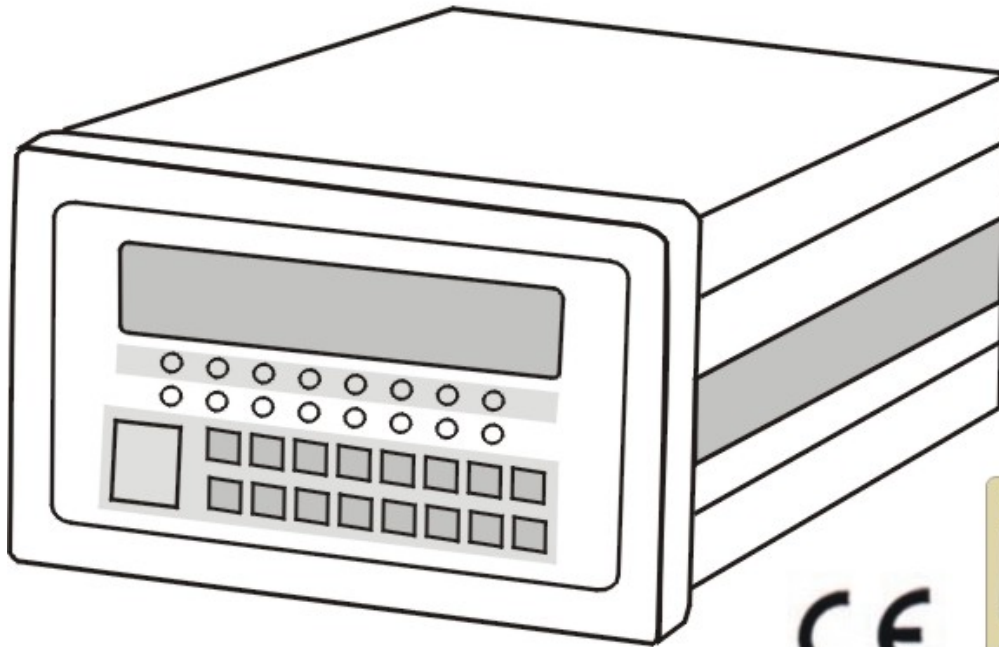
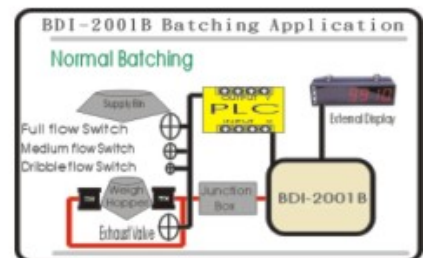




Benediction Enterprise Co., Ltd, Taiwan



V. D. 2003/07/16



# BDI-2001B Weighing Indicator & controller User's Manual

---

## 2001B Manual Contents

### **CHAPTER 1 INTRODUCTION**

1-1	Welcome .....	1
1-2	Features .....	1
1-3	Items in Carton .....	1

### **CHAPTER 2 INSTALLATION**

2-1	Best Conditions for Use .....	2
2-2	Power Supply Connecting .....	2
2-3	Connecting the Load Cell .....	2
2-4	Front and Rear Panel Dimensions .....	3

### **CHAPTER 3 SPECIFICATIONS**

3-1	Analog Input and A/D Conversion .....	4
3-2	General .....	4
3-3	Front Panel Description .....	4
3-4	Quick Function Table .....	6
3-5	Panel Key Function Table .....	8

### **CHAPTER 4 SYSTEM FUNCTIONS**

4-1	System Check .....	10
4-2	Functions .....	11
4-3	Calibration .....	17
4-4	Panel Key Disable .....	21
4-5	System Initialize .....	21
4-6	20mA Current Loop .....	21
4-7	Fn set up .....	22
4-8	Accumulation .....	22

### **CHAPTER 5 SET POINTS**

5-1	Set Points .....	23
5-2	Batching Modes .....	24

### **CHAPTER 6 OPTIONS**

6-1	I/O Interface .....	32
6-2	Serial Interface .....	36
6-3	Printer Interface .....	41
6-4	Parallel BCD Interface .....	42
6-5	Analog Output .....	43
6-6	Remote Set Point Unit: Final Weight OP-07 .....	44
6-7	RELAY CONTROL INTERFACE OP-08 .....	45

#### Appendix

Appendix 1.2	.....	46
--------------	-------	----

Benediction Enterprise Co., Ltd, Taiwan 2004

---

# CHAPTER 1 INTRODUCTION

## § 1-1 Welcome

The **BDI-2001B** weighing indicator is a model of simple batching controller. The purpose of designing **BDI-2001B** is to perform quick and accurate controls. Please contact us immediately for further services if needed.

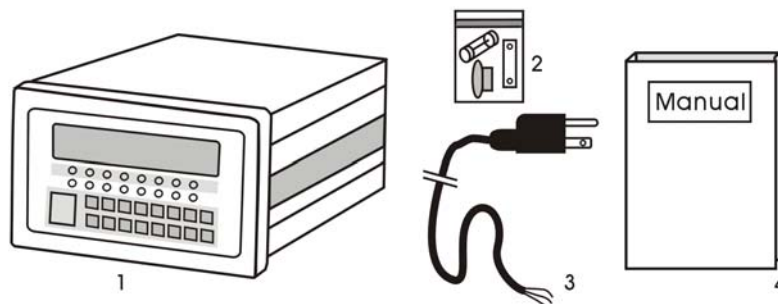
E-mail: [bde.com@msa.hinet.net](mailto:bde.com@msa.hinet.net)

Web Site: <http://www.bde.com.tw>

## § 1-2 Features

- ◎ 1/30,000 displayed resolution. Internal Resolution 1/500,000, A/D Conversion rate 30 times/ Sec.
- ◎ Watchdog virtually eliminates malfunctions that associated with computerized equipment or software failure. Full Digital Calibration makes setting ZERO and SPAN Calibration an easy task.
- ◎ Drives up to 8 parallel connecting load cells. 8k bytes SRAM with Li-battery backup. Information will not disappear even power failure.
- ◎ The settings of function and weighing parameters are all stored in the EEPROM, with storage duration over 40 years.
- ◎ Important values and parameters can have storage backup.
- ◎ Users can adjust the intensity of digits filter to avoid mechanical vibration that caused by external environments to achieve high-speed and accurate measurement.
- ◎ Set point code can store up to 1 sets of: SP1, SP2, Free Fall, HI, LO / LL,LO,OK,HI,HH. Automatic Free Fall Compensation provides closer tolerance and precise weighing.
- ◎ Standard Serial Output (20mA Current Loop) for remote display.
- ◎ Standard 9-pin RS-232 output.
- ◎ Optional printer interface can automatically print or output data includes date, time, serial number, weight, and unit.

## § 1-3 Items In Carton



The carton in which the BDI-2001B is delivered contains: 1. Indicator. 2. Accessory pack (In bag). 3. Electric Cord. 4. This manual.

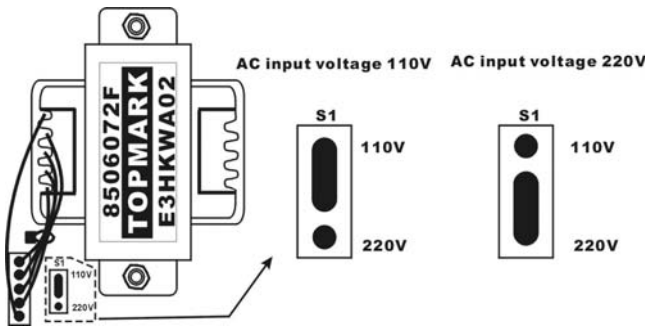
# CHAPTER 2 INSTALLATION

## § 2-1 Best Conditions For Use

When installing and wire connecting on **BDI-2001B**, please follow the guidelines below:

- ⊙ Before connecting the Electric Power Supply, please identify the input Electric voltage type is AC 110V or AC 220V.
- ⊙ The Grounding Wire shall be properly connected. The Operation Temperature shall range within 0°C ~ 45°C , please DO not install in any place of direct sun-light. Due to the minute output signal from Load Cell, please use isolated cables. Also, separate the Load Cell cable from the power supply cable and control I/O cables.
- ⊙ The input power shall be AC 110V or AC 220V±10%, if the Electric Power Supply is not stable or the interference signal exists, that may cause uncertain actuation or reaction, even damages. Therefore, please utilize Electric Power Supply Stabilizer of adequate capacity.

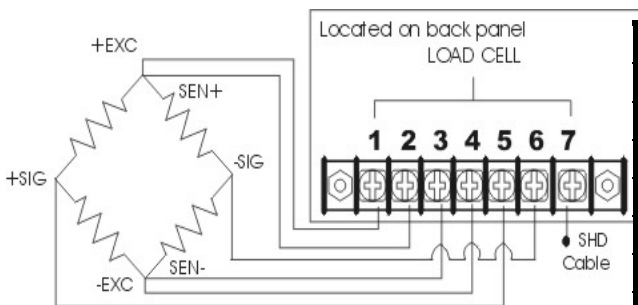
## § 2-2 Power Supply Connecting



Open the case, there is a jumper [ S1 ] near the transformer, please insert a short-circuit pin to the available side.

## § 2-3 Connecting the Load Cell

⚡ Do not plug in your power cable until you have completely connected the load cell.



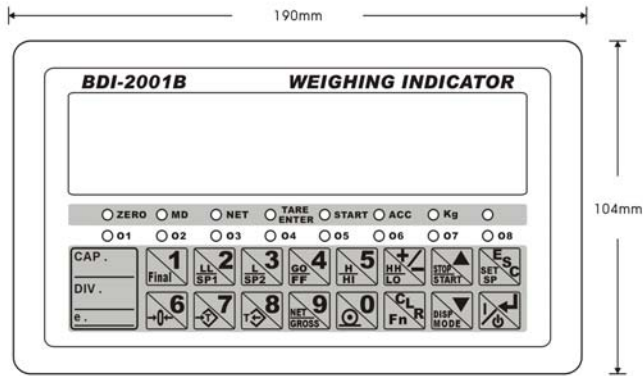
Screw	Signal
1	Positive Excitation Voltage, (EXC+)
2	Positive Sense Voltage, (SEN+)
3	Negative Sense Voltage, (SEN-)
4	Negative Excitation Voltage, (EXC-)
5	Positive Signal Voltage, (SIG+)
6	Negative Signal Voltage, (SIG-)
7	Shield, (SHD)

① To connect your load cell to the weighing Indicator use a six-wire cable with shield - connect the wires as indicated above. If the BDI-2001B / BDI-2001B is located near the Load Cells (Within five meters or a few yards) you may use a 4-wire cable with shield, but first connect screws 1&2 and 3&4 with independent jumper leads.

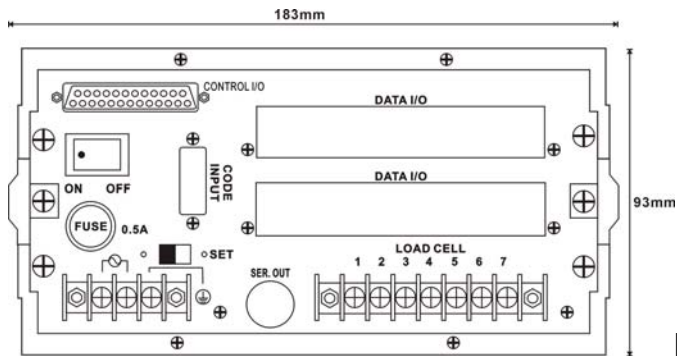
① The analogue output from the Load Cell and input/output signals are sensitive to electrical noise. Do not bind these cables together as it could result in cross-talk interface.

Please also keep them away from AC power cables.

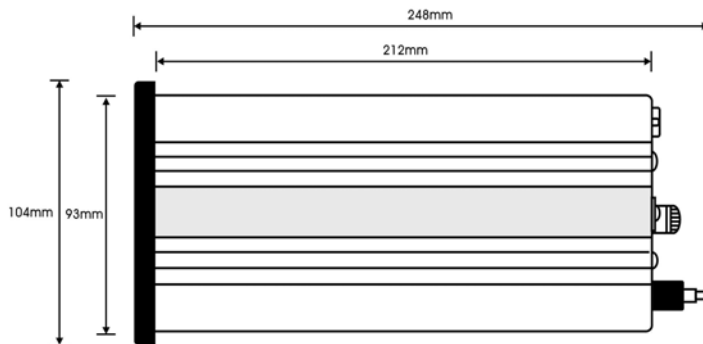
## § 2-4 Front and Rear Panel Dimensions



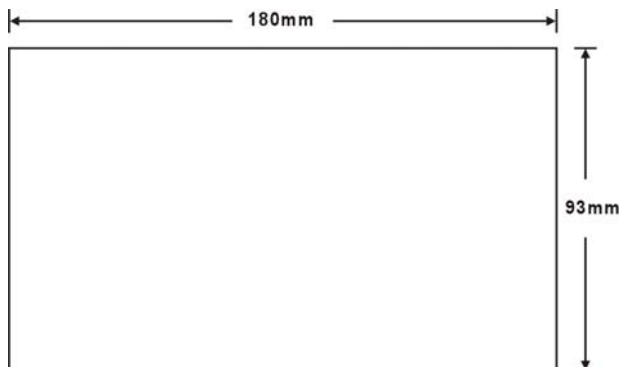
**Front Panel of BDI-2001B**



**Rear Panel of BDI-2001B**



**Side View of BDI-2001B**



**Mounting Cut for BDI-2001B**

# CHAPTER 3 SPECIFICATIONS

## § 3-1 Analog Input and A/D Conversion

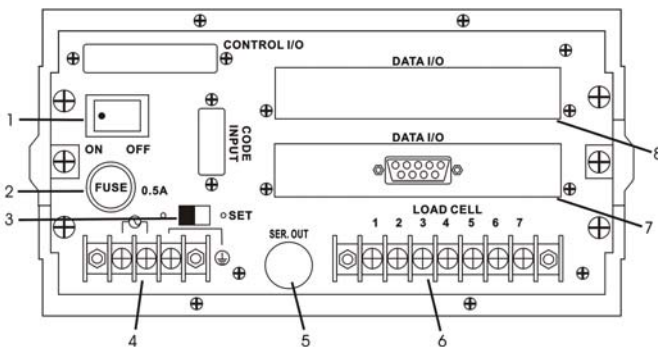
◎Analog Input and A/D Conversion	
Type	BDI-2001B
Input Sensitivity	$\geq 0.3\mu\text{V/D}$
ZERO Adjustment Range	0 ~20mV
Load Cell Excitation	DC12V $\pm$ 5% , 280mA, Remote Sensing. Can be connected up to 8 350 $\Omega$ Load Cells.
Non-Linearity	0.01 % F.S.
A/D Conversion Method	$\Delta \Sigma$
A/D Resolution	$\approx 1/500,000$
A/D Conversion Rate	Approx. 30 Times / Sec.
Max. Load Cell Input Voltage	36mV
ZERO Temperature Comp.	$\pm(0.2 \mu\text{V} + 0.001\% \text{ of Dead Load})/^{\circ}\text{C}$ TYP
SPAN Temperature Comp.	$\pm 0.001\% \text{ }^{\circ}\text{C}$ TYP
Max. Resolution	1/30,000

## § 3-2 General

◎ General	
Type	BDI-2001B
Power Requirements	AC 110V or AC 220V $\pm$ 10% , 50 / 60Hz, Approx. 17VA
Net weight	Approx. 3.2 kg [ 7.054 lb ]
Operation Temperature	-10 $^{\circ}\text{C}$ ~ 45 $^{\circ}\text{C}$
Maximum Humidity	85% [ non-condensing ]
Physical Dimensions	248 (D) x190 (W) x104(H) mm

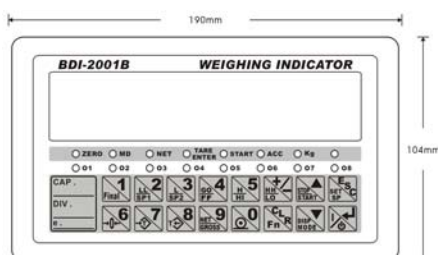
## § 3-3 Front Panel Description

### \* 3-3-1 Rear Panel of BDI-2001B



Section	Description
1	Power Switch
2	Fuse (Includes fuse set 0.5A/125V)
3	SET Switch
4	Power Supply Screw
5	20mA Current Loop
6	Screws for Load Cell
7	Standard Rs-232 (9 Pin)
8	For Other Options
Remark: Code input disabled.	

**\* 3-3-2 BDI-2001B Front Panel Description**



◎ Front Display Description	
Main Display	7-segment · 7-digit display, LED 0.8" character size, displays the weight.
Minimum Division	x1 · x2 · x5 · x10 · x20 · x50
Maximum Display	+750000
Under ZERO Indicator	"—" minus sign
" ZERO " ●LED light	Center of Zero
" MD " ●LED light	Motion Detected = Unstable
" GROSS " ●LED light	Gross Weight displayed
" NET " ●LED light	Net Weight displayed
" TARE ENTER " ●LED light	Tare has been entered
" ACC " ●LED light	Accumulator Mode
" kg " ● LED light	Kilograms Displayed
" 01 " ● LED light	Output 01 Displayed
" 02 " ● LED light	Output 02 Displayed
" 03 " ● LED light	Output 03 Displayed
" 04 " ● LED light	Output 04 Displayed
" 05 " ● LED light	Output 05 Displayed
" 06 " ● LED light	Output 06 Displayed
" 07 " ● LED light	Output 07 Displayed
" 08 " ● LED light	Output 08 Displayed

◎ Key description			
" 1 / Final " key	Within set mode: 1	To set Final value.	
" 2 / SP1 / LL " key	Within set mode: 2	To set SP1 value.	Set LL value
" 3 / SP2 / L " key	Within set mode: 3	To set SP2 value.	Set Lo value
" 4 / FF / GO " key	Within set mode: 4	To set Free Fall value.	Set Standard value
" 5 / HI / H " key	Within set mode: 5	To set Hi value	Set Hi value
" 6 / →0← " key	Within set mode: 6	Zero	
" 7 / →T " key	Within set mode: 7	Tare	
" 8 / T↔ " key	Within set mode: 8	Tare clear	
" 9 / NET / GROSS " key	Within set mode: 9	Net Weight mode	Gross Weight Mode
" 0 / 0 " key	Within set mode: 0	Print	
" +/- / LO / HH " key	± value	To set under value	Set HH value
" CLR / FN " key	Within set mode: Clear	Function	
" ▲ / START / STOP " key	Within set mode: + 1	Start	Stop
" ▼ / DISP MODE " key	Within set mode: - 1	Display Mode	
" ESC / SET SP " key	ECS	Set up	
" ENTER / STAND BY " key	ENTER key	Standby	

## § 3-4 Quick Function Table

◎ WEIGHT FUNCTION TABLE		
F 000	Decimal Point Adjustment	①No Decimal ①1 Decimal ②2 Decimal ③3 Decimal ④4 Decimal
F 001	Weighing Unit Selection	①None ①Kilogram ②Pound ③g ④ton(tf)
F 002	Display Update rate	①(5) 5 times/Sec ②(10)10 times/Sec ③(15)15 times/Sec
F 003	Digital Filter	0 ~ 7 step digital filter
F 004	Set Zero Range	①(5)±5% ②(10)±10% ③(20)±20% ④(30)±30% of Max. Capacity
F 005	Motion Detection	0.5 SEC 1 DIV~1 SEC 8 DIV 16 Steps (00 Stable)
F 006	Automatic ZERO Tracking Compensation	1 SEC 0.5 DIV~2 SEC 4.0 DIV 16 Steps (00 OFF)
F 007	ZERO & TARE keys Availability	ZERO & TARE keys ① always work ①only work when display is STABLE
F 008	TARE Key Availability	①TARE key always work ①If the GROSS is Negative (-), TARE key does not work
F 009	Accumulation Availability	①OFF ①Stable ②Manual ③Control Input Command Accumulation
F 010	"SET" Switch PASSWORD	6 Digits, Factory Setting: 000000.

◎ 20 mA Current Loop		STANDARD
F C00	Output Data	①Same as display ②Gross Weight ③NET Weight ④TARE Weight ⑤Gross Weight, NET Weight, TARE Weight
F C01	Output Mode	①Stream ② Stable and auto print ③Manual print mode ④Accumulate and print

◎ Control		
F 100	Zero Band	6 digit Zero band value (Initial "000.000")
F 101	Batching Mode	Customer Programmed Control Mode : ① Normal Batching ② Loss-in-Weight Batching Built-in Automatic Program Mode : ③ Normal Batching ④ Loss-in-Weight Batching Check Weighing program Mode: ⑤ Check mode 1 ⑥ Check mode 2 ⑦ Check mode 3 ⑧ Check mode 4
F 102	Timer-Comparator Inhibitor	Set between 0.0 to 2.0 Sec (Initial 0.0 Sec)
F 103	Timer-Finish Signal	Set between 0.0 to 9.9 Sec (Initial 0.0 Sec)
F 104	Pulse Width of Finish Signal	Set between 0.0 to 2.0 Sec (Initial 0.5 Sec)
F 105	Output 8	① Unstable ①Error
F 106	Input Mode	① Panel key ① OP-01 Input ③ Serial Input
F 107	Automatic Free Fall compensation	Please enter 6 digit free fall compensation value within effective range (Initial "000.000"---Free Fall OFF)



◎ SERIAL [ RS-232 ]		OP- 02A,B
F 200	Baud Rate	①(12)1200 BPS ②(24)2400 BPS ③(48)4800 BPS ④(96)9600 BPS ⑤(19)19200
F 201	Parity	① Non-parity ② Even Parity ③ Odd Parity
F 202	Output Data	① Same as display ② Gross Weight ③ NET Weight ④ TARE Weight ⑤ Gross Weight, NET Weight, TARE Weight
F 203	Output Mode	① Stream ② Stable and auto print ③ Manual Print Mode ④ Accumulate and Print ⑤ Command Mode
F 204	Serial Code	① 00:Serial Code not used ② 01-99:Serial Code used
F205	RS-232 Models	① BDI-2001/AD-4321 ② BDI-9301 ③ IQ-350 ④ HB-8210 (①②③ Only when F202=1,2,3, or F203=1,2,3,4.)

◎ PRINTER		OP-03
F 300	Setting Date, Time	Setting Year. Month, day, hour, minute, second
F 301	Data Format	
	Date	① Not print ② Only print above the latest data ③ Print on all
	Time	① Not print ② Only print above the latest data ③ Print on all
	Set	① Not print ② Only print above the latest data ③ Print on all
	Serial Number	① Not print ② Print
F 301	Weight	① Same as display ② Gross Weight ③ NET Weight ④ TARE Weight ⑤ Gross Weight, NET Weight, TARE Weight ⑥ Gross Weight, TARE Weight, NET Weight
	Unit	① Not print ② Only print above the latest data according to F001 ③ Only print the latest data "g" ④ Only print above the latest data "t" ⑤ Print on all according to F001 ⑥ Print on all "g" ⑦ Print on all "t"
F 302	Output Mode	① Stable and auto print ② Manual Print Mode ③ Accumulate and Print
F303	Select Printer	① PH-24 ② Panasonic-KXP1121 ③ TTP-243 Label Printer
F304	Label Size	① 45X30mm ( Height X Width )
F305	Space between Label	② 2mm ③ 3mm
F306	Left Margin	0~50 characters (Initial : 0)
F307	Top Margin	0~3Characters (Initial : 0)
F308	Character Size	① Normal (16x24dot font) ② Small (8x12dot font)

◎ BCD		OP-04
F 400	Data type	① Same as display ② Gross data ③ NET data ④ TARE data
F 401	Output Mode	① Stream ② Stable and print ③ Manual print mode ④ Accumulate and print
F 402	Output Logic	① Positive Logic ② Negative Logic

◎ Analog Output		OP-05,06
F 500	Analog Output Data	①Output 4~20 mA ②Output 0~+10 V
F 501	Output Mode	①Same as display ②Gross data ③NET data
F 502	Loss-in-weight Absolute Value	①Not read Absolute Value ① BDI-2001B reads Absolute Value
F 503	Output current when display ZERO	0.0mA through 9.99mA (Initial 0.40mA)
F 504	Output current at Full Capacity	0.0mA through 9.99mA (Initial 20.0mA)
F 505	Output Volt when display ZERO	-2.5V through +59.9V (Initial 00.0 V)
F 506	Output Volt at Full Capacity	-2.5V through +59.9V (Initial 10.0 V)

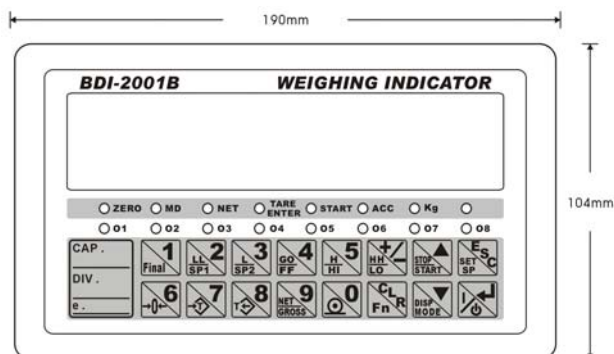
◎ Remote set point Unit: Final Weight		OP-07
F 700	Set Point Switch	①Not Used ②Used (Final Weight Only)

### § 3-5 Panel Key Function Table

Key	Accordance		Status
ZERO →0←	Panel Key	→0←	BDI - 2001B returns to the center of ZERO if the weight value is within F004 range.
	Control I / 0 OP-02 (Command Key)	Pin25+ (Pin16 or Pin17) Z Cr Lf	
TARE →T	Panel Key	→T	BDI – 2001B switches to NET mode, ZERO's the display and stores the TARE weight in Memory.
	Control I / 0 OP-02 (Command Key)	Pin24+ (Pin16 or Pin17) T Cr LF	
TARE Clear T↔	Panel Key	T↔	Clear TARE Value
	Control I / 0	Pin23+ (Pin16 or Pin17)	
Gross Weight GROSS	Panel Key	G / N	Shift to GROSS Mode
	OP-02 (Command Mode)	G Cr Lf	
NET Weight NET	Panel Key	G / N	Shift to NET mode
	OP-02 (Command Mode)	N Cr Lf	
Print key ⊙	Panel Key	⊙	Print or Output latest Data
	Control I / 0	Pin19+ (Pin16 or Pin17)	
Print Accumulation ACC	Panel Key	F2	Print Accumulation Value
	Control I / 0	Pin20+ (Pin16 or Pin17)	
Display Acc. Value (ACC)	Panel Key	DISP MODE Key	Display Accumulation Value and Count Value
Clear Accumulation CLEAR	Panel Key	Clear Accumulation (Please refer to 5-2-1)	Display Accumulation Value and Count Value
	Control I / 0	Pin18+ (Pin16 或 Pin17)	
STANDBY	Panel Key	I/⏻	Stop BDI-2001B
OPERATE	Panel Key	I/⏻	Start BDI-2001B
ESC	Panel Key	ESC	Leave set up mode
DISP Mode	Panel Key	DISP MODE	Change to set up

▲	Panel Key	▲	Add 1
▼	Panel Key	▼	Minus 1
ENTER	Panel Key	ENTER	Confirm
START	Panel Key	START / STOP	START BATCH (F101=3, 4)
STOP	Panel Key	START / STOP	STOP BATCH (F101=3, 4)
CLEAR	Panel Key	CLR	Clear data when set
Key 0 ~ 9	Panel Key	0 ~ 9	key-in 0 ~ 9 When set up
Final	Panel Key	Final Weight	Display Final Weight (When F101=1, 2, 3, 4)
	OP-02, F203=5	See 6-2	
SP1	Panel Key	Set Point 1	Display set point 1 (When F101=1, 2, 3, 4)
	OP-02, F203=5	See 6-2	
SP2	Panel Key	Set Point 2	Display Set point 2 (When F101=1, 2, 3, 4)
	OP-02, F203=5	See 6-2	
FF	Panel Key	FF	Display Free Fall (When F101=1, 2, 3, 4)
	OP-02, F203=5	See 6-2	
HI	Panel Key	HI value	Display Hi value (When F101=1, 2, 3, 4)
	OP-02, F203=5	See 6-2	
LO	Panel Key	LO value	Display Lo value (When F101=1, 2, 3, 4)
	OP-02, F203=5	See 6-2	
HH	Panel Key	HI value	Display Hi value (When F101=5, 6, 7, 8)
	OP-02, F203=5	See 6-2	
HI	Panel Key	LO value	Display Lo value (When F101=5, 6, 7, 8)
	OP-02, F203=5	See 6-2	
GO	Panel Key	HI value	Display Hi value (When F101=5, 6, 7, 8)
	OP-02, F203=5	See 6-2	
L	Panel Key	LO value	Display Lo value (When F101=5, 6, 7, 8)
	OP-02, F203=5	See 6-2	
LL	Panel Key	HI value	Display Hi value (When F101=5, 6, 7, 8)
	OP-02, F203=5	OP-02, F203=See 6-2	

# CHAPTER 4 SYSTEM FUNCTIONS



## § 4-1 System Check

A system check should be run: after initial installation, after moving your BDI-2001B, after connecting or disconnecting an attachment from the Rear Panel and as means of locating any unexplained system error. An occasional self-check to make sure everything is working properly is a good maintenance practice as well.

**STEP 1:** Turn the Power Switch OFF on the Rear Panel. Slide the **SET** switch to the set side.

**STEP 2:** Turn the power supply ON, displayed **PW 0000**. Please Input password **168**. The display will show blinking **SELECT**.

**STEP 3:** Press the **1** key and screen will show blinking **CHEC**, and press **↻** key to start check.

**STEP 4:** The system will check 7 Segment LEDs in sequence.

**STEP 5:** Check MEMORY { **EEPROM** 、 **SRAM** }

When the screen shows **SRAM**, please press **↻** key. The screen will subsequently show a series blinking dots **.....** indicating system checking in process. If the screen shows **PASS**, it means checking passed. If the screen shows **FAIL**, it means system error.

**STEP 6:** System check will go to **EEPROM 1** checking. The screen will show **EE-1**. Please press **↻** key and the screen will subsequently show a series blinking dots **.....** indicating system checking in process. If the screen shows **PASS**, it means checking passed. If the screen shows **FAIL**, it means system error.

**STEP 7:** System check will go to **Input/Output** checking. When the screen show **I-O**, please enter **↻** key. Subsequently, the screen will show **INPUT** . Please make SHORT-CIRCUIT test on 25-Pin **D** shape Code Input on the rear panel. When short-circuiting COM17 or COM16 with pin25~pin18, the short-circuit pin will light up a specific LED on the screen. If not, there suggests an error occurred.

⚡ When short-circuiting COM17.COM16 with pin13~pin16 , the short-circuit pin will light up a specific LED on the front panel. If two or more LED light up or turned off at the same time, there suggests an error occurred.

**STEP 8:** Check keypad. (  ). When pressing a key, the key number will show in the middle of the screen: **KEY 01~KEY 15**. If the key number does not match, it suggests an error occurred. Please contact us.

**STEP 9:** Finish checking, slide the **SET** switch to the original side.



Above testing if any **FAIL** occurred, please contact us or distributors.






## § 4-2 Functions




**YOUTUBE** <http://www.youtube.com/watch?v=MSvZ159e9sY&feature=related>


**STEP 1:** Turn the Power Switch OFF on the Rear Panel, Slide the **SET** switch to the set side.


**STEP 2:** Turn the power supply ON, the display will show blinking **SELECT**.

**STEP 3:** Press **2** key and screen will show blinking **FUNC** and blinking **F000** afterward.

**STEP 4:** Please press  or  key to move through the function category (F000, F200, F300, F400 or F500). Then press the  Key to enter the category. Use the  or  key to choose specific function (F000 ~ FC02, F100 ~ F107, F200 ~ 204, F400 ~ F402 or

F500 ~ F506). In each function, please use  or  key to set function value. If you want to return to previous function category, please press **ESC** key, or press  key to enter.

 If any errors occurred, please check if each setting value within effective range.

 note : ● Indicates initial factory setting.

**STEP 5:** When you finished changing the Function setting, slide **SET** Switch to the original side. The screen will show **END**.

### ⊙ General Functions

F000	Decimal Point Adjustment		
	0	No Decimal	1234567
	1	1 Decimal	123456.7
	2	2 Decimal	12345.67
●	3	3 Decimal	1234.567
	4	4 Decimal	123.4567

F002		
	5	5 Times/Sec
●	10	10 Times/Sec
	15	15 Times/Sec

F001	Weighing Unit Selection	
	0	None
●	1	Kilogram
	2	Pound
	3	g
	4	ton(tf)

F003	Digital Filter				
			Filter	Environment Vibration	Response Speed
	0	No stage	Weak	Bad	Fast
	1	1 <sup>st</sup> stage			
	2	2 <sup>ed</sup> stage			
	3	3 <sup>rd</sup> stage	▲	▲	▲
●	4	4 <sup>th</sup> stage	▼	▼	▼
	5	5 <sup>th</sup> stage			
	6	6 <sup>th</sup> stage			
	7	7 <sup>th</sup> stage	Strong	Good	Slow

<b>F004</b>	Set ZERO Range	
	5	±5% of weighing platform Full Capacity
●	10	±10% of weighing platform Full Capacity
	20	±20% of weighing platform Full Capacity
	30	±30% of weighing platform Full Capacity

<b>F006</b>	Automatic ZERO Tracking Compensation	
	00	OFF
	11	1 SEC 0.5 DIV
	12	1 SEC 1.0 DIV
	13	1 SEC 1.5 DIV
●	14	1 SEC 2.0 DIV
	15	1 SEC 2.5 DIV
	16	1 SEC 3.0 DIV
	17	1 SEC 3.5 DIV
	18	1 SEC 4.0 DIV
	21	2 SEC 0.5 DIV
	22	2 SEC 1.0 DIV
	23	2 SEC 1.5 DIV
	24	2 SEC 2.0 DIV
	25	2 SEC 2.5 DIV
	26	2 SEC 3.0 DIV
	27	2 SEC 3.5 DIV
	28	2 SEC 4.0 DIV

<b>F005</b>	Motion Detection	
	00	Stable
	01	0.5 SEC 1 DIV
	02	0.5 SEC 2 DIV
	03	0.5 SEC 3 DIV
	04	0.5 SEC 4 DIV
	05	0.5 SEC 5 DIV
	06	0.5 SEC 6 DIV
	07	0.5 SEC 7 DIV
	08	0.5 SEC 8 DIV
	11	1 SEC 1 DIV
●	12	1 SEC 2 DIV
	13	1 SEC 3 DIV
	14	1 SEC 4 DIV
	15	1 SEC 5 DIV
	16	1 SEC 6 DIV
	17	1 SEC 7 DIV
	18	1 SEC 8 DIV

<b>F007</b>	ZERO & TARE keys Availability	
●	0	ZERO & TARE keys always work
	1	ZERO & TARE keys only work when display is STABLE

<b>F008</b>	TARE key Availability	
●	0	TARE key always work
	1	If the GROSS is negative, TARE key does not work

<b>F009</b>	Accumulation Availability	
	0	OFF
	1	Stable
	2	Manual
●	3	Control Input--Command Accumulation

<b>F010</b>	Set Switch PASSWORD	
Factory initial password: 000000.		
* When switch SET, please enter the password so that you can enter set modes.		

◎ **Standard 20 mA Current Loop**

<b>FC00</b>	Output Data	
●	1	Same as display
	2	GROSS Weight
	3	NET Weight
	4	TARE Weight
	5	GROSS Weight, NET Weight, TARE Weight

<b>FC01</b>	Output Mode	
●	1	Stream
	2	Stable and auto print
	3	Manual Print Mode
	4	Accumulate and Print

◎ Control

<b>F100</b>	Set ZERO Band 6 digit Zero band value (● Initial "000.000")
-------------	--

<b>F101</b>	Batching Mode	
●	1	Customer Programmed Control Mode: Normal Batching
	2	Customer Programmed Control Mode: Loss-in-Weight Batching
	3	Built-in Automatic Program Mode: Normal Batching
	4	Built-in Automatic Program Mode: Loss-in weight Batching
	5	Check Mode 1
	6	Check Mode 2
	7	Check Mode 3
	8	Check Mode 4

<b>F102</b>	Timer-Comparator Inhibitor Set between 0.0 to 2.0 Sec (● Initial 0.0 Sec) (Only apply to batching mode 3 and 4).
-------------	--

<b>F103</b>	Timer-Finish Signal The finish signal timer can be Set between 0.0 to 9.9 Sec ※● Initial 0.0 Sec ※Finish Signal sent ON at 0.0 Sec. And stays ON until the next START Signal. (Only apply to batching mode 3 and 4).
-------------	---

<b>F104</b>	Pulse Width of Finish Signal Set between 0.0 to 2.0 Sec ※● Initial 0.5 Sec ※Stable at 0.0 Sec. which is apply to F101 setting at 3 or 4.
-------------	---

<b>F105</b>	Output 8	
●	0	Unstable
	1	Error

<b>F106</b>	Input Mode	
●	1	Panel key
	2	BCD Input
	3	Serial Input

<b>F107</b>	Automatic Free Fall Compensation Please enter 6 digit free fall compensation value within effective range ● Initial "000.000"--- Free Fall OFF
-------------	--

◎ SERIAL (RS-232)

F200 Band Rate		
	12	1200BPS
●	24	2400BPS
	48	4800BPS
	96	9600BPS
	19	19200Bps

F202 Output data		
●	1	Same as display
	2	GROSS Weight
	3	NET Weight
	4	TARE Weight
	5	GROSS Weight, NET Weight, TARE Weight

F204 Output Format		
●	00	Sending code not used
	01-99	Serial Code used

F201 Parity		
	0	Non-parity
●	1	Even- Parity
	2	Odd- Parity

F203 Output Mode		
●	1	Stream
	2	Stable and auto print
	3	Manual Print Mode
	4	Accumulate and Print
	5	Command Mode

F205 RS-232 Models select		
●	0	BDI-2001/ AD4321
	1	BDI-9301
	2	IQ-350
	3	HB-8210

◎ Printer

F300 Setting Date, Time	
YY / MM / DD	HH : MM : SS

F301 Data Format					
	Date	Time	Serial Number	Weight	Unit
0	Not Print	Not Print	Not Print		Not Print
1	Only Print above the Latest data	Only Print above the Latest data	Print	Same as display	Only Print above the Latest data
2	Print on all	Print on all		GROSS Weight	Print on all
3				NET Weight	
4				TARE Weight	
5				GROSS Weight, NET Weight, TARE Weight	
6				GROSS Weight, NET Weight, TARE Weight	
<b>Initial</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>1</b>

\*At initial setting, the screen shows : 1 2 0 1 1

F302 Output Mode		
	1	Stable and auto print
●	2	Manual print mode
	3	Accumulate and print



<b>F303</b>	Select Printer	
●	<del>BANEDIC</del> PAN-ENTERPRISE CO., LTD, TAIWAN	
	2	Panasonic KXP-1121
	3	TTP-243 Label Printer

<b>F304</b>	Label Size	
●	1	45*30mm(WxH)

<b>F305</b>	Space between Label	
●	2	2mm
	3	3mm

<b>F306</b>	Left Margin	
	0-50Characters	
●	Initial: 00	

<b>F307</b>	Top Margin	
	0-3 Characters	
●	Initial: 00	

<b>F308</b>	Character Size	
●	0	Normal (16x24dot)
	1	Small (8x12dot)

## ◎ BCD

<b>F400</b>	Data Type	
●	1	Same as display
	2	GROSS Weight
	3	NET Weight
	4	TARE Weight

<b>F401</b>	Output Mode	
●	1	Stream
	2	Stable and auto print
	3	Manual Print Mode
	4	Accumulate and Print

<b>F402</b>	Output Logic	
●	1	Positive Logic
	2	Negative Logic

<b>F 503</b>	Output current when display ZERO	
	0.0mA through 9.99mA	
●	Initial 4.0mA	

## ◎ Analog Output

<b>F 500</b>	Analog Output Data	
●	1	Output 4~20 mA
	2	Output 0~+10 V

<b>F 504</b>	Output current at Full Capacity	
	0.0mA through 9.99mA	
●	Initial 20.0mA	

<b>F 501</b>	Output Mode	
●	1	Same as display
	2	GROSS Weight
	3	NET Weight

<b>F 505</b>	Output Volt when display ZERO	
	-2.5V through +59.9V	
●	Initial 00.0 V	

<b>F 502</b>	Loss-in-weight Absolute Value	
●	0	Not read Absolute Value
	1	BDI-2001B reads Absolute Value

<b>F 506</b>	Output Volt at Full Capacity	
	-2.5V through +59.9V	
●	Initial 10.0 V	

---

◎ Remote Set point Unit: Final Weight

<b>F 700</b>	Analog Output Data	
●	1	Not used
	2	Used (Final Weight Only)

## § 4-3 CALIBRATION

**YOUTUBE** [http://www.youtube.com/watch?v=pYdVJf\\_r0bc](http://www.youtube.com/watch?v=pYdVJf_r0bc)

### 1. Select F- CAL : (Standard Calibration: ZERO => SPAN => OK)

**STEP 1:** Turn the Power Switch OFF on the rear panel. Slide the **SET** switch to the set side.

**STEP 2:** Turn the power switch ON. The screen will show blinking **SELECT**.

**STEP 3:** Press the **3** key and a blinking **CAL** will show on the screen.  
Then press the **↻** key.

**STEP 4:** The screen will show **F- CAL**. Please press the **↻** key. If you need to go to ZERO adjustment or SPAN adjustment, Press **⬅** or **➡** key to show **CAL .**  
**ZERO** → **CAL . SPAN**

#### [ 1 ] **Setting Minimum Division**

The display of **di 1** shows the smallest division. Use the **⬅** or **➡** key to move through the available divisions. [ 1 、 2 、 5 、 10 、 20 、 50 ] . Press the **↻** key to set the minimum division.

#### [ 2 ] **Setting Decimal (F000 will change---see § 4-2)**

The screen will show **dp** → **d000.000**. A blinking decimal will show on the screen. Use the **⬅** or **➡** key to move through the available decimal Point position. Press the **↻** key to set the decimal position.

#### [ 3 ] **Setting Maximum Capacity**

When setting maximum capacity, the screen will show **CAP** → **C000.000**. Use the **⬅** or **➡** key to set the numeric value, Use the **⬅** or **➡** key to move through digits. Press the **↻** key to finish the step.

#### [ 4 ] **ZERO Adjust**

The Screen will display **ZERO**. Please move the calibration mass and objects away on the Weighing device then press **↻** key. A display of **.....** means finishing the Adjustment.

#### [ 5 ] **SPAN Calibration**















The screen will show **SPAN**. Press **↻** key and place your calibration mass on the weighing device and input weight value. Use the **⬅** or **➡** key to set the available value, and the **⬅** or **➡** key to move through digits. Please press the **↻** key to finish the calibration. The screen will show **.....**.

**STEP 5 :** The screen will show **END**.

Slide the **SET** switch to the original side.

※Example of selecting **FULL CALIBRATION (Div 2, 3 decimal, Max cap.20)**


Key	Screen will display
Turn the Power Switch OFF	
Slide Set switch to the set side	
Turn the power ON.	Blinking <b>SECECT</b>
Press GROSS/NET.	Blinking <b>CAL</b>
Press <b>↻</b> key	Blinking <b>F-CAL</b>




Press  key	di 01 (Blinking at 01)
Press  key	di 02 (Blinking at 02)
Press  key	dp → d000.000 (Blinking at the Decimal Point---- F000 will subject to change if  or  key been pressed)
Press  key	CAP → C010.000 (Blinking at the latest decimal)
Press  key 4 times	010.000 (Blinking at 1)
Press  key	020.000 (Blinking at 2)
Press  key	ZERO
Press  key	..... → SPAN
Press  key	000.000 (Blinking at the latest decimal)
Place 1kg Calibration Mass, press  key 3 times, press  key	001.000 (Twinkle at 1)
Press  key	..... → End


**2. ZERO Adjustment only: CAL ZERO (Must finish Full calibration before)**

**STEP 1:** Turn the Power Switch OFF on the rear panel. Slide the **SET** switch to the set side.

**STEP 2:** Turn the power switch ON. The screen will show blinking **SELECT**.

**STEP 3:** Press **3** key and a blinking **CAL** will show on the screen. Then press the  key.

**STEP 4:** The screen will show **F-CAL**. Please press the  key. If you need to go to ZERO adjustment or SPAN adjustment, Press  or  key to show **CAL . ZERO**


**STEP 5:** The Screen will display **ZERO** then press  key. A display of **.....** → **END** means finishing the zero Adjustment.




**STEP 6:** Slide the **SET** switch to the original side.







**3. SPAN Adjustment only: CAL SPAN (Must finish Full calibration before)**

**STEP 1:** Turn the Power Switch OFF on the rear panel. Slide the **SET** switch to the set side.

**STEP 2:** Turn the power switch ON. The screen will show blinking **SELECT**.

**STEP 3:** Press **3** key and a blinking **CAL** will show on the screen. Then press the  key.

**STEP 4:** The screen will show **F-CAL**. Please press the  key. If you need to go to ZERO adjustment or SPAN adjustment, Press  or  key to show **CAL . ZERO** → **CAL . SPAN**

**STEP 5:** The screen will show **SPAN**. Press  key and place your calibration mass on the weighing device and input weight value. Use the  or  key to set the available value, and the  or  key to move through digits. Please press the  key to finish the calibration. The screen will show **.....**. A display of **END** means finishing the SPAN Adjustment.

**STEP 6:** Slide the **SET** switch to the original side.

**\*\*Please make sure your zero calibration is accurate, any error of input will result in linearity problem.**

## ◎ Calibration Errors

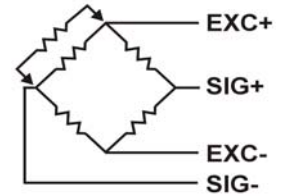
### **C.Err 1 : The resolution exceeds 1 : 16,000.**

⇒ Change the minimum division and maximum capacity within 1 / 16,000.  
Resolution ratio= Minimum division / maximum capacity

### **C.Err 2 : The load cell output is too large at ZERO calibration.**

⇒ Add an additional resistor (50kΩ ~ 500KΩ) between EXC+ and SIG-.

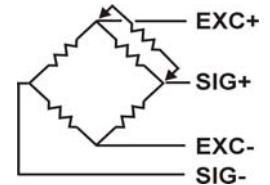
※ Refer to the Right Figure



### **C.Err 3 : The load cell output is too small at ZERO calibration.**

⇒ Add an additional resistor (50kΩ ~ 500KΩ) between EXC+ and SIG+.

※ Refer to the Right Figure



### **C.Err 4 : The calibration mass has been mistakenly entered as a value greater than the maximum capacity.**

⇒ Please reduce the weight of calibration mass, and re-enter the weight value.

### **C.Err 5: The calibration mass has been wrongly entered zero or it is smaller than the minimum capacity.**

⇒ Please increase the weight of calibration mass, and re-enter the weight value.

### **C.Err 6: The load cell output is too low.**

⇒ Replace your load cell with a more sensitive one or adjust the minimum division.

### **C.Err 7: The load cell signal pins are reversed, or the load cell output voltage is too low.**

⇒ Check the load cell connections if reversed or load cell failure.

### **C.Err 8: The load cell output voltage at maximum capacity is too high.**

⇒ Check the load cell specification or load cell failure.

### **C.Err 9: The maximum, capacity has been wrongly entered as a value smaller than 100.**

⇒ Check Resolution Table.

### **C.Err 10: The maximum, capacity has been wrongly entered as a value greater than 750,000.**

⇒ Check the load cell specification or load cell failure.

◎Display Resolution Table

Max. Capacity	Resolution					
	1 Min. Div.	2 Min. Div.	5 Min. Div.	10 Min. Div.	20 Min. Div.	50 Min. Div.
300	1 / 300	-----	-----	-----	-----	-----
400	1 / 400	-----	-----	-----	-----	-----
500	1 / 500	-----	-----	-----	-----	-----
600	1 / 600	1 / 300	-----	-----	-----	-----
800	1 / 800	1 / 400	-----	-----	-----	-----
1,000	1 / 1000	1 / 500	-----	-----	-----	-----
1,200	1 / 1200	1 / 600	-----	-----	-----	-----
1,500	1 / 1500	1 / 800	1 / 300	-----	-----	-----
2,000	1 / 2000	1 / 1000	1 / 400	-----	-----	-----
2,500	1 / 2500	1 / 1200	1 / 500	-----	-----	-----
3,000	1 / 3000	1 / 1500	1 / 600	1 / 300	-----	-----
4,000	1 / 4000	1 / 2000	1 / 800	1 / 400	-----	-----
5,000	1 / 5000	1 / 2500	1 / 1000	1 / 500	-----	-----
6,000	1 / 6000	1 / 3000	1 / 1200	1 / 600	1 / 300	-----
8,000	1 / 8000	1 / 4000	1 / 1500	1 / 800	1 / 400	-----
10,000	1 / 10000	1 / 5000	1 / 2000	1 / 1000	1 / 500	-----
12,000	1 / 12000	1 / 6000	1 / 2500	1 / 1200	1 / 600	-----
15,000	1 / 15000	1 / 8000	1 / 3000	1 / 1500	1 / 800	1 / 300
20,000	-----	1 / 10000	1 / 4000	1 / 2000	1 / 1000	1 / 400
25,000	-----	1 / 12500	1 / 5000	1 / 2500	1 / 1200	1 / 500
30,000	-----	1 / 15000	1 / 6000	1 / 3000	1 / 1500	1 / 600
40,000	-----	-----	1 / 8000	1 / 4000	1 / 2000	1 / 800
50,000	-----	-----	1 / 10000	1 / 5000	1 / 2500	1 / 1000
60,000	-----	-----	1 / 12000	1 / 6000	1 / 3000	1 / 1200
80,000	-----	-----	1 / 16,000	1 / 8000	1 / 4000	1 / 1500
100,000	-----	-----	-----	1 / 10000	1 / 5000	1 / 2000
120,000	-----	-----	-----	1 / 12000	1 / 6000	1 / 2500
150,000	-----	-----	-----	1 / 15000	1 / 8000	1 / 3000
200,000	-----	-----	-----	-----	1 / 10000	1 / 4000
250,000	-----	-----	-----	-----	1 / 12500	1 / 5000
300,000	-----	-----	-----	-----	1 / 15000	1 / 6000
400,000	-----	-----	-----	-----	-----	1 / 8000
500,000	-----	-----	-----	-----	-----	1 / 10000
600,000	-----	-----	-----	-----	-----	1 / 12000
700,000	-----	-----	-----	-----	-----	1 / 14000
750,000	-----	-----	-----	-----	-----	1 / 15000

☆BDI-2001B Display Resolution may reach 1/30,000. (Depends on load cell quality).

## § 4-4 PANEL KEY DISABLE

☛ Disable unimportant or unused keys.

**STEP 1:** Turn the Power Switch OFF on the rear panel. Slide the **SET** switch to the set side.

**STEP 2:** Turn the power switch ON. The screen will show blinking **SELECT**.

**STEP 3:** Please press **TARE/CLEAR** key and a blinking **LOC** will show on the screen. After enter **↻** key, a [ ] will show on the screen. Please press the key you wish to disable. The screen will show the key's number. BDI-2001B will inquire if you want to lock or unlock the key: [00] u or L  
(Key number [00] : Unlock or Lock the key).

**STEP 4:** Use the **↻** or **↻** key to choose lock or unlock the key and press **↻** key for confirmation.

**STEP 5 :** Slide the **SET** switch to the original side for finishing the step.

## § 4-5 SYSTEM INITIALIZATION

☛ Re-install resets the BDI-2001B to the initial factory settings. Use Re-install only if you want to return Function, Set Point or Calibration to their initial settings.

**STEP 1:** Turn the Power Switch OFF on the Rear Panel, and slide **SET** switch.

**STEP 2:** Turn the power switch ON. The screen will show blinking **SELECT**.

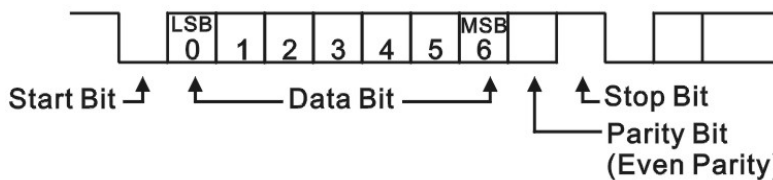
**STEP 3:** Press **ESC** key and a blinking **INIT** will show on the screen. Please enter **↻** key.

**STEP 4:** Use the **↻** or **↻** key to choose **NO** or **YES** . If **NO** is entered, the screen will show **END**. If **YES** is entered, the screen will show .....→ **END** .

**STEP 5 :** Slide the **SET** switch to the original side for finishing the step.

## § 4-6 20mA Current Loop

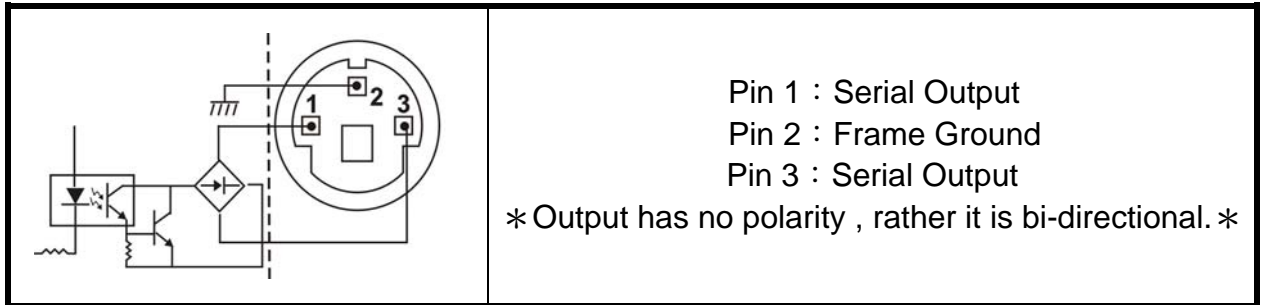
### 20 mA Current Loop Specifications



1. Baud Rate : 1200 bps
2. Data bit : 7 bit
3. Parity : Even Parity
4. Stop bit : 1 bit
5. Output Code : ASCII

	CURRENT LOOP
1	20 mA
0	0 mA

---

**Pin Assignment :**


## § 4-7 Fn set-up.(Per-TARE).

Step 1 : Press 1 key, display **P-TARE**.

Step 2 : Input Pre-tare weight value.

Step 3 : Press **ENTER** key to enter.

\*In normal mode, Press 1 key to Pre-Tare Value.

## § 4-8 Accumulation.

### 4-8-1 How to display accumulation value.

1. Press **DISP MODE** key, ACC LED will light on and display accumulation value.
2. Press **DISP MODE** key again, the screen will show count value **C0001**,
3. Press **ESC** key back to weight mode.

### 4-8-2 How to CLEAR accumulation value.

4. Press **DISP MODE** key, ACC LED will light on and display accumulation value.
5. Press **CLR** key, the screen will show count value **CLR ACC**, Press **ENTER** key to clear.
6. Press **ESC** key back to weight mode.



# CHAPTER 5 SET POINTS

## § 5-1 SET POINTS

### 5-1-1 Change Set point values (Only one set point code)

F106	Input Mode	Set Point Input
●	1 Panel key	From Panel key
	2 BCD Input: Code Input from rear panel	From Panel key
	3 Serial Input: RS-232 or RS-422/482 when F203=5	From Panel key or Serial Input

ⓘ Please identify the function F106=1. Otherwise, the operator can not set by panel key.







**STEP 1:** Press SET SP Key, display SET SP.

**STEP 2:** When Set point mode: F101=1/2/3/4 (Batching modes).

Final	-	Final Weight	6 Digit
SP1	-	Set point 1	6 Digit
SP2	-	Set point 2	6 Digit
FF	-	Free Fall	4 Digit
HI	-	Hi limit	4 Digit
LO	-	Lo limit	4 Digit

**STEP 3:** When Set point mode: F101=5/6/7/8 (Batching modes).

LL	-	Low Low Limit	6 Digit
L	-	Low Limit	6 Digit
GO	-	Standard Value	6 Digit
H	-	Hi Limit	6 Digit
HH	-	High High Limit	6 Digit

**STEP 4:** Use the  or  key and the  or  key to change value. Please press the  key to finish changing set-point values (Final,SP1,SP2,Free,Hi,Lo). Please press the  key to confirm. If you press ESC key, the data will not saved in BDI-2001B.

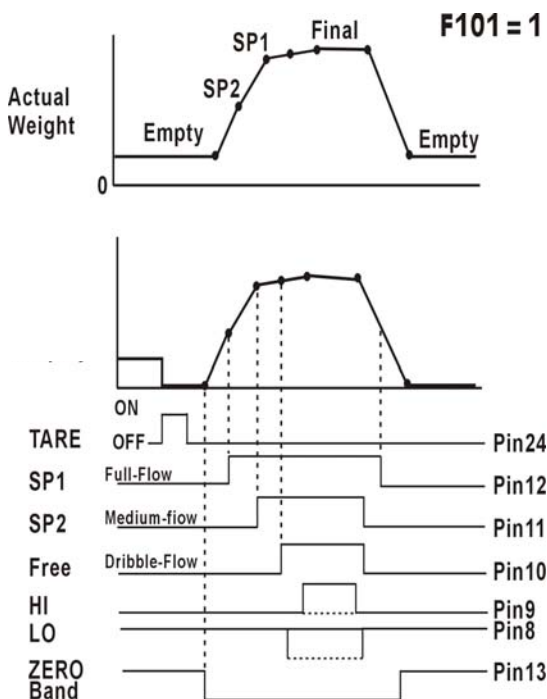
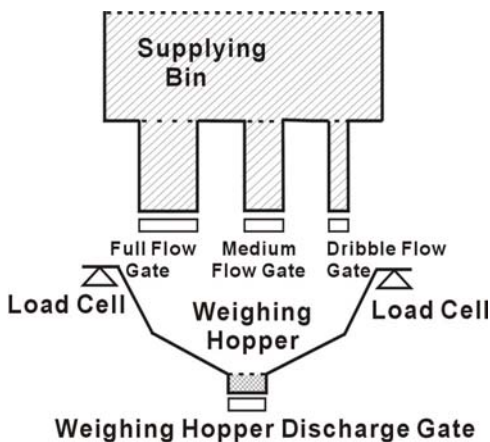
## § 5-2 BATCHING MODES

### ◀ Batching Modes

1. Customer Programmed Control Mode: Normal Batching
2. Customer Programmed Control Mode: Loss-in-Weight Batching
3. Built-in Automatic Program Mode: Normal Batching
4. Built-in Automatic Program Mode: Loss-in weight Batching
5. Multiple-Ingredient Batching

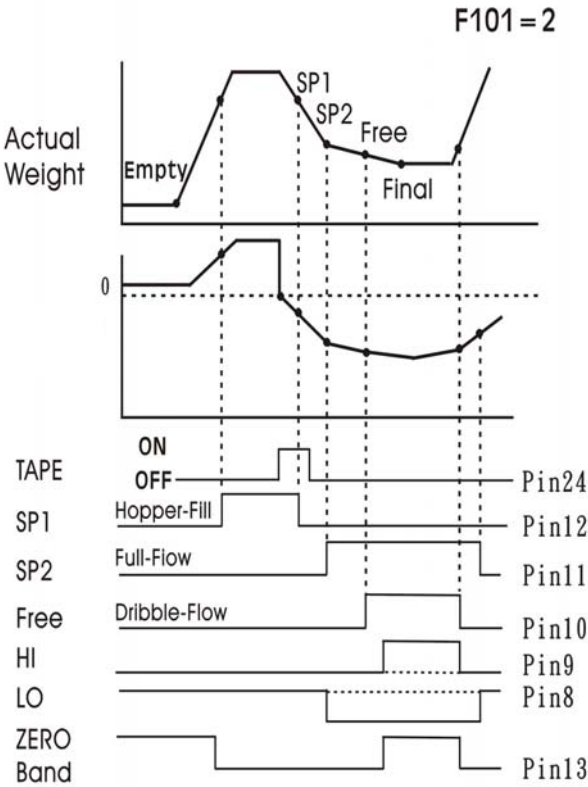
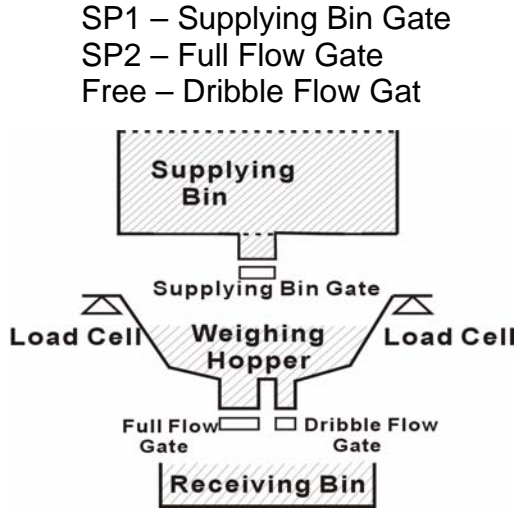
### ◎ Customer Programmed Control Mode: Normal Batching( F101 = 1)

SP1 – Full Flow Gate  
 SP2 – Medium Flow Gate  
 Free – Dribble Flow Gate



1. The Weighing Hopper is empty, the display shows "0", and all Gates are closed. If the display is not at ZERO, input a **TARE** signal (Pin 24) to **re-ZERO** the display.
2. Open the Supply Bin's: Full-Flow Gate, Medium-Flow Gate, and Dribble-Flow Gate.
3. When the display reaches "**Final - SP 1**", the **SP 1** Output (Pin 12) signal will come **ON**. Closed the Full-Flow Gate by using the SP 1 Output ON signal.
4. When the display reaches "**Final - SP 2**", the **SP 2** Output (Pin 11) signal will come **ON**. Closed the Medium-Flow Gate by using the **SP 2** Output ON signal.
5. When the display reaches "**Final - FREE**", the **FREE** Output (Pin 10) signal will come **ON**. Closed the Dribble-Flow Gate by using the **FREE** Output ON signal.
6. After Free Fall has stopped - check if the HI and LO (Pin 9, 8) signals are OFF. If both outputs are OFF then the batch is completed correctly.
7. An Automatic Free Fall Compensation Command (Min. 200ms pulse to Pin 21) may be given at this time. If you change the Free Fall Set Point value either from the Front Panel or the RS-232C, RS-422/485 — the learned Free Fall value will be cleared.
8. Use the **FREE** (Pin 10) signal to delay a time period as the control signal is processing empty the Weighing Hopper.
9. When the GROSS weight is below the ZERO band, the ZERO Band Output will come ON -signifying the Weighing Hopper is empty. Closed the Weighing Hopper Discharge Gate by using the ZERO Band (Pin 13) Output ON signal.
10. You are now ready for your next batching event.

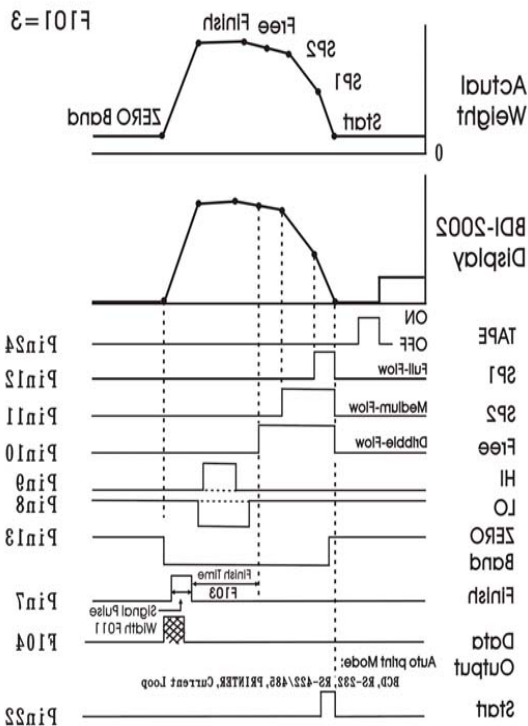
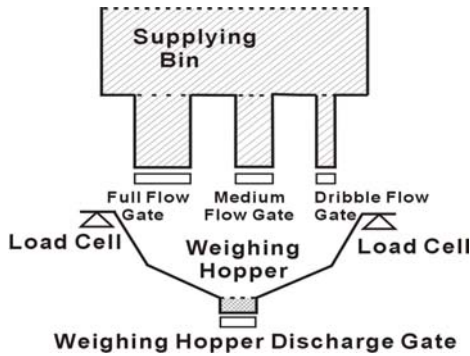
◎ Customer Programmed Control Mode: Loss-in-Weight ( F101 = 2 )



1. The Weighing Hopper is empty as is the Receiving Bin. The display shows "0", and all Gates are closed.
2. Open the Supplying Bin Gate.
3. When the GROSS Weight reaches "**SP 1**", the **SP 1** Output (Pin 12) signal will come **ON**. Closed the Supplying Bin Gate by using the **SP 1** Output ON signal.
4. The displayed weight will exceed the **SP 1** value by the Free Fall value. This weight is not necessarily accurate - but accuracy is not needed at this moment since the purpose of this event is to fill up the Weighing Hopper. The SP 1 value is always compared to GROSS weight.
5. Input a TARE signal (Pin 24) to ZERO the display.
6. Open the Full-Flow Gate and the Dribble-Flow Gate for Full-Flow filling into the Receiving Bin.
7. When the display reaches "**Final - SP 2**", the **SP 2** Output (Pin 11) signal will come **ON**. Closed the Full-Flow Gate by using the **SP 2** Output ON signal.
8. When the display reaches "**Final - FREE**", the **FREE** Output (Pin 10) signal will come **ON**. Closed the Dribble-Flow Gate by using the **FREE** Output ON signal.
9. After Free Fall has stopped - check to see if the HI and LO (Pin 9, Pin 8) signals are OFF. If both outputs are OFF then the batch is completed correctly.
10. An Automatic Free Fall Compensation Command (Min. 200ms pulse to Pin 21) may be given at this time.
11. If the GROSS weight of the Weighing Hopper is below the ZERO Band (Pin 13), the ZERO Band Output will be ON. The ZERO Band Output will refill Weighing Hopper if needed.
12. Ready for next batching event.

◎ Built-in Automatic Program Mode: Normal Batching( F101 = 3 )

SP1 - Full Flow Gate  
 SP2 - Medium Flow Gate  
 Free - Dribble Flow Gate  
 Start signal – Pin22



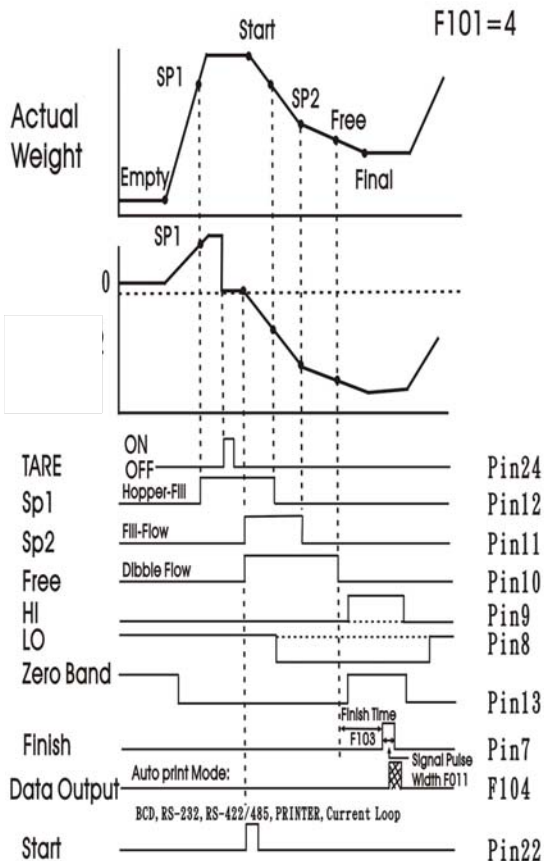
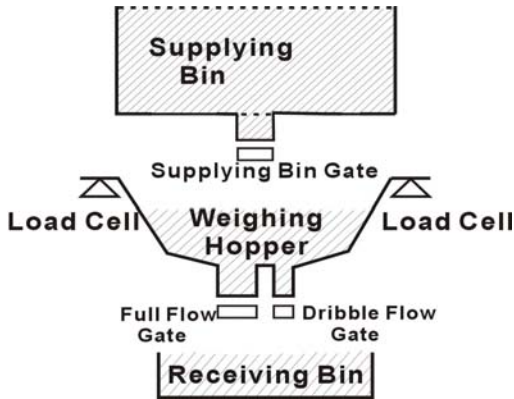
1. The Weighing Hopper is empty, the display shows "0", and all Gates are closed. If the display is not at ZERO, **input a TARE** signal (Pin 24) to **re-ZERO the display**.
2. Check if the Weighing Hopper is empty using the ZERO Band Output (Pin 13).
3. Input the Start signal via the Control I/O Interface connector (Pin 22). When the Start signal is received, then **SP 1**, **SP 2**, and Free Output signals will "come ON".

Note: When the Final Weight is 0, the Pin 12, 11 and 10 are kept OFF.

4. Open the Supply Bin's: Full-Flow Gate, Medium-Flow Gate, and Dribble-Flow Gate.
5. When the display reaches "**Final - SP 1**", the **SP 1** Output (Pin 12) signal will come **OFF**. Closed the Full-Flow Gate by using the **SP 1** Output OFF signal.
6. When the display reaches "**Final - SP 2**", the **SP 2** Output (Pin 11) signal will come **OFF**. Closed the Medium-Flow Gate by using the **SP 2** Output OFF signal.
7. When the display reaches "**Final - Free**", the **Free** Output (Pin 10) signal will come **OFF**. Closed the Dribble-Flow Gate by using the Free Output OFF signal.
8. Batch Finish signal is sent after the set time period (F103) or when the display is stable.
9. After Free Fall has stopped - check to see if the HI and LO (Pin 9, 8) signals are OFF. If both outputs are OFF then the batch is completed correctly.
10. Automatic Free Fall is now recalculated for the next event.
11. The Weighing Hopper Discharge Gate will be opened using the Finish Output (Pin 7) ON signal.
12. Data Output is sent (Auto print Mode: BCD, RS-232C, RS-422/485, Printer or Current Loop). The NET Weight data will be accumulated.
13. Ready for the next batching event.
14. If an Abort signal is sent (Pin 21) anytime after the Start signal is received, then:
  - (1) SP 1, SP 2 and Free signals will go OFF, and Gates will be closed.
  - (2) Batch Finish and Data Output signals will be sent.
  - (3) NET Weight data will be accumulated.

◎ Built-in Automatic Program Mode: Loss-in-Weight Batching (F101=4)

SP1 – Supplying Bin Gate  
 SP2 – Full Flow Gate  
 Free – Dribble Flow Gate  
 Start signal – Pin22



1. The Weighing Hopper/ Supply Bin is empty .The display shows "0", and all Gates are closed.
2. Open the Supplying Bin Gate.
3. When the GROSS Weight reaches "SP 1", the SP 1 Output (Pin 12) signal will come ON. Closed the Supplying Bin Gate by using the SP 1 Output ON signal.
4. The displayed weight will exceed the SP 1 value by the Free Fall value. This weight is not necessarily accurate - but accuracy is not needed at this moment since the purpose of this event is to fill up the Weighing Hopper. The SP 1 value is always compared to GROSS weight.
5. Input a TARE signal (Pin 24) to ZERO display.
6. Input the Start signal via the Control I/O interface connector (Pin 22). When the Start signal is received, the SP 2 and Free Outputs "come ON".

Note : When the Final Weight is 0, the Pin 11 and 10 are kept OFF .

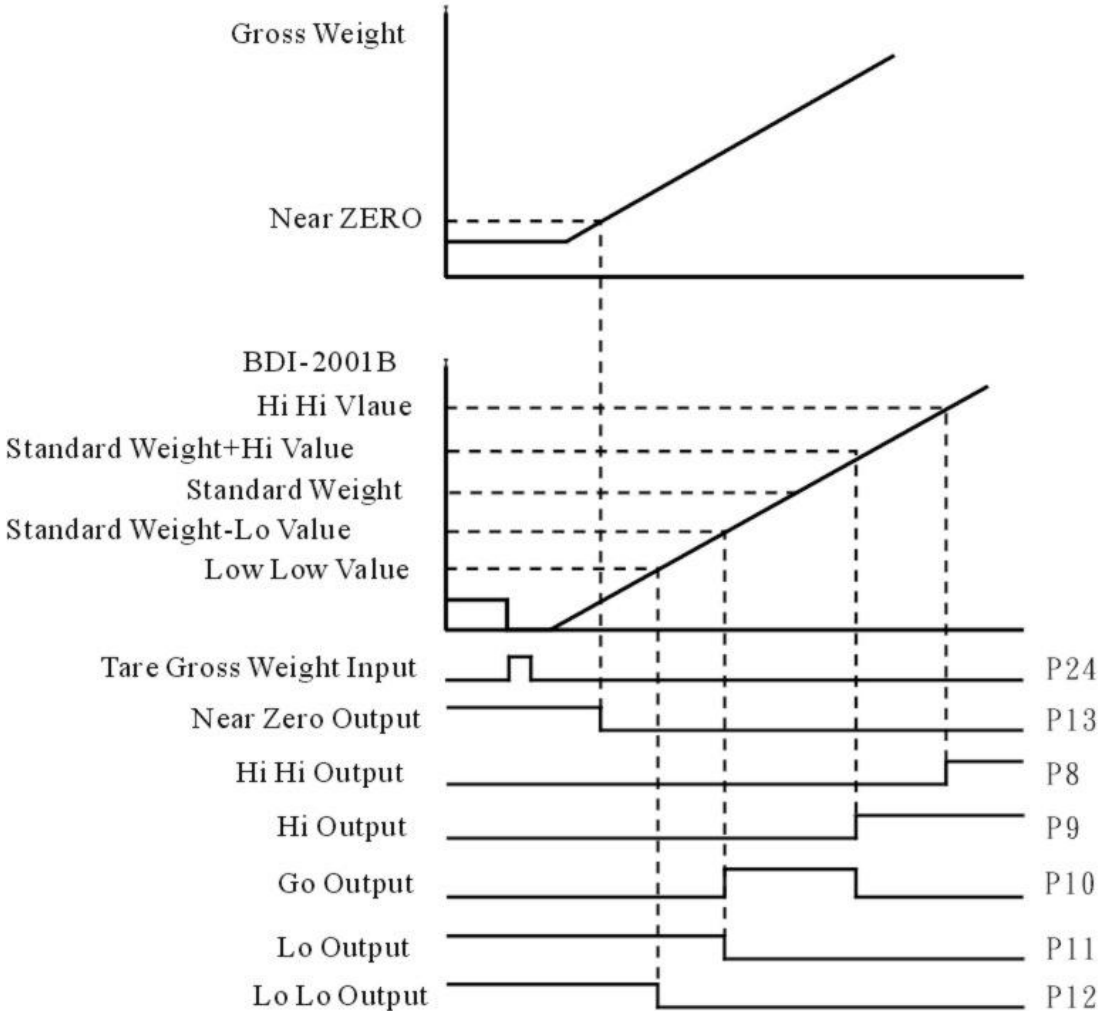
7. Open the Full-Flow Gate and the Dribble-Flow Gate for Full-Flow filling into the Receiving Bin.
8. When the display reaches "Final - SP 2", the SP2 Output (Pin 11) signal will come OFF. Closed the Full-Flow Gate by using the SP2 Output OFF signal.
9. When the display reaches "Final - FREE", the FREE Output (Pin 10) signal will come OFF. Closed the Dribble-Flow Gate by using the FREE Output OFF signal.
10. Batch Finish signal is sent after the set time period (F103) or when the display is stable.
11. After Free Fall has stopped - check if the HI and LO (Pin 9, 8) signals are OFF. If both outputs are OFF then the batch is completed correctly.
12. Automatic Free Fall is now recalculated for the next event.
13. The Weighing Hopper Discharge Gate will be opened using the Finish Output (Pin 7) ON signal.
14. Data Output is sent (Auto print Mode: BCD, RS-232C, RS-422/485, Printer or Current Loop). The NET Weight data will be accumulated.
15. Signal (Pin 13) will refill using ZERO Band Output if needed. Ready for next batching event.
16. Ready for the next batching event.
17. If an Abort signal is sent (Pin 21) anytime after the Start signal is received, then: (1) SP 1, SP 2 and Free signals will go OFF, and Gates will be closed.  
 (2) Batch Finish and Data Output signals will be sent.  
 (3) NET Weight data will be accumulated.



© Check Mode 1 ( When F101 = 5 )

Output	Value
Near ZERO	Gross Weight $\leq$ Near ZERO
Hi - Hi	Net Weight $>$ HH Limit
Hi	Net Weight $>$ Standard Weight + Hi value
Go	Standard Weight + Hi value $\geq$ Net Weight $\geq$ Standard value - Low value
Lo	Net Weight $<$ Standard Weight - Low value
Lo - Lo	Net Weight $<$ Low Low value

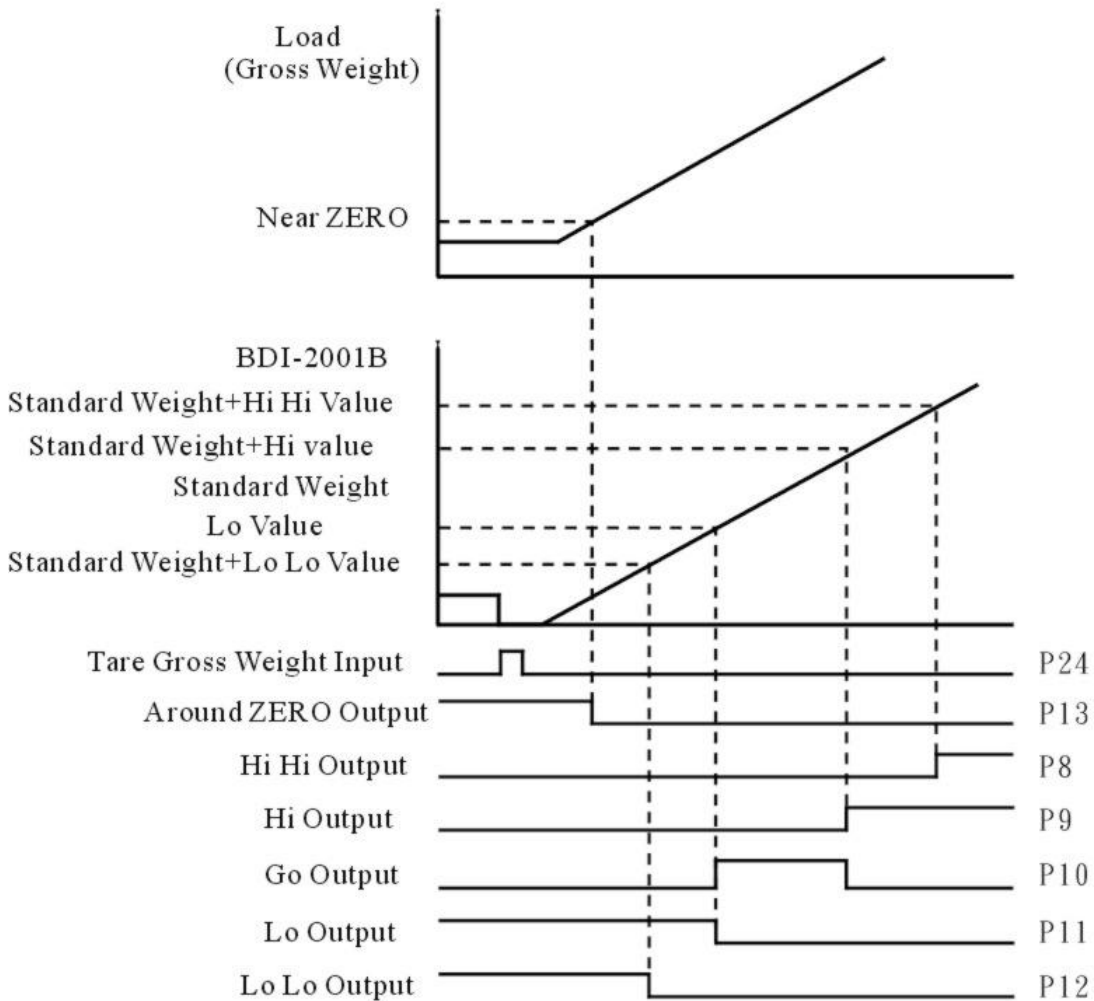
- If the value is valid, the Com. Will go "ON".
- If the comparison value is out of normal condition, BDI-2001B will output OFF.



☉ Check Mode 2 (When F101=6)

Output	Value
Near ZERO	Gross Weight $\leq$ Near ZERO
Hi - Hi	Net Weight $>$ Standard Weight + Hi Hi Value
Hi	Standard Weight + Hi Hi Value $\geq$ Net Weight $>$ Standard Weight + Hi Value
Go	Standard Weight + Hi Value $\geq$ Net Weight $\geq$ Standard Weight - Lo Value
Lo	Standard Weight - Lo Lo Value $\leq$ Net Weight $<$ Standard Weight - Lo Value
Lo - Lo	Net Weight $<$ Standard Weight - Lo Lo Value

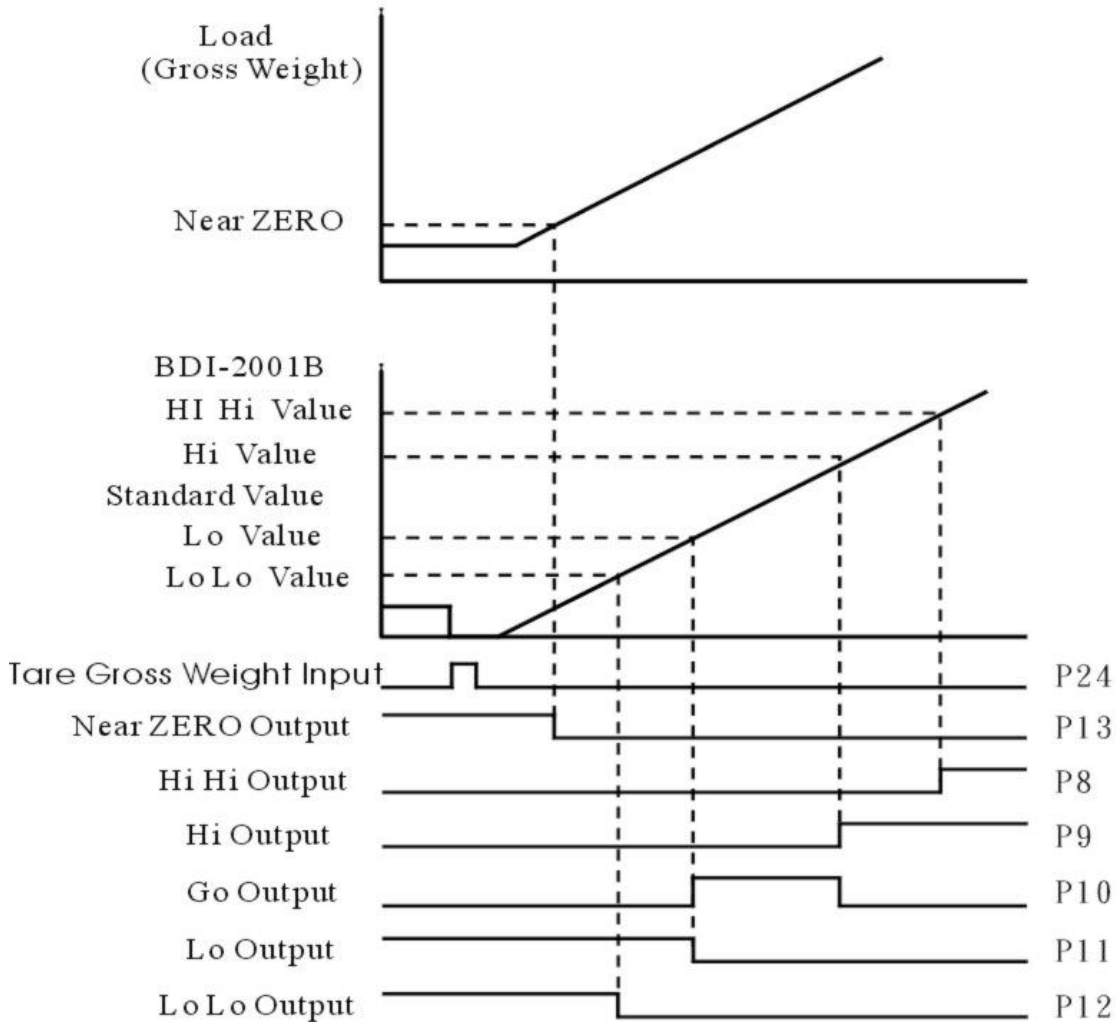
- If the value is valid, the Com. Will go "ON".
- If the comparison value is out of normal condition, BDI-2001B will output OFF.



⊙ Check Mode 3 (When F101=7)

Output	Value
Near ZERO	Gross Weight $\leq$ Near ZERO
Hi - Hi	Net Weight $>$ Hi Hi Value
Hi	Net Weight $>$ Hi Value
Go	Hi Value $\geq$ Net Value $\geq$ Lo Value
Lo	Net Weight $<$ LO Value
Lo - Lo	Net Weight $<$ Lo Lo Value

- If the value is valid, the Com. Will go "ON".
- If the comparison value is out of normal condition, BDI-2001B will output OFF.

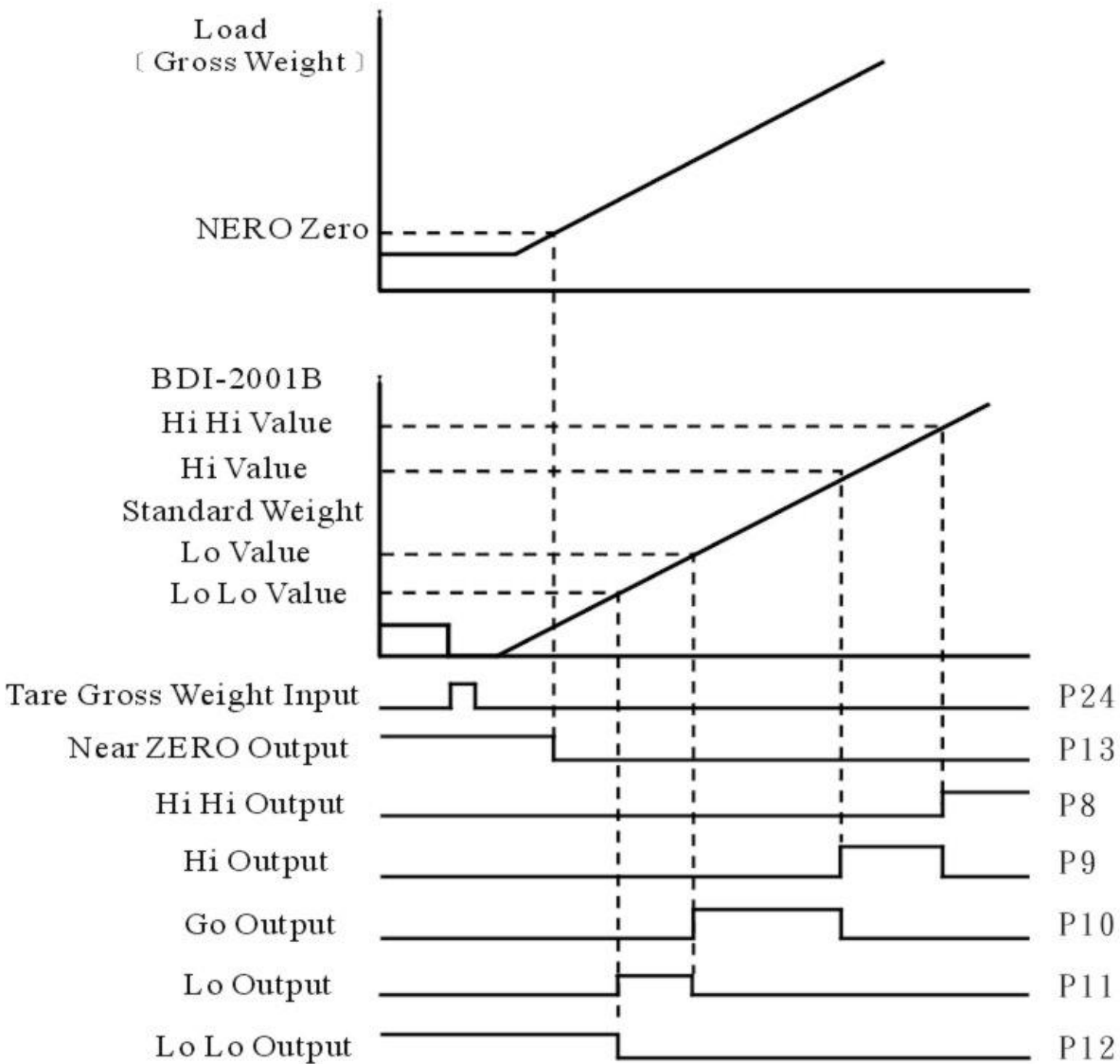




◎ Check Mode 4 (When F101=8)

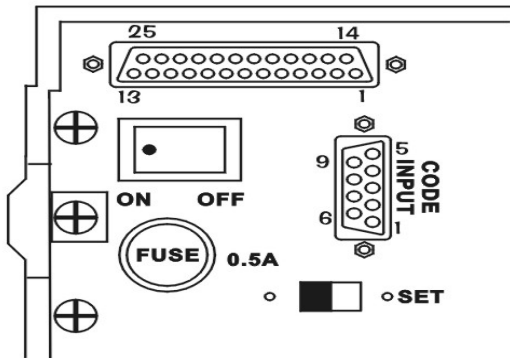
Output	Value
Near ZERO	Gross Weight $\leq$ Near Zero
Hi - Hi	Net Weight $>$ Hi Hi Value
Hi	Hi Hi Value $>$ Net Weight $\geq$ Hi Value
Go	Hi Value $>$ Net Weight $\geq$ Lo Value
Lo	Lo Value $>$ Net Weight $\geq$ Lo Lo Weight
Lo - Lo	Net Weight $<$ Lo Lo Weight

- If the value is valid, the Com. Will go "ON".
- If the comparison value is out of normal condition, BDI-2001B will output OFF.



# CHAPTER 6 OPTIONS

## § 6-1 I/O INTERFACE



\*\* CODE INPUT (Disabled), Please refer to BDI-2002/BDI-2006.

◆ FINAL

The Total Weight of the batching event with six-digit value.

◆ SP1 → Optional Preliminary, Set Point 1  
Close the Weighing Hopper Full Flow Gate with six-digit value.

◆ SP2 → Preliminary, Set Point 2  
Close the Weighing Hopper Medium Flow Gate with six-digit value.

◆ FREE FALL

Close the Weighing Hopper Dribble Flow Gate with six-digit value.

◆ HI → Over Limit

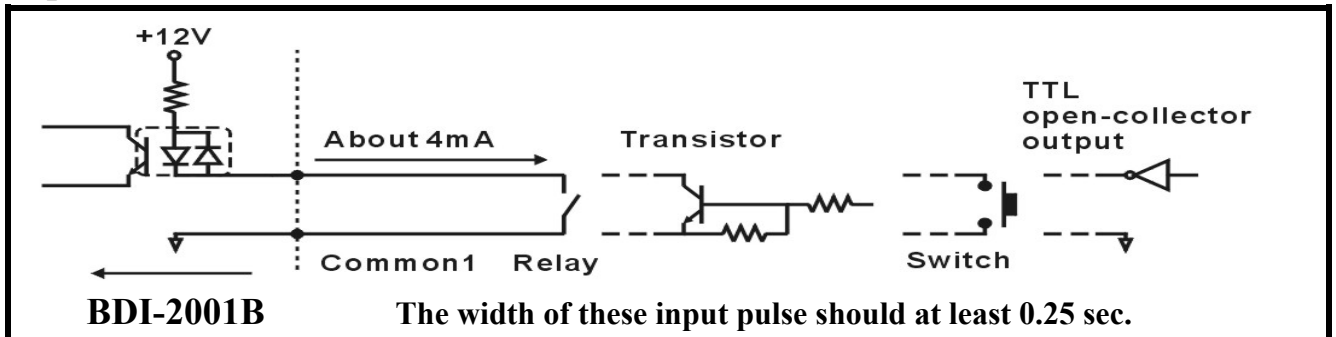
Please enter six-digit Over Limit Value  
NET weight > Final + Over Limit Value

◆ LO → Under Limit

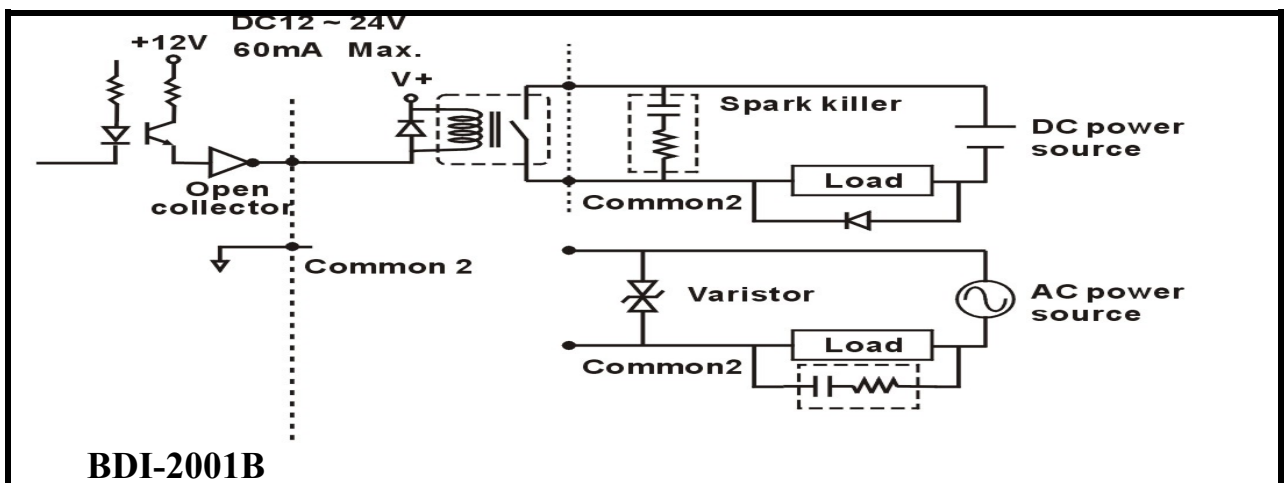
Please enter six-digit Under Limit Value  
NET weight < Final - Under Limit Value

◎ Control I / O

Input :



Output :



-----

◎ **INPUT Pins Description When F101 =1, 2.**

Pin	Signal Name	Description
Pin 25	ZERO Input (Pulse input)	<b>BDI-2001B</b> returns to the center of ZERO when the weighing device is empty
Pin 24	TARE Input (Pulse input)	<b>BDI-2001B</b> switches to TARE mode, ZERO's the display and stores the TARE weight in memory.
Pin 23	TARE Reset (Pulse input)	TARE value is cleared to "0".
Pin 22	Unused	
Pin 21	Batch/Loss in Weight Automatic Free Fall compensation (Pulse Input).	When Pin 21 is short-circuit to COM1, the batch is aborted and FINISH signal is sent, and the NET weight will be accumulated.
Pin 20	Print Accumulator (pulse input)	Accumulator will be printed when P20 short-circuited with COM1.
Pin 19	PRINT Input (pulse input)	When FC01, F203=3, F401=3, F302=2 shorted with COM1, Data will be sent one time.
Pin 18	Clear Accumulated Value and Count (pulse input)	If this command is accepted, all the accumulated weight and accumulated count will be cleared.
Pin 16 or 17	Input Common (COM1)	

◎ **INPUT Pins Description When F101 =3, 4.**

Pin	Signal Name	Description
Pin 25	ZERO Input (Pulse input)	<b>BDI-2001B</b> returns to the center of ZERO when the weighing device is empty
Pin 24	TARE Input (Pulse input)	<b>BDI-2001B</b> switches to TARE mode, ZERO's the display and stores the TARE weight in memory.
Pin 23	TARE Reset (Pulse input)	TARE value is cleared to "0".
Pin 22	Batch/Loss in Weight Start batch (Pulse input)	Start Batch
Pin 21	Batch/Loss in Weight Stop batch (Pulse Input).	Stop Batch Signal send and accumulate net weight.
Pin 20	Print Accumulator (pulse input)	Accumulator will be printed when Pin 20 short-circuited with COM1.
Pin 19	PRINT Input (pulse input)	Data will be sent one time.
Pin 18	Clear Accumulated Value and Count (pulse input)	If this command is accepted, all the accumulated weight and accumulated count will be cleared.
Pin 16 or 17	Input Common (COM1)	

-----

◎ Output When F101=1,2,3,4

Pin	Name	F101	Description
Pin13	ZERO Band		Gross Weight $\leq$ ZERO Band
Pin12	SP1	1,3	Batch : Net Weight $\geq$ Final - SP1
		2,4	Loss in Weight : Gross Weight $>$ SP1
Pin11	SP2		Net Weight $\geq$ Gross - SP2
Pin10	FF		Net Weight $\geq$ Final - FF
Pin9	HI		Net Weight $>$ Final + Hi value
Pin8	LO		Net Weight $<$ Final - Lo Value
Pin7	FINISH	3,4	Batch/ Loss-in Weight : Final Output -Finsh Signal
Pin6	Unstable / Error		F105=0 : Stable : Open , Unstable : Short. F105=1 : Error Output , ZERO exceed valid Range, Overload, or Printer Error.
Pin3 、 4	Output 12V		Max. 0.5A
Pin1 、 2	COM2		

◎ INPUT for F101=5,6,7,8

Pin	Name	Signal	Description
Pin25	ZERO Input	pulse	BDI-2001B returns to the center of ZERO when the weighing device is empty
Pin24	TARE Input	pulse	BDI-2001B switches to TARE mode, ZERO's the display and stores the TARE weight in memory.
Pin23	TARE Reset	pulse	TARE value is cleared to "0".
Pin22	Unused		
Pin21	Unused		
Pin20	Print Accumulator	pulse	Accumulator will be printed when Pin 20 short-circuited with COM1.
Pin19	PRINT	pulse	Data will be sent one time.
Pin18	Clear Accumulated Value and Count	pulse	If this command is accepted, all the accumulated weight and accumulated count will be cleared.
Pin17 、 16	COM1		

-----

◎ Output when F101=5,6,7,8

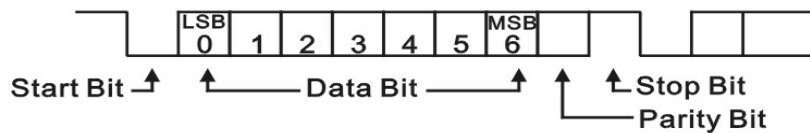
Pin	Name	Type	Description
Pin13	ZERO Band		Gross Weight $\leq$ ZERO Band
Pin12	LO-LO	5	Net Weight <Lo Lo Value
		6	Net Weight <Standard Weight-Lo Lo Value
		7	Net Weight <Lo Lo Value
		8	Net Weight <Lo Lo Weight
Pin11	LO	5	Net Weight <Standard Weight -Lo Value
		6	Standard Weight-Lo Lo Value $\leq$ Net Weight<Standard Weight -Lo Value
		7	Net Weight<Lo Value
		8	Lo Value>Net Weight $\geq$ Lo Lo Value
Pin10	GO	5	Standard Weight + Hi Value $\geq$ Net Weight $\geq$ Standard Weight-Lo Value
		6	Standard Weight+ Hi Value $\geq$ Net Weight $\geq$ Standard Weight-Lo Value
		7	Hi Value $\geq$ Net Weight $\geq$ Lo Value
		8	Hi Value>Net Weight $\geq$ Lo Value
Pin9	HI	5	Net Weight>Standard Weight+Hi Hi Value
		6	Standard Weight + Hi Hi Value $\geq$ Net Weight>Standard Weight +Hi Hi Value
		7	Net Weight >Hi Value
		8	Hi Hi Value>Net Weight $\geq$ Hi Value
Pin8	HI-HI	5	Net Weight>Hi Hi Value
		6	Net Weight> Standard Weight+ Hi Hi Value
		7	Net Weight> Hi Hi Value
		8	Net Weight > Hi Hi Value
Pin7	Unused		
Pin6	Unstale / Error		F105=0 : Stable : Open , Unstable : Short. F105=1 : Error Output , ZERO exceed valid Range, Overload, or Printer Error.
Pin3 、 4	Output 12V		Max. 0.5A
Pin1 、 2	COM2		

§ **6-2 OP-02 SERIAL CARDS** (OP-02A RS-232 with 2 port, OP-02A1 BUILT-IN SOMPLE RS-232, OP-02B RS422/RS-485 Same card with different circuit)

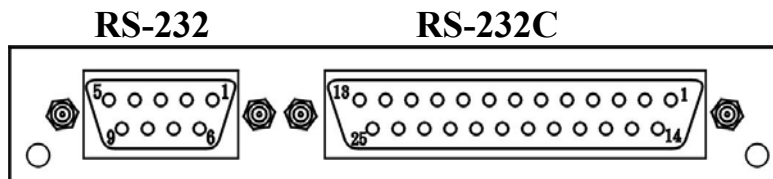
☒ Please refer to F200 ~ F203 in § 4-2 Functions

**A. GENERAL INTRODUCTION**

◆ Specifications		
Type	EIA-RS-232C 12V	
Transmission	Half Duplex, Asynchronous Transmission	
Baud Rate	1200、2400、4800、9600、19200BPS	
Bit	8 bit	7 bit
Parity	non- parity	even parity, odd parity
Stop Bit	1 bit	
Output Code	ASC II	

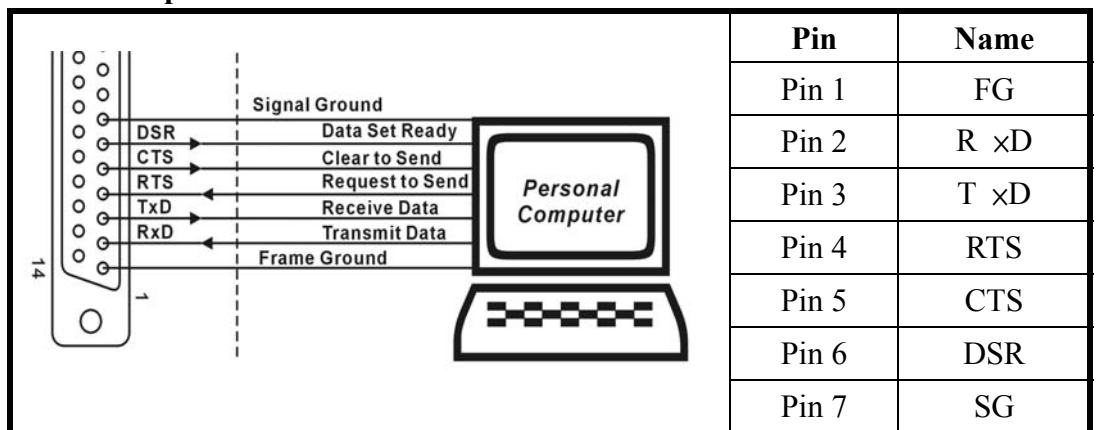


**B. OP-02A (9 pin plus 25 pins=2 ports, As seen below)**

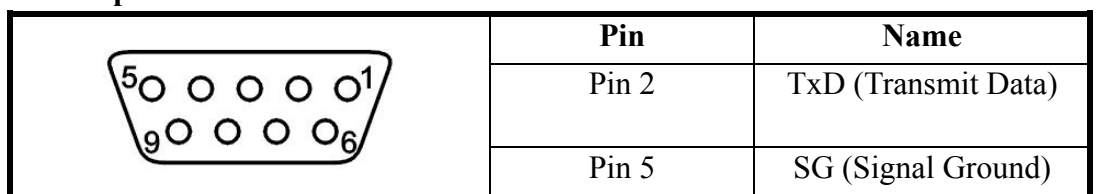


◆ I/O Specifications of OP-02A

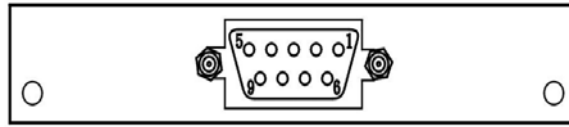
(1) 25 Pin D- Shape



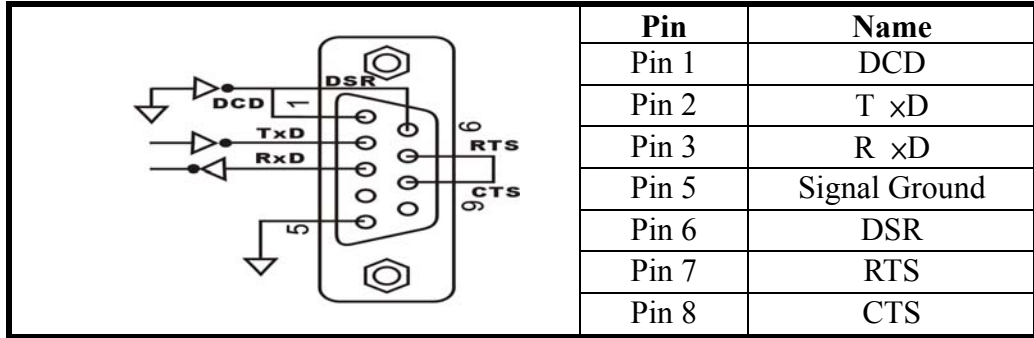
(2) 9Pin D Shape



**C. OP-02A1 (9 pin, As seen below)**

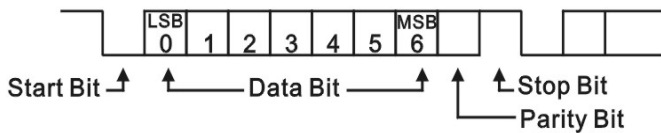


**◆ Pin Assignments of OP-02A1 :**



**D. OP-02B (RS422)**

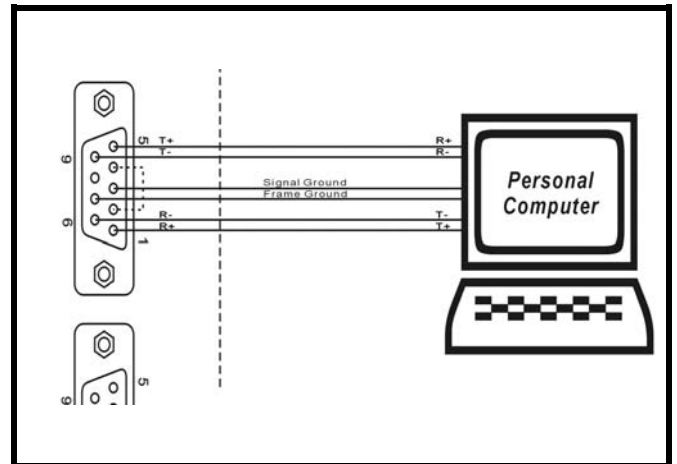
◆ Specifications	
Type	EIA-RS-422
Transmission	Half Duplex, Asynchronous Transmission
Baud Rate	1200、2400、4800、9600、19200BPS
Bit	8 bit
Parity	non- parity
Stop Bit	1 bit
Output Code	ASC II



	RS-422
1	R+ > R-
0	R+ < R-

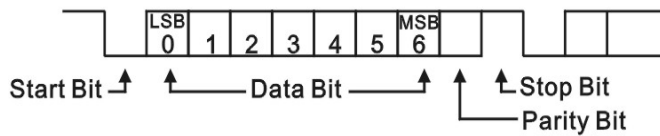
**◆ Pin Assignments of RS-422 : ◆ Pin Connection :**

RS-422			
Pin	Name	Pin	Name
1	R+	6	R-
2	100Ω	7	Frame Ground
3	Signal Ground	8	54Ω
4	Terminal	9	T-
5	T+		

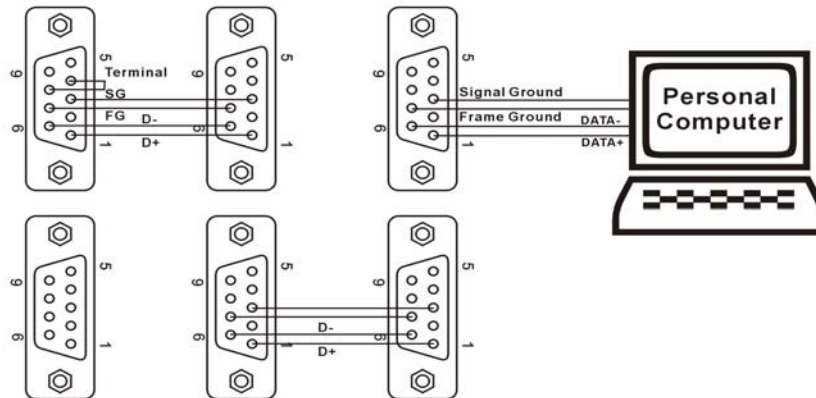


### E. OP-02B (RS485)

<b>◆ RS-485 Spec :</b>	
Type	EIA-RS-485
Transmission	Half Duplex, Asynchronous Transmission
Baud Rate	1200BPS 、 2400BPS 、 4800BPS 、 9600BPS 、 19200BPS
Bit	8 bit                      7 bit
Parity	Non-parity                Even / Odd
Stop bit	1 bit
Output Code	ASCII



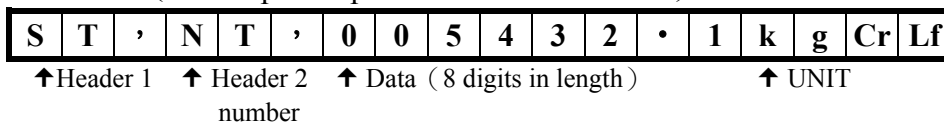
#### \*Pin Assignment :



### F. Serial Interface [ OP-02 ] Data Format.

◆ F205=0 (Standard format for BDI-2001A/ AD-4321).

Format1 (Data Update speed is the same as F002)



※HEADER 1		
O	L	→ Over Max. Capacity or under Min. Capacity
S	T	→ STABLE
U	S	→ UNSTABLE

※UNIT		
k	G	→ Kilogram
l	B	→ Pound

※HEADER 2		
N	T	→ NET
G	S	→ GROSS
T	R	→ TARE



**ASCII data characters**

- “ 0 ” ~ “ 9 ”
- “ ”      **Space ( 20H )**
- “ . ”      **Decimal Point ( 2EH )**
- “ - ”      **Minus ( 2DH )**
- “ + ”      **Plus ( 2BH )**

**※Command List Table**

<b>Sending Command to BDI-2001B</b>	<b>BDI-2001B response</b>
R Cr Lf < READ >	Sending latest data once (Data format depends on F202)
Z Cr Lf < ZERO >	BDI-2001B display will ZERO. Z Cr Lf will be sent by BDI-2001B.
T Cr Lf < TARE >	BDI-2001B will go to NET Mode and display will TARE. T Cr Lf will be sent by BDI-2001B.
N Cr Lf < NET >	BDI-2001B will go to NET Mode. N Cr Lf will be sent by BDI-2001B.
G Cr Lf < GROSS >	BDI-2001B will go to GROSS Mode. G Cr Lf will be sent by BDI-2001B.

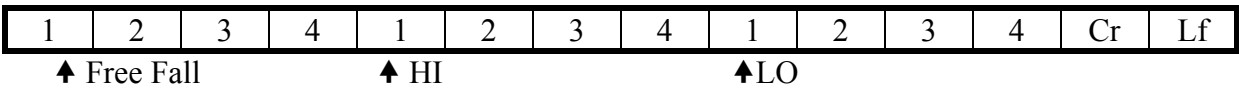
<b>Sending Command to BDI-2001B</b>	<b>BDI-2001B response</b>
BB Cr Lf < BEGIN BATCHING >	Send back signal “BB”. “BB” can only be received in the Built in Automatic Program Control Mode. (Only F101=2,3)
HB Cr Lf < HALT BATCHING >	Send back signal “HB”. “HB” can only be received in the Built in Automatic Program Control Mode (Only F101=2,3)
RF Cr Lf < READS FINAL NET >	Sending Final NET weight. If B Cr Lf is send by BDI-2001B, that means batching is still in process. (Only F101=2,3)
S Cr Lf < SET SETPOINT >	S Cr Lf will send back by BDI-2001B. BDI-2001B will send back SET POINT values until totally receive SET POINT values.
RS Cr Lf < READ SET POINTS >	BDI-2001B receives signal “RS xx Cr Lf”.
SA Cr Lf < SET ACCESSORIES >	BDI-2001B will send back signal “SA Cr Lf”. BDI-2001B will send back ZERO band data until totally receive Zero Band Value.
RA Cr Lf < READ ACCESSORIES >	BDI-2001B receives signal “RS Cr Lf”.

※If an invalid character is received ? Cr Lf will be sent by the BDI-2001B

※If the commands are not accepted for any reason : I Cr Lf will be sent by the BDI-2001B

※F101=1,2,3,4 Format S Cr Lf

6	5	4	3	2	1	4	5	6	7	8	9	0	2	3	4	5	6
↑Final						↑SP1						↑SP2					

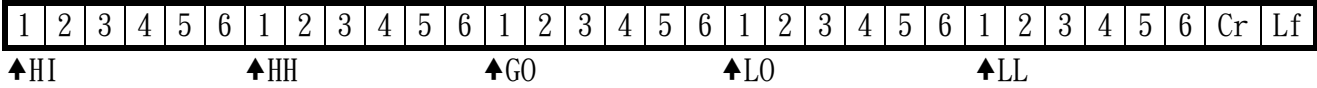


※Command Format SA Cr Lf



Zero Band Range

※F101=5 6 7 8 S Cr Lf format



※SA Cr Lf format

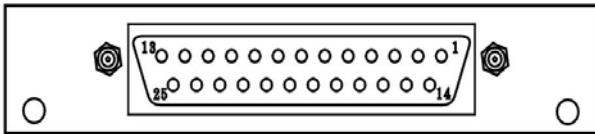


ZERO RANGE

\*FOR RS-485: Please set F205 and place @XX in front of commands. For example: @XXRCrLf. @XXTCrLf.

§ **6-3 PRINT INTERFACE (INCLUDING DATE AND TIME)**

☒ Please refer to F300 ~ F303 in § 4-2 Functions



PIN	PIN NAME	PIN	PIN NAME
1	/STROBE	14	NC
2	DATA1	15	/ERROR
3	DATA2	16	/INIT
4	DATA3	17	NC
5	DATA4	18	NC
6	DATA5	19	NC
7	DATA6	20	GROUND
8	DATA7	21	GROUND
9	DATA8	22	GROUND
10	/ACKNLG	23	GROUND
11	NC	24	GROUND
12	NC	25	GROUND
13	NC		

**Print Sample :**

Panasonic KX-P1121 Matrix Printer

F301=222154    F302=2    F303=2

Date	Time	Count	Gross Wt	Net Wt	Tare Wt
91/09/17	11:46:43	0	+ 5.991kg	+ 4.867kg	+ 1.124kg
91/09/17	11:46:51	0	+ 5.991kg	+ 4.867kg	+ 1.124kg
91/09/17	11:46:53	0	+ 5.991kg	+ 4.867kg	+ 1.124kg
91/09/17	11:46:54	0	+ 5.991kg	+ 4.867kg	+ 1.124kg
Net Total		:	+	0.000	

\*\*Not suitable for KX-P1121-E

**Print Sample :**

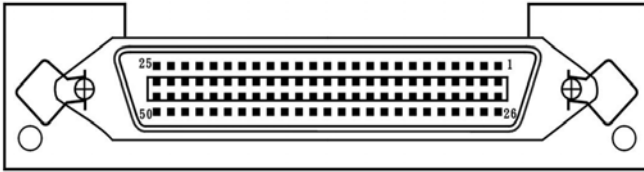
Mini Matrix Printer PH24

F301=012011    302=2    F303=1

Date	:	91/09/17
Time	:	11:44:16
Count	:	0
Gross	:	+ 5.991kg
Net	:	+ 4.867kg
Tare	:	+ 1.124kg
Net Total		:
		+
		0.000

## § 6-4 PARALLEL BCD INTERFACE

⊠ Please refer to F400 ~ F402 in § 4-2 Functions

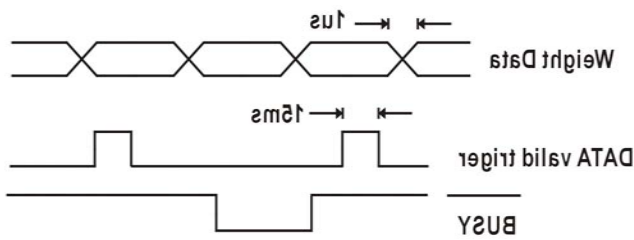


※OPEN COLLECTOR TYPE

◆Maximum Voltage : 30V

◆Maximum Current : 24mA

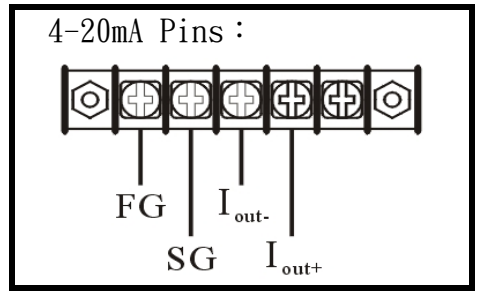
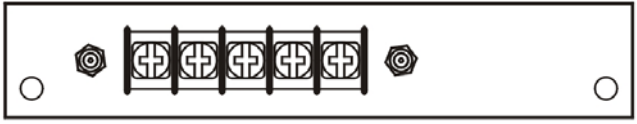
※Please add a pull-up resistance if connected to a TTL LOGIC.



Pin	Pin Name	Pin	Pin Name
1	GROUND	26	NC
2	1×1	27	Hi=NET , Lo=GROSS
3	2×1	28	NC
4	4×1	29	NC
5	8×1	30	NC
6	1×10	31	NC
7	2×10	32	NC
8	4×10	33	Lo=MOTION
9	8×10	34	1×1 CODE
10	1×100	35	2×1 "
11	2×100	36	4×1 "
12	4×100	37	8×1 "
13	8×100	38	1×10 "
14	1×1000	39	2×10 "
15	2×1000	40	4×10 "
16	4×1000	41	8×10 "
17	8×1000	42	Lo=Negative Polarity
18	1×10000	43	/ Decimal Point 1
19	2×10000	44	/ Decimal Point 2
20	4×10000	45	/ Decimal Point 3
21	8×10000	46	/ Decimal Point 4
22	1×100000	47	Hi= Overload
23	2×100000	48	NC
24	4×100000	49	PRN 1
25	8×100000	50	/ Busy ( input )

§ 6-5 Analog Output OP-05

☒ Please refer to § 4-2 (F500 ~ F506)



\* OP-05 Analog output 4 ~ 20mA

Range	4 ~ 20mA (Possible: 2 ~ 22mA)
Resolution	Min. 1 / 3000
Temp. coefficient	± (0.015% / °C of rdg + 0.01mA) / °C
Max. resistance load	Max. 500Ω

☛ If you add a 250Ω resistor , the output will be 1V to 5V (4~20mA)

① This resistor must be large enough for proper power consumption.

Use the following formula:  $W = I^2 \times R$  where

W: Power I: Output Current R: Resistor

If a 500Ω resistor is used , power consumption will be :

$$W = (0.02)^2 \times 500 = 0.2 \text{ when the Output Current is set to 0.2mA}$$

The resistor should have a power greater than "0.5" (w = 0.5) and have a very low temperature coefficient. In this example power consumption is "0.2" and thus, the 500Ω resistor is adequate.

☛ Setting Output Current

$$I_{OUT} = I_Z + (\text{weight / capacity}) * (I_M - I_Z) \quad (\text{if } 2 \leq I_{OUT} \leq 22 \text{ mA})$$

$I_{OUT}$ : Output Current  $I_Z$ : Output at ZERO (F501)  $I_M$ : Output at Maximum Capacity (F502)

Example: A weighing system has a Maximum Capacity of 10,000kg.

If you need the Output current to be 4mA at ZERO display, and 20mA at 1/2

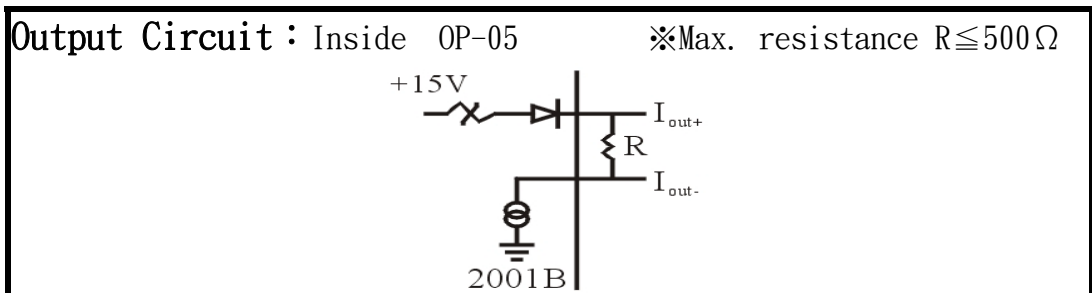
Maximum Capacity then:

$$I_M = \text{capacity / simulated} \times (I_{OUT} - I_Z) + I_Z$$

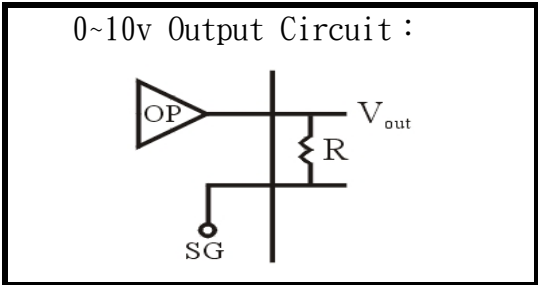
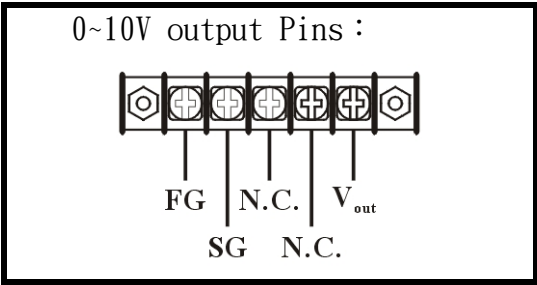
$$I_M = 10000 / 5000 \times (20 \text{ mA} - 4 \text{ mA}) + 4 \text{ mA} = 36 \text{ mA}$$

When Output at Full Scale is set at 36mA, and Output Current at Display ZERO is set at 4mA, then at 1/2 Capacity (5000kg) the Output Current will be 20mA.

※ NOTE: The Maximum Output will be saturated at 22mA.



**\* OP-06 Analog Output 0 ~ 10V**



Range	0 ~ +10V , (Possible: -1.25 ~ 11.25V)
Resolution	Min. 1 / 3000
Temp. coefficient	± (0.015% / °C of rdg+0.01mA) / °C
Max. resistance load	Min. 5KΩ

• If you add a 10 KΩ resistor , the output will be 0mA to 1mA (0~10 V)

① This resistor must be large enough for proper power consumption.

Use the following formula:  $W = V^2 / R$  where

W: Power    V: Output Voltage    R: Resistor

• Setting Output Voltage

$$V_{OUT} = V_Z + (\text{weight} / \text{capacity}) * (V_M - V_Z) \quad (\text{if } 0 \leq V_{OUT} \leq 10 \text{ V})$$

V<sub>OUT</sub>: Output Voltage

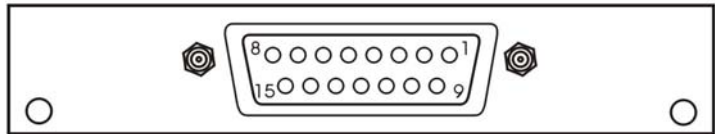
V<sub>Z</sub>: Output at ZERO (F505)

V<sub>M</sub>: Output at Maximum Capacity (F506)

NOTE: The Maximum Output will be saturated at 11.25.

**§ 6-6 Remote Set Point Unit: Final Weight OP-07**

**⊗ Please refer to F700 in § 4-2 Functions**



**◆ Pin Assignment :**

Pin	Description	Pin	Description
1	Finish 10 <sup>0</sup>	9	1
2	Finish 10 <sup>1</sup>	10	2
3	Finish 10 <sup>2</sup>	11	4
4	Finish 10 <sup>3</sup>	12	8
5	Finish 10 <sup>4</sup>	13	SHIELD
6	SHIELD	14	
7		15	
8			

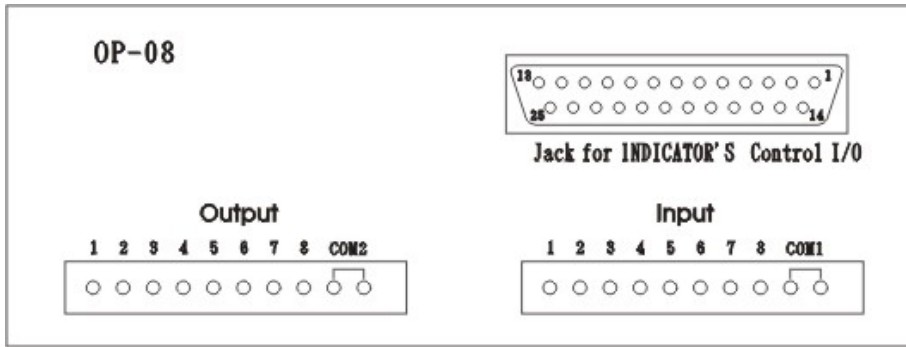
## § 6-7 RELAY CONTROL INTERFACE OP-08 ( Two Types)

**\*\*This option is to connecting BDI-2001B OP-01 Control I/O, which enable OP-01 to RELAY OUTPUT.**

### Specifications:

**Power : Standard : DC12 from BDI-2001B.**

### Pin assignment :



### Accessory :

- ( 1 ) 25PIN Male to Female Wire 1.8 Meter.

### (A) RELAY TYPE

#### Input(IN)

Number of Pins : 8.

Input Common Pin : COM1

#### Output(OUT):

Number of Pins : 8.

Type : for RELAY.

Max. Load : 250VAC, 30VDC, 3A

Output Common Pin : COM2

RELAY durance : About 100,000 Times.

LED light will ON when work.

### (B) SSR TYPE

#### Input(IN)

Number of Pins : 8.

Input Common Pin : COM1

#### Output(OUT):

Number of Pins : 8.

Type : for RELAY.

Max. Load : 24~280VAC, 3A (Only for AC)

Output Common Pin : COM2

RELAY durance : About 100,000 Times.

LED light will ON when work.






CONTROL I/O Pins		
	OP-08 I/O	BDI-2001B Control I/O
Input	1	PIN 25
	2	PIN 24
	3	PIN 23
	4	PIN 22
	5	PIN 21
	6	PIN 20
	7	PIN 19
	8	PIN 18
Output	1	PIN 13
	2	PIN 12
	3	PIN 11
	4	PIN 10
	5	PIN 9
	6	PIN 8
	7	PIN 7
	8	PIN 6

## Appendix 1

### BDI-2001B Quick Manual

- 1.Power ON
- 2.Load Clear. If not, please press **ZERO key** to ZERO weight.
- 3.Change Set Point parameters ( F101=1234 )

**SET SP key** to show SET SP

- (1) **Final** Press **Final key**
- (2) **SP1** After set final weight, appears SP1, Please press keys to enter. Press  **key.**
- (3) **SP2** After set SP1 value, appears SP2, Please press keys to enter. Press  **key.**
- (4) **FF** After set SP2 value, appears FF, Please press keys to enter. Press  **key.**
- (5) **HI** After set FF Value, appears Hi, Please press keys to enter. Press  **key.**
- (6) **LO** After set Hi weight, appears Lo, Please press keys to enter. Press  **key.**
- (7) Press **STANDBY** key to leave.

## Appendix 2

### Screen characters

0	1	2	3	4	5	6	7	8	9			
0	1	2	3	4	5	6	7	8	9			
A	B	C	D	E	F	G	H	I	J	K	L	M
A	b	C	d	E	F	G	H	,	J	K	L	ñ
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
n	o	P	q	r	S	t	U	u	v	y	Y	z