EX-2001

Racer Plus

USER INSTRUCTIONS

TABLE OF CONTENTS

r SAFETY

& Disconnect the main power supply before opening the indicator housing or installing / un-installing the instrument.

& Keep the instrument in a cool dry place. Do not store it at high temperatures.

& The operating ambient temperature range is -10°C ~ +40°C.

& F.G. is the ground (electrical earth) connection. (Ground impedance < 100**Ω)** Avoid connecting the ground connection with other equipment. The indicator must always be connected to the electrical ground (earth) for safe operation.

CHAPTER 1 SPECIFICATIONS

ANALOG DATA

Input sensitivity		0.12 μV／D or more
Max. load cell input voltage		-1mV～16mV
Load cell excitation		DC 5V
Load cell current		120mA (8- 350Ω load cells)
Temperature coefficient	Zero	-14.49 ppm/℃ (-10℃～40℃)
	Span	-1.65 ppm/℃ (-10℃～40℃)
Non-linearity		±0.002％FS
Input noise		8nV/√Hz f = 10KHz
Input impedance		250GΩ
Internal resolution		520000
Max. display resolution		-999999～999999
Conversion rate		100 times/sec (max.)

DIGITAL DATA

Display section	7 digits, red LED, 20mm (0.8”), 7-segment
Status display section	6 character display, red LED
Display frequency (times/sec)	Selectable, Max 50
Display range	-999999 to 999999
Min. division	1, 2, 5, 10, 20, 50
Status display	Power, Zero, Motion, Gross, Net, Tare
Decimal point	Selectable 0, 0.0, 0.00, 0.000, 0.0000

GENERAL SPECIFICATIONS

Power requirements (AC/W)	AC100V～240V -15%~＋10% 10W
Operating temperature range	－10℃～＋40℃
Operating humidity range	＜85％ R.H
Physical dimensions	210(W) × 108 (H) × 207(D)
Weight	About 1.7 kg

OPTIONS

OP-01 RS422 / RS-485
OP-2-1 Parallel BCD Output (TTL)
OP-2-2 Parallel BCD Output (O.C.)
OP-03 Analog Output (4 - 20mA)
OP-05 Parallel Printer Output / RS232C & Current Loop
OP-06 RS-232C & Current Loop
OP-07 RS-232C & Current Loop & Data Clock Output
OP-08 Control I / O (2I / 4O)

CHAPTER 2 OPERATION GUIDE

FUNCTION	OPERATION PROCEDURE	DESCRIPTION
General function setting	Press and hold the [ENTER] key, then press the [Fn]	Refer to Chapter 9 Functions Table to set FUNC. 0 ~ FUNC. 7
Capacity parameter setting	Switch the capacity calibration switch to “ON” and then press the [Fn]	Set the parameter for decimal point, max. capacity, min. division, zero tracking, unstable detection Refer to < 5-1 > Parameter Setting
Calibration	Switch the capacity calibration switch to “ON” and then press the [CAL]	Calibration procedures. Refer to < 5-2 > Calibration Setting
Self-diagnosis mode	Turn on the indicator, press and hold [ENTER] and [GROSS/NET] the indicator starts the self-test procedure.	Refer to < 8-3 > Self-diagnosis Mode for details
Reset all parameters back to default	Switch the calibration switch to “ON”, turn on the indicator, press and hold [Fn] and [ENTER] while the indicator is in the self-testing sequence	Refer to < 8-1 > Reset All Parameter Back to Default
Reset general function parameter back to factory standard setting	Turn on the indicator, press and hold [Fn], followed by pressing [ENTER] while the indicator is in the self-testing sequence	Refer to < 8-2 > Reset General Function Parameter Back to Default
Display software version	Turn on the indicator, press and hold the [CAL] while the indicator is in the self-test sequence	The main display section displays the software version, press any key to exit
Function parameter setting	Press and hold [ENTER], followed by pressing [CAL]	Hi, Lo, Zero Band parameter setting

4 Operation of **Keys in the Setting Mode**

⇒ Cycles the flashing character from 0 to 9

⇒ Shifts the flashing character to the left

⇒ Cycles the flashing character from 9 to 0

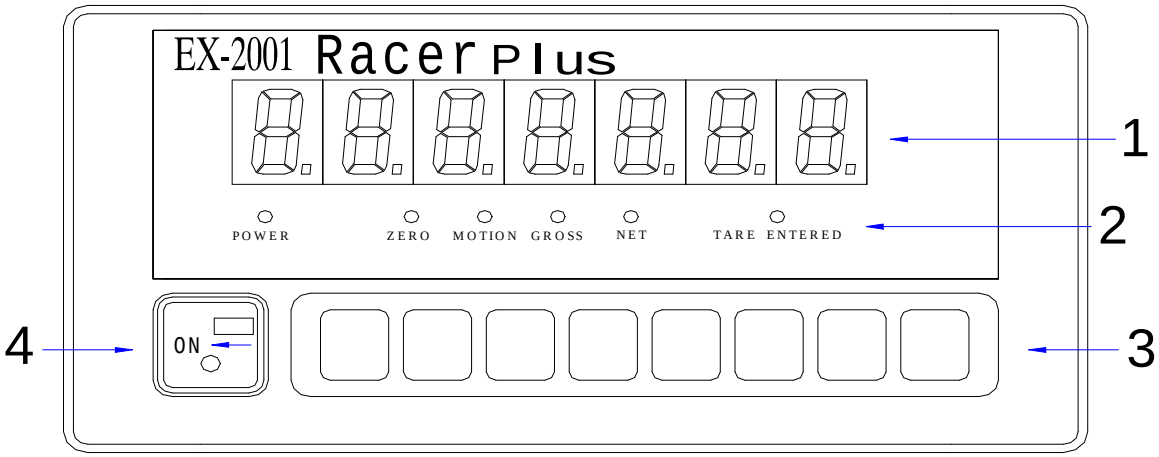
⇒ Save data

⇒ Shifts the flashing character to the right

⇒ Quit / Exit

CHAPTER 3 FRONT AND REAR PANEL

3-1 FRONT PANEL



1 MAIN DISPLAY

- Displays gross weight or net weight

2 STATUS INDICATION LIGHTS

☼ POWER	:	Power Indication
☼ ZERO	:	Zero status indication
☼ MOTION	:	Unstable weighing indication
☼ GROSS	:	Main display section currently displays gross wt.
☼ NET	:	Main display section currently displays net wt.
☼ TARE ENTERED	:	Tare indication

3 KEYS

STANDBY / OPERATE
1) Standby mode ON/OFF
2) When setting the parameter or calibration, it works as quit or exit from setting

ZERO / +
1) Sets weight back to zero
2) When setting the parameter or calibration, it cycles from 0 to 9

TARE / −
1) Tare function
2) When setting the parameter or calibration, it cycles from 9 to 0

GROSS / NET / ←
1) Switches between gross wt. / net wt. on the main display
2) When setting the parameter or calibration, it shifts the flashing character to the left

PRINT / →
1) Manually output serial / parallel data
2) When setting the parameter or calibration, it shifts the flashing character to the right

F n
1) Weight accumulation, sub-total function (for OP-05)
2) Sets capacity parameter

C A L
1) Weight accumulation, grand-total function (for OP-05)
2) Capacity calibration

ENTER / ↵
Confirmation key

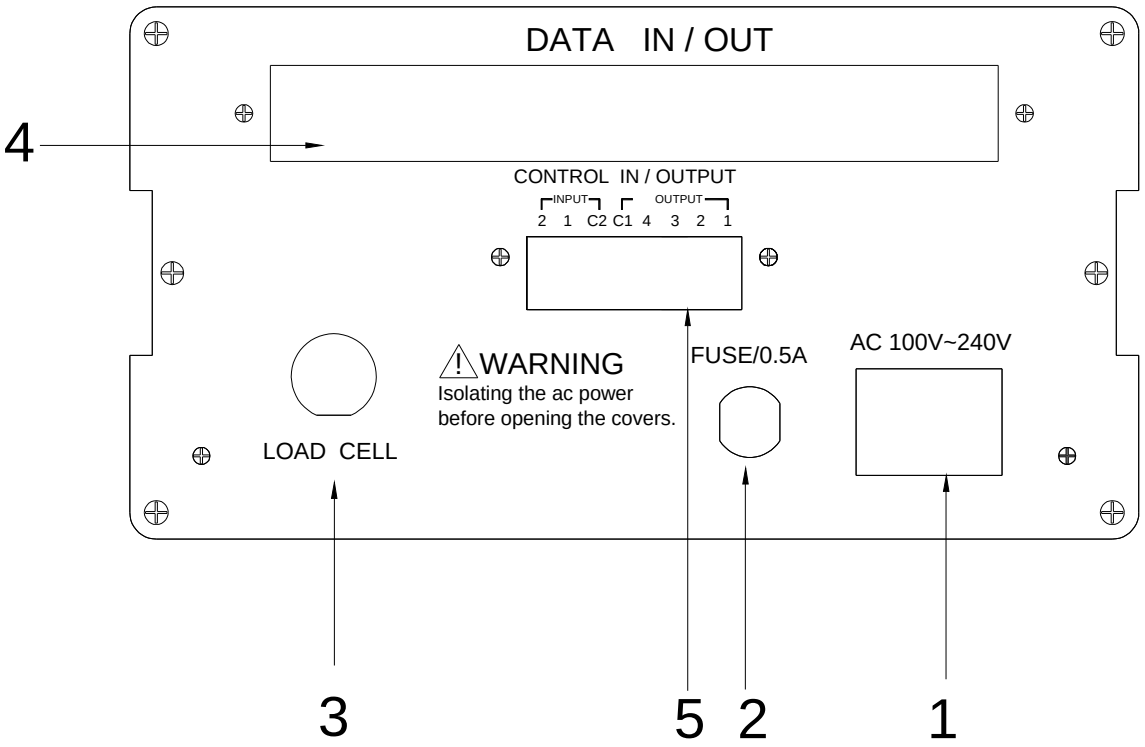
4 CAPACITY PARAMETER & CALIBRATION SWITCH

Loosen the black plastic screw and open the square cap on the front panel.

Slide the switch to the left is “ON”

Slide the switch to the right is “OFF”

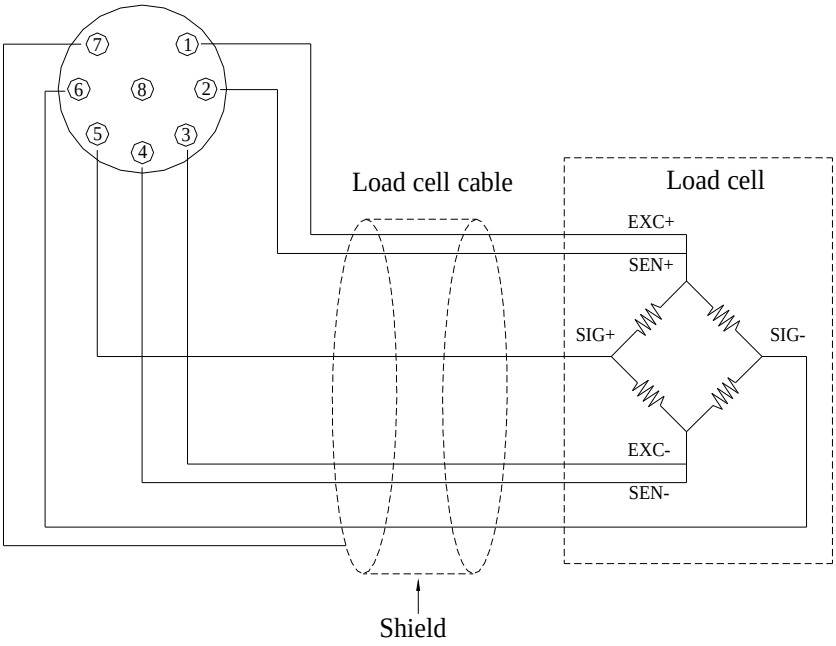
3-2 REAR PANEL



1. AC power in terminal
2. Fuse 250V / 0.5A
3. Load cell connector
4. Optional interface location (if fitted)
5. Control I/O Interface location

CHAPTER 4 INSTALLATION

4-1 LOAD CELL

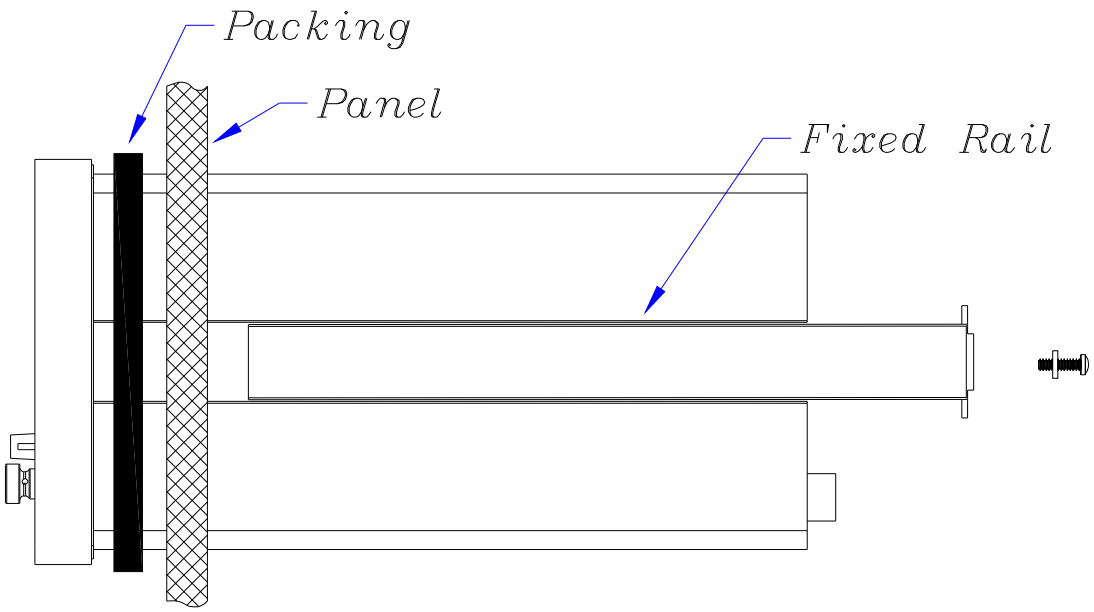


Four-wire (five-wire) load cell
Pin 1 & 2 short, connected to EXC+
Pin 3 & 4 short, connected to EXC-
Pin 5 connected to SIG+
Pin 6 connected to SIG-
Pin 7 connected to the Shield

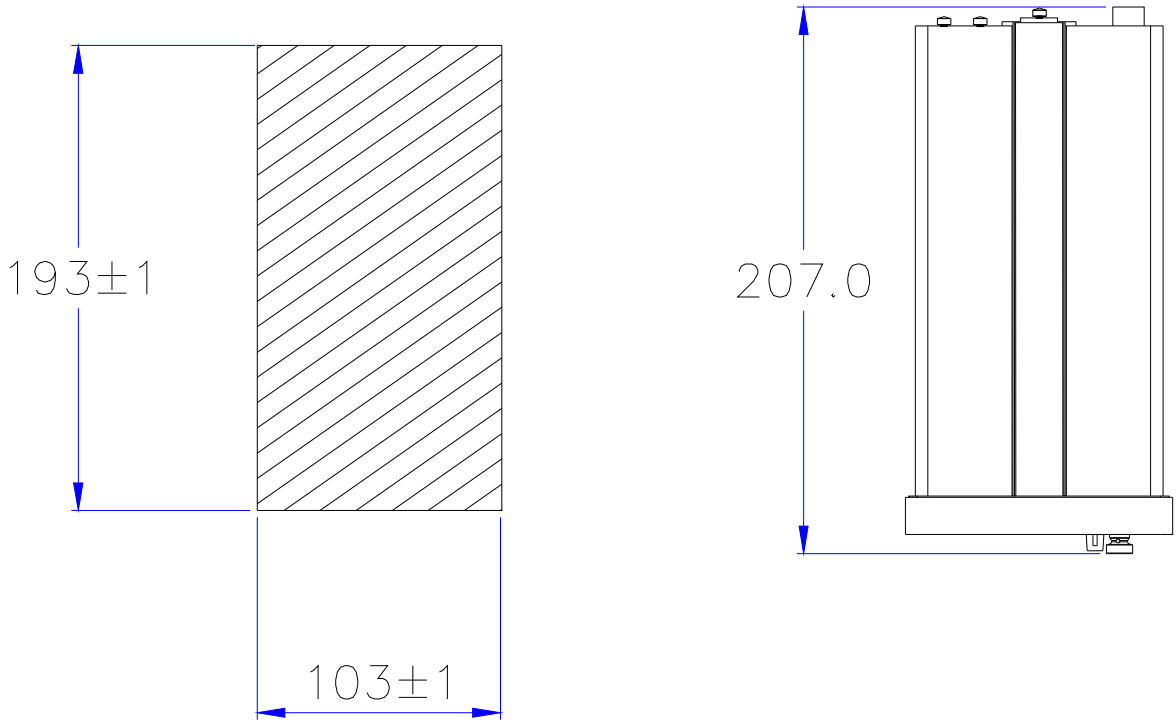
Six-wire (seven-wire) load cell
Pin 1 connected to EXC+
Pin 2 connected to SEN+
Pin 3 connected to EXC-
Pin 4 connected to SEN-
Pin 5 connected to SIG+
Pin 6 connected to SIG-
Pin 7 connected to the Shield

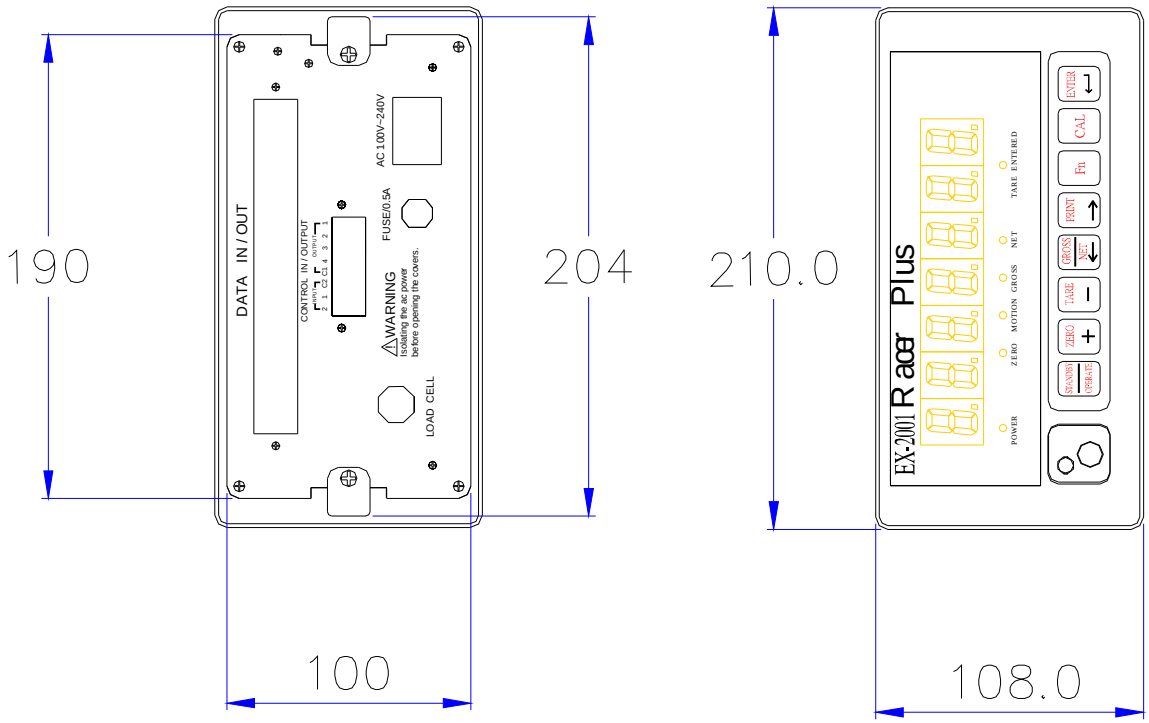
4-2 INDICATOR INSTALLATION AND DIMENSIONS

2 The indicator can be installed in a control panel as detailed below



2 INDICATOR DIMENSIONS (measurement unit: mm)





CHAPTER 5 CAPACITY CALIBRATION

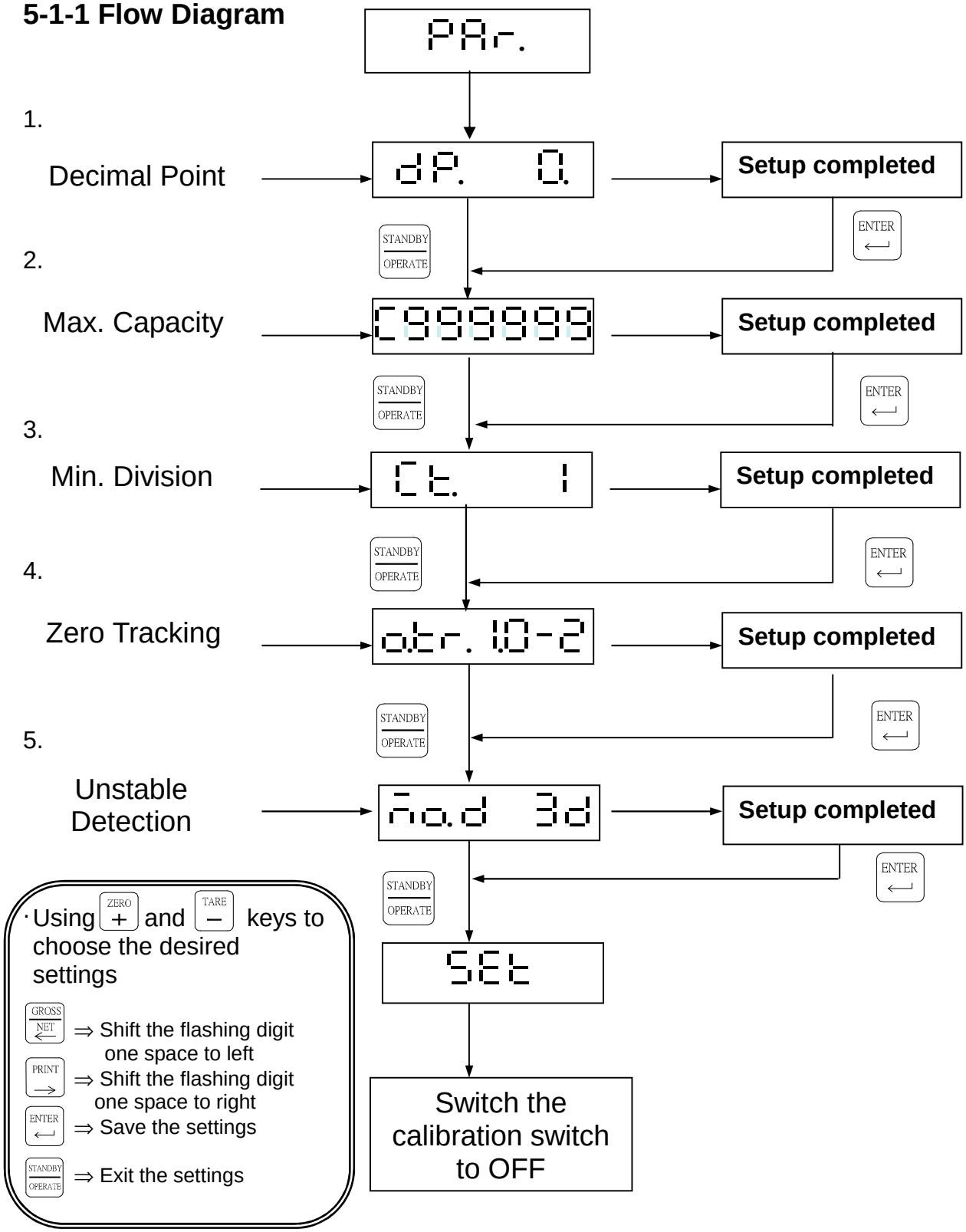
5-1 PARAMETER SETTING

Switch the capacity calibration switch to “ON” and the display shows SEt .

Press the [Fn] key and the display shows PAr. then enter the setting mode.

Refer to 3-1 Front Panel for the key functions to set the relative parameters.

5-1-1 Flow Diagram



5-1-2 Description

1) Decimal Point

Setting the weight decimal point position, with the following options: 0, 0.0, 0.00, 0.000, 0.0000.

2) Max. Capacity

Depending on the decimal point position, the max capacity can be set from 99.999 to 999999.

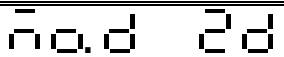
3) Min. Division

Depending on the decimal point position and the max capacity, the min. division could be set as 1, 2, 5, 10, 20, 50.

4) Zero Tracking

Display	Division / Time
atr. 1.0-1	1 D / 1 sec
atr.2.0-1	2 D / 1 sec
atr.3.0-1	3 D / 1 sec
atr.4.0-1	4 D / 1 sec
atr. 1.0-2	1 D / 2 sec
atr.2.0-2	2 D / 2 sec
atr.3.0-2	3 D / 2 sec
atr.4.0-2	4 D / 2 sec
atr. no	No zero tracking

5) Unstable Detection

Display	Division / Time
	1 d / sec
	2 d / sec
	3 d / sec
	4 d / sec
	5 d / sec
	No detection

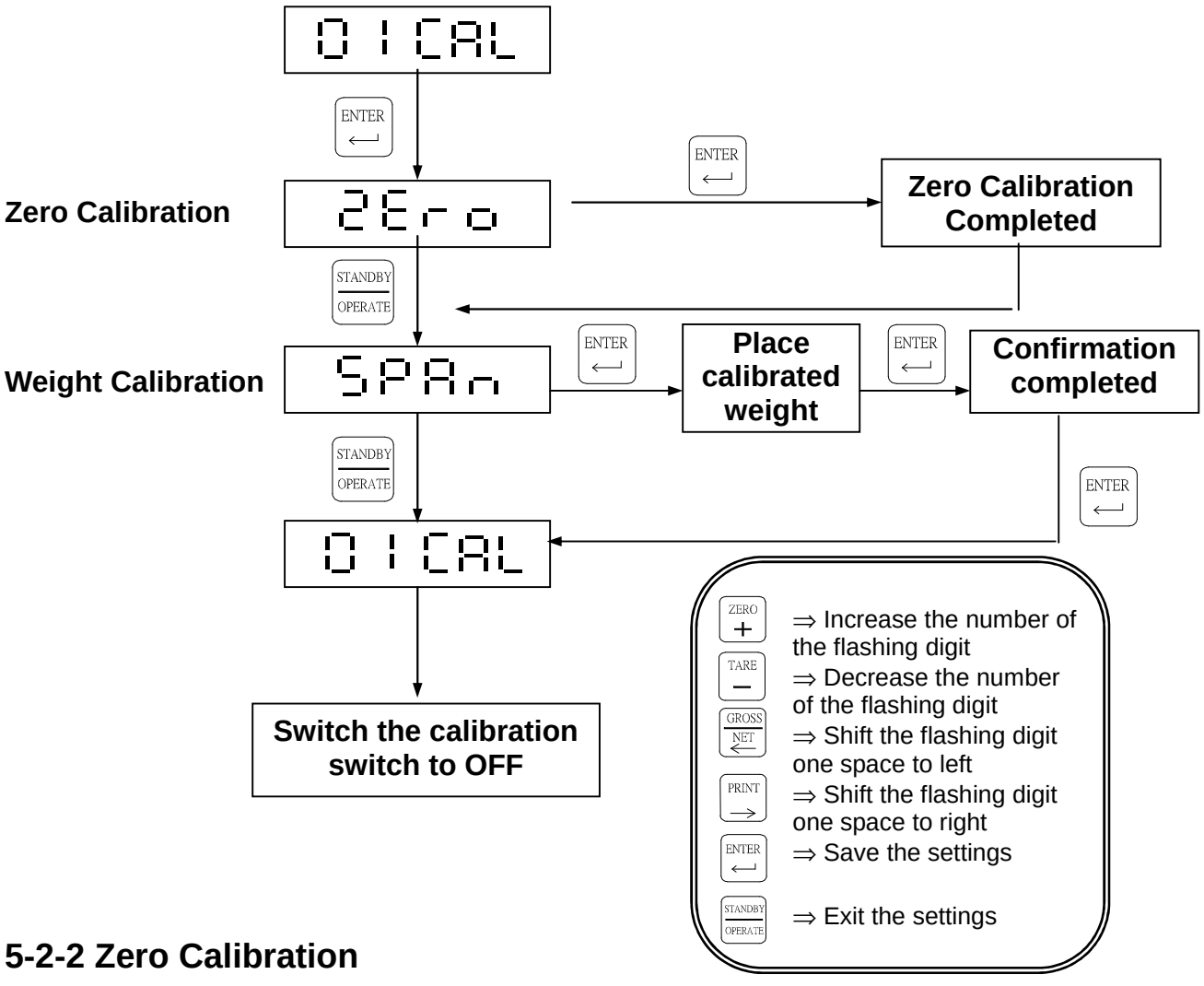
5-2 CALIBRATION SETTING

Please allow the indicator to warm up at least 15 to 30 minutes before calibration.

Switch the capacity calibration switch to “ON” and the display shows SEt.

Press the CAL key and the display shows 00 CAL. then enter the setting mode.

5-2-1 Calibration Procedure



5-2-2 Zero Calibration

a) Make sure that there are no objects on the weighing platform and press the ENTER key, after the indicator has stabilized the display will show “ ……. ”. The calibration is completed after about 5 seconds.

b) To skip the “Zero calibration” procedure, press the STANDBY OPERATE key.

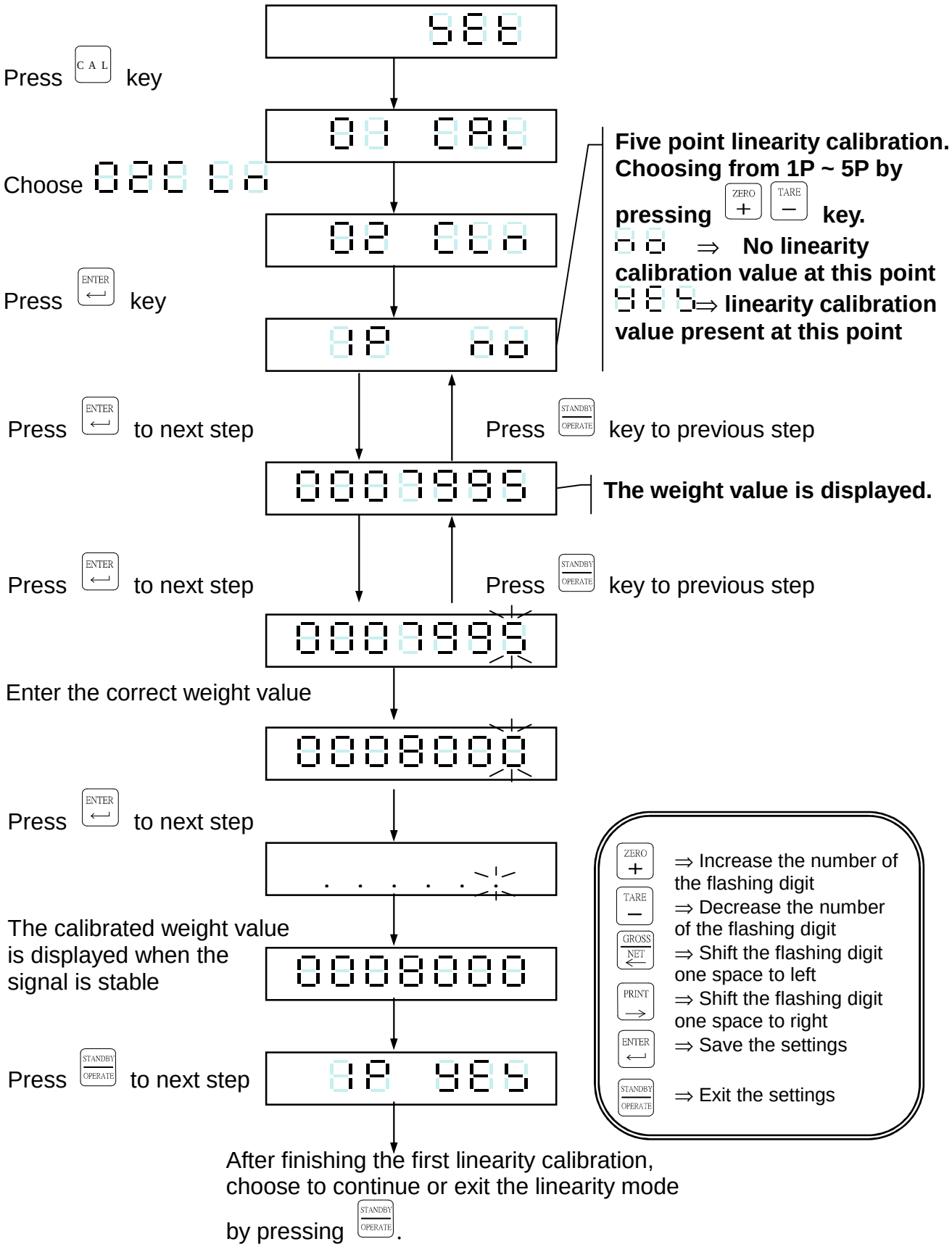
5-2-3 Weight Calibration

a) Place an accurate weight onto the platform; use the front panel keys to key in the weight value. Press the ENTER key, after the indicator is stabilized the display will show “ ……. ”. The calibration is completed after about 5 seconds.

b) To skip the weight calibration, press the STANDBY OPERATE .

5-2-4 Linearity Calibration

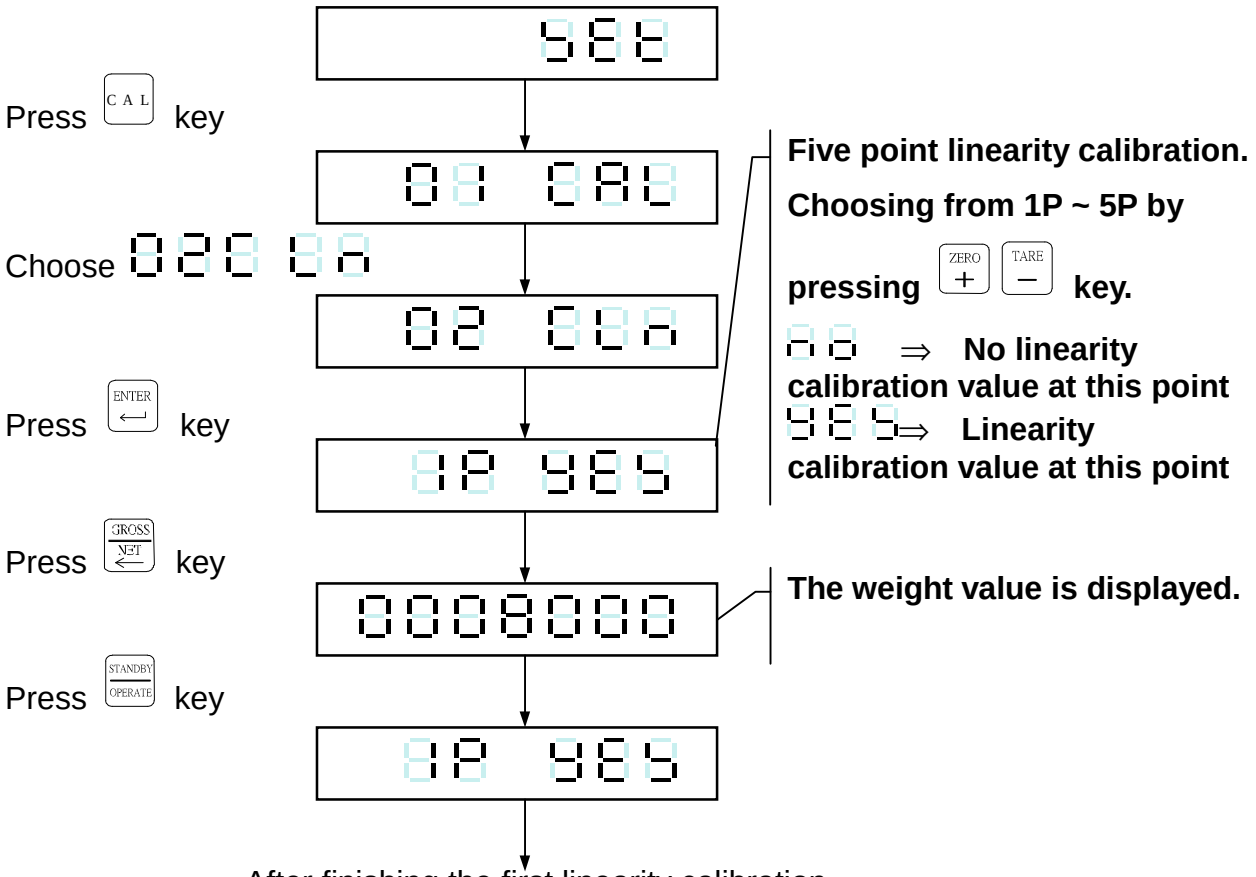
Before linearity calibration, make sure “Zero calibration” and “Weight Calibration” are properly performed. Set the calibration switch to ON position.

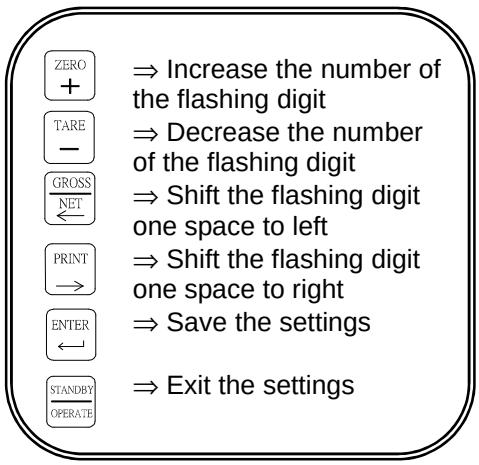


◆ Refer to 5-4 Error Messages when any error message appears during the procedure.

Recall Linearity correction point

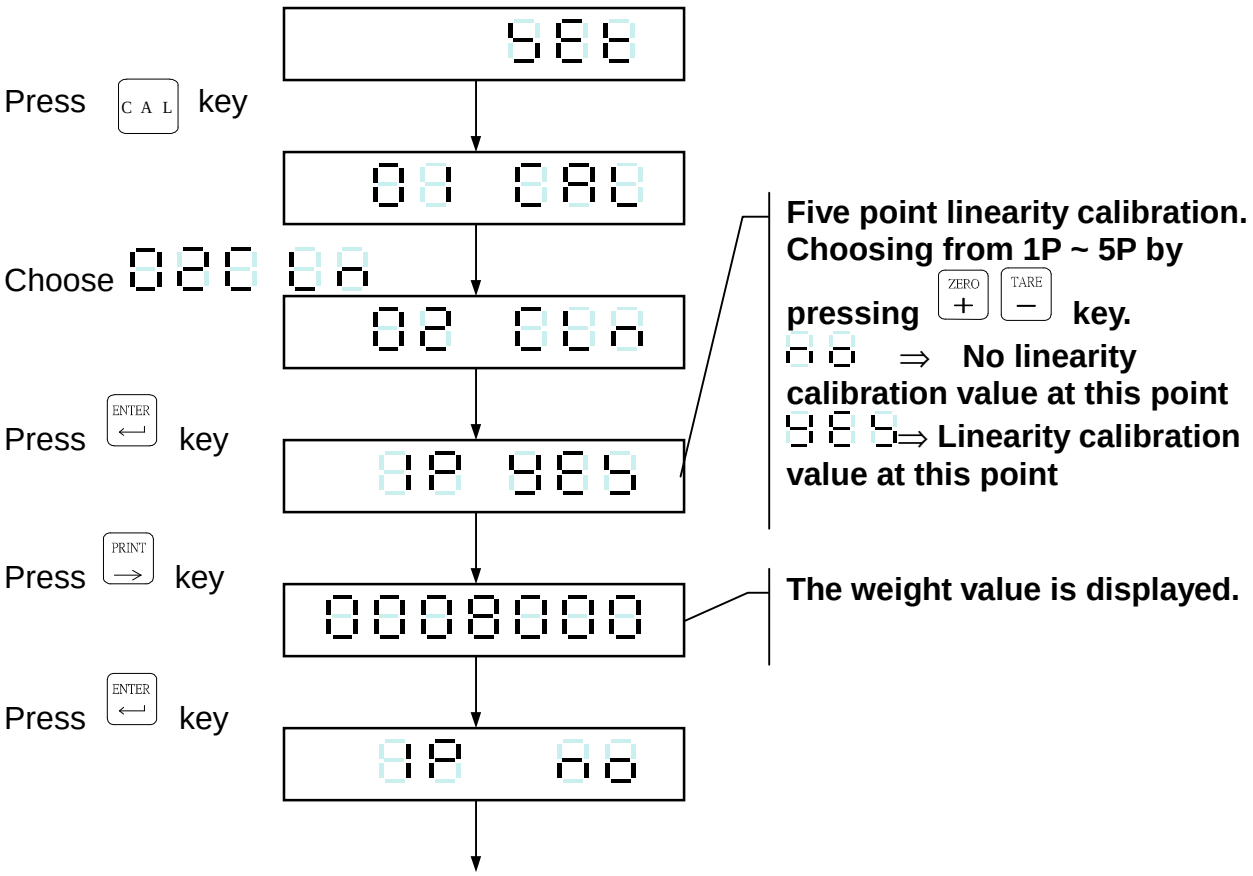
Set the calibration switch to ON position.





Clear a linearity correction point

Set the calibration switch to ON position.



After finishing the first linearity calibration, users can choose to continue or exit the linearity mode by pressing STANDBY/OPERATE.

ZERO + ⇒ Increase the number of the flashing digit

TARE − ⇒ Decrease the number of the flashing digit

GROSS/NET ⇒ Shift the flashing digit one space to left

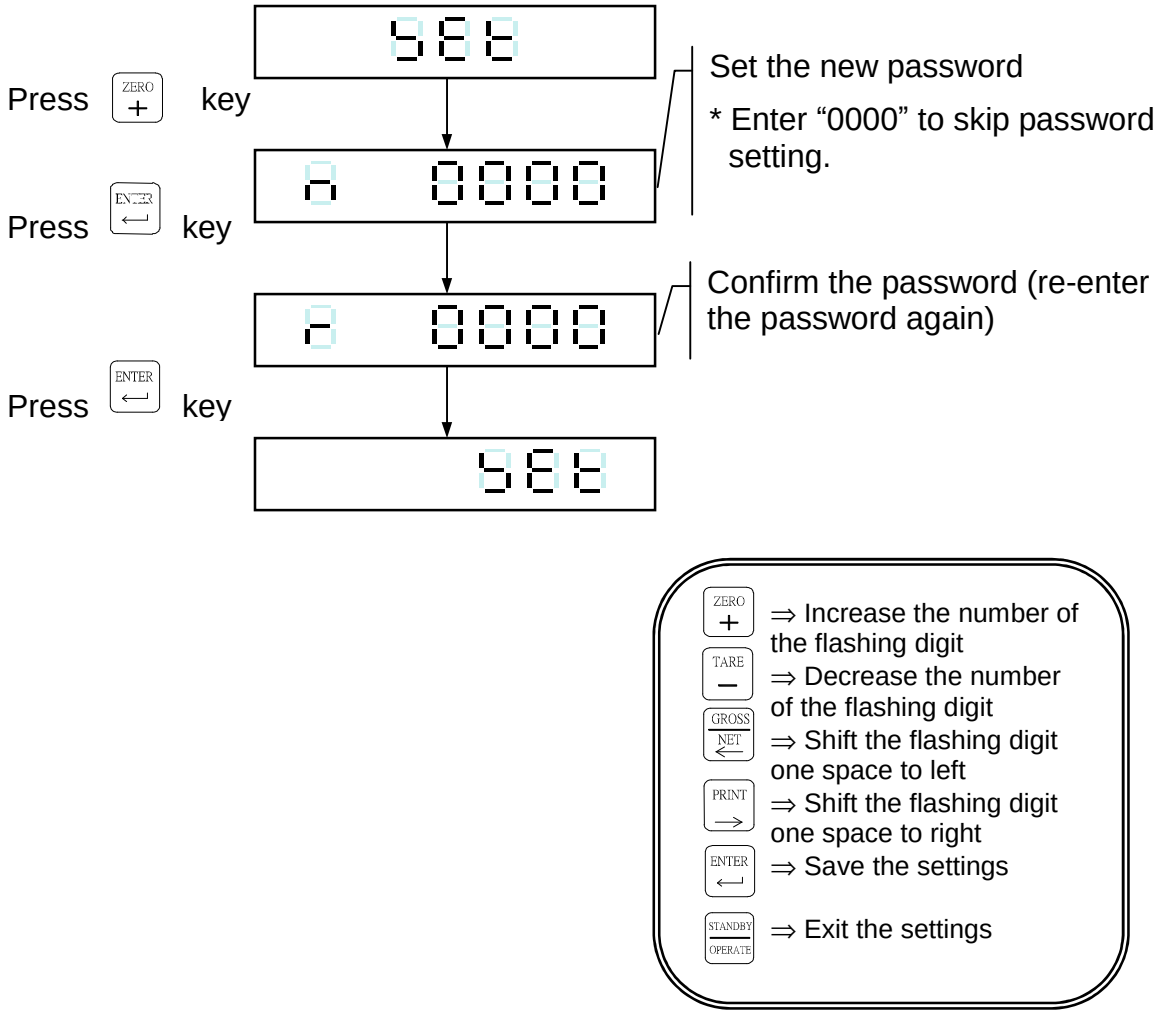
PRINT ⇒ Shift the flashing digit one space to right

ENTER ⇒ Save the settings

STANDBY/OPERATE ⇒ Exit the settings

5-3 PASSWORD SETTING

Set the calibration switch to ON position.



4 Once the password is set, whenever users access to the calibration mode or the other function settings, the display shows P 0 After I sec. 0 0000, and users need to enter the password.

4 If the password is incorrect, E r r. is displayed.

5-4 ERROR MESSAGES

(1) Err 0 The output voltage of load cell is < - 0.1mV/V or > 4mV/V

(2) Err 1 The weight setting value is not over the setting value of prior section.

(3) Err 2 The actual weight value is not over the value of prior section.

(4) Err 3 The setting value is 0.

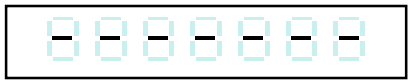
(5) Err 6 Calibration resolution is less 0.12μV / d.

(6) Err. Incorrect password

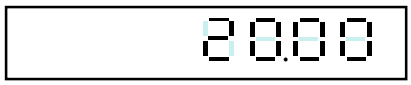
CHAPTER 6 ANIMAL SCALE FUNCTION SETTING

2 FUNC. 8 = 1 (Animal scale function is active)

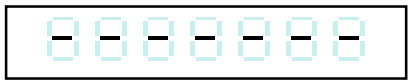
"- - - - -" is displayed, when there is no object on the weight panel:



The weight of live stocks is measured and showed in the display, (20 kg in this example):



The weight value will be held until removing all the objects on the weight panel. When the weight value is below zero band and display shows "- - - - -" , the scale is ready for another weighing operation.



CHAPTER 7 INTERFACES

7-1 OP-01 RS-422 & RS-485 INTERFACE

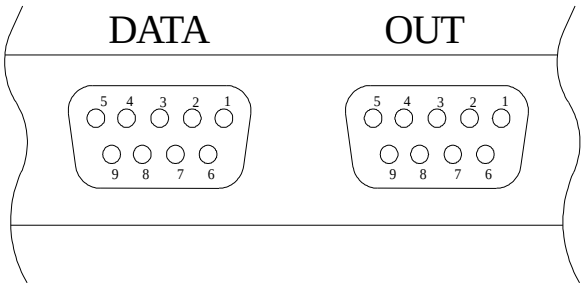
2 OP-01 RS-422 / RS-485

With this interface up to 10 indicators can be connected together and data transferred to a host controller.

FUNC. 70 should be set to " 1 "

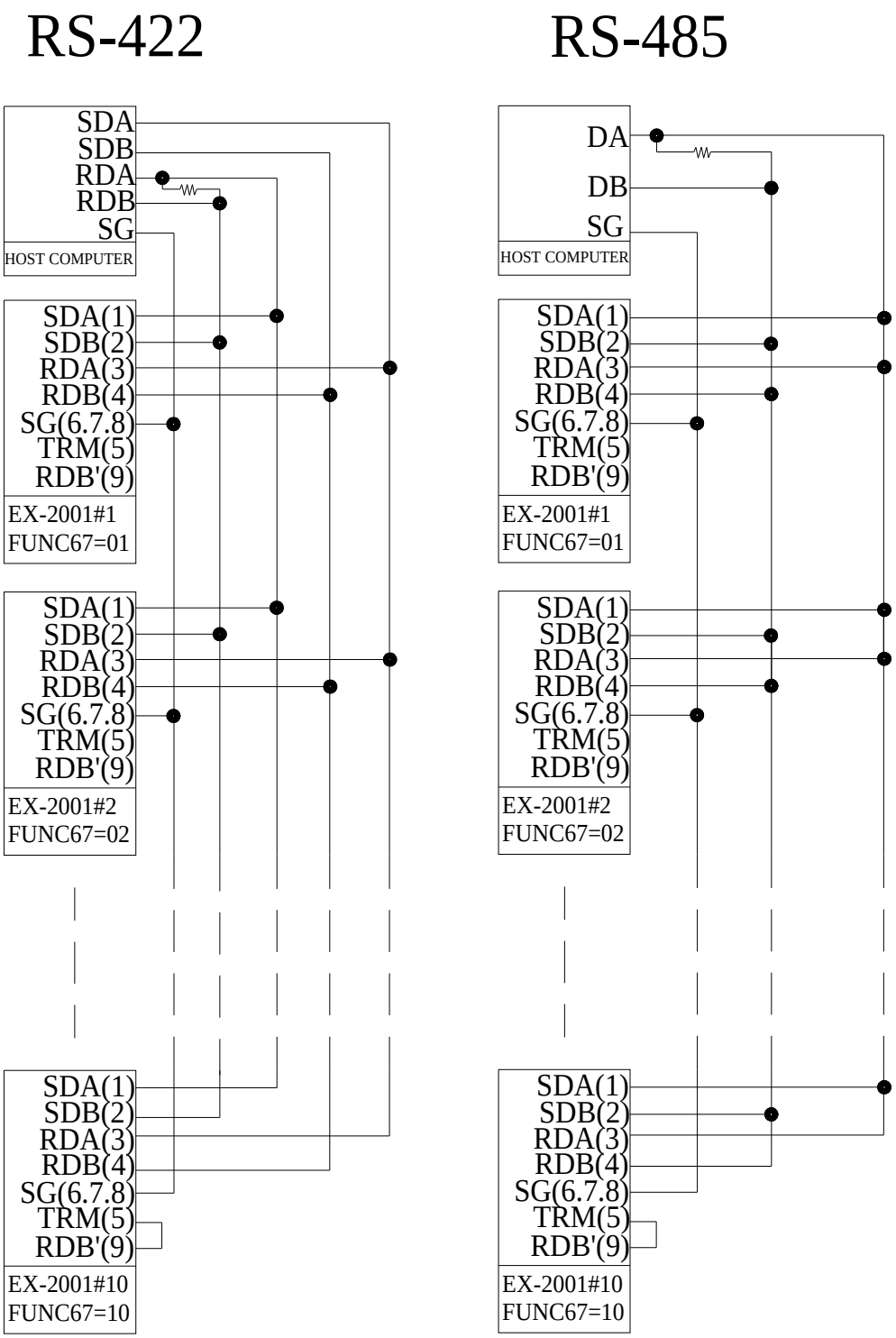
2 Connector pin assignment

REAR PANEL



Pin number	Function
1	SDA
2	SDB
3	RDA
4	RDB
5	TRM
6	SG
7	
8	
9	RDB'

2 Connection method



4 Remark:

When connecting the last EX-2001 indicator, the fifth pin (TRM) and the ninth pin (RDB') should be connected together, excluding the following two conditions:-

- The host computer has a built-in terminator.
- The host computer does not have signal ground (SG).

2 Refer to Chapter 9 Function Table to set FUNC. 60 ~ FUNC. 67

2 Transmit format

S	T	,	G	S	,	+	1	2	3	4	.	5	6		g	CR	LF
Header 1			Header 2			Weight Data (8 digits)								Units		Terminators	

Header 1

ST : Stable / US : Unstable / OL : Over Load

Header 2

GS : Gross weight / NT : Net weight / TR : Tare

Weight Data (8 digits)

The first digit is the + / - symbol for weight value. The next seven digits include decimal point and weight value.
When the weight is over loaded (Header 1 : OL), all digits will be transmitted “blank” (sp) except the + / - signal and the decimal point.

Units

Kg, g, t, lb or “blank”

Terminators

CR, LF is the data finish code.

2 Command mode

COMMAND	FUNCTION
READ, RW	Reads weight
ZERO, MZ	Back to zero
TARE, MT	Tare
NTGS	Switches gross / net weight
MG	Displays gross weight
MN	Displays net weight
CT	Clears tare

Œ The command string must be terminated with CR (0DH) , LF (0AH).
• If a wrong command is received, the indicator will reply “E” + “ error command ”.
Ž If the command mode has been selected “with address”, (FUNC. 61 = 4) then every command must be preceded with an indicator address in the format:- “ @ address ”

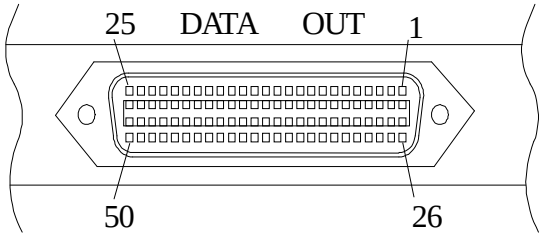
Example: To read the weight value form indicator addressed as 01 (“01” selected in FUNC. 67)

The complete command is **@01RW<CR><LF>**

7-2 OP-02 PARALLEL BCD OUTPUT

2 Pin assignment

REAR PENAL

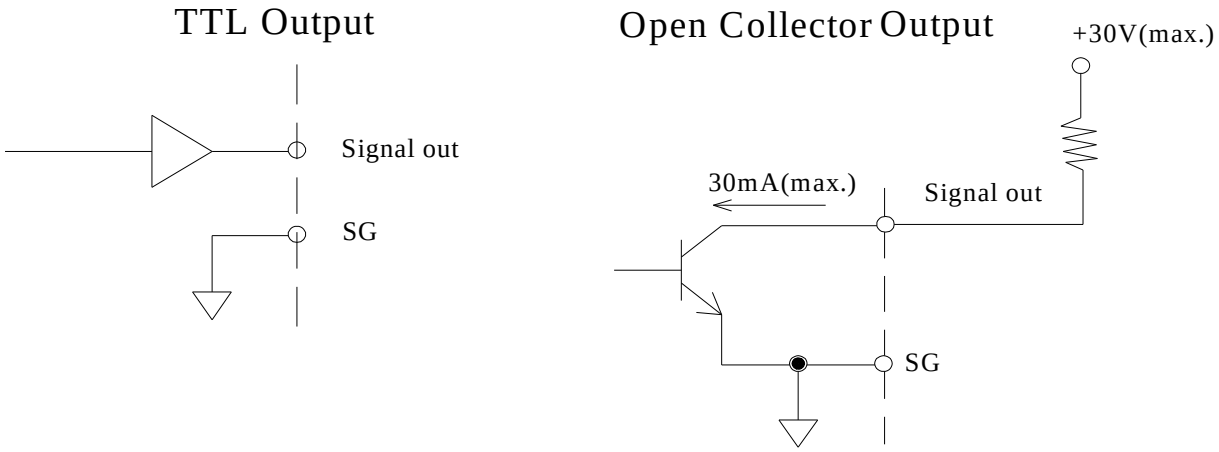


BCD parallel output interface
uses Centronic 50 PIN connector

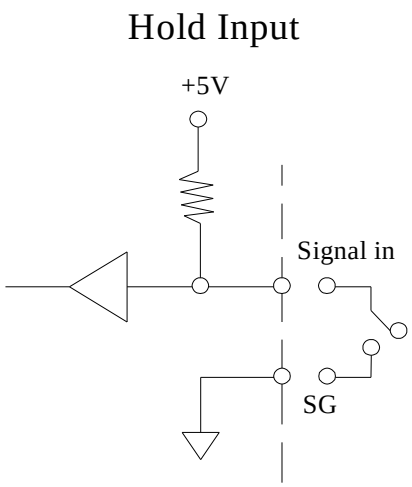
Pin number	Function	Pin number	Function
1	SG	26	SG
2	1×10	27	Gross/-NET
3	2×10	28	
4	4×10	29	
5	8×10	30	
6	1×10^{1}	31	
7	2×10^{1}	32	
8	4×10^{1}	33	Stable
9	8×10^{1}	34	
10	1×10^{2}	35	
11	2×10^{2}	36	
12	4×10^{2}	37	
13	8×10^{2}	38	
14	1×10^{3}	39	
15	2×10^{3}	40	
16	4×10^{3}	41	
17	8×10^{3}	42	POSITIVE
18	1×10	43	$DP10^{1}$
19	2×10	44	$DP10^{2}$
20	4×10	45	$DP10^{3}$
21	8×10	46	DP10
22	1×10	47	OVER
23	2×10	48	
24	4×10	49	Data ready
25	8×10	50	Hold input

2 Refer to Chapter 9 Function Table to set FUNC. 80 ~ FUNC. 83

2 Output equivalent circuit



2 Hold Input

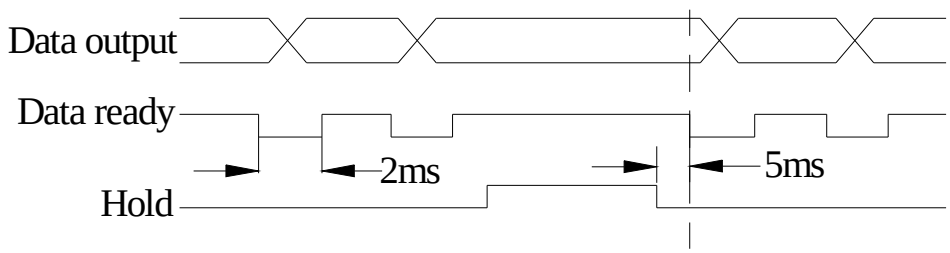


2 Output / Input signal description

Œ A total of 33 bit outputs are provided. To set the output logic level, refer to Chapter 9 FUNC 82 and FUNC 83.

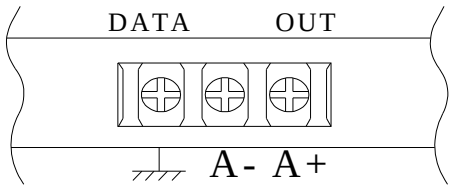
- If Open Collector output is selected, an external resistor is required to limit the current in the interface.
  The voltage should not exceed 30Vdc and current should be less than 30mA.

Ž "Hold input" is the only one input signal. To activate the "Hold input", just connect the Hold input to SG signal. When Hold is working, all BCD outputs will be held and cannot be altered.



7-3 OP-03 ANALOGUE CURRENT / VOLTAGE OUTPUT INTERFACE

2 Connections



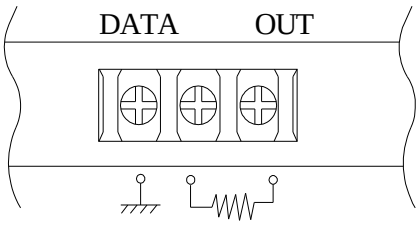
Interface specification

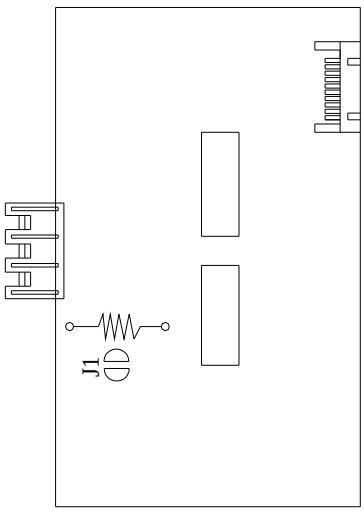
Analogue current output : 0 ~ 20 mA
Load resister : 0 ~ 550 Ω
Resolution : 12 bit

2 Refer to Chapter 9 Functions Table to set FUNC 85 ~ FUNC 89

2 Voltage output

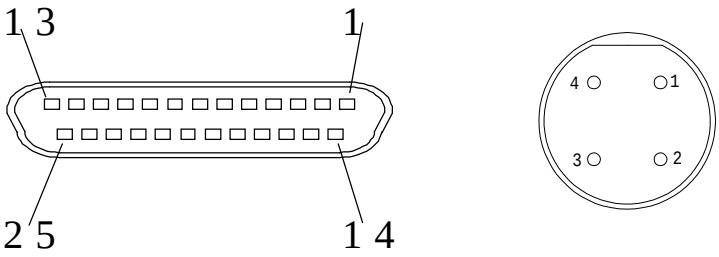
J1 short if the voltage output is 0 ~ 10V.
J1 open if the current output is 4 ~ 20mA.





7-4 OP-05 PARALLEL PRINTER OUTPUT & RS-232 & CURRENT LOOP

2 Pin assignment



Pin number	Function	Pin number	Function
1	$\overline{\text{STROBE}}$	14	NC
2	D0	15	$\overline{\text{ERROR}}$
3	D1	16	$\overline{\text{INIT}}$
4	D2	17	NC
5	D3	18	SG
6	D4	19	SG
7	D5	20	SG
8	D6	21	SG
9	D7	22	SG
10	$\overline{\text{ACK}}$	23	SG
11	BUSY	24	SG
12	NC	25	SG
13	NC		

2 Refer to Chapter 9 Functions Table to set FUNC 90 ~ FUNC 99

2 RS-232 pin position

Pin number	Function	Pin number	Function
1	TXD	3	C. LOOP1
2	SG	4	C. LOOP2

2 Refer to Chapter 9 Functions Table to set FUNC. 60, 62, 63, 64

2 Print format

Format 1 (FUNC. 90=0)

FUNC. 95 ≠ 0 ⇒ Print “SN” value

DATE	:	2004/08/30
TIME	:	12:13:36
SN.	:	1
GROSS	:	11.5 kg
TARE	:	1.5 kg
NET	:	10.0 kg

FUNC. 95 = 0 ⇒ No “SN” value

DATE	:	2004/08/30
TIME	:	12:13:36
GROSS	:	11.5 kg
TARE	:	1.5 kg
NET	:	10.0 kg

Format 2 (FUNC. 90=1)

Material : 0
DATE : 2004/08/30

SN.	TIME	NET(kg)
1	12:14:39	11.5
2	12:14:45	6.5

SUB TOTAL
DATE : 2004/08/30
COUNT : 2
NET : 18.0 kg

3	12:14:57	8.0

SUB TOTAL
DATE : 2004/08/30
COUNT : 1
NET : 8.0 kg

GRAND TOTAL
DATE : 2004/08/30
COUNT : 3
NET : 26.0 kg

Format 3 (FUNC. 90=2)

SN.	DATE	TIME	GROSS (kg)	TARE (kg)	NET (kg)
1	2004/08/30	12:16:19	7.0	2.0	5.0
2	2004/08/30	12:16:31	7.0	2.0	5.0
SUB TOTAL					10.0
3	2004/08/30	12:17:00	12.0	7.0	5.0
4	2004/08/30	12:17:19	12.0	7.0	5.0
GRAND TOTAL					20.0

Format 4 (FUNC. 90=3)

EZ-2 print format

FUNC. 95 ≠ 0 ⇒ Print “SN” value

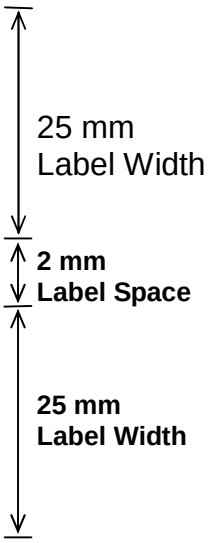
```
2004/11/26          08:53:05
SN.       :   1
GROSS     :   5.00
TARE      :   0.00
NET       :   5.00
```

```
2004/11/26          08:52:05
SN.       :   1
GROSS     :   5.00
TARE      :   0.00
NET       :   5.00
```

FUNC. 95 = 0 ⇒ No “SN” value

```
2004/11/26          08:53:05
GROSS     :   5.00
TARE      :   0.00
NET       :   5.00
```

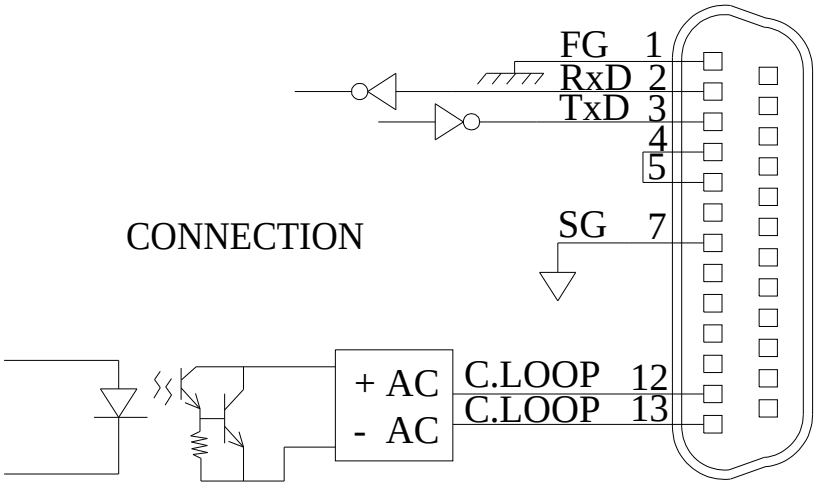
```
2004/11/26          08:52:05
GROSS     :   5.00
TARE      :   0.00
NET       :   5.00
```



7-5 OP-06 RS-232 & CURRENT LOOP

2 RS-232 / Current Loop

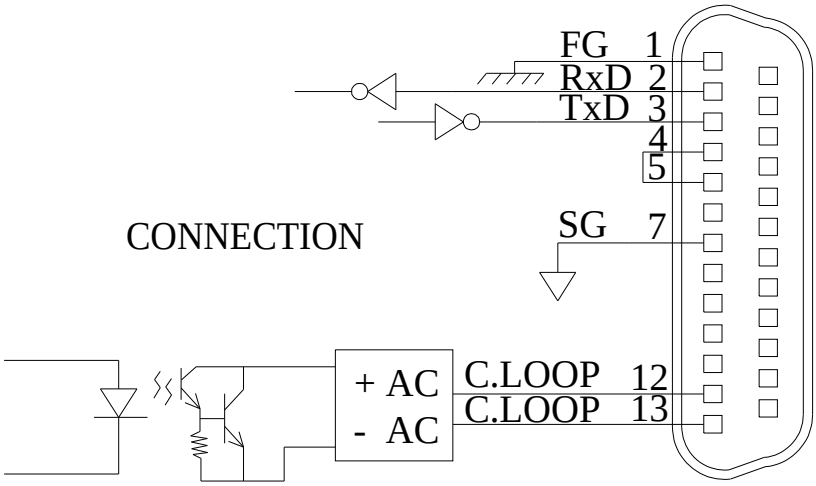
RS-232C is a bi-directional output/input; Current Loop is one-way output only, and the output data format is the same as RS-232.



7-6 OP-07 RS-232, CURRENT LOOP & DATA CLOCK OUTPUT

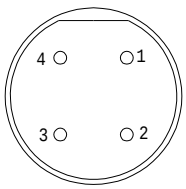
2 RS-232 / Current Loop

RS-232C is a bi-directional output/input; Current Loop is one-way output only, and the output data format is the same as RS-232.



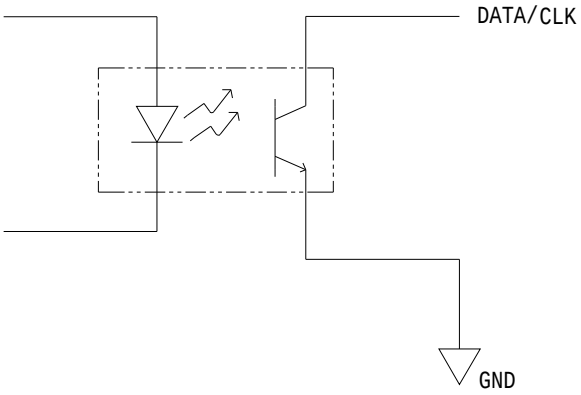
2 Data Clock serial output

FUNC. 70 should be " 0 "



Pin Position	Function
1	+ 5V
2	DATA
3	CLK
4	GND

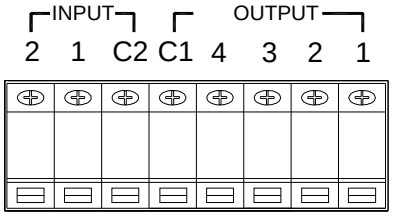
Inner Connection



7-7 OP-08 CONTROL I /O (2I /4O) INTERFACE

2 External input and relay output

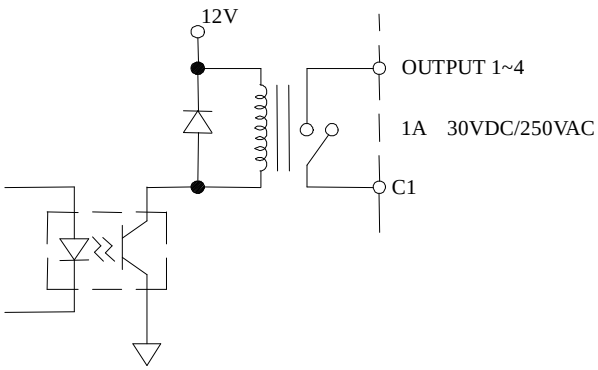
CONTROL IN / OUTPUT



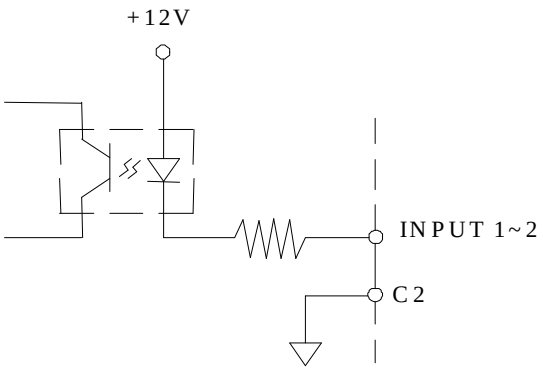
Output Pin Function

1 : Zero Band
2 : Hi
3 : Ok
4 : Lo

Input / output connectors on the rear panel

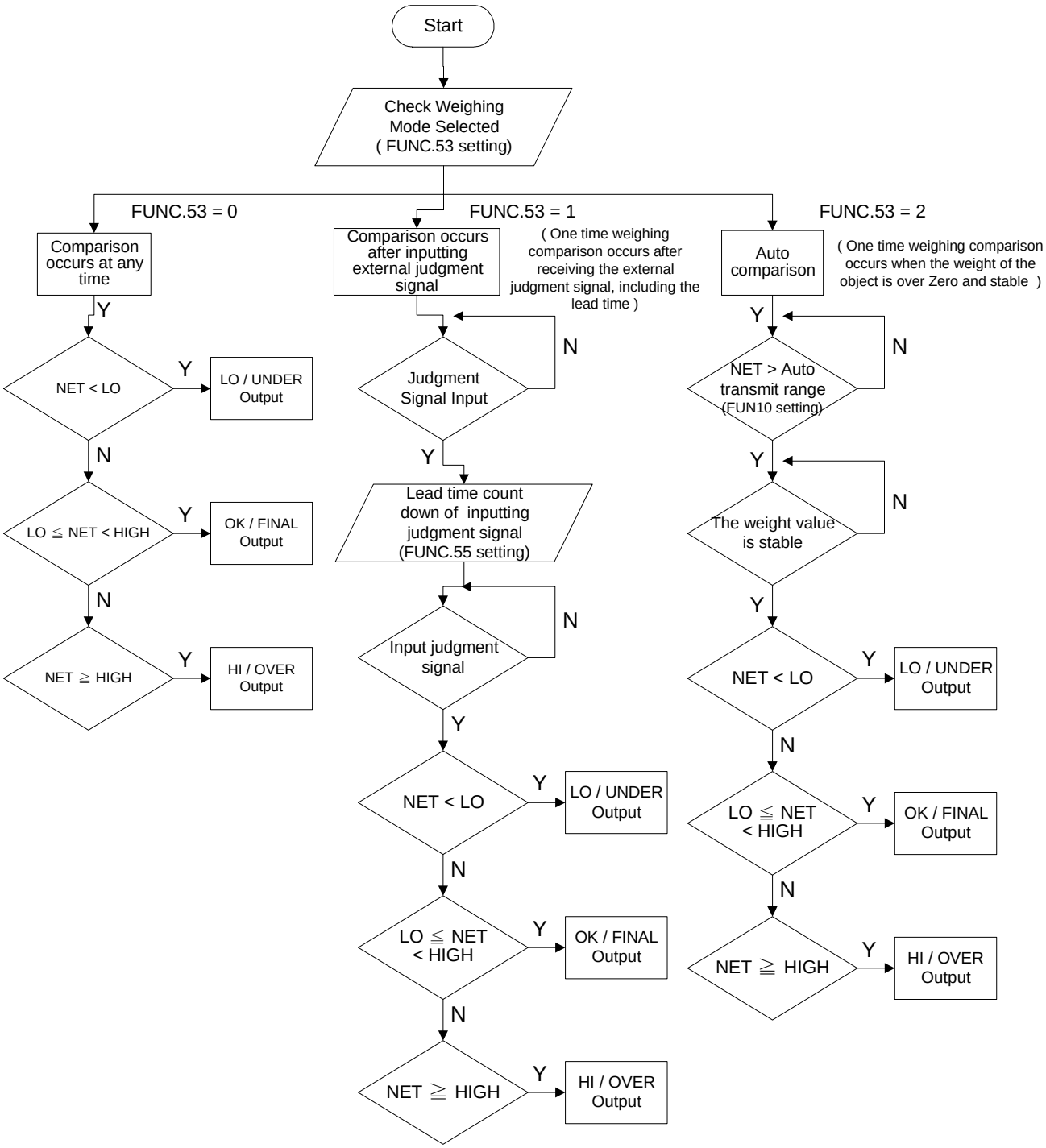


The output circuit of Relay



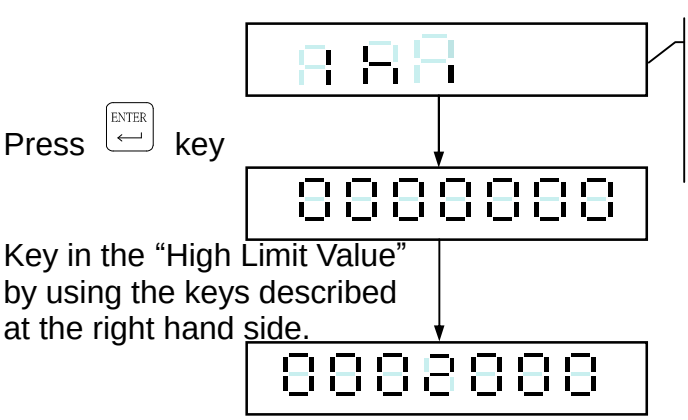
The input circuit

2 HI , OK , LO Output Procedure



2 The Flow Chart of HI , OK , LO Setting

Press and hold [ENTER], followed by pressing [CAL], to enter the check weighing mode.



Press [ZERO +] or [TARE −] key to select the high value ( ), low value ( ) , and zero ( ) .

[ZERO +] ⇒ Increase the number of the flashing digit

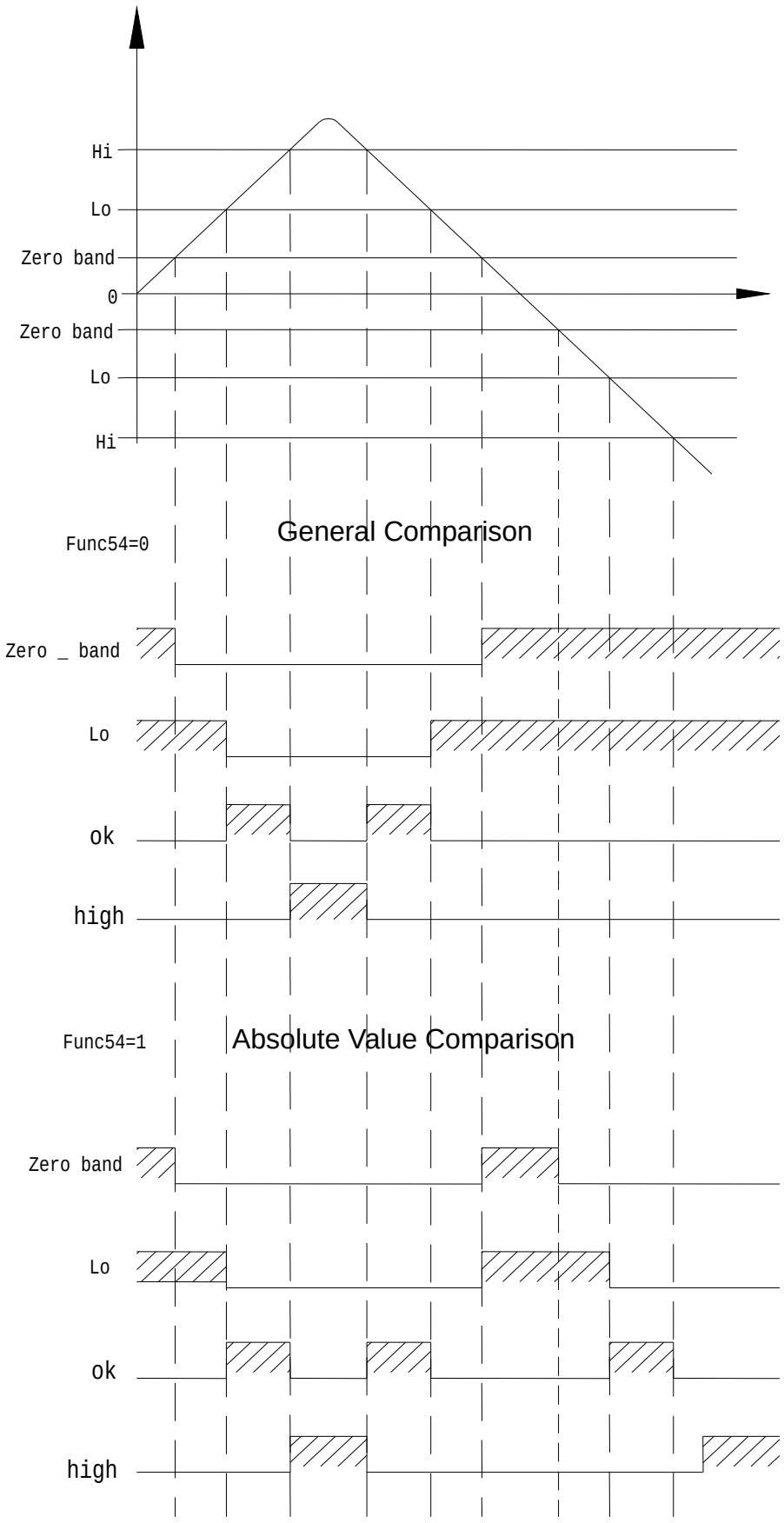
[TARE −] ⇒ Decrease the number of the flashing digit

[GROSS NET] ⇒ Shift the flashing digit one space to left

[PRINT] ⇒ Shift the flashing digit one space to right

[ENTER] ⇒ Save the settings

[STANDBY OPERATE] ⇒ Exit the settings


Hi
Lo
Zero band
0
Zero band
Lo
Hi
General Comparison
Func54=0
Zero _ band
Lo
ok
high
Absolute Value Comparison
Func54=1
Zero band
Lo
ok
high

CHAPTER 8 MAINTENANCE

8-1 RESET ALL PARAMETERS BACK TO DEFAULT

(1) Switch the capacity calibration switch to “ON”, press and hold [Fn] [ENTER] keys together when the indicator is in the self-testing sequence.

(2) The display shows  .

(3) Press and hold the [ENTER] key until the display shows  . Switch the calibration switch to “OFF”.

8-2 RESET GENERAL FUNCTION PARAMETERS BACK TO DEFAULT

(1) When the indicator reset back to zero, press and hold [Fn] [ENTER] keys. The indicator is in the self-testing sequence.

(2) The display shows  .

(3) Press and hold the [ENTER] key until the indicator resets.

8-3 SELF-DIAGNOSIS MODE

(1) When the indicator reset back to zero, press and hold [GROSS/NET] [ENTER] keys. The indicator is in the self-testing sequence.

(2) When the display shows  , it means the indicator is already in the Self-diagnosis mode.

(3) Press [ZERO +] and [TARE −] keys to select a diagnosis item. Press the [ENTER] key to enter the selected item for diagnosis and press [STANDBY/OPERATE] to exit.

No.	Display	Diagnosis Item
1	dSP	7 digits display and LED status lights
2	KEY	Keyboard and calibration ON / OFF switch
3	232	OP-06 RS-232 serial output / input interface
4	bCd	OP-02 BCD parallel output interface
5	AnL	OP-03 Analogue current output interface
6	Pnt	OP-05 Parallel printer interface
7	EEP	EEPROM memory on main board
8	Eilt - io	OP-08 Control I/O interface

8-3-1 7 Digit Display and LED Status Light Diagnosis

7 digit display shows 0 ~ 9 , "." And at the same time, the LED status lights turn on and off in order.

8-3-2 Keyboard and Calibration ON / OFF Switch Diagnosis

Switch the calibration switch to "ON", or press any keys and the corresponding digit goes from ' → ' on the display.

8-3-3 RS-232 Serial Output / Input Interface Diagnosis (OP-06)

(1) Short circuit the 2nd pin and 3rd pin of the SER. OUT. D-SUB 25 pin connector.

PASS = Working properly FAIL = Malfunction

(2) If connecting to a computer (The communication protocol has to be compatible), if 0 ~ 9 can be read, it indicates that the RS-232 is in working order.

8-3-4 BCD Parallel Output Interface Diagnosis (OP-02)

(1) The decimal point flashes during the diagnosis.

(2) The program sends out OFF→ON→OFF signals from each of BCD output bit.

(3) If no - IF is displayed, this indicates that no BCD interface is installed.

8-3-5 Analogue Current Output Interface Diagnosis (OP-03)

(1) Use [ZERO +] and [TARE —] keys to select output current.

(a) AnL 4 : 4mA

(b) AnL 12 : 12mA

(c) AnL 20 : 20mA

(2) If no – IF is displayed, this indicates that an interface has not been installed.

8-3-6 Parallel Printer Interface Diagnosis (OP-05)

(1) Connect the interface to the printer.

(2) Press the [ENTER ↵] key and the printer will print date, time and ASCII code as 30H ~ 7AH characters or figures.

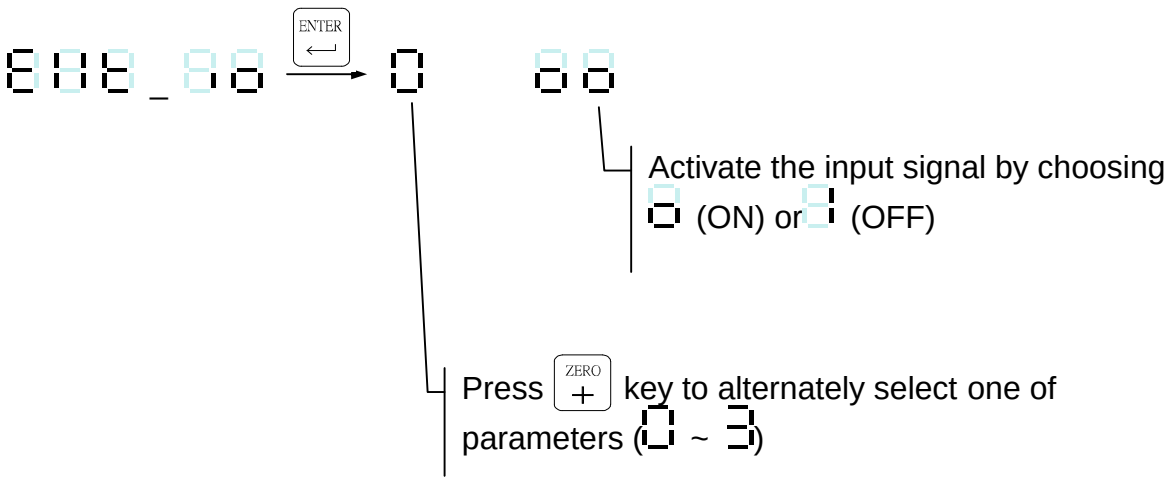
(3) If Err is displayed, this indicates that the printer or the interface is not working properly.

(4) If no – IF is displayed, the interface is not connected to the indicator.

8-3-7 Main Board EEPROM Memory Diagnosis

PASS = Working properly FAIL = Malfunction

8-3-8 OP-08 Control I /O (2I /4O) Diagnosis



CHAPTER 9 FUNCTION TABLE

9-1 GENERAL FUNCTION

FUNC. NO.	FUNCTION	SET VALUE				DEFAULT
FUNC. 0	Tare and Zero function when the weight is unstable	0	ON			0
		1	OFF			
FUNC. 1	Tare function with negative gross weight	0	ON			0
		1	OFF			
FUNC. 2	Key function	0000 ↓ 1111	0	ON	0000 corresponding keys from left to right are [ZERO +] [TARE −] [GROSS/NET ←] [PRINT →]	0000
			1	OFF		
FUNC. 3	Auto Zero function after power on	0	OFF			0
		1	ON			
FUNC. 4	Zero range	0D ↓ 9D	When the weight is in this range ±(Set value × Min. division) it displays “0”			0
FUNC. 5	Weighing Filter	0 ↓ 5	The larger the value the greater the amount of filtering. When set to 0, the filter will adjust automatically.			2
FUNC. 6	A/D sampling frequency	0	Unlimited			2
		1	20 times/sec			
		2	10 times/sec			
		3	5 times/sec			
FUNC. 7	Display update rate	0	Unlimited			1
		1	20 times/sec			
		2	10 times/sec			
		3	5 times/sec			
		4	1 times/2sec			
FUNC. 8	Animal scale	0	OFF			0
		1	ON			

9-2 OP-01, OP-06, OP-07 INTERFACE FUNCTION

FUNC. NO.	FUNCTION	SET VALUE			DEFAULT
		PARAMETER	DESCRIPTION		
FUNC. 60	Data type	0	As displayed		0
		1	Gross		
		2	Net		
		3	Tare		
FUNC. 61	Transmit mode	0	Stream transmit		0
		1	Auto-transmit		
		2	Press PRINT key to transmit		
		3	Command mode (without address)		
		4	Command mode (with address)		
FUNC. 62	BAUD rate	0	1200		1
		1	2400		
		2	4800		
		3	9600		
		4	19200		
FUNC. 63	Parity bit Data bit Stop bit	0	N, 8, 1	No parity bit, 8 data bit, 1 stop bit	2
		1	O, 7, 1	Odd parity bit, 7 data bit, 1 stop bit	
		2	E, 7, 1	Even parity bit, 7 data bit, 1 stop bit	
FUNC. 64	Units	0	None		1
		1	kg		
		2	g		
		3	t		
		4	lb		
FUNC. 65	Unstable or over the max. capacity	0	Continuous output		0
		1	Stop output		
FUNC. 66	Auto-transmit conditions	0	Positive (more than + 5D)		0
		1	Positive / negative (more than + 5D, less than - 5D)		
FUNC. 67	Command address	00 ↓ 99	When the FUNC. 61 is set in 4, it will use this address		0
FUNC. 68	Output format	0	Standard Format		0
		1	UMC 600		
FUNC. 69	Transmit frequency	0	W/o limit		4
		1	1 Time/ Sec.		
		2	2 Times/ Sec.		
		3	5 Times/ Sec.		
		4	10 Times/ Sec.		
		5	20 Times/ Sec.		
FUNC. 70	Output type	0	Close RS422/485		0
		1	Start RS422/485		

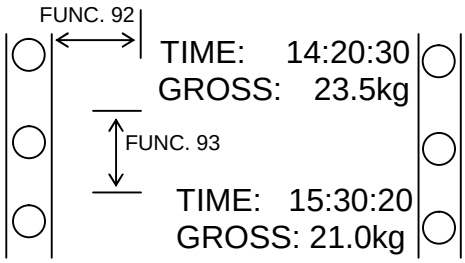
9-3 OP-02 BCD OUTPUT INTERFACE FUNCTION

FUNC. NO.	FUNCTION	SET VALUE		DEFAULT
		PARAMETER	DESCRIPTION	
FUNC. 80	Data type	0	As displayed	0
		1	Gross	
		2	Net	
FUNC. 81	Transmit mode	0	Stream transmit	0
		1	Auto-transmit	
		2	Press the PRINT → key to transmit	
FUNC. 82	Output data logic	0	Positive logic	0
		1	Negative logic	
FUNC. 83	Signal logic	0	Positive logic	0
		1	Negative logic	

9-4 OP-03 ANALOGUE OUTPUT INTERFACE FUNCTION

FUNC. NO.	FUNCTION	SET VALUE		DEFAULT
		PARAMETER	DESCRIPTION	
FUNC. 85	Data type	0	As displayed	0
		1	Gross	
		2	Net	
FUNC. 86	Low point of weight value	000000 ↓ 999999	When the weight value reaches the value set in Func. 86, the current output is the value set in Func. 87	0
FUNC. 87	Low point of output current value	0.0 mA ↓ 20.0 mA		4.0 mA
FUNC. 88	High point Weight value	000000 ↓ 999999	When the weight value reaches the value set in Func. 88, the current output is the value set in Func. 89	16000
FUNC. 89	High point Output current value	0.0 mA ↓ 20.0 mA		20.0 mA

9-5 OP-05 PARALLEL PRINTER OUTPUT INTERFACE FUNCTION

FUNC. NO.	FUNCTION	SET VALUE		DEFAULT
		PARAMETER	DESCRIPTION	
FUNC. 90	Data format	0 **â** 1	Select print format	0
FUNC. 91	Transmit mode	0	Press the PRINT → to transmit	0
		1	Auto / press PRINT → to transmit	
FUNC. 92	The size of left hand side margin	0 ~ 80 (characters)		0
FUNC. 93	The space between blocks of data	0 ~ 80 (LF)		5
FUNC. 94	Material number	000000 **â** 999999	When printing the material number, it keeps the same value as previously set.	0
FUNC. 95	Serial number	00000 **â** 65535	When printing the serial number, it automatically increments. It resets to 00000 after restarting the indicator or after printing out the total weight.	1
FUNC. 96	Units	0	None	1
		1	kg	
		2	g	
		3	t	
		4	lb	
FUNC. 98	Date setting	2000 yr. **â** 2099 yr.		
FUNC. 99	Time setting	00:00:00 **â** 23:59:59		

9-6 OP-08 CONTROL I /O (2I /4O) INTERFACE FUNCTION

FUNC. NO.	FUNCTION	SET VALUE		DEFAULT
		PARAMETER	DESCRIPTION	
FUNC. 50	Input 1	0 ⇒ No capacity 1 ⇒ Zero 2 ⇒ Tare 3 ⇒ Clear Tare 4 ⇒ judgment_comm_flag		1
FUNC. 51	Input 2			2
FUNC. 52	Output logic	0000	Positive logic	0000
		1111	Negative logic	
FUNC. 53	Hi,OK,Lo Check weighing mode	0	Comparison occurs at any time	0
		1	Comparison occurs after inputting external judgment signal	
		2	Auto comparison	
FUNC. 54	Comparison mode	0	General comparison +	0
		1	Absolute value only comparison +/-	
FUNC. 55	Lead time setting for activating comparison	0.0 ↓ 25.5	Lead time setting for inputting external judgment signal	0.5