

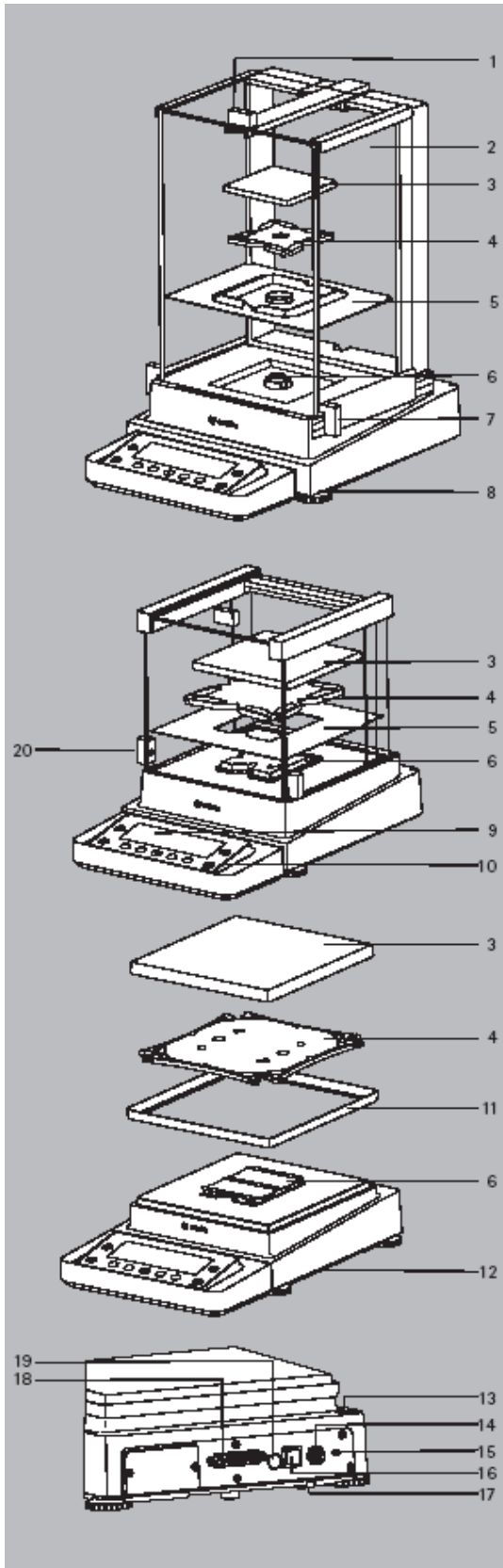
Operating Instructions

Sartorius Cubis Series

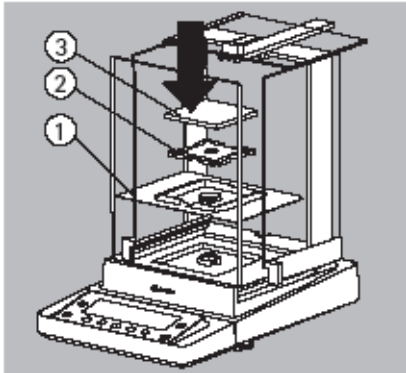
Electronic Precision and Analytical Balances
MSE Models



장비 구성품 설명



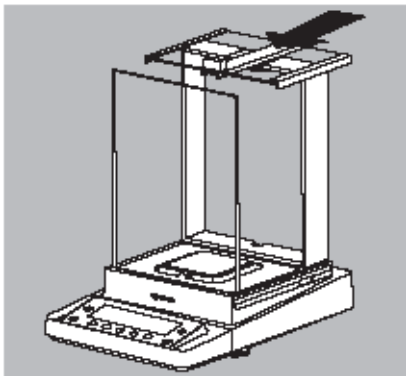
1. 방풍용 상판 유리 패널 및 손잡이
2. 후면 유리 패널
3. 저울 계량 팬
4. 팬 서포트
5. 보호용 평판
6. 팬 고정장치
7. 전면 유리 패널 및 손잡이
8. 수평 조절용 Leveling foot
9. 디스플레이
10. 디스플레이 및 조작 유닛
11. 바람막이용 디스크(only for 10mg balance)
12. 하부 계량 포트
13. 수평계
14. 전원 소켓
15. 도난 방지용 슬롯
16. PC 연결을 위한 USB 인터페이스
17. 하부계량을 위한 hook
18. 추가 인터페이스 장착을 위한 슬롯
19. Menu access switch
20. 좌면 유리 패널 및 손잡이



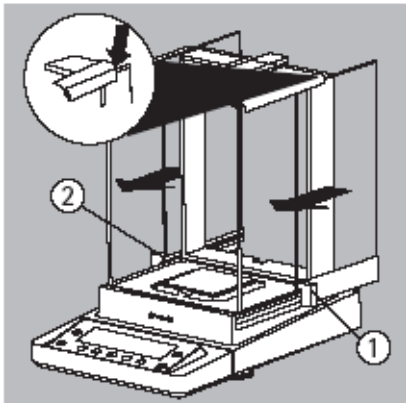
Analytical Balance 조립

▶ 왼쪽 그림과 같이 구성품 조립

1. 보호용 평판 (Shield plate)
2. 팬 서포트 (Pan support)
3. 저울 계량 팬



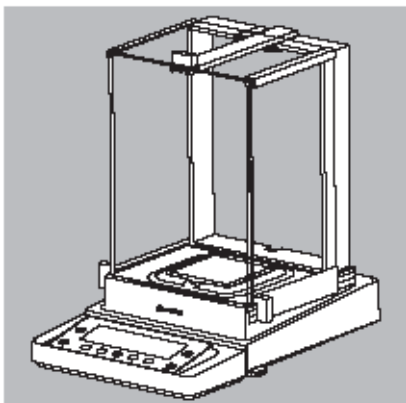
▶ 후방으로부터 가이드 레일을 따라 상판 유리 챔버 장착



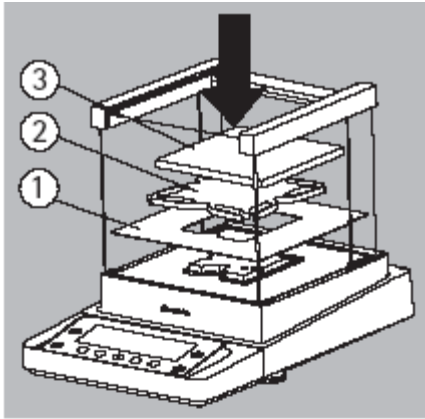
▶ 후방으로부터 가이드 레일을 따라 유리 챔버 장착

▶ 상, 하 가이드 레일 이내에서 맞물릴때까지 패널을 장착

1. 오른쪽 유리 패널
2. 왼쪽 유리 패널



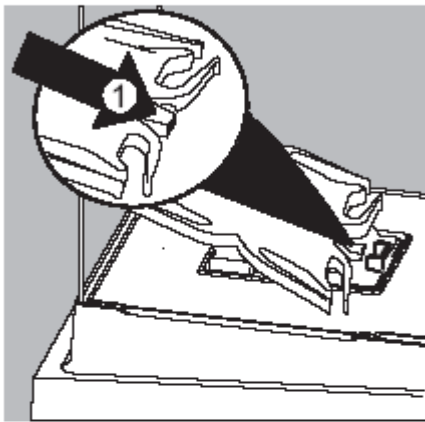
▷ 조립 완성 모습



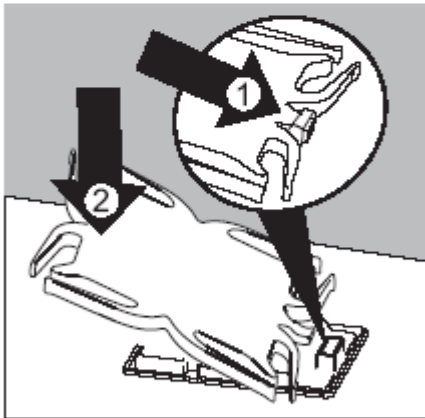
1mg Precision Balance 조립

▶ 왼쪽 그림과 같이 구성품 조립

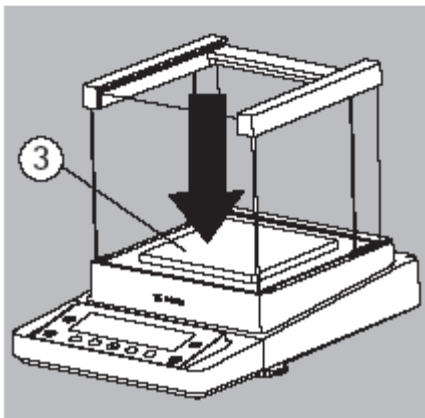
1. 보호용 평판 (Shield plate)
2. 팬 서포트 (Pan support)
3. 저울 계량 팬



▶ 그림에서 보듯 팬 서포트에 있는 핀(1)을 팬 고정장치의 클립 아래로 장착

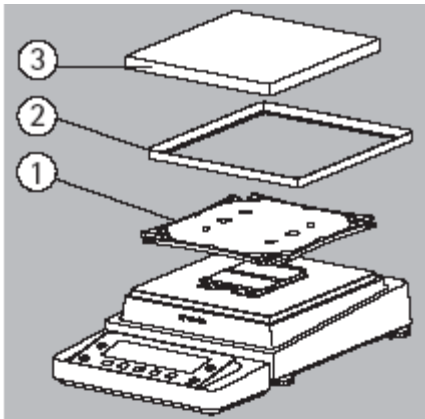


▶ 팬 서포트 장착 후 반대편을 눌러 평평하게 유지



▶ 팬 서프트 위에 저울 계량 팬을 올려 놓는다.

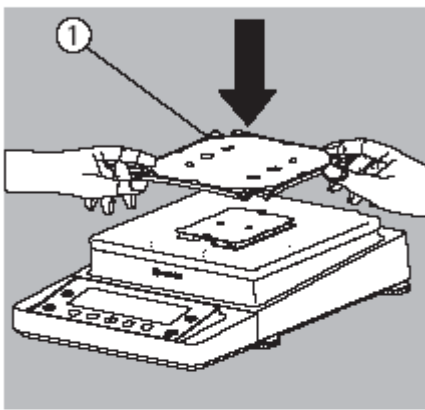
▶ Analytical Balance 와 마찬가지로 방풍유리 챔버를 장착.



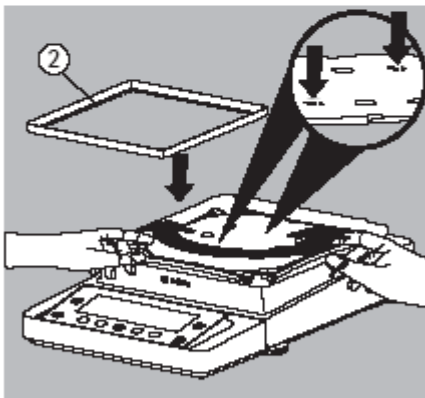
10mg 이상 Precision Balance 조립

▶ 왼쪽 그림과 같이 구성품 조립

1. 팬 서포트(Pan support)
2. 바람막이용 디스크 (Shield palte)
3. 저울 계량 팬

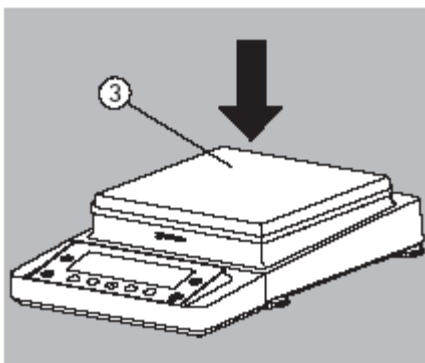


▶ 팬 서포트를 대각선 방향으로 놓는다.



▶ 두 개의 버튼이 잠길 때까지 시계 방향으로 돌려 장착

▶ 바람막이용 디스크 장착



▶ 팬 서포트 위에 저울 계량 팬을 놓는다.

▷ 조립 완성 모습

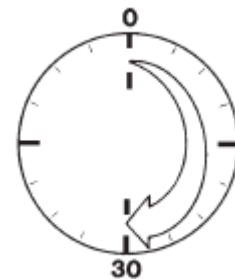
1. 설치장소의 일반적인 요건

- ① 직사광선이 닿지 않는 곳
- ② 진동이 없는 곳
- ③ 견고하고 주위의 진동을 전달하지 않는 무거운 테이블에 방진용 고무패드를 부착
- ④ 사람의 왕래가 잦은 문 옆이나 에어컨의 바람을 직접 받는 곳은 피한다.
- ⑤ 같은 건물이라도 차량의 운행이 잦은 도로 옆이나 공사 현장에서 가까운 곳은 피한다.
- ⑥ 용량이 큰 모터나 기타 진동을 유발하는 기기, 또는 전자파나 고주파를 발생하는 기기와는 충분한 거리를 이격시킨다.
- ⑦ 방의 중앙보다는 벽쪽에 가깝게 설치한다.
- ⑧ 부식성, 독성이 있는 화학약품을 시료로 사용하는 기기와는 거리를 둔다.
- ⑨ 방폭지역에는 설치하여서는 안된다.
(방폭지역에서는 방폭용 저울외에는 사용할 수 없다.)
- ⑩ 전원이 자주 끊어지지 않는 곳이 좋다.



2. 전원 공급

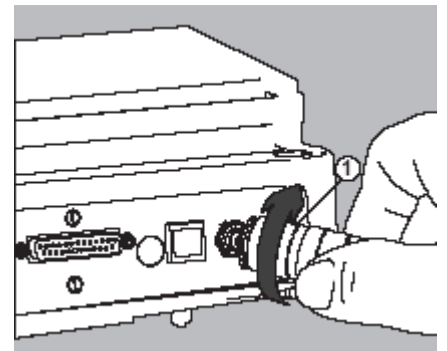
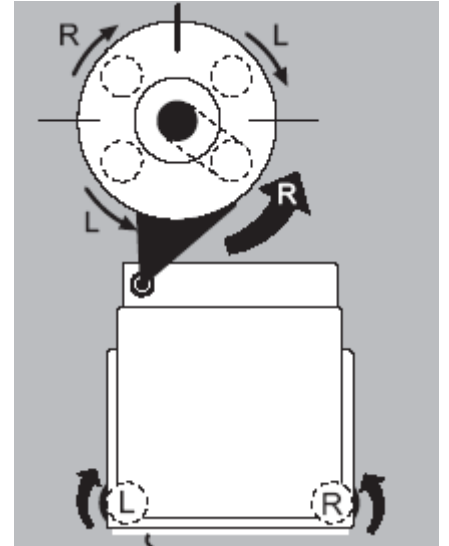
- ① 전원 버튼을 이용해 전원을 켜다.
- ② 저울을 공급한 후에 최소한 30 분 이상의 워밍업을 둔다



3. 설 치 방 법

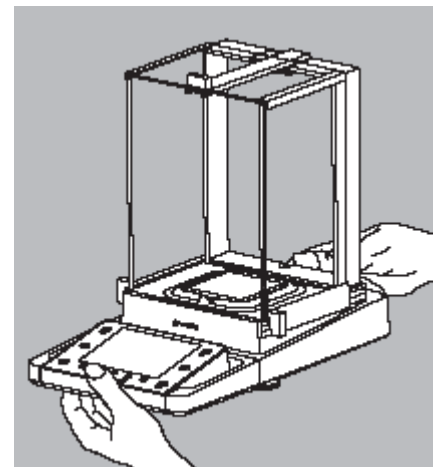
- ① 유리 Chamber 의 Draft shield 를 연다.
- ② 원판형 보호장치를 저울의 중앙에 맞게 올려 놓는다.
- ③ 계량접시를 중앙에 홈에 잘 맞게 끼우는데 이때 무리하게하면 안되며 좌,우 회전시켜 정위치를 찾아 끼운다.
- ④ 저울의 후면 바닥에 위치한 높이 조절 나사를 회전시켜 수평계의 물방울이 정중앙의 원안에 오게하여 수평을 맞춘다.
- ⑤ 전원 공급용 어댑터의 사용전압은 100~240V 까지이며 저울 본체의 후면에 전원 연결구를 연결한다.
- ⑥ 플러그 코드를 전원 공급용 어댑터에 연결한다.
- ⑦ 콘센트에 꽂을 플러그 코드의 모양을 확인, 선택하여 전원을 연결한다.
- ⑧ 전원 공급용 어댑터에 전원이 연결된 경우 최소 30 분 이상 예열 시간을 갖는다.

*** 주의 :** 다른 장소로 이동시 (최소 30 분 방치하여 둠)
최초 전원 연결시 (최소 24 시간 예열시간을 둠)

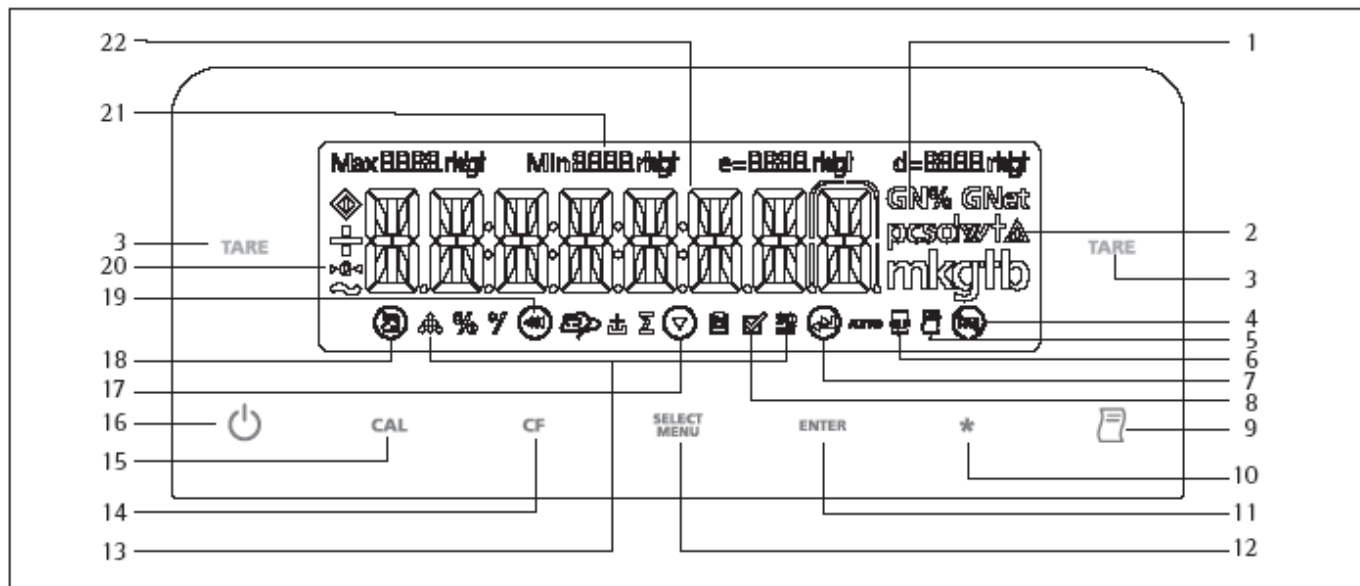


4. 저울 운반시 주의 사항

- ① 원거리 이동시는 계량접시 및 기타 액세서리를 본체에서 분리후 잘 포장하여 이동한다.
- ② 근거리 이동시 측면의 Draft shield 를 잡지말고 전면의 디스플레이와 본체의 후면을 잡고 이동한다.



저울을 사용하기 전에 Control Unit 상에 Key 표식들이 의미하는 내용에 대해 알아보면 다음과 같습니다.



Overview of Display and Operating Elements

Position	Designation
1	Weight units
2	Calculated-value indicator: not a weight value
3	Taring
4	Symbol: "Ionizer active"
5	Symbol: "Printing mode active"
6	Symbol: "GLP printing mode active"
8	Symbol: "Application program active"
9	Data output: Press this key to send readout values to the built-in data interface.
10	Open or close draft shield Turn on/off ionizer
11	Start an application program
12	Select an application program Open the operating menu
13	Symbols for active application (☼, %, ☼, ☼, ☼, ☼, ☼)
14	Delete (Clear Function)
	This key is generally used to cancel functions:
	- Quit application program
	- Cancel calibration/adjustment routine Exit the operating menu
15	Start calibration/adjustment routine
16	On/off
18	Symbol: "isoCAL": Calibration/adjustment function
20	Symbols for zero range (verified models only)
21	Metrological data
22	Weight value displayed in selected weight unit
Symbols:	
19	◀◀ Save settings and exit the operating menu
19	◀ One menu level higher
17	▼ Select menu item
7	▶ Next item on current menu level
7	⌵ Select a parameter setting

5. 메뉴 설정방법

Display symbol

key

Function



(SELECT
MENU)

셋업메뉴진입 and 메뉴아래로 이동



(ENTER)

현 레벨에서의 메뉴 진입
(4 단계까지 메뉴진입)



(ENTER)

현 메뉴 확정 키




(CF) (Press
and hold)

세팅값 저장 및 메뉴 빠져나오기

2. 3. 1. 1

메뉴 레벨 지시

메뉴설정방법 (예 : 언어설정)

단 계	Key(or Instruction)	Display/Printout
1. 메뉴 진입	(SELECT MENU) hold	APPLIC.
2. 현 레벨에서의 메뉴 변환	Repeatedly (SELECT MENU)	INPUT ... LANGUAG.
3. 다음 레벨로 메뉴진입	Repeatedly (ENTER)	ENGLISH °
4. 원하는 메뉴로 변환	(SELECT MENU)	ENGLISH
5. 메뉴 확정	(ENTER)	ENGLISH °
6. 메뉴설정 및 빠져나오기	Repeatedly: (CF)	

세팅 파라미터 메뉴



Level 1	Level 2	Level 3	Inform. on menu level
1) SETUP	BAL.SCAL. Balance parameters	AMBLEN: conditions APP.FILT.: Application filter STAB.RNG Stability range TARE ¹⁾ AUTO.ZERO Auto zero WGT.UNIT Basic weight unit DISP.DIG. Display accuracy ¹⁾ CAL.FREQ. Function of the (CAL) key CAL.SEQ. Cal. sequence ZERO.RNG VOLT.ZERO Zero at Power On ONTARE Tare zero at Power CIRC.RATE Output rate ISO.CAL Autom. calibration adjustment EXT.CAL. External adjustment CAL.UNIT Weight unit for calibration ¹⁾	1. 1. 1. 1. 1. 2. 1. 1. 3. 1. 1. 5. 1. 1. 6. 1. 1. 7. 1. 1. 8. 1. 1. 9. 1. 1. 10. 1. 1. 11. 1. 1. 12. 1. 1. 13. 1. 1. 14. 1. 1. 15. 1. 1. 16. 1. 1. 17.
	GEN.SERV. General Service	MEN.RESET Factory settings	1. 9. 1.
2) SERVICE	EXTRAS (Additional functions)	MENU Menu read only can edit SIGNAL Acoustic signal (beep) KEYS Keypad EXT.KEY External switch function ONMODE Power-on mode DRASHIELD Automatic RES.DRA SH Resolution, Draft Shield open LONIZER LEVEL- LEVELING	2. 1. 1. 2. 1. 2. 2. 1. 3. 2. 1. 4. 2. 1. 6. 2. 1. 9. 2. 1. 10. 2. 1. 11 2. 1. 12 2. 1. 13
	PERIPHER. (25-pin "Peripherals" interface)	BA.RCC. Communication mode BAUD rate PARITY Parity STOPBIT Number of stop bits HANDSHK Handshake mode BAUBIT Number of data bits	2. 2. 1. 2. 3. 1. 2. 2. 2. 2. 3. 2. 2. 2. 3. 2. 3. 3. 2. 2. 4. 2. 3. 4. 2. 2. 5. 2. 3. 5. 2. 2. 6. 2. 3. 6.
	PC-USB USB port (PC)		
3) BAUDOUT	COM.SER. (PC Communication)	RESOLUTION (manual automatic) STOPAUT. Stop automatic printing AUTOCYCL. Time-dependent autom. printing FORMAT Line format for printout AUTOTARE Autom. taring after printing	3. 1. 1. 3. 1. 2. 3. 1. 3. 3. 1. 4. 3. 1. 5.
	PRINT.PARA. for printing	RES.olution (manual) FORMAT Line format for printout PRINTING Printout of appl. parameters GLP ISO GLP-compliant printout TARE.PRINT Tare bal. after ind. print TIME: 12h 24h DATE: Format	3. 2. 1. 3. 2. 2. 3. 2. 3. 3. 2. 4. 3. 2. 5. 3. 2. 6. 3. 2. 7.
4) APPLICATION programs	WEIGHT TOGGLE wt. unit COUNT PERCENT Weighing in percent NET-TOTAL Net-total Formulation TOTAL Totalizing ANIMALW. Animal weighing CALC. Calculation DENSITY Density determination	DISP.DIG. Display accuracy ¹⁾ RESOLUTION REF.UPDT. Autom. ref. sample updating. DEC.PLCS Decimal places COMP.PRINT. Printout of components COMP.PRINT. Printout of components ACTIVITY Animal activity START MATH Operator DEC.PLCS Decimal places DEC.PLCS Decimal places	4. 1. 4. 2. 2. 4. 3. 1. 4. 3. 2. 4. 4. 1. 4. 5. 1. 4. 6. 1. 4. 7. 1. 4. 7. 2. 4. 8. 1. 4. 8. 2. 4. 9. 1.
5) INPUT Input	IDNO. ID input; max. 7 characters DATE Set a date TIME Set a time		5. 1. 5. 2. 5. 3.
6) INFO Information	VERSION, SER.NR., MODEL	Display software ver., serial no., model	6. 1. 2. 3.
7) LANGUAGE (LANGUAGE)	ENGLISH (Factory setting) GERM. (German) FRANCAIS (French) ITALIANO (Italian) ESPANOL (Spanish) RUSSKIY (Russian) POLSKI (Polish)		7. 1. 7. 2. 7. 3. 7. 4. 7. 5. 7. 6. 7. 7.
8) OPT.MO. (optional interface)		Displays software vers., serial no., model	8. 1./2.

Parameter settings: Overview

o = Factory setting; ✓ = User-defined setting

Level 1	Level 2	Level 3	Level 4	Inform. on menu level
1) SETUP	BAL.SCAL. Balance parameters	ADAPT EN ¹⁾ conditions	o P.S.TABLE Very stable	1.1.1.1
		Adapt filter	o S.TABLE	1.1.1.2
			o UNS.TABLE	1.1.1.3
			P.UNS.TABLE Very unstable	1.1.1.4
		APP.FILT ¹⁾ Application filter	o FINALRD Final readout mode	1.1.2.1
			FILLING Filling mode	1.1.2.2
			REDUC. Reduced	1.1.2.3
			OFF	1.1.2.4
		STAB.RNG Stability range	MAX ACC. Maximum accuracy	1.1.3.1
			P.ACC.	1.1.3.2
			o ACC.	1.1.3.3
			FAS ¹⁾	1.1.3.4
			P.FAS ¹⁾	1.1.3.5
			MAX FAS ¹⁾	1.1.3.6
		ST. DEL. Delay	NO	1.1.4.1
			o SHORT	1.1.4.2
			AVERAG.	1.1.4.3
			LONG	1.1.4.4
		TARE ¹⁾	o WTS.TB.W/o stability	1.1.5.1
			WTS.TB. After stability	1.1.5.2
			AT STAB. At stability	1.1.5.3
		AUT.ZERO Auto zero	OFF	1.1.6.1
			o ON	1.1.6.2
		WT.UNIT ¹⁾ Basic weight unit	For list of units, see "Toggling Between Weight Units"	1.1.7.1 to 1.1.7.24
		DISP.DIG. ¹⁾ Display accuracy	o ALL	1.1.8.1
			L.P.ON.OFF Last stability after load change	1.1.8.2
			20% 1 Interval	1.1.8.6
			MINUS 1 Subtract one Interval	1.1.8.7
		CAL.USR. ¹⁾ Function of the keys (CAL)	CAL.EXT. External cal.(adj. ¹⁾	1.1.9.1
			E.CAL.USR. External calibration with user weight ¹⁾	1.1.9.3
			o CAL.INT. Internal Calibration/Adjustment	1.1.9.4
			INT.LIN. Internal linearization (on analytical balances only)	1.1.9.5
			SET.PREL. Set preload	1.1.9.8
			DEL.PREL. Delete preload	1.1.9.9
			BLOCKED (CAL) Blocked	1.1.9.10
			SELECT.W. Determine ext. calibration weight for E.CAL.USR.	1.1.9.17
		CAL. SEQUENCE	Adjustment	1.1.10.1
			CAL.-ADJ. Adjustment as needed	1.1.10.2
		ZERORNGE	1 PERCENT	1.1.11.1
			o 2 PERCENT	1.1.11.2
		INIT.ZERO Zero at Power On	o DEFAULT Factory set	1.1.12.1
			2 PERCENT	1.1.12.2
		ON/TARE Toggle tare zero	o On	1.1.13.1
			Off	1.1.13.2
		OPC.RATE Output rate	o NORMAL	1.1.14.1
			HIGHVAR.	1.1.14.2
			LOW	1.1.14.3
			MEDIUM	1.1.14.4
			FAS ¹⁾	1.1.14.5
			PERF.FAS ¹⁾	1.1.14.6
			MAXIMUM	1.1.14.7
		ASOCAL Auto. calibration adjustment	OFF	1.1.15.1
			NO/CE	1.1.15.2
			o ON	1.1.15.3
			LOWLINearize	1.1.15.4
		EXT.CAL. External calibration ¹⁾	o FREE	1.1.16.1
			LOCKED (blocked)	1.1.16.2
		CAL.UNIT ¹⁾ Weight unit for calibration ¹⁾ for calibration weight	o GRAM	1.1.17.1
			KILOGRAM	1.1.17.2
			USERDEF. (Factory setting: pound)	1.1.17.4
	GEN.SERV. General Servicing	MENU.RESET Menu reset Restore fcty. settings	YES	1.9.1.1
			o NO Do not restore settings	1.9.1.2
			Standard ¹⁾	1.9.1.3
			Calibrate ¹⁾	1.9.1.4

¹⁾ Setting cannot be changed on verified balances

Level 1	Level 2	Level 3	Level 4	Inform. on menu level
2) DEVICE	EXTRAS (Additional functions)	MENU	CAN EXIT	2. 1. 1. 1
			READ ONLY Read only	2. 1. 1. 2
		SIGNAL Acoustic signal (beep)	OFF	2. 1. 2. 1
			ON	2. 1. 2. 2
		KEYS (Keypad)	FREE	2. 1. 3. 1
			LOCKE	2. 1. 3. 2
		EXT.KEY External switch function	PRINT Key ()	2. 1. 4. 1
			Z/TARE Key (TARE)	2. 1. 4. 2
			CAL. Key (CAL)	2. 1. 4. 3
			SELECT key ()	2. 1. 4. 4
			CF Key (CF)	2. 1. 4. 5
			ENTER Key (ENTER)	2. 1. 4. 6
			WR.SHIELD	2. 1. 4. 9
			IONIZER.or	2. 1. 4. 10
			ASTERISK Key (*)	2. 1. 4. 12
		ON MODE Power-on mode	OFF IONIS Off On Standby	2. 1. 6. 1
			ONIS On Standby	2. 1. 6. 2
			AUTO ON Auto on	2. 1. 6. 4
		WR.SHIELD automatic	OFF	2. 1. 9. 1
			CLICQ:OP: Close → Command → Open	2. 1. 9. 2
			CLICQ: Close → Execute command	2. 1. 9. 4
		RES.WR.SH (Resolution, draft shield open)	ALL units on	2. 1.10. 1
			RE.WUC.ed	2. 1.10. 2
		IONISATOR	OFF	2. 1.11. 1
			5 SEC.onds	2. 1.11. 2
			10 SEC.onds	2. 1.11. 3
			15 SEC.onds	2. 1.11. 4
	LEVEL	OFF	2. 1.12. 1	
		NOTE.TO	2. 1.12. 2	
		ERR.MSG.Error message	2. 1.12. 3	
	LEVELING	MANUAL	2. 1.13. 1	
		AUTOAuto	2. 1.13. 2	
	PERIPHER (25-pin "Peripherals" interface)	WAT.REC. Communication mode	5B1 (ASCII) ¹⁾	2. 2. 1. 1 2. 3. 1. 1
			XBPI	2. 2. 1. 2 2. 3. 1. 2
			REM.WISPL ay	2. 2. 1. 4 2. 3. 1. 4
			UNI.PRINT. Universal printer	2. 2. 1. 7 2. 3. 1. 7
			LAW.PRINTER (: parameters for printer YDP10)	2. 2. 1. 8 2. 3. 1. 8
			OFF	2. 2. 1.10 2. 3. 1.10
		BAU rate interface	600	2. 2. 2. 3 2. 3. 2. 3
			1200	2. 2. 2. 4 2. 3. 2. 4
			2400	2. 2. 2. 5 2. 3. 2. 5
			4800	2. 2. 2. 6 2. 3. 2. 6
			9600	2. 2. 2. 7 2. 3. 2. 7
			19200	2. 2. 2. 8 2. 3. 2. 8
			38400	2. 2. 2. 9 2. 3. 2. 9
	PC-US (USB port PC)	57600	2. 2. 2.10 2. 3. 2.10	
		115200	2. 2. 2.11 2. 3. 2.11	

Level 1	Level 2	Level 3	Level 4	Indicates menu level
2) DEVICE	PERIPHER PC-US	PARITY	○ OFF	2. 2. 3. 3 2. 3. 3. 3
		Parity	EVEN	2. 2. 3. 4 2. 3. 3. 4
			NONE	2. 2. 3. 5 2. 3. 3. 5
		STOPBIT No. of stop bits	○ 1 STOP 2 BITS	2. 2. 4. 1 2. 3. 4. 1 2. 2. 4. 2 2. 3. 4. 2
3) DATA OUT	COM. SBI (PC communication)	COM. OUTPut (manual automatic)	○ INNO stability	3. 1. 1. 1
			INNO stability	3. 1. 1. 2
			INNO stability	3. 1. 1. 3
			OUT. W/O stability	3. 1. 1. 4
			OUT. WITH stability	3. 1. 1. 5
		STOPAUT. Stop automatic printing	ON OFF	3. 1. 2. 1 3. 1. 2. 2
		OUT. CYCL. Time-dependent automatic printing	EACHVAL ○ AFTER 2	3. 1. 3. 1 3. 1. 3. 2
		FORMAT (Line format for printout)	16 CHARS digit is not identified ○ 22 CHARS digit is identified BLOCK EXTRA LINE (date, time, weight value)	3. 1. 4. 1 3. 1. 4. 2 3. 1. 4. 3 3. 1. 4. 4
		AUTO TARE Auto taring after printing	○ OFF ON	3. 1. 5. 1 3. 1. 5. 2
	PRINT. PARA. for printing	RESOLUTION (manual)	MAN. NO stability	3. 2. 1. 1
			○ MAN. AT stability	3. 2. 1. 2
			MAN. AT stability	3. 2. 1. 3
			AUTO LC (autom. at load change)	3. 2. 1. 6
		FORMAT Line format for printout	16 CHARS digit is not identified ○ 22 CHARS digit is identified BLOCK EXTRA LINE (date, time, weight value)	3. 2. 2. 1 3. 2. 3. 2 3. 2. 3. 3 3. 2. 4. 4
		PRINT. INIT. Printout of appl. parameters	OFF ○ ALL parameters MAINPARAMeters	3. 2. 3. 1 3. 2. 3. 2 3. 2. 3. 3
		GLP ISO GLP-compliant printout	○ OFF CAL. - ADJ. Only for calib. adj. ALWAYS ON	3. 2. 4. 1 3. 2. 4. 2 3. 2. 4. 3
		TARE PRINT. Tare bal. scale after ind. print	○ AUS ON	3. 2. 5. 1 3. 2. 5. 2
		TIME	○ 24H display 12H display "AM PM"	3. 2. 6. 1 3. 2. 6. 2
		DATE	○ MM/MM/YY format MM/YY format	3. 2. 7. 1 3. 2. 7. 2

Level 1	Level 2	Level 3	Level 4	Indicates menu level
APPLIC.	WEIGH			4. 1.
Applica- tion programs	WT.UNIT	DISP.#IG.1)	o ALL	4. 2. 2. 1
	Toggle wt. unit	Display accuracy	LP.ON/OFF (Last stability after load change)	4. 2. 2. 2
			#DIV. 1 1 Interval	4. 2. 2. 6
			MINUS 1 Subtract one interval	4. 2. 2. 7
	COUNT	RESOLUTION	o #ISP.ACC. Display accuracy	4. 3. 1. 1
			10 FOL# 10 times > disp.	4. 3. 1. 2
			100 FOL# 100 times > disp.	4. 3. 1. 3
		REF.WP.WT. auto	o OFF	4. 3. 2. 1
			AUTOMATIC	4. 3. 2. 2
	PERCENT	#DEC.PLCS	NONE No decimal places	4. 4. 1. 1
	Weighing in percent	Number of decimal places	o 1 #DEC.PL. 1 decimal place	4. 4. 1. 2
			2 #DEC.PL. 2 decimal places	4. 4. 1. 3
			3 #DEC.PL. 3 decimal places	4. 4. 1. 4
	NET-TOTL.	COMP.PRT.	OFF	4. 5. 1. 1
	Net-total formulation	Printout of components	o ON	4. 5. 1. 2
	TOTAL	COMP.PRT.	OFF	4. 6. 1. 1
	Total	Printout of components	o ON	4. 6. 1. 2
	ANIMALW.	ACTIVITY.	CALM (fluct.: 2% of test obj.)	4. 7. 1. 1
	Animal weighing	Animal activity	o ACTIVE (fluct.: 5% of test obj.)	4. 7. 1. 2
			WACTIVE (fluct.: 20% of test obj.)	4. 7. 1. 3
		START	MANUAL	4. 7. 2. 1
			o AUTOMATIC	4. 7. 2. 2
	CALC.	METHO# (operator)	o MUL. Multiplier	4. 8. 1. 1
	Calculation		#DIV. Divisor	4. 8. 1. 2
		#DEC.PLCS	NONE No decimal places	4. 8. 2. 1
			o 1 #DEC.PL. 1 decimal place	4. 8. 2. 2
			2 #DEC.PL. 2 decimal places	4. 8. 2. 3
			3 #DEC.PL. 3 decimal places	4. 8. 2. 4
	#DENSITY	#DEC.PLCS	NONE No decimal places	4. 9. 1. 1
			o 1 #DEC.PL. 1 decimal place	4. 9. 1. 2
			2 #DEC.PL. 2 decimal places	4. 9. 1. 3
			3 #DEC.PL. 3 decimal places	4. 9. 1. 4

1) Setting cannot be changed on verified balances

모델별 사양

Semi-microbalances 0.01

Model		MSE22 5S	MSE22 5P	MSE125P
Readability	mg	0.01	0.01 0.02 0.05	0.01 0.1
Weighing capacity	g	220	60 120 220	60 120
Tare range (subtractive)	g	- 220	- 220	- 120
Repeatability	≤±mg	0...60g: 0.015 60...220g: 0.025	0...60g: 0.015 60...220g: 0.04	0...60g: 0.015 60...120g: 0.06
Linearity	≤±mg	0.1	0.15	0.15
Corner load (test load [g])	mg	0.15 (100)	0.2 (100)	0.15 (50)
Min. initial weight*	mg	20	20	20
Sensitivity drift between +10...+30°C	±ppm K	1	1	1
Typical stabilization time	s	≤ 2	≤ 2	≤ 2
Typical measurement time	s	≤ 6	≤ 6	≤ 6
External standard calibration value (with an accuracy of at least ...)	g	200 (E2)	200 (E2)	100 (E2)
Display result (depending on the set filter level)		0.2 – 0.4		
Weighing pan dimensions (W × D)	mm	85 × 85		
Weighing chamber height (draft shield DU)	mm	261		
Protection		Protected against dust and water		

* = Typical min. initial weighing according to USP (United States Pharmacopeia), USP31-NF26

Analytical balances 0.1 mg

Model		MSE324S	MSE224S	MSE324P	MSE124S
Readability	mg	0.1	0.1	0.1 0.2 0.5	0.1
Weighing capacity	g	320	220	80 160 320	120
Tare range (subtractive)	g	- 320	- 220	- 320	- 120
Repeatability	≤±mg	0.1	0.07	0.1 0.2 0.4	0.1
Linearity	≤±mg	0.3	0.2	0.5	0.2
Corner load (test load [g])	mg	0.3 (200)	0.2 (100)	0.4 (200)	0.2 (50)
Min. initial weight*	mg	120	120	120	120
Sensitivity drift between +10...+30°C	±ppm K	1	1	1	1
Typical stabilization time	s	≤ 1	≤ 1	≤ 1	≤ 1
Typical measurement time	s	≤ 3	≤ 3	≤ 3	≤ 3
External standard calibration value (of at least accuracy class ...)	g	200 +100 (E2)	200 (E2)	200 +100 (E2)	100 (E2)
Display result (depending on the set filter level)		0.1 – 0.4			
Weighing pan dimensions (W × D)	mm	85 × 85			
Weighing chamber height (draft shield DU)	mm	261			
Protection		Protected against dust and water			

* = Typical min. initial weighing according to USP (United States Pharmacopeia), USP31-NF26

Precision balances

Models		MSE3203P	MSE2203S	MSE2203P	MSE1203S
Readability	mg	1 10	1	1 10	1
Weighing capacity	g	1,010 3,200	2,200	1,010 2,200	1,200
Tare range (subtractive)	g	- 3,200	- 2,200	- 2,200	- 1,200
Repeatability	≤±mg	1 6	1	1 6	0.7
Linearity	≤±mg	5	3	5	2
Corner load (test load [g])	mg	2 (1,000)	2 (1,000)	3 (1,000)	2 (500)
Min. initial weight*	g	1.5	1.5	1.5	1.5
Sensitivity drift between +10...+30°C	±ppm K	1	1	1	1.5
Typical stabilization time	s	≤ 1	≤ 1	≤ 1	≤ 1
Typical measurement time	s	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5
External standard calibration value (of at least accuracy class ...)	g	2000 (E2)	2000 (E2)	1000 (E2)	1000 (E2)
Display result (depending on the set filter level)		0.1 – 0.4			
Weighing pan dimensions (W × D)	mm	140 × 140			
Weighing chamber height (draft shield DU)	mm	172			
Protection		Protected against dust and water			

* = Typical min. initial weighing according to USP (United States Pharmacopeia), USP31-NF26

Precision balances

Models		MSE623S	MSE623P	MSE323S
Readability	mg	1	1 2 5	1
Weighing capacity	g	620	150 300 620	320
Tare range (subtractive)	g	- 620	- 620	- 320
Repeatability	≤±mg	0.7	1 2 4	0.7
Linearity	≤±mg	2	5	2
Corner load (test load [g])	mg	2 (200)	4 (200)	2 (200)
Min. initial weight*	g	1.5	1.5	1.5
Sensitivity drift between +10...+30°C	±ppm K	2	2	2
Typical stabilization time	s	≤ 0.8	≤ 0.8	≤ 0.8
Typical measurement time	s	≤ 1	≤ 1	≤ 1
External standard calibration value (of at least accuracy class ...)	g	500 (E2)	500 (F1)	200 (E2)
Display result (depending on the set filter level)		0.1 – 0.4		
Weighing pan dimensions (W × D)	mm	140 × 140		
Weighing chamber height (draft shield DU)	mm	172		
Protection		Protected against dust and water		

* = Typical min. initial weighing according to USP (United States Pharmacopeia), USP31-NF26

Precision balances

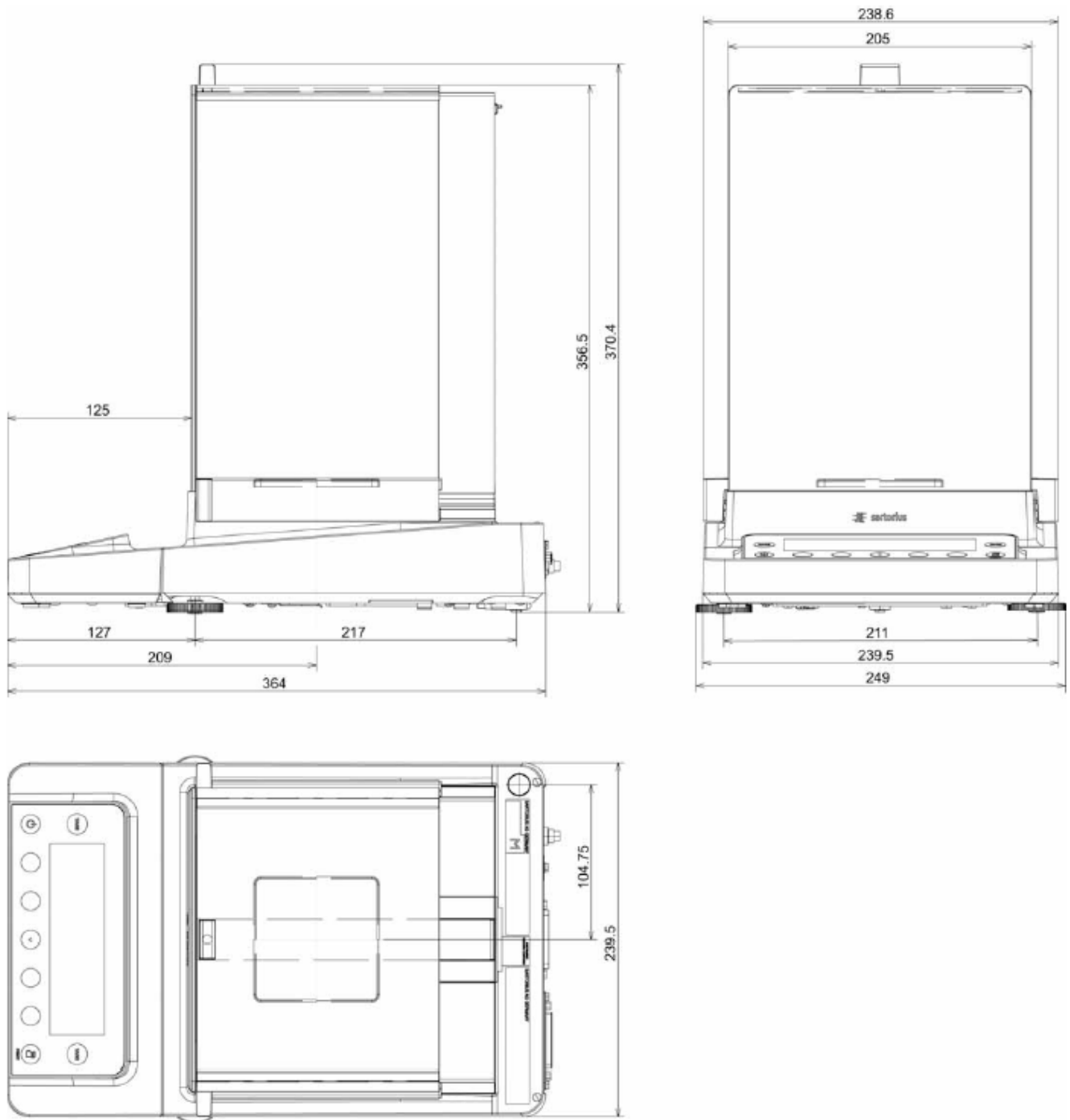
Models		MSE10202S	MSE8202S	MSE6202S	MSE6202P	MSE4202S
Readability	mg	10	10	10	10 20 50	10
Weighing capacity	g	10,200	8,200	6,200	1,500 3,000 6,200	4,200
Tare range (subtractive)	g	- 10,200	- 8,200	- 6,200	- 6,200	- 4,200
Repeatability	≤±mg	7	7	7	7 20 40	7
Linearity	≤±mg	20	20	20	50	20
Corner load (test load [g])	mg	20 (5,000)	20 (5,000)	20 (2,000)	50 (2,000)	30 (2,000)
Min. initial weight*	g	12	12	12	12	12
Sensitivity drift between +10...+30°C	±ppm K	2	2	2	2	2
Typical stabilization time	s	≤ 1	≤ 1	≤ 1	≤ 1	≤ 0.8
Typical measurement time	s	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1
External standard calibration value (of at least accuracy class ...)	kg	10 (E2)	5 (E2)	5 (E2)	5 (F1)	2 (E2)
Display result (depending on the set filter level)		0.1 – 0.4				
Weighing pan dimensions (W × D)	mm	206 × 206				
Protection		Protected against dust and water				

* = Typical min. initial weighing according to USP (United States Pharmacopeia), USP31-NF26

Models		MSE2202S	MSE1202S	MSE12201S	MSE8201S	MSE5201S
Readability	mg	10	10	100	100	100
Weighing capacity	g	2,200	1,200	12,200	8,200	5,200
Tare range (subtractive)	g	- 2,200	- 1,200	- 12,200	- 8,200	- 5,200
Repeatability	≤±mg	7	7	50	50	50
Linearity	≤±mg	20	20	100	100	100
Corner load (test load [g])	mg	20 (1,000)	20 (500)	200 (5,000)	200 (5,000)	200 (2,000)
Min. initial weight*	g	12	12	100	100	100
Sensitivity drift between +10...+30°C	±ppm K	2	2	4	4	4
Typical stabilization time	s	≤ 0.8	≤ 0.8	≤ 0.8	≤ 0.8	≤ 0.8
Typical measurement time	s	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
External standard calibration value (of at least accuracy class ...)	kg	2 (F1)	1 (F1)	10 (F1)	5 (F2)	5 (F2)
Display result (depending on the set filter level)		0.1 – 0.4				
Weighing pan dimensions (W × D)	mm	206 × 206				
Protection		Protected against dust and water				

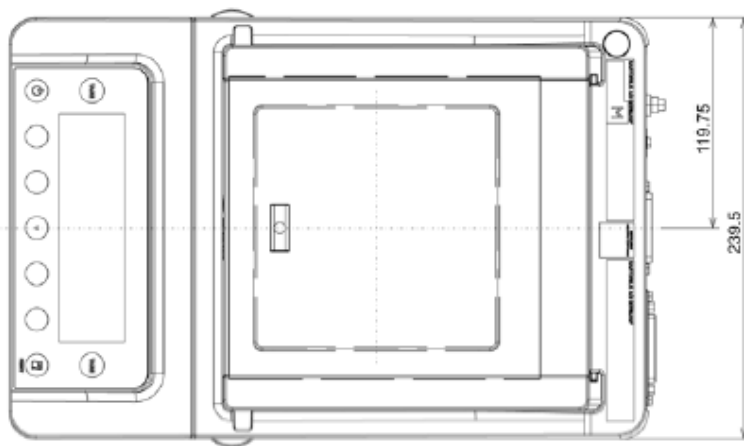
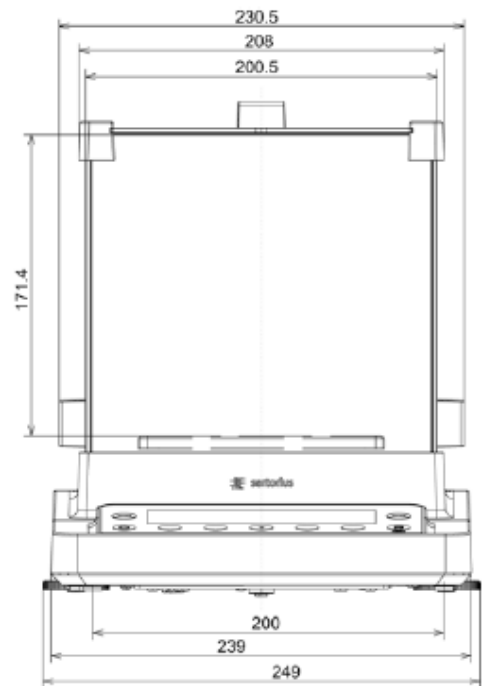
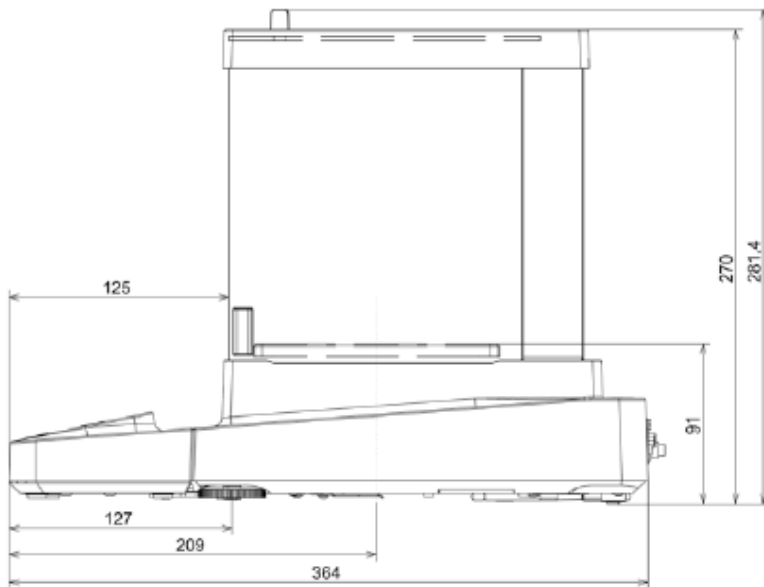
* = Typical min. initial weighing according to USP (United States Pharmacopeia), USP31-NF26

저울 크기 (Analytical Balance)



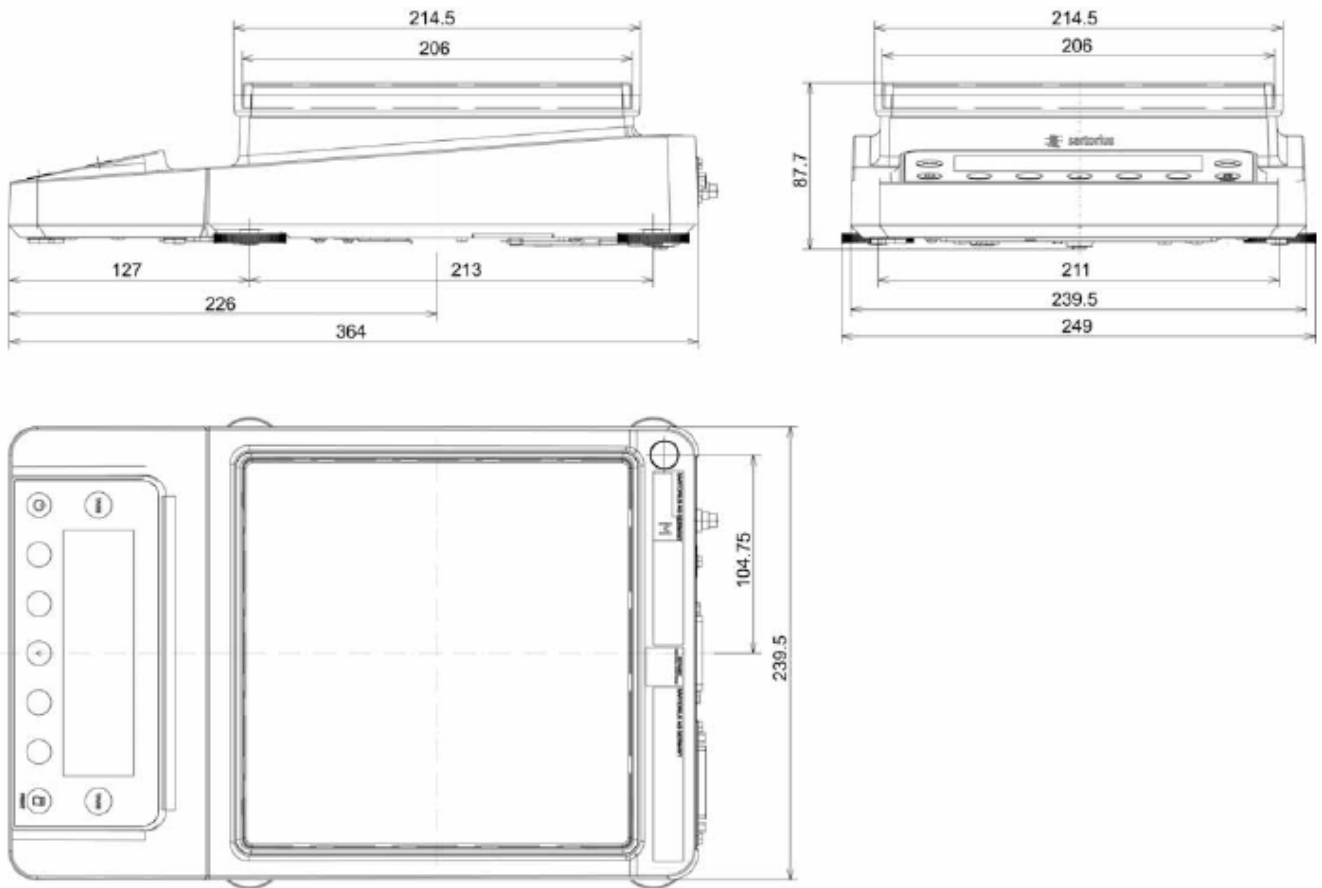
All dimensions are given in millimeters

1 mg 저울



All dimensions are given in millimeters

10 mg 저울



All dimensions are given in millimeters

악세서리

Verifiable data printer for connection to RS232, 25-pin. Accessory interface	YDP10-0CE
Verifiable data printer with Bluetooth® (only with YD001MS-B or option IB)	YDP10BT-0CE
Paper rolls for printer YDP10-0CE; 5 rolls 50 m each	6906937
Adhesive labels on normal paper for YDP10BT-0CE (endless roll 20 m each + 57 mm)	69Y03247
Color ribbon for YDP10-0CE and YDP10BT-0CE	6906918
Additional display, LCD, figure size 13 mm, backlit	YRD03Z
RS232C connection cable to connect PC with 9-pin COM interface, length 1.5 m	7357314
Standard operating procedure (SOP)	YSL07D
Infrared sensor for touch-less function triggering (e.g. draft shield control)	YHS01MS
Hand switch for printing, taring, or to use function keys, selection via menu, incl. T connector	YHS02
Foot switch for printing, taring, or to use function keys, selection via menu, incl. T connector	YFS01
Foot switch for the functions draft shield on/off (only in combination with DA and DI draft shield), tare and print	YPE01RC
Density determination kit for solids and liquids for weighing modules with a readability of < 1 mg	YDK01MS
3-segment control display, red – green – red, for plus minus measurements, incl. T connector	YRD11Z
Barcode reader with connection cable, 120 mm reading range	YBR03PS2
Pipette calibration kit for models with 0.01 mg and 0.1 mg readability; hardware and software	upon request
Software for pipette calibration	upon request
RS232C data interface, 25-pin for connection of Cubis accessories	YD001MS-R
Bluetooth® data interface for wireless connection of the YDP10BT data printer or PC	YD001MS-B
RS232C data interface, 9-pin including PS/2 for connecting a PC or keyboard	YD001MS-P
Antistatic weighing pan, diameter 130 mm, for weighing modules with a readability of 0.1 mg or 0.01 mg	YWP01MS
Antistatic weighing pan, diameter 150 mm, for weighing modules with a readability of 1 mg	YWP02MS
Support arm for 10/100 mg precision weighing modules for raising the operating unit	YDH01MS
Weighing table made from synthetic stone, with vibration dampening	YWT03
Wall console	YWT04
Weighing table made from wood with synthetic stone for precise, reliable measurements	YWT09
Display and control unit with backlit LC display and tactile keys	YAC01MSE
Display and control unit with backlit b/w graphic display and tactile navigation keys	YAC01MSU
Display and control unit with color TFT graphic display and touch screen	YAC01MSA
Display cable 3 m, for separated setup of display and balance unit	upon request
SartoCollect software for data communication between balance and PC	YSC02
Sartorius OPC server for connecting all Sartorius Cubis balances	
Requires 32-bit Microsoft Windows 2000 or XP with the current service packs. (free download of a 30-day test version from the Sartorius website)	
– Initial license	6289OPC
– Each additional license within an order	6289OPC-L



sartorius
mechatronics



EG-Konformitätserklärung *EC Declaration of Conformity*

Sartorius AG
37070 Göttingen
Germany

erklärt, dass das Betriebsmittel
declares that the equipment

Gerät: **Elektronische Halbmikro-, Analysen- und Präzisionswaage**
Apparatus: Electronic Semi-micro, Analytical and Precision Balance

Baureihe / Batch: **MSA, MSE, MSU**

Typbezeichnung: **Siehe Anhang 1**
Type: See Annex 1

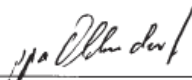
mit den grundlegenden Anforderungen der folgenden Europäischen Richtlinien übereinstimmt:
complies with the basic requirements of the following European Directives:

Richtlinie 2004/108/EG Elektromagnetische Verträglichkeit
Directive 2004/108/EC *Electromagnetic compatibility*

Richtlinie 2006/95/EG Elektrische Betriebsmittel zur Verwendung innerhalb bestimmter
Directive 2006/95/EC Spannungsgrenzen
Electrical equipment designed for use within certain voltage limits

Das Gerät erfüllt die anwendbaren Anforderungen der in Anhang 2 aufgeführten harmonisierten Europäischen Normen.
The apparatus meets the applicable requirements of the harmonized European Standards listed in Annex 2.

Sartorius Mechatronics
Göttingen, 2008-11-07


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