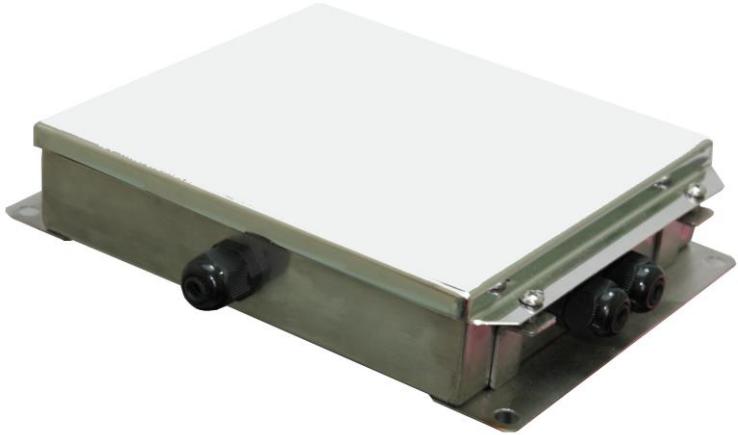
DJB-6

DIGITAL JUNCTION BOX

SETUP & OPERATION MANUAL

PLEASE READ THIS MANUAL VERY CAREFULLY BEFORE ATTEMPT TO OPERATE THE UNIT



March 2010

Specifications subject to change without prior notice

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1. INTRODUCTION

DJB Digital Junction Box converts signals from analogue load cells into digital ones, then further process these digital signals into meaningful readings like weight and totalized AD counts according to predefined parameters given to it. Samples of these parameters are capacity, division, decimal place, filter, auto zero tracking speed, weight units … etc.

Eccentric adjustment of multi load cells installations is now made easy with DJB.

DJB calculates and compensates automatically the span gain of each individual load cell channel. Manual eccentric adjustment and span gain are also supported by DJB should manual fine tuning is required.

Each load cell channel is supported by an independent 24-bit Σ-Δ-Analog-to-Digital Converter. Special linearity compensation method plus all other state-of-the-art technologies applied enable DJB to provide fast, stable and almost error-free weighing result anytime and anywhere.

DJB supports both data transmission in RS232 or RS485 via cable connection or optional wireless data transmission module.

To facilitate easy configuration and control, software driver is available. Contact your dealer for availability.

2. INSTALLATION

Because of metrological legislation, installation and / or some metrological parameter settings are limited to be done by authorized personnel only. Do not attempt to change any of the built-in metrological parameters. Contact your dealer for installation and technical assistance.

In some applications, DJB is legal for trade only when it is sealed (and/or stamped) and bearing a data plate with serial number. Do not attempt to break the seal (or stamp) affixed to DJB or remove the data plate. Contact your dealer for more information and after sales service.

For most accurate weighing result, do not use the unit in where or when the environment condition falls beyond as those listed on **SPECIFICATIONS**.

DJB can be placed inside a suitable compartment inside a weighing equipment or mounted to wall by means of the fixing holes located on the housing.

DC 9V ~ 12V power input is required to drive DJB. The power input can be supplied by external power adaptor or batteries. In case rechargeable batteries are used, these rechargeable batteries must be recharged by external battery charger, DJB does not recharge any batteries.

All batteries should be removed in case a power adaptor is used. Fail in doing so may cause battery leakage or explosion.

An independent gland is provided for each load cell, I/O channel and the external power cable. To ensure the highest attainable environment protection, all glands must be screw firmly against the cable or itself.

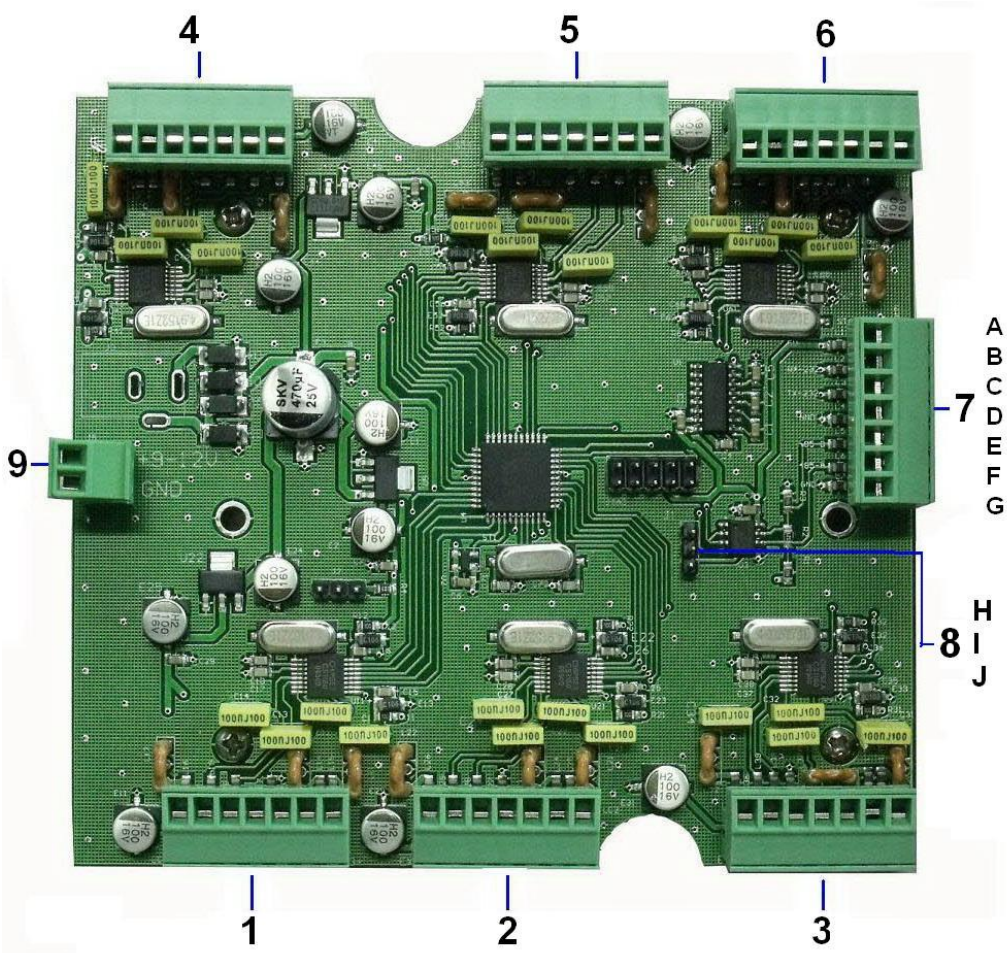
In case of outdoor installation, it is strongly recommended that the metal housing of DJB should be grounded independently and properly. Do not share ground with other equipment or devices.

If WM-SP wireless data transmission module is used, it is recommended that height of the antenna should be at least 1 meter above ground and so installed that the antenna is perpendicular to the ground to ensure best data communication.

3. SPECIFICATIONS

Model No.	**DJB-6SS**
No of Load Cell Channels	**6**
Enclosure	**Stainless Steel Housing. with Sealing Devices**
AD Converter	**1 x 24-bit Σ-Δ Converter/Channel**
Weight Units	**Metric (kg) and Imperial (lb)**
A/D Sampling Speed	**15 times/ second**
Max. Measuring Range	**15 mV / Channel**
Tare Range	**- Max (Subtractive Tare)**
Power Voltage Requirements	**External Power = 9~ 12V DC, 800mA**
Load Cell Excitation Voltage	**5 VDC/Channel**
Min Load Cell Impedance	**350Ω/Channel**
Max Load Cell Impedance	**1000Ω/Channel**
Load Cell Connection	**Supports 4-wire and 6-wire Load Cell Connections**
Operation Environment	**-10 ~ 40°C. Non-condensed. R.H.≦ 85%**
Specifications subject to change prior to notice	

4. PLUGS AND PINS



1. LOAD CELL INPUT CHANNEL #1

Connect load cell #1 here.

2. LOAD CELL INPUT CHANNEL #2

Connect load cell #2 here.

3. LOAD CELL INPUT CHANNEL #3
Connect load cell #3 here.

4. LOAD CELL INPUT CHANNEL #4
Connect load cell #4 here.

5. LOAD CELL INPUT CHANNEL #5
Connect load cell #5 here.

6. LOAD CELL INPUT CHANNEL #6
Connect load cell #6 here.

7. I/O TERMINAL
Connect RS232 and RS485 input and output here.
WM-SP wireless data transmission module is used, power the WM-SP with the 5V output provided here.

- A = +5V Output
- B = RS232 RXD
- C = RS232 TXD
- D = Ground
- E = RS485-B
- F = RS485-A

8. RS232/RS485 OUTPUT SELECTION JUMPER
Select RS232 or RS485 output by adjusting the location of this jumper.

- Short-circuit H & I = RS232
- Short-circuit I & J = RS485

9. DC TERMINAL
Insert the output plug of an external power adaptor (if used) here.
Power Requirement = DC9V ~ 12V, 800mA.

5. GETTING STARTED

The DJB has no power on/off switch. Before working with it or making any connections, make sure that the power source has been removed.

5.1 CONNECTION WITH LOAD CELLS

Each load cell has to be connected to an individual load cell input channel. Do not share any load cell input channel with more than one load cell.

Use the nearest gland (of a load cell input channel) to thread through the load cell cable. Each load cell should occupy one gland. Do not share a gland with more than one cable.

Depends on version, some DJB versions support true 6-wire load cell system, if 4-wire load cell is used with 6-wire DJB version, short-circuit excitation E+ with S+ and E- with S-. Otherwise, DJB will not function.

It is a good practice to take note, mark down and keep record of the location (on a weighing platform) of the corresponding load cell of each load cell input channel. This information is important for eccentric adjustment (if necessary) and other control during setup and future maintenance.

Signal wires of a load cell should be connected properly and firmly to the terminal block according to markings printed on PCB. Refer to below **Table A** for marking description on board.

In case 4-wire load cell is used, short circuit: -

- SEN+ with EX+
- SEN- with EX-

Otherwise, the instrument will not function.

Table A: - Load Cell Input Channel Marking Description

Marking	Description
SIG+	Signal +ve
SIG-	Signal –ve
SH	Shield/Ground
EX+	Excitation +ve
EX-	Excitation -ve
SEN+	Sense +ve
SEN-	Sense -ve

5.2 CONNECTION WITH EXTERNAL I/O DEVICE

Connected DJB with an external I/O device by means of hardwire cable or wireless transmission. RS485 hardwire output or wireless transmission is recommended for long distance (more than 15 meter) data transmission.

External I/O device means: -

- RD-DOT dot remote display, or
- PC computer (when DJB driver or custom made software is use), or
- control indicator by Fidelity Measurement Company Limited

5.2.1 In case of hardwire connection: - connect DJB to the external I/O device with a proper signal cable. Shielded and twisted cable is recommended for RS232 and RS485 data communication respectively.

5.2.2 In case of wireless connection: - use only WM-SP wireless data transmission module. DJB does not guarantee the compatibility when working with wireless data communication devices. Refer to **5.3 WIRELESS CONNECTION BETWEEN DJB AND I/O DEVICE** for more information.

Thread through the I/O cable through the gland which is closest to the I/O terminal. Screw the gland firmly against the I/O cable after wire connection is done. I/O wires should be connected properly and firmly to the terminal

block according to markings printed on PCB.
Refer to below **Table B** for marking description and pin assignment on both DJB and the external I/O devices. Wrong pin connection may cause un-recoverable damages to DJB and/or to the external signal device.

Table B: - I/O Terminal Marking Description

Marking	Description	Connect to Com Port of I/O
RS485-A	RS485-A	RS485-A
RS485-B	RS485-B	RS485-B
RS232 RXD	RS232-Receive	RS232-TXD
RS232 TXD	RS232-Transmission	RS232-RXD
GND	Ground	Ground
5V	DC +5V Output for WM-SP Wireless Data Transmission Module only.	

5.3 WIRELESS CONNECTION BETWEEN DJB AND I/O DEVICE

Use only WM-SP wireless data transmission module for wireless communication between DJB and external I/O device.

WM-SP wireless data transmission module comes with a male DB-9 connector. It is recommended that a female connector with free wire-end (provided by others) should be used in between WM-SP wireless data transmission module and DJB.

RS232 data communication between DJB and WM-SP is recommended. Refer to below **Table C** for pin connection between DJB and WM-SP wireless data transmission module.

Table C: - Pin Connection Between DJB and WM-SP

Marking	Connect to WM-SP
RS232 RXD	Pin #3
RS232 TXD	Pin #2
GND	Pin #5

5V	Pin #9

Wireless data transmission module should be used in pair. Frequency of both wireless data transmission modules (with DJB and I/O device) are set to the same. In case a different frequency is required, refer to **Diagram 1** and **Table D** on how to ser frequency for these 2 modules.

Diagram 1: - Frequency Setting of Wireless Module

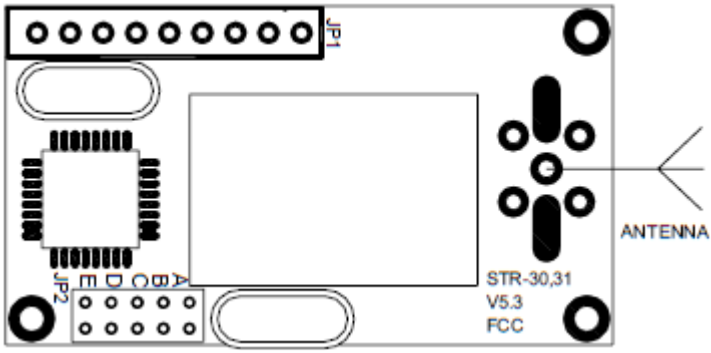


Table D: - Jumper / Frequency Settings on WM Wireless Data Transmission Module

Jumper Setting Position C, B & A (Note A)	Channel No	Frequency (MHz)
0,0,0	0	430.2000
0,0,1	1	431.4288
0,1,0	2	429.2500
0,1,1	3	428.1250
1,0,0	4	437.2500
1,0,1	5	432.5000
1,1,0	6	436.2500
1,1,1	7	433.9260

NOTE A: -

- 0 = Open circuit (no jumper)
- 1 = Short circuit (with jumper)

Baud rate and data stream of wireless data transmission module are below. Make sure that baud rate of DJB is also set to 9600 when WM-SP is used with DJB.

- Baud Rate = 9600
- Data Bit = 8
- Parity = No
- Stop Bit =1

5.4 RS232/RS485 OUTPUT SELECTION JUMPER

DJB supports 2 types of data output, i.e. RS232 and RS485. Refer to below **Table E** for output selection jumper pin assignment.

Table E: -

Pin Assignment of RS232/RS485 Output Selection Jumper

A	COM	B
Remarks: - ● **Short circuit H & I = RS232 Output** ● **Short circuit I & J = RS485 Output**		

5.5 CONNECTION WITH EXTERNAL POWER SOURCE

DC 9V ~ 12V power input is required to drive DJB. The power input can be supplied by external power adaptor or batteries. In case rechargeable batteries are used, these rechargeable batteries must be recharged by external battery charger, DJB does not recharge any batteries.

At any time, DJB can be only powered by one power source. All batteries should be removed in case a power adaptor is used. Fail in doing so may cause battery leakage or explosion and unrecoverable damages to DJB

5.5.1 In case a power adaptor is used: - simply plug in the output jack of the power adaptor into the DC jack on DJB. The polarity of the power adaptor should be center positive.

5.5.2 In case batteries are used: - connect the positive and negative wires to the 9V~12V pin and GND pin of the power supply terminal respectively. Wrong connection may cause unrecoverable damages to DJB.

5.6 POWER ON

After all necessary connections as described on **5.1** ~ **5.5** are completed, RD-DOT is ready for operation.

Following the below procedures for power on sequence: -

a. Power on I/O device,
b. Power on DJB.

6. OPERATION COMMANDS[1]

Configuration parameters and operation commands can be sent to the DJB via a PC computer using communication program like Hyper Terminal.

NOTE: -

a. Corrections made by backspace will not be accepted by DJB. DJB will return with an error code to all corrected commands. If it is the case, re-type message without any corrections.
b. If a command is accepted, DJB will either response with a parameter number, value or **E0**. **EO** means command executed OK.
c. DJB will response with an error code if a command is not accepted or refused. Refer to **APPENDIX A: - ERROR CODES TABLE** for more information.
d. All commands are not case sensitive. A command can be entered in form of capital or small capital letters.

6.1 COMMAND TYPES AND ENTRY METHOD

There are 3 types of command: -

- Read only command: - Type a command then followed by ***enter*** to read corresponding info from DJB,
- Read/write command: -
  i. To read info from DJB, type a command then followed by **=?** and ***enter***. For example, enter ***capacity=?*** to get capacity info from DJB;
  ii. To write info to DJB, type a command then followed by a ***parameter number*** or ***value*** then ***enter***. For example, enter ***decimal=2; capacity=300000*** to set 2 decimal place or 300000 for capacity.
- Execution only command: - Type a command then followed by ***enter*** to instruct DJB to execute this command.

Refer to below **Table E** for commands details.

[1] DJB driver software provides the easiest way of operation and setting when compared with communication program or others. Contact your dealer for DJB Driver availability.

Table E: - Operation Commands

Group A: - Read only Commands		
Command	**Description**	**Notes and Remarks**
C1=?	Read AD Value of Load Cell #1	To request DJB to response with a 7-digit AD value of the corresponding load cell.
C2=?	Read AD Value of Load Cell #2	
C3=?	Read AD Value of Load Cell #3	
C4=?	Read AD Value of Load Cell #4	
C5=?	Read AD Value of Load Cell #5	
C6=?	Read AD Value of Load Cell #6	
C7=?	Read AD Value of Load Cell #7	
C8=?	Read AD Value of Load Cell #8	
CA=?	Read AD Value of All Load Cells	To request DJB to response with a 7-digit AD value for each of the load cell channel. Channel number is represented by letter A to H for channel #1 to #8 respectively.
WEIGHT=?	Read Weight Value	To request DJB to response with a weight value string. Refer to **APPENDIX B: - WEIGHT FORMAT** for more details of this string..
COUNTING=?	Read Scale AD Value	To request DJB to response with a 7-digit scale AD value.

TARE WEIGHT=?	Read Tare Weight Value	To request DJB to response with a tare weight value. This string contains of 18 bytes. Refer to **APPENDIX B: - WEIGHT FORMAT** for more details about sting string format.

Group B: - Read/Write Commands.		
Command	**Description**	**Notes and Remarks**
BAUD RATE1	Baud Rate	6 parameters are available: - **0** = 1200; **1** = 2400; **2** = 4800; **3** = 9600; **4** = 19200; **5** = 38400
LC1	Status of Load Cell Channel # 1	2 parameters are available: - **0** = Off (Close Channel) **1** = On (Open Channel) All not in use load cell channels must be closed.
LC2	Status of Load Cell Channel # 2	
LC3	Status of Load Cell Channel # 3	
LC4	Status of Load Cell Channel # 4	
LC5	Status of Load Cell Channel # 5	
LC6	Status of Load Cell Channel # 6	
LC7	Status of Load Cell Channel # 7	
LC8	Status of Load Cell Channel # 8	
AR1	Span Gain Ratio of Load Cell # 1	To read from or write span gain ratio to a load cell channel. Note: -
AR2	Span Gain Ratio of Load Cell # 2	

AR3	Span Gain Ratio of Load Cell # 3	a. Span gain ratio is a 6-digit number with reference value = 100000 (100.000%). b. When entering any span gain ratio which is less than 6-digit, add non significant zeros in front, e.g. **0**99995 should be entered (instead of 99995).
AR4	Span Gain Ratio of Load Cell # 4	
AR5	Span Gain Ratio of Load Cell # 5	
AR6	Span Gain Ratio of Load Cell # 6	
AR7	Span Gain Ratio of Load Cell # 7	
AR8	Span Gain Ratio of Load Cell # 8	
CAPACITY	Scale Capacity Value	To read from or write scale capacity value for the system. Note: - a. Capacity is a 6-digit number. b. When entering any scale capacity value which is less than 6-digit (including value after decimal point), add non significant zeros in front, e.g. **0**300**00** should be entered (instead of 300.00)
DECIMAL	Decimal Place	5 parameters are available: - **0** = no decimal; **1** = 0.0; **2** = 0.00; **3** = 0.000; **4** = 0.0000
DIVISION	Division	5 parameters are available: - **0** = 1; **1** = 2; **2** = 5; **3** = 10; **4** = 20
UNIT	Weight Unit	2 parameters are available: - **0** = kg; **1** = lb

FILTER	Filter Speed	3 parameters are available: - **0** = Fast; **1** = Medium; **2** = Slow Select 0 for vibration does not exist Select **2** for where vibration will affect stability severely.
STABILITY	Definition of Stable	5 parameters are available: - **1** = 1d; **2** = 2d; **3** = 3d; **4** = 4d; **5** = 5d.
POWER ZERO	Power on Zero Range	8 parameters are available: - **0** = ±0%; **1** = ±2%; **2** = ±4%; **3** = ±5% ; **4** = ±10%; **5** = ±20%; **6** = ±50%; **7** = ±100% of scale capacity
AUTO ZERO	Auto Zero Tracking Range	9 parameters are available: - **0** = 0.25d; **1** = 0.5d; **2** = 1d; **3** = 1.5d ; **4** = 2d; **5** = 2.5d; **6** = 3d; **7** = 3.5d; **8** = 4d
KEY ZERO	Manual Zero Range	6 parameters are available: - **0** = ±1%; **1** = ±2%; **2** = ±4%; **3** = ±5%; **4** = ±10%; **5** = ±20% of scale capacity

LINEAR CORRECT	Linearity Correction	2 parameters are available: - **0** = Off (Disable) **1** = On (Enable)
SPAN MASS	Mass Value of Signal Point Calibration	To read from or write calibration mass value of single point calibration. Note: - a. This mass value is a 6-digit number. b. When entering any value which is less than 6-digit (including value after decimal point), add non significant zeros in front , e.g. **0**150**00** should be entered (instead of 150.00)
SPAN ADC	AD Value of Signal Point Calibration Mass Value	To read from or write net AD value of signal point calibration mass value. Note: - a. This AD value is a 6-digit number. b. When entering any value which is less than 6-digit, add non significant zeros in front , e.g. **0**10000 should be entered (instead of 10000)

MASS 1	Mass Value 1 of Dual Point Calibration	To read from or write calibration mass values for dual point Calibration. Note: - a. These mass values are a 6-digit value. b. When entering any value which is less than 6-digit (including value after decimal point), add non significant zeros in front , e.g. **0**150**00** should be entered (instead of 150.00) c. Mass value 2 must > Mass value 1 d. These 2 commands are only valid when Linearity Correction = On.
MASS 2	Mass Value 2 of Dual Point Calibration	
LINEAR P2 ADC	AD Value of Mass Value 1 of Dual Point Calibration	To read from or write net AD values of dual point calibration mass value. Note: - c. These AD values are 6-digit value. d. When entering any value which is less than 6-digit, add non significant zeros in front , e.g. **0**10000 should be entered (instead of 10000)
LINEAR P3 ADC	AD Value of Mass Value 2 of Dual Point Calibration	

Group C: - Execution Only Commands

Command	Description	Notes and Remarks
ZERO	Manual Zero	To execute manual zero
TARE	Manual Tare	To execute manual tare
CAL MASS 1	Calibrate Mass Value 1 of Dual Point Calibration	To execute calibration for mass value 1 of the dual point calibration
CAL MASS 2	Calibrate Mass Value 2 of Dual Point Calibration	To execute calibration for mass value 2 of the dual point calibration
CAL ZERO	Zero Calibration	To execute zero calibration
CAL 1	Eccentric Calibration for Load Cell #1	To execute eccentric calibration for load cell channel #1 ~ #8 respectively
CAL 2	Eccentric Calibration for Load Cell #2	
CAL 3	Eccentric Calibration for Load Cell #3	
CAL 4	Eccentric Calibration for Load Cell #4	
CAL 5	Eccentric Calibration for Load Cell #5	
CAL 6	Eccentric Calibration for Load Cell #6	
CAL 7	Eccentric Calibration for Load Cell #7	
CAL 8	Eccentric Calibration for Load Cell #8	
CALC	Eccentric Calibration for System	To execute eccentric linearity calibration for system
CAL SPAN	Single Point Calibration	To execute single point calibration

7. SYSTEM SETUP AND CONFIGURATION[2]

Refer to below recommended system setup procedures in case system setup and configuration have to be done via PC computer using standard communication program.

1. Make sure that all connections and basic settings listed on **GETTING STARTED** have be completed properly.
2. Power on I/O device and then DJB.
3. Set **Baud Rate1**
4. Set **LC1** to **LC8.** Load cell channels in used must be opened; unused load cell channels must be closed.
5. Check load cell signal and connection by entering command **CA=?** All connected load cells should return with an AD value.
6. Add a small load (e.g. 2% ~ 5% of scale capacity) at centre of the weighing platform and enter command **CA=?,** AD value of each channel should increase (when compared with the value obtain through step **5**). If not, that means load cell connection is wrong. Re-check load cell connection and repeat step **4** to **6**.
7. Set **CAPACITY**
8. Set **DECIMAL**
9. Set **DIVISION**
10. Set **UNIT**.
11. Set **FILTER**
12. Set **STABILITY**
13. Set **POWER ZERO**
14. Set **AUTO ZERO**
15. Set **KEY ZERO**
16. Set **LINEAR CORRECT.** Recommendation: -
    - Select to **Off** in case when n_{max} < 10000
    - Select **On** in case n_{max} >= 10000
17. Set **SPAN MASS**[3] if step **14** above is = **Off** or set **MASS 1**[4] and **MASS 2**[5] if step **14** above is = **On**.
18. Go to **CALIBRATION PROCEDURES**.

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[2] DJB driver is always recommended to do these settings. Skip this paragraph in case DJB driver software is used. Refer to the related procedures listed on the driver manual

[3] Suggested span mass ≥ 50 % of scale capacity value.

[4] Suggested mass 1 = 1/3 of scale capacity value

[5] Suggested mass 2 = 2/3 of scale capacity value

8. CALIBRATION PROCEDURES[6]

Before calibration, make sure that all settings and configuration listed on **SYSTEM SETUP AND CONFIGURATION** have all been correctly entered. Refer to below for calibration procedures.

1. **Zero calibration**: - Remove all loads from weighing platform, and then enter **CAL ZERO.**
2. **Eccentric calibration for load cells**: -
    a. Apply an eccentric calibration load (e.g. 15% ~ 33% of the scale capacity value) onto eccentric loading position of a load cell, then enter CAL # (# is the corresponding load cell number on which the eccentric calibration load is applied).
    b. Refer to **APPENDIX C: - ECCENTRIC LOADING LOCATION** for suggested eccentric loading positions.
    c. Repeat step **2a** with the same eccentric calibration load for all other load cells one by one. The eccentric calibration procedures can be processed in any load cell sequence.
3. **Eccentric calibration for system**[7]: - enter **CALC**
4. **Span calibration**: -
    a. Proceed to step 5 **Signal point calibration** in case **LINEAR CORRECT** is set to **Off**, or
    b. Proceed to step 6 **Dual point calibration** below in case **LINEAR CORRECT** is set to **On**
5. **Signal point calibration**[8]: -
    a. Apply calibration load equal to span mass on weighing platform.
    b. Wait until stable; then enter **CAL SPAN**.
    c. Signal point calibration is now completed.
6. **Dual point calibration**: -
    a. Apply calibration load equal to mass 1 on weighing platform.
    b. Wait until stable; then enter **CAL MASS 1**.
    c. Apply calibration load equal to mass 2 on weighing platform.
    d. Wait until stable; then enter **CAL MASS 2**.
    e. Dual point calibration is now completed, and the scale is ready for use now.
7. **Verify calibration accuracy**: - enter **WEIGHT=?** Value returned should equal to the calibration load. If not, repeat step **5** or **6.**

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[6] DJB driver is always recommended to do calibration. Skip this paragraph in case DJB driver software is used. Refer to the calibration procedures listed on the driver manual.

[7] The eccentric calibration load can stay on weighing platform or be removed from weighing platform when preceding this procedure.

[8] If a single weight is used, it shall be applied centrally on to the weighing platform
If several small weights are used, applied uniformly over the long axis of the weighing platform

9. INSTRUCTION FOR USE

Always place an object onto weighing platform gently. Excessive force applied to weighing platform may cause damage to the weight sensor,

It is a good practice to remove all loads from weighing platform after weighing. It will prolong the life of the weight sensor.

1. **Manual Zero**: - If zero weight cannot be obtained when unloaded, enter **ZERO**. Refer to **KEY ZERO** for maximum manual zero range. Only stable weight can be set to zero.
2. **Manual Tare**: - To tare off the weight of a container, enter **TARE**. Maximum tare range = scale capacity value (subtractive tare). Only stable weight can be tare off.
3. **Tare Weight Value**: - To read tare weight value, enter **TARE WEIGHT=?**
4. **Weight Value**: - To read weight value, enter **WEIGHT=?** Refer to **APPENDIX B: - WEIGHT FORMAT** for weight format.
5. **Weight Unit Conversion**: -
    a. To change weight unit to lb, enter **UNIT=1**;
    b. To change weight unit to kg, enter **UNIT=0**.
    c. Then read weight value again by entering **WEIGHT=?**

APPENDIX A: - ERROR CODES TABLE

Error Code	Description
E1	Command entered is unknown
E2	Length of parameter value entered is out of range
E3	Parameter value entered is unknown
E4	Illegal value/non-numeric data entered
E5	Weight is not stable Command cannot be executed
E6	No calibration mass detected during calibration
INPUT ERROR	Input value is not logical
No Signal	No incoming weight signal found
Fail	Baud rate detection fail
BLANK	Text number with blank info is selected (when programming SCROLL AUTO)
--OVER---	Overload

APPENDIX B: - WEIGHT FORMAT

Weight Data is transmitted in ASCII code. Data format is listed on below table.

Data Bit	Description
1~2	**Motion Status** US = UNSTABLE ST = STABLE
3	**, (Comma Separation)**
4~5	**NET/GROSS** NT = NET WEIGHT GS = GROSS WEIGHT
6	**Sign** (Sign of weight reading) Positive = space. Negative = minus (-)
7~13	**Weight Value** 7-character string containing the current weight including location of decimal point. If there is no decimal point, then the first character is a space.
14	**, (Comma Separation)**
15~16	**Unit** **kg = kilogram** **lb = pound**
17	**Cr**
18	**LF**

Note: - In case of overload or out of range, the first 5 date bits become below: -

1	2	3	4	5
O	**V**	**E**	**R**	**,**

APPENDIX C: - ECCENTRIC LOADING LOCATION

A weighing platform is divided roughly equal to *n* segments, where *n* is the number of load cells.

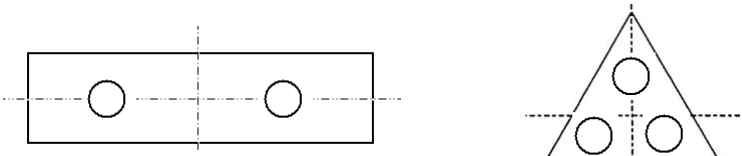
The eccentric calibration load should be applied on the center of the segment of each load cell and of the same magnitude.

Large weights should be used in preference to several small weights. Smaller weights shall be placed on top of larger weights, but unnecessary stacking should be avoided within the segment to be tested.

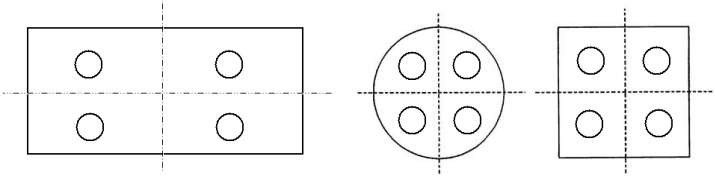
The load shall be applied centrally in the segment if a single weight is used, If several small weights are used, applied uniformly over the segment,

It is sufficient to apply the load only to the eccentric segments, not to the centre of the load receptor.

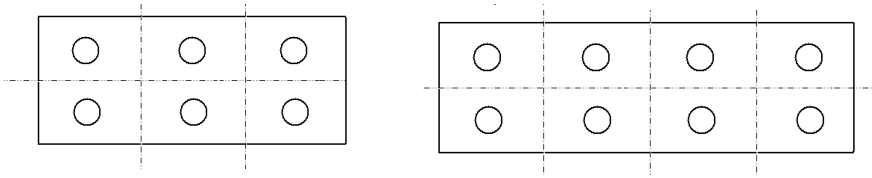
Examples of eccentric loading location for weighing platforms



Weighing platform with 2 and 3 load cells



Weighing platform with 4 load cells



Weighing platform with 6 and 8 load cells