Essae®
...for Excellence

DC-85N/851N Series

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
-Electronic Weighing Systems & Solutions
-World-class products to meet the needs of local and global market

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
ContinuousImprovement are our
guiding values.

WELCOME

Essae family welcomes you to the fraternity of Essae users.We thank you for choosing our product. We, at Essae- Teraoka Limited, extend a very hearty welcome to the EssaeClub and assure you of our best services for optimum utilization of our product and services. Essae family congratulates you for the choice of the machine. Thank you for the confidence reposed on us and we assure you of ourbest services.

We are honored by your choice and proud of our association. The journey of thousand miles will have to startwith the first step. We have taken the first right step together in the journey of our business. Welcoming you once again to Essae Club and wishing you all the best.

Essae Family

TABLE OF CONTENTS

Abbreviation

1. EWS- Electronic Weighing Scale
2. MOC-Material of Construction
3. MSC-Mild steel Chequered
4. MS-Mild Steel
5. SS-Stainless Steel

CHAPTER 1

1.1 INTRODUCTION

This Instruction manual contains information needed to perform routine maintenance and service on Essae-make DC-85N/851N Series electronic weighing scales (hereinafter referred to as EWS). This manual is organized into chapters consisting or related information as set out inthe table of contents.

It is strongly advised to revert to Essae Teraoka Limited to ensure that the EWS supplied at aparticular period is covered under this manual. Since the organization follows a policy of continuous improvements of products and services, parts of the manual or the whole is subjected to changes without notice.

DISCLAIMER: Though every care is taken to ensure accuracy of the contents, Essae TeraokaLimited will not assume any responsibility for consequences resulting with use or misuse ofthis manual.

Thank you for purchasing a DC-85N/851N series Scale from Essae. DC-85N/851N series scale aremanufactured to achieve high performance, fast response and durability. This manual contains installation, operation and maintenance procedures. Please read this manual completely before using the scale.

Facilities required

To install the EWS, following are the requirements as a minimum:

- A stable, even and rigid work-table where the scale can be installed and serviced.
- Away from the effect of fans, or cooler vents.
- Away from disturbances due to vibrating, rotating or reciprocating equipment.
- Away from strong magnetic fields or from equipment devices that can source EMI/RFIsignals.
- Away from radiating heat sources.
- Enough work area around the machine for easy working.

1.2 Unpacking the Weighing Platform If packed in wooden crate

- Remove the metal strip or nylon strip attached to the crate or corrugated box
- Remove the top covering plate of the wooden crate or corrugated box
- Remove the platform from the wooden crate or corrugated box by lifting the bottom frame of the platform.

NOTE: Do not lift the top frame of the platform while removing the platform from the woodencrate/corrugated box.

1.3 Initial setup for Pre-Installation

- Check the packing box for any external / Internal damage due to transportation. If so, report the matter immediately to the concerned for insurance formalities.
- If the packing is O.K., open the packing gently and confirm receipt of all items as perpacking check list.
- The area where the weighing platform is to be installed must be vibration free even surface and properly leveled. Improper leveling may cause inaccuracy in the weight reading.
- As for as possible the area should be free from excessive water logging and dust.
- Avoid direct sunlight, excessive temperature variation on weighing platform and indicator.
- Remove the transport lock from the platform (If applicable).
- Ensure the NEUTRAL to EARTH Voltage should be less than 10V AC as per diagram

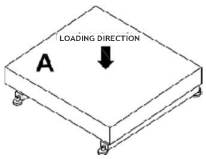
230V AC

- Connect AC plug to AC mains.
- Press ON/OFF switch, this will initiate a version no. and segment checking sequence, which is followed by "0" Display.
- To override segment check, press Re-zero key once.

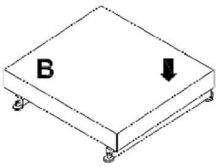
1.4 Safety precaution

Loading Limits

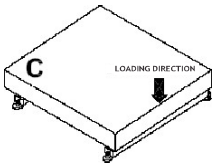
The weighing platform has such a rugged design that no damage should result if the maximum weighing capacity is occasionally exceeded. The static load-bearing capacity, i.e.the maximum permissible load, is dependent on the type of loading (positions A – C).



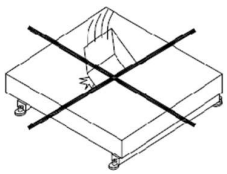
- Maximum permissible central load can be full capacity with distributeload.



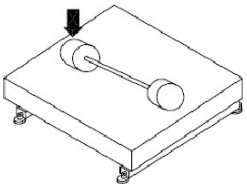
- Maximum permissible side cornerload should be 1/3rd weight of capacity



- Maximum permissible side load should be 1/3rd weight of capacity



- Direct Impact load on the platform maycause severe damage to loadcell.



- When traveling across recessed weighing platforms with lift trucks and Trolley, ensure that the axle load does not exceed the maximumside load (1/3rd weight) while traveling across the load area.

Chapter 2

2.1 General specification

Model number	DC-85N and DC-851N
Description	Digital counting scale
Weighing unit	Default weighing unit kg or g or Pcs
Capacity, Accuracy & Display Resolution	Refer Annexure – I, II & III
Display resolution	Max. of 1/24,00,000 (selectable)
Processor	32-bit Cortex M0 micro-computer
ADC	24-bit precision delta-sigma
Weight sensor	Load cell
Safe Over Load	150% of Full scale Capacity
Calibration method	Software calibration (External Weight)
Tare	Full Capacity
Repeatability/Verification interval	+/- 1d
Linearity	+/- 2d
Power supply	Input – 230V AC, 50 Hz, +/-10%
	Max Watt – 11W
Battery	Re-chargeable Lithium Ion battery 7.4V/2.2AH. Backup time approx. 8hours when battery is fully charged
Operating temperature	0°C to 45°C
Operating humidity	Max. 85 % Rh (non – condensing)
Dimensions (Width x Depth X Height)	304(w) x 295(d) x 115(h) mm.
Gross weight	3.7 Kg. Approx.
Model approval No.	• DC-85N - IND/09/98/74 – Capacity Upto 50kg • DC-851N - IND/09/98/73 – Capacity 50kg to 5000kg
Display	Type – LED
	Color – Green
	No. of digits & Size – 17 digits, 14mm height
	Unit weight :5 digits Weight :6 digits Quantity :6 digits
Key sheet	Type – Tactile switch
	No. of Keys – 24 keys(10 Numeric keys,14 Function keys)
	Material of construction – Polyester
Standard feature	➢ 1. Check counting and check weighing
	➢ 2. Accumulation of Quantity and Weight
	➢ 3. Set point buzzer sound
	➢ 4. Display hold function
	➢ 5. Gross/net weight display with indication

Factory Options:

1	1 X RS-232 Interface (Baud Rate - selectable): 1200, 2400, 4800, 9600 & 19200)
2	Internal Set point TTL Output (active high or low)
3	1 X RS-232 Interface + Internal Set point TTL Output (active high or low) (Baud Rate - selectable): 1200, 2400, 4800, 9600 & 19200)
4	Back rail for 700 x 800 mm Platform machine (only for 300 & 600kg)

Optional accessories:

1	TM-U220D Dot Matrix Printer, Serial
2	PR-65 & PR-75 Thermal Printer, Serial
3	TSC-TE210 & GC420t Label printer, Serial

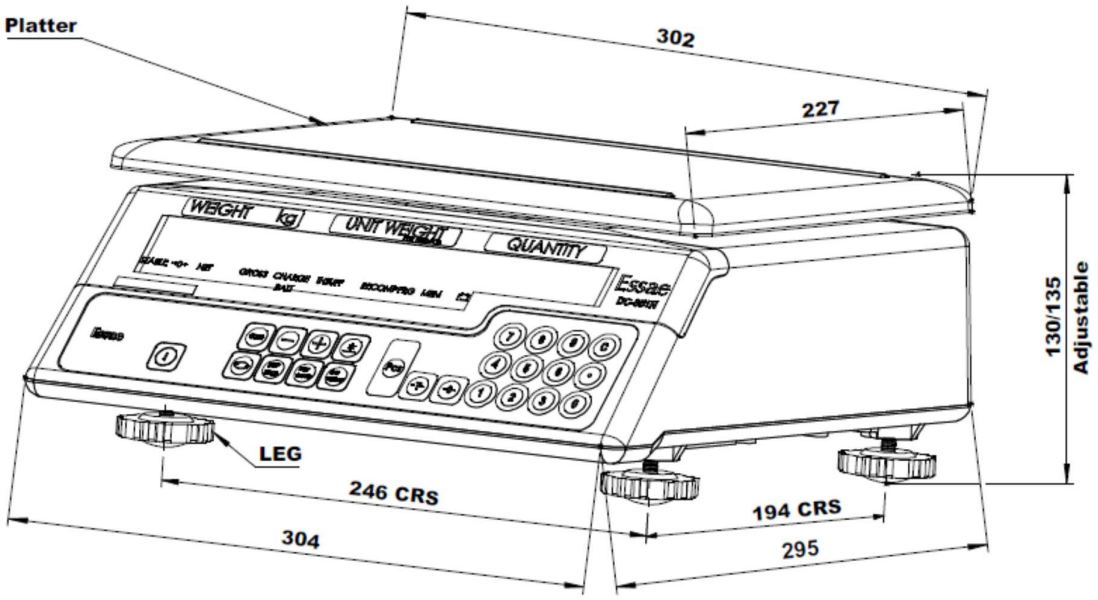
Accessories

Sl.no.	Ramp Size	Capacity (kg)
1	1200x1000mm, MSC	600 to 3000
2	1500x1000mm, MSC	600 to 3000
3	1800x1000mm, MSC	600 to 3000

Annexure – I Table Top

DC-85N Table Top [1/12000, 1/15000, 1/30000]					
Sl. No.	Capacity	Accuracy	Tare value	SSJT Platter size in mm	Display Resolution
1.	300g	20mg	-299.98g	Dia 140	1/15000
2.	600g	50mg	-599.95g		1/12000
3.	1.5kg	0.1g	-1499.9g	227(W) X 302(D)	1/15000
4.	3kg	0.2g	-2999.8g		1/15000
5.	3kg	0.1g	-2999.9g		1/30000
7.	6kg	0.5g	-5999.5g		1/12000
6.	15kg	1g	-4.499kg		1/15000
8.	30kg	1g	-29.999kg		1/30000
9.	30kg	2g	-29.998kg		1/15000

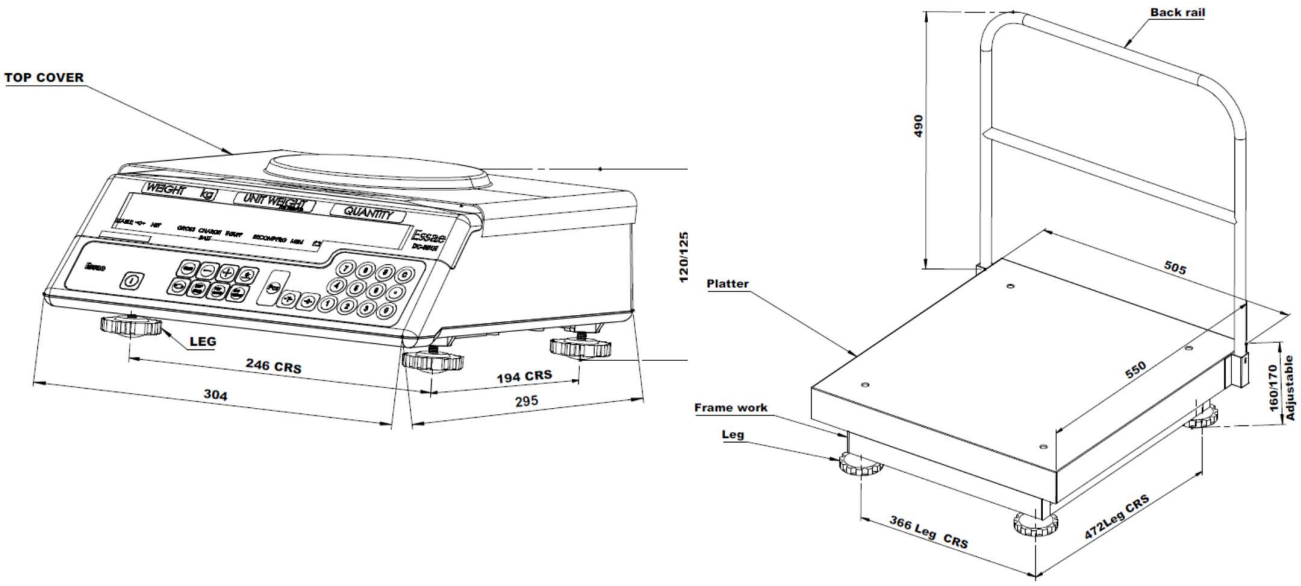
SCHEMATIC DIAGRAM FOR DC-85N



Annexure – II Single Load cell Platforms:

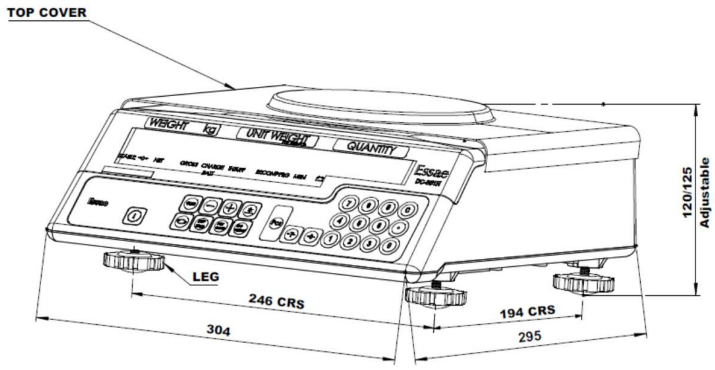
Sl No.	Capacity	Accuracy	Display Resolution	Tare value	Plat form size		Platter material
					Length mm)	Width (mm)	
1	6kg	0.5g	1/12000	-5999.5g	400	400	SSJT 1 mm
2	15kg	1g	1/15000	-14.499kg	400	400	SSJT 1 mm
3	30kg	2g	1/15000	-29.998kg	400	400	SSJT 1 mm
4	50 kg	5 g	1/10000	- 24.995 kg	505	550	SSJT 1.25 mm
5	60 kg	5 g	1/12000	-29.995 kg	505	550	SSJT 1.25 mm
6	150 kg	10 g	1/15000	- 74.99 kg	505	550	SSJT 1.25 mm
7	300 kg	20 g	1/15000	- 99.98 kg	505	650	SSJT 2 mm
					700	800	SSJT 2 mm
					700	800	MS 2.mm
8	600 kg	50 g	1/12000	- 99.95 kg	700	800	MSC 3+1 mm
					700	800	SSJT 2 mm

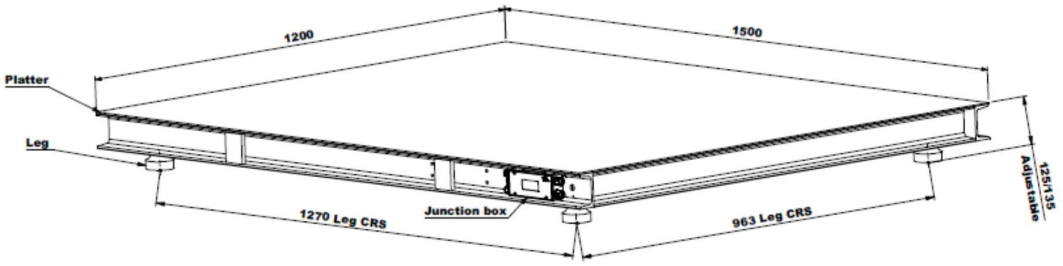
Reference Single Load Cell Platform Scale



Annexure – III Four Load cell Platform

SL No.	Capacity	Accuracy	Display Resolution	Tare value	Plat form size		Platter material
					Length (mm)	Width (mm)	
1.	600 kg	50 g	1/12000	-299.95 kg	1000	1200	M.S.C 3+1mm
					1200	1500	M.S.C 3+1 mm
					1500	1800	M.S.C 4+1 mm
2.	1000 kg	100 g	1/10000	-499.9 kg	1000	1200	M.S.C 3+1 mm
					1200	1500	M.S.C 3+1 mm
					1500	1800	M.S.C 4+1 mm
3.	1500 kg	100 g	1/15000	-749.9 kg	1000	1200	M.S.C 3+1 mm
					1200	1500	M.S.C 3+1 mm
					1500	1800	M.S.C 4+1mm
4.	2000 kg	200 g	1/10000	-999.8 kg	1000	1200	M.S.C 3+1 mm
					1200	1500	M.S.C 3+1mm
					1500	1800	M.S.C 4+1 mm
5.	3000 kg	200 g	1/15000	-1499.8 kg	1000	1200	M.S.C 3+1 mm
					1200	1500	M.S.C 3+1mm
					1500	1800	M.S.C 4+1mm
6.	5000 kg	500 g	1/10000	-2499.5 kg	1000	1200	M.S.C 4+1mm
					1200	1500	M.S.C 4+1mm
					1500	1800	M.S.C 4+1mm





Annexure – IV

Serial print

Support 3 standard and 1 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 standards**

Sl No	TARE WEIGHT	NET WEIGHT	GROSS WEIGHT	REMARKS
0001	50.0	200.2	250.2	
0002	50.0	200.2	250.2	
0003	50.0	200.2	250.2	
0004	50.0	200.2	250.2	
0005	50.0	200.2	250.2	
0006	50.0	200.2	250.2	
0007	50.0	200.2	250.2	
0008	50.0	200.2	250.2	
0009	50.0	200.0	250.0	
0010	50.0	200.2	250.2	
TOTAL	500.0	2001.8	2501.8	

- **40 column standards**

SLNO	TARE WT	NET WT	GROSS WT
0001	50.0	200.2	250.2
0002	50.0	200.0	250.0
0003	50.0	200.0	250.0
0004	50.0	200.0	250.0
0005	50.0	200.0	250.0
0006	50.0	200.0	250.0
0007	50.0	200.0	250.0
0008	50.0	199.8	249.8
0009	50.0	199.8	249.8
0010	50.0	200.0	250.0
TOTAL	500.0	1999.8	2499.8

- **Net only standard**

SLNO	NET WEIGHT
0001	200.0
0002	200.0
0003	200.0
0004	200.0
0005	200.2
0006	200.2
0007	200.0
0008	200.0
0009	200.0
0010	200.0
TOTAL	2000.4

- **Custom**

  Customizable for the needs of customer.

Sample custom format:

Chapter 3: Technical Information

3.1 Weighing Platform Specifications: (if applicable)

- MOC of Top Platter : MS/SS/MSC
- Over load : Safe: 150 % Ultimate: 200%
- Max. Load at corner : 1/3rd weight of rated capacity
- Rollers : MS roller (Factory option)

3.2 Display Indications

Reference Display Layout:

3.3 Key Board Layout & Key Sequence

1-1 Operation Keypad

1. Clear Key : Clear the data and return to weighing mode
2. Decimal Key : Enter the decimal point
3. Numeric Keys : Input numeric values
4. Rezero Key : Resets weight display to zero
5. Tare Key : Set or clear tare value
6. Pieces Key : Calculate and enter the unit weight by sampling
7. Unit Weight Key : Set unit weight after numeric data entry
8. Plus Key : Add parts in total accumulation
9. Net / Gross Key : Switches between Net and Gross weight display
10. Minus Key : Subtract parts in total accumulation
11. Code Key : Used to print total or Weigh only display mode
12. Mode Key : Switches between Operation and Program Modes
13. ON / OFF Key : Turns display ON or OFF

1-2 Indicator Lamps

1. Zero Lamp : Lights on when zero point is adjusted and weight is stable
2. Net Lamp : Lights on when tare subtraction is effective
3. Insufficient Lamp : Lights on when sampling quantity is too small
4. Charge Battery : Lights on when battery is charging
5. Recomputing Lamp : Lights on when Unit Weight may be recalculated by pressing PIECES Key
6. Gross Lamp : Lights on when Gross weight is displayed
7. Program Lamp : Lights on when Scale is in Program Mode.
8. Battery Low Lamp : Battery lamp will get on when battery is 'low'
9. Memory Lamp : Lights on when accumulated data is in memory.

3.4 Battery Operation

If the EWS has the battery option, the EWS can continue to be used even when under mains power failure. The battery section consists of circuitry for battery management including DC-DC converters to derive requisite voltages required for operation of EWS in addition this section includes battery charging and protection circuitry.

Chapter 4: Functional Test

- SETTING UP
  - Level Adjustment
  - Place scale on firm and flat base and just the four legs for flat surface

  (Applicable for DC-85N only)
- Power Supply

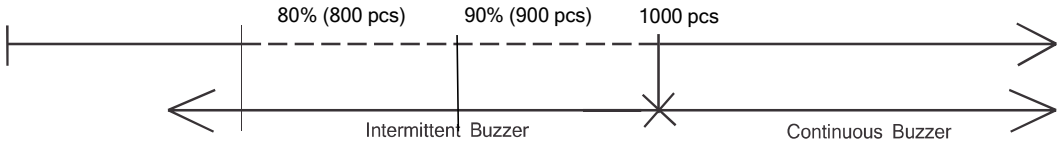
  a) Connect to power supply. (When running on the Optional rechargeable battery,make sure it is sufficiently charged up i.e. 12 hours charging for 8 hours' usage)

  b) With nothing placed on the platter, depress ON/OFF key

  c) A segment checking sequence will begin with sequences of 0's finishing with 9's(To escape from sequence, depress RE-ZERO key)
- PROGRAMMING SETPOINTS

  Setpoint or continuous alarm points can be set to alert the operator to a predetermined alarm to warn of its approach when weight is placed on the scale. The setpoint work on all items being weighted or counted. The parameters of setpoint are selected by specification setting.

EXAMPLE 1 Setpoint = 1,000 Pcs, Setpoint 2 = 90%, Setpoint 3 = 80%



4.1 Digital Tare Programming

One Touch Tare

Task	Procedure	Weight	Unit Weight	Quantity	Z	N	I	R
Stand by status		0.000	0		◊		◊	
1. Subtract the tare weight	Place the tare weight on scale	0.250	0	0				
	Press T Key	0.000	0	0		◊	◊	

Note 1) To clear tare value, press T key after removing the tare.

Digital Tare Entry

Task	Procedure	Weight	Unit Weight	Quantity	Z	N	I	R
Stand by status		0.000	0	0	◊		◊	
1. Subtract the tare weight Ex. 250 Gms	Press 0 . 2 5 0		0.250					
	Press T Key	-0.250	0	0	◊	◊	◊	

4.2 Setpoint Programming

Task	Procedure	Weight	Unit Weight	Quantity	Z	N	I	P
Stand by status		0.000	0	0	◊		◊	
1. Enter PROGRAM Mode	Press ⇄ Key	ProG		C 00				◊
2. Enter Setpoint Mode	Press + Key	SEt 1	0					◊
3. Enter Quantity for Setpoint 1.	Enter 1000	SEt 1	1000					◊
	Press + Key	SEt 2	0					◊
4. Enter Percentage value for Setpoint 2.	Enter 90.0	SEt 2	90.0					◊
	Press + key	ProG		C 00				◊
Go back to weighing Mode	Press ⇄ Key	0.000	0	0	◊		◊	

Note: *1) If using a sample of 10 pcs., press [Pcs] key without entering a number of sample pieces.

*2) This procedure may be skipped by pressing [Pcs] key without adding additional parts. However, it may affect counting accuracy to use a insufficient number of samples.

(The Insuff. Lamp is on.)

*3) The recomputing function works when RECOMP lamp is on.

4) The recomputing operation in procedure 3 is not applicable for parts items with very small weight.

5) To clear Unit Weight, press © Key.

4.3 Digital Unit Weight Entry

Task	Procedure	Weight	Unit Weight	Quantity	Z	N	I	R
Stand by status		0.000	0	0	◊		◊	
1.Entry Unit Weight	Press 1.7266		1.7266		◊			
	Press Unit Weight Key	0.000	1.7266	0	◊			

Note 1) The unit weight per 1,000 pieces is entered and displayed in the Unit Weight display window.

4.4 Accumulation Addition and Subtraction

Task	Procedure	Weight	Unit Weight	Quantity	Z	N	I	R
Stand by status		0.000	0		◊		◊	
1. Addition	Keep quantify to be accumulated	0.125	12.500	10				
	Press + Key	0.250	C	20		◊		
2.Subtraction	Keep quantity to be subtracted	0.060	12.500	5				
	Press - Key	0.190	C	15				
3. Clear	Remove All weight from platter	0.000	12.500				◊	
	Press C key	0.000	C	0				

Indicator Details

Z = Zero Lamp R = Recomputing Lamp I = Insuff Lamp G = Gross Lamp N = Net Lamp

Clearing Unit Weight

Task	Procedure	Weight	Unit Weight	Quantity	Z	N	I	R
Stand by status		0.0000	0	0	◊		◊	
1.Entry Unit Weight	Press 1.7266		1.7266					
	Press Unit Weight Key	0.000	1.7266	0	◊			
2.Clear Unit Weight	Press © Key	0.000	0	0	◊		◊	

4.5 Standard baud rate

- BAUD RATE : 1200 / 2400 / 4800 / 9600 /19200/38400/5700/115200 BPS (Selectable)
- START BIT : 1 BIT
- STOP BIT : 1 / 2 BIT
- DATA BIT : 7 / 8 BIT
- PARITY BIT : EVEN / ODD / NONE

RS-232 data format

Termination Code	CR	The end of data	0DH
	STX	The start of text	02H
	LF	The end of text	0AH
Data	0 – 9	Numeric data	(30H–39H)
	Period (decimal point)	Period	(2EH)
	Comma	Comma	(2CH)
Header code	:	Gross weight	(3AH)
	0	Net weight	(30H)
	4	Tare weight	(34H)
	1	Unit weight	(31H)
	2	Quantity	(32H)
	1	Total quantity	(49H)
	W	Weight stable	(57H)
Weight stable	S	Weight stable	(55H)Flag
	U	Weight unstable	(53H)

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

Description	STX	Hea	Spa	Gross weight	CR	Hea	Spa	Net weight	CR	Hea	Spa	Tare weight	CR
Hex value	02	3A	20		0D	30	20		0D	34	20		0D
No of bytes	1	1	1	(5digit+ DP if any)	1	1	1	(5digit+ DP if any)	1	1	1	(5digit+ DP if any)	1

Description	Hea	Spa	Unit weight	CR	Hea	Spa	Quantity	CR	Hea	Spa	Total Quantity	CR	Hea	Spa	weight Stable flag	CR	LF
Hex value	31	20		0D	32	20		0D	49	20		0d	57	20	55or53	0D	0A
No ofbytes	1	1	(5digits+ if any)	1	1	1	(6digits)	1	1	1	(6digits)	1	1	1	1	1	1

4.6 Power fail retain:

- Power fail retain function will work only when SPEC T13 to be set as 11.
- Machine should be calibrated.
- Switch "ON" the machine with A.C mains.
- Place weight on the platter.
- Switch "OFF" the A.C mains (Don't remove weight from the platter).
- Switch "ON" the machine with A.C mains once again.
- Machine will display version followed by "PF rEt" Indication & later weight.

Note: Power fail retain function will work only for the greater than 0.5% of the full scale capacity.

4.7 Customer Specification:

Hold Rezero key and press 141 number keys in sequence. Use * key to store and go to next spec.

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*** 5 -> 19200 6 -> 38400 7 -> 57600 8 -> 115200 **Note 3**
C11	RS232 Weight Data Transfer: 1 -> All ***2 -> Net only*** 3 -> Gross Weight 4 -> Display Weight 5 -> Quantity 6 -> All wt & Quantity 7 -> Net wt & Quantity	RS232 Data Transfer Mode: ***1 -> Stream*** 2 -> Manual 3 -> Command (**CTRL E**) 4 -> Auto Weight Transfer 5 -> Meghdooth 6 -> Milkotronics (W1 – W9) 7 -> Manual Serial Print 8 -> Auto Serial Print 9 -> NCI4000
C12	RS232 Weight Header: ***1 -> No*** ***2* -> Numeric** 3 -> Alpha	RS232 Transfer Stable Weight: 0 -> No ***1 -> Yes***
C13	RS232 One Touch Tare from PC On Stable (T/t): ***0 -> No*** 1 -> Yes	**RS232/RS485 Data :** ***0 ->Variable*** 1 -> Fixed (8 characters)
C14	RS232 Stream Data Transfer Mode Stable Status Flag: ***0 -> No*** **1 -> Yes**	Skip "STX" Character In RS232 Output: **0 -> No** ***1 -> Yes***
C15	Setpoint Output Type: ***1 > Active Low*** 2 -> Active High	Setpoint Output Logic: ***1 -> Logic I*** *(Bar Mode)* 2 -> Logic II (Dot Mode) 3->Logic III Mode 4->Within MinMax 5->Outside MinMax

SPEC	MOST SIGNIFICANT DIGIT(MSD)	LEAST SIGNIFICANT DIGIT(LSD)
C16	Brightness Decrease in Battery: 0 -> No ***1 -> Yes*** **(See SpecT19 LSD)** In Battery mode, one level decreased	Standby Mode (In Battery): 0 -> No ***1 -> Yes*** **(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.
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 Note: This Spec depends Upon Individual Weight. The number of output is less when all weight transfer.	**Not Used**
C19	**Not Used**	Last Tare Recall On Power on: ***0 -> No*** 1 -> Yes
C20	RS232 Data Format for Std. Modes: ***0 -> Standard format*** 1 -> Custom data format	On Off Key Bypass: ***0 – No*** 1 – Yes
C21	**Setpoint Type:** ***0 – Weight*** 1 – Quantity 2 – % Weight 3 – % Quantity	**Setpoint Buzzer:** ***0 – No*** 1 – Yes
C22	**SetPoint output on Stable Weight:** ***0->No*** 1->Yes	**Gross Net Change** ***0->No*** 1->Yes
C23	**Print Header:** ***0->No*** 1->Print without align 2->Print with Center align	**Send Weight unit through RS232:** ***0->No*** 1->kg 2->g
C24	**Extent of Insufficient Samples:** 0 – No ***1 – 0.1% of Capacity*** 2 – 0.2 % of Capacity	**Negative Counting:** ***0 – No*** 1 – Yes
C25	**Unit Weight Sampling:** ***0 – 16 Samples*** 1 – 24 Samples 2 – 32 Samples	**Unit Weight Auto Re-computing:** ***0 – No*** 1 – Yes
C26	**Not Used**	**Code Key Function:** ***0 – Show Weight Only*** 1 – Total Print Key

Chapter 5: Preventive Measure

5.1 Preventive maintenance & Care

- EWS is a precision equipment and requires to be handled carefully.
- Store the EWS in a clean, dry and dust-free area.
- Clean the EWS periodically.
- Whenever any corrosive material is spilt on the balance, clean the same immediately.
- Never use any chemical solvents for cleaning unless specifically cleared for use.
- Use clean damp cloth to clean the exteriors of the EWS.
- Use only household detergents for removal of stubborn stains/dirt on the housing only.
- Use only Isopropyl alcohol (IPA) or Trichloroethylene (TCE) for cleaning PCB's orelectronic components.
- Do not power on the EWS till the time machine is dry from all the cleaning agents.
- Ensure that the EWS is leveled as per the leveling procedures before the power isswitched ON.
- Do not leave any weights on the platter when the EWS is not in use.
- Do not subject the EWS to temperature shocks (moving from a low temp. zone to hightemp zone abruptly)
- Never overload the EWS with gross weights higher than its capacity (gross weight = Net weight + Tare weight). The load cell may get deformed and can become permanently unusable. This could also result in the structural damage (brackets, housing)
- Never open the EWS when the power chord is connected to the mains. Ensure that theplug is removed from the socket before opening the EWS.
- Use only original spares supplied by Essae Teraoka Limited for replacements.
- Do not change the values of devices however minor the change appears. It affects performance of the machine.
- Use right tools for any maintenance or servicing activities.
- Perform periodic visual inspection for loose connections, broken/cut wires, andloose parts inside the EWS.
- Whenever machine is shifted to another location, level the machine again in the newlocation. If not, it could result in weighing inaccuracies.
- Ensure that the machine is serviced/maintained by trained and authorized personnelonly.
- After servicing, ensure that the limiters are set properly to avoid permanent damage to load cells.
- Ensure that the operational tests are conducted and cleared before reuse of the EWS after any maintenance or servicing activity. This is for the safety of the equipment asalso for reliable indication.

5.1 Trouble shooting

The following table lists Common problems, Possible causes and remedies

If any assistance, please contact nearest Essae Branch/authorized reseller/franchisee

Symptom	Possible Cause	Remedy
Machine not switching ON	• Check AC mains supply • AC Fuse may be disconnected • AC power cord may be damaged	• Check in AC socket supply • Check AC fuse and replace • Check power cord if damage on external and call for service.
Display reading are not stable	• Unstable surface and Direct air falls	• Shift the machine firm and even surface location, avoid vibration & direct airfall
Under flow	• Check any foreign material are touch in platform • Machine platter may be lifted • Load cell connecting may discard.	• Remove foreign material which is touch platform • Fix the Platter firmly • Check the cable of the load cell and connect the cable properly.
Over flow	• Weighed material more than capacity of machine.	• Check for the loaded capacity, if extra remove.
RS232C not working	• Check for specification for RS232 protocol baud rate, data bit, parity, stop bit, • Check COM port no.1 • RS232 connection	• If said specification are ok and still machine is not working, contact Essae service.
No sensing	• Check for load cell cable connection may discarded	• Check the cable of the load cell and connect the cable properly.
Battery indicator flashing	• Low battery Indication • Battery may Deep discharge	• Recharge the battery • Replace the battery.
Display Shows shutoff	• Low battery Indication (battery discharged)	• Recharge battery 8 to 10 hours • Replace battery.

Chapter 6: IQ/PQ/DQ/OQ Documents

6.1 INSTALLATION QUALIFICATION

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 purchaseorder and supplied product.

Carried out by:
Date:

Checked by:
Date:

6.1 INSTALLATION QUALIFICATION

2. Packing List

Unpack the Scale and check the packing List.

Sl. No.	Item	Yes	No	Remarks
Platform Scale				
1.	DC-85N Table Top			
2.	DC-851N Indicator			
3.	Platform			
4.	Platter (MS/SS) 01 No.			
5.	Battery			
6.	RS-232 (Interface cable)			
7.	Battery			
8.	RS-232 (Interface cable)			
9.	Roller			
10.	Printer			

✓ Please tick wherever applicable

☐

Carried out by:
Date:

Checked by:
Date:

6.1 INSTALLATION QUALIFICATION

3. Installation Procedure

Refer Instruction manual chapter 1.3

4. General Specification

Refer Instruction manual chapter 2

Block Diagram

CONCLUSION:

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

Carried out by:	Checked by:
Date:	Date:

6.2 OPERATIONAL QUALIFICATION

Operational Testing	Remarks
Important general conditions to be observed Before operations: Temperature : 0 to 45°C : _____ °C Humidity : 85% : _____% Location : _____ Environment : Should be free from variation in Temp,Air and Humidity as compared to the normal condition.	

_____ _____

Carried out by: Checked by:
Date: Date:

6.2 OPERATIONAL QUALIFICATION

Operational Procedure

Refer Instruction manual chapter 4 (functional test)

Preventive Measure

Refer Instruction manual chapter 5

CONCLUSION:

Based on the above parameters operational qualification found carried outsatisfactory

REMARKS:

Carried out by:
Date:

Checked by:
Date:

6.3 PERFORMANCE QUALIFICATION

Machine Sl. No. _____

Accurate performance of the scale is determined by a series of three performance tests.

Repeatability Test:

Repeatability is the standard deviation of a set of similar weight readings.To conduct a repeatability test, proceed as follows:

1. Zero the instrument.
2. Place 10% of span value of weighing platform, place the weight on the centerof the platform. Record the reading.
3. Repeat the above procedure for five times and find the repeatability andMeasurement uncertainly.
4. Acceptance criteria is +/-1d

Standard Weights Used: _____ Traceable: _____

Sl.No	Standard Mass	Display Reading
1		
2		
3		
4		
5		

REMARKS:

_____ _____

Carried out by: Checked by:

Date: Date:

6.3 PERFORMANCE QUALIFICATION

Off Center Load Test:

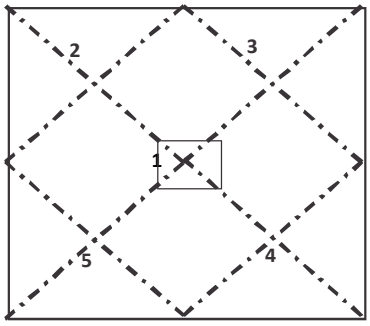
The off center load test is used to determine whether displayed weight values will beaffected by moving the sample to different areas of the pan.

1. Zero the instrument.

2. Place 1/3 rd weight span value on platform as per

below.3.Acceptance Criteria is ± 1d.

Standard Weights Used:



Sl.No	Weight	Location	Display Reading	Error
01		1		
02		2		
03		3		
04		4		
05		5		

Location of Weight on Platter

REMARKS:

Carried out by:
Date:

Checked by:
Date:

6.3 PERFORMANCE QUALIFICATION

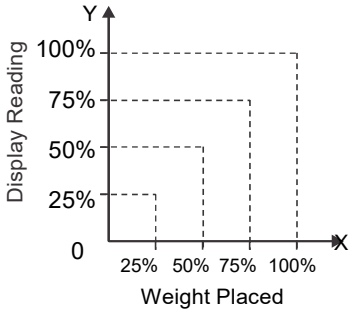
Linearity Test:

The linearity test is used to determine the linearity of the scale throughout itsoperating range. To conduct a linearity test, Proceed as follows:

1. Zero the instrument.
2. Select the weight from 25% to 100% of full scale capacity and place the weights onthe center of the platform as per the sequence mentioned in the below table.

Sl.No	% Weight	Weight Placed	Display Reading	Error
1.	25% of F.S.			
2.	50% of F.S.			
3.	75% of F.S.			
4.	100% of F.S.			

3. Plot the Graph for the above Linearity Test Readings.



4. Acceptance criteria is ± 2d.

Conclusion: Based on the above parameters Performance Qualification found carried out satisfactory

REMARKS:

Carried out by:
Date:

Checked by:
Date:

6.4 DESIGN QUALIFICATION

Kindly enclose copy of the below Documents

1. To be enclosed by Branch:

Sl.No	Item	Yes	No	Remarks
1.	Customer Enquiry copy			
2.	ETPL techno-commercial offer copy			
3.	Purchase order copy			
4.	Model approval certificate copy			
5.	Technical Specification			

2. To be enclosed by Factory:

S.No	Item	Yes	No	Remarks
1.	Manufacturing list (form No.06020)			
2.	In process Inspection of PCB assy (Form No: 0021)			
3.	Product - Schematic Diagram			
4.	Raw material test certificate			

☑ Please tick wherever applicable

Carried out by:
Date:

Checked by:
Date:

Essae-Teraoka Ltd

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Form No: IM-DC85N/851N-013-R03