
CHAPTER 1 **INTRODUCTION**

1-1 Welcome

The **JIF-2002** weighing indicator is a model of breakthrough high resolution. With set-point codes, this model makes batching control an easy task. With relatively compact size, JIF-2002 performs a remarkable accuracy and speed.

With sincere gratitude for your using our products, once any question or problems occurred, please contact us immediately for further services.

1-2 Features

JIF-2002 Weighing Indicator & Controller Features:

- 1/16,000 display resolution (Max. 1/ 60,000 depending on load cell quality & performance).
- Internal Resolution 1,000,000, A/D Conversion rate 120 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 codes can store up to 100 sets of : Final, SP1, SP2, Free Fall, HI, LO.

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- Automatic Free Fall Compensation provides closer tolerance and precise weighing.
 - 8 Set of control Input:
 - ① ZERO Input, ② TARE Input, ③ Tare reset, ④ Start batch,
 - ⑤ Abort batch, ⑥ Print Accumulator, ⑦ Print Input,
 - ⑧ Clear
 - ACC. & COUNT.
 - 8 Set of control Output:
 - ① ZERO Band output, ② SP1 output, ③ SP2 Output,
 - ④ (Final-Free Fall) output, ⑤ HI output, ⑥ LO output,
 - ⑦ Final Output, ⑧ MD/Error output.
 - 5 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.
 - Standard Serial Output (20mA Current Loop) for remote display.
 - Optional printer interface can automatically print or output data includes date, time, set point code, serial number, weight, and unit.
 - Optional:
 - OP-01 I/O Interface
 - OP-02 RS-232 or RS422/485
 - OP-03 Printer Interface
 - OP-04 Binary Coded Decimal
 - OP-05 Analog Output 4 20 mA
 - OP-06 Analog Output 0 10 V

1-3 System Function Introduction

SYSTEM CHECK :

CHECK DISPLAY
CHECK SARM, EEPROM
CHECK INPUT, CODE
CHECK OUTPUT
CHECK KEY

SETTING FUNCTIONS:

SETTING GENERAL FUNCTIONS (F0XX, FCXX)
SETTING CONTROLS (F1XX)
SETTING SERIAL INTERFACE (F2XX)
SETTING PRINTER (F3XX)
PARALLEL OUTPUT (BCD) (F4XX)
ANALOGUE OUTPUT (F5XX) (4 20 mA , 0 10 V)

CALIBRATION:

CAL
Setting Minimum Division
Setting Decimal
Setting Maximum Capacity
ZERO Adjust
SPAN Adjust

KEY LOCK:

Disable unimportant or useless keys.

SYSTEM PARAMETER BACKUP:

JIF-2002 another copy of preset parameters.

SYSTEM PARAMETER RESTORATION:

Restore preset parameters.

SYSTEM INITIALIZE:

Re-install resets the JIF-2002 to the initial factory setting and starts the operation.

CHAPTER 2 **INSTALLATION**

2-1 Best Conditions For Use

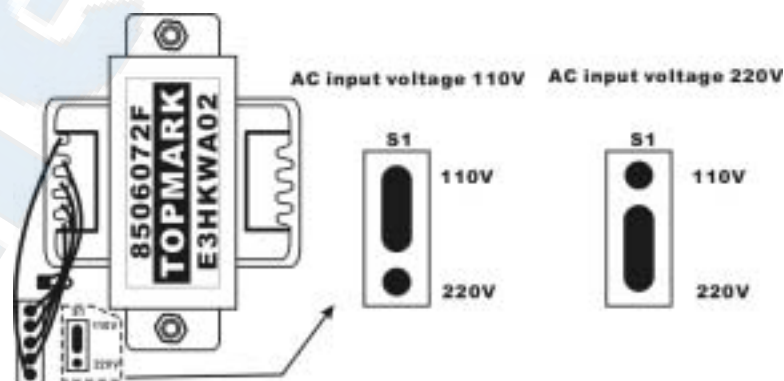
When installing and wire connecting on **JIF-2002**, please follow the points and guide for preventing any abnormal situation occurred.

- 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 ~ 45 , 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.

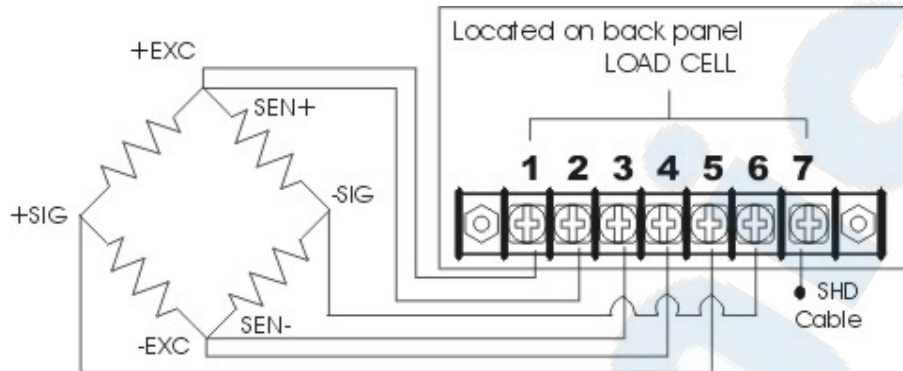
2-2 Power Supply Connecting

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.



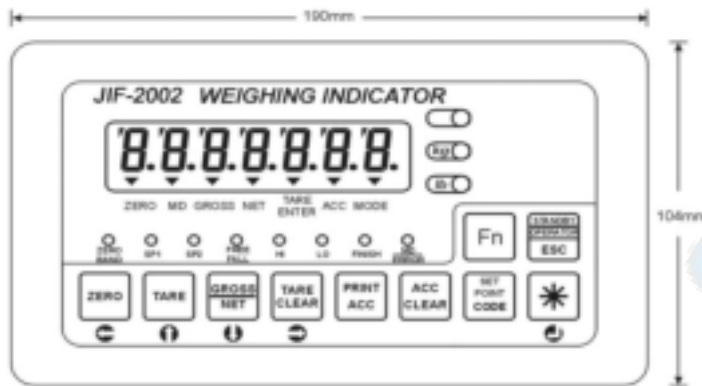
| Screw | Signal |
|-------|-------------------------------------|
| 1 | Positive Excitation Voltage, (EXC+) |
| 2 | Positive Sense Voltage, (SEN+) |
| 3 | Negative Sense Voltage, (SEN-) |
| 4 | Negative Excitation Voltage, (EXC-) |
| 5 | Positive Signal Voltage, (SIG+) |
| 6 | Negative Signal Voltage, (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 JIF-2002 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.

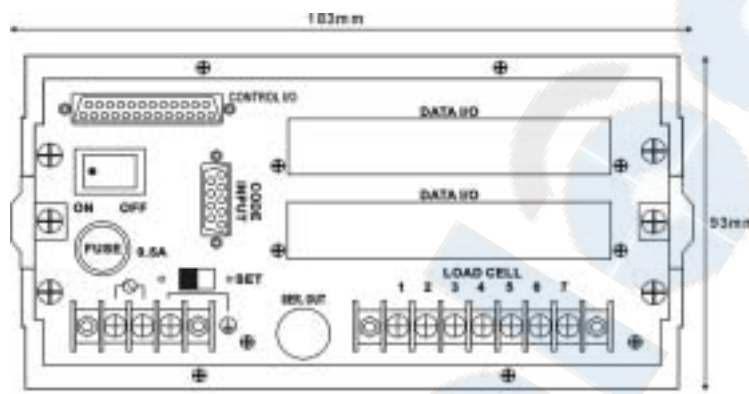
① The analogue output from the Load Cell and input/output signals are sensitive to electrical noise. Do not bind these cables together as it could result in cross-talk interface. Please also keep them away from AC power cables.

It could be dangerous by using improper battery or wrong connection of battery.

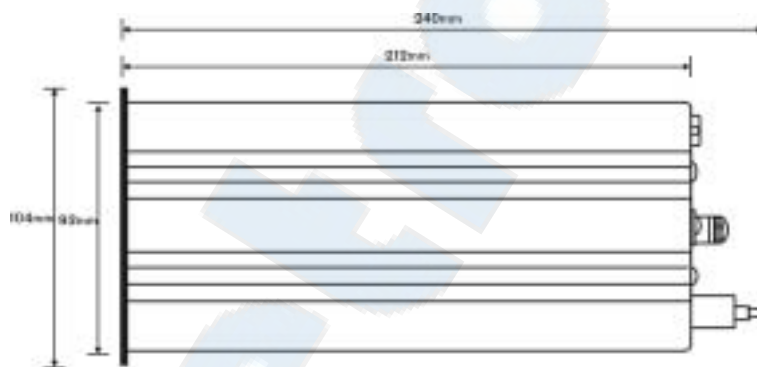
2-4 Front and Rear Panel Dimensions



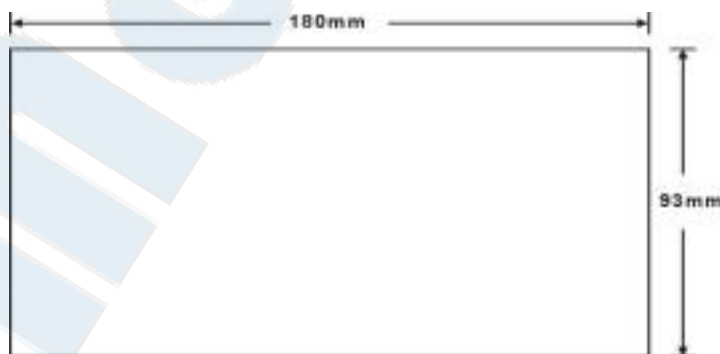
Front Panel



Rear Panel



Side View



For Mounting

CHAPTER 3 **SPECIFICATIONS**

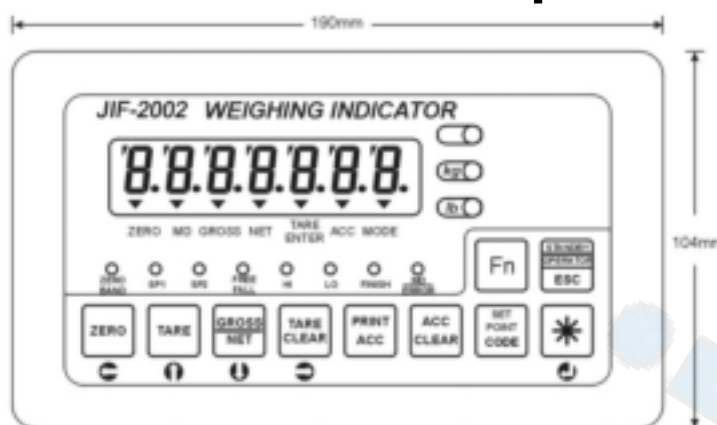
3-1 Analog Input and A/D Conversion

| Analog Input and A/D Conversion | |
|--|--|
| Type | JIF-2002 |
| Input Sensitivity | 0.3uV/D |
| ZERO Adjustment Range | 0 ~20mV |
| Load Cell Excitation | DC10V±1% , 230mA, Remote Sensing. Can be connected up to 8 350 Load Cells |
| Non-Linearity | 0.01 % F.S. |
| A/D Conversion Method | |
| A/D Resolution | 1/1,000,000 |
| A/D Conversion Rate | Approx. 120 Times / Sec. |
| Max. Load Cell Input Voltage | 32mV |
| ZERO Temperature Comp. | ±(0.2 μ V + 0.001% of Dead Load)/ TYP |
| SPAN Temperature Comp. | ± 0.001% TYP |
| Max. Resolution | 1/16,000 (JIF-2002 Resolution can reach 1/60,000 depending on load cell quality & performance). |

3-2 General

| General | |
|-----------------------|--|
| Type | JIF-2002 |
| Power Requirements | AC 110V or AC 220V ±10% , 50 / 60Hz, Approx. 17VA |
| Net weight | Approx. 3.2 kg (7.054 lb) |
| Operation Temperature | - 10 45 |
| Maximum Humidity | 85% (non-condensing) |
| Physical Dimensions | 240 (D) x190 (W) x104(H) mm |

3-3 Front Panel Description



| DIGITAL SECTION | |
|------------------------------|--|
| Main Display [Green Tube] | 7-segment , 7-digit display, VFD screen with a 13mm character size, displays the weight. |
| Minimum Division | x1、 x2、 x5、 x10、 x20、 x50 |
| Maximum Display | +800450 |
| Under ZERO Indicator | "—" minus sign |
| "ZERO" Annunciator | Center of Zero |
| "MD" Annunciator | Motion Detected = Unstable |
| "GROSS" Annunciator | Gross Weight displayed |
| "NET" Annunciator | Net Weight displayed |
| "TARE ENTERED" Annunciator | Tare has been entered |
| " " Annunciator | " " Status Annunciator |
| " kg " Annunciator | Kilograms Displayed |
| " lb " Annunciator | Ponds Displayed |
| "ZERO " Key | Stable ZERO / Left shift key |
| "TARE " Key | TARE's when stable-in Net, display ZERO / Increase the number |
| "GROSS、 NET " Key | Changes from "Gross" to " Net" and vise versa / Decrease the number |
| "TARE CLEAR " Key | Tare is cleared / Right shift Key |
| "PRINT ACC" Key | Print data will send one time / Print Accumulation |
| "ACC CLEAR" Key | Display Accumulator / Clear Accumulation |
| "SET POINT CODE" Key | Setting set point values/ Change set point code |
| "Fn" Key | Unused |
| "MODE ↵" Key | Change Mode / Enter Key |
| "STANDBY ESC Key | Standby Status / Leave the current status |

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 |
| F 002 | Display Update rate | ①10 times/Sec ②20 times/Sec ③40 times/Sec |
| F 003 | Digital Filter | 0 7 step digital filter |
| F 004 | Set Zero Range | ①±5% ②±10% ③±20% ④±30% of Max. Capacity |
| F 005 | Motion Detection | 0.5 SEC 1 DIV 1 SEC 18 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 |

| 20 mA Current Loop | | STANDARD |
|--------------------|---------------|--|
| F C00 | Data type | 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 |
| F C02 | Output Format | ①Sending without set point Code ①Sending with set point Code |

| Batch Weighing | | |
|-----------------------|------------------------------|---|
| 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 |
| 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 | COM 8 | ① Unstable ① Error |
| F 106 | Input Mode | ① Panel key ② BCD Input ③ Serial Input |
| F 107 | Free Fall compensation | Please enter 6 digit free fall compensation value within effective range (Initial "000.000"---Free Fall OFF) |

| SERIAL (RS-232) | | OP- 02 |
|--------------------------|---------------|---|
| F 200 | Baud Rate | ① 1200 BPS ② 2400 BPS ③ 4800 BPS ④ 9600 BPS |
| F 201 | Parity | ① Non-parity ① Even Parity ② 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 | Output Format | ① Sending without Set point Code ① Sending with set point Code |

| 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 | ❶ Not print ❷ Only print above the latest data ❸ Print on all |
| | Serial Number | ❶ Not print ❷ Print |
| | Weight | ❶ Same as display ❷ Gross Weight ❸ NET Weight ❹ TARE Weight ❺ Gross Weight, NET Weight, TARE Weight ❻ Gross Weight, TARE Weight, NET Weight |
| | Unit | ❶ Not print ❷ Only print above the latest data according to F001 ❸ Only print the latest data "g" ❹ Only print above the latest data "t" ❺ Print on all according to F001 ❻ Print on all "g" ❼ Print on all "t" |
| F 302 | Output Mode | ❶ Stable and auto print ❷ Manual Print Mode ❸ Accumulate and Print |
| F 303 | Select Printer | ❶ MINI Printer ❷ Normal Printer |

| BCD | | OP-04 |
|--------------|--------------|---|
| F 400 | Data type | ❶ Same as display ❷ Gross data ❸ NET data ❹ TARE data |
| F 401 | Output Mode | ❶ Stream ❷ Stable and print ❸ Manual print mode ❹ Accumulate and print |
| F 402 | Output Logic | ❶ Positive Logic ❷ Negative Logic |

| Analog Output | | |
|----------------------|----------------------------------|--|
| F 500 | Analog Output Data | ❶ Output 4~20 mA ❷ Output 0~+10 V |
| F 501 | Output Mode | ❶ Same as display ❷ Gross data ❸ NET data |
| F 502 | Loss-in-weight Absolute Value | ❶ Not read Absolute Value ❷ BDI-2002 reads Absolute Value |
| F 503 | Output current when display ZERO | 0.0mA through 9.99mA (Initial 0.40 mA) |
| F 504 | Output current at Full Capacity | 0.0mA through 9.99mA (Initial 20.0 mA) |
| 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) |

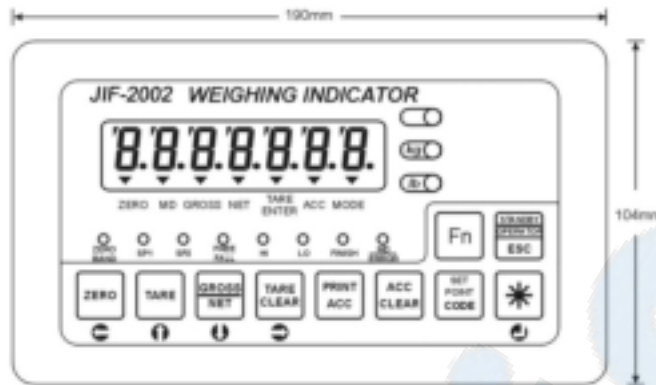
3-5 Panel Key Function Table

| Key Function | Function Position | | Status |
|--------------|---------------------------|----------------------------|--|
| ZERO | Panel Key | ZERO | JIF-2002 returns to the center of ZERO if the weight value within F004 range. |
| | Control I / O | Pin 25 + (Pin 16 or 17) | |
| | OP-02 (Command Mode) | Z Cr Lf | |
| TARE | Panel Key | TARE | JIF-2002 witches to NET mode, ZERO's the display and stores the TARE weight in Memory. |
| | Control I / O | Pin 24+ (Pin 16 or 17) | |
| | OP-02 (Command Mode) | T Cr Lf | |
| TARE CLEAR | Panel Key | TARE CLEAR | Clear TARE Value |
| | Control I / O | Pin23 + (Pin 16 or 17) | |
| GROSS | Panel Key | GROSS / NET | Shift to GROSS Mode |
| | OP-02 (Command Mode) | G Cr Lf | |
| NET | Panel Key | GROSS / NET | Shift to NET mode |
| | OP-02 (Command Key) | N Cr Lf | |
| PRINT | Panel Key | PRINT / ACC | Print or Output latest Data |
| | Control I / O | Pin19 + (Pin 16 or 17) | |
| ACC | Panel Key | PRINT / ACC | Print Accumulator Value |
| | Control I / O | Pin20 + (Pin 16 or 17) | |
| ACC | Panel Key | ACC / CLEAR | Print Accumulator Value ▼ACC Annunciator ON |
| CLEAR | Panel Key | ACC / CLEAR | Clear Accumulator and Count |
| | Control I / O | Pin18 + (Pin 16 or 17) | |
| CODE | Panel Key | SET POINT/CODE | Reset Set point data |
| | Code Input | CODE INPUT | |
| | OP-02 (Command Key) | CCXX Cr Lf | |
| SET POINT | Panel Key | SET POINT/CODE | Setting Final, SP1, SP2, Free Fall, Hi, Lo |
| | OP-02 | S Cr Lf, SS Cr Lf | |

| Key Function | Function Position | | Status |
|--------------|-------------------|-----------------------------|---|
| * | Panel Key | * | PRINT/ACC → PRINT ACCUMULATOR SET POINT/CODE → SET POINT ACC/CLEAR → CLEAR ACCUMULATOR |
| STANDBY | Panel Key | STANDBY/ OPERATE/ ESC | Standby Mode will Pause all operations |
| OPERATE | Panel Key | STANDBY/ OPERATE/ ESC | Starts operation. |
| ESC | Panel Key | STANDBY/ OPERATE/ ESC | Escape the current setting Mode |
| Fn | Panel Key | Fn | Unused |
| ➡ | Panel Key | ➡ | Right shift key while setting |
| ⬅ | Panel Key | ⬅ | Left shift key while setting |
| ⬆ | Panel Key | ⬆ | Increase value while setting |
| ⬇ | Panel Key | ⬇ | Decrease value while setting |
| ↵ | Panel Key | ↵ | “Enter” key while setting |

Please refer to chapter 6 on Control I/O and OP-02

CHAPTER 4
SYSTEMFUNCTIONS



4-1 System Check

A system check should be run: after initial installation, after moving your JIF-2002 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, the display will show blinking **SELECT**.

STEP 3: Press the **ZERO** key and screen will show blinking **CHEC**, and press **↵** key to start system check.

STEP 4: The system will check Green Tube and LED in sequence.

STEP 5: Check MEMORY (**EEPROM**, **SRAM**)

When the screen shows **SRAN**, 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 **EEPRON 1** checking.

The screen will show **EE-1**. Please press \downarrow 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 **EEPRON 2** checking.

The screen will show **EE-2**. Please press \downarrow 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 8: System check will go to **BCD** checking.

The screen will show **CODE 00**. Please make SHORT-CIRCUIT test on 9-Pin **D** shape Code Input on the rear panel. When short-circuiting COM9 with other pins, the short-circuit pin will show the accordance value on the screen. If not, there suggests an error occurred.

STEP 9: System check will go to **Input/Output** checking.

When the screen show **I - 0**, please enter \downarrow key. Subsequently, the screen will show **INPUT 0** with the 0 blinking. Please make SHORT-CIRCUIT test on 25-Pin **D** shape Code Input on the rear panel. When short-circuiting COM17 or COM16 with pin 25 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 10: When press a key, the key number will show in the middle of the screen. The lower side from left to right: **KEY 001 KEY 008**. The upper side from left to right: **KEY 009 KEY 010**.
If the key number does not match, it suggests an error occurred. Please contact us.

STEP 11: Finish checking, display **END.**
Slide the **SET** switch to the original side.

Above testing if any **FAIL** or error shows on the screen, please contact us or distributors.

4-2 Functions

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 **TARE** 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.

① If any errors occurred, please check if each setting value within effective range.

① 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 | |

| F001 | Weighing Unit Selection | |
|-------------|-------------------------|--|
| 0 | None | |
| 1 | Kilogram | |
| 2 | Pound | |

| F002 | Display Update Rate | |
|-------------|---------------------|--|
| 10 | 10 Times/Sec | |
| 20 | 20 Times/Sec | |
| 40 | 40 Times/Sec | |

| F003 | Digital Filter | | | | |
|-------------|-----------------------|--|--------|-------------------------|----------------|
| | | | Filter | Environmental Vibration | Response Speed |
| 0 | No stage | | Weak | Bad | Fast |
| 1 | 1 st stage | | | | |
| 2 | 2 ^{ed} stage | | | | |
| 3 | 3 rd stage | | | | |
| 4 | 4 th stage | | | | |
| 5 | 5 th stage | | | | |
| 6 | 6 th stage | | | | |
| 7 | 7 th stage | | Strong | Good | Slow |

| F004 | 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 | |

| F005 | 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 |

| F006 | 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 |

| | | |
|-------------|-------------------------------|---|
| F007 | ZERO & TARE keys Availability | |
| | 0 | ZERO & TARE keys always work |
| | 1 | ZERO & TARE keys only work when display is STABLE |

| | | |
|-------------|-----------------------|--|
| F008 | TARE key Availability | |
| | 0 | TARE key always work |
| | 1 | If the GROSS is negative, TARE key does not work |

| | | |
|-------------|---------------------------|-------------------------------------|
| F009 | Accumulation Availability | |
| | 0 | OFF |
| | 1 | Stable |
| | 2 | Manual |
| | 3 | Control Input--Command Accumulation |

Standard 20 mA Current Loop

| | | |
|-------------|-------------|---------------------------------------|
| FC00 | Output Data | |
| | 1 | Same as display |
| | 2 | GROSS Weight |
| | 3 | NET Weight |
| | 4 | TARE Weight |
| | 5 | GROSS Weight, NET Weight, TARE Weight |

| | | |
|-------------|-------------|-----------------------|
| FC01 | Output Mode | |
| | 1 | Stream |
| | 2 | Stable and auto print |
| | 3 | Manual Print Mode |
| | 4 | Accumulate and Print |

| | | |
|-------------|---------------|--------------------------------|
| FC02 | Output Format | |
| | 0 | Sending without set point Code |
| | 1 | Sending with set point Code |

Batching Weighing

| | |
|--|----------------|
| F000 | Set ZERO Range |
| 6 digit Zero band value (Initial "000.000") | |

| | |
|-------------|--|
| F101 | 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 |

| | |
|---|----------------------------|
| F102 | Timer-Comparator Inhibitor |
| Set between 0.0 to 2.0 Sec (Initial 0.0 Sec) | |

| | |
|--|---------------------|
| F103 | Timer-Finish Signal |
| <p>The finish signal timer can be Set between 0.0 to 9.9 Sec Initial 0.0 Sec</p> <p>Finish Signal sent ON at 0.0 Sec. And stays ON until the next START Signal</p> | |
| | |

| | | |
|--|------------------------------|--|
| F104 | 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. | | |
| | | |

| | | |
|-------------|-------|----------|
| F105 | COM 8 | |
| ● | 0 | Unstable |
| | 1 | Error |

| | | |
|-------------|------------|--------------|
| F106 | Input Mode | |
| ● | 1 | Panel key |
| | 2 | BCD Input |
| | 3 | Serial Input |

| | | |
|--|----------------------------------|--|
| F107 | 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 |

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

| | | |
|-------------|--------|---------------------------------------|
| F202 | Parity | |
| ● | 1 | Same as display |
| | 2 | GROSS Weight |
| | 3 | NET Weight |
| | 4 | TARE Weight |
| | 5 | GROSS Weight, NET Weight, TARE Weight |

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

| | | |
|-------------|---------------|--------------------------------|
| F204 | Output Format | |
| | 0 | Sending without set point Code |
| | 1 | Sending with set point Code |

Printer

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

| F301 Data Format | | | | | | |
|-------------------------|----------------------------------|----------------------------------|----------------------------------|---------------|---------------------------------------|--|
| | Date | Time | Set point code | Serial Number | Weight | Unit |
| 0 | Not Print | Not Print | Not Print | Not Print | | Not Print |
| 1 | Only Print above the Latest data | Only Print above the Latest data | Only Print above the Latest data | Print | Same as display | Only print above the latest data according to F101 |
| 2 | Print on all | Print on all | Print on all | | GROSS Weight | Only Print above the Latest data " g " |
| 3 | | | | | NET Weight | Only Print above the Latest data " t " |
| 4 | | | | | TARE Weight | Print on all according to F001 |
| 5 | | | | | GROSS Weight, NET Weight, TARE Weight | Print on all " g " |
| 6 | | | | | GROSS Weight, NET Weight, TARE Weight | Print on all " t " |
| Initial | 1 | 2 | 1 | 0 | 1 | 1 |

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

| | | |
|-------------|----------------|----------------|
| F303 | Select Printer | |
| ● | 1 | MINI Printer |
| | 2 | Normal Printer |

BCD

| | | |
|-------------|-----------|-----------------|
| F400 | Data Type | |
| ● | 1 | Same as display |
| | 2 | GROSS Weight |
| | 3 | NET Weight |
| | 4 | TARE Weight |

| | | |
|-------------|-------------|-----------------------|
| F401 | Output Mode | |
| ● | 1 | Stream |
| | 2 | Stable and auto print |
| | 3 | Manual Print Mode |
| | 4 | Accumulate and Print |

| | | |
|-------------|--------------|----------------|
| F402 | Output Logic | |
| ● | 1 | Positive Logic |
| | 2 | Negative Logic |

Analog Output

| | | |
|--------------|--------------------|----------------|
| F 500 | Analog Output Data | |
| ● | 1 | Output 4~20 mA |
| | 2 | Output 0~+10 V |

| | | |
|--------------|-------------|-----------------|
| F 501 | Output Mode | |
| ● | 1 | Same as display |
| | 2 | GROSS Weight |
| | 3 | NET Weight |

| | | |
|--------------|-------------------------------|-------------------------------|
| F 502 | Loss-in-weight Absolute Value | |
| ● | 0 | Not read Absolute Value |
| | 1 | BDI-2002 reads Absolute Value |

| | | |
|---------------------------------------|----------------------------------|--|
| F 503 | Output current when display ZERO | |
| 0.0mA through 9.99mA Initial 4.0mA | | |

| | | |
|--|---------------------------------|--|
| 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 | | |

4-3 CALIBRATION

1. Select FULL CALIBRATION :

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 **GROSS/NET** 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.

(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 **↵** 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.

2. Select Digital Calibration

- An easy way to make calibration by inputting Load Cell's Full Scale Output voltage

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 **GROSS/NET** key and a blinking **CAL** will show on the screen. Then press the **↵** key. The screen will show **F-CAL**. Please use the **↻** or **↺** key to choose digital Calibration (**d-CAL**).

STEP 4: The screen will show **F-CAL**. Please use the **↻** or **↺** key to choose digital Calibration (**d-CAL**). Please press the **↵** key.

(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**


C000000. Use the **↻** or **↺** key to move through digits. Use

the  or  key to set the numeric value. Press the  key to finish the step.







(4) **Setting Full Scale Output Voltage of the Load Cell Sensors**

When setting full scale output voltage of the load cell sensors, the screen will show **LC-CAP** **L000000**. Please use the  or  key to move through digits. Use the  or  key to set the numeric value. Press the  key to finish the step.

(5) **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.

(6) **d-SPAN Calibration**

The screen will show **d-SPAN**. Press  key and place your calibration mass on the weighing device and input weight value. Use the  or  key and the  or  key to enter Load Cell O/P Volt. Please press the  key to finish d-SPAN. 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 SECECT |
| Press GROSS/NET. | Blinking CAL |
| Press \downarrow key | Blinking F-CAL |
| Press \downarrow key | di 01 (Blinking at 01) |
| Press \uparrow key | di 02 (Blinking at 02) |
| Press \downarrow key | dp d000.000 (Blinking at the Decimal Point ---- F000 will subject to change if \uparrow or \downarrow key been pressed) |
| Press \downarrow key | CAP C010.000 (Blinking at the latest decimal) |
| Press \uparrow key 4 times | 010.000 (Blinking at 1) |
| Press \uparrow key | 020.000 (Blinking at 2) |
| Press \downarrow key | ZERO |
| Press \downarrow key | SPAN |
| Press \downarrow key | 000.000 (Blinking at the latest decimal) |
| Place 1kg Calibration Mass, press \uparrow key 3 times, press \uparrow key | 001.000 (Twinkle at 1) |
| Press \downarrow key | End |

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 \downarrow key, a **[]** will show on the screen. Please press the key you wish to disable. The screen will show the key's number. JIF-2002 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 **↻** key to choose lock or unlock the key and press \downarrow key for confirmation.

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

4-5 COPY SYSTEM PARAMETER

🔑 A backup can be stored to prevent data loss.

🔍 System Parameter:
includes functions FXXX, Calibration parameters, disable 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 **ACC/CLEAR** key and a blinking **COPY** will show on the screen. Please enter \downarrow key.

STEP 4: Use the **↻** 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 RESTORE SYSTEM PARAMETERS

☛ Restoration can be used when system failed or human operation error happens.

ⓘ Restoration will not restore set-point parameters.

☒ System Parameter:

includes functions FXXX, Calibration parameters, disable keys.

☒ Set-point Parameter: includes Final, SP1, SP2, Free Fall, Hi, Lo.

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 **Fn** key and a blinking **RESTORE** 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.

4-7 CLEAR SET POINT DATA

STEP 1: Turn the Power Switch OFF on the rear panel. Slide the **SET** switch to the OFF side (The SET switch remain in OFF status).

STEP 2: Turn the power switch ON. The screen will show Normal operation condition.

STEP 3: Please press **STANDBY** key and hold **SET POINT/ CODE** key at the same time until the screen shows **[C Lr cd]**. Please release the **STANDBY** key (**SET POINT/CODE** key still holding). Please release the **SET POINT/CODE** key in sequence. Please press the **↵** key and the JIF-2002 will subsequently ask the operator to clear set point data.

STEP 4: Use the **↻** or **↺** key to choose **[NO]** or **[YES]** and press the **↵** key to confirm.

4-8 SYSTEM INITIALIZATION

- Re-install resets the JIF-2002 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 to the set side.

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

STEP 3: Please press **ESC** key and a blinking **INIT** will show on the screen. Please enter \downarrow 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.

Calibration Errors

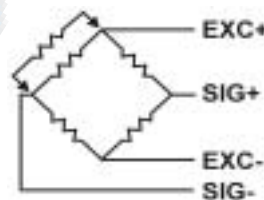
C.Err 1 : The resolution exceeds 1 : 16,000.

⇒ 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 (50k – 500K) between EXC+ and SIG—.

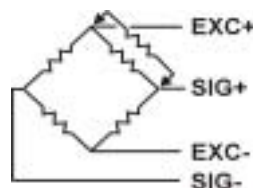
Refer to the Right Figure



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

⇒ Add an additional resistor (50k – 500K) 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.Err10 :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

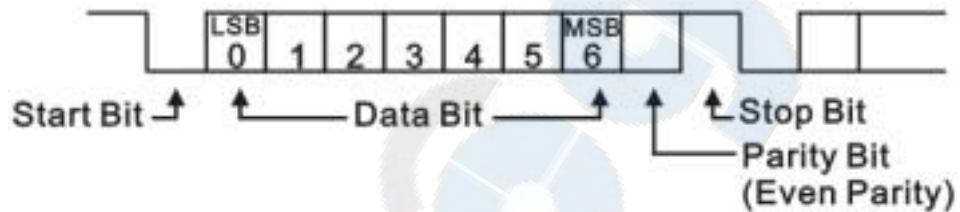
| Maximum | Resolution | | | | | |
|---------|-------------|-------------|-------------|-----------|--------------|--------------|
| | 1 Min. Div. | 2 Min. Div. | 5 Min. Div. | 10 Min. | 20 Min. Div. | 50 Min. Div. |
| 300 | 1 / 300 | ----- | ----- | ----- | ----- | ----- |
| 400 | 1 / 400 | ----- | ----- | ----- | ----- | ----- |
| 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 / 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 |

JIF-2002 Display Resolution can reach 1/60,000. (Depends on load cell quality and performance).

4-9 20mA Current Loop

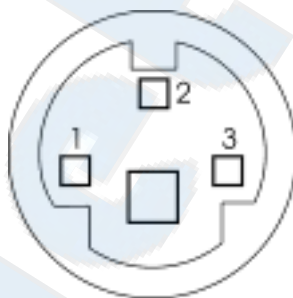
20 mA Current Loop Specifications

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 :



Pin 1 : Serial Output

Pin 2 : Frame Ground

Pin 3 : Serial Output

* * Output has no polarity , rather it is bi-directional.

CHAPTER 5 SET POINTS

5-1 SET POINTS

5-1-1 Change Set point code and Set point values

| 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 |

- ☛ How to change Set point Code: After press SET POINT/ CODE key, please press the ↓ key to show the current set-point code. Use the ↶ or ↷ key to change set point code and the ↶ or ↷ key to change value. Please press the ↓ key to finish changing set-point code. The relay will work according to the specific set-point code. ⚠ Please identify the function F106=1. Otherwise, the operator can only review the set-point codes.

5-1-2 Change Set point values

- ☛ How to change Values **within** Set point Codes: Please press * key, then press SET POINT/CODE key. The screen will show blinking CODE 00.

STEP 1: Use the ↶ or ↷ key to change position and the ↶ or ↷ key to change set point code. Please press the ↓ key to finish changing set-point code.

STEP 2: The screen will show Final. Please press the ↓ key, and the screen will show 6-digit value with blinking 0 000.000. Use the ↶ or ↷ key to change position and ↶ or ↷ key to change value. Please press the ↓ key to confirm FINAL value.

STEP 3: The screen will show SP1, please press the ↵ key. The screen will show a 6-digit value with blinking 0 000.000. Please use the ← or → key to change position and the ↑ or ↓ key to change value. Please press the ↵ key to confirm SP1 value.

STEP 4: The screen will show SP2, please press the ↵ key. The screen will show 6-digit value with blinking 0 000.000. Please use the ← or → key to change position and the ↑ or ↓ key to change value. Please press the ↵ key to confirm SP2 value.

STEP 5 : The screen will show Free, please press the ↵ key. The screen will show 6-digit value with blinking 0 000.000. Please use the ← or → key to change position and the ↑ or ↓ key to change value. Please press the ↵ key to confirm Free Fall value.

STEP 6: The screen will show Hi, please press the ↵ key. The screen will show 6-digit value with blinking 0 000.000. Please use the ← or → key to change position and the ↑ or ↓ key to change value. Please press the ↵ key to confirm Hi (Over Limit) value.

STEP 7 : The screen will show Lo, please press the ↵ key. The screen will show 6-digit value with blinking 0 000.000. Please use the ← or → key to change position and the ↑ or ↓ key to change value. Please press the ↵ key to confirm Lo (Under Limit) value.

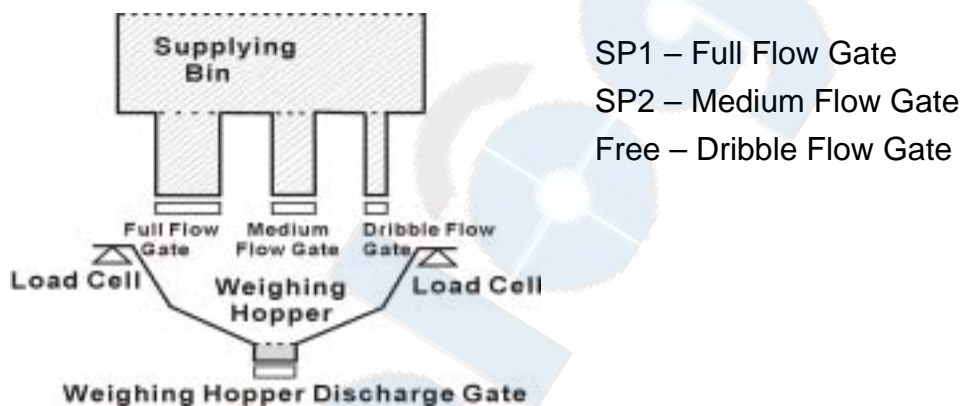
STEP 8: The screen will show CODE 00, please press the STANDBY key to leave set point codes. If you wish to continue reset other SET POINT CODES. Please enter values according to step1 to step 8 again.

5-2 BATCHING MODES

Batching Modes

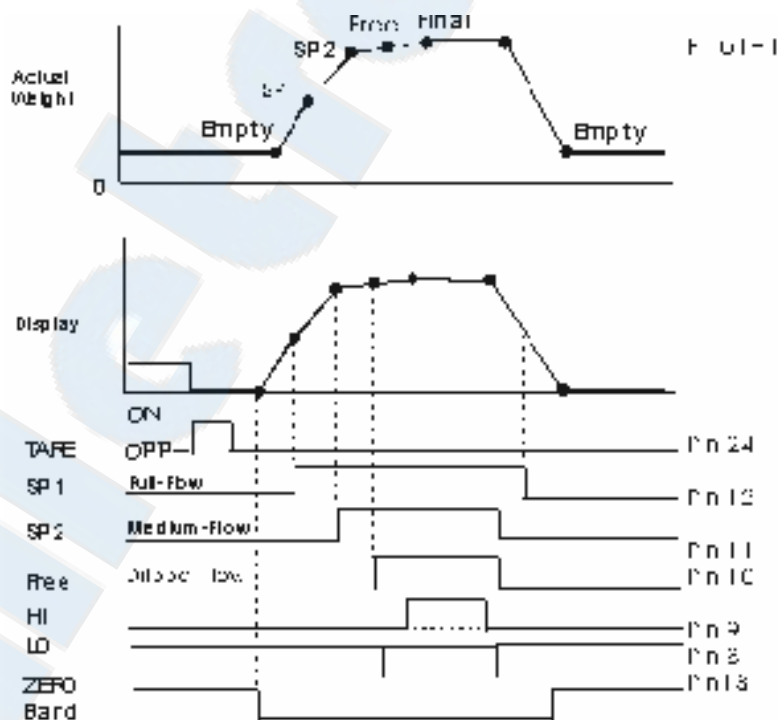
1. Customer Programmed Control Mode: Normal Batching
2. Customer Programmed Control Mode: Loss-in-Weight Batching
3. Built-in Automatic Program Mode: Normal Batching
4. Built-in Automatic Program Mode: Loss-in weight Batching
5. Multiple-Ingredient Batching

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

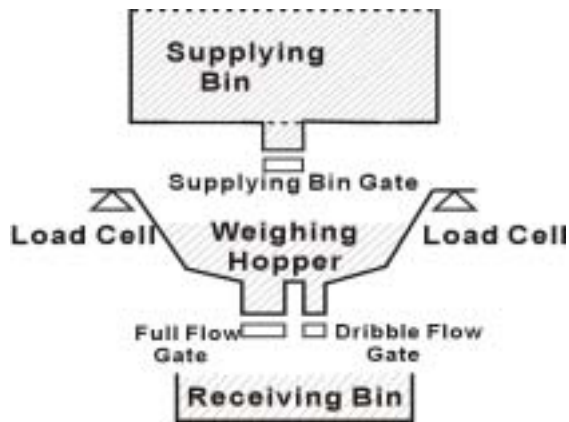


1. The Weighing Hopper is empty, the display shows "0", and all Gates are closed. If the display is not at ZERO, **input a TARE** signal (Pin 24) to **re-ZERO the display**.
2. Open the Supply Bin's: Full-Flow Gate, Medium-Flow Gate, and Dribble-Flow Gate.
3. When the display reaches "**Final - SP 1**", 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)



SP1 – Supplying Bin Gate

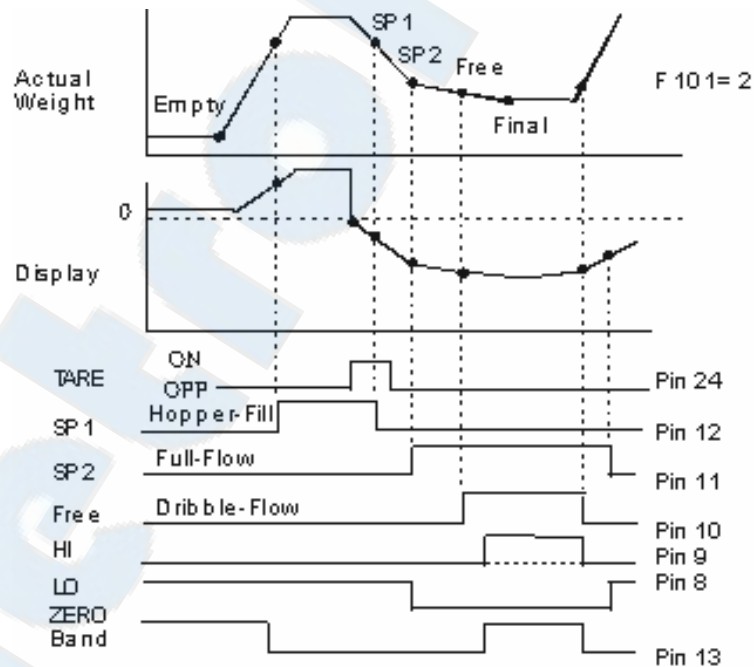
SP2 – Full Flow Gate

Free – Dribble Flow Gate

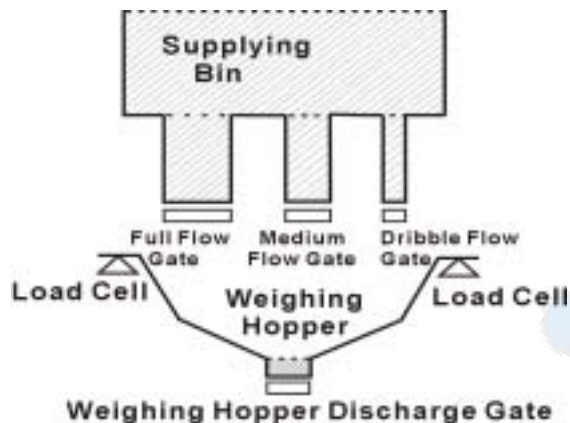
1. The Weighing Hopper is empty as is the Receiving Bin. The display shows "0", and all Gates are closed.
2. Open the Supplying Bin Gate.
3. When the GROSS Weight reaches "**SP 1**", the **SP 1** Output (Pin 12) signal will come **ON**. Closed the Supplying Bin Gate by using the SP 1 Output ON signal.
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

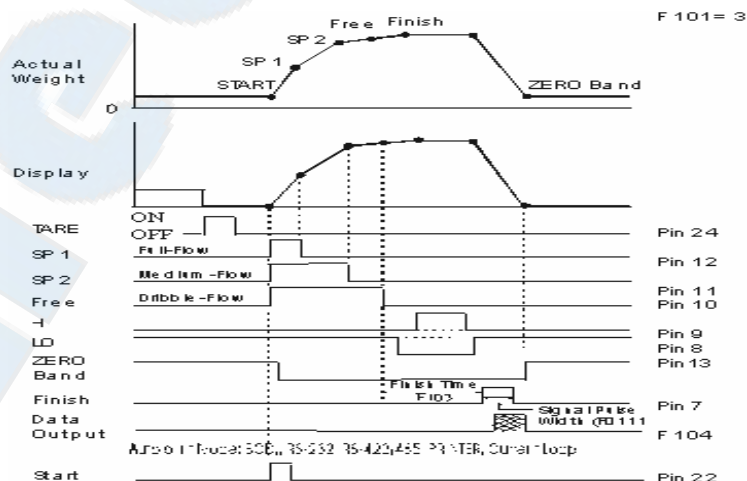
1. The Weighing Hopper is empty, the display shows "0", and all Gates are closed. If the display is not at ZERO, **input a TARE** signal (Pin 24) to **re-ZERO the display**.
2. Check if the Weighing Hopper is empty using the ZERO Band Output (Pin 13).
3. Input the Start signal via the Control I/O Interface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

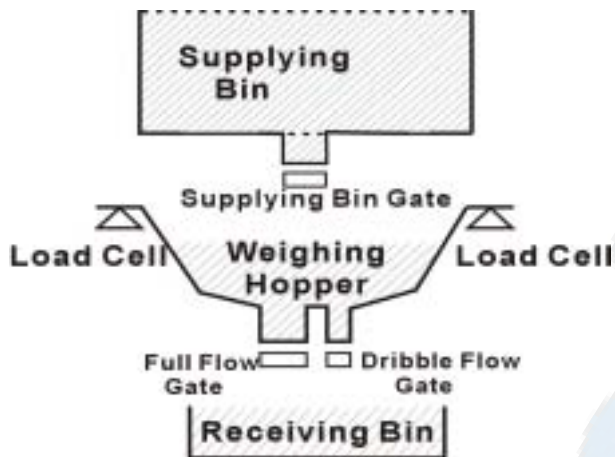
4. Open the Supply Bin's: Full-Flow Gate, Medium-Flow Gate, and Dribble-Flow Gate.
5. When the display reaches "**Final - SP 1**", the **SP 1** Output (Pin 12) signal will come **OFF**. Closed the Full-Flow Gate by using the SP 1 Output OFF signal.
6. When the display reaches "**Final - SP 2**", the **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 (Pin7) 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)**



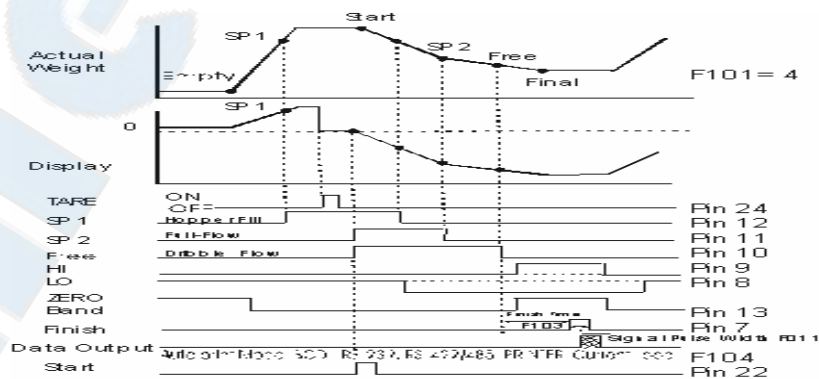
SP1 – Supplying Bin Gate
SP2 – Full Flow Gate
Free – Dribble Flow Gate
Start signal – Pin22

1. The Weighing Hopper 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. 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 .

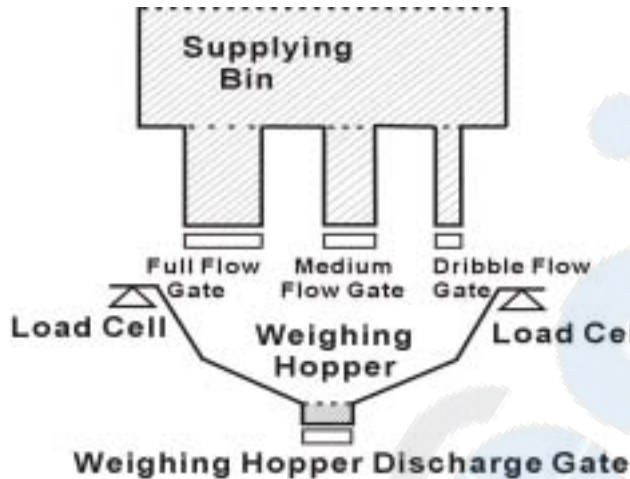
7. Open the Full-Flow Gate and the Dribble-Flow Gate for Full-Flow filling into the Receiving Bin.

8. When the display reaches "**Final - SP 2**", the **SP 2** Output (Pin 11) signal will come **OFF**. Closed the Full-Flow Gate by using the SP 2 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.
16. Ready for 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.



Multiple-Ingredient Batching

- Multiple-Ingredient Batching can be done in any of the four Batch settings of Function (F101). Accumulation will be performed by Automatic Free Fall Compensation Command (control I/O Pin 10) in the Customer-Programmed Control mode and at Final Output in the

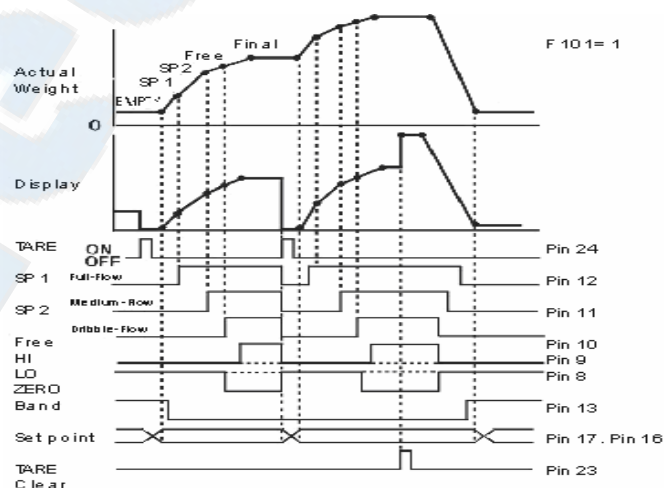


Built-in Automatic Program mode. The **example** below is a Normal Batching operation in the Customer Programmed Control Mode.

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. Input the Set Point Code number for Batching.
3. Open the supplying Bin's : Full-Flow Gate, Medium-Flow Gate, and Dribble-Flow Gate.
4. 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.
5. 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.

6. 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.
7. An Automatic Free Fall Compensation Command (Min. 200ms pulse to Pin 21) may be given at this time
8. 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.
9. Please input a TARE signal (Pin 24) and set point code, then preparing another substance batching.
10. Load the next substance into the Supplying Bin. Prepare the proper Program, Operator Settings (if needed). Repeat Steps 3 ~ 8.
11. Use the FREE (Pin 10) signal to delay a time period as the control signal is processing to empty the Weighing Hopper.
12. When the GROSS weight is below the ZERO band, the ZERO Band Output will come ON which signifying the Weighing Hopper is empty. Closed the Weighing Hopper Discharge Gate by using the ZERO Band (Pin 13) Output ON signal.
13. You are now ready for your next batching event.



CHAPTER 6 **OPTIONS**

6-1 I/O INTERFACE

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

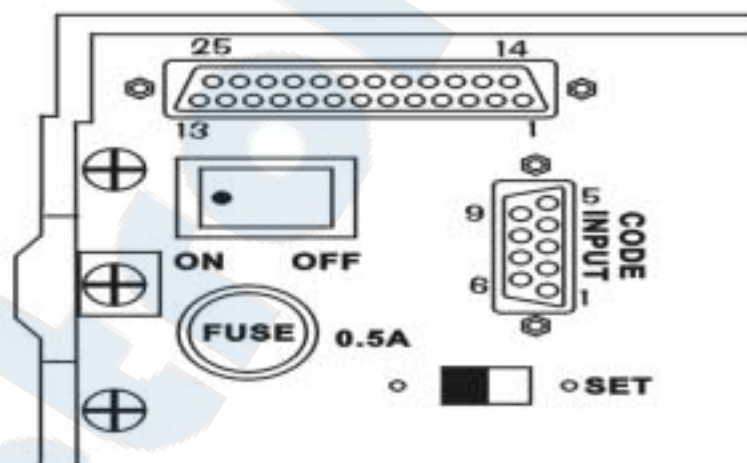
Close the Weighing Hopper Dribble Flow Gate with six-digit value.

HI→Over Limit

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

LO→Under Limit

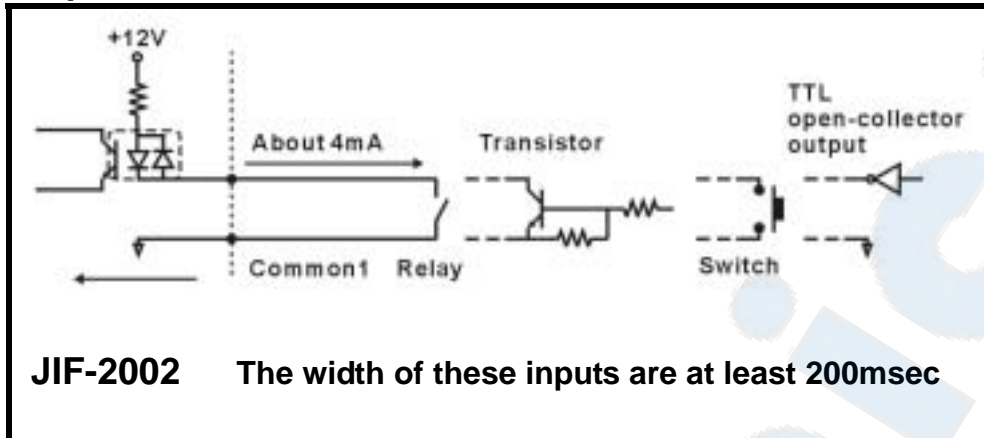
Please enter six-digit Under Limit Value NET weight < Final - Under Limit Value



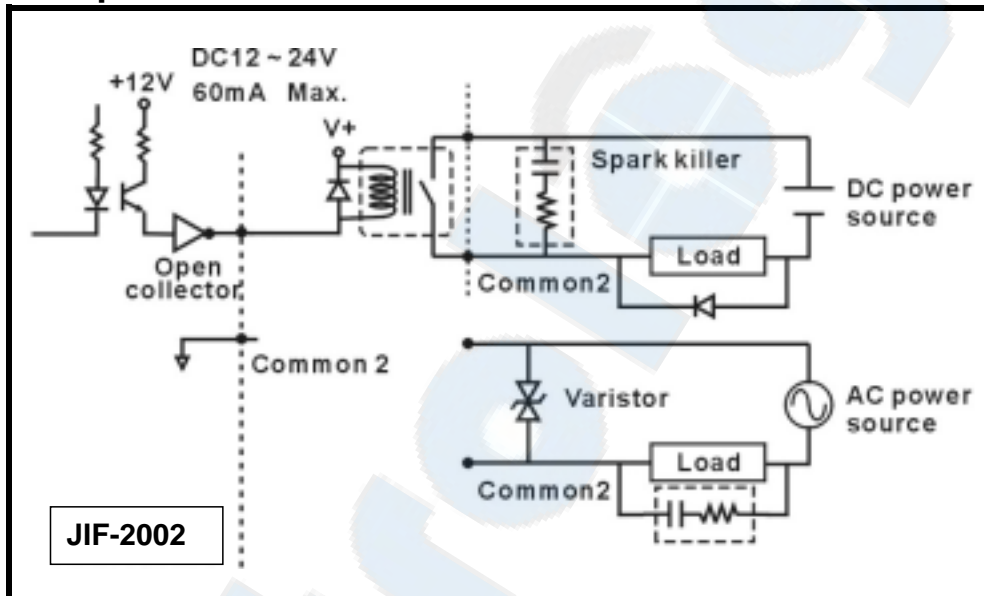
| CODE INPUT | | | |
|------------|----------|-----|----------|
| Pin | Pin Name | Pin | Pin Name |
| 1 | 1x1 | 6 | 2x10 |
| 2 | 2x1 | 7 | 4x10 |
| 3 | 4x1 | 8 | 8x10 |
| 4 | 8x1 | 9 | Common |
| 5 | 1x10 | | |

Control I / O

Input



Output



INPUT SCREW DESCRIPTION

| Screw | Signal Name | Description |
|--------|--------------------------|---|
| Pin 25 | ZERO Input (Pulse input) | JIF-2002 returns to the center of ZERO when the weighing device is empty |
| Pin 24 | TARE Input (Pulse input) | JIF-2002 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 | ①Built-In program Mode, start Batch Input | ①Batching will be started when Pin 22 is short-circuit to COM1 |
| | ②Customer Program-control Mode set point "data" abort read input | ②When Pin 22 is short-circuit to COM1, JIF-2002 will stop receiving data from set points, keeping the previous data. |
| Pin 21 | ①Built-In program Mode, Abort the Batch (Pulse Input) | ①When Pin 21 is short-circuit to COM1, the batch is aborted and FINISH signal is sent, and the NET weight will be accumulated. |
| | ②Customer Program-control Mode Automatic Free Fall Compensation command (Pulse input). | ②When Pin 21 is short-circuit to COM1, JIF-2002 will estimate the free fall value for the next batch, and the NET weight will be accumulated. |
| Pin 20 | Print Accumulator | 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 17 or Pin 16 | Input Common (COM1) | |

OUTPUT SCREW DESCRIPTION

| Screw | Signal Name | Description |
|--------|------------------|--|
| Pin 13 | ZERO BAND Output | GROSS Weight ZERO Band |
| Pin 12 | SP1 Output | ①Batching Mode: NET Weight Final Weight– SP1 ②Loss-in-weight Mode: GROSS Weight > SP1 |
| Pin 11 | SP2 Output | NET Weight Final Weight– SP2 |
| Pin 10 | Free Fall Output | NET Weight Final Weight– Free Fall |

| | | |
|----------------|---------------------------------|--|
| Pin 9 | HI Output | NET Weight > Final Weight + HI |
| Pin 8 | LO Output | NET Weight < Final Weight – LO |
| Pin 7 | FINAL Output | Built-In program Mode: send signal at Final. |
| Pin 6 | Motion Detection / Error Output | ① F105 = 0: Output at Stable; Shorted when motion. ② F105 = 1: ①Error occurred, ②over Zero Band range, or③Over weight capacity or printer error. |
| Pin3. Pin4 | Output 12V | |
| Pin 1. Pin2 | Output Common | |

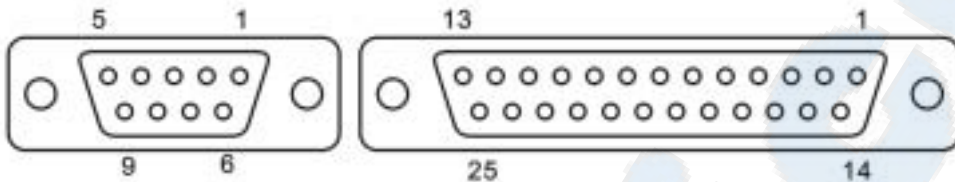
6-2 BATCHING MODES

| SERIAL { RS-232 } | | OP- 02 |
|-------------------|---------------|---|
| F 200 | Baud Rate | ①1200 BPS ②2400 BPS ③4800 BPS ④9600 BPS |
| F 201 | Parity | ① Non-parity ①Even Parity ②Odd 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 | Output Format | ① Sending without Set point Code ① Sending with set point Code |

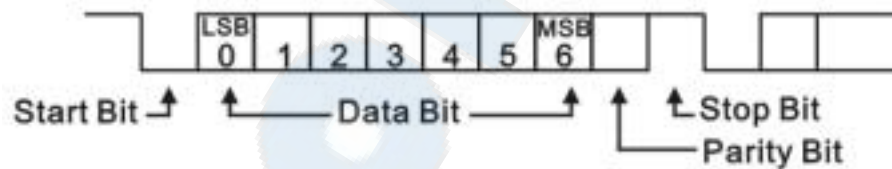
OP-02

RS-232

RS-232C

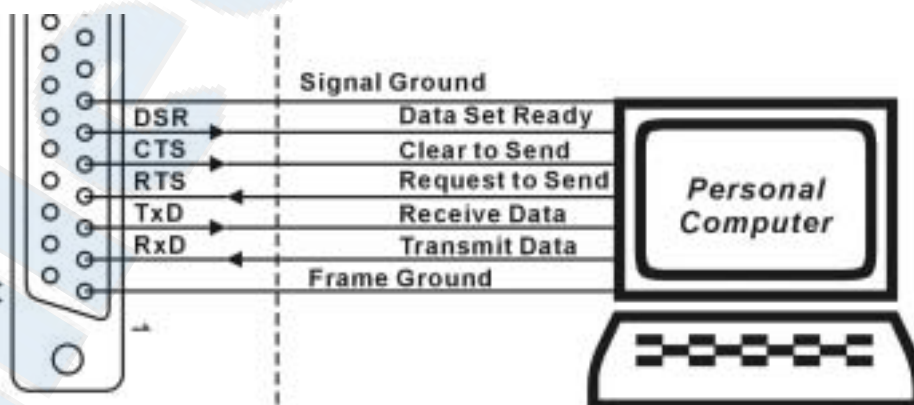


| Specifications | |
|----------------|--|
| Type | EIA-RS-232C 12V |
| Transmission | Half Duplex, Asynchronous Transmission |
| Baud Rate | 1200BPS、 2400BPS、 4800BPS、 9600BPS |
| Bit | 8 bit non- parity |
| Parity | 7 bit even parity, odd parity |
| Stop Bit | 1 bit |
| Output Code | ASC II |

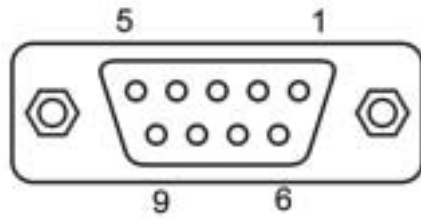


I/O Specifications

① 25 Pin D- Shape



② 9 Pin D- Shape



Pin 2 TxD (Transmit Data)
Pin 5 SG (Signal Ground)

Serial Interface (OP-02) Data Format.

Format1 (Data Update speed 4 times/Sec or 17 times/Sec)

| | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|----|
| C | D | , | 0 | 1 | , | S | T | , | N | T | , | 0 | 0 | 5 | 4 | 3 | 2 | 1 | k | g | Cr | Lf |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|----|

↑CODE ↑ Code ↑Header 1 ↑ Header 2 ↑ Data (8 digits in length)

UNIT↑

number

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

| HEADER 2 | | |
|----------|---|---------|
| N | T | → NET |
| G | S | → GROSS |
| T | R | → TARE |

| UNIT | | |
|------|---|------------|
| k | G | → Kilogram |
| l | B | → Pound |

ASCII data characters

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

Command List Table

| Sending Command to JIF-2002 | JIF-2002 response |
|-----------------------------|---|
| R Cr Lf READ | Sending latest data once (Data format depends on F202) |
| Z Cr Lf ZERO | JIF-2002 display will ZERO. Z Cr Lf will be sent by JIF-2002. |
| T Cr Lf TARE | JIF-2002 will go to NET Mode and display will TARE. T Cr Lf will be sent by JIF-2002. |
| N Cr Lf NET | JIF-2002 will go to NET Mode. N Cr Lf will be sent by JIF-2002. |
| G Cr Lf GROSS | JIF-2002 will go to GROSS Mode. G Cr Lf will be sent by JIF-2002. |

If an invalid character is received ? Cr Lf will be sent by the JIF-2002
 If the commands are not accepted for any reason : I Cr Lf will be sent by the JIF-2002

| Sending Command to JIF-2002 | JIF-2002 response |
|------------------------------------|---|
| BB Cr Lf < BEGIN BATCHING > | Send back signal "BB" "BB" an only be received in the Built in Automatic Program Control Mode |
| HB Cr Lf < HALT BATCHING > | Send back signal "HB" "HB" an only be received in the Built in Automatic Program Control Mode |
| RF Cr Lf < READS FINAL NET > | Sending Final NET weight If B Cr Lf is send by JIF-2002, that means batching is still in process. |
| S Cr Lf < SETPOINT > | Signal "S Cr Lf" will send back by JIF-2002. JIF-2002 will send back SET POINT CODE until totally receive SET POINT CODE data. |
| SS xx Cr Lf < SET SETPOINT > | SS XX Cr Lf will send back by JIF-2002. JIF-2002 will send back SET POINT values until totally receive SET POINT values. |
| RS xx Cr Lf < READ SET POINTS > | JIF-2002 receives signal "RS xx Cr Lf", and read xx set point value. |
| SA Cr Lf < SET ACCESSORIES > | JIF-2002 will send back signal "SA Cr Lf". JIF-2002 will send back ZERO band data until totally receive Zero Band Value. |
| RA Cr Lf < READ ACCESSORIES > | JIF-2002 receives signal "RS xx Cr Lf", and read xx Zero Band Value. |
| CC xx Cr Lf < CODE CHANGE > | JIF-2002 will send back signal "CCXX Cr Lf" and send back ZERO band data (F106 = 3) |

Command Format SSXX Cr Lf

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

| | | | | | | | | | | | | | |
|-------------|---|---|---|------|---|---|---|-----|---|---|---|----|----|
| 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | Cr | Lf |
| ↑ Free Fall | | | | ↑ HI | | | | ↑LO | | | | | |

Command Format SA Cr Lf

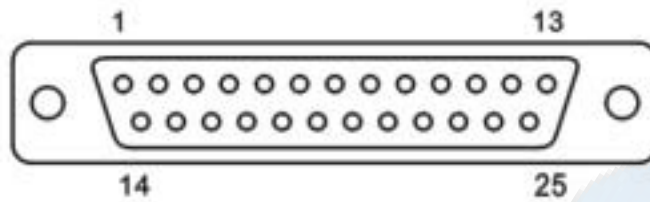
| | | | | | | | |
|---|---|---|---|---|---|----|----|
| 0 | 0 | 3 | 4 | 5 | 6 | Cr | Lf |
|---|---|---|---|---|---|----|----|

Zero Band Range

6-3 PRINTER INTERFACE (INCLUDING DATE AND TIME)

| 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 |
| | 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 above the latest data "g" ④ Print on all according to F001 ⑤ Print on all "t" ⑥ Print on all "t" |
| F 302 | Output Mode | ① Stable and auto print ② Manual Print Mode ③ Accumulate and Print |
| F 303 | Select Printer | ① MINI Printer ② Normal Printer |

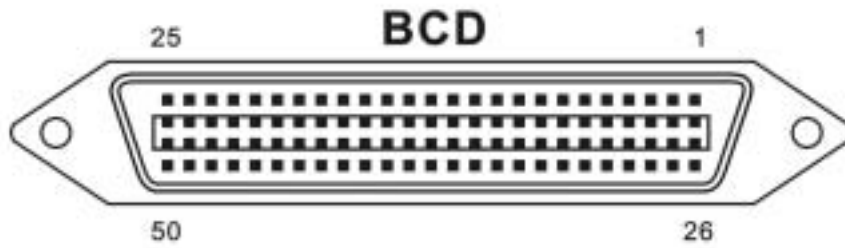
PIN ASSIGNMENTS:



| 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 | | |

6-4 PARALLEL BCD INTERFACE

| 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 mode④ Accumulate and print |
| F 402 | Output Logic | ① Positive Logic ② Negative Logic |



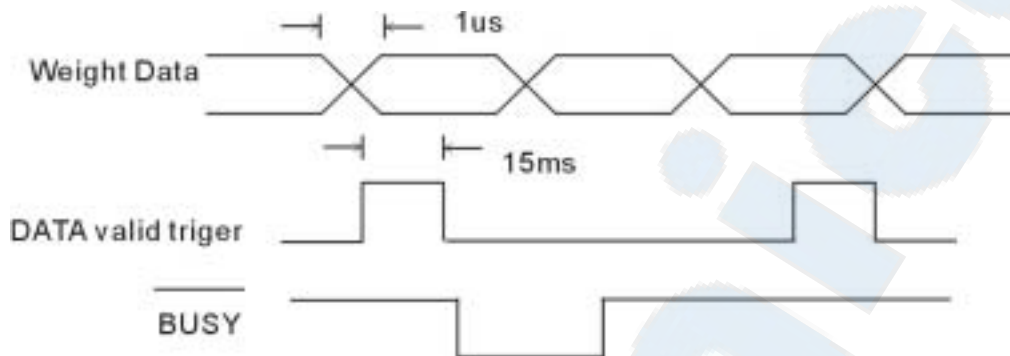
| Pin | Pin Name | Pin | Pin Name |
|-----|----------|-----|------------------------|
| 1 | GROUND | 26 | NC |
| 2 | 1x1 | 27 | Hi = NET , Lo = GROSS |
| 3 | 2x1 | 28 | NC |
| 4 | 4x1 | 29 | NC |
| 5 | 8x1 | 30 | NC |
| 6 | 1x10 | 31 | NC |
| 7 | 2x10 | 32 | NC |
| 8 | 4x10 | 33 | Lo = MOTION |
| 9 | 8x10 | 34 | 1x1 CODE |
| 10 | 1x100 | 35 | 2x1 " |
| 11 | 2x100 | 36 | 4x1 " |
| 12 | 4x100 | 37 | 8x1 " |
| 13 | 8x100 | 38 | 1x10 " |
| 14 | 1x1000 | 39 | 2x10 " |
| 15 | 2x1000 | 40 | 4x10 " |
| 16 | 4x1000 | 41 | 8x10 " |
| 17 | 8x1000 | 42 | Lo = Negative Polarity |
| 18 | 1x10000 | 43 | / Decimal Point 1 |
| 19 | 2x10000 | 44 | / Decimal Point 2 |
| 20 | 4x10000 | 45 | / Decimal Point 3 |
| 21 | 8x10000 | 46 | / Decimal Point 4 |
| 22 | 1x100000 | 47 | Hi = Overload |
| 23 | 2x100000 | 48 | NC |
| 24 | 4x100000 | 49 | PRN 1 |
| 25 | 8x100000 | 50 | / Busy (input) |

OPEN COLLECTOR TYPE

◆Maximum Voltage : 30V

◆Maximum Current : 24mA

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



6-5 ANALOG OUTPUT OP-05

| Analog Output | | |
|---------------|----------------------------------|--|
| F 500 | Analog Output Data | ① Output 4~20 mA ② Output 0~+10 V |
| F 501 | Output Mode | ① Same as display ② Gross data ③ NET data |
| F 502 | Loss-in-weight Absolute Value | ① Not read Absolute Value ② JIF-2002 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) |

OP-5 OUTPUT 4 ~ 20 mA Specifications

| | |
|-------------------------|---|
| Output Level | 4~20 mA effective range. Output range is approximately 2 to 22 mA |
| Resolution | More than 1 / 1000 |
| Temperature Coefficient | ±(0.015 % / of rdg + 0.01mA) / |
| Maximum | 500 Maximum |

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

i 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 500 resistor is used , power consumption will be :
 $W = (0.02)^2 \times 500 = 0.2$ 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 500 resistor is adequate.

Setting Output Current

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

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 Want the Output current to be 4mA at ZERO display, and 20mA at 1/2.

Maximum Capacity then:

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

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

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-6 ANALOG OUTPUT 0 10V

| | |
|-------------------------|--|
| Output Level | 0~+10 V effective range. Output range is approximately -1.25~11.25 V |
| Resolution | More than 1 / 1000 |
| Temperature Coefficient | $\pm(0.015 \% / \text{ of rdg} + 0.01\text{mA}) /$ |
| Minimum | 5 K Minimum |

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

ⓘ 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_{OUT} : Output Voltage

V_Z : Output at ZERO (F505)

V_M : Output at Maximum Capacity (F506)

NOTE: The Maximum Output will be saturated at 11.25.