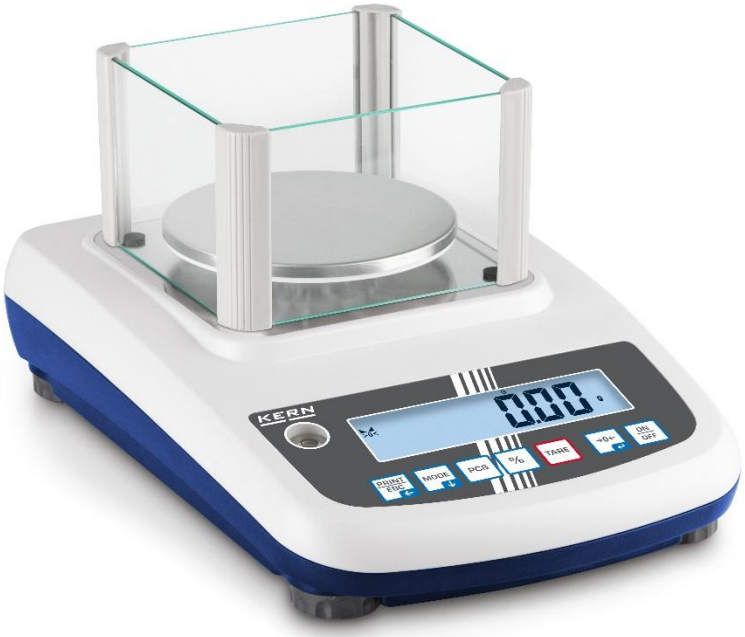
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Servicemanual
Precision balance

KERN TPFB-B

Version 1.0
08/2025
GB



GB

KERN TPFB-B

Version 1.0 08/2025

Servicemanual

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1 OVERALL VIEW

1. Level bubble
2. Adjustable feet
3. Wind shield
4. Weighing plate
5. Display
6. Keyboard
7. RS232 connection
8. Mains adapter connection



2 INSTALLATION

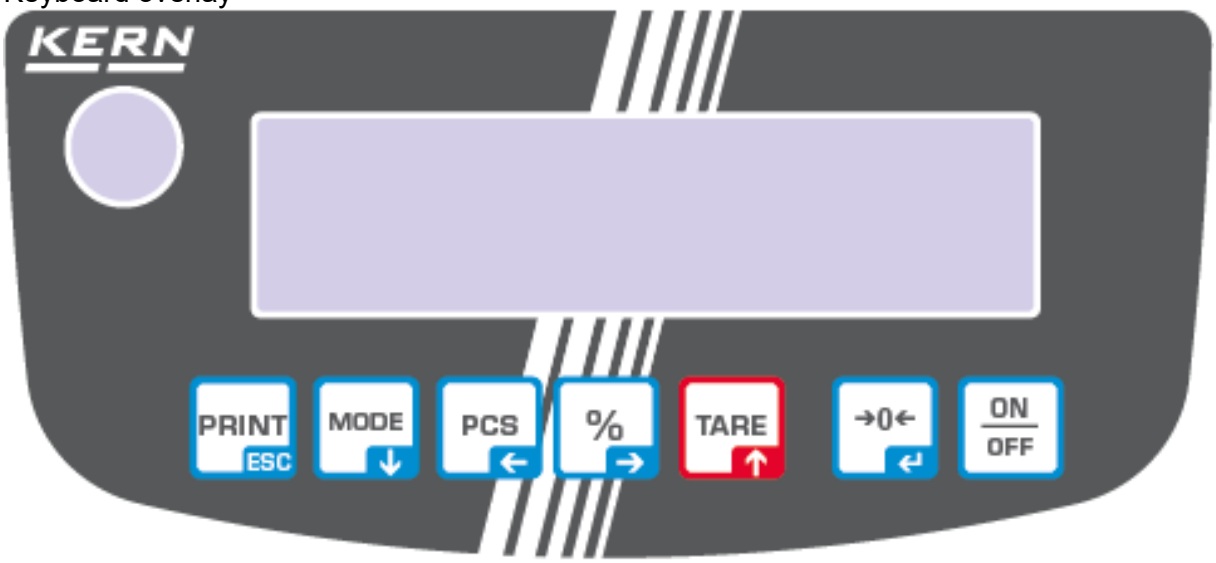
- **Remove the transport lock screw from the bottom of the scale**



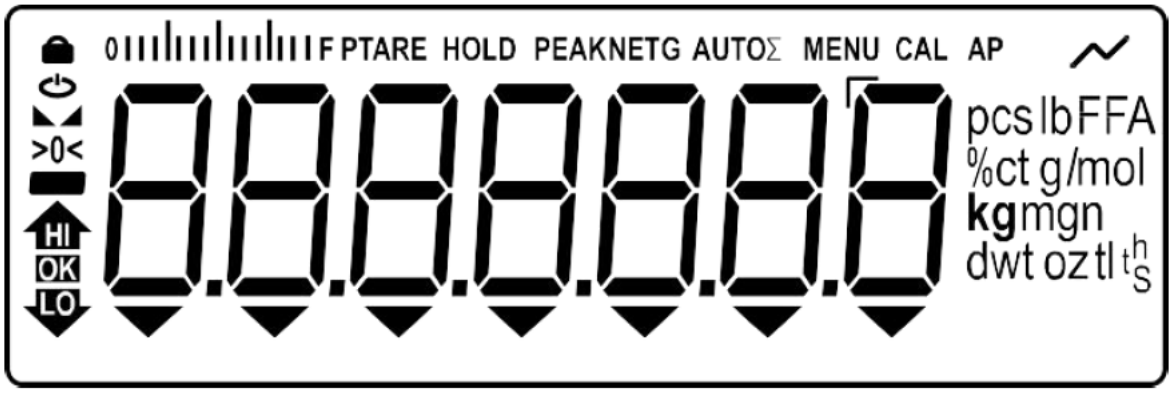
- Place the scale on a level surface
- Install the plastic weighing pan carrier onto the holder
- Fix the weighing plate carrier with the hexagon screw
- Install the stainless steel pan on top of the plastic pan

3 DESCRIPTION

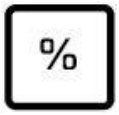
Keyboard overlay



Display



Button	Name	Function in Operating mode	Function in Menu
PRINT ESC	**PRINT/ESC**	• Calculate weighing data via interface	➢ Exit menu / back to weighing mode ➢ Menu level back
MODE	**MODE**	➢ Switch weighing unit	➢ Navigation key
PCS	**PCS**	➢ Counting	➢ Navigation key

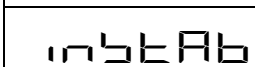
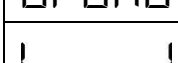
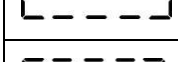
	**%**	➢ Percent weighing ➢ Long press of [%] button to activate internal calibration for Model KIB24	➢ Navigation key ➔
	**TARE**	➢ Taring	➢ Navigation key
	**ZERO**	➢ Zeroing	➢ Select menu item ➢ Confirm selection
	ON/OFF	• Switch on/off (press button long time) • Switch on/off the display background illumination (press button short time)	

Numerical input

Button	Designation	Function
	Navigation key	Select password
		Confirm entry. Press button repeatedly for every digit. Wait until the numeric input window extinguishes.
	Navigation key ➔	Select password
		Confirm entry. Press button repeatedly for every digit. Wait until the numeric input window extinguishes.
	Navigation key	Reduce flashing password (0 – 9)
	Navigation key	Increase flashing password (0 – 9)

Display	Function
	Stability display
>0<	Zero display
	Minus display
	Tolerance marks for check weighing
	Bar graph display Indicates how much the weighing plate is loaded with respect to the maximum weighing range
PTARE	PRE-Tare enabled
HOLD	Data-Hold enabled
NET	Display net weight value
G	Display gross weight value
∑	Weighing data can be found in the sum memory
AP	Autoprint enabled
Units display / Pcs/ %	options g, kg,or Application icon [**Pcs**] for piece counting or [%] for determination of percentage

4 ERROR CODES

Error message	Description
	Zero setting range exceeded
	Zero setting range not achieved
	Load instable
	Adjustment error
	Underload
	Overload
	Capacity of batteries / rechargeable batteries exhausted
	Calibration Error

5 TROUBLE SHOOTING

Problem	Possible cause	Common solutions
Display is blank, No turn on test	Mains power is turned off Power supply not plugged in Power supply faulty Internal battery not charged Display turned off	Check power is going to the scale and switch is on. Verify the voltage going to the scale matches the power supply labels on the power module or scale.
Display stays blank after turn on test, Error message	Pan not installed Unstable weight Load cell damaged Mechanics damaged	Check the pans are installed correctly. Try turning the scale on again.
OL or FULL appears on display	Maximum capacity exceeded Load Cell or mechanics damaged Power supply faulty	Check the pans are installed correctly. Try turning the scale on again.
Display is unstable	Drafts or air currents Obstruction under pan Sample is moving (animal weighing) Vibrations through table Temperature changed dramatically Power supply faulty	Verify the scale is in a acceptable location and on a good table. Verify the power supply is correct for the scale.
Weight value incorrect	Calibration error, Recalibrate Linearity error, set Linearity Unit calibrated with inaccurate weight Balance not level Obstruction between sample and cover Wrong unit of weight displayed	Calibrate again, paying special attention to the mass used, the stability of the scale, and the weighing units required. If linearity can be set by the user it will be described in the user manual. Check pan is installed correctly. Verify installation is acceptable.
Cannot use Full Capacity	Over load Stops hitting pan support or hitting bottom of load cell Shipping screw not removed if applicable Electronic problem on A/D Parameters set incorrectly Load Cell or mechanics Damaged	Look for obstruction under pan, shipping screws, and verify pan installation. Check the weighing units used.
Not Linear	Overload stops hitting too soon Load cell or mechanics damaged A/D damaged	Look for obstruction under pan, shipping screws, and verify pan installation. If linearity can be set by the user it will be described in the user manual.

Off Center Loading error	Adjust mechanics Overload Stops not correct Load Cell damaged	Look for obstruction under pan, shipping screws, and verify pan installation.
Battery will not charge	Mains voltage not present or too low Charging circuit failure Battery Failure	Verify the batteries are rechargeable types. Check power supply voltage is correct.

6 SETUP MENU

Enter the Menu

1. Press and hold the TARE and ON/OFF keys simultaneously to enter the setup menu in normal weighing mode

2. Wait until the first menu item <SEt uP> followed by <cAL> is displayed

Choose the Menu

- Press MODE **or** TARE to switch through the individual menu blocks

Enter the Selected Menu

- Press →0← to confirm/enter the currently displayed item

Escape from the Menu

- Press PRINT/ESC to return to the last menu block or escape to weighing mode

Level 1	Level 2	other levels / description	
		Description	
cAL Adjustment	cALEHt	➔ External adjustment	
	cALEud	➔ External adjustment	
	GrAAdJ	➔ Gravity constant adjustment site	
	GrAuSE	➔ Gravity constant installation site	
coN Communication	r5232	bAud	1200
			2400
			4800
			9600
			14400
			19200
			38400
			57600
			115200
			128000
			256000
		dAtA	7db itS
			8db itS
		PAr i tY	nonE
			odd
			EUEn
		StoP	1Sb it
			2Sb itS
		hAndSh	nonE
		Protoc	FcP
	bt-S	btSEt	on,oFF Bluetooth on / off
		btnAME	Device name displayed in the Bluetooth network

Pr int Data output	intFcE		rs232		RS 232 interface
	SuM		on oFF		Switch on / off add-up mode
	PrModE	tr iG	MAnuAL		**On, off** Data output by pressing the **PRINT** button
			AutoPr		**On, off** Automatic data output with stable and positive weighing value. Another output only after zero display and stabilisation, depending on the settings **< ZrAnGE >**, selectable **(off, 1, 2, 3,4,5)**. **< ZrAnGE >** defines the factor for d. This factor multiplied with d results in the threshold; when it is exceeded, a value cannot more be considered as stable.
			cont	oFF	Continuous data output
				on	SPEEd: Setting output interval ZEro: on, oFF — 0 (unloaded) also transmit continuously StABLE: on, oFF — Transmit stable values only
		HE iGht	SGLPrt		on,oFF — Displayed weight value is transmitted
			GntPrt	Gross	on,oFF
				nEt	on,oFF
				tArE	on,oFF
				FormAt	LonG (detailed measu- rement protocol) short (standard measurement protocol)
		LAYout	nonE		on, oFF Standard layout
			uSEr	ModEL	on,oFF — Output model designation of the scale
				SEr iAL	on,oFF — Output serial number of the scale
		rESEt	Delete settings		

bEEPEr Acoustic signal	KEYS	oFF	Switch on / off acoustic signal by pressing button	
		on		
	chEcK	ch-oK	oFF	Acoustic signal off
			SLoW	Slow
			Std	Standard
			FASt	Fast
			cont.	Continuous
		ch-Lo	oFF	Acoustic signal off
			SLoW	Slow
			Std	Standard
			FASt	Fast
			cont.	Continuous
		ch-h i	oFF	Acoustic signal off
			SLoW	Slow
			Std	Standard
			FASt	Fast
			cont.	Continuous
AutoFF Automatic switch-off function in rechargeable battery operation	NodE	oFF	Automatic switch-off function switched off	
		Auto	The balance is automatically switched-off according to the time without load change or without operation defined in menu item < t iME >	
		onLyO	Automatic switch-off only with zero display	
	t iME	30S	After the set time without load change or operation the balance will switch off automatically	
		1M in		
		2M in		
		5M in		
		30M in		
		60M in		

bL iGhE Display background illumination	NodE	ALWAYS	Background lighting of display is switched on permanently
		t iMEr	The background illumination is automatically switched-off according to the time without load change or without operation defined in menu item < t iME >
		nobL	Display background illumination always switched off
	t iME	5S 10S 30S 1M in 2M in 5M in 30M in	Definition, after which time the background illumination is automatically switched-off without load change or without operation.
tArErG Taring range	100% ▯ 10%	Definition max. taring range, selectable 10% - 100%. Numerical input	
ZtrAcK Zerotracking	on	Automatic zero tracking [≤3d]	
	oFF	In the event that small quantities are removed or added to the material to be weighed, incorrect weighing results can be displayed due to the “stability compensation“. (e.g. slow flow of liquids from a container placed on the balance, evaporating processes). When apportioning involves small variations of weight, it is advisable to switch off this function.	
un itS Units	available weighing units / appication units	on,oFF Using this function you can define which weighing units are available in the application-specific menu < un it>. The units selected by < on > are available in the application-specific menu.	
NodE Weighing applications	WE ih	Weighing	
	count	Counting	
	chEcK	Check weighing	
rESEt	Reset balance settings to factory settings		

7 SERVICE MENU

1. During self test (while 8.8.8.8 is displayed) press and hold the TARE and ON/OFF keys simultaneously to enter the service menu

2. Wait until the first menu item <SEr> followed by <AdJUSt> is displayed

3. Press MODE or TARE to switch through the individual menu blocks

4. Press →0← to confirm/enter the currently displayed item

Menu	Sub Menu			Description
SEr	AdJUSt	cAL	cAL EHt	External calibration
			cAL EUd	External calibration with user-defined adjustment weight
			GrAAdJ	To set the adjustment location gravity
			GrAUSE	To set the place of location gravity
		L inEAr	3Po int	3 point calibration
			6Po int	6 point calibration
		ZEro		Reserved function
		crEEP		Reserved function
	oUErLd	nEn		Manual counts
		oUEr		Overload counts
	tYP inF	conF iG		Model selection E600.2M/E6000.1M/E600.2S/E6 000.1S/P120.3/P200.3/P300.3/P 600.2/P600.3/P1200.2/P2000.2/ P3000.2/P6000.1/P6000.2/
	inFo	AdUALU		To show the internal counts
		SEr iAL		Serial number
		UEr		To show the application version
		UErA		To show the approved software version V2.00
	SALE n	SALE n		Higher resolution
		SALE Y		Lower resolution
	rESEt			Reset to factory setting

8 CALIBRATION

8.1 External calibration

1. Press and hold the TARE and ON/OFF keys simultaneously to enter the setup menu
2. Wait until the first menu item <AdJUSt> is displayed
3. Press →0← to enter calibration, display show <cAL>
4. Press →0← to confirm, display show <cALEHt>
5. Press →0← to confirm, the first selectable adjustment weight will be displayed.
6. Press MODE repeatedly to select the desired adjustment weight
7. Press →0← to confirm the selected adjustment weight
8. <ZEro> will be displayed. Then < PtLd> followed by the weight value of the adjustment weight to be placed
9. Load the adjustment weight on the pan and wait for the <rEMULd> display
10. Once <rEMULd> is displayed, remove the adjustment weight
11. After successful adjustment the balance returns to setting mode and shows <cALEHt>

Note:
In case of an adjustment error the display will show the error message <Hr onG>.
Switch off the balance and repeat the adjustment process.

8.2 External calibration with user-defined adjustment weight

1. Press and hold the TARE and ON/OFF keys simultaneously to enter the setup menu
2. Wait until the first menu item <AdJUSt> is displayed
3. Press →0← to enter calibration, display show <cAL>
4. Press →0← to confirm, display show <cALEHt>
5. Press MODE to select <cALEUd>
6. Press →0← key to confirm
7. The display shows a numeric input window for the weight value of the adjustment weight. The currently selected/active digit is flashing
8. Press MODE to increment the value
9. Press PCS to move digits left, press % to move digits right
10. Press →0← to confirm the selected adjustment weight
11. <ZEro> will be displayed. Then <PtLd> followed by the weight value of the adjustment weight to be placed
12. Load the adjustment weight on the pan and wait for the <rEMULd> display
13. Once <rEMULd> is displayed, remove the adjustment weight
14. After successful adjustment the balance returns to setting mode and shows <cALEud>

Note:
In case of an adjustment error the display will show the error message <HronG>. Switch off the balance and repeat the adjustment process.

8.3 Linear calibration with 6 points

1. During self test (while 8.8.8.8 is displayed) press and hold the TARE and ON/OFF keys simultaneously to enter the service menu
2. Wait until the first menu item <bEr> followed by <AdJUSt> is displayed
3. Press →0← to enter calibration, display shows <cAL>
4. Press MODE to select <L inEAr>
5. Press →0← to confirm, <3 Po int> is displayed
6. Press MODE to select <6 Po int>
7. Press →0← to enter 6-point linear calibration
8. Ensure the platform is empty
9. Display shows <ZEro> followed by 1/6 of the capacity
10. Place the first calibration weight (1/6 of the capacity) on the pan
11. Display shows <ZEro>
12. Remove the first calibration weight from the pan
13. Display shows 1/3 of the capacity
14. Place the second calibration weight (1/3 of the capacity) on the pan
15. Display shows <ZEro>
16. Remove the second calibration weight from the pan
17. Display shows 1/2 of the capacity
18. Place the third calibration weight (1/2 of the capacity) on the pan
19. Display shows <ZEro>
20. Remove the third calibration weight from the pan
21. Display shows 2/3 of the capacity

22. Place the fourth calibration weight (2/3 of the capacity) on the pan
23. Display shows <CEro>
24. Remove the fourth calibration weight from the pan
25. Display shows 5/6 of the capacity
26. Place the fifth calibration weight (5/6 of the capacity) on the pan
27. Display shows <CEro>
28. Remove the fifth calibration weight from the pan
29. Display shows full capacity
30. Place the sixth calibration weight (max load) on the pan
31. Display shows <CEro>
32. Remove the sixth calibration weight from the pan
33. The Display shows <PASS> and the scale returns to the setting menu, displaying <GPo int>
34. Leave the menu by repeatedly pressing the 

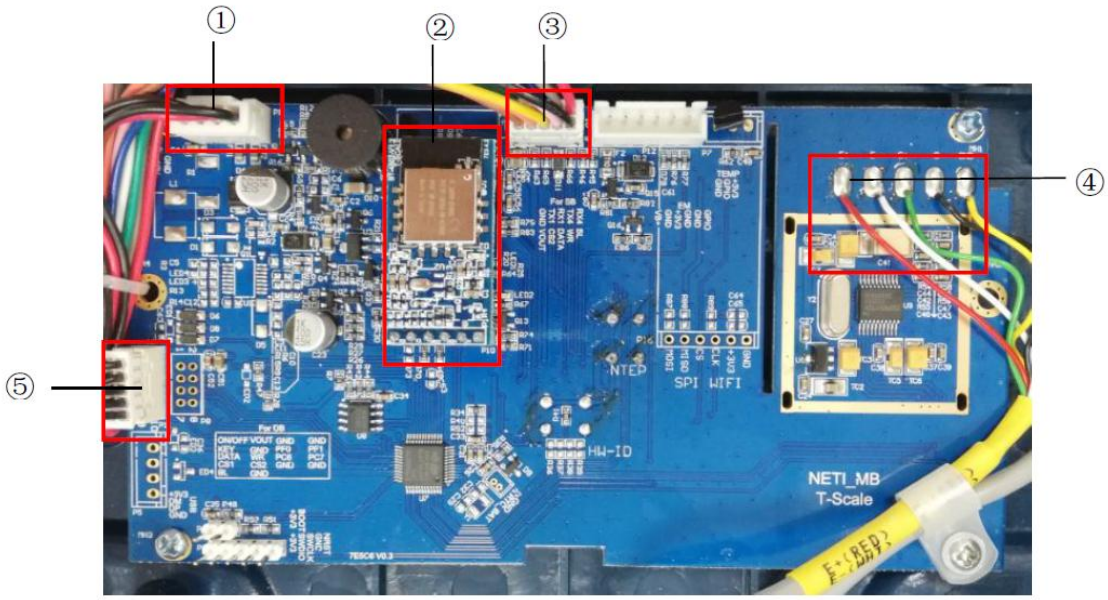
key. The scale will restart into weighing mode.

8.4 Linear calibration with 3 points

1. During self test (while 8.8.8.8 is displayed) press and hold the TARE and ON/OFF keys simultaneously to enter the service menu
2. Wait until the first menu item <bEr> followed by <AdJUSt> is displayed
3. Press →0← to enter calibration, display shows <cAL>
4. Press MODE to select <L inEAr>
5. Press →0← to confirm, <3Po int> is displayed
6. Press →0← to enter 3-point linear calibration
7. Ensure the platform is empty
8. Display shows <cEro> followed by 1/3 of the capacity
9. Place the first calibration weight (1/3 of the capacity) on the pan
10. Display shows <cEro>
11. Remove the first calibration weight from the pan
12. Display shows 2/3 of the capacity
13. Place the second calibration weight (2/3 of the capacity) on the pan
14. Display shows <cEro>
15. Remove the second calibration weight from the pan
16. Display shows full capacity
17. Place the third calibration weight (max load) on the pan
18. Display shows <cEro>
19. Remove the third calibration weight from the pan
20. The Display shows <PASS> and the scale returns to the setting menu, displaying <3Po int>

9 PARTS REPALCEMENT

9.1 Main Board Replacement



No.	Description
1	Power In – Cable from the Power Supply to the main board
2	Bluetooth module
3	Serial port connector
4	Load cell connection
5	Display board connector

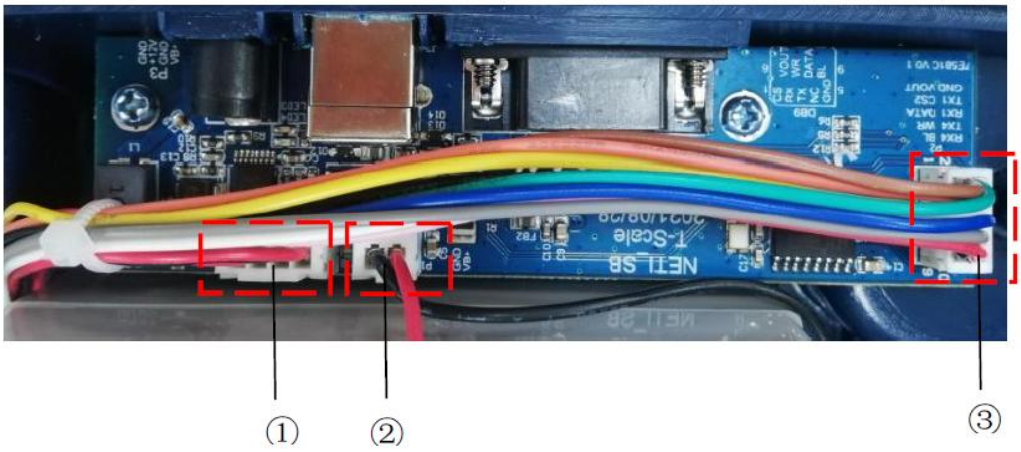
Steps:

- Remove the adjustable feet
- Remove 4 screws on the bottom of the scale
- Open the top cover of the scale, the main board is located within the bottom cover
- Disconnect all connectors from the main board
- Remove the 4 screws of the main board

Load cell connection

Wire Color	Red	White	Green	Black	Yellow
Main board	E+	E-	S+	S-	SH

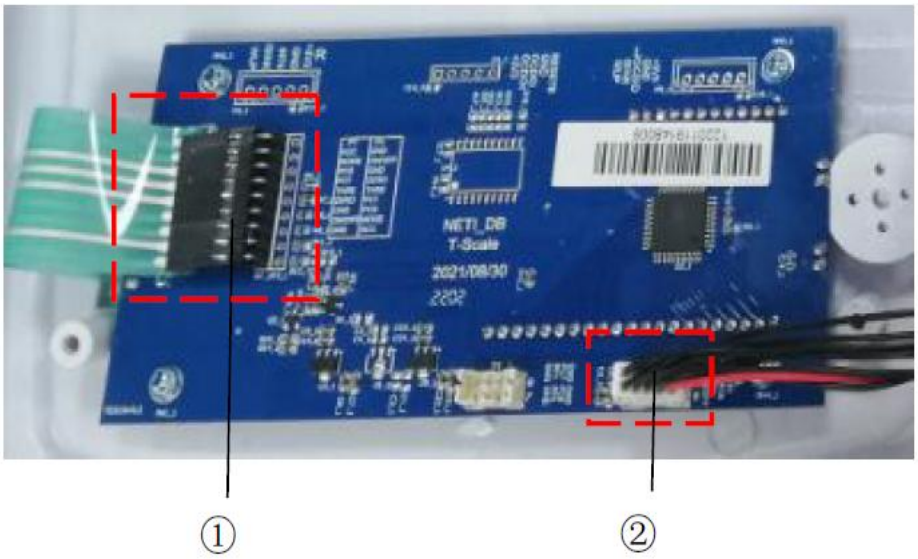
9.2 Interface Board Replacement



No.	Description
1	Power In – Cable from the Power Supply to the interface board
2	Battery connector
3	Serial port connector and remote display cable

- Remove the adjustable feet
- Remove 4 screws on the bottom of the scale
- Open the top cover of scale, the interface board is located in the back of the lower housing part
- Disconnect all connectors from interface board
- Remove the 2 screws of the interface board

9.3 Display Board Replacement



No.	Description
1	Keyboard overlay connector
2	Power In – Cable from the Power Supply to the display board

- Remove the adjustable feet
- Remove the 4 screws on the bottom of the scale
- Open the top cover of the scale, the display board is located within the top cover
- Disconnect all connectors from the display board
- Remove the 4 screws of the display board

9.4 Load cell assembly Replacement

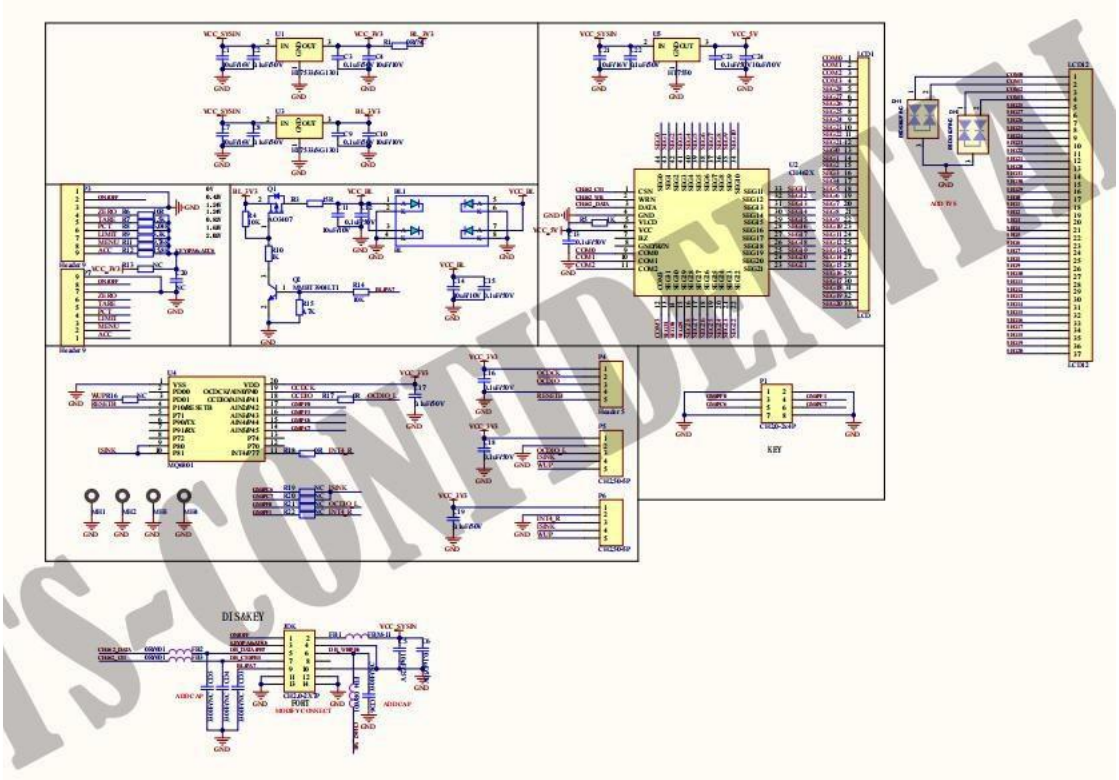


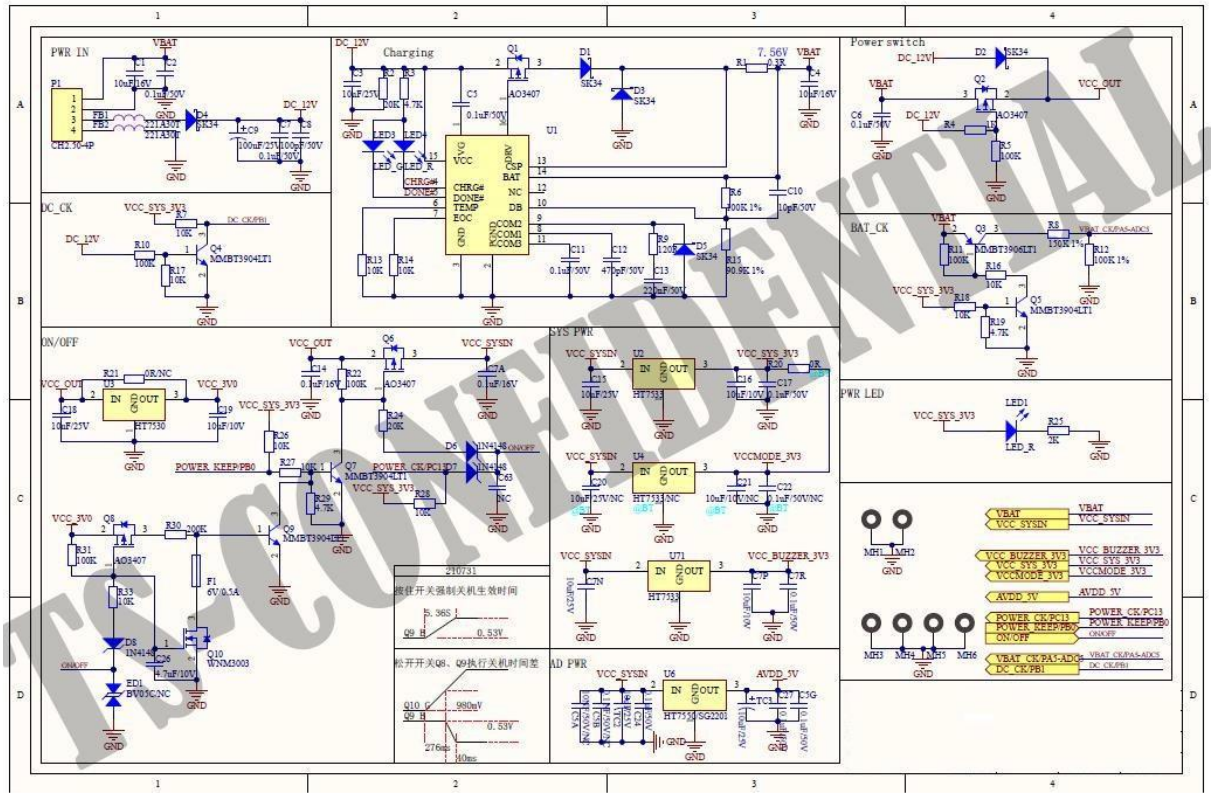
- Remove the adjustable feet
- Remove the 4 screws on the bottom of the scale
- Open the top cover of the scale
- Disconnect the load cell connection on the mainboard (soldered)
- Remove the 4 screws of the load cell assembly

Load cell connection

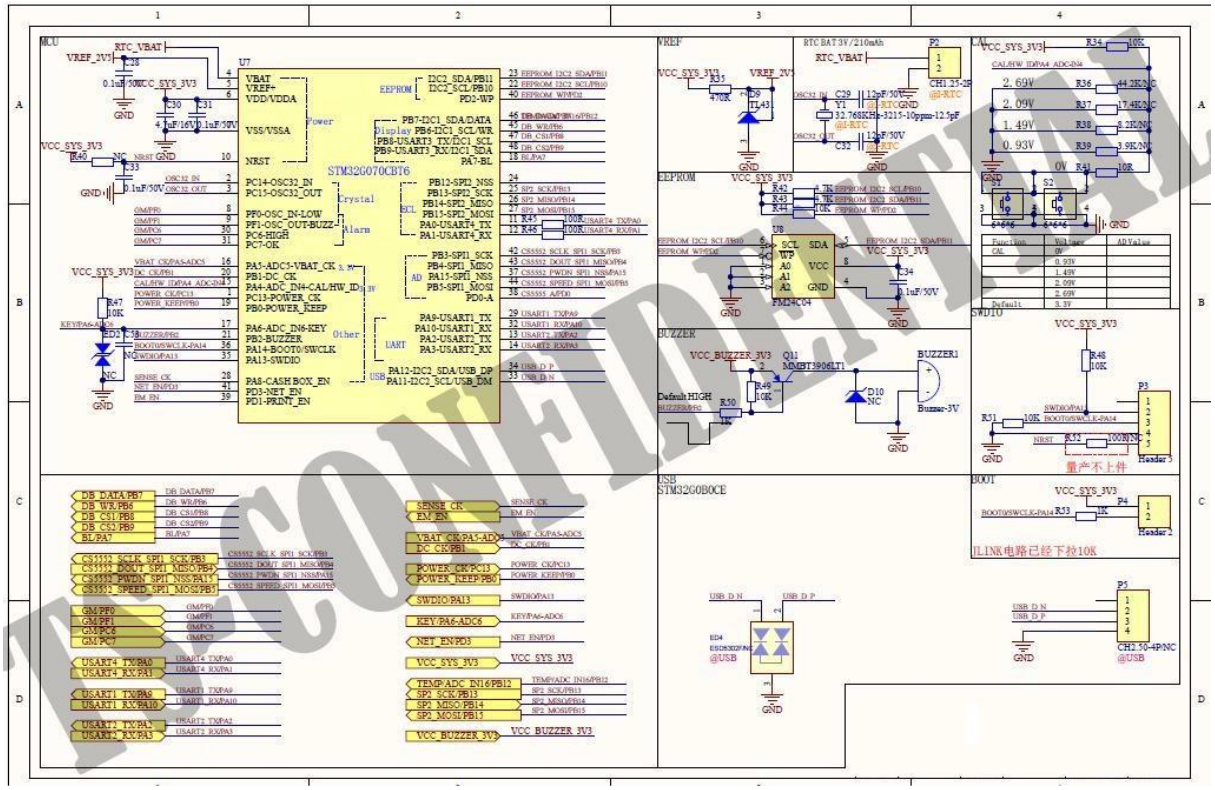
Wire Color	Red	White	Green	Black	Yellow
Main board	E+	E-	S+	S-	SH

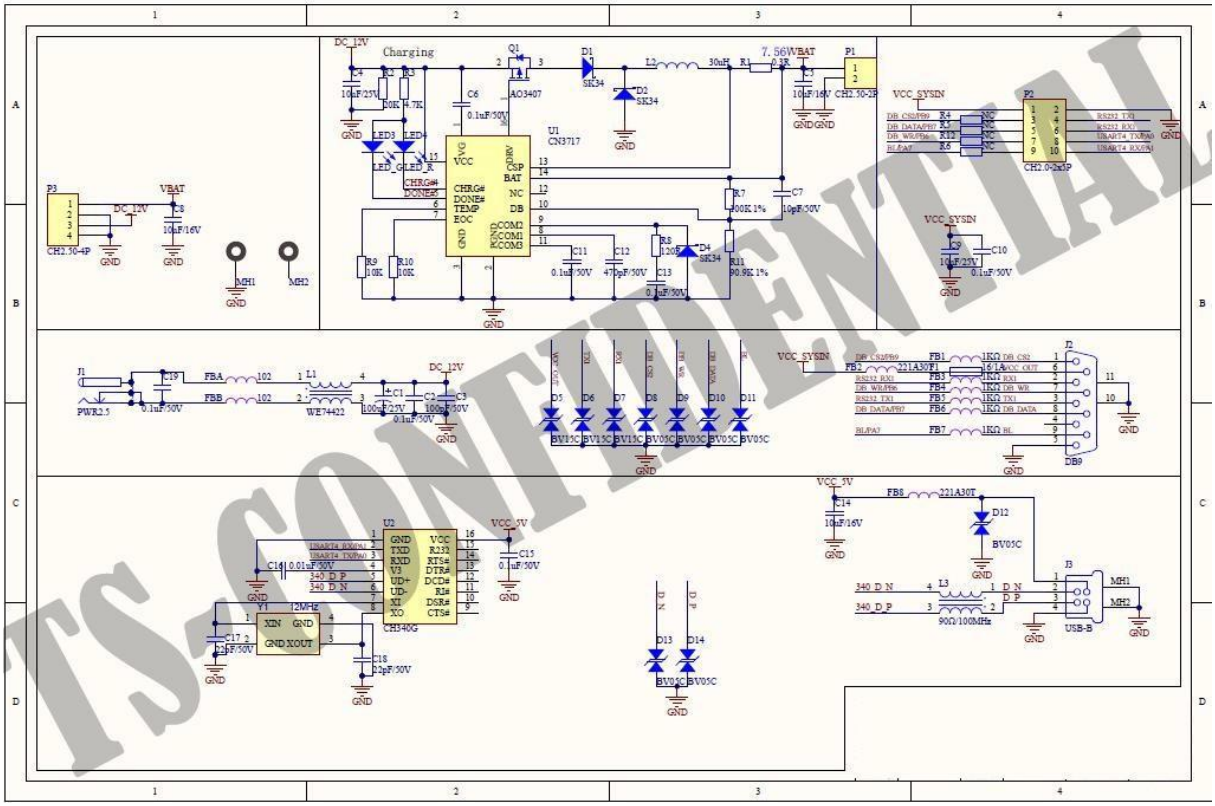
10 SCHEMATIC





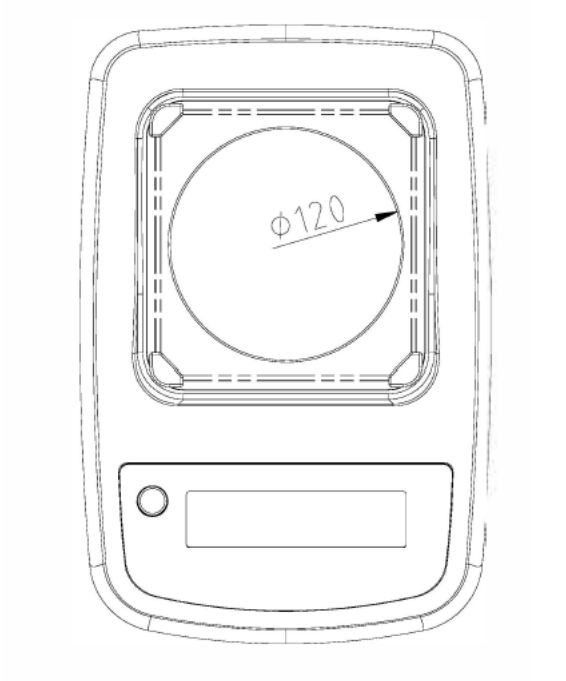
IS-CONFIDENTIAL
TC-CONFIDENTIAL

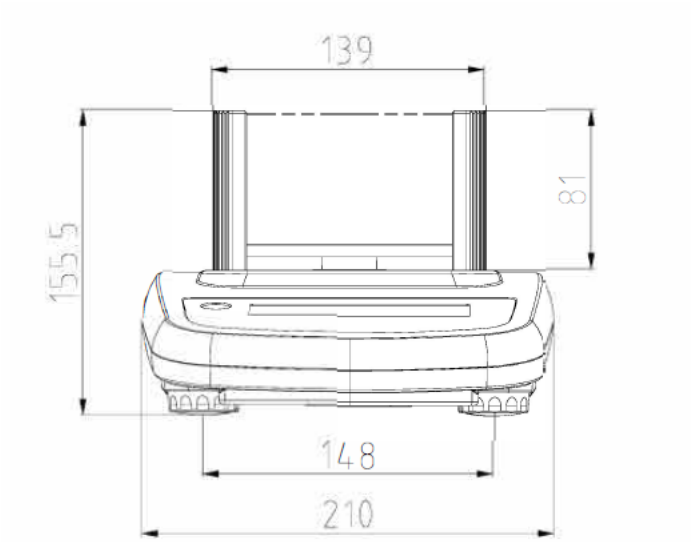


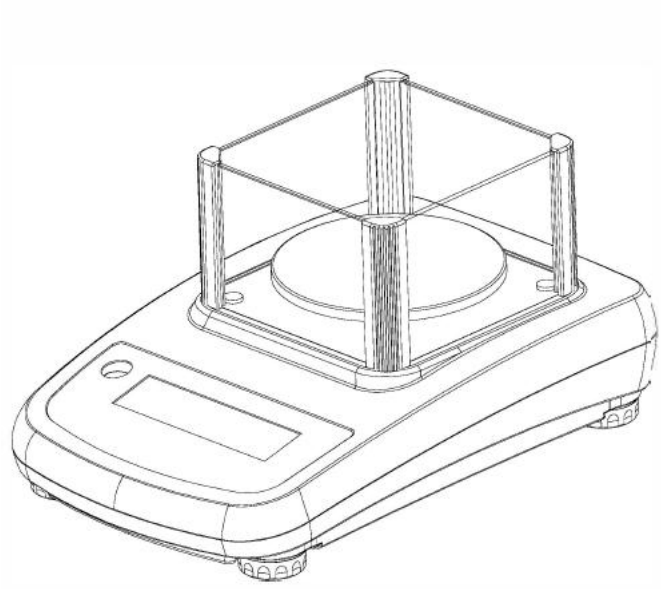


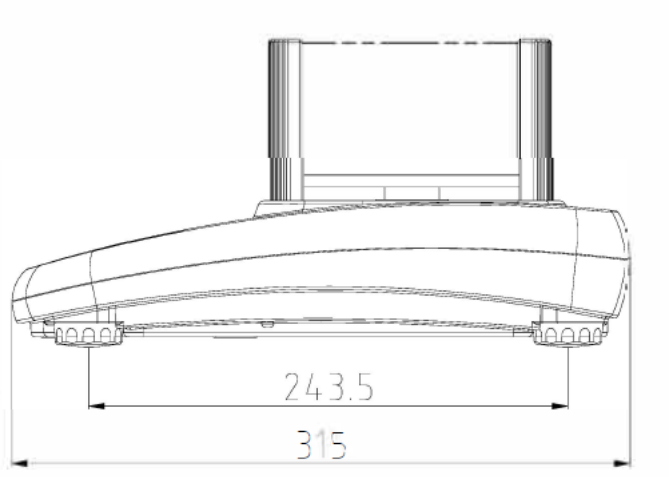
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11 DIMENSIONS (mm)

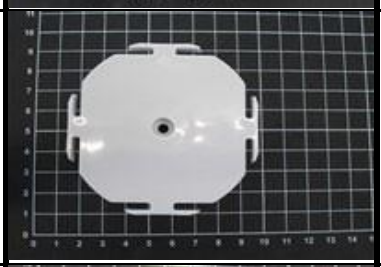
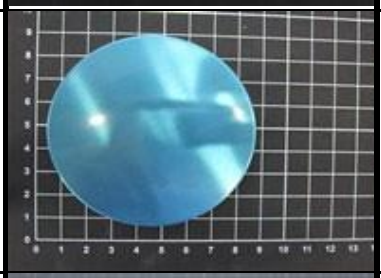


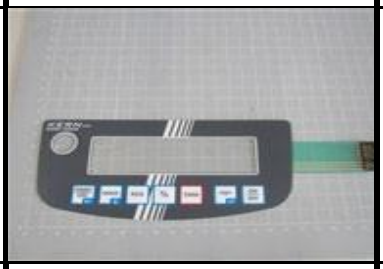


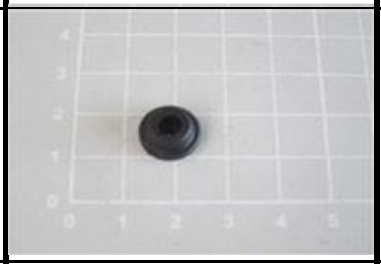




12 SPARE PART LIST

Article no.	Description	Image	
PFB-A12	Protective working cover for PFB-A, PFB-ACC, TPFB-B Plastic Working dust cover PFB-A series		
REWJ-1001	Load cell 300 g HBM SPL/300g Strain gauge		for TPFB 120-3-B,TPFB 200-3-B,TPFB 300-3-B
REWJ-1002	Load cell 600 g HBM SPL/600g Strain gauge		for TPFB 600-2-B,TPFB 600-3-A
REWJ-6001	Weighingplate carrier		for TPFB 120-3-B,TPFB 200-3-B,TPFB 300-3-B
REWJ-6002	Weighing plate 80 mm		for TPFB 120-3-B,TPFB 200-3-B,TPFB 300-3-B
REWJ-6007	Weighing plate 120 mm		for TPFB 1200-2-B,TPFB 2000-2-B,TPFB 3000-2-B,TPFB 600-2-B,TPFB 600-3-A

REWJ-6008	Weighingplate carrier 120 mm		for TPFB 1200-2-B,TPFB 2000-2-B,TPFB 3000-2-B,TPFB 600-2-B,TPFB 600-3-A
REWJ-8001	Level indicator		
REWJ-8002	Adjustable foot		
RPFB-5001	Power socket for EWJ, PFB		
RPFBA-1001	Load cell loadcell K-SPL/3KGCONS-1-1		for TPFB 1200-2-B,TPFB 2000-2-B,TPFB 3000-2-B
RPFBA-4001	Keyboard overlay for PFB-A, TPFB-B		
RPFBA-6001	Weighing plate weighing plate PFB 6000-A		for TPFB 6000-1-B,TPFB 6000-2-B

RPFBA-6002	Holder for weighing plate holder weighing plate PFB 6000-A		for TPFB 6000-1-B,TPFB 6000-2-B
RPFBA-8001	Draft shield		not TPFB 6000-1-B,TPFB 6000-2-B
RPFBA-8002	Weighing room cover for PFB-A, TPFB-B		
RPFBA-8003	Rubber plug		
RTEWJ-2001	LCD Display with board for TEWJ-A, TEWJ-B, TPFB-B		
RTEWJ-5001	Connection cable for TEWJ-A, TEWJ-B, TPFB-B		
RTPFB-2001	Main board for TPFB-B		

YKA-11	Mains adapter (AUS;CH;EURO;UK;US) 12 V, 500 mA; Input: 100-240V~ 50/60Hz 190mA Switching power supply		