CI-600 Option Card
Relay Type I
Manual

LAST Rev. NO :

LAST Rev. Date : 2014. 01. 03

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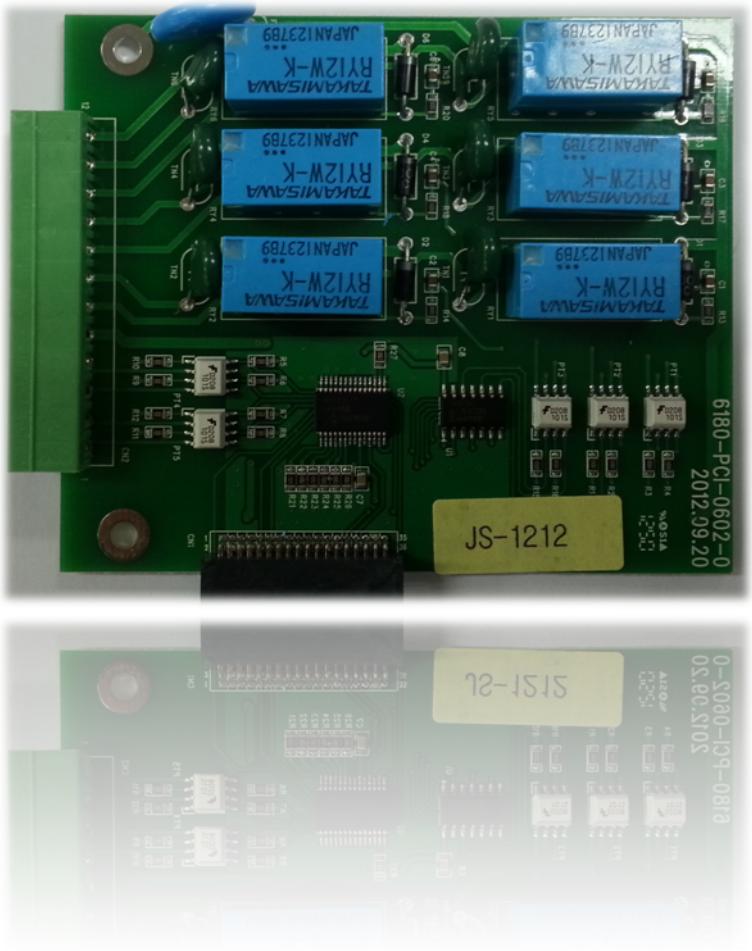
1. Classfication

1.1. Overview

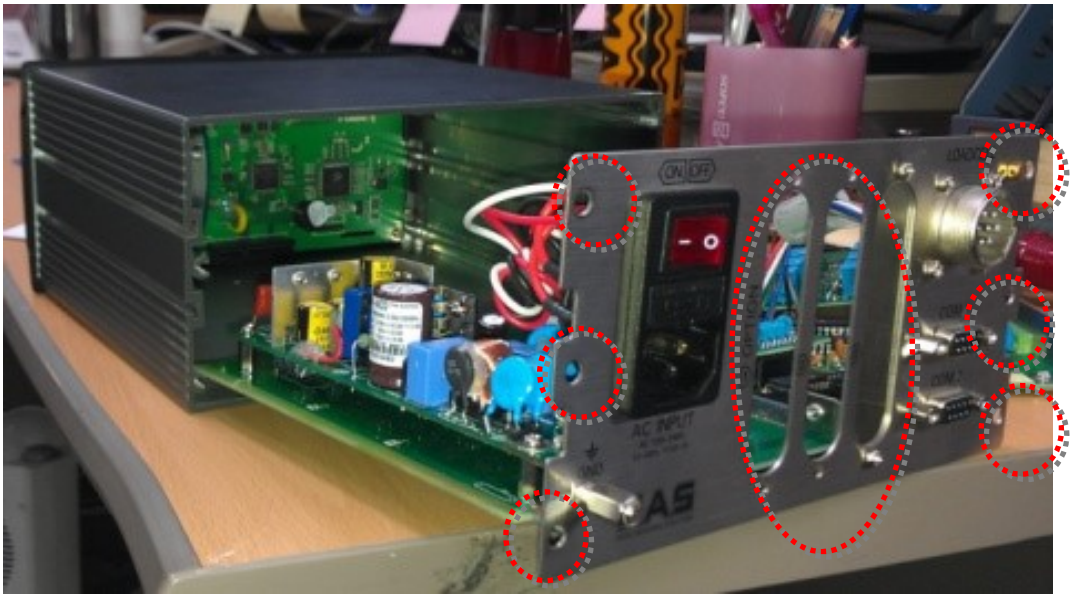


1.2. Gerneral

- 4 External Input
- 6 External Output(Relay out)
- Operating temperature range : -10℃ ~ 40℃
- Connector : Terminal Block-12 Pin

2. Installing options

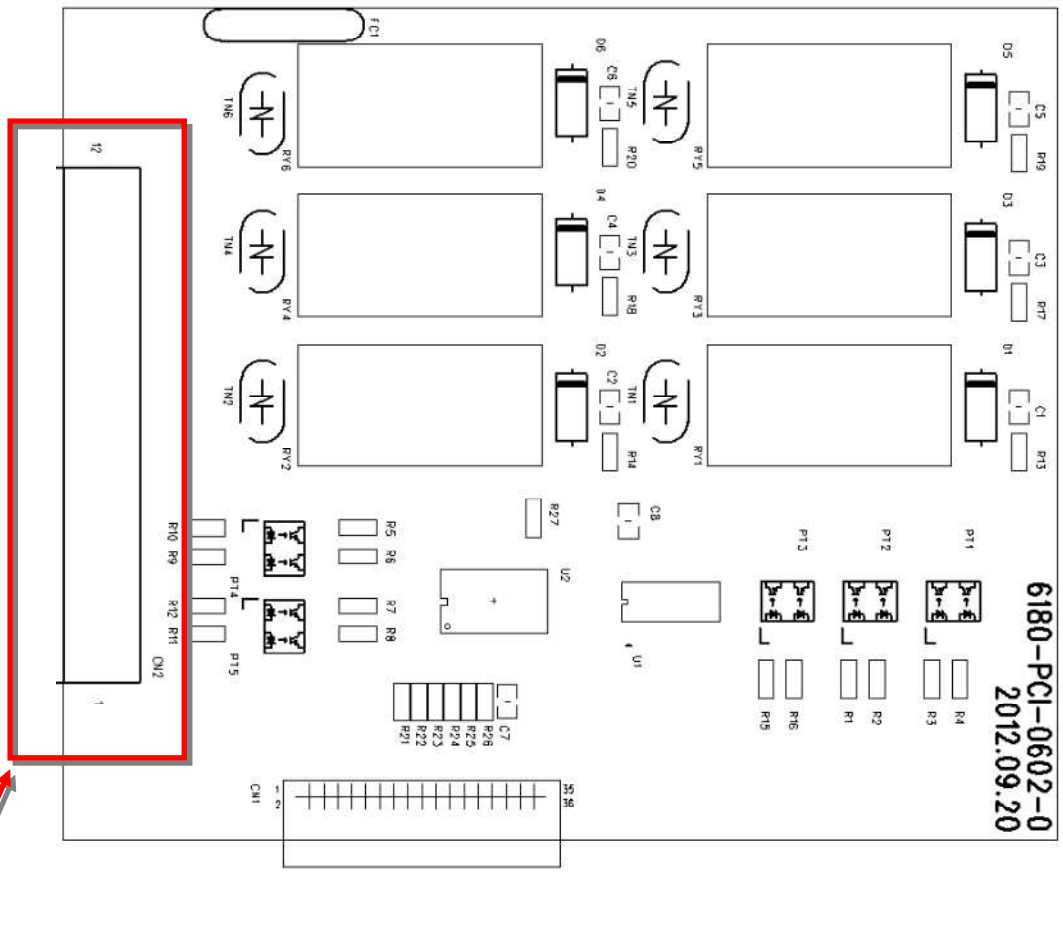
1) Turn Off the Power and remove 6EA bolt on the rear panel
2) Remove the Option plate cover.



3) Assemble Option Card with Base board.

4) Assemble the option plate and rear panel by 2 bolts.
5) Assemble the rear panel and case by 6 bolts.

3. Pin Information



CN2 Pin Map

Pin No	Signal
1	Ext In 1
2	Ext In 2
3	Ext In 3
4	Ext In 4
5	In Common(GND)
6	Ext Out 1
7	Ext Out 2
8	Ext Out 3
9	Ext Out 4
10	Ext Out 5
11	Ext Out 6
12	Out Common

Ext In/Out Status Display

Ext In/Out Pin Map

e.g) if M-2601 = 1, M-2602 = 1

EX_In 1 : It is on when the extrinsic input key 1 is operating, and conducts zero fucntion.
EX_In 2 : It is on when the extrinsic input key 2 is operating, and conducts tare fucntion.
EX_In 3 : It is on when the extrinsic input key 3 is operating, and conducts tare removal fucntion.
EX_In 4 : It is on when the extrinsic input key 4 is operating, and conducts print fucntion.
EX_Out 1 : It is on when weight is more than S1 setting value.
(OUT1, OUTCOM are connected)
EX_Out 2 : It is on when weight is more than S2 setting value.
(OUT2, OUTCOM are connected)
EX_Out 3 : It is on when weight is more than S3 setting value.
(OUT3, OUTCOM are connected)
EX_Out 4 : It is on when weight is more than S4 setting value.
(OUT4, OUTCOM are connected)
EX_Out 5 : It is on as time you set at M-2604, when weight is more than S5 setting value and stable.
(OUT5, OUTCOM are connected)
EX_Out 6 : It is on when weight is zero.
(OUT6, OUTCOM are connected)

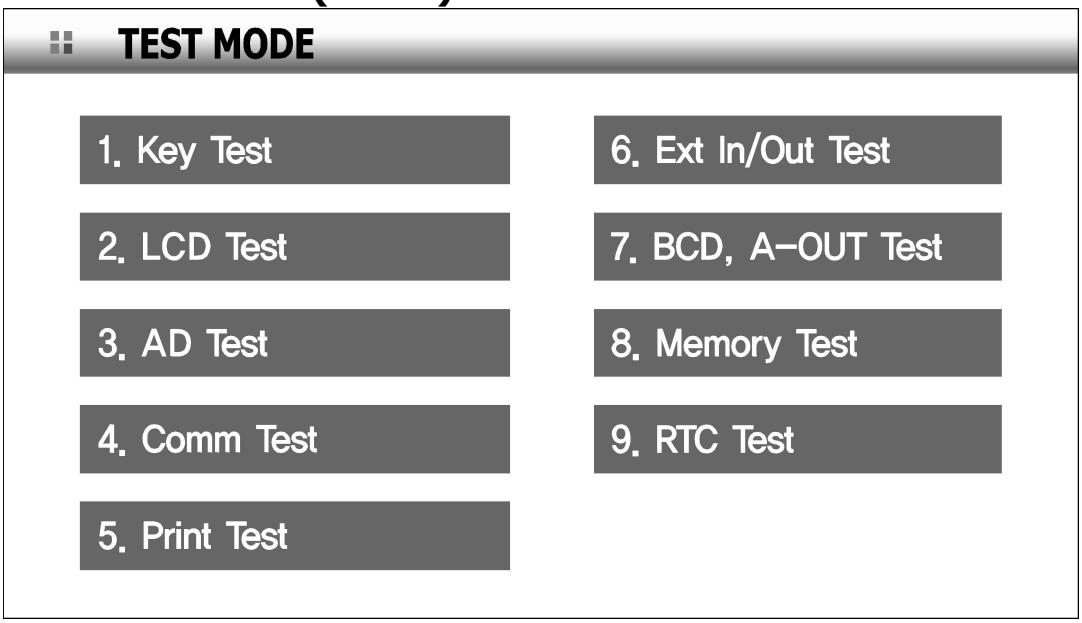
4. Test Mode

4.1. How to Access to the Test mode

Push the MENU Enter in the weighing mode, by the 1 ABC key to selec test mode or when the power is turned on while pressing 1 ABC key in the front of the indicator.

Push the F3 Home key in the test mode to return to weighing mode.

4.2. Test Menu(1 – 9)



6.External Input/ Output Test

Function : External Input/ Output Test			
Used Keys	**Display Part**		**Description**
MENU Enter :Upper Menu Other Key : Test	Ext In	1	Displayed in the external input section when there is an external input. Push No.1~6 key to execute weighing external output
	Ext Out	3	

Note 1. This test operates only if Weighing Module Option Card is mounted

5. Set Mode

CODE	Menu	CODE	SubMenu
2600	Batching Function	2601	Set External Key
		2602	Relay Mode
		2603	Finish Relay's delay time of starting
		2604	Finish Relay's delay time of operating
		2605	Decision Relay's delay time of starting
		2606	Decision Relay's delay time of operating
		2607	NG Relay's delay time of operating
		2608	Relay Operating Range

Menu-2601: Set External key

Function	Set External key				
Set Range (1~10)	의미	Input1	Input2	Input3	Input4
	▫ 1_Input Type1	ZERO	TARE	TARE_C	PRINT
	▫ 2_Input Type2	ZERO	TARE_C	HOLD	HOLD_C
	▫ 3_Input Type3	ZERO	TARE_C	I-SUM	PRINT
	▫ 4_Input Type4	ZERO	HOLD	HOLD_C	PRINT
	▫ 5_Input Type5	ZERO	I-SUM	G-SUM	PRINT
	▫ 6_Input Type6	ZERO	TARE	TARE_C	G/N
	▫ 7_Input Type7	ZERO	TARE/C	VERDIC	PRINT
	▫ 8_Input Type8	ZERO	PRINT	START	STOP
	▫ 9_Input Type9	START	STOP	HOLD	G/N
	▫ 10_Input Type10	ZERO	PRINT	START	STOP

TARE_C = Tare Clear
TARE/C = Toggle key Tare / Tare Clear
HOLD_C = Hold Clear
G/N = Gross / Net change key

Menu-2602: Relay Mode

Function	Relay Mode	
Set Range (1~12)	Display	Description
	▫ 1_Limit Mode1	Limit Mode 1 (Step 4 Contact Point A Output)
	▫ 2_Limit Mode2	Limit Mode 2 (Fall and Weighing Decision)
	▫ 3_Packer Mode1	Packer Mode 1 (Stepl4 Contact Point B Output)
	▫ 4_Packer Mode2	Packer Mode 2 (Fall and Weighing Decision)
	▫ 5_Checker Mode1	Checker Mode 1 (Step 5 Decision upon Weight Stabilization)
	▫ 6_Checker Mode2	Checker Mode 2 (Step 3 Decision upon Weight Stabilization)
	▫ 7_Checker Mode3	Checker Mode 3 (Weight Level)
	▫ 8_Checker Mode4	Checker Mode 4 (Indentation Management)
	▫ 9_Checker Mode5	Checker Mode 5 (Weight Sorting)
	▫ 10_Auto Tare Packer Mode	Auto Tare Packer Mode
	▫ 11_Auto Tare Auto Packer Mode	Auto Tare Auto Packer Mode(Auto start)
	▫ 12_Auto Zero Auto Packer Mode	Auto Zero Auto Packer Mode(Auto start)

Weighing Output Information per Mode

Relay Mode	OUT 1	OUT 2	OUT 3	OUT 4	OUT 5	OUT 6
▫ 1_Limit Mode1	Step 1	Step 2	Step 3	Step 4	Completed	Zero
▫ 2_Limit Mode2	Step 1	Step 2	Completed	Lower Limit	Upper Limit	Zero
▫ 3_Packer Mode1	Step 1	Step 2	Step 3	Step 4	Completed	Zero
▫ 4_Packer Mode2	Step 1	Step 2	Completed	Lower Limit	Upper Limit	Zero
▫ 5_Checker Mode1	Step 1	Step 2	Step 3	Step 4	Above Step 4	Zero
▫ 6_Checker Mode2	Step 1 (LOW)	Step 2 (HIGH)	Step 3 (OK)	Lower LimitNG	Upper LimitNG	Zero
▫ 7_Checker Mode3	Step 1	Step 2	Step 3	Step 4	Above Step 4	Zero
▫ 8_Checker Mode4	Step 1 (LOW)	Step 2 (HIGH)	Step 3(OK)	Lower LimitNG	Upper LimitG	Zero
▫ 9_Checker Mode5	Step 1 (LOW)	Step 2 (HIGH)	Step 3 (OK)	Lower LimitNG	Upper LimitNG	Zero
▫ 10_Auto Tare Packer	Step 1	Step 2	Completed	Lower Limit	Upper Limit	Zero
▫ 11_Auto Tare Auto Packer	Step 1	Step 2	Completed	Lower Limit	Upper Limit	Zero
▫ 10_Auto Zero Auto Packer	Step 1	Step 2	Completed	Lower Limit	Upper Limit	Zero

Set Point Mapping Information per Mode

Relay Mode	SP1	SP2	SP3	SP4	SP5	SP6
▫ 1_Limit Mode1	Step 1	Step 2	Step 3	Step 4		
▫ 2_Limit Mode2	Step 1	Step 2		Fall Value	Upper Limit	Lower Limit
▫ 3_Packer Mode1	Step 1	Step 2	Step 3	Step 4		
▫ 4_Packer Mode2	Step 1	Step 2		Fall Value	Upper Limit	Lower Limit
▫ 5_Checker Mode1	Step 1	Step 2	Step 3	Step 4		
▫ 6_Checker Mode2	Step 1 (LOW)	Step 2 (HIGH)		Fall Value	Upper Limit	Lower Limit
▫ 7_Checker Mode3	Step 1	Step 2	Step 3	Step 4		
▫ 8_Checker Mode4	Step 1 (LOW)	Step 2 (HIGH)		Fall Value	Upper Limit	Lower Limit
▫ 9_Checker Mode5	Step 1 (LOW)	Step 2 (HIGH)		Fall Value	Upper Limit	Lower Limit
▫ 10_Auto Tare Packer	Step 1	Step 2		Fall Value	Upper Limit	Lower Limit
▫ 11_Auto Tare Auto Packer	Step 1	Step 2		Fall Value	Upper Limit	Lower Limit
▫ 10_Auto Zero Auto Packer	Step 1	Step 2		Fall Value	Upper Limit	Lower Limit

Note 1. See the above Table for Set Point Values applied for each weighing per mode

Menu-2603

Function	Set Start Delay Time for completed Relay(T1)	
Set Range (0 ~ 99)	Display Part	Meaning
	Initial Value: **10** x 0.1 Sec	Delayed by 00 x 0.1 Sec

Menu-2604

Function	Set Operating Duration Time for completed Relay(T2)	
Set Range (0 ~ 99)	Display Part	Meaning
	Initial Value: **10** x 0.1 Sec	Delayed by 00 x 0.1 Sec

Menu-2605

Function	Set Start Delay Time for Decision Relay(T3)	
Set Range (0 ~ 99)	Display Part	Meaning
	Initial Value: **10** x 0.1 Sec	Delayed by 00 x 0.1 Sec

Menu-2606

Function	Set Operating Duration Time for Decision Relay(T4)	
Set Range (0 ~ 99)	Display Part	Meaning
	Initial Value: **20** x 0.1 Sec	Delayed by 00 x 0.1 Sec

Menu-2607

Function	Set Operating Time for Weighing NG Relay(T5)	
Set Range (0 ~ 99)	Display Part	Meaning
	Initial Value: **20** x 0.1 Sec	Delayed by 00 x 0.1 Sec

Menu-2608

Function	Relay Operating Range	
Set Range (1 ~ 3)	Display Part	Meaning
	▫ Relay out in + range	Relay is operating in only +(weight) range
	▫ Relay out in - range	Relay is operating in only -(weight) range
	▫ Relay out in ± range	Relay is operating in +,-(weight) range

Menu-2610

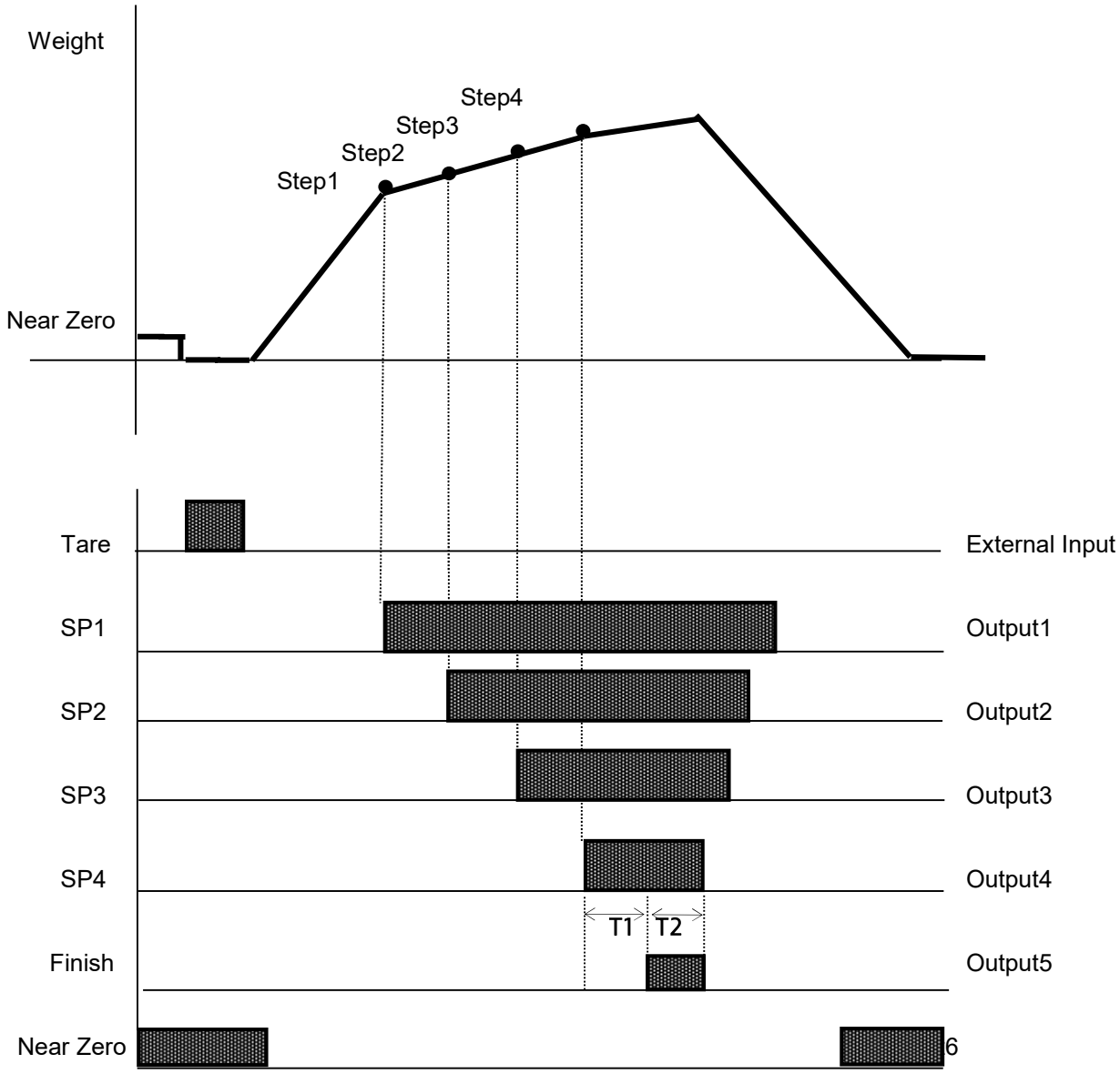
Function	Set Restart delay time (T6)	
Set Range (0 ~ 99)	Display Part	Meaning
	Initial Value: **20** x 0.1 Sec	Delayed by 00 x 0.1 Sec

Menu-2611

Function	Start condition of Packer mode 1	
Set Range (1 ~ 2)	Display Part	Meaning
	▫ Operate in Zero	Relay start operating is only zero range
	▫ Always operating	Relay start operating is always

6. Relay Timing graph

<Limit mode 1> Relay Operation Graph upon Setting No. 1 of Menu 2602

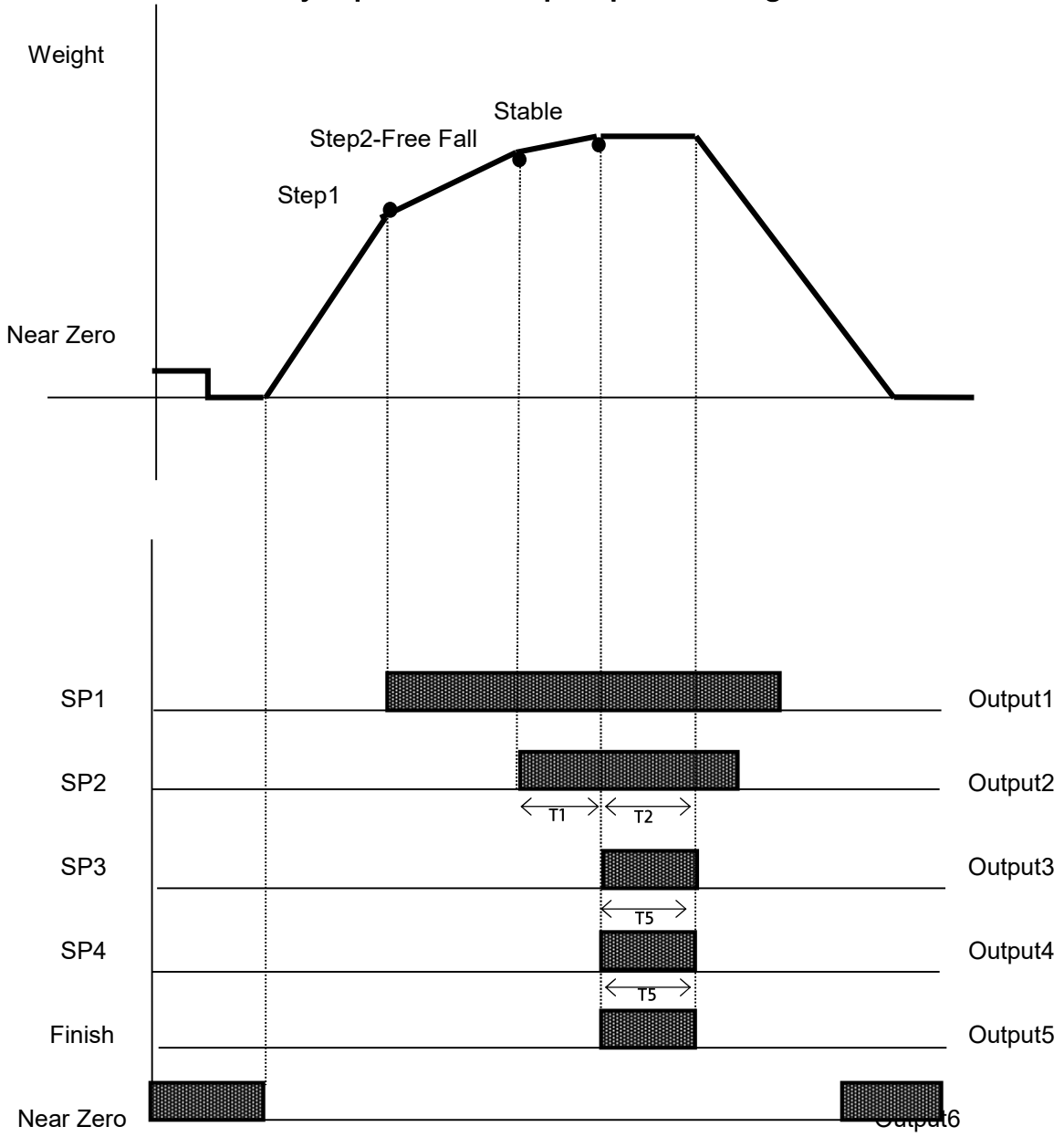


Note.
1. Required set value input: Step4> Step3> Step2> Step1
2. Near zero output is according to the specified range in M-2123.
3. T1: Refer toM-2603 (Delay time of weighing Finish relay output)
   T2: Refer to M-2604 (Operation time of weighing Finish relay output)
4. Relay Output

SP1 : ON when the set value of Step1 is reached
SP2 : ON when the set value of Step2 is reached
SP3: ON when the set value of Step3 is reached
SP4: ON when the set value of Step4 is reached
Finish : ON after T1(set time), ON for the during of T2 (set time)
Near Zero: M-2123 set value ≥ 0 range output

5. Status lamp in the front panel is operated in the same manner as the RELAY output.

<Limit mode 2> Relay Operation Graph upon Setting No. 2 of Menu 2602

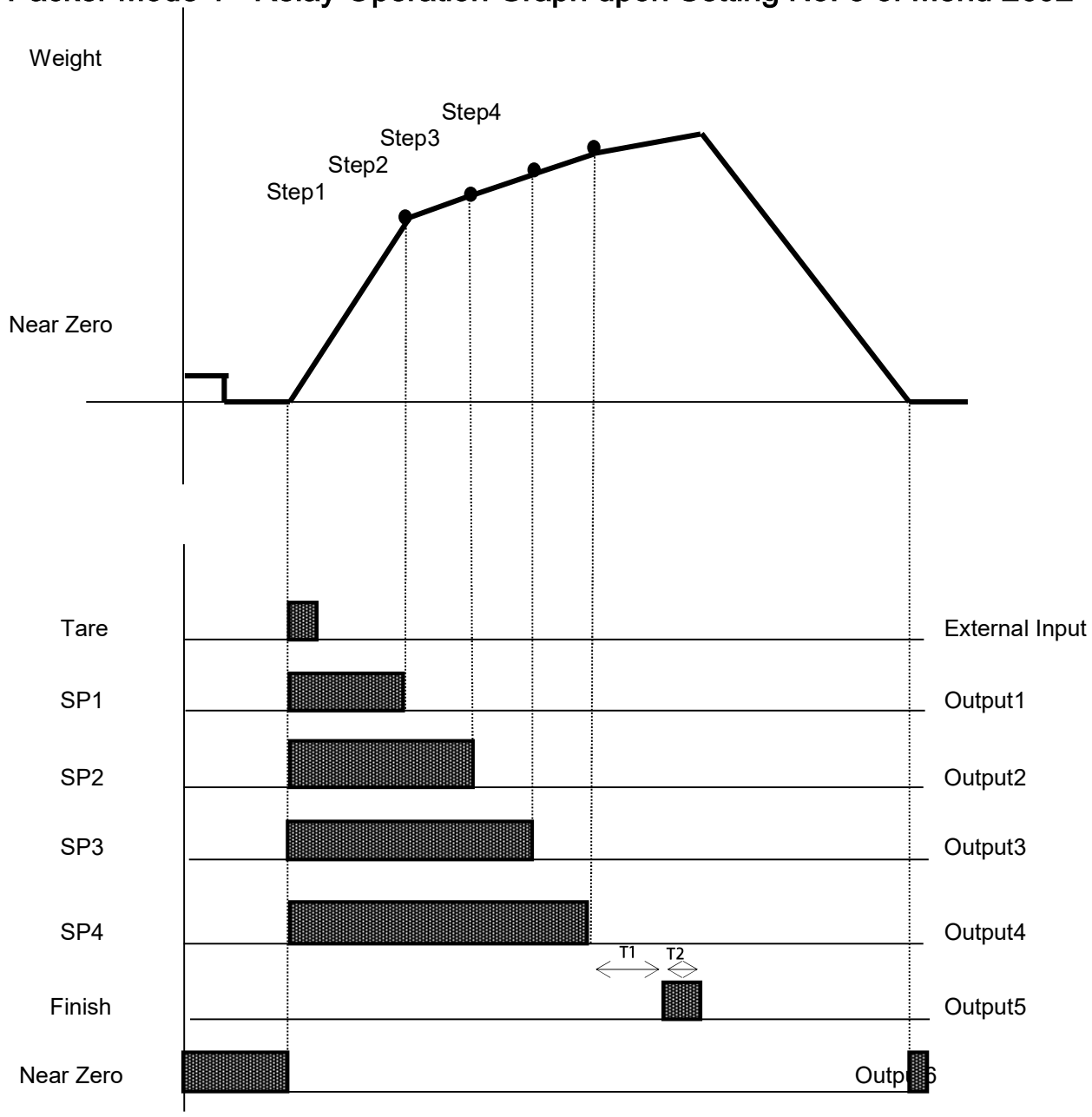


Note.
1. Set value input requirement: Step2– Free Fall > Step1
2. Near zero output is according to the specified range in M-2123.
3. T1: Refer to M-2603 (Delay time of weighing Finish relay output)
   T2: Refer to M-2604 (Operation time of weighing Finish relay output)
   T5: Refer to M-2607 (Operation(ON) time of Weighing NG relay output)
4. Relay Output

SP1: ON when the set value of Step1 is reached
SP2: ON when the set value of Step1 – free fall is reached
Finish : On after T1 (set time), ON after T2 (set time)
Lowest Limit NG: Upon weighing finish, ON when lower than the set value of Step2 – Lowest Limit NG
Upper Limit NG: Upon weighing finish, ON when higher than the set value of Step2 + Upper Limit NG
Near zero: M-2123 set value ≥ 0 range output

5. Status lamp in the front panel is operated in the same manner as the RELAY output

<Packer Mode 1> Relay Operation Graph upon Setting No. 3 of Menu 2602



Note.

1. Required set value input: Step4> Step3 > Step2> Step1
2. Near zero output is according to the specified range in M-2123.
3. T1: Refer to M-2603 (Delay time of weighing Finish relay output)
   T2: Refer to M-2604 (Operation time of weighing Finish relay output)
4. Relay Output

SP1: OFF when the set value of Step1 is reached
SP2: OFF when the set value of Step2 is reached
SP3: OFF when the set value of Step3 is reached
SP4: OFF when the set value of Step4 is reached
Finish: ON after T1(set time), ON for the during of T2 (set time)
Near Zero: M-2123 set value ≥ 0 range output

5. Status lamp in the front panel is operated in the same manner as the RELAY output

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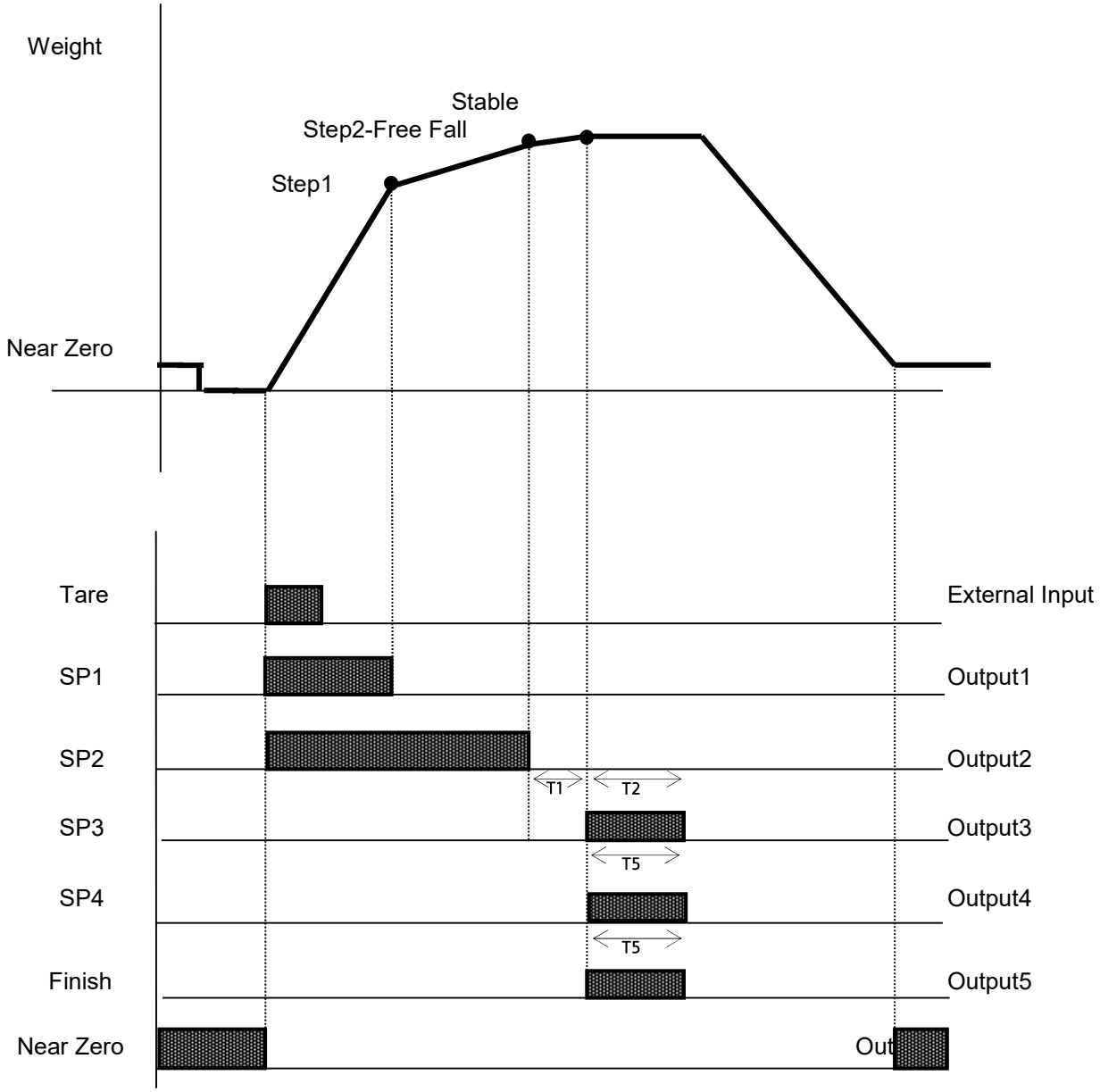
<Packer Mode 2> Relay Operation Graph upon Setting No. 4 of Menu 2602

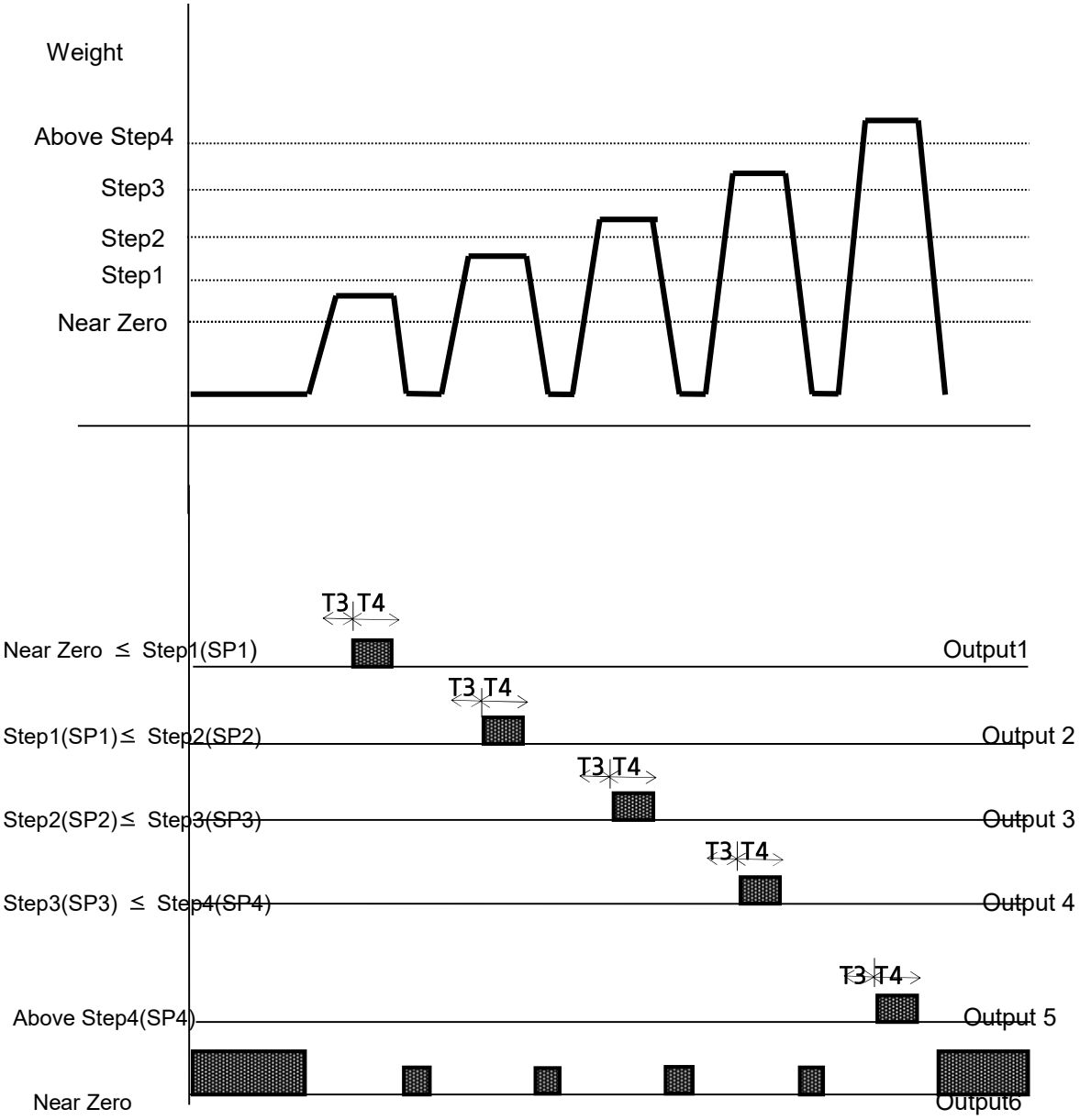


Note.
1. Set value input requirement: Step2– Free Fall > Step1
2. Near zero output is according to the specified range in M-2123
3. T1: Refer toM-2603 (Delay time of weighing Finish relay output)
   T2: Refer to M-2604 (Operation time of weighing Finish relay output)
   T5: Refer to M-2607 (Operation(ON) time of weighing NG relay output)
4. Relay Output

SP1: OFF when the set value of Step1 is reached
SP2: OFF when the set value of Step2– free fall is reached
Finish: On after T1 (set time), ON after T2 (set time)
Lower Limit NG: ON when smaller than the value of Step2 – Free Fall
Lowest Limit NG: Upon weighing finish, ON when lower than the set value of Step2 – Lowest Limit NG
Upper Limit NG: Upon weighing finish, ON when higher than the set value of Step2 + Upper Limit NG

5. Status lamp in the front panel is operated in the same manner as the RELAY output.

<Checker mode1> Relay Operation Graph upon Setting No. 5 of Menu 2602

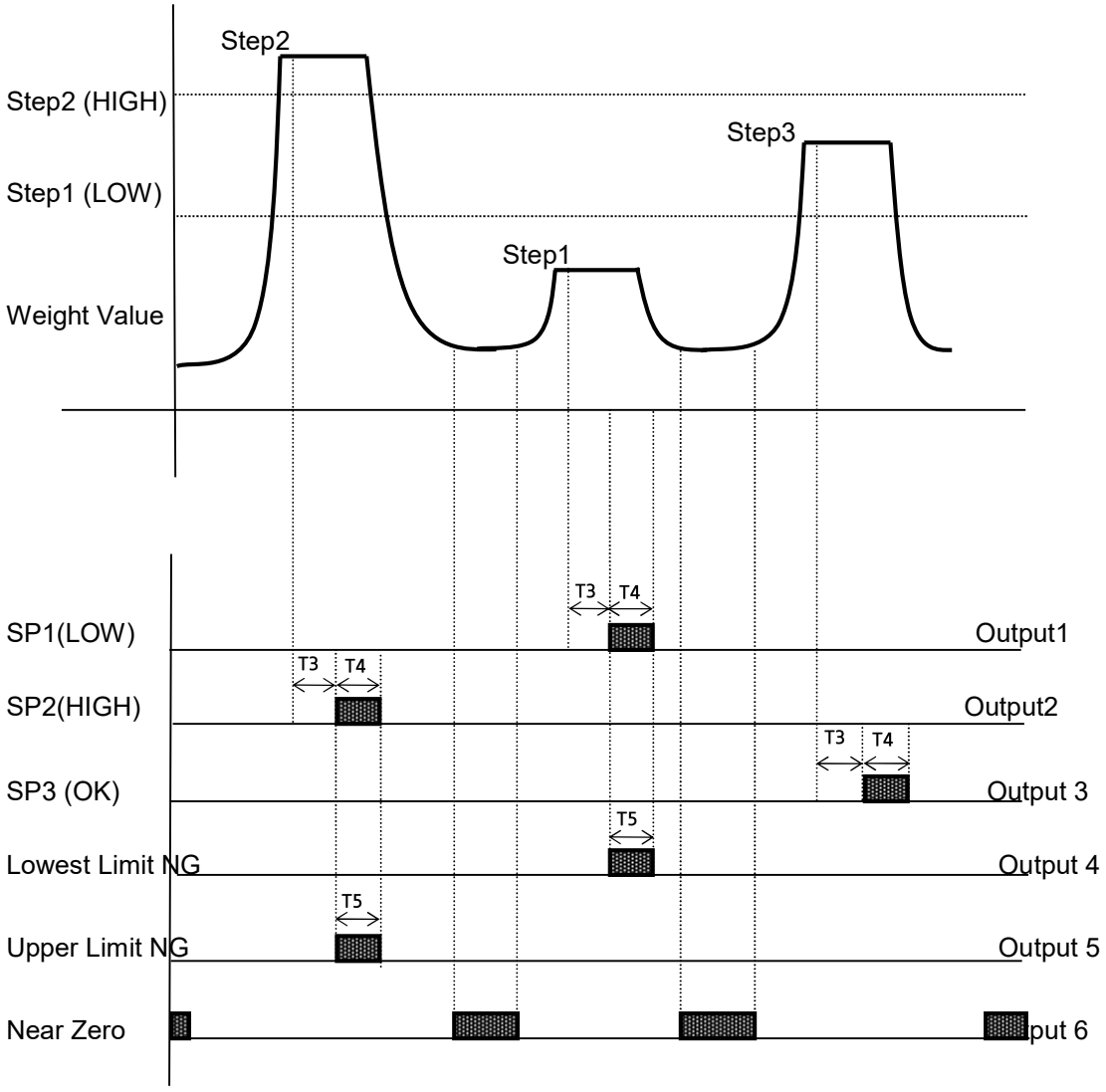


Note.
1. Required set value input: Step4> Step3) > Step2) > Step1
2. Near zero output is according to the specified range in M-2123
3. T3: Refer to M-2605 (Delay time of judgment-relay output)
   T4: Refer to M-2606 (Operation time of judgment-relay output)
4. Relay Output

SP1: Near Zero < Stable Weight ≤Step1
SP2: Step1< Stable Weight ≤ Step2
SP3: Step2< Stable Weight ≤ Step3
SP4: Step3< Stable Weight ≤ Step4
Above SP4: Stable Weight ≤Above Step4
Near Zero: M-2123 Set Value ≥ 0 range output

5. Status lamp in the front panel is operated in the same manner as the RELAY output.

<Checker mode2> Relay Operation Graph upon Setting No. 6 of Menu 2602

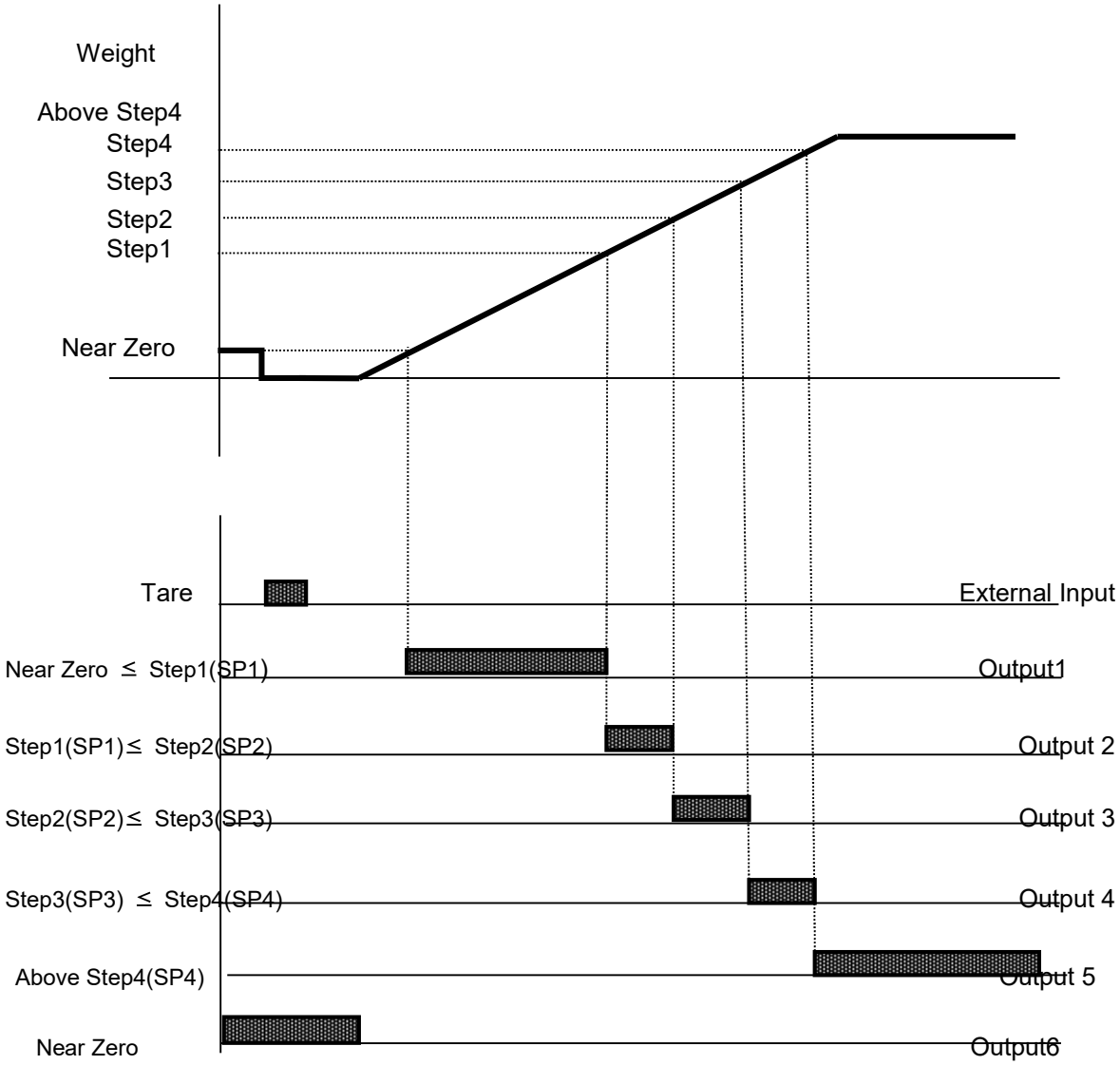


Note.
1. Required set value input: Step4> Step3) > Step2) > Step1
2. Near zero output is according to the specified range in M-2123
3. T3: Refer to M-2605 (Delay time of judgment-relay output)
   T4: Refer to M-2606 (Operation time of judgment-relay output)
4. Relay Output

SP1: Near Zero < Stable Weight ≤Step1
SP2: Step1< Stable Weight ≤ Step2
SP3: Step2< Stable Weight ≤ Step3
SP4: Step3< Stable Weight ≤ Step4
Above SP4: Stable Weight ≤Above Step4
Near Zero: M-2123 Set Value ≥ 0 range output

5. Status lamp in the front panel is operated in the same manner as the RELAY output.

<Checker mode3> Relay Operation Graph upon Setting No. 7 of Menu 2602

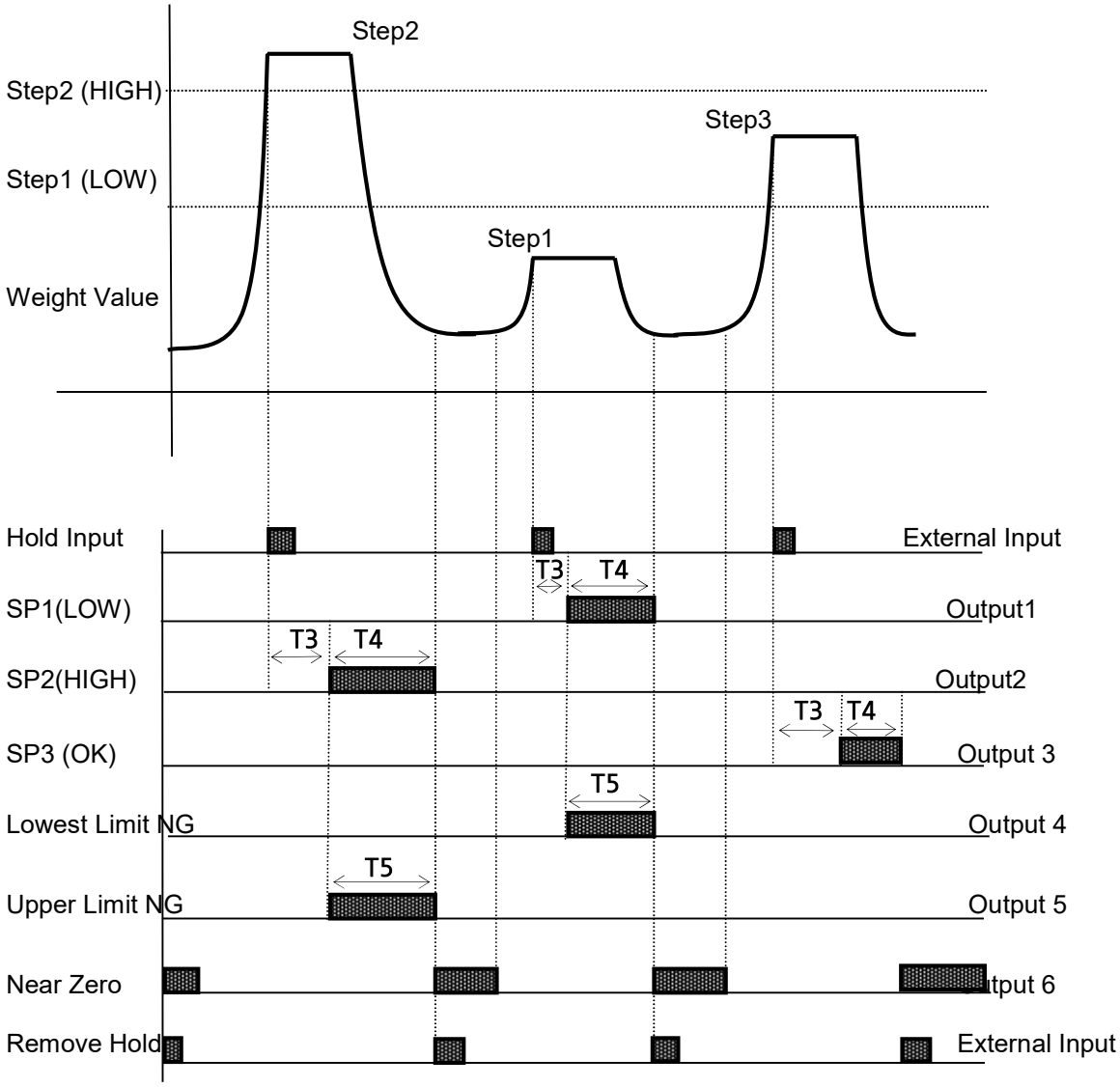


Note.
1. Required set value input: Step4(SP4) > Step3(SP3) > Step2(SP2) > Step1(SP1)
2. Near zero output is according to the specified range in M-2123
3. Each output relay will output if it reaches the set value or is within the range
4. Relay Output

SP1: Output(operated) in between Near Zero and Step 1
SP2: Output(operated) in between Step 1 and Step 2
SP3: Output(operated) in between Step 2 and Step 3
SP4: Output(operated) in between Step 3 and Step 4
Above SP4: Output(operated) when over Step 4 value
Near Zero: M-2123 Set Value ≥ 0 Range Output

5. Status lamp in the front panel is operated in the same manner as the RELAY output.

<Checker mode4> Relay Operation Graph upon Setting No. 8 of Menu 2602

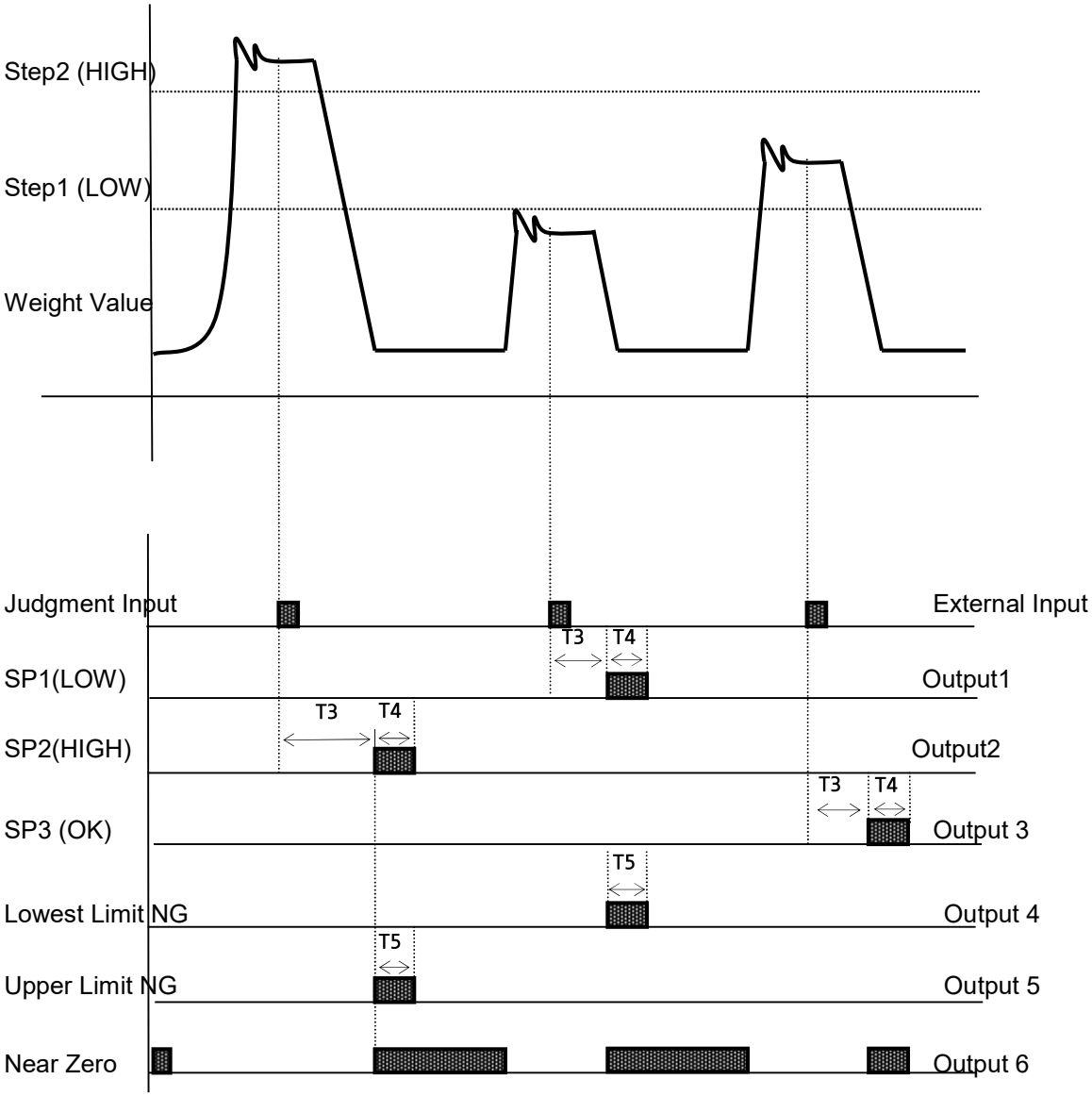


Note.
1. Required set value input: Step2 > Step1
2. Near zero output is according to the specified range in M-2123
3. T3: Refer toM-2605 (Delay time of judgment-relay output)
   T4: Refer to M-2606 (Operation time of judgment-relay output)
   T5: Refer to M-2607 (Operation(ON) time of weighing NG relay output)
4. This is the mode that judges via Hold Input
5. Relay Output

SP1 (LOW): During Hold Input, ON when it is below the value of Step1
SP2 (HIGH): During Hold Input, ON when it is over the set value of Step2.
SP3 (OK): During Hold Input, ON when it is in between Step1 ≤Step2
Lowest Limit NG: ON during Step1 Output, adjust Output Time on T5
Upper Limit NG: ON during Step 2 Output, adjust Output Time on T5
Near Zero: M-2123 Set Value ≥ 0 Range Output

6. Status lamp in the front panel is operated in the same manner as the RELAY output.

<Checker mode5> Relay Operation Graph upon Setting No. 9 of Menu 2602

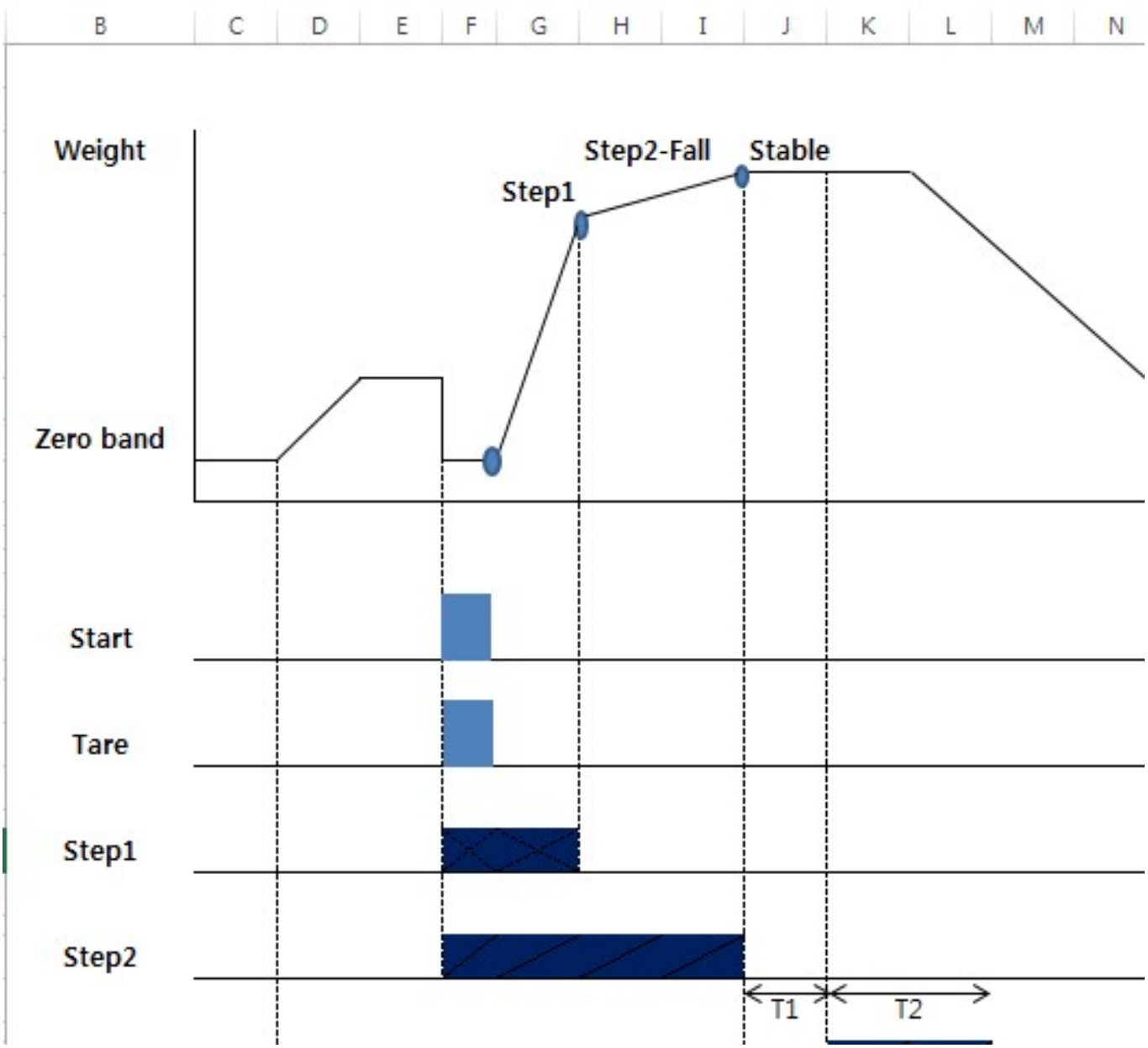


Note.
1. Required set value input: Step 2 > Step 1
2. Near zero output is according to the specified range in M-2123
3. T3: Refer to M-2605 (Delay time of judgment-relay output)
   T4: Refer to M-2606 (Operation time of judgment-relay output)
   T5: Refer to M-2607 (Operation(ON) time of weighing NG relay output)
4.Relay Output

SP1(LOW): During Judgment Input, ON when it is below the value of Step1
SP2(HIGH): During Judgment Input, ON when it is over the set value of Step2
SP3 (OK): During Judgment Input, ON when it is in between Step1 ≤Step2
Lowest Limit NG: ON during Step1 Output, adjust Output Time on T5
Upper Limit NG: ON during Step2 Output, adjust Output Time on T5
Near Zero: M-2123 Set Value ≥ 0 Range Output

5. Status lamp in the front panel is operated in the same manner as the RELAY output.

<Auto Tare Packer Mode> Operation Graph upon Setting No. 10 of Menu 2602



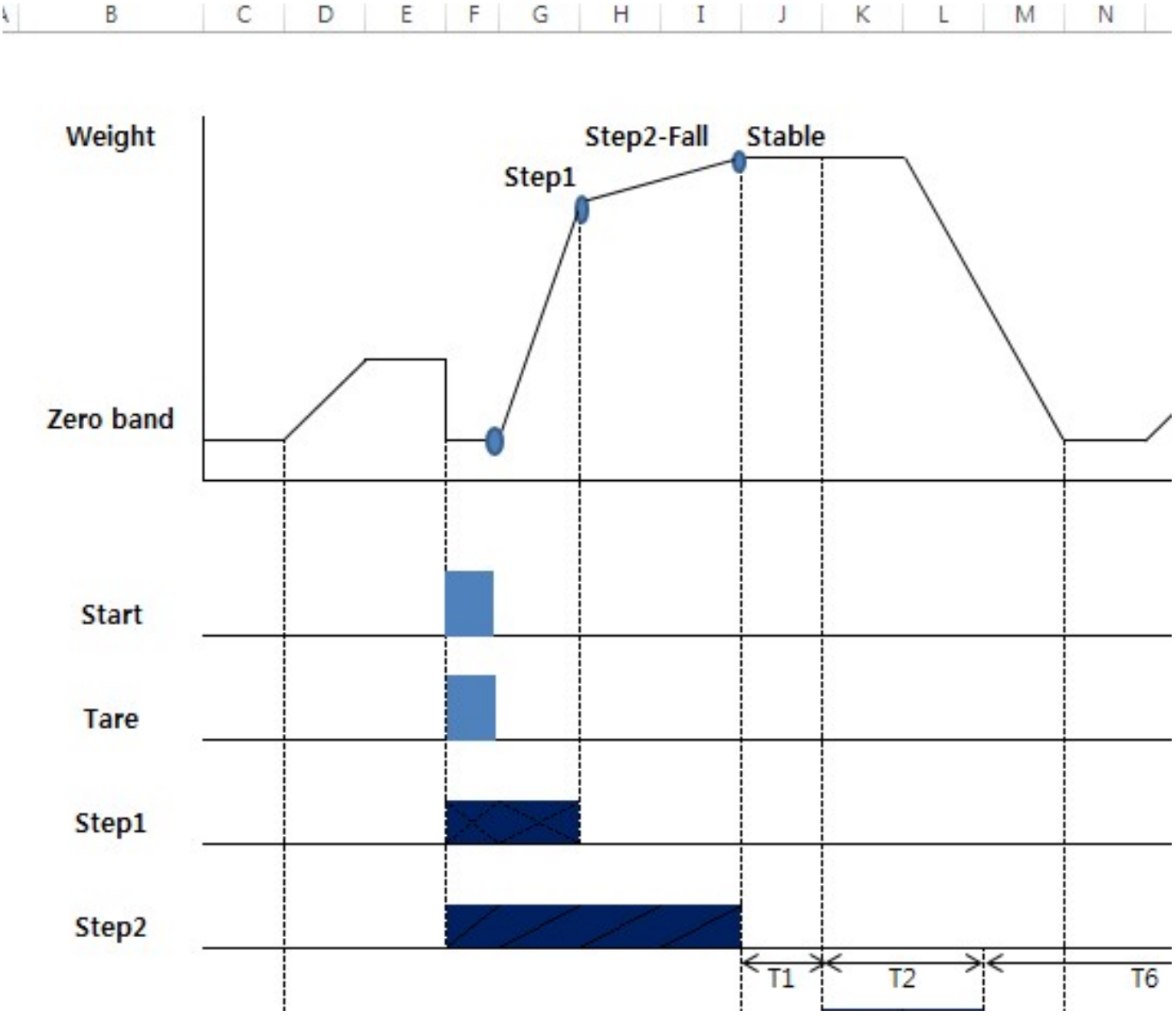
Note.

1. Set value input requirement: Step2– Free Fall > Step1
2. Near zero output is according to the specified range in M-2123
3. T1: Refer toM-2603 (Delay time of weighing Finish relay output)
   T2: Refer to M-2604 (Operation time of weighing Finish relay output)
   T5: Refer to M-2607 (Operation(ON) time of weighing NG relay output)
4. Relay Output

SP1: ON when the set value of Step1 is reached
SP2: ON when the set value of Step2– free fall is reached
Finish: On after T1 (set time), ON after T2 (set time)
Lower Limit NG: ON when smaller than the value of Step2 – Free Fall
Lowest Limit NG: Upon weighing finish, ON when lower than the set value of Step2 – Lowest Limit NG
Upper Limit NG: Upon weighing finish, ON when higher than the set value of Step2 + Upper Limit NG

5. Status lamp in the front panel is operated in the same manner as the RELAY output.

<Auto Tare Auto Packer Mode>Operation Graph upon Setting No.11 of Menu 2602



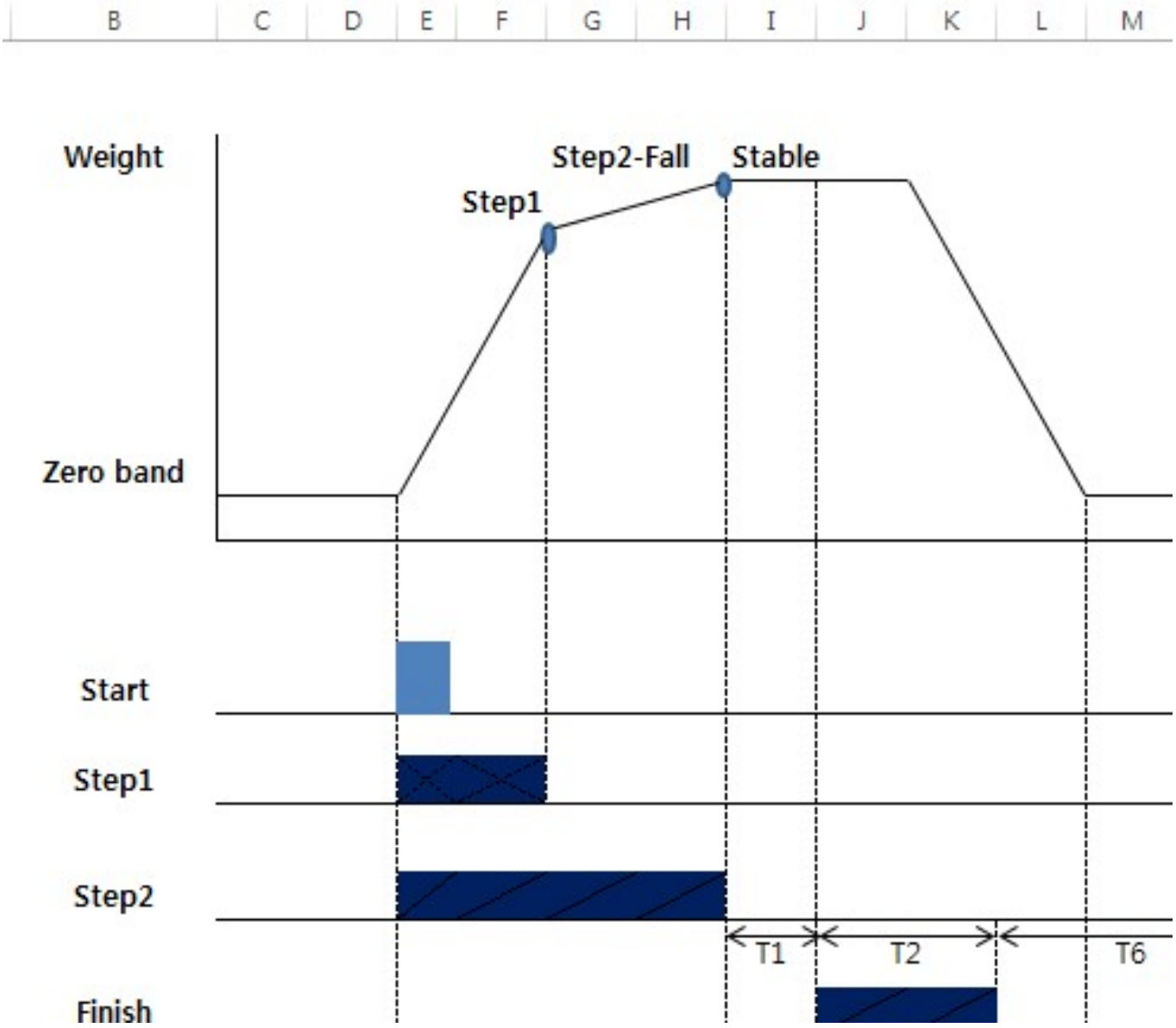
Note.
1. Set value input requirement: Step2– Free Fall > Step1
2. Near zero output is according to the specified range in M-2123
3. T1: Refer toM-2603 (Delay time of weighing Finish relay output)
   T2: Refer to M-2604 (Operation time of weighing Finish relay output)
   T5: Refer to M-2607 (Operation(ON) time of weighing NG relay output)
   T6: Refer to M-2610 (Restart delay time after finish output)

4. Relay Output

SP1: ON when the set value of Step1 is reached
SP2: ON when the set value of Step2– free fall is reached
Finish: On after T1 (set time), ON after T2 (set time)
Lower Limit NG: ON when smaller than the value of Step2 – Free Fall
Lowest Limit NG: Upon weighing finish, ON when lower than the set value of Step2 – Lowest Limit NG
Upper Limit NG: Upon weighing finish, ON when higher than the set value of Step2 + Upper Limit NG

5. Status lamp in the front panel is operated in the same manner as the RELAY output.

<Auto Zero Auto Packer Mode>Operation Graph upon Setting No.12 of Menu 2602



Note.
1. Set value input requirement: Step2– Free Fall > Step1
2. Near zero output is according to the specified range in M-2123
3. T1: Refer toM-2603 (Delay time of weighing Finish relay output)
   T2: Refer to M-2604 (Operation time of weighing Finish relay output)
   T5: Refer to M-2607 (Operation(ON) time of weighing NG relay output)
   T6: Refer to M-2610 (Restart delay time after finish output)

4. Relay Output

SP1: ON when the set value of Step1 is reached
SP2: ON when the set value of Step2– free fall is reached
Finish: On after T1 (set time), ON after T2 (set time)
Lower Limit NG: ON when smaller than the value of Step2 – Free Fall
Lowest Limit NG: Upon weighing finish, ON when lower than the set value of Step2 – Lowest Limit NG
Upper Limit NG: Upon weighing finish, ON when higher than the set value of Step2 + Upper Limit NG

5. Status lamp in the front panel is operated in the same manner as the RELAY output.