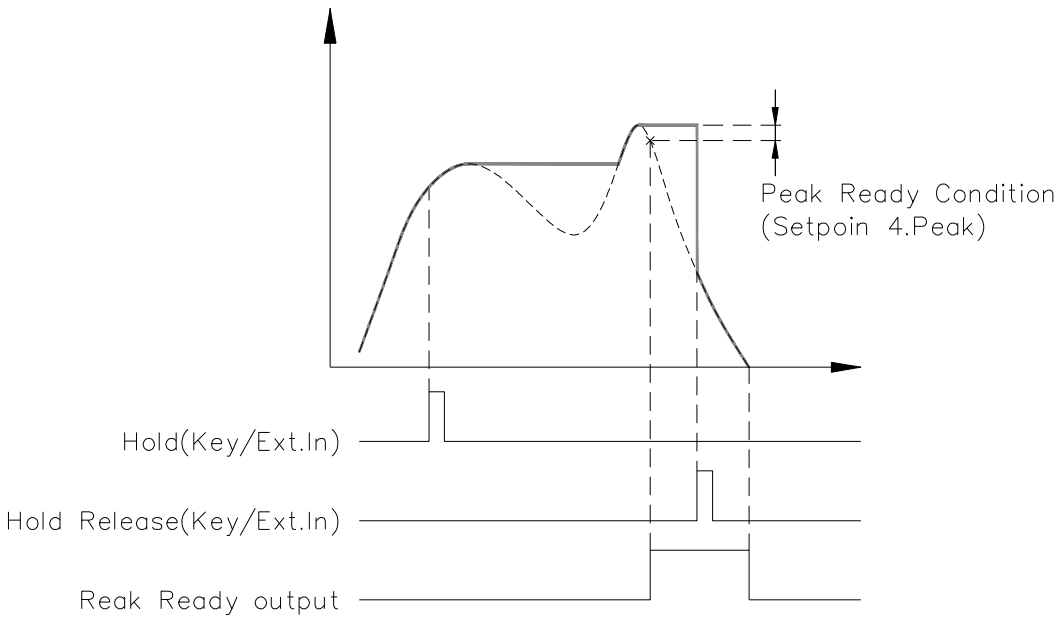


4-9 Hold mode (SQ-01 = 6)

1. General hold mode (FNC-12 = 0)

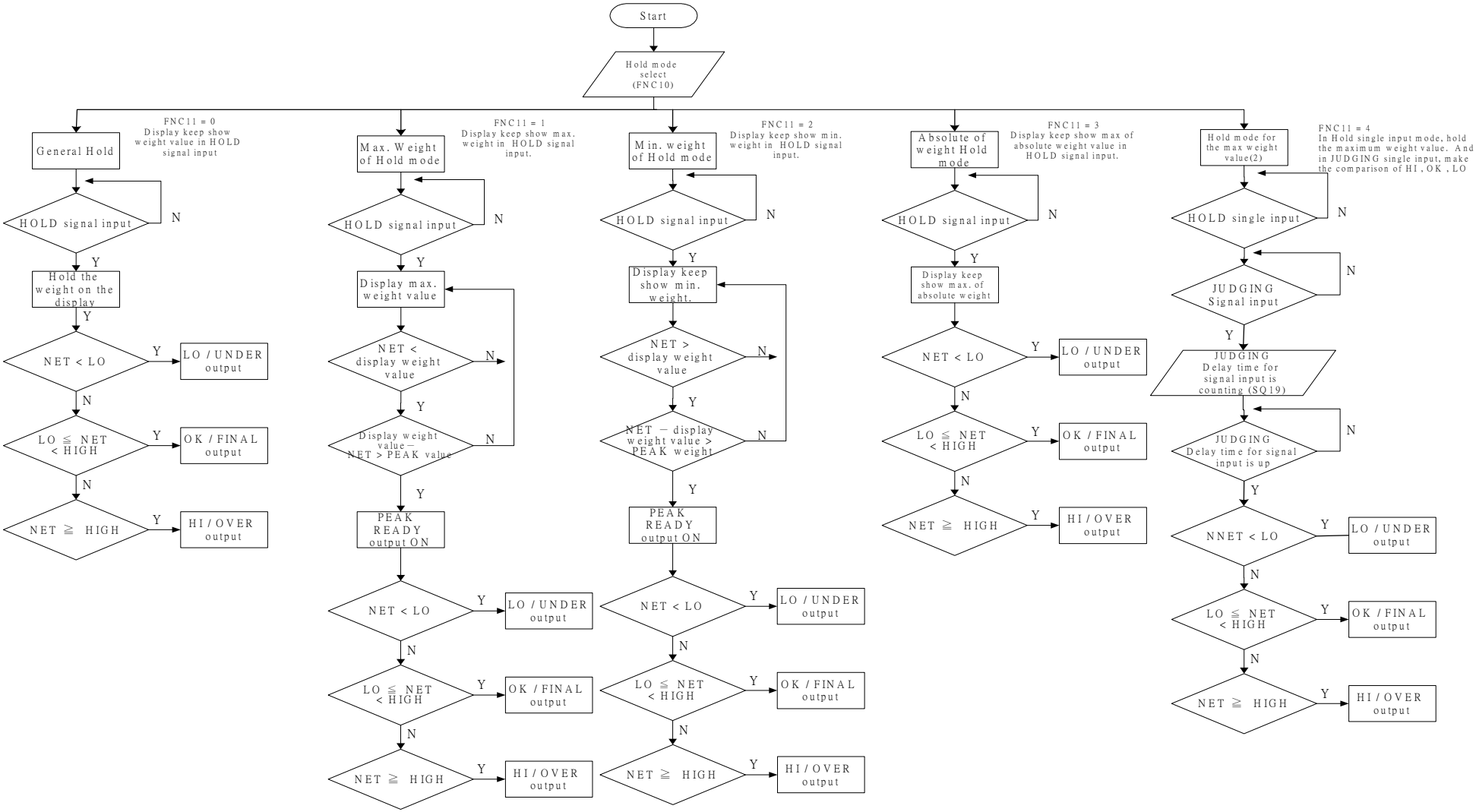


2. Peak hold mode (FNC-12 = 1, 2)



Peak hold mode with four different states (FNC-12 = 1,2,3,4), positive peak weight(1), negative peak weight, absolute value of peak weight(3) and positive peak weight(2) . The peak holds of absolute value and positive peak weight (2) both have no peak ready signal output.

4-9-1 Hold mode flow chart



4-9-2 Hi, OK, Lo comparison

1. Normal HOLD (FNC-12 = 0)
Entering the Hold mode, Hi, OK, Lo comparison output. Escape Hold mode will switch off the outputs.

2. Peak HOLD (FNC-12 = 1, 2)
If Peak Ready is ON, Hi, OK, Lo comparison output. Escape Hold mode will switch off the outputs.

3. The absolute value of peak HOLD (FNC-12 = 3)
Entering the Hold mode, Hi, OK, Lo will refer to Peak value to do the comparison.

4. FNC-12 = 4
When the external input single Judgement is ON, Hi, OK, Lo will refer to Peak value to do the comparison.

4-10 Totalizing (ACCU.) Auto / Transmit

With automatic totalising active (SQ-17) or RS232 / RS485 or BCD output set to auto transmit.

1. SQ-01 = 1, 2, 4 or 5 batch / loss-in weight

a) When the weight reaches the Final weight and the batch finish signal is ON the net weight will be added to the totaliser and number of additions is incremented. The RS232 / RS485 and BCD outputs transmit data.
b) When the net weight returns to the zero range (FNC-10), then the sequence in a) above can be repeated.

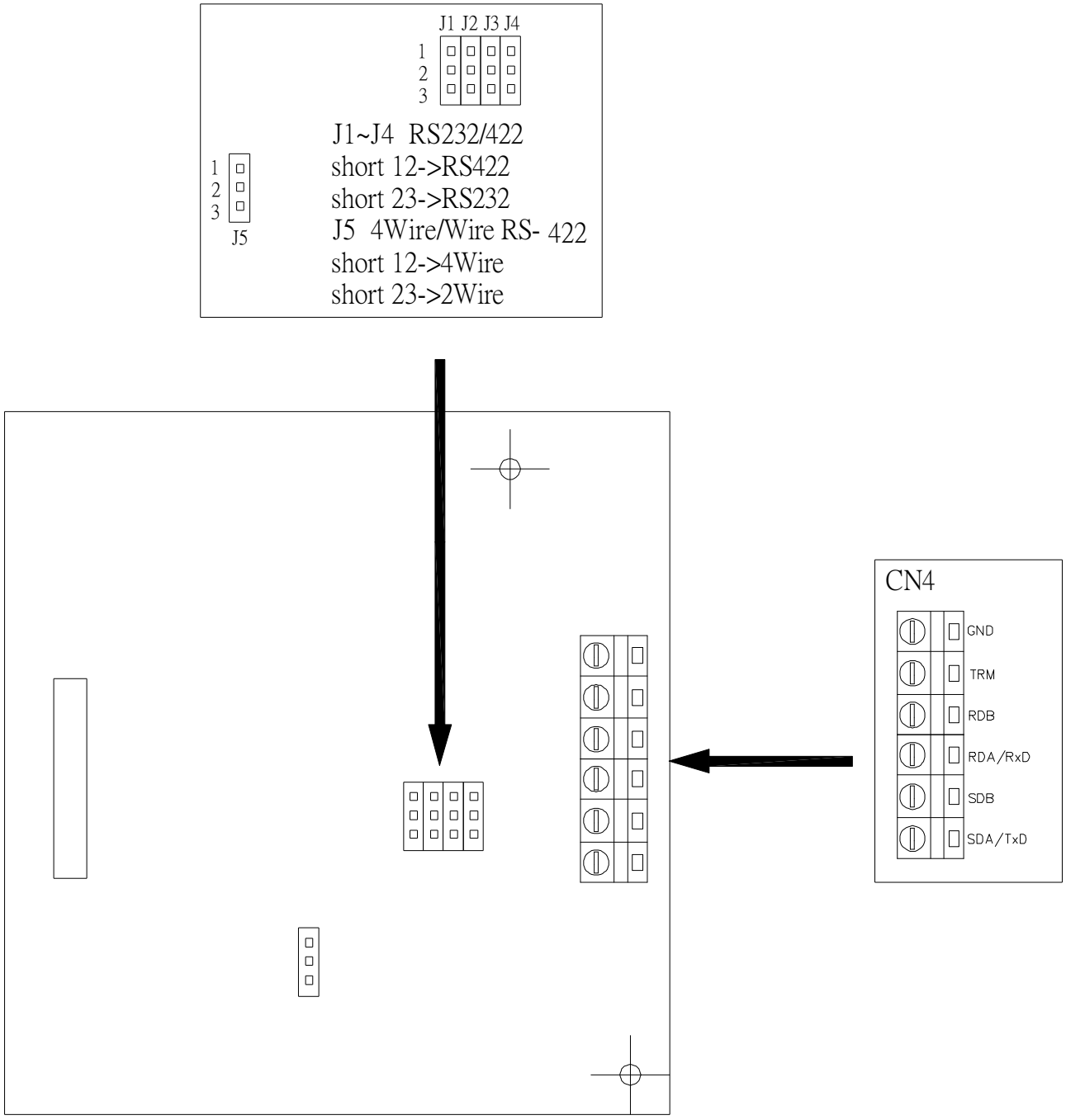
2. SQ-01 = 3 Comparison mode

a) When the net weight exceeds the zero range and the weight has stabilized it will be added to the totaliser and number of additions is incremented. The RS232 / RS485 and BCD outputs transmit data.

CHAPTER 5 INTERFACE

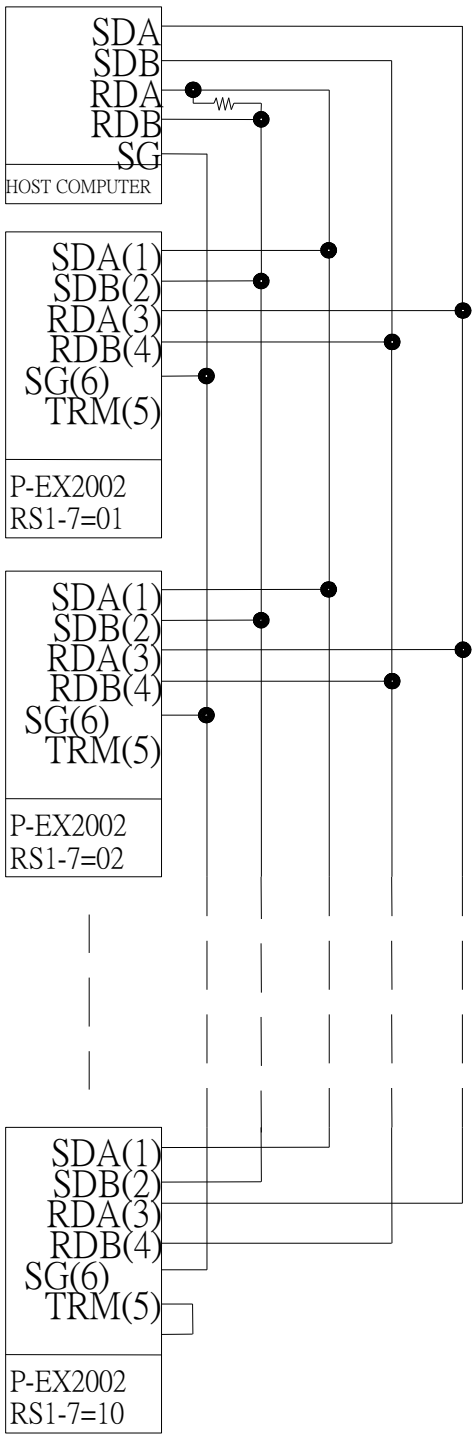
5-1 Serial input/output interface (OP-01)

Pin location and setting

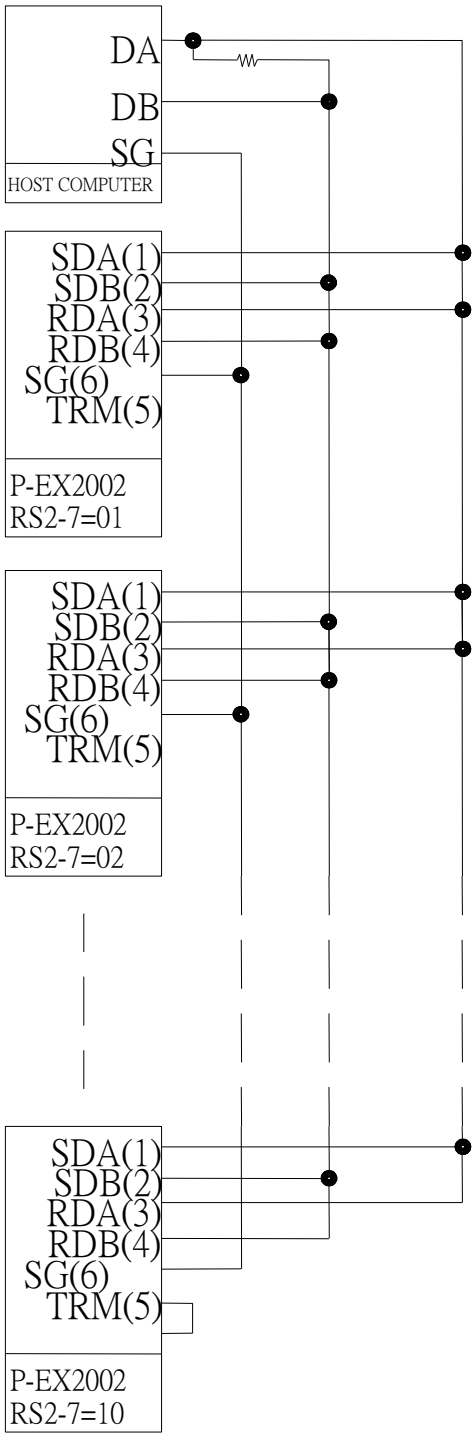


Connection type

RS-422



RS-485

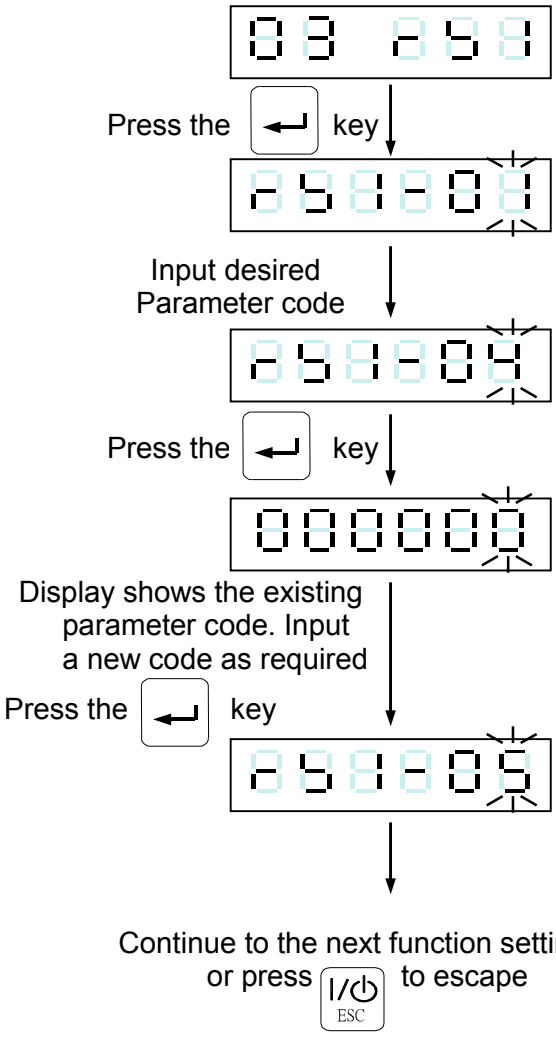


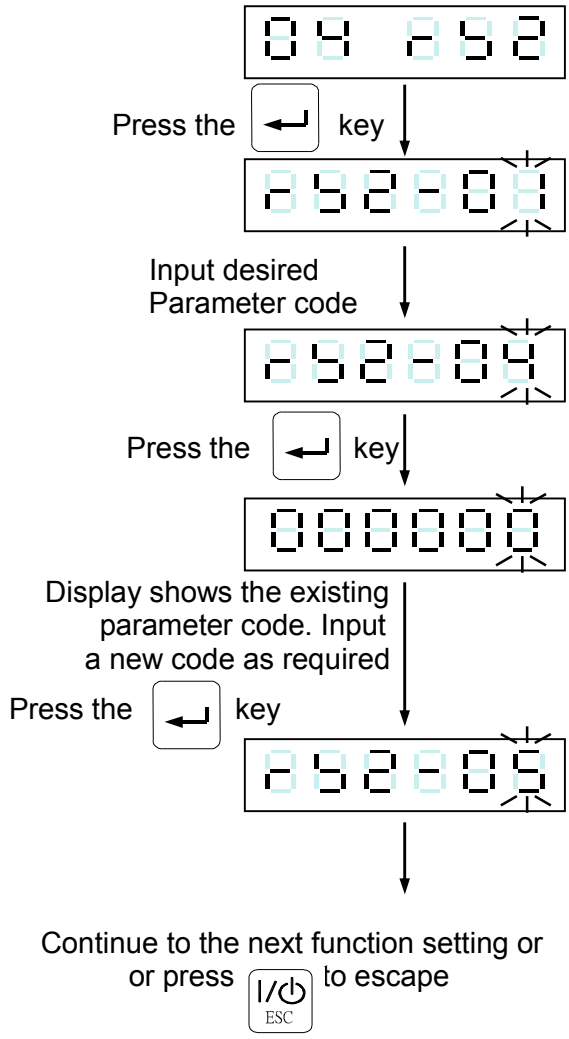
Notice:

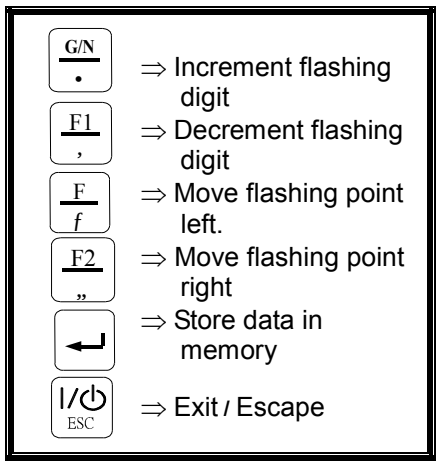
- The maximum connection is 10 sets of P-EX2002
- When the Host computer has the built-in terminal resist, it is not necessary to have the external one.
- On the last set of P-EX2002, the TRM & RDB can be connected depends on the situation.
- When the host computer has no single (SG), it is acceptable to disconnect that part

Function setting

First serial port interface 03 rb1
Setting procedure







Item	Function	Setting value			Default
		Para-meter	Description		
RS1- 01 RS2- 01	Transmit format	0	As display		0
		1	Gross only		
		2	Net only		
		3	As display (simple)		
		4	Gross (simple)		
		5	Net (simple)		
		6	Comparison + As display (simple)		
		7	Comparison +Gross (simple)		
		8	Comparison +Net (simple)		
		9	Tare		
		10	Totalised (Accu.) Weight and number of transactions		
RS1- 02 RS2- 02	Transmit mode	0	Transmit continuous + command mode		0
		1	Auto transmit + command mode		
		2	Manual transmit + command mode		
		3	Command mode		
RS1- 03 RS2- 03	Transmit speed	0	600		2
		1	1200		
		2	2400		
		3	4800		
		4	9600		
		5	19200		
RS1- 04 RS2- 04	Parity Bit length Stop Bit	0	N, 8, 1	No parity, 8 data bits, 1 Stop bit	2
		1	O, 7, 1	Odd parity, 7 data bits, 1 Stop bit	
		2	E, 7, 1	Even parity, 7 data bits, 1 Stop bit	
RS1- 05 RS2- 05	Transmit times	0	Open		0
		1	1 time/sec.		
		2	2 time/sec.		
		3	5 time/sec.		
		4	10 time/sec.		
RS1- 06 RS2- 06	Transmission conditions	0 0 0 0 0 0 Negative(Net Wt.) Weight unstable Overload (OL) 0 ⇒ transmit cont. 1 ⇒ Stop transmit			000000
RS1- 07 RS2- 07	Indicator poling address	00 ↓ 99	When set to 0, Indicator addressing is not used.		0

Data format

1. General Format

NET	S	T	,	G	S	,	+	0	1	2	3	4	5	6	k	g	CR	LF
GROSS	S	T	,	N	T	,	+	1	2	3	4	.	5	6		g		
TARE	S	T	,	T	R	,	+	0	1	2	3	4	5	6		t		
+ OL	O	L	,	G	S	,	+	SP	SP	SP	SP	SP	SP	SP	SP	SP		
- OL	O	L	,	G	S	,	-	SP	SP	SP	SP	SP	SP	SP	SP	SP		
UNSTABLE	U	S	,	G	S	,	+	1	2	3	4	.	5	6	k	g		

2. Totalised (Accu.) Format

Accu. Weight	T	W	,	+	1	2	3	4	5	6	.	7	8	9	k	g	CR	LF
Accu. Wt. Over+	T	W	,	+	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP		
Accu. Wt. Over -	T	W	,	-	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP		
Accu. Count	T	N	,	+	0	1	2	3	4	5	6	7	8	9	SP	SP		
Accu. Count over	T	N	,	+	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP		

3. Sample Format

Gross/Net or as display	+	1	2	3	4	5	6	CR	LF
Over load positive	+	SP	SP	SP	SP	SP	SP		
Over load negative	-	SP	SP	SP	SP	SP	SP		

4. Setpoint (1) + Simple Format (Gross/Net or as display)

	+	1	2	3	4	5	6	CR	LF

bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0

bit 0 : Zero Band
bit 1 : Over
bit 2 : Under / Hi
bit 3 : SP1 / Go
bit 4 : SP2 / Lo
bit 5 : SP3
bit 6 : Discharge
bit 7 : Batch finished

5. Comparison condition (2)

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7

Byte 0 : Zero Band
Byte 1 : Over
Byte 2 : Under / Hi
Byte 3 : SP1 / Go
Byte 4 : SP2 / Lo
Byte 5 : SP3
Byte 6 : Discharge
Byte 7 : Batch finished

ON : 0 (ASC II Code 30 H)
OFF : 1 (ASC II Code 31 H)

Description

	Output	ASCII	Description
Status 1	OL	4FH, 4CH	Over load
	ST	53H, 54H	Weight stable
	US	55H, 53H	Weight unstable
Status 2	GS	47H, 53H	Gross Weight
	NT	45H, 54H	Net Weight
	TR	54H, 52H	TARE
	TW	54H, 57H	Totalised Weight
	TN	54H, 4EH	Number of transactions in total
Data of Weight	0 ~ 9	30H ~ 39H	Figure of weight
	+, -	2BH, 2DH	Symbol (+ or -) of weight
	Space	20H	Over load
	.	2EH	Decimal
Units	Space, Space	20H, 20H	None
	kg	6BH, 67H	kg
	Space t	20H, 74H	tonne
	lb	6CH, 62H	lb
Ending code	CR, LF	0DH, 0AH	Ending code
Separating code	,	2CH	

Command mode

1. Command Format A

Host	Command	<CR>< LF>
Slave	Command	<CR>< LF>

MZ	Zero	CZ	Zero compensation On/OFF
MT	Tare	CT	Clear TARE value
MG	Gross Weight	MN	Net weight
AT	Accu. Current net weight and times plus 1.		
ST	Deduct times of last accu. Value minus 1		
DT	Clear accu. Value and times		
BB	Start batching (one time)	HB	Load stop
BC	Start batching (continuous)		
BD	Start unload		
SC	Transmit continuous	SA	Auto transmit
SM	Manual transmit	SO	Command mode
%	Stop continuous transmission and enter the command mode		

2. Command Format B

Host	Command	<CR>< LF>
Slave	Data	<CR>< LF>

RW	Read current weight	RT	Read TARE
RG	Read Gross Weight	RN	Read Net weight
RB	Read current display of wt (simple)	RH	Read Gross (simple)
RI	Read Net (simple)		
RJ	Read comparison situation + current display of weight (simple)		
RK	Read comparison situation + Gross (simple)		
RL	Read comparison situation + Net (simple)		
RO	Read comparison situation (2)		
RF	Read prior completed weight	RA	Read accu. Value (incl. times)

Note : **Prior command plus %**

Read Weight Compared value: RS□□ □□: setting items

FW	Read target item of unload value	S1	Read SP1
S2	Read SP2	S3	Read SP3
UD	Read Under	LO	Read LO
ZB	Read Zero Band	HI	Read HI
PR	Reading Peak value	OV	Read Over

Ex:

Command : RSFW < CR > < LF > EX2002 reply : RSFW□□□□□□

Finish 6 bytes

3. COMMAND FORMAT C

Host	Command + Data	<CR>< LF>
Slave	Command + Data	<CR>< LF>

Write weight compared value WS□□XXXXXX

XXXXXX : value (6 bytes) □□ : setting items

FW	Write target item of unload value	S1	Write SP1
S2	Write SP2	S3	Write SP3
UD	Write Under	LO	Write LO
ZB	Write Zero Band	HI	Write HI
PR	Write Peak value	OV	Write Over

Error messages

E1: Format command fault

E2: Setting parameters over range

E3: Command not recognised

Indicator poling address

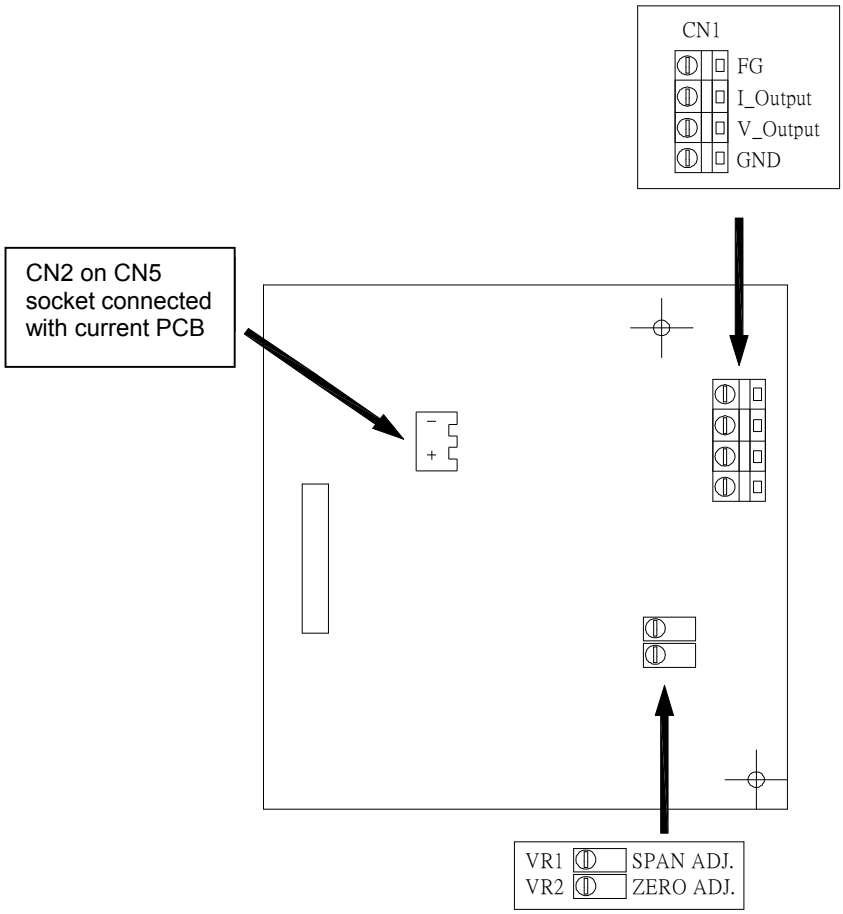
If the indicator has an address configured in RS1(2) – 07, it will only respond to messages prefixed with its address.

For example: The indicator poling address is set to 02, it would send the weight value only if it received the command.

@02RW < CR > < LF >

5-2 Analogue Current / Voltage Output Interface (OP-03)

Location



A. Terminal (4 PIN)

1	FG:	Frame Ground
2	I_Output:	0~20mA current output, positive
3	V_Output:	0 ~ 10V voltage output, positive
4	GND:	Current / voltage signal, negative

B. SPAN adjustment

Current / voltage Span adjustment to increase value turn clockwise, decrease value turn anticlockwise.

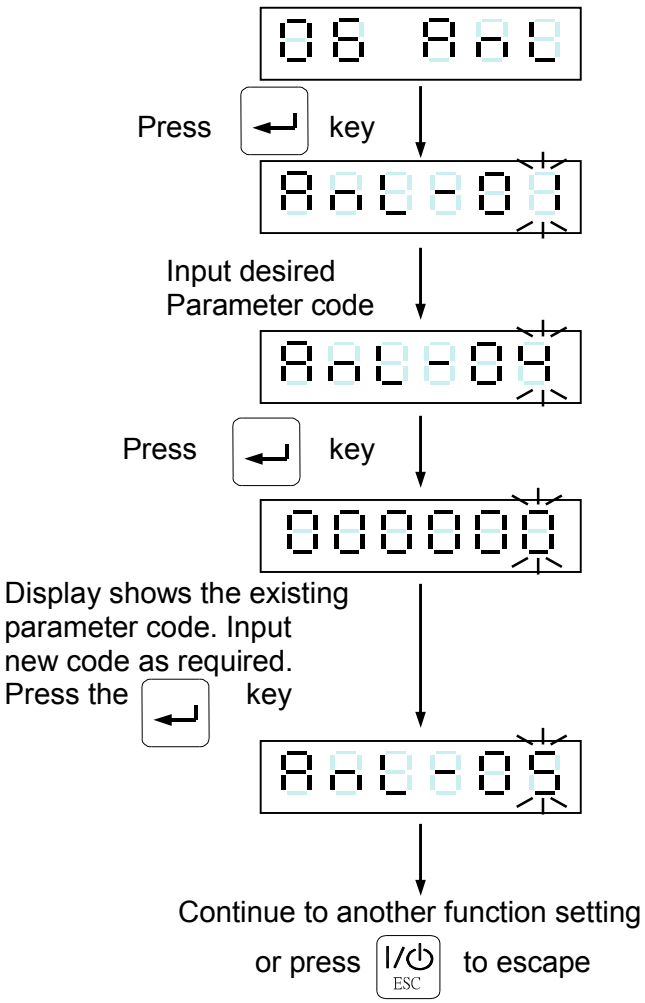
C. ZERO adjustment

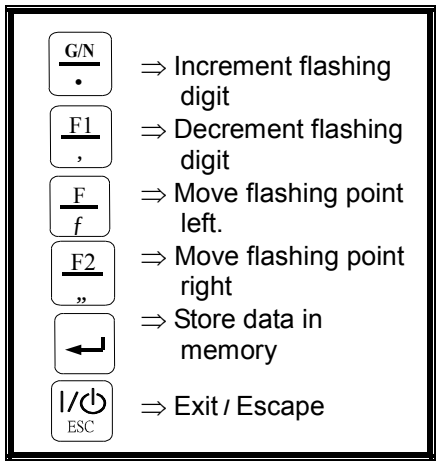
Current / voltage Zero adjustment to increase value turn clockwise, decrease value turn anticlockwise.

Analogue output interface specification

Resolution	:	16 bits
Current output	:	0 ~ 20mA (0 ~ 550 Ω load)
Voltage output	:	0 ~ 10V

Function setting





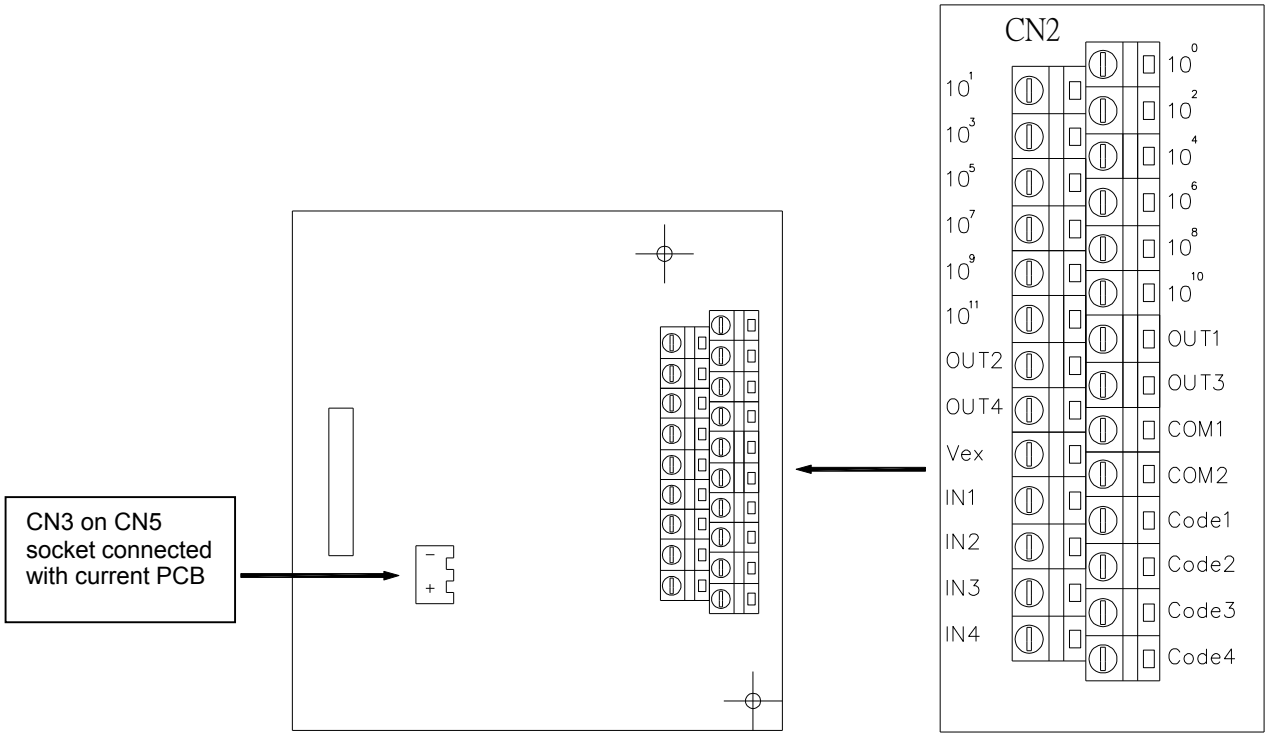
Item	Function	Setting value		Default
		Parameter	Description	
AnL- 01	Data type	0	As display	0
		1	Gross	
		2	Net	
AnL- 02	Signal output	0	Current output	0
		1	Voltage output	
AnL- 03	Weight in Lo	000000 ~ 999999	When the weight reaches the value of that in AnL-03, the current / voltage output is changed to that configured in AnL-04.	0
AnL- 04	Current / Voltage in Lo	0.0 mA ~ 20.0 mA or 0.0 V ~ 10.0 V		4.0
AnL- 05	Weight in Hi	000000 ~ 999999	When the weight reaches the value of that in AnL-05, the current / voltage output is changed to that configured in AnL-06.	300000
AnL- 06	Current / Voltage in Hi	0.0 mA ~ 20.0 mA or 0.0 V ~ 10.0 V		20.0

Analogue output notes

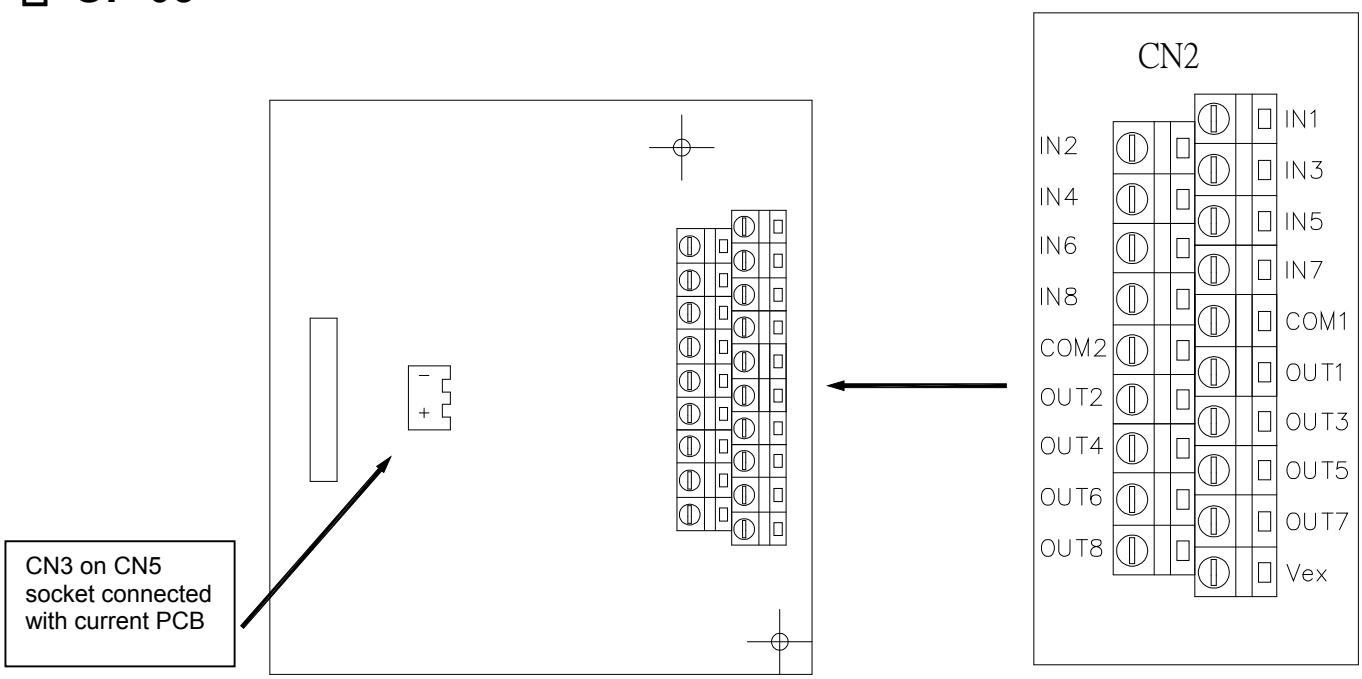
1. The current output, load resistor should not exceed 550 Ω. It is recommended that a resistor with a low temperature coefficient and a power rating above 0.2 W be used.
2. Avoid short circuits between the positive and negative analogue output terminals as the interface this may cause damage.
3. It is recommended that a screened cable is used to connect the analogue output to its load and that the screen is earthed to avoid noise interference.

5-3 External parallel input / output interface (OP-04, OP-05)

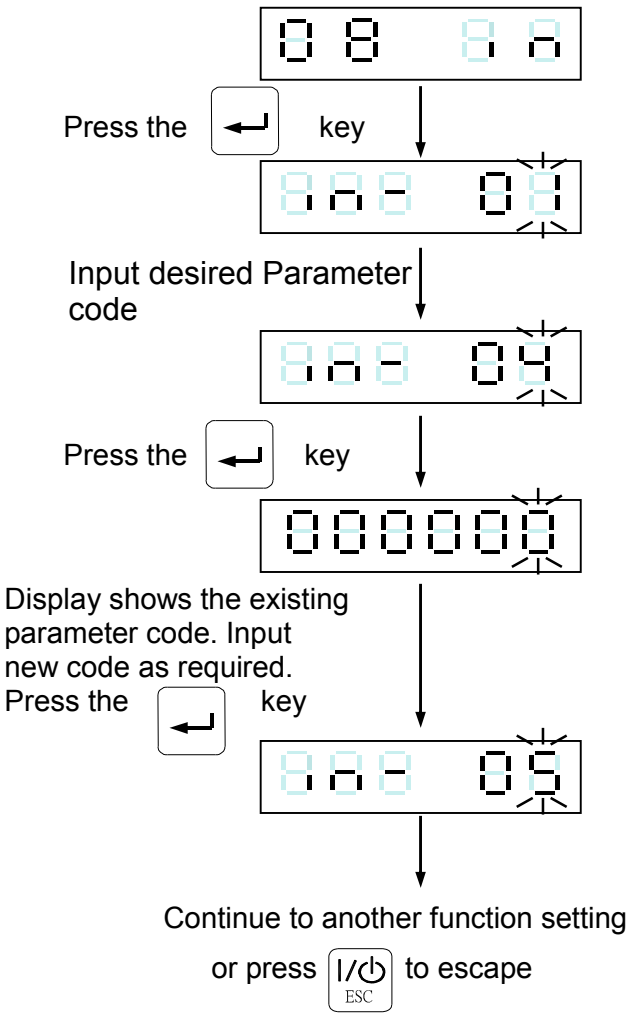
OP-04



OP-05



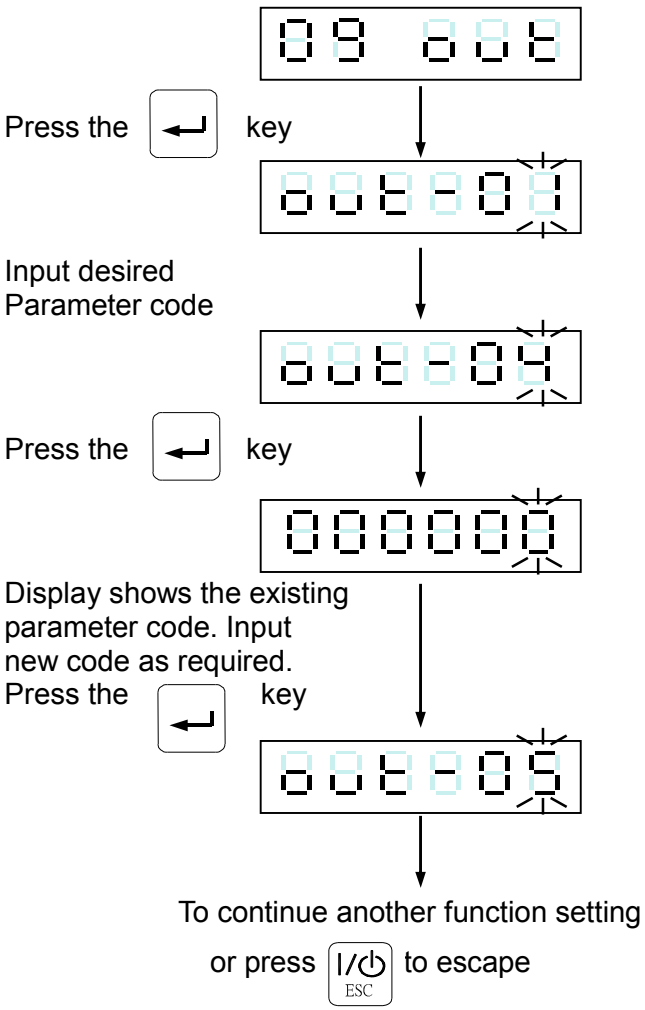
Input signal configuration

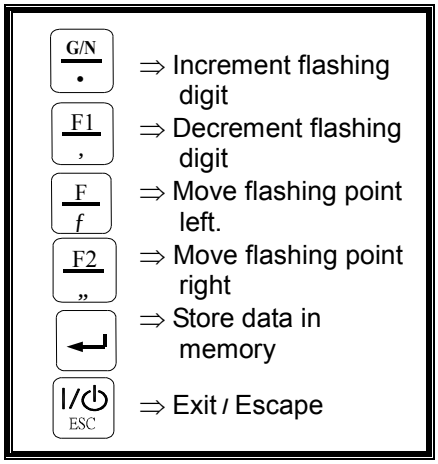


G/N .	⇒ Increment flashing digit
F1 ,	⇒ Decrement flashing digit
F f	⇒ Move flashing point left.
F2 „	⇒ Move flashing point right
↵	⇒ Store data in memory
I/⏻ ESC	⇒ Exit / Escape

Item	Function	Setting value Parameter ⇒ Description	Default
IN - 01	Input 1	0 ⇒ None 1 ⇒ Zero 2 ⇒ Tare 3 ⇒ Tare reset 4 ⇒ Start batching 5 ⇒ Stop batching 6 ⇒ Discharge Command 7 ⇒ Hold 8 ⇒ Hold display & I/O reset 9 ⇒ Totalise (Accu) Command 10 ⇒ Clear totaliser (Accu) 11 ⇒ Clear previous total (Accu) Value. 12 ⇒ Start to compare 13 ⇒ Serial and parallel printer manual output 14 ⇒ Net / Gross	1
IN - 02	Input 2		2
IN - 03	Input 3		3
IN - 04	Input 4		4
IN - 05	Input 5		5
IN - 06	Input 6		6
IN - 07	Input 7		7
IN - 08	Input 8		8

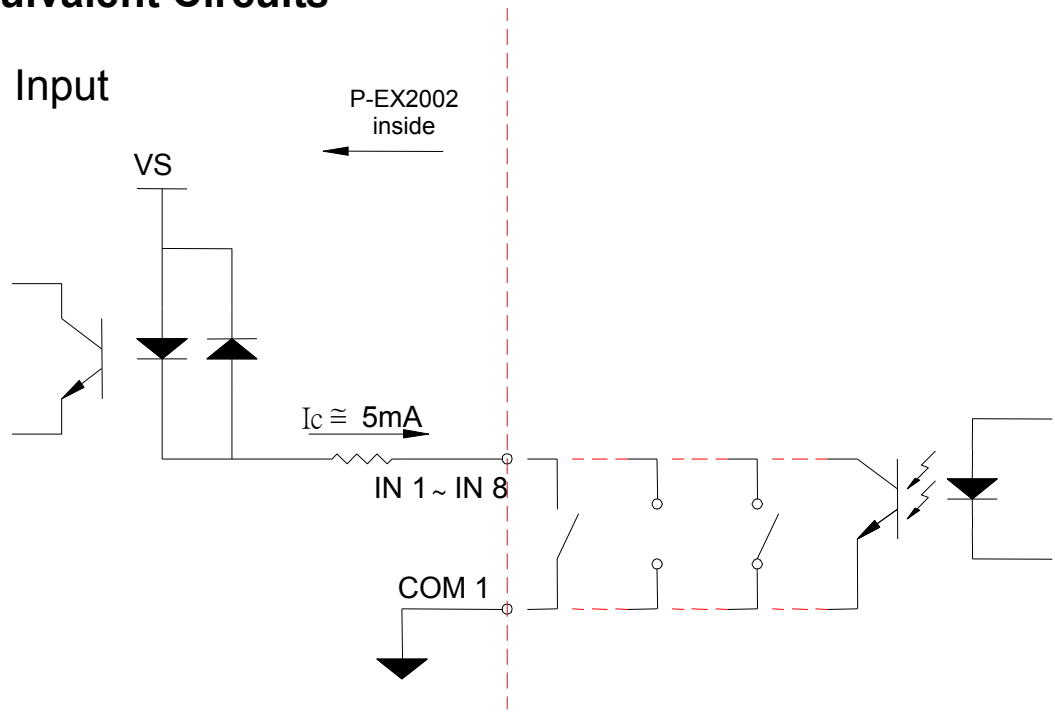
Output signal setting



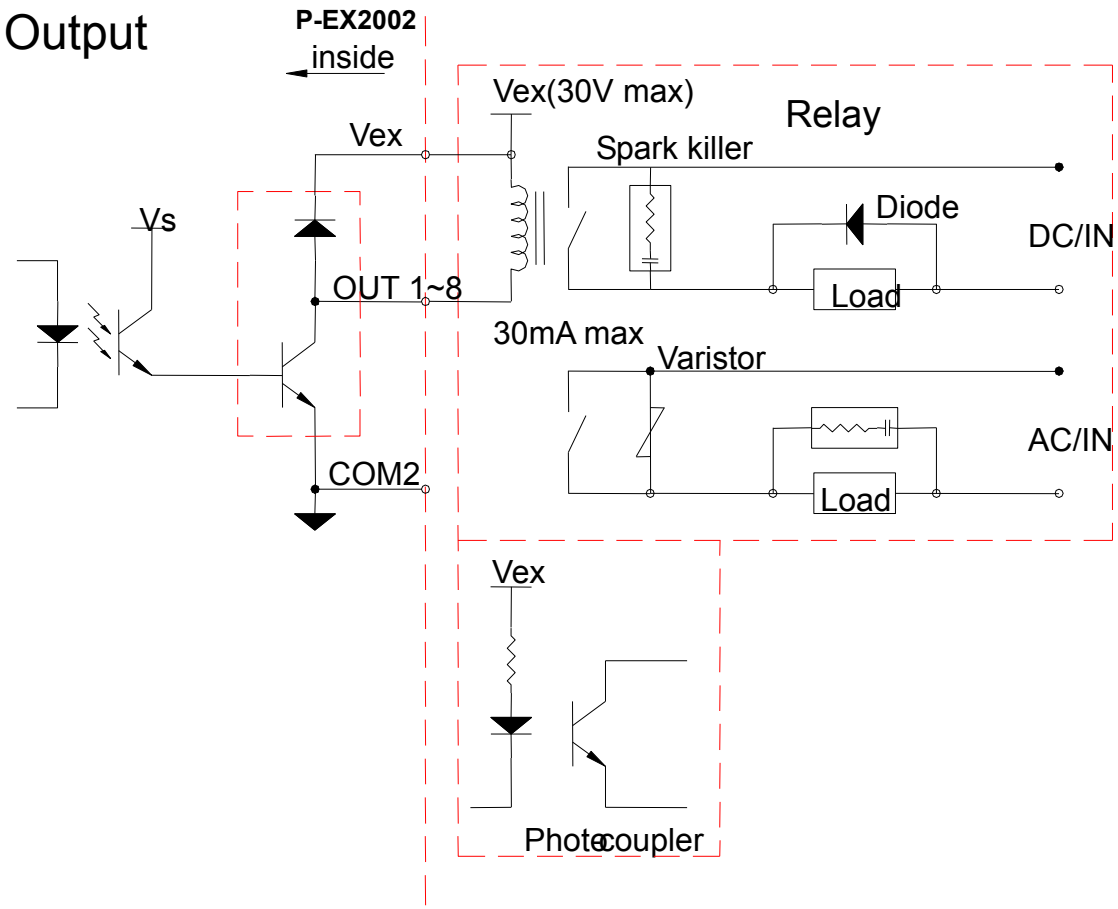


Item	Function	Setting value		Default
		Parameter	Description	
OUT- 01	Output 1	0	⇒ None	1
OUT- 02	Output 2	1	⇒ Zero band	2
OUT- 03	Output 3	2	⇒ SP1	3
OUT- 04	Output 4	3	⇒ SP2	4
OUT- 05	Output 5	4	⇒ SP3	5
OUT- 06	Output 6	5	⇒ Batching completed	6
OUT- 07	Output 7	6	⇒ Discharge	7
OUT- 08	Output 8	7	⇒ Peak ready	8
		8	⇒ Stable	
		9	⇒ Internal batching process running	
		10	⇒ Under	
		11	⇒ Over	
		12	⇒ Hi	
		13	⇒ OK	
		14	⇒ Lo	
OUT-09	The output logic of OUT-04~OUT-01	0000 → positive logic 1111 → negative logic		0000
OUT-10	The output logic of OUT-08~OUT-05	0000 → positive logic 1111 → negative logic		0000

Equivalent Circuits



- IN 1 ~ IN 8 and COM 1. Input signal - Open ↔ OFF, Short ↔ ON.
- Warning: Don't use external power (AC or DC) to connect to the input terminals.



Thumbwheel Switches (for OP-04)

The interface can connect to external thumbwheel switches or a PLC to input various parameters depending on the configuration of SQ-01. The input variables are:-

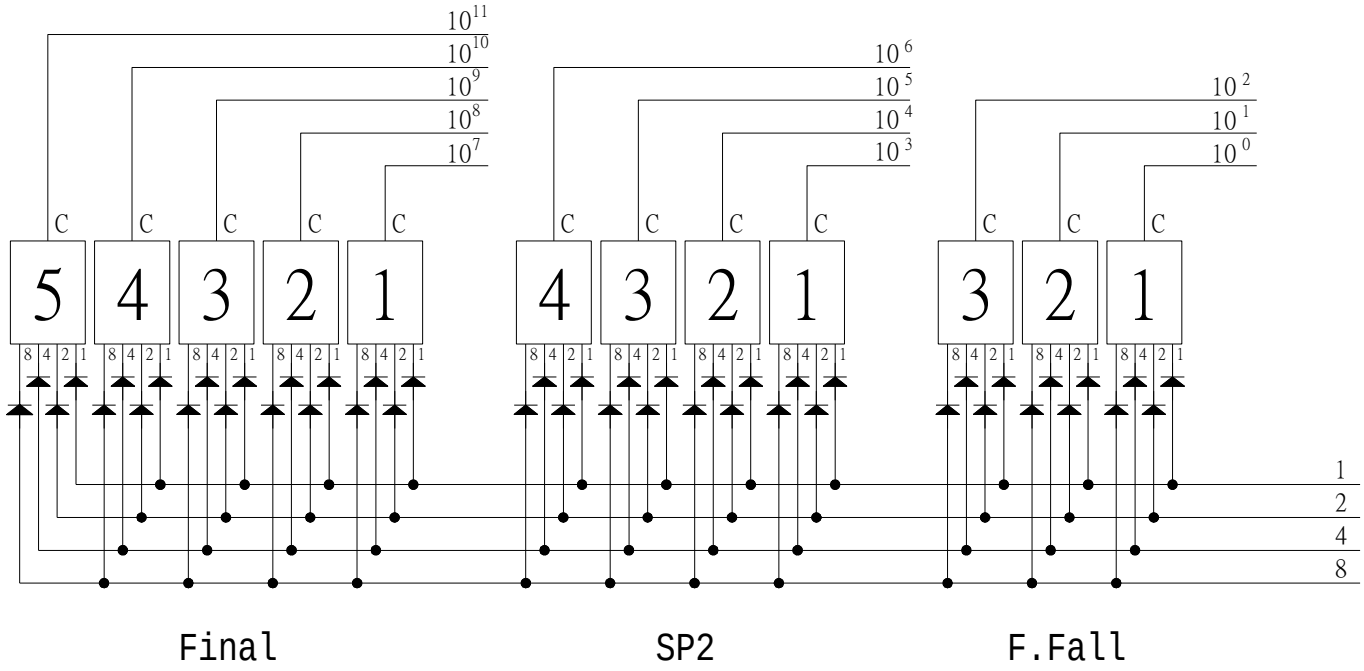
① Final (5 digits), SP2 (4 digits) & Free Fall (3 digits)

or ② Hi (6 digits), Lo (6 digits)

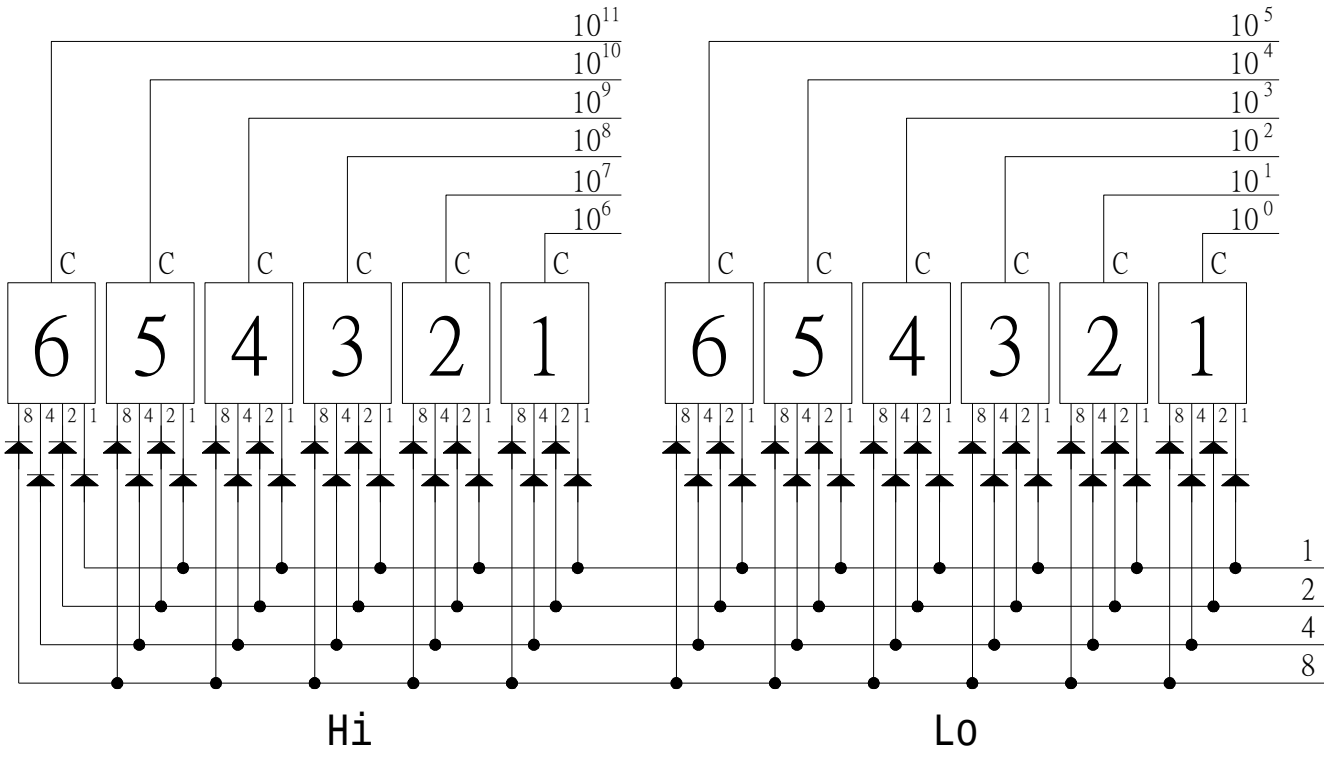
When using external thumbwheel Switches, SQ-18 should be set to 1.

Connection data

SQ-01 = 1, 2, 4 or 5



SQ-01 = 3 or 6



CHAPTER 6 MAINTENANCE

6-1 Restore all parameters to their default factory values

1) While the indicator is counting back to zero, adjust SW to ON and press F/f ↵

(2) Display shows the flashing digits 8.AbE

(3) Confirm / abort

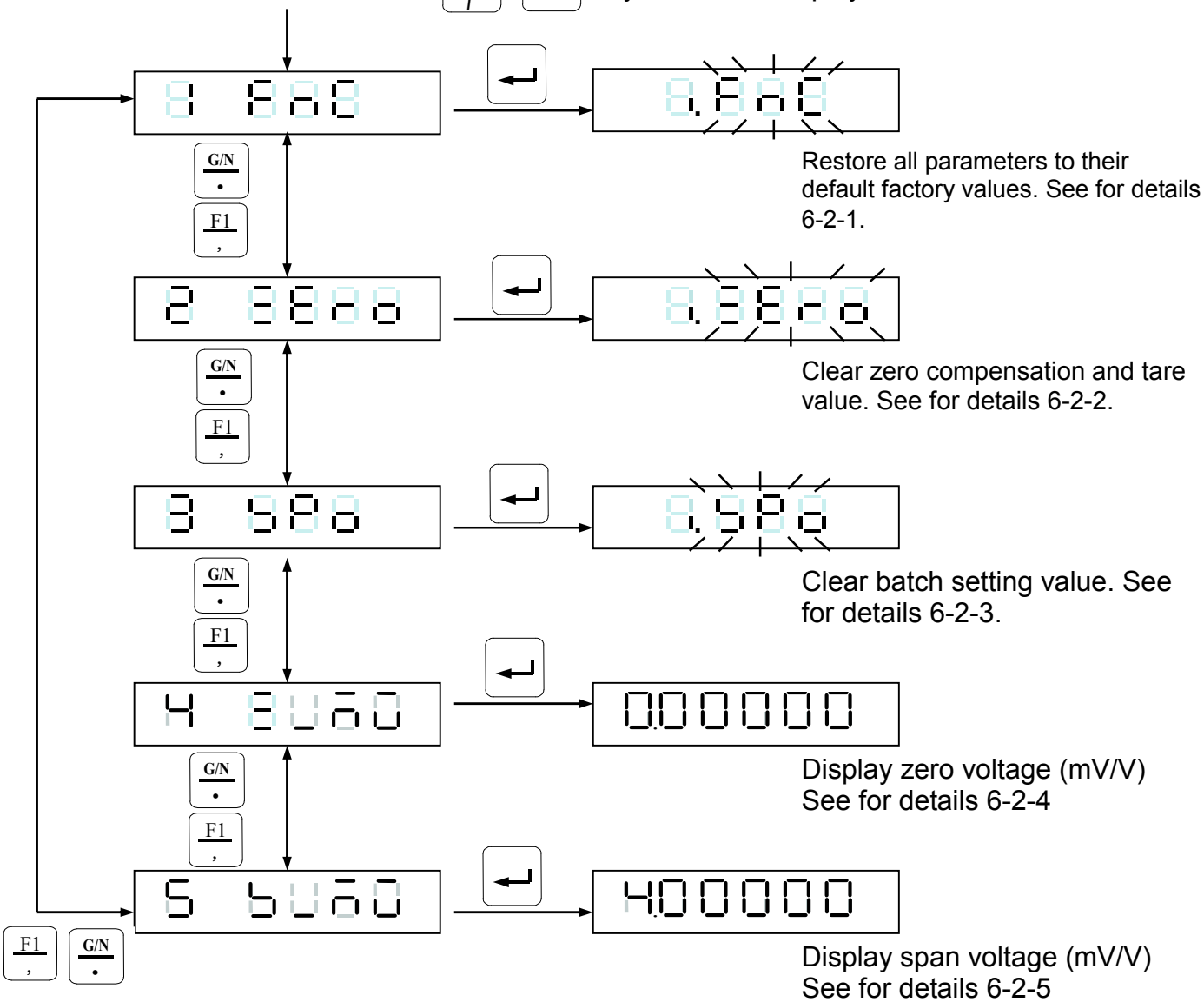
(3-1) To confirm press ↵ key & don't release it until the display shows

End, then release the key and return the calibration SW to OFF.

(3-2) To abort, set the calibration SW to OFF directly.

6-2 Maintenance function parameters

Power on the machine. Press F/f ↵ keys while the display counts back to zero.



6-2-1 Restore the function parameter back to its default value

(1) During the indicator count back to zero, press [F/f] [↵]

(2) The display shows 1 FAC

(3) Press [↵] key and the display shows 1.FAC flashing.

(4) Confirm / abort

(4-1) To confirm, press the [↵] key & don't release it. The display will then show 1 FAC.

(4-2) To abort press the [I/⏻ ESC] key or switch the power off.

6-2-2 Clear zero compensation and TARE values

(1) During the indicator count back to zero, press [F/f] [↵]

(2) The display shows 1 FAC press the F1 key to display 2 ZERO

(3) Press [↵] key, the display shows 2.ZERO flashing.

(4) Confirm / abort

(4-1) To confirm press the [↵] key & don't release it. The display will then show 2 ZERO.

(4-2) To abort press the [I/⏻ ESC] key or switch the power off.

6-2-3 Clear batch setting

(1) During the indicator count back to zero, press [F/f] [↵]

(2) The display shows 1 FAC press the F1 key to display 3 BAT

(3) Press [↵] key, the display shows 3.BAT flashing.

(4) Confirm / abort

(4-1) To confirm press the [↵] key & don't release it. The display will then show 3 BAT

(4-2) To abort press the [I/⏻ ESC] key or switch the power off.

6-2-4 Display zero voltage (mV/V)

(1) During the indicator count back to zero, press [F/f] [↵]

(2) The display shows 1 FAC press the F1 key to display 4 ZERO

(3) Press [↵] key the display shows the zero voltage (mV/V). e.g. 0.00000

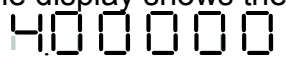
(4) Press [I/⏻ ESC] key or switch the power off.

6-2-5 Clear batch setting

(1) During the indicator count back to zero, press [F/f] [↵]

(2) The display shows  press the F1 key to display 

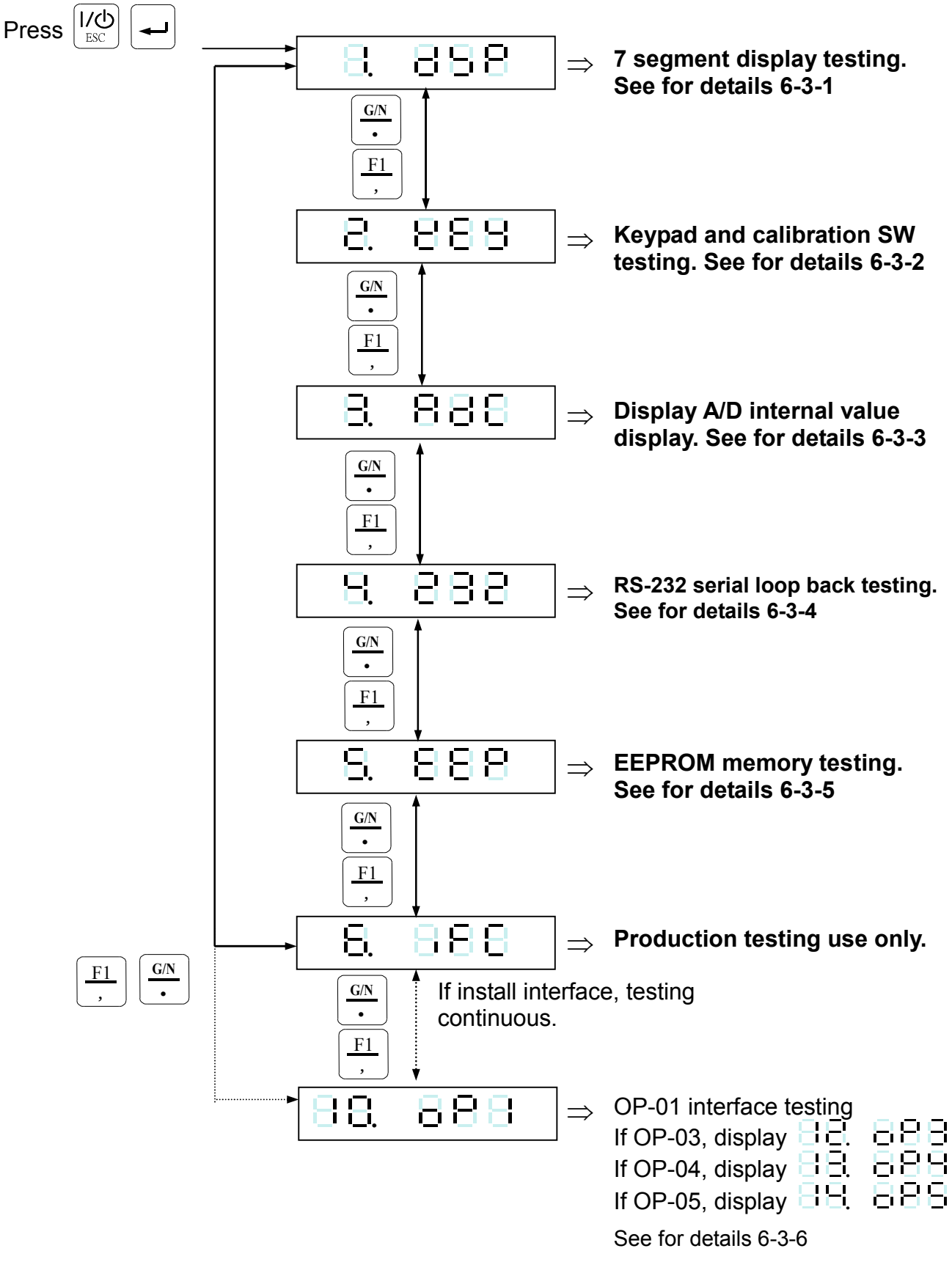
(3) Press the [↵] key, the display shows the span voltage (mV/V).

e.g. 

(4) Press [I/⏻ ESC] key or switch the power off.

6-3 Test mode

During the indicator count back to zero



6-3-1 7 segment display testing

The display will show 0 ~ 9, then display "." and all of the icons. To exit press I/⏻ ESC

6-3-2 Keypad and calibration SW testing

Setting the calibration SW to "ON", or pressing any key will cause the related display segment to change from ⏐ → ⏐. To exit press I/⏻ ESC

6-3-3 Display A/D internal value display

Display range is 0 ~ 520,000d (-0.1mV/V ~ 4.0mV/V). To exit press I/⏻ ESC

6-3-4 RS-232 serial loop back testing

1) RS232 testing

J1~J4 ⇒ 1, 2 short (Adjust J1~J4 mini jumper to 2, 3)

Terminal pin 1 and pin 3 must be connected together at the rear of the indicator.

If display shows PASS, the interface is working normally. If display shows FAIL, the interface is not working correctly.

2) RS422 testing

J1~J4 ⇒ 1, 2 short (Adjust J1~J4 mini jumper to 1, 2)

J5~J6 ⇒ 1, 2 short (Adjust J5~J6 mini jumper to 1, 2)

Terminal pin1 and pin 3, pin 2 and pin 4 must be separately connected together at the rear of the indicator.

If display shows PASS, the interface is working normally. If display shows FAIL, the interface is not working correctly.

6-3-5 EEPROM memory testing

If the display shows PASS, it means normal. If the display shows FAIL, the memory is not working correctly.

6-3-6 Option interface card testing

OP-01 RS232/RS422/RS485 testing

1) RS232 testing

J1~J4 ⇒ 1, 2 short (Adjust J1~J4 mini jumper to 2, 3)

Terminal pin 1 and pin 3 must be connected together at the rear of the indicator.

If display shows PASS, the interface is working normally. If display shows FAIL, the interface is not working correctly.

2) RS422 testing

J1~J4 ⇒ 1, 2 short (Adjust J1~J4 mini jumper to 1, 2)

J5~J6 ⇒ 1, 2 short (Adjust J5~J6 mini jumper to 1, 2)

Terminal pin1 and pin 3, pin 2 and pin 4 must be separately connected together at the rear of the indicator.

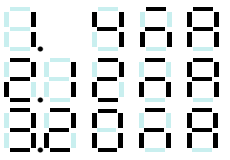
If display shows PASS, the interface is working normally. If display shows FAIL, the interface is not working correctly.

OP-03 Analogue current output interface testing

1) 4 ~ 20mA current output testing

Use an ammeter to measure the output current between pin1 & pin 3 of the interface.

Use the F1 , G/N . keys to select the output current level desired.



⇒ 4mA

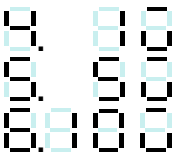
⇒ 12mA

⇒ 20mA

2) 0 ~ 10V voltage output testing

Use a voltmeter to measure the voltage between pin 2 & pin 3 of the interface.

Use the F1 , G/N . keys to select the output voltage level desired.



⇒ 1V

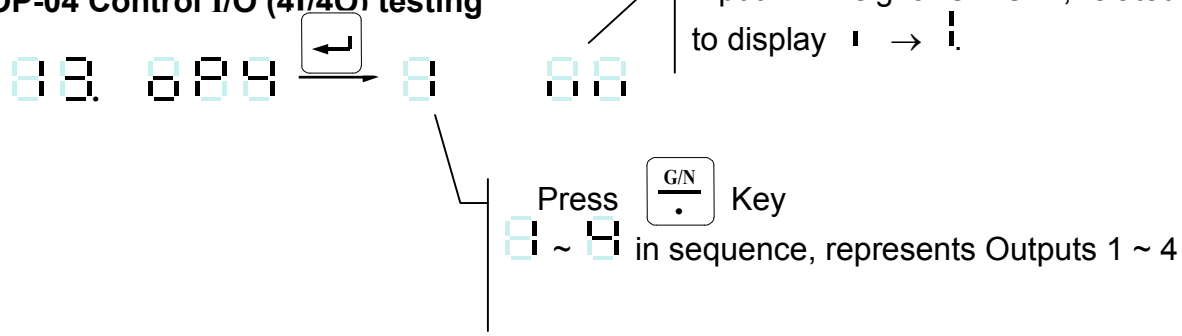
⇒ 5V

⇒ 10V

Warning: To avoid damage to components use only a voltmeter.

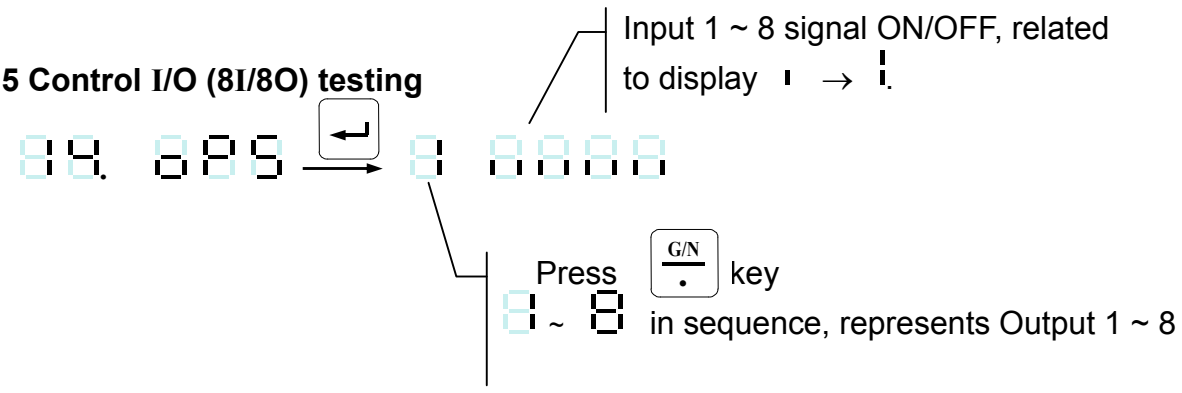
OP-04 Control I/O (4I/4O) testing

1)

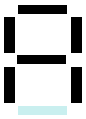
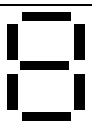
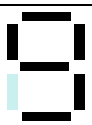
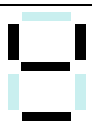
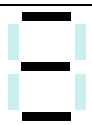


2) Press ↵ key to switch to the control input value.

OP-05 Control I/O (8I/8O) testing



APPENDIX I Description of 7 segment characters

Digit	7 segments letter	Alphabet	7 segments letter	Alphabet	7 segments letter
0		A		N	
1		B		O	
2		C		P	
3		D		Q	
4		E		R	
5		F		S	
6		G		T	
7		H		U	
8		I		V	
9		J		W	
		K		X	
		L		Y	
		M		Z	

APPENDIX II Function Table

Specification Calibration

Item	Function	Setting Value		Default
		Parameter	Description	
CSP-01	Unit	0	None	2
		1	g	
		2	Kg	
		3	t	
		4	lb	
CSP-02	Decimal Point	0	None	0
		1	1 Decimal Point	
		2	2 Decimal Point	
		3	3 Decimal Point	
CSP-03	Division	1	Division	1
		2		
		5		
		10		
		20		
		50		
CSP-04	Max. Capacity	999999 ↓ 000000	Max. capacity	999999
CSP-05	Zero range	0 =full range (±1%~30%)	Zero range = calibration zero point ± (Max. capacity×setting value %)	0
CSP-06	Time of zero tracking	0.0 ~ 5.0 (sec)	Time and range of zero tracking should be use at the same time. If the time is set to 0.0, the zero tracking function is disabled.	1.0
CSP-07	Range of zero tracking	0 ~ 9	Range of zero tracking = (setting value×½)D , D=min. division Range and time of zero tracking should be use at the same time. If the range is set to 0, the zero tracking function is disabled.	2
CSP-08	Investigate time in stable	0.0 ~ 5.0 (sec)	Investigate time and range should be use at the same time. If the time is set to 0.0, the investigate time is disabled.	1.0
CSP-09	Investigate range in stable	0 ~ 9	Investigate time and range should be use at the same time. If the range is set to 0, the investigate range is disabled.	2
CSP-10	Weight unstable, function ZERO and TARE	0	Action	0
		1	None	
CSP-11	Gross Weight is negative, function TARE	0	Action	0
		1	None	

FNC GROUP FUNCTION SETTING

Item	Function	Setting value				Default
		Parameter	Description			
FNC-01	Digital Filter I	0	5 Hz			4
		1	4.17 Hz			
		2	2.5 Hz			
		3	2.08 Hz			
		4	1.25 Hz			
		5	1.04 Hz			
		6	0.63 Hz			
		7	0.52 Hz			
		8	0.31 Hz			
		9	0.26 Hz			
FNC-02	Digital Filter II	0	Disabled			2
		1	Less filter ↕ Greater			
		2				
		3				
		4				
		5				
FNC-03	Key – Locked	000000 ↓ 111111	0	Normal **(lock disable)**	0 0 0 0 0 0 Tare G/N Zero F2 F1 F	000000
			1	Close **(lock enable)**		
FNC-04	“F” function setting	Parameter ⇒ Description 0 ⇒ Setpoint parameter setting 1 ⇒ Tare reset 2 ⇒ Manually output of serial, parallel print 3 ⇒ Start load 4 ⇒ Stop load 5 ⇒ Start comparison 6 ⇒ Unload command 7 ⇒ Totalise weight and counts command 8 ⇒ Clear totalised weight and counts 9 ⇒ Hold mode 10 ⇒ Escape Hold mode(I/O DSP) 11 ⇒ Convert to Gross / Net / totalised weight / totalised Count				1
FNC-05	“F1” function setting					0
FNC-06	“F2” function setting					2

Item	Function	Setting value		Default
		Parameter	Description	
FNC-07	Front panel indication “S1” setting	Parameter ⇒ Description 0 ⇒ Accu. V 1 ⇒ Accu. C 2 ⇒ SP1 3 ⇒ SP2 4 ⇒ SP3 5 ⇒ Hi 6 ⇒ OK 7 ⇒ Lo 8 ⇒ Under 9 ⇒ Over 10 ⇒ Unloading 11 ⇒ Running 12 ⇒ Hold		0
FNC-08	Front panel indication “S2” setting			0
FNC-09	Front panel indication “S3” setting			0
FNC-10	Front panel indication “S4” setting			0
FNC-11	Return to zero band	0	5 d	0
		1	10 d	
		2	20 d	
		3	40 d	
		4	60 d	
		5	80 d	
		6	100 d	
		7	150 d	
		8	200 d	
		9	250 d	
FNC-12	Hold	0	Hold	0
		1	Peak hold (positive)	
		2	Peak hold (negative)	
		3	Peak hold (absolute value)	
FNC-13	Rate for display rewrite	0	No limitation	0
		1	20 times/sec	
		2	10 times/sec	
		3	5 times/sec	
		4	1 time/sec	

Serial Input/Output Interface (Build in OP-1)

Item	Function	Setting value			Default
		Para-meter	Description		
RS1- 01 RS2- 01	Transmit format	0	As display		0
		1	Gross only		
		2	Net only		
		3	As display (simple)		
		4	Gross (simple)		
		5	Net (simple)		
		6	Comparison + As display (simple)		
		7	Comparison +Gross (simple)		
		8	Comparison +Net (simple)		
		9	Tare		
		10	Totalised (Accu.) Weight and number of transactions		
RS1- 02 RS2- 02	Transmit mode	0	Transmit continuous + command mode		0
		1	Auto transmit + command mode		
		2	Manual transmit + command mode		
		3	Command mode		
RS1- 03 RS2- 03	Transmit speed	0	600		2
		1	1200		
		2	2400		
		3	4800		
		4	9600		
		5	19200		
RS1- 04 RS2- 04	Parity Bit length Stop Bit	0	N, 8, 1	No parity, 8 data bits, 1 Stop bit	2
		1	O, 7, 1	Odd parity, 7 data bits, 1 Stop bit	
		2	E, 7, 1	Even parity, 7 data bits, 1 Stop bit	
RS1- 05 RS2- 05	Transmit times	0	Open		0
		1	1 time/sec.		
		2	2 times/sec.		
		3	5 times/sec.		
		4	10 times/sec.		
RS1- 06 RS2- 06	Transmission conditions	0 0 0 0 0 0 Negative(Net Wt.) Weight unstable Overload (OL) 0 ⇒ transmit cont. 1 ⇒ Stop transmit			000000
RS1- 07 RS2- 07	Indicator poling address	00 ↓ 99	When set to 0, Indicator addressing is not used.		0

Analogue Current/Voltage Output Interface (Op - 03)

Item	Function	Setting value		Default
		Parameter	Description	
AnL- 01	Data type	0	As display	0
		1	Gross	
		2	Net	
AnL- 02	Signal output	0	Current output	0
		1	Voltage output	
AnL- 03	Weight in Lo	000000 ~ 999999	When the weight reaches the value of that in AnL-03, the current / voltage output is changed to that configured in AnL-04.	0
AnL- 04	Current / Voltage in Lo	0.0 mA ~ 20.0 mA or 0.0 V ~ 10.0 V		4.0
AnL- 05	Weight in Hi	000000 ~ 999999	When the weight reaches the value of that in AnL-05, the current / voltage output is changed to that configured in AnL-06.	300000
AnL- 06	Current / Voltage in Hi	0.0 mA ~ 20.0 mA or 0.0 V ~ 10.0 V		20.0

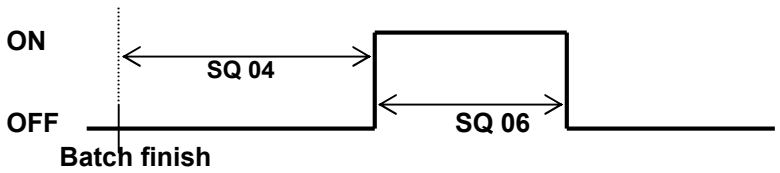
External Parallel Input/Output Interface (Op-04 & Op-05)

Item	Function	Setting value Parameter ⇒ Description	Default
IN - 01	Input 1	0 ⇒ None 1 ⇒ Zero 2 ⇒ Tare 3 ⇒ Tare reset 4 ⇒ Start batching 5 ⇒ Stop batching 6 ⇒ Discharge Command 7 ⇒ Hold 8 ⇒ Hold display & I/O reset 9 ⇒ Totalise (Accu) Command 10 ⇒ Clear totaliser (Accu) 11 ⇒ Clear previous total (Accu) Value. 12 ⇒ Start to compare 13 ⇒ Serial and parallel printer manual output 14 ⇒ Net / Gross	1
IN - 02	Input 2		2
IN - 03	Input 3		3
IN - 04	Input 4		4
IN - 05	Input 5		5
IN - 06	Input 6		6
IN - 07	Input 7		7
IN - 08	Input 8		8

Item	Function	Setting value Parameter	Description	Default
OUT- 01	Output 1	0 ⇒ None 1 ⇒ Zero band 2 ⇒ SP1 3 ⇒ SP2 4 ⇒ SP3 5 ⇒ Batching completed 6 ⇒ Discharge 7 ⇒ Peak ready 8 ⇒ Stable 9 ⇒ Internal batching process running 10 ⇒ Under 11 ⇒ Over 12 ⇒ Hi 13 ⇒ OK 14 ⇒ Lo		1
OUT- 02	Output 2			2
OUT- 03	Output 3			3
OUT- 04	Output 4			4
OUT- 05	Output 5			5
OUT- 06	Output 6			6
OUT- 07	Output 7			7
OUT- 08	Output 8			8
OUT- 09	The output logics of OUT-04~OUT-01	0000 → positive logic 1111 → negative logic		0000
OUT- 10	The output logics of OUT-08~OUT-05	0000 → positive logic 1111 → negative logic		0000

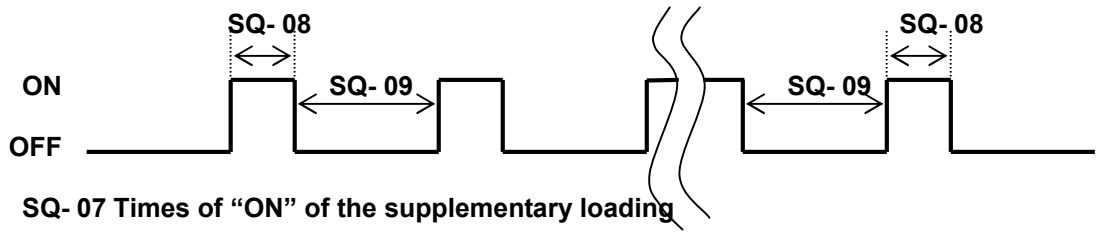
Item	Function	Setting value		Default
		Parameter	Description	
SQ- 01	Batching mode	1	Normal batch	1
		2	Loss-in weight	
		3	Comparison mode	
		4	Normal batch (Built-in program)	
		5	Loss-in weight (Built-in program)	
		6	Hold mode (Built-in program)	
SQ- 02	Batching start delay time	0.0 ~ 25.5 (sec)	The built-in auto-program starts the batch comparison procedure after the input of the batch start signal.	0.0
SQ- 03	SP1,SP2 Waiting time comparison	0.0 ~ 25.5 (sec)	No full flow comparison during this function's set time period. If the set value is 0, indicates this function is not in use.	0.0
SQ- 04	Batch finish output signal delay time	0.0 ~ 25.5 (sec)	Output the batch finished signal after this delay time.	0.5
SQ- 05	Batch finish Condition	0	Wait until the weight is stabilized	0
		1	No need to wait until the weight has stabilized	
SQ- 06	Batch finish Output signal time	0.0 ~ 25.5 (sec)	Batch finished output signal time. If set to 0, the output signal will be off until the next batch start.	1.0

Batch finish signal



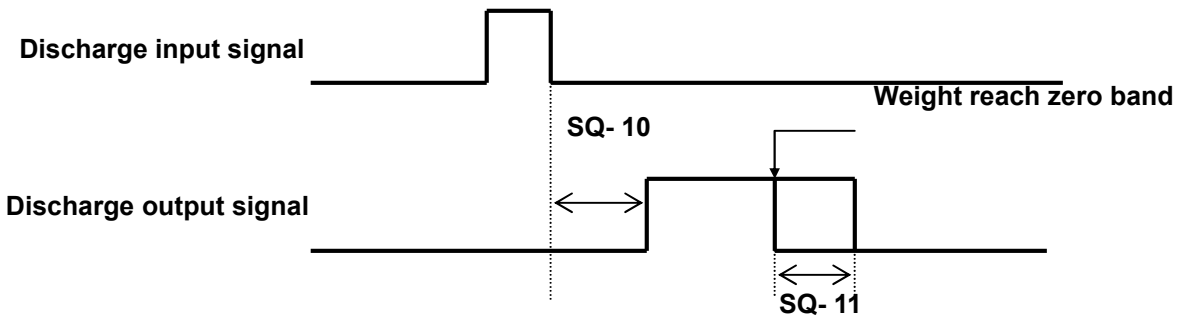
SQ- 07	Number of Times the supplementary loading function operates	0 ~ 255	If the set value is 0, this function is not in use.	0
SQ- 08	Supplementary loading gate open time	0.0 ~ 25.5 (sec)	Must be coordinate with times of supplementary loading, (SQ- 07)	0.1
SQ- 09	Supplementary loading gate close time	0.0 ~ 25.5 (sec)	Must be coordinate with times of supplementary loading, (SQ- 07)	1.0

Supplementary loading signal



SQ- 07 Times of "ON" of the supplementary loading

Function Configuration Menu

Item	Function	Setting value		Default
		Parameter	Description	
SQ- 10	Discharge start delay time	0.0 ~ 25.5 (sec)	Delay time before Discharge signal is ON.	0.0
SQ- 11	Discharge stop delay time	0.0 ~ 25.5 (sec)	Delay time before Discharge signal is OFF.	0.0
SQ- 12	Discharge time	0.0 ~ 25.5 (sec)	Won't activate internal discharge control function, if set to 0.	0
				
SQ- 13	Restart delay time	0.0 ~ 25.5 (sec)	Delay time before Restart signal is ON.	1.0
SQ- 14	Batching counts	0 ~ 255 (times)	Number of batch runs 0 ⇒ one batch only	0
SQ- 15	Set the zero band in to final weighing value	0	No setting	0
		1	Setting	
SQ- 16	Hi, OK, Lo	0	Comparison anytime	0
		1	To compare at batch finish	
		2	To compare at external input signal	
		3	To compare at batching finish and external input signal.	
		4	Comparison auto	
SQ- 17	Auto accu. weight / counts	0	Disabled	0
		1	Enabled	
SQ- 18	The parameter source in weight comparison	0	Key in directly from front keypad	0
		1	Input directly from rear interface	
SQ- 19	Weight comparison delay time	0.0 ~ 25.5 (sec)	Comparison delay time for Hi, OK, Lo	0.5
SQ- 20	TARE auto.	0	Press keypad TARE to TARE	0
		1	TARE auto	
SQ- 21	Discharge auto	0	Input from external input or keypad	0
		1	Discharge auto + manual	