INSTALLATION & PRECAUTIONS

Environment

The weighing indicator should always be used in an environment which is free from corrosives and temperature/humidity extremes. These factors will affect displayed weight readings.

Before starting the operation of the indicator, please read the following instructions and operate the scale properly.

DO NOT (install the indicator):

- ●next to doors causing rapid temperature changes or under direct sunshine.
- ●near magnetic fields or equipment that generates magnetic fields.
- ●either expose the indicator to water or place in humid place. It may cause damages on the unit.
- ●either remove the display housing or separate the inside parts. It may cause troubles on the indicator.
- ●apply strong solvent such as benzene and thinner for cleaning indicator. It may affect on the plastic material.

Always:

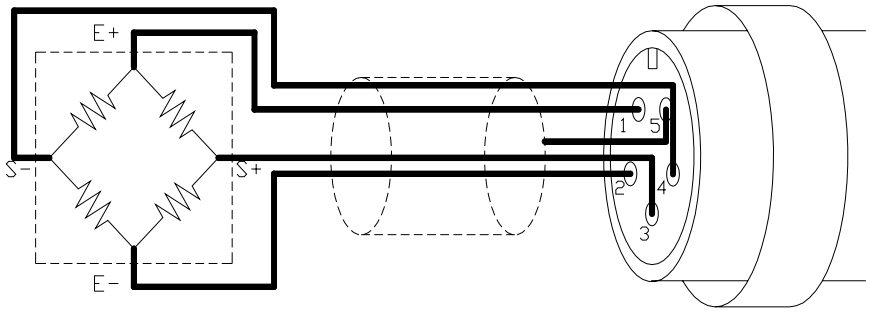
- ●operate the indicator within the temperate range from-5 ˚C to+40 ˚C. operations out of this range may obtain inaccurate weight readings.
- ●use soft cloth with or without neutral detergent for cleaning.
- ●use the rated power supply **110-120VAC or 220-240VAC** as indicated on the right-hand side of the display to operate indicator or charge battery (6V/4Ah).
- ●use an AC power regulator to stabilize the power supply if the local electricity supply fluctuates by more than ± **10%**

Grounding the indicator and connecting the LOADCELL

A green wire with a terminal enclosed in the battery compartment is used for grounding purpose.

Please connect the indicator with load cell as the following Indication.

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



LOAD CELL CONNECTION

PIN NO	SIGNAL
1	E+
2	E-
3	S+
4	S-
5	GND

TURN ON THE INDICATOR

Indicator will show the whole LCD with backlight and then start to count down from 9 to 0 and then will display the software version.
Finally. the display will be stable at zero position and ready for use.

BATTERY STATUS INDICATION

This unit can operate continuously by connecting directly to AC power or 100 hours by fully-charged rechargeable lead-acid battery.
The operation time will be approximately half of the above mentioned time span if the backlight is always effective after the indicator is turned on.

When battery voltage is low. a battery sign will start blinking to remind users to recharge the battery. Unit will be automatically turned off about 8 hours after the battery sign starts blinking in order to avoid inaccurate measurement or calculation. Unit can operate properly before power is automatically turned off.

RECHARGING BATTERY

Recharging battery when the battery sign starts blinking. When battery is being charged, the LED indicated by the word CHARGE on the right-hand side of the display panel will be RED, the LED will become GREEN when the indicator has been charged to full capacity (charging time is about 8 hours).

DISPLAY LAYOUT & FUNCTIONS OF KEYS

Key definition

-  : on/off switch.

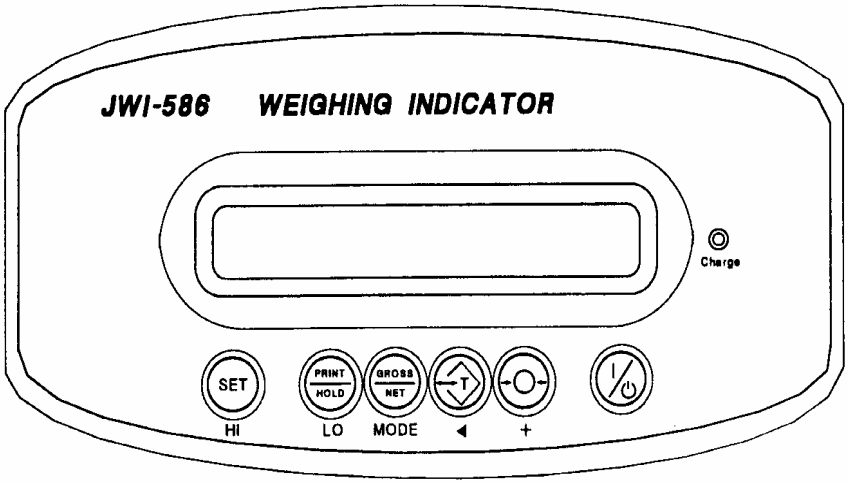
-  : " ZERO " key. Press this key to return the unit to zero position if there is a weight reading within the range of ±1/35 scale capacity

-  : " TARE " key.
  1. Press this key after the container is placed on the platform. Container's weight will be stored in memory, display will show zero and the TARE sign will be displayed. (ZERO sign will be turned off now)
  2. Removing the container from the platform will cause the indicator to display the container's weight as a negative number. Press this key wilt return the indicator to true zero position and the ZERO sign will appear again.
  3. Tare range : 9d < **T** ≤ full scale capacity.

-  : Press this key to view the gross weight of the object placed on the platform in tare mode and press again to return to net weight display.

-  : This key is used to hold the weight readings for a pre-set time span or to send the displayed weight data to the linked computer if the indicator is equipped with an optional RS-232 serial interface.

-  : This key is used for manifold internal settings and additional functions.



POWER ON SETUP

The following a series of operation is for internal settings which depend on the operator's usage. The user is allowed to change the pre-shipment settings according to the procedures below.

Operation Tips:

1. Press " SET " key to go to the next setup when the present setup is completed.
2. Press " TARE " key to show each internal selectable setting in turn.
3. Press " GROSS/NET " key to enable or disable the shown internal settings.
4. " On " means ENABLE and " OFF " means DISABLE.
5. Press " ZERO " key at any stage to revert to normal weighing mode.

● Setup for weighing units. ratio counting (pcs),percentage weighing (%) and weight checking (Hi / Ok / Lo) functions.

1. Press " SET " key again (continue from the end of SOFTWARE CALIBRATION), the display will show current weight unit (ex. kg) or existing function.
2. Press " TARE " key to show each above setting and enable or disable the settings by pressing " GROSS / NET " key.
   The display will ONLY show the enabled settings from the above in turn by pressing " SET " key then "GROSS/NET " key each time in normal weighing mode.

♦ The pre-shipment enabled settings for this setup are **kg**, **%** and **pcs**. (**lb** is only additionally enabled for the U.S.A.)

● Initial weight unit / pcs / % setup

One of the weight units / pcs / % which have been enabled in the above setup can be set as the power on weight unit. Once set, that unit will be the weight unit each time when the indicator is powered on.

1. Press " SET " key again , the display will show " Init =kg " **Init** = kg
2. Press " TARE " key repeatedly until the desired unit is shown on the display.
3. Press " SET " key to complete and leave initial weight unit setup.

♦ The pre-shipment enabled setting for this setup is kg. (lb for U.S.A.)

● Digital filtering setup

This function is provided for weighing vibrating objects or to prevent the platform from vibration which may affect stability of the displayed readings.

1. Press " TARE " key , the display will show "**FIL. X** " **FiL. 2**
2. Press " SET " key to select the approximate level for your application and leave the digital filtering setup. Each level is a trade-off between reaction speed and effect to filter vibration. Larger number means slower relation speed and better effect to filter vibration. (FiL 1 , 2 , 4 , 8)

♦ The pre-shipment enabled setting for this setup is **FiL. 2.**

● Auto. power- off setup

This feature is provided for power-saving purpose. Once enabled, the indicator will be automatically turned off when there has been no load on the platform and indicator is stable at zero position for the setup time.

1. Press " TARE " key, the display will show **Aut xx.** **Aut60**
   (Aut.no ,5,10,30,60 means auto. power-off time as 5, 10, 30, 60 minutes or no auto. power-off enabled)
2. Press " SET " to select auto. power-off time and leave the auto. power-off setup.

♦The pre-shipment enabled setting for this setup is **Aut. 60.**

●Backlight setup

Backlight is provided for getting better visibility when the unit is used in dark environment.

1. Press " TARE " key. the display will show lit.xxx. **lit Aut**
   (lit.Aut, ON, OFF)

   Auto. **:** Backlight will be on whenever there is load ≥9 d on the platform and off when there is no load or load < 9 d.

   ON **:** Backlight will be always on after the unit is powered on.

   OFF **:** Backlight will be always off after the unit is powered on.

2. Press" SET " key to select backlight mode and leave the backlight setup.

♦The pre-shipment enabled setting for this setup is **lit.Aut**

● Zero band setup

Input the weight range where the unit will display zero. The weight range is in terms of number of display divisions set for both positive and negative directions.

1. Press " TARE " key. the display will show **ZEro.X.** **ZEro. 1**
   ZEro. 0,1,2,3,4,5,
2. Press " SET " key to select the range where the scale will show zero and leave the zero band setup.

♦ The pre-shipment setting for this setup is **ZEro. 1.**

● Baud rate setup

Use this function to set the transmission rate of the RS-232C interface as 2,400, 4,800 or 9,600 bps.

1. Press " TARE " key. the display will show **bAu.XX.** **bAu-96**
2. Press " SET " to select approximate baud rate and leave this baud rate setup.

♦The pre-shipment setting for this setup is **bAu.96.**

● Print mode setup

This function is provided to select the transmission way to send weight data to the computer.

Prt.Pr : unit sends the weight data only when the stable sign (0) is shown and the " PRINT/HOLD " is pressed.

Prt.St : unit sends the weight data automatically whenever the stable sign (0)is shown.

Prt.Co : unit automatically sends the weight data continuously to the computer.

1. Press " TARE " key, the display will show **Prt.Xx.** **Prt.Pr**
2. Press " SET " key to select desired print mode and leave the print mode setup.

♦ The pre-shipment setting for this setup is **Prt.Pr.**

● Hold time setup

This function enables the user to hold the displayed stable readings for a pre-set time period of none, 5, 10, 20 or 40 seconds.

1. Press " TARE " key. the display will show **HOL. X.** **HOL. 5**
2. Press " SET " key to select desired hold time and leave the hold time setup.

♦ The pre-shipment setting for this setup is **HOL. 5.**

● Beep mode setup (for weight checking)

This function provides continuous beep for either load placed reaches the pre-set weight target/target range **(bEEP.Un)** or falls behind/exceeds the pre-set target/target range **(Beep. In).**

1. Press " TARE " key. the display will show **bEEP.Xx** **bEEP.Un**
2. Press " SET " to select appropriate beep mode and leave the beep mode setup.

♦ The pre-shipment setting for this setup is **bEEP.Un.**

3. The display will show **rESEt** (reset).

4. Press " ZERO " key to revert to normal weighing mode if all the current user's setup is satisfied. If not, please do as the following point 5.
5. Press " TARE " key. the unit will cancel all the user's setup made and revert to the first step of the power on setup and repeat the whole procedures.

POWER ON SETUP 2 (POS 2)

Power on setup 2 function is provided to set up Capacity - Increment, view internal count value and check if the HI,OK,LO and battery signs on LCD work normally.

Capacity-Increment

1. Keep pressing " PRINT/GROSS " key and switch on the unit.
2. The display will show " POS 2 ".
3. Press " PRINT/HOLD " key then press " SET " key.
   The display will show " 6000 ". (the pre-shipment setting for capacity)
4. Press " TARE " key to revolve the allowed capacities as per the following cap./div. table until the desired capacity appears.
5. Press " SET " key to select the desired capacity and then the display will show "1". (the pre-shipment setting for increment)
6. Press " TARE " key to revolve the allowed increments as per the following cap./div. table until the desired increment appears.
7. Press " SET " key to select the desired increment and then the display will show " 88888.8 ". (the pre-shipment setting for decimal point location)
8. Press " TARE " key to revolve decimal point locations until the desired decimal point locations appears.
9. Press " ZERO " key to return to **POS 2**.
10. Press " ZERO " key again to store the above settings in memory and return to normal weighing mode.

cap. \ div.	1 DIV	2 DIV	5 DIV	10 DIV	20 DIV	50 DIV
300	1/300	--	--	--	--	--
600	1/600	1/300	--	--	--	--
1,200	1/1200	1/600	1/240	--	--	--
1,500	1/1500	1/750	1/300	--	--	--
2,000	1/2000	1/1000	1/400	1/200	--	--
3,000	1/3000	1/1500	1/600	1/300	--	--
6,000	1/6000	1/3000	1/1200	1/600	1/300	--
12,000	1/12000	1/6000	1/2400	1/1200	1/600	1/240
15,000	--	1/7500	1/3000	1/1500	1/750	1/300
20,000	--	1/10000	1/4000	1/2000	1/1000	1/400
30,000	--	--	1/6000	1/3000	1/1500	1/600
60,000	--	--	1/12000	1/6000	1/3000	1/1200
100,000	--	--	--	1/10000	1/5000	1/2000
150,000	--	--	--	--	1/7500	1/3000
200,000	--	--	--	--	1/10000	1/4000
300,000	--	--	--	--	--	1/6000

View the internal count value

Press " PRINT/GROSS " key twice on POS 2 display. The display will show the internal count value.

Check HI. OK. LO and battery signs

Press " SET " , " PRINT/HOLD ", " GROSS/NET " and " TARE " keys in sequence on internal count value display. The LO, OK, HI and battery signs will appear in sequence accordingly.
Then press " ZERO " key to revert to POS 2 display and press " ZERO " key again to return to normal weighing mode.

RATIO COUNTING

This is a simplified way for piece counting by means of weight comparison with the preset reference weight of certain quantity.

1. Press " SET " key then press "GROSS/NET "until the display shows

   " zero **0** pcs "

2. Press " SET " key then press " ZERO " key. The display wilt show

" **S = 100** pcs ".

3. Press " TARE " key repeatedly to choose the quantity desired as the reface weight.25, 50 and 100 pcs are available for choice.
4. Put the corresponding quantity of objects on the platform, the display will show" CAL pcs " shortly when the put objects are being memorized as reference weight, then the number of preset quantity will be displayed.

NOTE:

If the put weight is too small to be as reference weight for accurate calculation, the display will stay at **S = xxx** pcs . Please change existing setup to a smaller resolution or use another indicator with smaller resolution for your application.

5. Put on the objects intended for piece counting, the calculated quantity will be displayed.

PERCENTAGE WEIGHING

This function can be used for user-defined weighing unit or material mixing.

1. Press " SET " key then press " GROSS/NET " until " ZERO **0.0** % " is displayed.
2. Press " SET " key then press " ZERO " key, the display will show " S **=** 100%".
3. Press " TARE " key repeatedly to choose the percentage desired as reference weight.
4. Put the corresponding amount of material on the platform. the display will show " **CAL** % " shortly when the put material is being memorized as reference weight , then the percentage of the preset amount will be displayed.

NOTE:

If the put weight is too small to be as reference weight for accurate calculation, the display will stay at **S = xxx** %.Please change existing setup to a smaller resolution or use another indicator with smaller resolution for your application.

5. Put on the material intended for percentage weighing, the calculated percentage will be displayed.

WEIGHT CHECKING

Users can set a checking weight target or target range, when the weight on the platform reaches/exceeds the preset weight target range or is exactly equal to the preset weight target point , alarm will beeps according to the preset beep mode.

■ Set checking weight range (Hi - Lo)

1. Press " SET " twice. The display will show 
2. To determine the high limit of the weight target range by pressing " TARE " key repeatedly until the blinking 0 arrives at desired digit location and then pressing " ZERO " key repeatedly until desired number shows up.
3. Press " SET " key again to enter the high limit weight into memory and then return the unit to normal weighing mode.
4. Press " SET " key and then press " PRINT/HOLD " key.
   The display will show 
5. Repeat step 2 to determine the low limit of the weight target range.
6. Press " PRINT/HOLD " key to enter the low limit weight into memory and then return the unit to normal weighing mode.

■Set checking weight target point (Hi limit point or low limit point)

●Set high limit only

Follow the above steps for setting checking weight target range to preset high limit at the desired value and press the " SET " key to enter the high limit value into memory then return the indicator to normal weighing mode.

●Set low limit only

Preset the low limit at your desired value and press " PRINT/HOLD " key to enter the low limit value into the memory then return the indicator to normal weighing mode.

※ The preset high & low weight limit will be reset to **0** once the indicator is turned off.

※ Press " SET " key twice to view the preset high limit value and then press " SET " key to leave high limit mode. And then press " SET " , "PRINT/HOLD " keys in sequence to view low limit value.

INSTANT MAX. IMPACT LOCKUP

This function is used to lock up the max. weight value during a continuous load on the platform. The unit will revert to normal weighing mode if there is no other weight value greater than the existing locked value occurring within eight (8) seconds after the currently max. weight is locked up. Otherwise, the indicator will lock a new greater weight value.

1. Press " SET " key and then press " ZERO " key.
   The display will show 

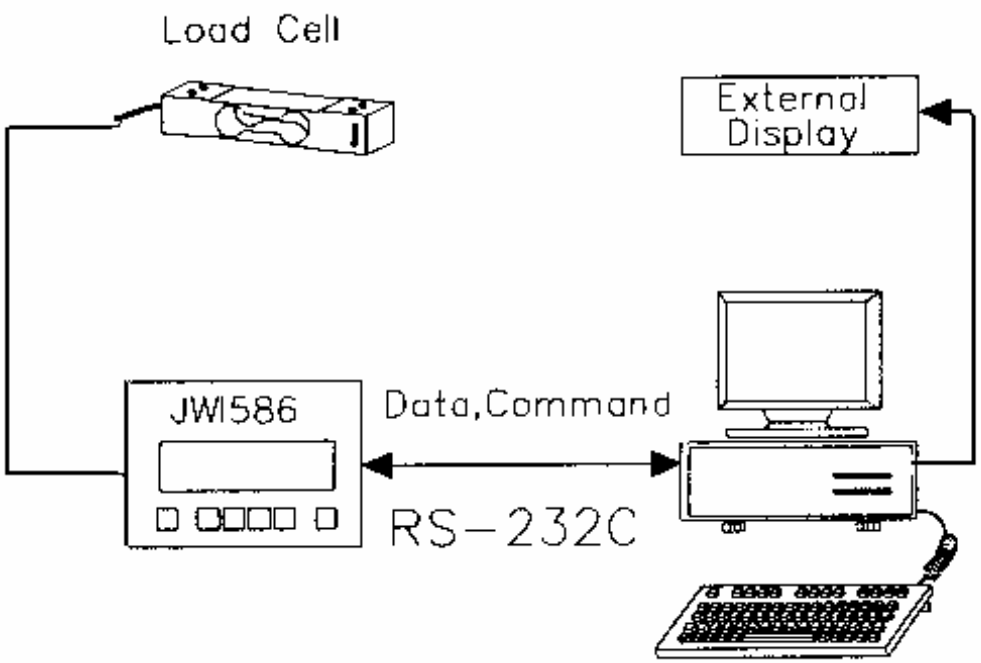
2. The unit at this time is ready for instant max. Impact lockup.

PRE-SET TARE

This function is used to pre-determine tare value for a continuous operation with fixed weight of container.

1. Press " SET " key and then press " TARE " key
   The display will show " zero **0000.00** kg."
2. Use both " TARE " & " ZERO " keys to determine desired tare value. (Refer to the operation of TARE and ZERO keys in the paragraph for weight checking)
3. Press " SET " key to enter the determined tare value into memory and revert to normal weighing mode.

※The above preset tare value will be eliminated by either pressing " TARE " or turning off the unit.

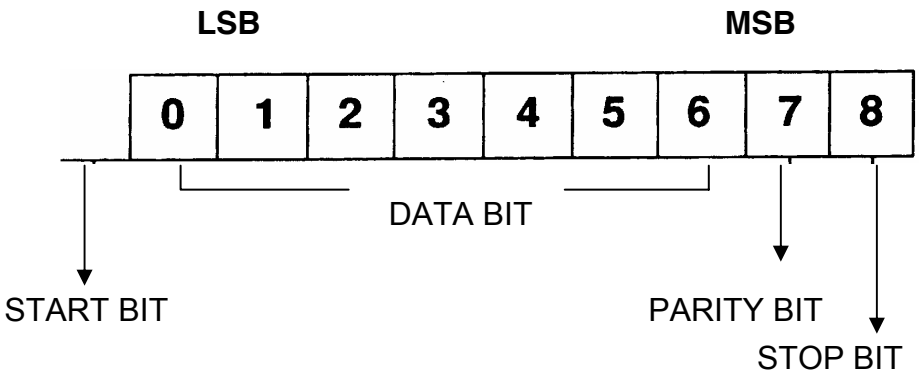


※ OPTIONAL RS-232 SERIAL PORT (25-PIN) & JUNCTION BOX (1 → 4)

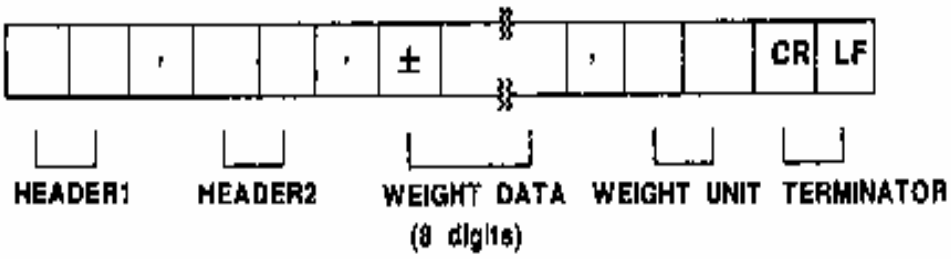
OP-01: RS-232C

1. Output data

Baud rate : 2400, 4800 or 9600 bps<
Data bit : 7
Parity bit : E (even)
Stop bit : 1
Code : ASCII
Bit format :



Data format :



(HEADER 1 : ST=stable , US=unstable)

(HEADER 2 : NT=net , GS=gross)

Example for output data : ST NT + 150.00 kg

US GS + 301b

Example of program in BASICA for executing data output :

```
10    OPEN " COM1:9600,E,7,1,RS,DS,LF " AS#1
20    INPUT#1,A$,B$,C$,D$
30  PRINT A$,B$,C$,D$
40  GOTO 20
50  END
```

2. Input commands or preset tare/high limit/low limit values from computer

a. Input commands

" R " = READ weight data

" T " = perform TARE function

" N " = view NET weight

" Z " = perform ZERO function

b. Preset tare/high limit/low limit values (6-digit value)

These functions are allowed to be performed under either normal weighing mode or related preset modes.

" S □□□□□□ " = preset tare value (≤ preset indicator capacity)

" H □□□□□□ " = preset high limit value (≤ preset indicator capacity)

" L □□□□□□ " = preset low limit value (≥ 0)

ex： " H000250 " = preset high limit value at 250 if the previously preset digits after decimal point is **none.**

" S000175 " = preset tare value at 17.5 if the previously preset digits after decimal is **1**.

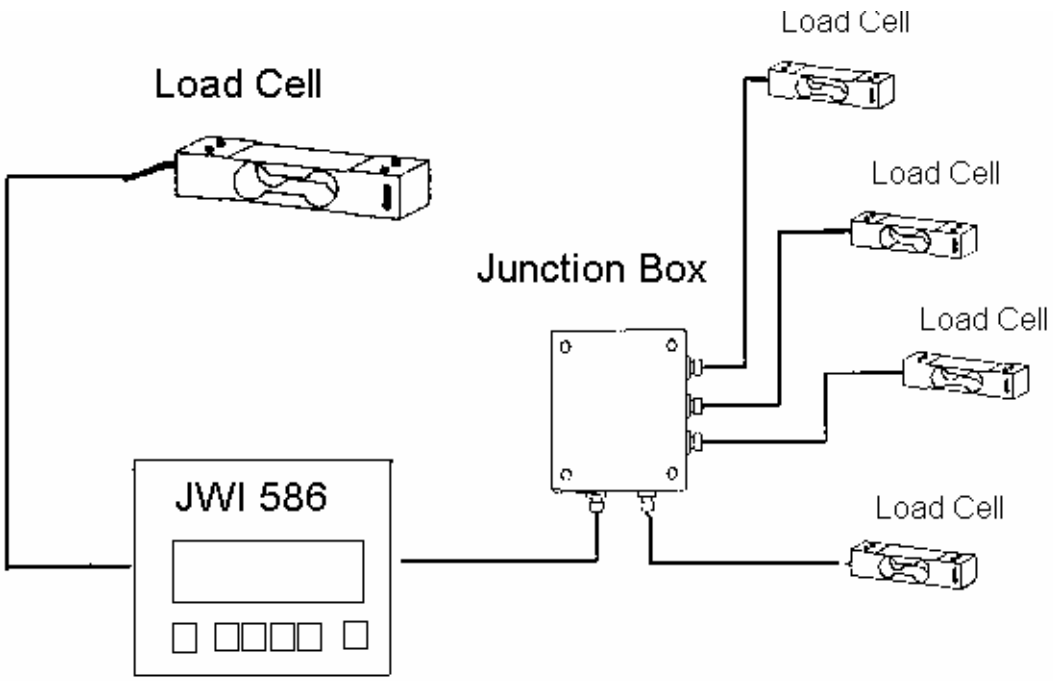
" L004800 " = preset low limit value at 48 if the previously preset digits after decimal is **2**.

Example of programs in BASICA for executing commands :

```
10    OPEN " COM1:9600,E,7,1,RS,DS,LF " AS#1
20    PRINT#1, " R "
30    INPUT#1,A$,B$,C$,D$
40    PRINT A$,B$,C$,D$
50    CLOSES
60    END
```

★ The time interval between two adjacent commands " R " (read) must exceed the HOLD time preset.

OP- 02：<u>JUNCTION BOX</u> (water-proof type)



RELATION BETWEEN LOAD CELL OUTPUT AND INPUT SENSITIVITY

The input sensitivity is 0.6μV/D or more. The input sensitivity indicates the variation in the load cell output voltage required to change the display one point on the display. When designing a weighing system, the load cell output voltage must satisfy the input sensitivity of the JWI-586. For this purpose, the system should be designed so that the following equations are satisfied. In order to achieve a system with stable performance, it should be designed so that sensitivity is as great as possible.

A：Load cell rated load
B：Load cell rated output [mV / V]
D：Minimum division
(5000 is the excitation voltage in millivolts) (5V)
(0.6 is the input sensitivity in μV)

$$0.6 \leq \frac{5000 \times B \times D}{A}$$

Example：To make a weighing system with a maximum capacity of 300kg and minimum division of 0.05kg, using a single load cell with ratings of 500kg and 3mV/V. In this example, A＝500, B＝3 and D＝0.05, so that the right-hand side of equation a is as follows：

$$\frac{5000 \times 3 \times 0.05}{500} = 1.5$$

and equation a is satisfied.
There is thus no problem with the design.

If multiple load cells are used, the design should ensure that the following equation is satisfied.

N：Number of load cells

$$0.6 \leq \frac{5000 \times B \times D}{A \times N}$$

When a lever is used, the lever ratio should be taken into consideration.

n ＝ The lever ratio

$$0.6 \leq \frac{5000 \times B \times D}{A \times N \times n}$$