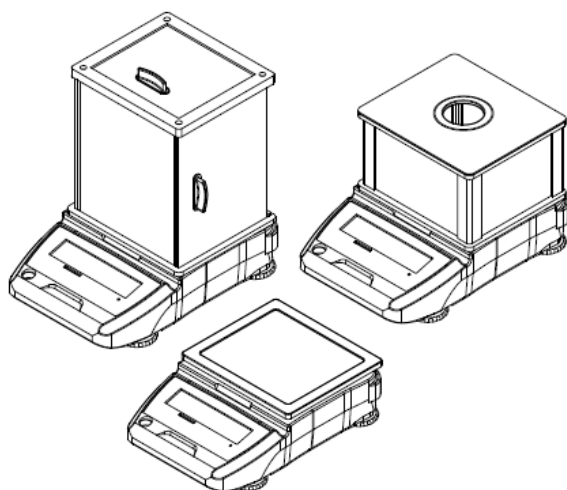


User's Manual



Precision Balance

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Purpose

DF/EF/MK Series electronic balance ensure the accuracy and reliability of the weighing results.

- Appearance style hale, fashion and brief, sporty powerful;
- Scale pan is made of high quality stainless steel 304, simply and fluency;
- Large screen LCD display, backlight is soft and easy to read;
- Stable and good repeatability
- Sturdy structure

DF/EF/MK Series electronic balance: fast response, easy to operate, greatly simplifying and accelerating the conventional weighing process.

Additional function:

- Weighing unit conversion
- Counting
- % Weighing
- Solid density

Warning and safe instructions

Safety precautions

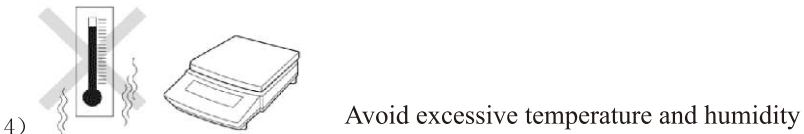
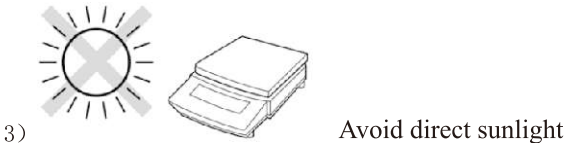
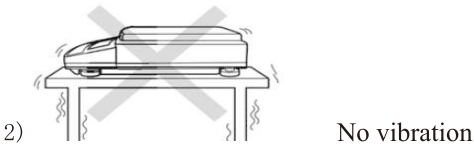
Please read this manual before use the balance to avoid unnecessary damage.

- Verify that the AC Adapter input voltage matches the local AC power supply
- Install and dismantle the balance, need to cut off the power
- Using the balance only in correct environment , work temperature 10°C -40°C
- Avoid strong wind and vibration
- Don't operate the balance in harmful environment
- Don't drop object to the scale
- Don't inversion the balance by tray or supporting
- Service should be performed only by authorized personnel
- Before using the balance, should warm-up 20-30 minutes

Please don't open the shell of balance, otherwise the manufacturer will not provide the warranty service.

Avoid installing and using occasion

Assure that the stability and reliability, Please to avoid follow occasion:



Prepare

Warranty service

Please fill out the warranty card and return to company, then can enjoy a one-year warranty service, Otherwise it will be gave up by yourself.

Storage and transportation conditions

Don't place the instrument in an environment where the temperature is too high or too low, easy to crash, violent vibration, humidity and airflow.

Open-package

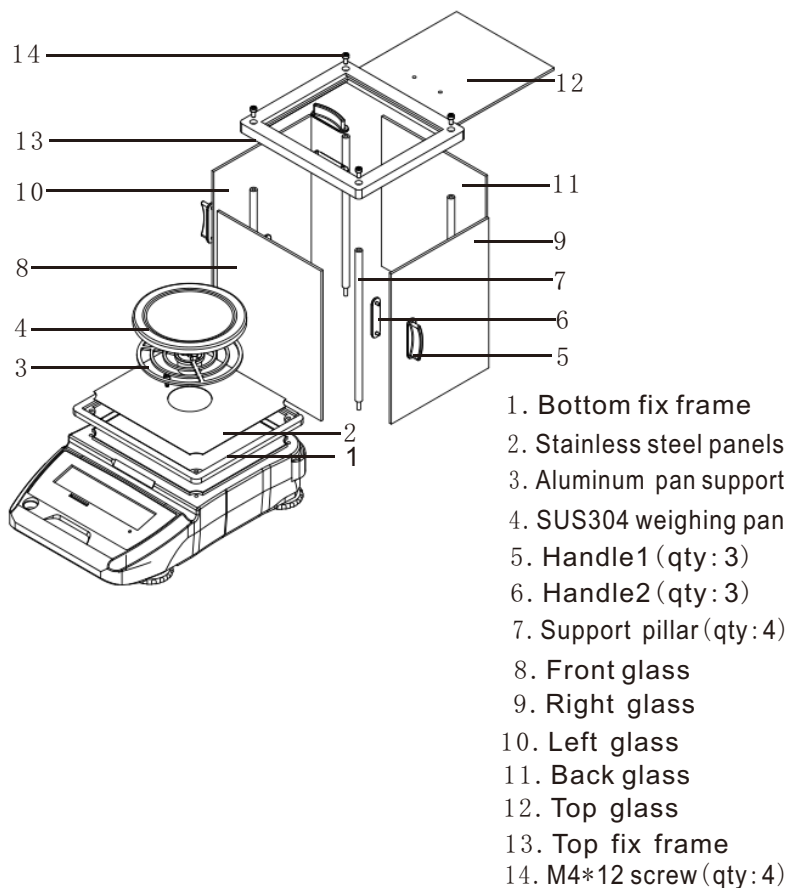
- After unpacking, check the appearance of the instrument immediately, to find if there is any damages caused during transport by improper handling.
- If it was found damaged, please contact the factory in time.

Packing list

- Balance
- SUS304 weighing pan
- Aluminum pan support
- Plastic windshield' s support and glass
- Mass weight (Optional)
- Power adapter
- User' s manual
- Warranty card and certificate

Install

DF series precision balance(with glass windshield)

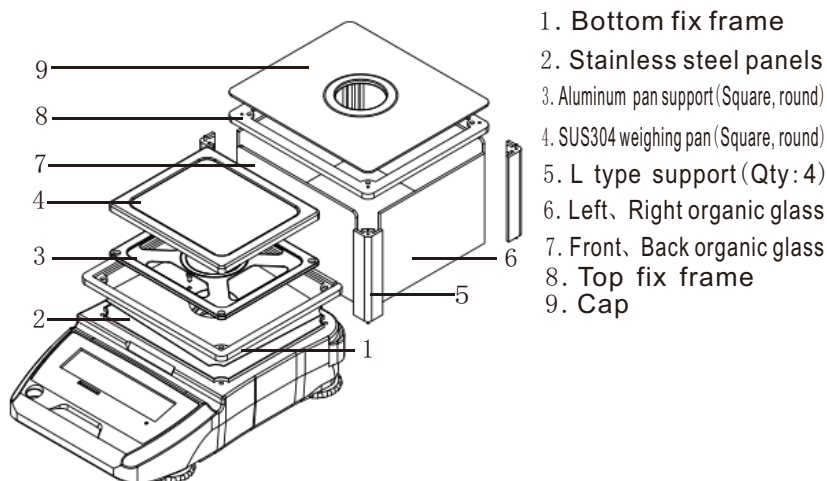


To install the glass windshield of balance, following parts in sequence:

- ① Aluminum pan support
- ② M4*10 screw (qty: 2)
- ③ SUS304 weighing pan
- ④ Glass windshield(view the paper of installation diagram)

Install

EF series balance(plastic windshield)

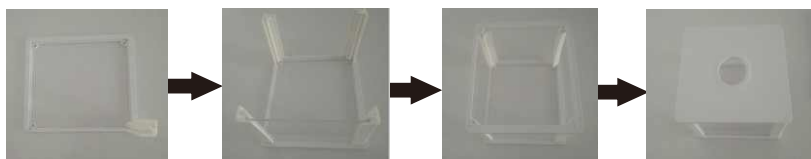


To install the plastic windshield of balance, following parts in sequence:

- ① Aluminum pan support (Square, round)
- ② M4*10 or M4*20 screw (Qty: 2)
- ③ SUS304 weighing pan (Square, round)
- ④ Plastic windshield

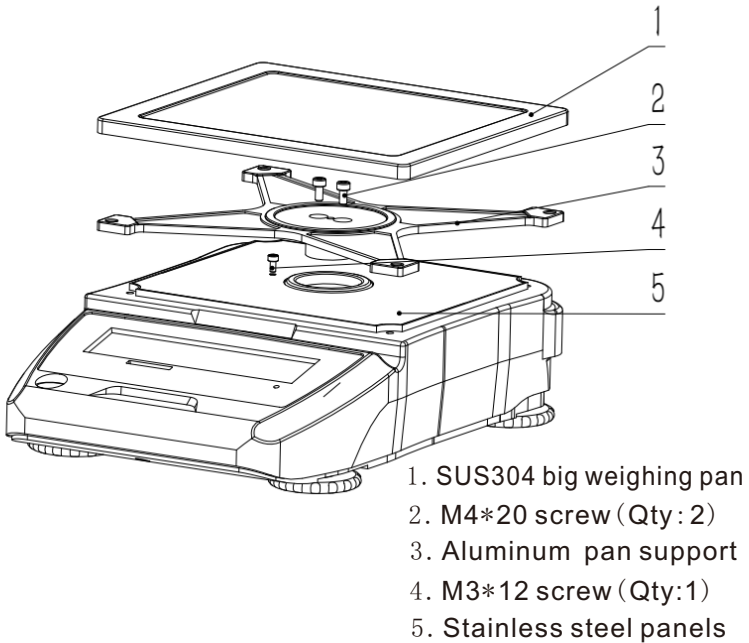
Install process of plastic windshield:

- ① Install L type support
- ② Install organic glass into the groove
- ③ Press the top fix frame
- ④ Put down the cap



Install

EF series balance(without windshield)



To install the balance, following parts in sequence:

- ① Aluminum pan support
- ② M4*20 screw (Qty: 2)
- ③ SUS304 big weighing pan

Adjust level

Level the balance on a stable desk. When the bubble is in the center of the circle, balance is leveled.

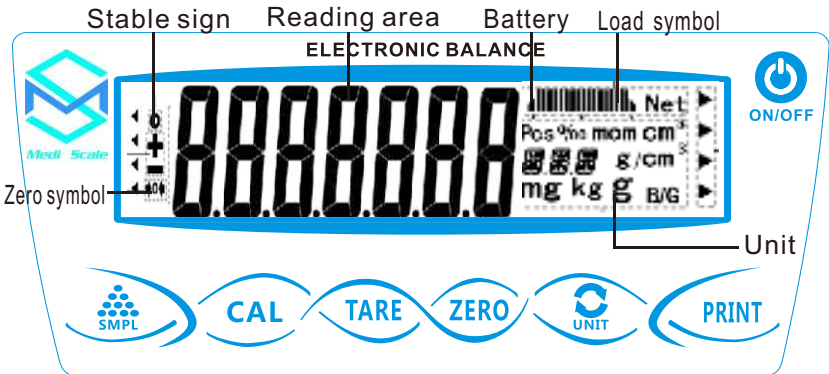
Connect to power

Please use our company power adapter.








Power adapter one end is connected to balance, the other end to AC base.

Operation panel and keyboard functions definition


Operation panel introduction





Keyboard definition


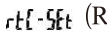



















Key	Operation	Function description
	Short press	In the mode of PCS/%/% / BG to operate
	Long press 3s	Initiates Span Calibration by long press 3s
	Short press	Tare the weighing
	Short press	Turns balance on/off,
	Short press	sets display to zero
	Short press	Steps through active units and modes
	Short press	Sends data

Powerboot

Short press  on/off switch, LCD、EL、LED all light,

Screen display about 1.5s, as follow: , Then screen display from 9999999 to 1111111, with beeper, need on 600ms, Off 400ms, then display “version”, “model”, finally LCD show: 






Time setting

- 1) On the opening state, press  3sec, enter the user setting, LCD display:  (RTC-SET), then display “”, press  set Years, press  change digital position to set years, press  confirm;
- 2) LCD jump to set Months, display “”, press set months, press  change digital position to set months, press  confirm;
- 3) LCD jump to set Days, display “”, press  set days, press  change digital position to set days, press  confirm;
- 4) LCD jump to set hours, display “”, press  set hours, press  change digital position to set hours, press  confirm;
- 5) LCD jump to set minutes, display “”, press  set minutes, press  change digital position to set minutes, press  confirm, finish the time setting.


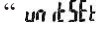





Initial calibration

To assure the balance accuracy, The first time to using the balance, must to do calibration, This product calibration with external, Before calibration, it need to adjust the balance level.

Calibration as follow:

- 1) Press  to open balance , firstly warm-up 20-30 minutes;
- 2) Calibration, press  3sec, LCD display “”, waiting for a sign “-----”, then LCD display twinkling numerical data (Remark: press  can change different corresponding weights), At this time, put down the corresponding weight, then waiting for a sign again “-----”, then LCD display corresponding weight, when LCD display “”, remove weight, LCD display 0, completed calibration.

Unit setting

- 1) Started balance, long press  3sec, enter the user settings, LCD display “” (UNITSET), then LCD display “”;
- 3) Then press  changing weighing unit, if confirm, press  to confirm. When changing weighing unit, can press  to close or open the unit, after setting the unit, press  to confirm.

Basic weighing operation




Unit detail

- | | |
|---------------------------------|-------------------------|
| 1) g | 12) H.tl HONG KONG TAEI |
| 2) ct MET.CARAT | 13) S.tl SINGAPORE TAEI |
| 3) lb AVORIRDUPOIS POUND | 14) t TOLA |
| 4) oz AVORIRDUPOIS OUNCE | 15) M Mesghai |
| 5) ozt TROY OUNCE | 16) cl Tical |
| 6) dr AVOIRDUPOIS DRAM | 17) PCS |
| 7) GN GRAIN | 18) % |
| 8) dwt PENNY WEIGHT | 19) ‰ |
| 9) mom MOMME | 20) B/G |
| 10) K.tl HONG KONG JEWELRY TAEI | 21) Kg |
| 11) T.tl TAEI (TWN) | |





Zero

No load on the balance, short press , LCD firstly display “ra” (ZERO), then display 0, Zero effect is inside of the maximum 4%








Taring

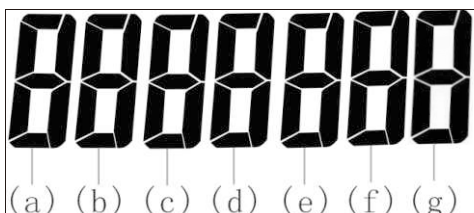
When there is a load on the balance, short press , LCD firstly display “ra ” (TARE), then display 0, Have the full range taring function.

Sample


1) On the opening state, At the mode of PCS, %, ‰ to sample, short press , LCD display “ 5- 5”, short press , chose numerical data, place specific objects, press , then load-off the objects, finish sampling.

RS232 print setting

- 1) Connect RS232 to the adaptor, Analysis weighing data, through RS232 sending out. Press  3sec, enter the user settings, LCD display “5--5 ” (rs—set), then LCD display  ;
- 2) Press  to set numerical data, press  to change the digital position. According to the definition about (a), (b), (c), (d), (e), (f), (g) to setting. after setting, press  to confirm.
- (a), (b), (c), (d), (e), (f), (g) definition:



Basic weighing operation

- (a) 0=9600 1=19200
 (b) 0=continuous output 1=stable output 2=press  output
 (c) 0=none 1=output date
 (d) 0=none 1=output ITEM
 (e) 0=PC work 1=print by tag paper 2=print by continuous paper 3=Micro printer
 (f) 0
 (g) 0








USB interface connect computer(Optional function)

When you buy balance to bring this function, please contact the manufacturer to obtain driver files or CD-ROM, you can also go directly to download the driver files from website.

Item setting

Item setting can make for managing product number, clause, logo or print data.

Setting as follow:

- 1) On the opening state, long press  3s, LCD display  (ITEMSET), leave , LCD display ;
- 2) Press  to set numerical data, press  to change the digital position, set by user, press  to confirm.

Normal fault and solving countermeasure

Error information	Reasons analysis	Solution
Can't turn on	No power	Check adaptor connect or battery voltage is ok ?
Reading not correct	No calibration balance by right way Work environment not stable	calibration balance Put the balance by stable
Can't calibration the balance	No calibration balance by right way Work environment not stable	calibration balance Put the balance by stable
Auto turn off	Battery voltage too low (only cell supply power)	charge
OVER	Check the weighing (if over the max capacity 9e)	Check the weighing Check the pan whether interference with the limit screw or support block

Technical instructions

Technical data

Working Temperature: 10°C-40°C

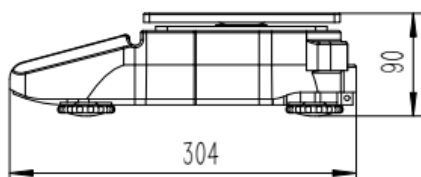
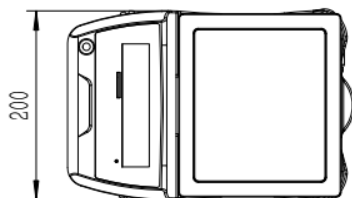
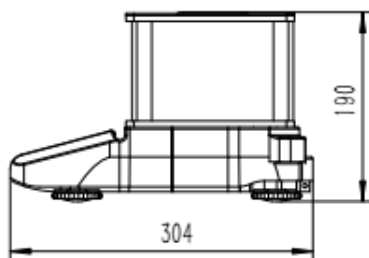
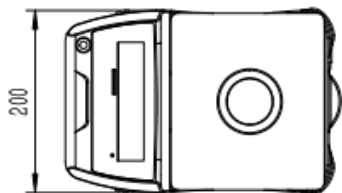
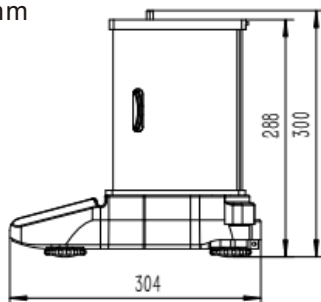
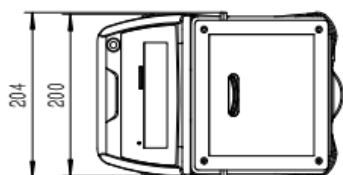
Working Voltage: DC12V

Working humidity range: 40%-85%

Adaptor data: Input: AC100-240V 50/60Hz 0.3A, Output: DC12V 1000mA

Product dimension

Product outline dimension, unit:mm



Technical instructions

Specification

Item No.	DF100	DF200	DF300	DF500
Capacity(g)	100	200	300	500
Readability(g)	0.001			
Repeatability(g)	± 0.001			
Linearity(g)	± 0.002			
Working Temperature(°C)	10~40			
Working voltage	DC12V			
CAL	External calibration(weights option)			
RS232 connector	have			
Warm-up time(min)	20~30			
Frame Size(LxWxH) (mm)	304×204×300			
Packing Size(LxWxH) (mm)	400×310×220			
Pan Size (mm)	Ø115			
USB interface	Optional			
Gross weight (kg)	4.95			
Net weight(kg)	4.05			
Leveling	have			

Item No.	EF2000	EF3000	EF5000
Capacity(g)	2000	3000	5000
Readability(g)	0.01		
Repeatability(g)	± 0.01		
Linearity(g)	± 0.02		
Working Temperature(°C)	10~40		
Working voltage	DC12V		
CAL	External calibration(weights option)		
RS232 connector	have		
Warm-up time(min)	20~30		
Frame Size(LxWxH) (mm)	304×200×90		
Packing Size(LxWxH) (mm)	400×310×170		
Pan Size (mm)	192×171×8		
USB interface	Optional		
Gross weight (kg)	3.55		
Net weight(kg)	2.85		
Leveling	have		

Technical instructions

Item No.	EF300	EF400	EF500	EF600	EF1000
Capacity(g)	300	400	500	600	1000
Readability(g)	0.01				
Repeatability(g)	± 0.01				
Linearity(g)	± 0.02				
Working Temperature (°C)	10-40				
Working voltage	DC12V				
CAL	External calibration(weights option)				
RS232 connector	have				
Warm-up time(min)	20-30				
Frame Size(LxWxH) (mm)	304×200×190				
Packing Size(LxWxH) (mm)	400×310×170				
Pan Size (mm)	157×136×8				
USB interface	Optional				
Gross weight (kg)	3.35				
Net weight (kg)	2.65				
Leveling	have				

Item No.	MK3000	MK5000	MK6000	MK10000
Capacity(g)	3000	5000	6000	10000
Readability(g)	0.1			
Repeatability(g)	± 0.1			
Linearity(g)	± 0.1			
Working Temperature(°C)	10-40			
Working voltage	DC12V			
CAL	External calibration(weights option)			
RS232 connector	have			
Warm-up time(min)	20-30			
Frame Size(LxWxH) (mm)	304×200×90			
Packing Size(LxWxH) (mm)	400×310×170			
Pan Size (mm)	192×171×8			
USB interface	Optional			
Gross weight (kg)	3.55			
Net weight (kg)	2.85			
Leveling	have			

Technical instructions

Unit conversion

No.	Unit	Symbol	Conversion(g)
1	gram	g	1
2	MET. CARAT	ct	0.1999694g
3	AVORIRDUPOIS POUND	lb	453.59237g
4	AVORIRDUPOIS OUNCE	oz	28.349523125g
5	TROY OUNCE	ozt	31.1034768g
6	AVOIRDUPOIS DRAM	dr	1.7718451g
7	GRAIN	GN	0.06479891g
8	PENNY WEIGHT	dwt	1.55517384g
9	MOMME	mom	3.749996g
10	HONG KONG JEWELRY TAEI	K. tI	37.4290018g
11	TAIWAN TAEI	T. tI	37.49995g
12	HONG KONG TAEI	H. tI	37.799375g
13	SINGAPORE TAEI	S. tI	37.799366256g
14	TOLA	t	11.6638038g
15	Mesghai	M	4.6083162g
16	Tical	cl	16.3293g
17		kg	1000g
18		GSM	0.01g
19		PCS	
20		%	
21		‰	