ACCULAB
sartorius group

**Operating Instructions | Betriebsanleitung | Mode d'emploi |
Istruzioni per l'uso | Manual de instrucciones**

ACCULAB VICON

Electronic Precision Scales/Balances | Elektronische Präzisionswaagen | Balances électroniques d'analyse et de précision |
Bilance elettroniche di precisione | Balanzas electrónicas de precisión
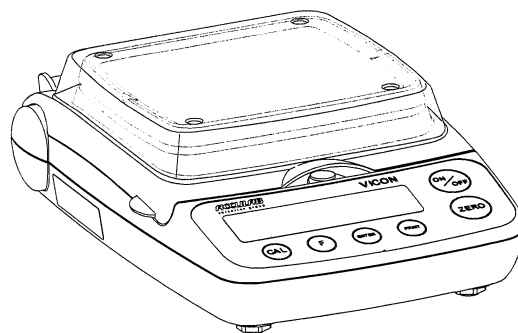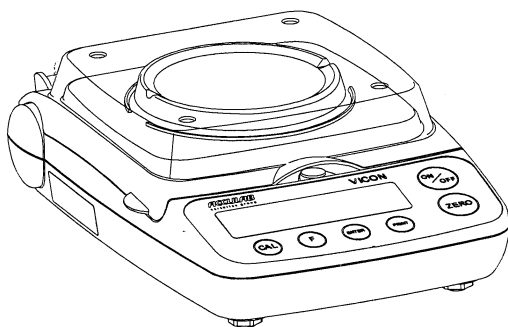
98648-013-61

Visit www.balances.com for the best prices on Acculab scales

Contents

Warnings and Safety Precautions

Safety Information
● To prevent damage to the equipment, please read these operating instructions carefully before using your balance/scale.

⚠ Do not use this equipment in hazardous areas.
⚠ Make sure the voltage rating printed on the power supply is identical to your local line voltage.
⚠ Use only commercially available 9V batteries. If desired, you can use a rechargeable battery (not included).

— The balance is energized at all times unless you disconnect the AC adapter and, if connected, the battery.
— Protect the AC adapter from contact with liquid

⚠ Exposure to excessive electromagnetic interference can cause the readout value to change. Once the disturbance has ceased, the instrument can be used again in accordance with its intended purpose.

Installation
— It is recommended to connect Acculab accessories and options, as these are optimally designed for use with your balance/scale.

— Do not open the balance/scale housing as this may void the manufacturer's warranty.

www.balances.com is the original deep discount distributor

Getting Started

Equipment Supplied
- Balance/scale with in-use cover
- Weighing pan
- Plug-in AC adapter

Additional equipment with models VIC-612, VIC-412, VIC-212, VIC-711, VIC-511:
- Calibration weight

Additional equipment with models VIC-303, VIC-123, VIC-4MG, VIC-2MG:
- Calibration weight
- Round glass draft shield
- Level indicator and adjustable feet

Storage
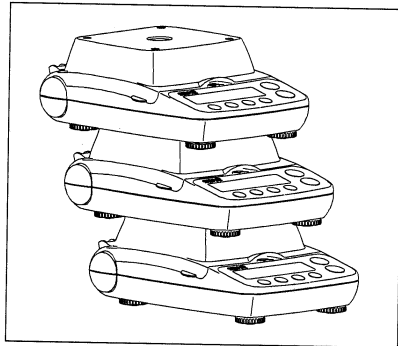
○ Do not stack more than 3 balances on top of one another at a time.

Installation
Choose a location that is not subject to the following negative influences:
- Heat (heater or direct sunlight)
- Drafts from open windows and doors
- Extreme vibrations during weighing
- Excessive moisture

Setting Up the Balance/Scale
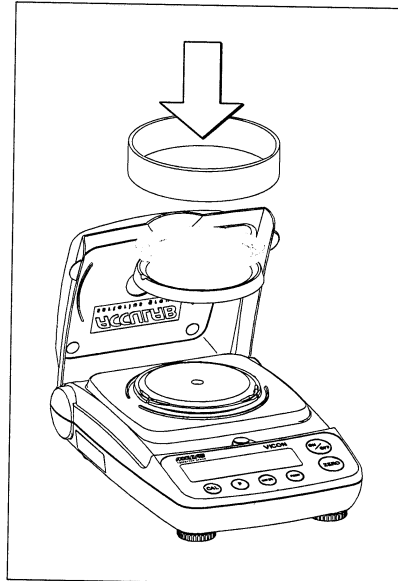
● Place the components on the balance/scale in the following order:

- Reversible round weighing pan

- Round glass draft shield on models VIC-303, VIC-123, VIC-4MG, VIC-2MG

Operation

Basic Weighing Function

Features
— Zeroing the balance
You can zero the balance/scale within the entire weighing range, up to the maximum capacity.
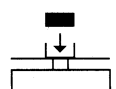
Preparation
● Switch on the balance/scale: press the (ON/OFF) key
● If necessary, zero the balance/scale: press the (ZERO) key

○ If necessary, change the configuration settings:
see the chapter entitled "Configuration"
○ If desired, load the factory settings:
see the chapter entitled "Configuration," menu item 9.— 1

Additional functions:
○ Switching off the balance/scale: press the (ON/OFF) key
○ Battery operation: automatic shut-off after 2,5 or 10 minutes; see chapter on configuration. Example: 2 minutes.
If the weight readout remains unchanged and no keys are pressed for at least two minutes, the battery symbol
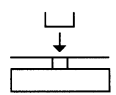" ▬▬ " starts flashing. After another 2 seconds, the balance shuts off automatically, unless a key is pressed.

Description of the Keys

(ON/OFF)	On/off key: switches the balance/scale on and off or switches it to the standby mode. Battery operation: on; turns backlight on; off
(ZERO)	Zeros the balance; press and hold 2 seconds: opens the application menu
(CAL)	Starts calibration/adjustment
(F)	Starts an application program; Scrolling in application menu, configration menu and calibration menu
(ENTER)	Confirms the selected setting; Exits application, configuration & calibration menu if key is pressed and held for more than 2 seconds.
(PRINT)	Generates a printout or data output

Example: Determine weight of sample

Step	Key (or instruction)	Display
1. Switch on the balance/scale Self-test runs Display: Software version	(ON/OFF)	`8.8:8:8.8.8`
		r ∃ I.0 I
2. Open the in-use cover and leave open while weighing		
3. Place container on the balance/scale (in this example, 52 g)		52.0 g
4. Zero the balance/scale	(ZERO)	0.0 g
5. Place sample in container on balance/scale (in this example, 150,2 g).		150.2 g

Application Programs

Toggling between Weight Units

With this application program you can toggle the display of a weight value back and forth between two weight units (see table below).

Example: Toggle weight unit from pounds [lb] (application) to grams [g] (basic unit)

Step	Key (or instruction)	Display
1. Select application program	(ZERO) > 2 sec	`ˌ1noAPP`
2. Select Toggling between Weight Units	(F)	`ˌ2un 1t`
3. Confirm unit	(ENTER)	`ˌ2GrAN5`
4. Select weight unit; in this example: "5. Pound" (see table below)	(F) repeatedly	`ˌ5Pound`
5. Confirm weight unit (pounds)	(ENTER)	`0.0000 lb`
6. Place sample on balance/scale		`0.2204 lb`
7. Toggle weight unit	(F)	`100.0 g`

Menu code	Unit	Conversion factor	Display
1. uSEr*	Grams	1.00000000000	o
2. GrAN5 (factory setting)	Grams	1.00000000000	g
4. CArAt	Carats	5.00000000000	o
5. Pound	Pounds	0.00220462260	lb
6. ounCE	Ounces	0.03527396200	oz
7. trYo	Troy ounces	0.03215074700	ozt
8. tL.Hon	Hong Kong taels	0.02671725000	tlk
9. tL.S1n	Singapore taels	0.02645544638	tl
10. tL.tA	Taiwanese taels	0.02666666000	tl
11. GrA1	Grains	15.4323583500	GN
12. PEnY	Pennyweights	0.64301493100	dwt
15. tL.CH	Chinese taels	0.02645547175	tl
22. Pdo2	lb/oz	0.03527396200	lb:oz
23. nE1t	Newtons	0.00980665000	N

* User-defined conversion is customer selectable with RS-232 or USB program option.

Counting

Purpose

With the Counting program you can determine the number of parts or items.

Example: Determine the number of uncounted parts; weigh in the selectable reference sample quantity (in this example: 20)

Step	Key (or instruction)	Display
1. Select application program	(ZERO) > 2 sec	`. lnoRPP`
2. Select Counting	(F) repeatedly	`. ]Count`
3. Confirm setting Symbol "✳" on the display: application is active	(ENTER)	`0.0 g *`
4. Place empty container on the balance/scale		`100.0 g *`
5. Zero the balance/scale	(ZERO)	`0.0 g *`
6. Place reference sample quantity (20) on the balance/scale		`66.0 g *`
7. Select reference sample quantity: in increments of 1 (1, 2, 3, ..., 99) or in increments of 10 (10, 20, 30, ...,100)	(F) repeatedly (briefly) or (F) > 2 sec.	
8. Confirm selected reference sample quantity	(ENTER)	`? 20`
9. Place uncounted parts on balance/scale		`20 pcs*`
10. Toggle display between mean piece weight, total weight, and quantity	(F) repeatedly	`5 12 pcs*`
11. Unload the balance/scale		`3300 g *▲`
12. Counting application: clear the reference value	(ENTER) > 2 sec	
13. Reactivate Counting (if no other application program has been selected)	(F)	
14. Repeat procedure starting from Step 5.		

Weighing in Percent

Purpose

This application program allows you to obtain weight readouts in percent which are in proportion to a reference weight.

Example: Determine an unknown percentage; store the weight on the balance/scale as the reference percentage (100%)

Step	Key (or instruction)	Display
1. Select application program	(ZERO) > 2 sec	`. InoAPP`
2. Select Weighing in Percent	(F) repeatedly	`.4PErCt`
3. Confirm setting Symbol "✱" on the display: application is active	(ENTER)	`0.0 g *`
4. Place empty container on the balance/scale		`100.0 g *`
5. Tare the balance	(ZERO)	`0.0 g *`
6. Place the reference weight for 100% on the balance/scale		`222.5 g *`
7. If desired, change the number of decimal places displayed: 100.0%, 100.00% or 100% (factory setting)	(F) repeatedly	`100.00`
8. Confirm selected no. of decimal places	(ENTER)	`100.00 % *`
9. Place unknown weight on the balance/scale		`144.94 % *`
10. Toggle display between weight and percentage	(F) repeatedly	`322.5 g *`
11. Unload the balance/scale		
12. Weighing in Percent application: clear the reference percentage	(ENTER) > 2 sec	
13. Reactivate Weighing in Percent (if no other application program has been selected)	(F)	
14. Repeat procedure starting from Step 5.		
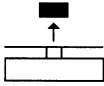
"Hold" Display

Purpose
"Holds" the displayed value; also, the display will be locked for 5 seconds after removing the sample from the pan.

Example: Determine weight of oversized sample

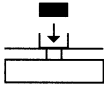| Step	Key (or instruction)	Display
1. Select application program	(ZERO) > 2 sec	`⌐ InoAPP`
2. Select Hold Display	(F) repeatedly	`⌐ 5.HL don`
3. Confirm setting Symbol "✱" on the display: application is active	(ENTER)	`0.0 g ✱`
4. If necessary: zero the balance/scale	(ZERO)	
5. Place oversized sample on balance/scale		`8888 g ✱`
6. Start application program	(F)	
Symbol "△" flashes on the display: the weight value is locked		`2755 g ✱ △`
7. Unload the balance/scale: the weight value remains displayed for a further 5 seconds; or		
8. Zero the balance/scale	(ZERO)	`0.0 g ✱`
9. End the Display Hold application	(ENTER) > 2 sec	
10. Reactivate Display Hold (if no other application program has been selected)	(F)	
11. Repeat procedure starting from Step 5.		

Totalizing

Purpose
With this application program you can add up successive weight values exerding capacity of balance/scale.

Example: Totalizing weight values

Step	Key (or instruction)	Display
1. Select application program	(ZERO) > 2 sec	`. lnoAPP`
2. Select Totalizing	(F) repeatedly	`.6.totAL`
3. Confirm setting Symbol "✱" on the display: application is active	(ENTER)	`0.0 g *`
4. If necessary: zero the balance/scale	(ZERO)	
5. Place sample on balance/scale (in this example, 380 g)		`380.0 g *`
6. Store value in memory. Total weight is displayed steadily; Σ symbol flashes.	(ENTER)	`380.0 g Σ*`
7. Remove sample from balance/scale		
8. Place the next sample on the balance/scale (in this example, 575 g)		`575.0 g Σ*`
9. Store value in memory. Totalized stored weight is displayed; symbol Σ flashes. Note: Σ symbol remains on indicating stored value in memory until cleared	(ENTER)	`955.0 g Σ*`
10. To view the current weight for 2 seconds (if a printer is connected, a printout is generated)	(F)	`575.0 g Σ*`
11. Clear totalizing memory (if a printer is connected, total is printed)	(F) > 2 sec	
12. End Totalizing	(ENTER) > 2 sec	
13. Reactivate Totalizing (if no other application program has been selected) (if a printer is connected, total is printed).	(F)	`0.0 g *`
14. Repeat procedure starting from Step 6.		
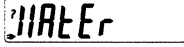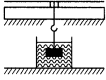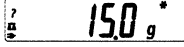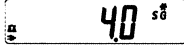
Specific Gravity

Purpose
Use this application program to determine the specific gravity of a sample. The result is displayed with one decimal place.
Beaker and wire not included with balance/scale.

Example: Determine the specific gravity of a solid.

Step	Key (or instruction)	Display
1. Select application program	(ZERO) > 2 sec	`lnoAPP`
2. Select Specific Gravity	(F) repeatedly	`7.5PCGr`
3. Confirm setting Symbol "✱" on the display: application is active	(ENTER)	`0.0 g`
4. If necessary, zero the balance/scale	(ZERO)	
5. Start application program	(F)	`A Ir UAL`
6. Confirm the display, "A Ir-UAL"	(ENTER)	`20.0 g`
7. Determine weight of the sample in air: place sample on the balance/scale		
8. Store weight-in-air value	(ENTER)	`IIAtEr`
9. Remove sample from balance/scale		
10. Determine weight of sample in liquid: connect wire and set up beaker		
11. Confirm the display "IIAtEr"	(ENTER)	`15.0 g`
12. Place sample in liquid		
13. Store the weight-in-liquid value and view the result	(ENTER)	`4.0 sg`
14. Clear the display	(ZERO)	
15. Exit the Specific Gravity application	(ENTER) > 2 sec	
16. Reactivate Specific Gravity (if no other application program has been selected)	(F)	`0.0 g`
17. Repeat procedure starting from Step 5.		

11

Calibration/Span Adjustment

Calibration is recommended after initial installation and each time the balance/scale is moved.

Features

Calibration/adjustment can be performed only when:
— there is no load on the balance/scale,
— the balance/scale is zeroed, and
— the internal signal is stable.
If these conditions are not met, an error message is displayed.

The weight required for calibration/adjustment is displayed. Standard calibration weights for selected models: to remove, see instructions on page 4.
Press (F) to select a different weight value.
To cancel the procedure: press and hold the (ENTER) key (> 2 sec.).
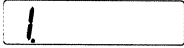
Example: Calibrate/adjust span of the balance/scale (here: model VIC-5101)

Step	Key (or instruction)	Display
1. Switch on the balance/scale	(ON/OFF)	88.8.8.8.8 kg/lb
2. Zero the balance/scale	(ZERO)	0.0 g
3. Start calibration The preset calibration weight is displayed without the weight unit (in this example, 5000 g)	(CAL)	5000.0
4. To select a different calibration weight value	(F) repeatedly	2000.0 1000.0
5. Confirm calibration weight value and start calibration/span adjustment	(ENTER)	CAL
After the zero point is stored, the required calibration weight flashes on the display.		5000.0 g
6. Place the required calibration weight on the balance/scale		
The readout stops flashing if the weight is applied within the defined time limit and tolerance. If the weight value is accepted, the display stops flashing and the stability symbol ▲▲ appears on the display.		5000.0 g
7. Remove the calibration weight		0.0 g
8. Calibration has been completed		

12

Configuration (Setup Menu)

To configure the balance/scale; i.e., adapt the balance/scale to individual requirements.

Step	Key (or instruction)	Display
1. Switch off the balance/scale	(ON/OFF)	
2. Switch on the balance/scale and	(ON/OFF)	`8.8:8:8.8.8 kg oz t l`
while all segments are displayed	(ZERO) briefly	`l`

Navigation in the Setup Menu

Key	Press briefly	Press and hold
(ENTER)	Menu level: move to the right (cyclical)	Confirm setting
(F)	Menu item: Scrolling	—
(ZERO)	Menu level: Move to the left	Save settings and exit Setup

Parameter Settings (Overview)

o Factory setting   √ User-defined setting

```
Setup ──┬─ 1   Weighing ──────┬─ 1.1.   Adapt filter ──────────┬─ 1.1.1        Very stable conditions
menu    │                     │                                ├─ 1.1.2    o   Stable conditions
        │                     │                                ├─ 1.1.3        Unstable conditions
        │                     │                                └─ 1.1.4        Very unstable conditions
        │                     │
        │                     ├─ 1.2.   Application filter ─────┬─ 1.2.1    o   Final readout
        │                     │                                └─ 1.2.2        Filling
        │                     │
        │                     ├─ 1.3.   Stability range ────────┬─ 1.3.1        1/4 digit
        │                     │                                ├─ 1.3.2        1/2 digit
        │                     │                                ├─ 1.3.3        1 digit
        │                     │                                ├─ 1.3.4    o   2 digits
        │                     │                                └─ 1.3.5        4 digits
        │                     │
        │                     ├─ 1.5.   Calib./adjust./linearization: ─┬─ 1.5.1  o  Calibration/adjustment
        │                     │         Function of the (CAL) key      ├─ 1.5.2     Linearization: for service personnel only
        │                     │                                        └─ 1.5.3     Key blocked
        │                     │
        │                     ├─ 1.6.   Auto zero ──────────────┬─ 1.6.1    o   On
        │                     │                                └─ 1.6.2        Off
        │                     │
        │                     └─ 1.7.   1st weight unit, or 2nd unit in ─┬─ 1.7.1    User-defined unit; see
        │                               Toggle Weight Units app.        └─ to 1.7.23  "Toggling between Weight Units"
        │
        ├─ 5. and 6. ──────────────────  Only relevant with built-in data interface: see corresponding interface description
        │
        ├─ 8.   Additional ──┬─ 8.1.   Block key functions ─────┬─ 8.1.1        All keys blocked except for (ON/OFF)
        │       functions    │                                 │               and (ZERO)
        │                    │                                 └─ 8.1.2    o   All keys unblocked
        │                    │
        │                    └─ 8.2.   Automatic shut-off ──────┬─ 8.2.1    o   After 2 minutes
        │                                                      ├─ 8.2.2        After 5 minutes
        │                                                      └─ 8.2.3        After 10 minutes
        │
        └─ 9.   Reset menu ────── 9.1.   Factory settings ──────┬─ 9.1.1        Restore
                                                               └─ 9.1.2    o   Do not restore
```

Error Codes

Error codes are shown on the main display for approx. 2 seconds. The program then returns automatically to the previous mode.

Display/Problem	Cause	Solution
No segments appear on the display	No power available	Check the power supply
	The AC adapter is not plugged in	Plug in the AC adapter
	Battery is drained	Replace battery; recharge battery using external charger
oL	The load exceeds the balance/scale capacity	Unload the balance/scale
uL	Weighing pan not in place	Place the weighing pan on the balance/scale
	Something is touching the weighing pan	Move the object that is touching the weighing pan
d ISErr	Display overflow: Value cannot be shown on the display	Reduce load on the balance/scale
CALErr	Calibration parameter not met; e.g.: − Balance/scale not zeroed − Balance/scale is loaded	Calibrate only when zero is displayed Press (ZERO) to tare the balance/scale Unload the balance/scale
APPErr	Weight is too light or there is no sample on the balance/scale with application in use	Increase the weight on the balance/scale
PrtErr	Data interface for printing is blocked	Contact the Acculab customer service center
bAL.Err	Balance/scale loaded or defecteive when power was turned on	Unload balance/scale before switching on or contact Acculab custumer service
SYS.Err	Balance/scale defective	Contact Acculab custumer service
Max. weighing capacity is less than indicated under "Specifications"	The balance/scale was switched on without the weighing pan in place	Place the weighing pan on the balance/scale and press (ON/OFF)
The weight readout is obviously wrong	The balance/scale was not calibrated/ adjusted before weighing Balance/scale not zeroed	Calibrate/adjust the balance/scale Zero the balance/scale

If any other errors occur, contact your local Acculab customer service center.

Overview

Specifications

Model		VIC-303	VIC-123	VIC-4MG	VIC-2MG	VIC-612	VIC-412	VIC-212
Weighing capacity	g	300	120	410	210	610	410	210
Readability	g	0.001	0.001	0.005	0.005	0.01	0.01	0.01
Tare range (subtractive)	g	300	120	410	210	610	410	210
Linearity	≤±g	0.004	0.003	0.01	0.01	0.03	0.03	0.035
Operating temperature range		10°C to 30°C (273°K to 303°K; 50°F to 86°F)						
Stabilization time (average)	s	2.5	2.5	2.5	2.5	2	2	2
Adaptation to ambient conditions		By selection of 1 of 4 optimized filter levels; display update: 0.1—0.8 (depends on filter level selected)						
Calibration weight	g	200 (F1)	100 (F1)	200 (F1)	200 (F2)	200 (F2)	200 (F2)	200 (M1)
Net weight, approx.	kg	1.3	1.2	1.3	1.3	1.35	1.35	1.2
Pan size	mm	97 ∅	97 ∅	97 ∅	97 ∅	142x130	142x130	97 ∅
Power source/voltage/frequency		AC adapter, 230 V or 115 V, +15% to − 20%, 48−60 Hz						
Power consumption (average)	W	1	1	1	1	0.75	0.75	0.75
Hours of operation w/ 9V battery: − Alkaline (approx.)	h	−	−	−	−	11	11	14
− Rechargeable, fully ch., (NiMH), avg.	h	−	−	−	−	2.5	2.5	4

Model		VIC-5101	VIC-3101	VIC-1501	VIC-711	VIC-511	VIC-10KG	VIC-6KG	VIC-4KG
Weighing capacity	g	5100	3100	1500	710	510	10100	6100	4100
Readability	g	0.1	0.1	0.1	0.1	0.1	1	1	1
Tare range (subtractive)	g	5100	3100	1500	710	510	10100	6100	4100
Linearity	≤±g	0.2	0.2	0.2	0.2	0.2	2	2	1
Operating temperature range		10°C to 30°C (273°K to 303°K; 50°F to 86°F)							
Stabilization time (average)	s	2	2	1.5	1.5	1.5	1.5	1.5	1.5
Adaptation to ambient conditions		By selection of 1 of 4 optimized filter levels; display update: 0.1−0.8 (depends on filter level selected)							
Calibration weight	kg	5 (F2)	2 (F2)	1 (M1)	0,2 (M2)	0,2 (M2)	5 (M1)	5 (M2)	2 (M2)
Net weight, approx.	kg	1.1	1.1	1.1	1.25	1.25	1.1	1.1	1.1
Pan size	mm	142x130							
Power source/voltage/frequency		AC adapter, 230 V or 115 V, +15% to − 20%, 48−60 Hz							
Power consumption (average)	W	1	1	0.75	0.75	0.75	0.75	0.75	0.75
Hours of operation w/ 9V battery: − Alkaline (approx.)	h	11	11	14	14	14	14	14	14
− Rechargeable, fully ch., (NiMH), avg.	h	2.5	2.5	4	4	4	4	4	4

www.balances.com is the original deep discount distributor

Accessories (Options)

Product	Order No.
Data interface, mounting kit	
– RS-232 interface with cable	**YADAP-RS**
– USB interface with cable	**YADAP-USB**
Data printer	**YDP03-OCE**
Lock-down capability	**LC-1**
(for anti-theft locking device)	
Calibration weights	
– for VIC-5101 (5 kg; F2)	**YCW6548-00**
– for VIC-3101 (2 kg; F2)	**YCW6248-00**
– for VIC-1501 (1 kg; M1)	**YCW615-00**
– for VIC-10KG (5 kg; M1)	**YCW655-00**
– for VIC-6KG (5 kg; M2)	**YCW656-00**
– for VIC-4KG (2 kg; M2)	**YCW626-00**
– for weight compartment,	
(right side), (100 g; F1)	**69V00006**

Product	Order No.
In-use cover:	
– for models without glass draft shield	**69V00001**
– for models with glass draft shield	**69V00002**
Round glas draft shield	**69V00003**
(25 mm high)	
Weighing pan: – Round	**69V00004**
– Rectangular	**69V00005**
Leveling feet (set of one	
adjustable foot and one fixed foot)	**69V00007**
Covers: (set of small parts)	**69V00008**
– Battery compartment	
– Interface port	
– Weight compartment	

C∈ Marking

The balance/scale complies with the following EC Directives and European Standards:
Council Directive 89/336/EEC "Electromagnetic compatibility (EMC)"

Applicable European Standards:
Limitation of emissions:
In accordance with product standard EN 61326-1 Class B (residential area)

Defined immunity to interference:
in accordance with product standard EN 61326-1
(minimum test requirements, non-continuous operation)

Important Note:
The operator shall be responsible for any modifications to Acculab equipment and must check and, if necessary, correct these modifications.
On request, Acculab will provide information on the minimum operating specifications (in accordance with the Standards listed above for defined immunity to interference).

73/22/EEC "Electrical equipment designed for use within certain voltage limits"

Applicable European Standards:

EN 60950
Safety of information technology equipment including electrical business equipment

EN 61010
Safety requirements for electrical equipment for measurement, control and laboratory use
Part 1: General requirements

If you use electrical equipment in installations and under ambient conditions requiring higher safety standards, you must comply with the provisions as specified in the applicable regulations for installation in your country.