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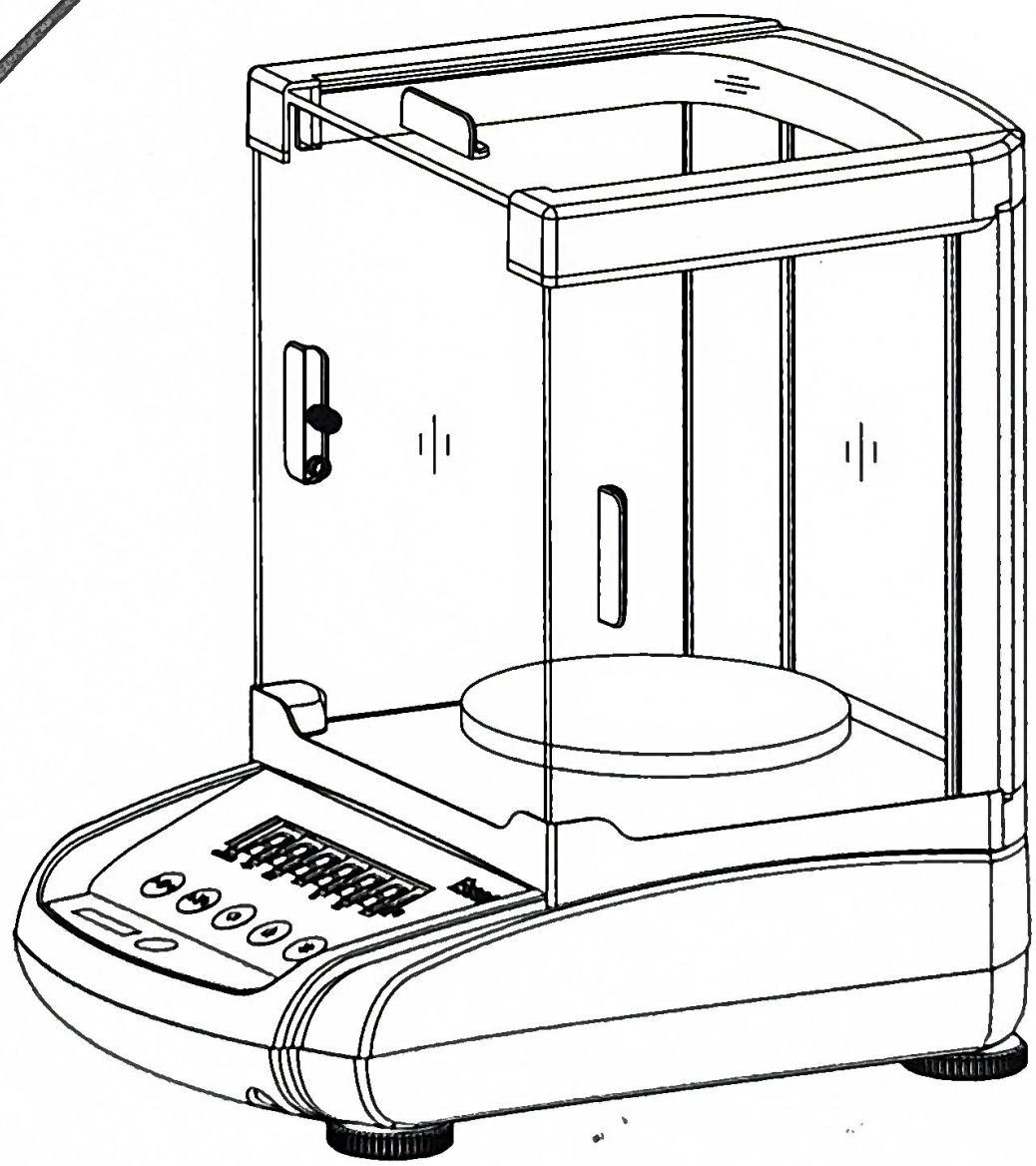
...for Excellence

AX Series

Electronic weighing balance



Instruction Manual

Vision

Share the wisdom and wealth for the
welfare of external and internal customers,
business associates and society at large.

Mission

Innovation, Improvement & institutionalization
shall be the pillars of our business.
We will provide world-class products and
solutions to meet the needs of local and
global markets.

Quality Policy

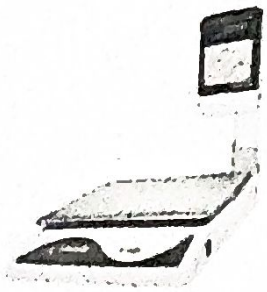
Essae-Teraoka commits itself to Total Quality
and shall constantly strive to earn "Customer Delight"
by assuring quality in all activities.
Commitment to Quality Policy,
Constancy of Purpose and Continuous
Improvement are our guiding values.

TABLE OF CONTENTS

Abbreviation

1. EWB- Electronic Weighing Balance
2. MOC-Material of Construction
3. SS-Stainless Steel

Total electronic weighing solution, POS, Milk Analyser & GPS clock for Industry and Retail



Counter Scale

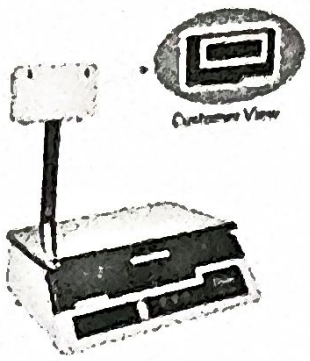
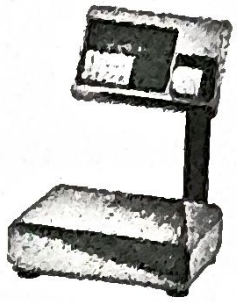


Table-top retail Scale

Receipt Printing Scale



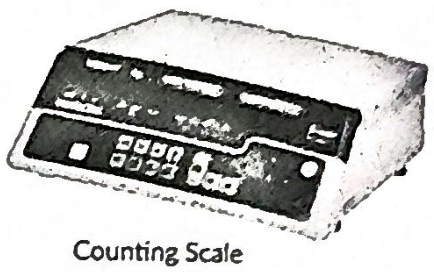
Service Scale Printer

SS Bench Scale

Jewellery balance

Flame proof Scale

SI-850

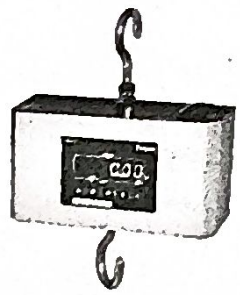


Counting Scale

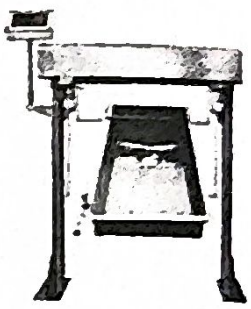
DS-215N Platform Scale

Platform Scale

RX-850EV



DS-215 Hanging Scale

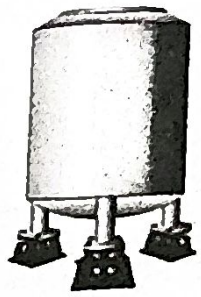


Milk Weigher

Crane Scale

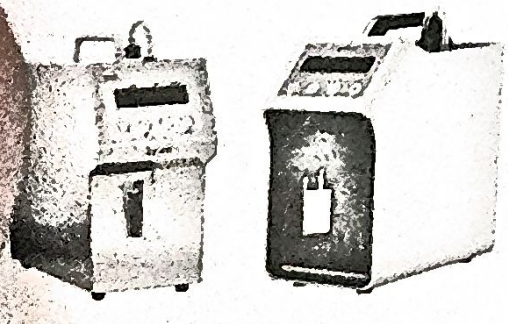
DC-810 Lable Printing

SI-810PR Label Printing

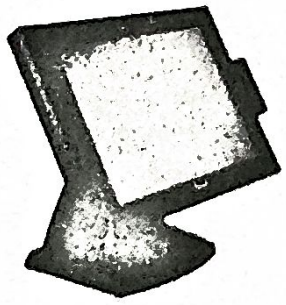


Tank Weigher

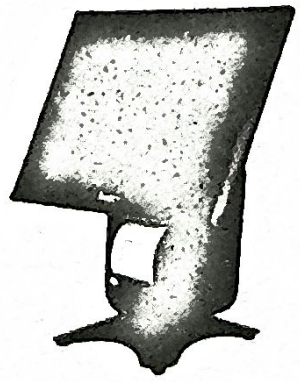
GPS Clock



Milk Analyser SS & ABS



POS-615



POS-865J

POS-815J

CHAPTER-1

Introduction

Thank you for purchasing AX series balance from Essae. AX series balances are manufactured to achieve high performance, fast response and durability. This manual contains installation, operation and maintenance procedures. Please read this manual completely before using the balance.

1.1 Description

This balance is a precision weighing balance, manufactured using single block load cell with magnetic force restoration technology. Its aesthetic is designed to add richness to the place where it is used.

1.2 Features

- Basic weighing.
- Piece counting.
- Accumulation.
- Different unit of conversion like Carat, Tola and Ounce.
- Different conversion factors for textile industries like Yarn, Hang, Roving and Sliver.
- RS-232C Interface.
- White LED display.
- Balance housing is made of ABS.
- External AC/DC adaptor.

1.2.1 Basic weighing

Basic weighing is the primary operation used to weigh the material in different units.

1.2.2 Piece counting

Piece counting is an application, can be used to find the quantity by measuring the weight.

Procedure:

- Set customer spec **C20 LSD** to 1, to enable quantity weighing.
- Sample the weight by entering into **"UNIT WEIGHT SAMPLING"** through key combination [REZERO] + [↑], [←], [*].
- It will display 10 pcs by default.
- By pressing [↑] we can select between the predefined quantities 5, 10, 20, 50, 100, 200, 500, 1000.
- By pressing [←] and [↑] we can set our own sample size.
- Pressing [*] will complete the sampling process.
- By pressing [T] we exit piece counting.

1.2.3 Accumulation

Accumulation is a process of adding material, user can obtain the sum of the weights and the number of samples accumulated.

Procedure:

- Set customer spec **C24 MSD** to 1, to enable accumulation.
- **C24 LSD** determine that the accumulation is manual or automatic.
- In case of manual accumulation, weight will be accumulated after pressing [*].
- In case of auto, **C25 LSD** will determine the time elapse for accumulation.
- Accumulation weight can be viewed by key combination [REZERO] + [↑], [←], [↑].
- Accumulation weight can be cleared by key combination [REZERO] + [←], [←], [↑].

1.2.4 Factored weight (multiplication or division factor)

Four factored weighing units were preprogramed in the balance. The factors are defined are very use full to textile industry. Those are:

- Yarn = 64.8 / g.
- Hang = 2.7 / g.
- Sliver = 3.24 / g.
- Roving = 8.1 / g.

Note:

1. By default this application is disabled, contact ESSAE service for assistance.
2. By using [←] key user can change between any of the 3 units as defined in spec T17 LSD.

Options

- Secondary display - Remote table type White LED.
- Draft shield.
- External AC/DC adaptor with 7.4V / 2.2Ah lithium ion rechargeable battery.

1.3 Safety precautions

Please follow the safety precautions as listed.

- Do not use the balance in hazardous area.
- Handle the balance carefully.
- Only authorized personnel should perform service.
- Make sure no liquid enters into the housing while cleaning the balance.
- Don't expose the balance to extreme temperatures, blows, shocks, vibration & moisture.

CHAPTER - 2

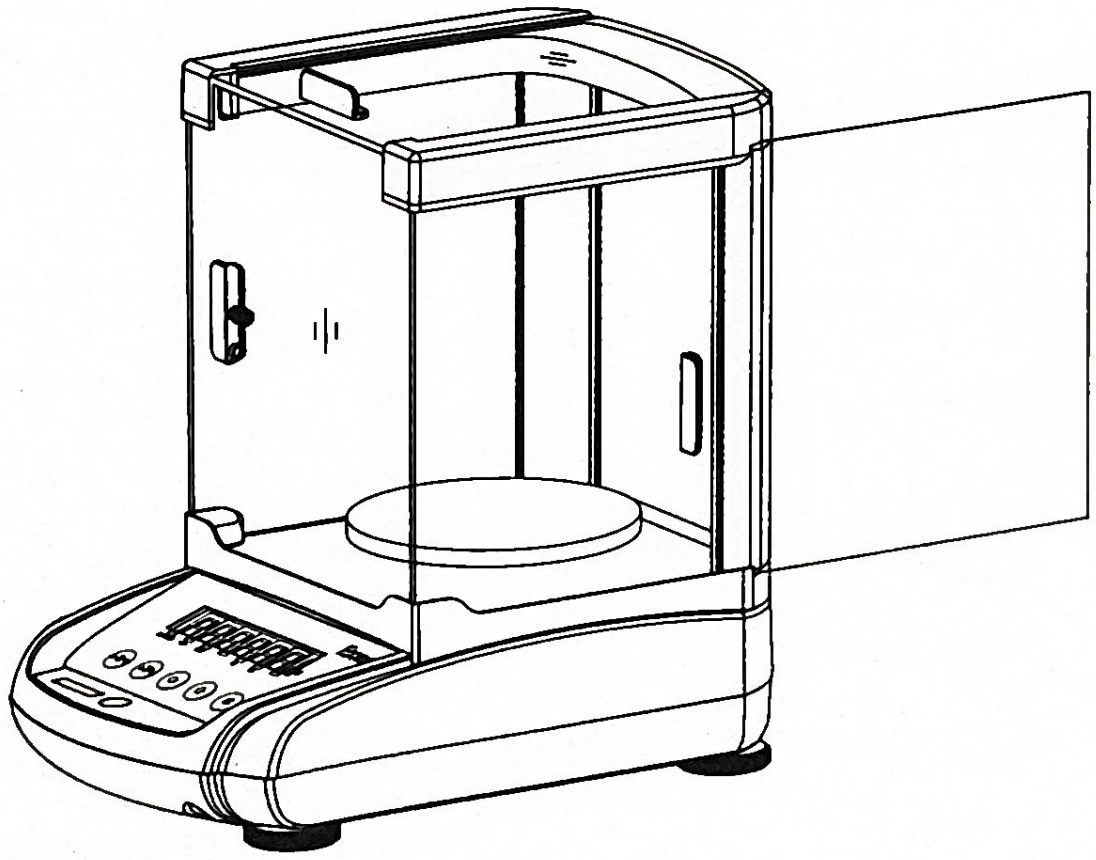
Installation

2.1 Unpacking

- Place the packing box on the table by referring fragile indication.
- Open the packing box.
- Remove the balance along with left and right buffer.
- Remove remote display assembly.
- Remove platter assembly.
- Remove AC/DC adaptor.
- Carefully remove your AX series balance.
- Check the accessories as per packing list.
- Save all the parts of packing to ensure safe storage and transport of your balance.

2.2 Platter Installation

Platter is not assembled when the balance is despatched. Open the side door and position the platter on the platter supports.

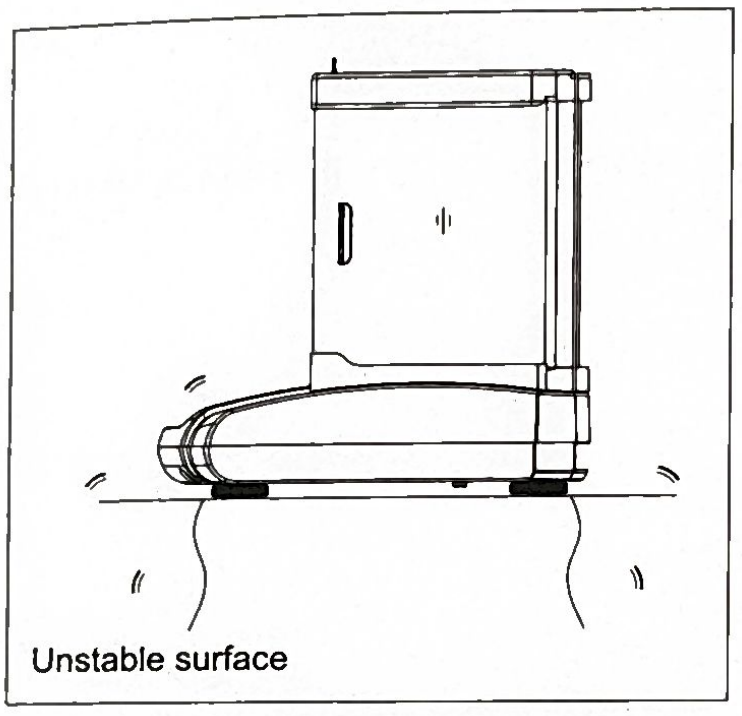


2.3 Selecting the location

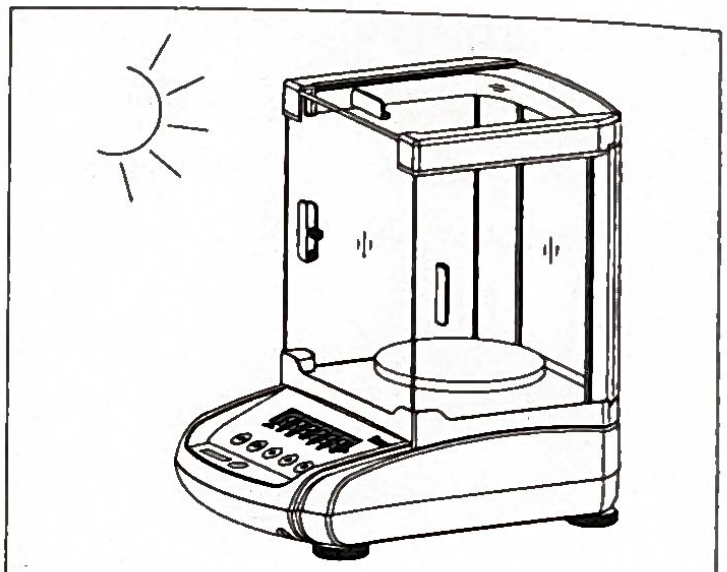
- Locate the balance on a firm and sturdy surface.
- Avoid locations with excessive air current, vibrations, heat sources, or rapid temperature changes.
- Select an installation site near a power source for proper installation of AC/DC adaptor provided along with the balance.
- Allow sufficient space around the instrument for ease of operation.

DO NOT Install the balance

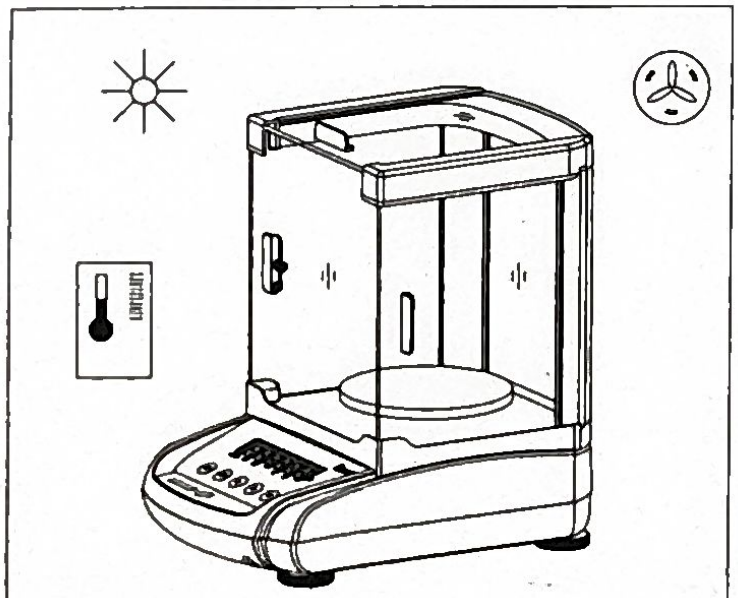
- Near vibrating, rotating or reciprocating equipment.
- Near air conditioning or hot vents.
- Near magnetic fields or equipment that generates magnetic fields.
- Refer drawings given below.



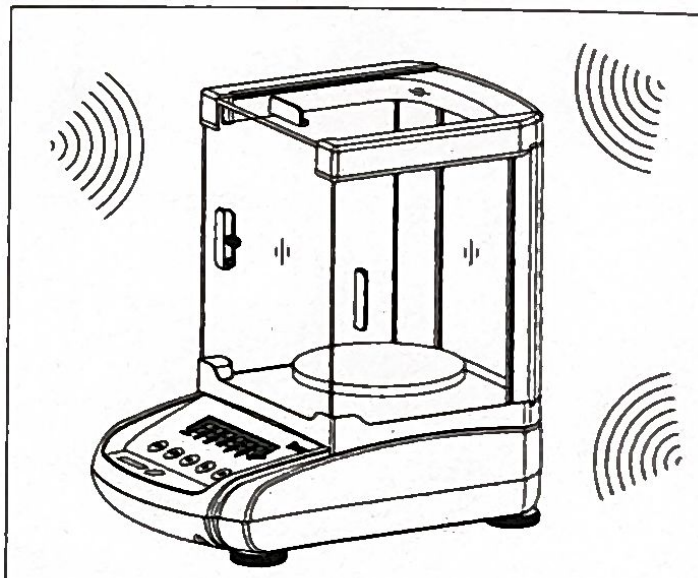
Unstable surface



Direct sunlight



High temp. & Air currents



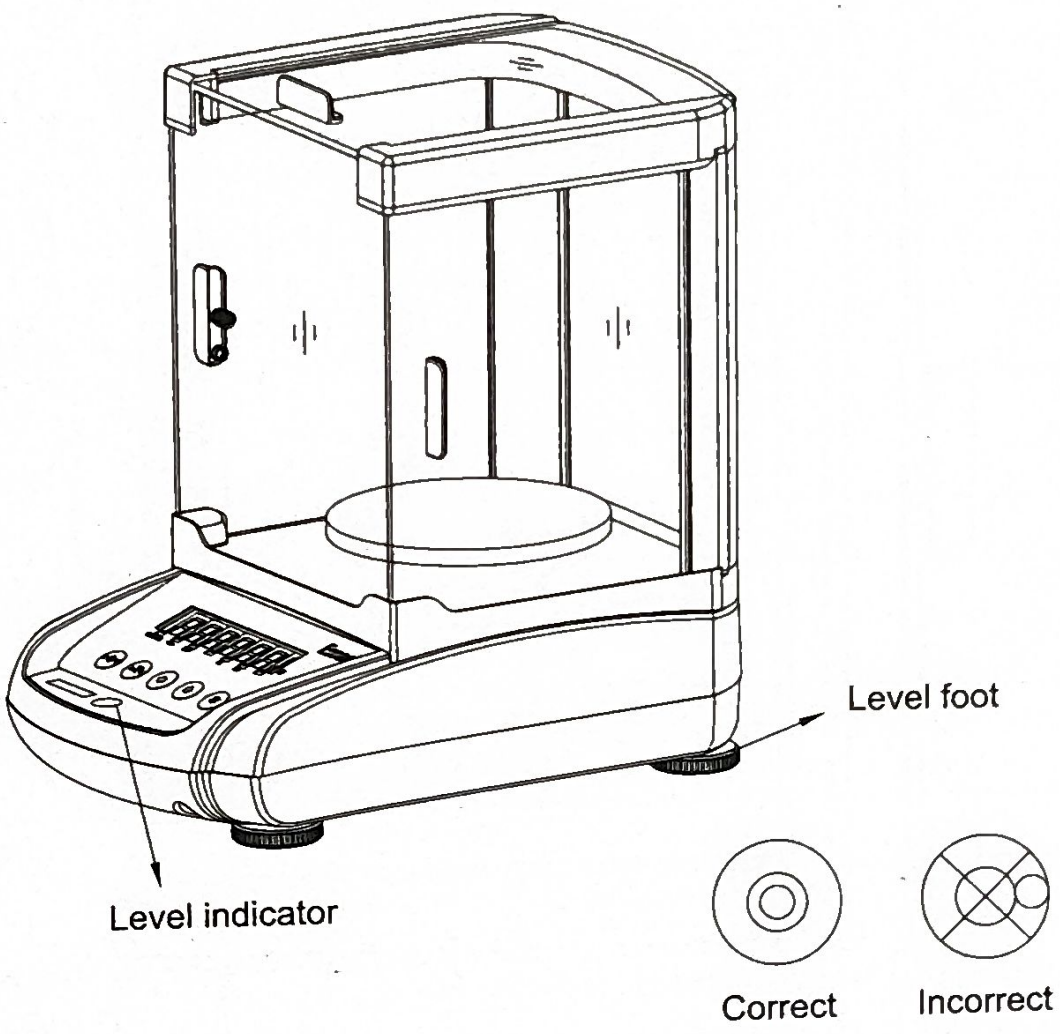
Electromagnetic waves
Magnetic field, RF equipments

2.4 Leveling the balance

> Balance should be leveled, before use.

> For efficient level adjustment follow the procedure below.

- Ensure both the leveling feet at the rear side of the balance is fully screwed in.
- Level the balance by adjusting the leveling feet, such that bubble in the indicator is centered in the circle, as seen below.
- The balance should be leveled each time when its location is changed.



2.5 Connecting power, communications and remote display.

AC / DC Adaptor Installation

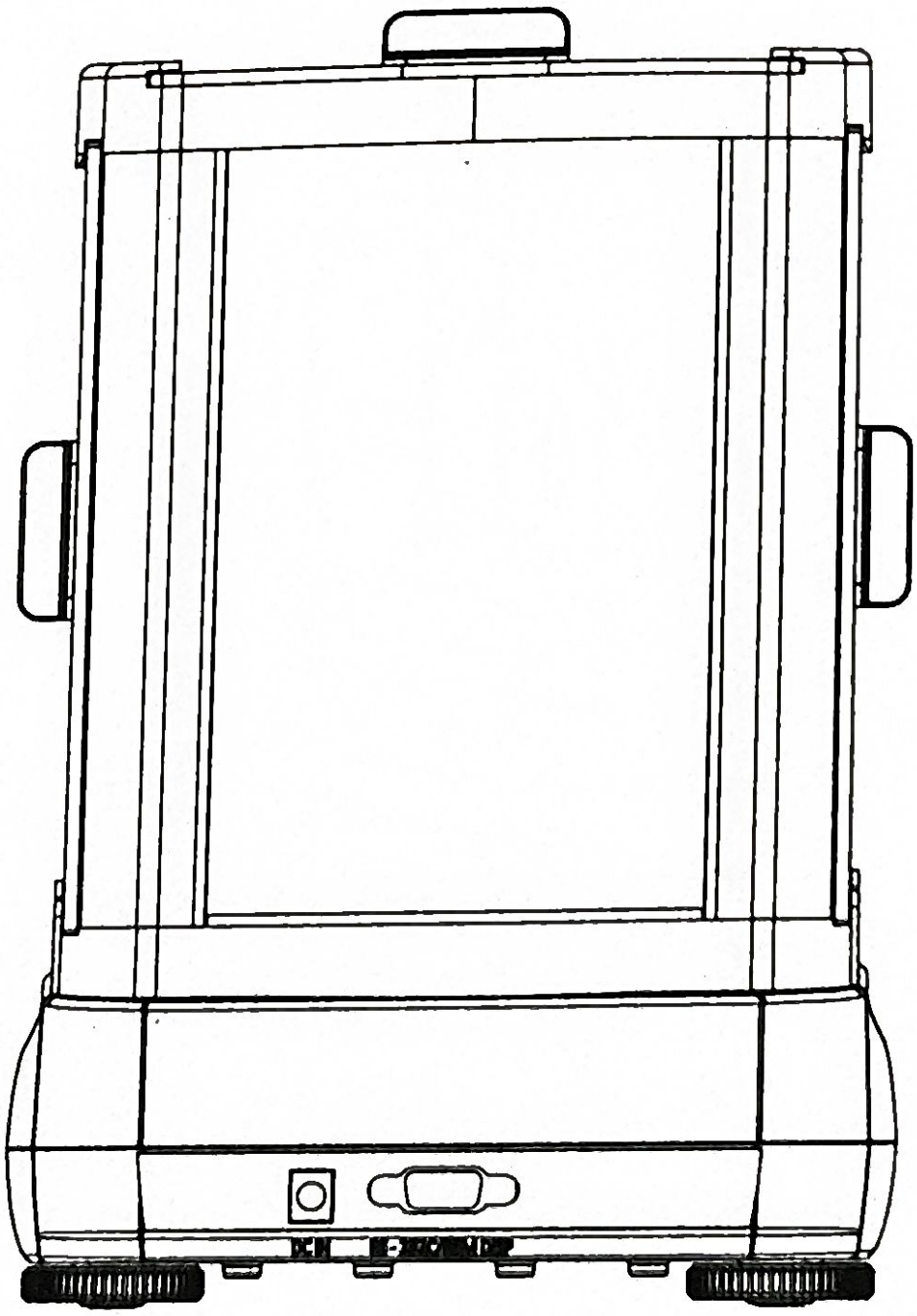
- Connect 2 pin AC plug of adaptor to the wall outlet.
- Connect 3 pin socket of AC/DC adaptor to **"DC IN"** connector of balance.

2.6 RS-232C Interface

9 pin D type connecter to the **"RS-232"** connector located in rear side of the balance and connect other end of the cable 9 pin D type to PC.

2.7 Remote Display

9 pin D type connecter of remote display to **"REM DISP"** connector located on rear side of balance.



Rear side of the balance

CHAPTER-3

TECHNICAL SPECIFICATION – AX SERIES

Model number	AX Series
Description	Electronic weighing balance
Weighing unit	Default weighing unit g
	Carat, Tola, Ounce
	Conversion factors - Yarn, Hang, Roving, Sliver
	PCS - (for Piece Counting)
Display resolution	Max. of 1/620,000 (selectable)
Processor	32-bit Cortex M0 micro-computer
ADC	24-bit precision delta-sigma
Weight sensor	Single block Sensor with Magnetic Force Restoration Technology (MFRT) (Patent pending)
Safe Over Load	150% of Full scale Capacity
Calibration method	Software calibration (External Weight)
Tare	Full Capacity
Repeatability/Verification interval	+/- 1d
Linearity	+/- 2d
Sensitivity drift (20°C to 40°C)	+/- 5ppm/°C
Power supply - AC/DC Adaptor	Input - 230V AC, 50Hz, +/-10%
	Output - 9.5V DC, @ 1.2A,
	Max Watt - 11W
AC/DC Adaptor with Battery (Option)	11 W adaptor with 7.4v/2.2Ah lithium icn Battery (Backup time approx. 6 hours when battery is fully charged)
Operating temperature	10°C to 40°C
Operating humidity	Max. 85 % Rh (non - condensing)
Dimensions without draft shield (Width x Depth x Height)	190mm x 275mm x 85mm (Table top)
Gross weight (balance only)	2 to 2.3 Kg (table top)
Model approval No.	Class I - IND/09/22/778 (TT upto 50kg)
Display	Type - LED
	Color - White
	No. of digit & Size - 7 digits, 14mm height
Key sheet	Type - Mechanical Tact switch
	No. of Keys - 5 keys
	Material of construction - Polyester

Table-top balance

Model number	AX-220	AX-320	AX-620
Maximum weighing capacity	220g	320g	620g
Readability, d=	0.001g	0.001g	0.001g
Display resolution	2,20,000	3,20,000	6,20,000
Platter Size	Dia 110mm	Dia 110mm	Dia 110mm
Draft Shield	Included (Standard) With opaque rear	Included (Standard) With opaque rear	Included(Standard) With opaque rear

Model number	AX-1200	AX-2200	AX-3200
Maximum weighing capacity	1200g	2200g	3200g
Readability, d=	0.01g	0.01g	0.01g
Display resolution	1,20,000	2,20,000	3,20,000
Platter Size	Dia 150mm	Dia 150mm	Dia 150mm
Draft Shield	Optional accessories	Optional accessories	Optional accessories

Accessories

Sl. no.	Product Description
1	Remote display AX Series (Table)
2	Draft shield with opaque rear
3	DP-810 data printer

Key functions

Four multifunction keys are used to operate the balance. The functions of each key is shown below,

[REZERO] To Zero the balance.

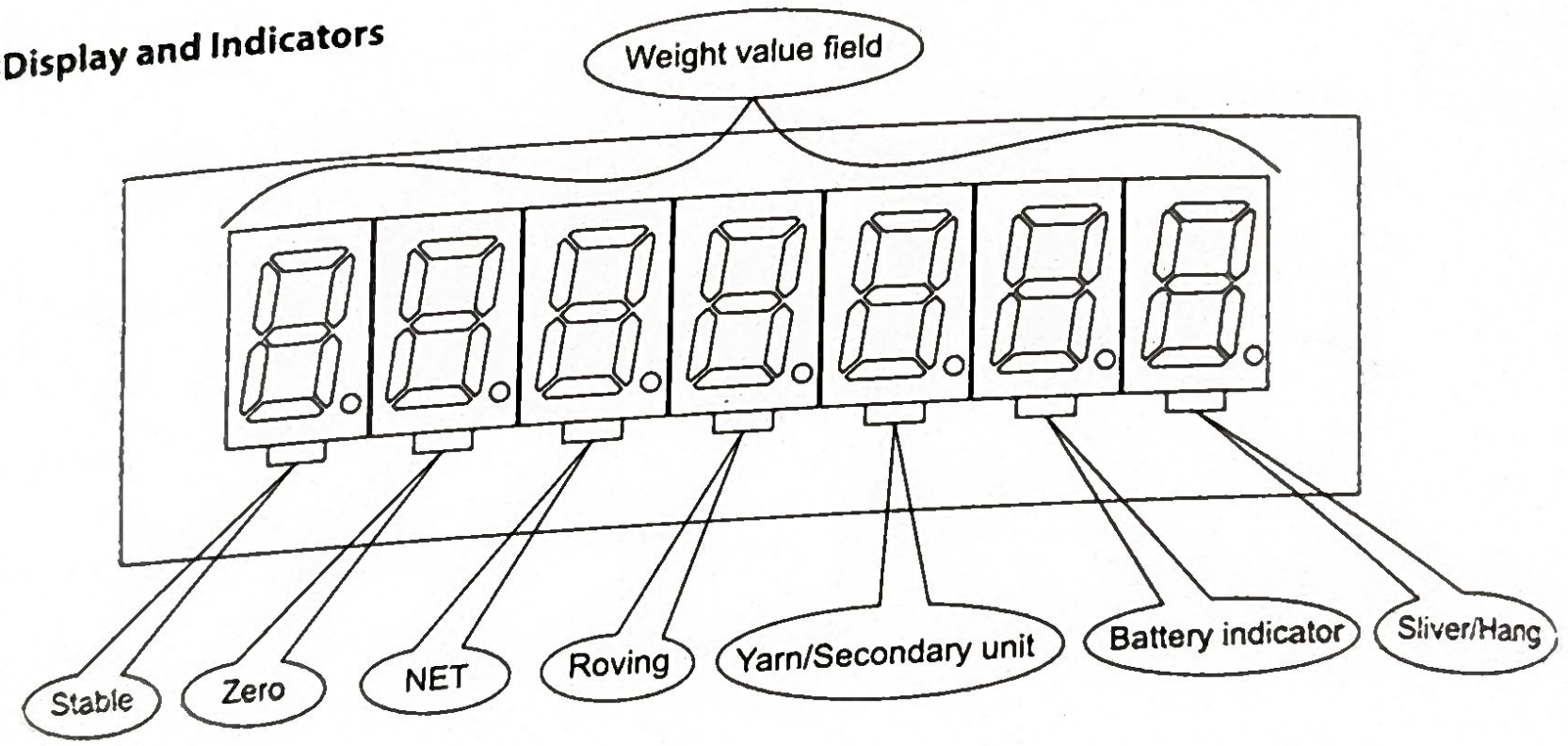
[T] To Tare the weight.

[←] To switch between the digits of spec value, Secondary units and Net/ Gross.

[↑] To increment the value of the selected spec, Digital Tare, Hold and Total print.

[*] To print, transmit data and move to the next spec.

4.3Display and Indicators



Stable: On to indicates weight is stable.

Zero: On to indicates weight is zero.

Net: On to indicates the weight displayed is net, OFF indicates the weight displayed is gross.

Roving: Blink indicates the weight displayed is in roving.

Yarn / Secondary unit: Blink indicates the weight displayed is in yarn or any other secondary unit set.

Bat:

OFF:Balance is working in AC.
ON:Balance is working in battery.
Blink:Battery is low.

Note:"SHUTOF" message is displayed if the battery is too low, and then turned off.

Sliver / Hang:Blink indicates the weight displayed is in sliver or hang.

4.4 RS-232C Communication

- The balance is provided with RS-232C interface for external data communication.
- Programmable communication parameters are listed below, refer customer specification list to set required parameters.
- Baud rate: 1200, 2400, 4800, 9600, 19200, 38400, 57600 & 115200
- Data length: 7
- Parity: For Data bit -7 – No Parity, Odd & Even
- The **Spec C10** MSD and LSD will determine the communication parameters.

Note : Whenever the communication parameters are changed, balance must be turned OFF and ON to effect the new parameters.

4.5 Data transfer modes

Weight data is communicated to external device through RS232, by enabling one of the following data transfer modes.

Spec C11 LSD will determine data transfer mode.

- Stream: Weight data is transmitted continuously, Speed of transfer can be selected by spec C18.
- Manual: Weight data is transmitted when [*] key is pressed.
- Command: Weight data is transmitted when CTRL+E or W command received from computer.
- Auto weight transfer: weight data is transferred after weight becomes stable. If display reading is changed by +/- 10 d from last stable weight sent, then the new weight data is sent.

Spec C11 MSD will determine the data to be transferred.

- All weights (Gross, Net, Tare)
- Net only
- Gross only
- Display weight
- Quantity
- All weight and Quantity
- Net weight and Quantity
- Accumulation
- Net weight and Accumulation

Details of data frame:

Start	STX	The start of data	02H
Weight/quantity Delimiter	CR	The end of data	0DH
End	LF	The end of Text	0AH
Numeric Header	:	Gross Weight	(3AH)
	0	Net Weight	(30H)
	4	Tare Weight	(34H)
	1	Accumulation Weight	(31H)
	3	Accumulation count	(33H)
	2	Quantity	(32H)
Alpha Header	G	Gross Weight	(47H)
	N	Net Weight	(4EH)
	T	Tare Weight	(54H)
	A	Accumulation Weight	(41H)
	C	Accumulation count	(43H)
	Q	Quantity	(51H)
Weight Stable	S	Weight stable	(53H)
	U	Weight unstable	(55H)

General Data Format (All options are enabled from the spec)

Description	Start	Stable Status	Header	Weight Delimiter	Unit	Unit	Weight Delimiter
ASCII	STX	S/U	:/G	Gross Wt	space	g/ct/t/o	CR
No.of Characters	1	1	1	1-8	1	1/2	1

Description	Header	Weight	Unit Delimiter	Unit	Weight Delimiter
ASCII	0/N	Net Wt	space	g/ct/t/o	CR
No.of Characters	1	1-8	1	1/2	1

Description	Header	Weight	Unit Delimiter	Unit	Weight Delimiter
ASCII	0/N	Net Wt	space	g/ct/t/o	CR
No.of Characters	1	1-8	1	1/2	1

Description	Header	Weight	Unit Delimiter	Unit	Weight Delimiter
ASCII	1/A	ACC Wt	space	g/ct/t/o	CR
No.of Characters	1	1-8	1	1/2	1

Description	Header	Weight	Weight Delimiter
ASCII	3/C	ACC count	CR
No.of Characters	1	1-8	1

Description	Header	Quantity	Unit	Quantity Delimiter	END
ASCII	2/Q	Quantity	PCS	CR	LF
No.of Characters	1	1-8	3	1	1

Spec C12 LSD is 1 then only stable weight will be transferred, otherwise unstable weight will be transmitted.

Spec C12 MSD will determine the weight header.

Spec C13 LSD is 1 then fixed 8 digits of weight will be transferred, otherwise the number of digits will variable according to the weight.

Spec C14 LSD is 0 then the data starts with STX (0x02).

Spec C14 MSD is 1 then 'S' will be transmitted for stable weight and 'U' will be transmitted for unstable weight.

Note:

1. STX, stable status, header, unit character are optional.
2. **Spec C11** MSD will determine the combination of weight information.
3. Unit characters for "Factored weight" application are
   a. Y – Yarn
   b. S - Sliver
   c. R - Roving
   d. H - Hang

4.6 Serial print

Ax series can support 3 standard and 2 custom print formats.

Spec C11 LSD will determine printing methods.

- Manual serial print: Press [*] key
- Auto serial print: weight data is printed after weight becomes stable. If display reading is changed by +/- 10 d from last stable weight printed, then the new weight data is printed.

Spec C17 LSD will determine print formats.

- 80 column standard

#Header

SL NO	DATE & TIME	GROSS WEIGHT (g)	TARE WEIGHT (g)	NET WEIGHT (g)	REMARKS
0001	21-11-2022 20:02	250.000	50.000	200.000	
0002	21-11-2022 20:03	250.000	50.000	200.000	
0003	21-11-2022 20:04	250.000	50.000	200.000	
0004	21-11-2022 20:05	250.000	50.000	200.000	
0005	21-11-2022 20:06	250.000	50.000	200.000	
0006	21-11-2022 20:07	250.000	50.000	200.000	
TOTAL		1500.000	300.000	1200.000	

- 40 column standard

#Header

START DATE & TIME : 21-11-2022 20:02

SL NO	GROSS WT (g)	TARE WT (g)	NET WT (g)
0001	250.000	50.000	200.000
0002	250.000	50.000	200.000
0003	250.000	50.000	200.000
0004	250.000	50.000	200.000
0005	250.000	50.000	200.000
0006	250.000	50.000	200.000
TOTAL	1500.000	300.000	1200.000

END DATE & TIME : 21-11-2022 20:02

REMARKS:.....

SIGNATURE:.....

- Net only standard

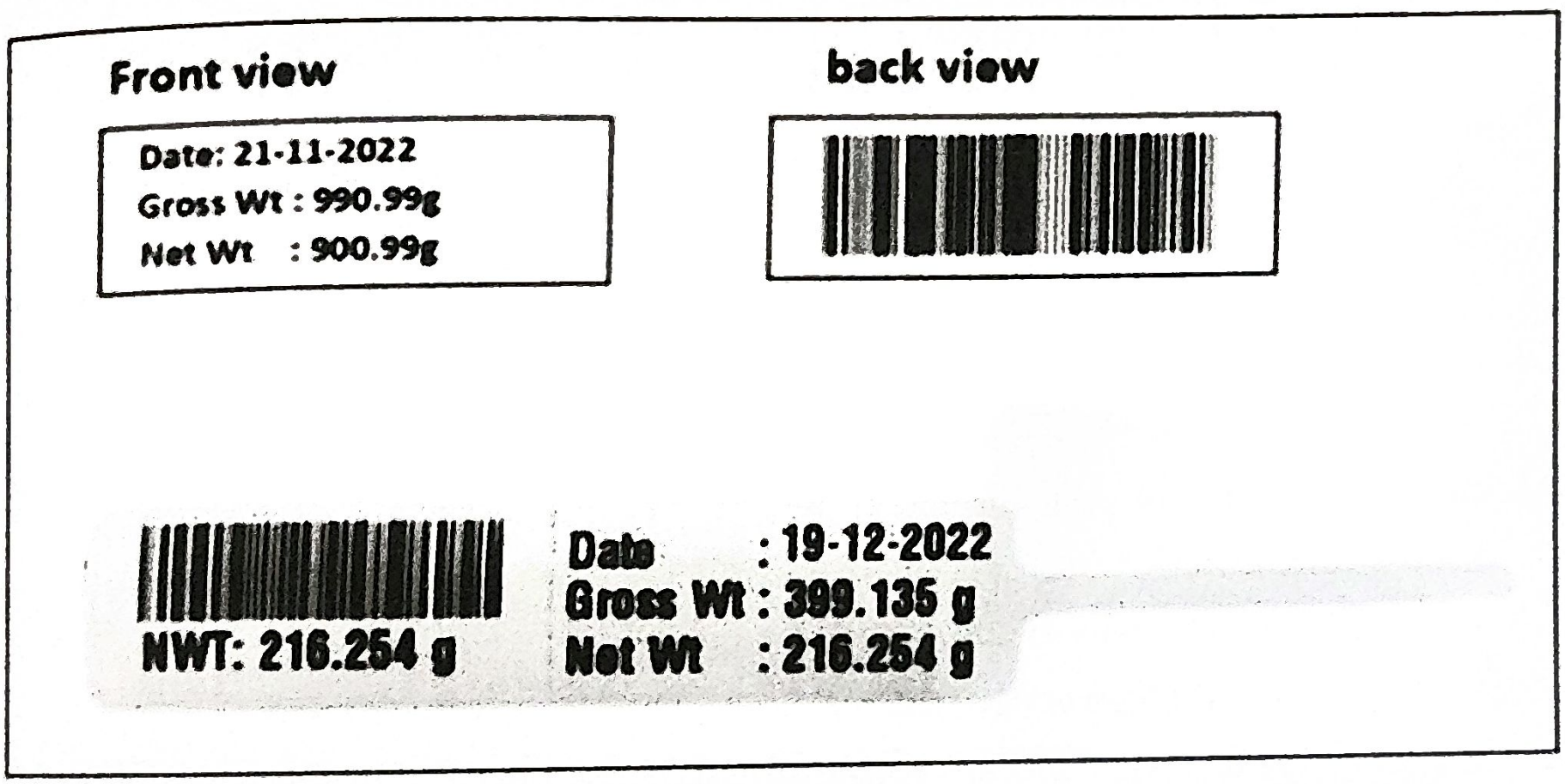
#Header

DATE: 21-11-2022	TIME: 20:02
SL NO	NET WEIGHT (g)
0001	250.000
0002	250.000
0003	250.000
0004	250.000
0005	250.000
0006	250.000
TOTAL	1500.000

- Custom 1 and custom 2

  Customizable for the needs of customer.

Sample custom format:



Spec C17 MSD will determine the line feed at the end of standard printout.

Spec C20 MSD will determine that the print out should be standard or custom print.

Spec C23 MSD will determine the alignment of the header for standard printout.

Spec C30 LSD will determine the line feed between each line of print for standard printout.

Spec C30 MSD will determine that next print requires current weight to be unloaded.

Spec T15 MSD will determine the data printed should be saved or not. If saved it can be handled from computer using fallowing commands:

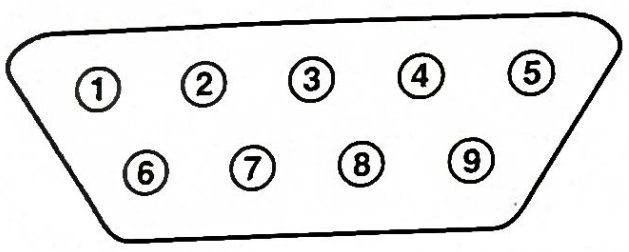
Ctrl + R : Read records.

Ctrl + T : Read records and calculate total.

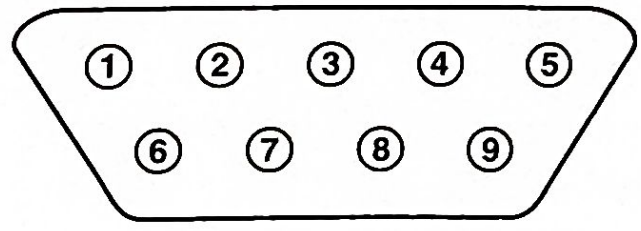
Ctrl + D: Delete records.

4.7 RS-232C interface connection

Balance



PC
Peripheral device



(9 pin 'D' Type connector)

Pin 2 (RXD)	→	Pin 2 (RXD)
Pin 3 (TXD)	←	Pin 3 (TXD)
Pin 5 (GND)	←	Pin 5 (GND)

4.8 Customer specification programming

1. Go to customer specification programing using the key combination [REZERO] + [←], [←], [←].
2. The display toggles between C10 and its current value.
3. Using [←] and [↑] keys enter required value.
4. Press [*] to store current spec and advance to next.
5. Set the other spec values according to the requirement.
6. Once all the specs are set, Press [T] to exit from customer specification programing.

4.9 Customer specifications

Spec	Most Significant Digit (MSD)	Least Significant Digit (LSD)
C10	**RS232 Data Bits & Parity** **1-> 8 Data Bits & NO Parity** 2 -> 8 Data Bits & ODD Parity 3 -> 7 Data Bits & ODD Parity 4 -> 8 Data Bits & EVEN Parity 5 -> 7 Data Bits & EVEN Parity **Note 3**	**RS232 Baud Rate (Stop bit =1)** 1 -> 1200 2 -> 2400 3 -> 4800 **4 -> 9600** 6-> 38400 7 -> 57600 8 -> 115200 **Note 3**
C11	**RS232 Weight Data Transfer:** 1 -> All wt **2 -> Net only** 3 -> Gross only 4 -> Display Weight 5 -> Quantity 6 -> All wt & Quantity 7 -> Net wt & Quantity 8 -> Accumulation 9 -> Net wt & Accumulation	**RS232 Data Transfer Mode** **1 -> Stream** 2 -> Manual 3 -> Command **(CTRL E)** 4 -> Auto Weight Transfer 5-> Not Used 6 -> Not Used 7 -> Manual Serial Print 8 -> Auto Serial Print 9 -> Not Used
C12	**RS232 Weight Header:** **1 -> No** 2 -> Numeric 3 -> Alpha	**RS232 Transfer Stable Weight:** 0 -> No **1 -> Yes**
C13	**One Touch Tare from PC (T/t):** **0 -> No** 1 -> Yes	**RS232 data format :** **0 ->Variable** 1 -> Fixed (8 characters) 3 -> 3 CR LF

C14	**RS-232 Stream Data Transfer mode Stable Status Flag** **0 -> No** 1 -> Yes	**Skip "STX" character in RS-232 output** 0 -> No **1 -> Yes**
C15	**Warm Up timer:** 0 -> Off **1 -> on**	
C16	**Brightness Decrease in Battery:** 0 -> No **1 -> Yes (See SpecT20 LSD)** In Battery mode, one level decreased	**Standby:** 0-> No standby **1 -> 2 minutes** 2-> 5 minutes
C17	**No. of CR & LFs after Total Print:** **0 -> FORM FEED** 1 -> 1 CR LF ~ 9 -> 9 CR LF	**Serial Printout Format:** 0 -> 80 col All Wt. **1 -> 40 col All Wt.** 2 -> Net Wt only. 3 -> Custom Print Format 1. 4 -> Custom Print Format 2.
C18	**RS232 Data Output Speed:** 0 -> 50 times/sec 1 -> 25 times/sec 2 -> 17 times/sec 3 -> 13 times/sec **4 -> 10 times/sec** 5 -> 8 times/sec 6 -> 7 times/sec 7 -> 6 times/sec 8 -> 5 times/sec 9 -> 4 times/sec	**Display Blinking on Weight Stable:** **0 -> No** 1 -> Yes

C19	**Display update time:** 1-> 10 times per second **2 -> 5 times per second** 3-> 3.3 seconds per second	**Filter level:** 1 -> Low **2 -> Mid** 3 -> High 4 -> very high
C20	**RS232 Data Format for Std. Modes:** **0 -> Standard format** 1 -> Custom data format	**Quantity Enable:** **0 -> No** 1 -> Yes
C21	**Digit Increment Key In Weigh Mode:** **0->Digital Tare Key** 1->Hold Key 2->Total print Key	
C22		**Digit Select Key In Weigh Mode:** **0->Secondary Unit Key** 1->Net/Gross Weight Key
C23	**Print Header:** **0->No** 1->Print without align 2->Print with Center align	**Send unit character in RS232 output:** **0 ->No** 1 ->Yes
C24	**Accumulation:** **0 -> No** 1 -> Yes	**Mode of Accumulation:** **0 ->Manual** 1 ->Auto

C25		**Accumulation Timer for Auto Mode:** 0->0.0 sec **1 ->0.5 sec** 2->1.0 sec 3->1.5 sec 4->2.0 sec 5->2.5 sec 6->3.0 sec 7->3.5 sec 8->4.0 sec 9->4.5 sec
C26		
C27		
C28		
C29		
C30	**Weight unload after print:** **0->Disable** 1->Enable	**No. of CR & LFs after each weight Print in RS232-1:** **0 -> No CR LF** 1 -> 1 CR LF 2 -> 2 CR LF 3 -> 3 CR LF

Note 1 : Default is indicated by ***Highlighting*** for applicable specs.

Note 2 : If a Spec is set to a value other than specified, then default function is used.

Note 3 : These Specs will take effect only at power ON. So OFF/ON is required whenever modified.

Chapter - 5

Preventive Maintenance

5.1 Cleaning

If cleaning is required, use a soft cloth dampened with water and a mild detergent. Do not allow liquids to enter the balance. Do not use harsh chemicals to clean the balance, as the finish may be damaged.

5.2 Trouble shooting

The following table lists common problems, possible causes and remedies. If the problem persists, contact **Essae.**

Symptom	Probable cause(s)	Countermeasure
Balance will not turn "ON"	• AC/DC Adaptor not connected. • Battery is discharged.	• Check input supply and connect AC/DC adaptor correctly. • Charge the battery. • Replace the battery.
No change in display reading.	• Improper platter assembly	• Place the platter properly.
No stable indication / unstable weight reading	• Affected by vibration or draft	• Eliminate vibration and draft
Does not display accurate reading	• Improper span calibration. • Container weight not been tarred • Unstable environment • Warm up	• Perform calibration. • Tare container weight before weighing. • Move balance to the firm, sturdy surface • Allow specified warm up time
RS232C interface not working.	• Customer specification is not set properly. • Cable connections.	• Check customer specification C10 to C14 • Check cable connections.
Ovr Flo	• More than specified Weight placed on weighing platter	• Check and remove extra • weight placed on platter.
Und Flo	• Weighing reading below reference Limit.	• Put platter on balance. • Place the platter properly. • Press [REZERO].

INSTALLATION QUALIFICATION

Machine Sl. no. .....

1. Identifying the Instrument

Instrument Name :

Manufacturer : Essae

Model :

Serial Number :

Location :

Date of Installation :

Invoice Number :

Purchase Order no :

Comments:

Above information is verified & found satisfactory as per purchase order and supplied product.

Carried out by:
Date:

Checked by:
Date:

INSTALLATION QUALIFICATION

2. Packing List **Machine Sl. no. .....**

Unpack the Scale and check the packing List.

Sl.No	Item	Yes	No	Remarks
Table Top Scale				
1.	Machine			
2.	Adaptor without Battery			
3.	RS-232 (Interface cable)			
4.	Instruction Manual			
5.	Warranty Card			
6.	Wind shield			
7.	Remote Display			
8.	Adaptor with Battery			
9.	SS Bullion weight			
10.	EQDF file			

☑ Please tick wherever applicable

Carried out by:
Date:

Checked by:
Date:

INSTALLATION QUALIFICATION

Machine Sl. no. .....

3. Installation Procedure

Refer Instruction manual chapter 2

4. General Specification

Refer Instruction manual chapter 3

Block Diagram

CONCLUSION:

The Installation Qualification has been performed, reviewed and approved .All results having met specified parameters here by certify that installation has been installed successfully.

Carried out by:
Date:

Checked by:
Date:

OPERATIONAL QUALIFICATION

Machine Sl. no. .....

Operational Testing	Remarks
Important general conditions to be observed before operation: Temperature : 10 to 40°C : _____°C Humidity : 85 % : _____% Location : _____ Environment : Should be free from variation in Temp, Air and Humidity as compared to the normal condition. Surface : Firm, dust free and vibration free.	

Carried out by:
Date:

Checked by:
Date:

OPERATIONAL QUALIFICATION

Machine Sl. no. .....

Operational Procedure

Refer Instruction manual chapter 4

Preventive Measure

Refer Instruction manual chapter 5

CONCLUSION:

Based on the above parameters operational qualification found carried out satisfactory

REMARKS:

Carried out by:
Date:

Checked by:
Date:

Essae®
...for Excellence

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