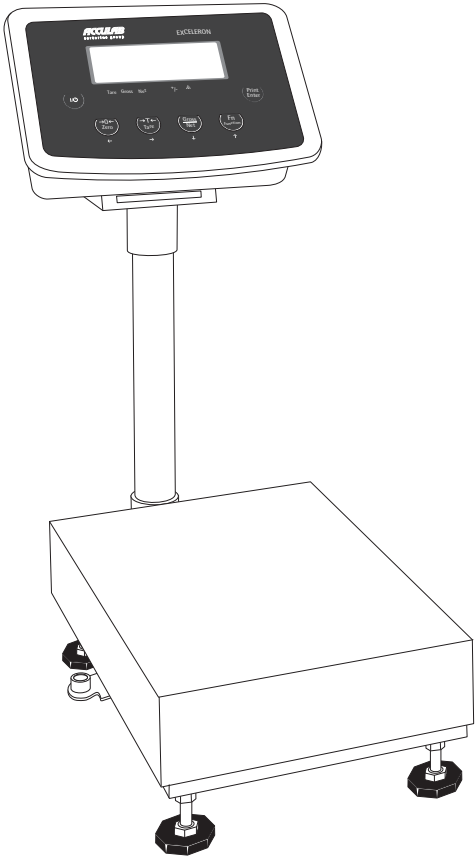
ACCULAB
sartorius group

Operating Instructions

Acculab Exceleron Series

ECL Models



98648-017-24

Intended Use

Exceleron is a rugged, easy-to-use electronic scale for the complex quality control tasks you perform every day.

- In the food industry
- In the pharmaceutical industry
- In the chemical industry
- In the textile industry
- In the retail Industry
- In other industries

Exceleron meets the highest requirements placed on the accuracy and reliability of weighing results through the following features:

- Rugged construction and long service life
- Easy to clean and disinfect
- Easy to operate, thanks to the following features:
  - Large, backlit display segments
  - Large keys with positive click action
- Fast response times
- Automatic initialization when you switch on the Exceleron
- Optional: Control through an external computer

Contents

Safety Precautions

Explanation of Symbols:


Caution, risk of danger:
Read the accompanying text carefully.


The instrument is double-insulated.


Protective conductor terminal


Earth ground terminal


Safety tips, electrical protection class
This instrument was built and tested in accordance with the safety regulations for measuring and control instrumentation for protection class I (protective earth connection) according to IEC 1010/ EN61010-1 or VDE 0411. The instrument was delivered in safe condition. To maintain this condition and to ensure safe operation, the operator must follow the instructions and warnings given in this documentation


Protective earth
The connecting cable of the unit complies with the regulations in accordance with VDE 0411 or EN61010. The mains plug must contain a protective earth conductor, which must not be interrupted inside or outside this instrument (e.g. by using an extension cable without protective earth). Before commissioning, acceptance of the installation by a technically competent expert is required.


Measurement category
This instrument is designed for measurement category I, with a maximum of 8.5V. To ensure safe operation do not use this instrument for measurements within the measurement categories II, III or IV.


Opening the instrument

CAUTION: DANGER TO LIFE!

– Working on the instrument when it is switched on can be dangerous to life. Disconnect the instrument from the supply voltage! When removing covers of parts by means of tools, live parts or terminals may be exposed. Capacitors in the unit may still be charged even after disconnecting the unit from all voltage sources.

– As the unit has no power switch, to completely remove AC power from the unit, disconnect the AC power cable from the mains socket.

– Do not expose the scale unnecessarily to aggressive chemical vapors or to extreme temperatures, moisture, shocks, or vibration.

– Avoid exposing the scale to static electricity; be sure to connect the equipotential bonding conductor to the junction box.

Repair and maintenance

– Repairs are subject to checking and can be carried out only at Acculab. In case of defect or functional trouble, please contact your local Acculab organization for repair. When returning the instrument for repair, an exact and complete fault description must be supplied. Only a trained technician aware of the hazards involved may carry out maintenance work, during which the relevant precautions must be taken.

Important note:

– Make sure that the construction of the instrument is not altered to the detriment of safety. In particular, leakage paths, air gaps (of live parts) and insulating layers must not be reduced. The manufacturer cannot be held responsible for personal injury or damage caused by an instrument repaired incorrectly by user or installer.

– Only authorized service technicians who have been trained by Acculab and who follow Acculab's standard operating procedures for maintenance and repair may open the scale. If you see any indication that the scale cannot be operated safely (for example, because of equipment damage), turn off the scale and lock it in a secure place so that it cannot be used for the time being.

– Suspension points are provided on platforms of 1,000 x 1,000 mm or larger. If you need to transport or lift the scale or load plate using a crane, do not step underneath the suspended scale or load plate. Be sure to observe the corresponding safety rules and regulations for prevention of accidents. Do not damage the scale or the load receptor during transportation.

– If you use suction lifting equipment to lift the load plate, always wear gloves, hard-toed safety boots and protective clothing. Warning: This procedure can cause personal injury! Only reliable personnel who are qualified to perform such work are allowed to use suction lifting equipment.

– Always make sure the scale is disconnected from AC power before performing any installation, cleaning, maintenance or repair work.

– Check the pin assignment if you use cables purchased from a different manufacturer. Before connecting such a cable to Acculab equipment, check the pin assignment on the corresponding wiring diagram or chart and disconnect any wires that are assigned differently from those specified by Acculab. The operator shall be solely responsible for any damage or injuries that may occur when using cables not supplied by Acculab.

Note:

– 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 batteries (rechargeable or dry-cell battery). If you use a rechargeable battery, use only 12V 2.3AH.

– The scale is energized at all times unless you disconnect the AC power and the battery.

– 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.

Getting Started

Storage and Shipping Conditions
Do not expose the scale to shocks, vibrations, moisture or extreme temperatures.

Unpacking the Scale
After unpacking the scale, check it immediately for any visible damage as a result of rough handling during shipment.

Note:
- The display and control unit is attached to the weighing platform via a cable.

- If you see any sign of damage, proceed as directed in the chapter entitled "Care and Maintenance," under the section on "Safety Inspection."

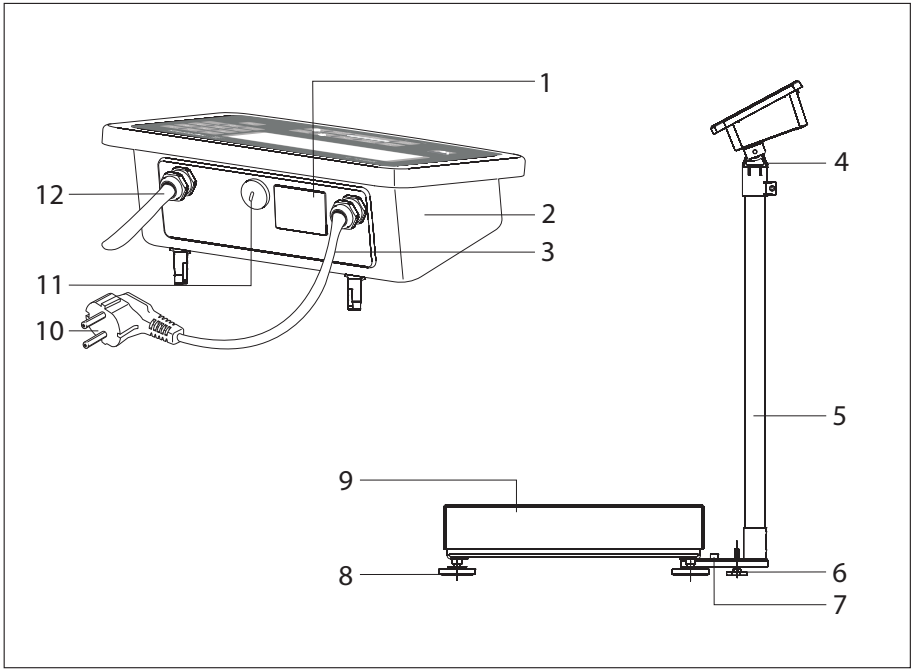
- Save the box and all parts of the packaging until you have successfully installed your scale. Only the original packaging provides the best protection for shipment. Before packing your scale, unplug all connected cables to prevent damage.

Equipment Supplied
The equipment supplied includes the components listed below:
- Scale with attached display and control unit
- Load pan
- Installation and operating instructions

Installation Instructions
The Acculab Exceleron scales are designed to provide reliable weighing results under normal ambient conditions. When choosing a location to set up your scale, observe the following so that you will be able to work with added speed and accuracy:
- Set up the scale on a stable, even surface
- Avoid placing the scale in close proximity to a heater or otherwise exposing the scale to heat or direct sunlight
- Protect the scale from drafts that come from open windows or doors
- Avoid exposing the scale to extreme vibrations during weighing
- Protect the scale from aggressive chemical vapors
- Do not expose the scale to extreme moisture over long periods

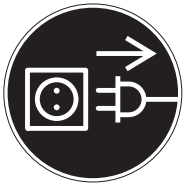
Conditioning the Scale
Moisture in the air can condense on the surfaces of a cold scale whenever it is brought into a substantially warmer place. If you transfer the scale to a warmer area, make sure to condition it for about 2 hours at room temperature, leaving it unplugged from AC power. Afterwards, keep the scale continuously connected to AC power.

General View of the Equipment



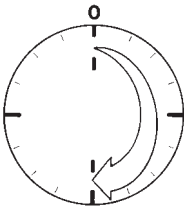
1 Manufacturer's ID tag
2 Housing
3 Power cable
4 Display and control unit retainer
5 Display and control unit column
6 Column support foot
7 Level indicator (option)
8 Leveling feet
9 Stainless steel weighing pan
10 Power plug
11 Cable gland cover (for optional RS-232 port outlet)
12 Load cell cable gland

Setting Up the Scale



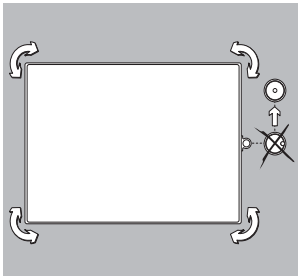
Connecting Electronic Peripheral Devices

- Make absolutely sure to unplug the scale from AC power or switch off (activate battery mode) before you connect or disconnect a peripheral device (printer or PC) to or from the interface port.



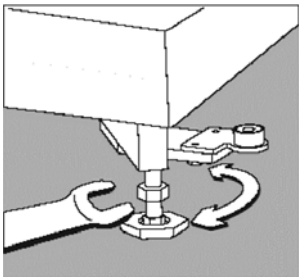
Warm-up Time

To deliver exact results, the scale must warm up for at least 30 minutes after initial connection to AC power. Only after this time will the scale have reached the required operating temperature.

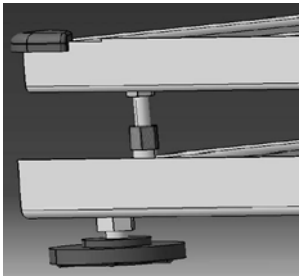


Leveling the Scale

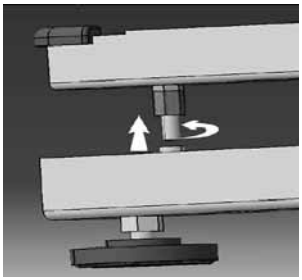
- Remove the load plate
- Using the 4 foot screws, level the scale so that the air bubble is centered within the level indicator



- Check to ensure that all leveling feet rest securely on the work surface

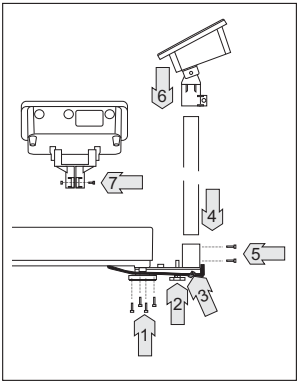


- Under the metal frame structure there are four safety overload protection pins. The transportation protection nut is painted red (Note: not on all platform models)



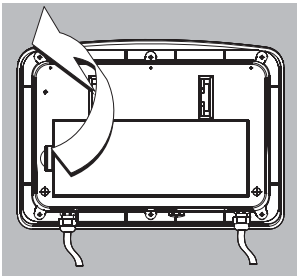
Before using the scale, rotate the nut (upwards) until tight.

Place the load plate on the scale



Assembly Procedure

1. Affix the column bracket with 4 screws
2. Install the column support leveling foot
3. Push the load-cell cable into the column
4. Insert the column into the bracket holder
5. Affix the column with 2 screws
6. Insert the display and control unit retainer into the column
7. Tighten the screw on the display and control unit bracket

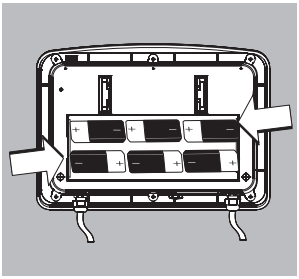


Battery-Powered Operation

To activate battery operation:

– Open the battery cover at the back of the Indicator.

– If you purchased the system with the dry-cell battery option, insert 1.5 V size D dry-cell batteries (not included) into the battery compartment.



– The battery symbol is displayed when the unit is operating on battery power.

– If the battery symbol flashes, the battery power is weak. Replace the batteries (if using dry-cell batteries).

Operating Design

The scales in the Exceleron series consist of a weighing cell and a display and control unit. In addition to the choice of power supply or rechargeable maintenance free lead acid battery or dry battery, your scale also has an interface port for connecting peripheral devices, such as a printer, computer, etc.

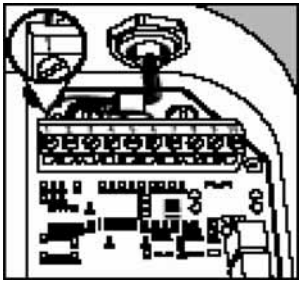
The display and control unit is affixed to the weighing platform. Operation of the Exceleron scale is simple and uniform. The Exceleron models include the features like gross/net toggling, counting, checkweighing & unit toggling.

Display
The display is divided into sections:

Busy Symbol, Plus/Minus Sign
If the symbol displayed here is a triangle ⏀, this indicates that the scale is performing a function (busy symbol) a plus or minus sign (+ or –), this applies to the value displayed

The Measured Value
Shows the measured value

Basic Unit and Additional Information
- When the scale has stabilized, the weight unit is displayed here (g, kg,..).
- The Arrows below the weight indications shows the weighing mode (gross/net) and the application mode (counting, checkweighing, or unit toggling) enabled, if any.
- The ⚠ symbol indicates the unit is not in weighing mode (e.g.: calibration mode, configuration mode, error mode)



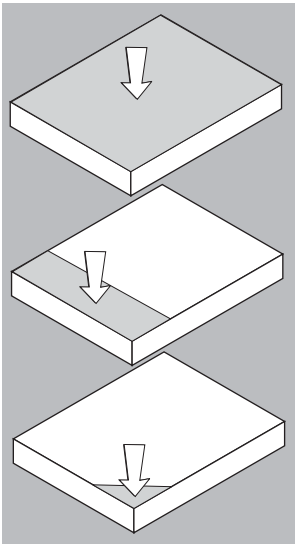
Load Cell Connection
- Attach the wires to the screw terminals in the indicator (see "Pin Assignment")

No	Signal	Meaning
1	+ Excitation	Supply voltage positive
2	+ Sense	Sense positive
3	+ Output	Measuring voltage positive
4	– Output	Measuring voltage negative
5	– Sense	Sense negative
6	– Excitation	Supply voltage negative

Load cell color code

Terminal assignment	1	2	3	4	5	6
For load cell type:						
4-conductor	red		green	white		black
6-conductor	red	blue	green	white	brown or yellow	black

* For 4-conductor load cell - Pin 1, 2 and Pin 5, 6 connected with a jumper wire.



Operating Limits

Never exceed the maximum capacity of the scale.
The maximum loading capacities of the scale in this series are listed in the table below, and depend on the position of the load on platform:

Model	Width (mm)	Length (mm)	Center*	Side	Comer
ECL6	240	320	50	35	20
ECL15	300	400	130	85	45
ECL30	400	500	500	400	200
ECL60	500	650	600	400	200
ECL150	700	700	600	400	200
ECL300	600	800	600	400	200

Power Management Option

Scale connected to AC power:

On/Off Switch:
On: Scale is operational & display shows function or mode that is in use
Off: Depends on menu setting ("4. Standby option."), scale is completely off (no display and no internal circuitry) or in standby (no display and internal circuitry working).

Back Light:
Depends on menu setting ("2. Backlight"). Backlight is on/off.

Auto Power Off:
Not active.

Scale running on battery power:

On/Off Switch:
On: Scale is operational and the display shows the function or mode that is in use
Off: Completely off (no display and no internal circuitry)

Back Light:
Depends on menu setting ("2. Backlight"). Backlight is on/off. Backlight goes off after 15 seconds if no operation is done (no key pressrd/no weighing). Backlight comes back on whenever a key (except on/off) is pressed or when a load is placed on the scale.

Auto Power Off:
Depends on menu setting ("3. Auto power off"); system power shuts down. Time limit options for auto power in setup menu are 5, 10 or 15 minutes, or can be disabled.

Descriptions of the Keys

1) On/Off
"on/off" function will depend on different power supply condition. Needs setup menu for backlight control and for auto power off.

In Main Mode

- **Off-Mode**:
  If standby active: Scale is in standby mode but there is no display visible other than mode symbol (no backlight, no display, no symbols)
  If standby not active: scale is completely off
- **On-Mode**:
  Scale is in operation and the display shows the function, that is in use.
  In this mode, auto power off function is invalid.

In Battery Mode

- **Off-Mode**: Scale is completely off.
- **On-Mode**: Scale is in operation and the display shows the function, which is in use. Backlight works based on setup menu
  In this mode, auto power off function is valid. After 5, 10 or 15 minutes, the system shuts off when not in use in accordance with the setup menu setting.

2) Zero/Arrow-Left (ZERO/LEFT)
Weighing mode: Set scale to zero
Parameter mode: Shift position of digit to the left

3) Tare/Arrow-Right (TARE/RIGHT)
Weighing mode: Tare the scale
Parameter mode: Shift position of digit to the right

4) Gross-Net/Arrow-Down (G/N/DOWN)
Weighing mode: Toggle weight unit gross/net
Counting mode: Toggle weight unit gross, net and pcs
Function mode: To scroll down menu selection
Parameter mode: Reduce digit value by 1

5) Function/Arrow-Up (Fn/UP)
Weighing mode: Switch the scale from normal weighting mode to application setup mode
Function mode: Scroll up in menu selection
Parameter mode: Increment digit

6) Print/Enter (PRINT/ENTER)
Weighing mode: Print key
Function mode: Scroll level up in menu mode/confirm menu selected.

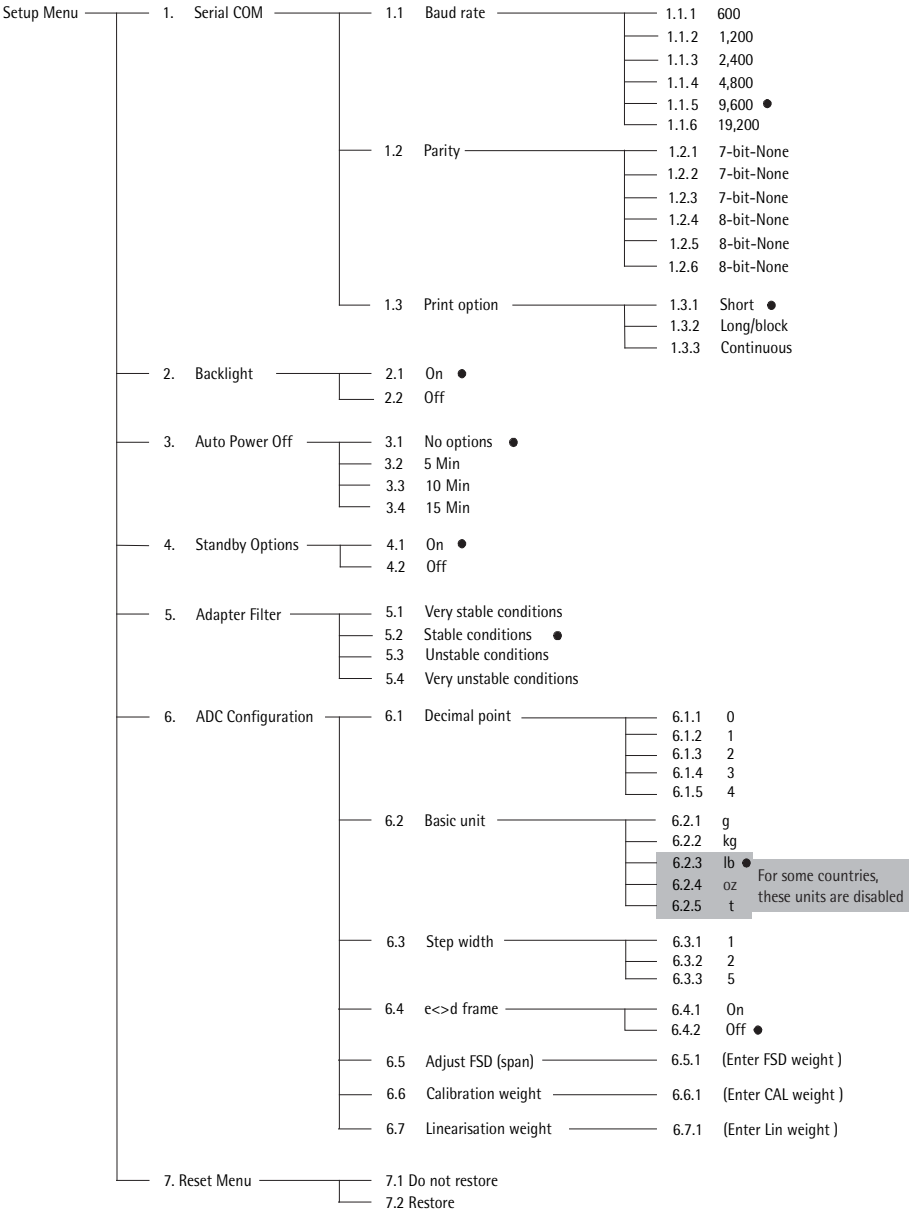
Configuration (Setup Menu)

To configure the user interface of the scale to individual requirements

	Step	Key (or instruction)	Display
1.	Switch off the scale	(ON/OFF)	
2.	Switch on the scale	(ON/OFF)	
3.	While all the segments are displayed:	(ZERO/LEFT) > 2 sec	

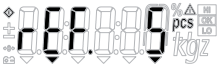
Navigation in the Setup Menu

Key	Function
(PRINT/ENTER)	Menu item: confirm setting
(Fn/UP)	Menu item: Scroll up Digit input: Increment
(G/N/DOWN)	Menu item: Scroll down Digit input: Reduce by 1
(ZERO/LEFT)	Digit input: Selection shift left
(TARE/RIGHT)	Digit input: Selection shift right

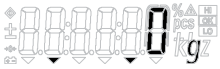

Setup Menu
1. Serial COM
1.1 Baud rate
1.1.1 600
1.1.2 1,200
1.1.3 2,400
1.1.4 4,800
1.1.5 9,600 ●
1.1.6 19,200
1.2 Parity
1.2.1 7-bit-None
1.2.2 7-bit-None
1.2.3 7-bit-None
1.2.4 8-bit-None
1.2.5 8-bit-None
1.2.6 8-bit-None
1.3 Print option
1.3.1 Short ●
1.3.2 Long/block
1.3.3 Continuous
2. Backlight
2.1 On ●
2.2 Off
3. Auto Power Off
3.1 No options ●
3.2 5 Min
3.3 10 Min
3.4 15 Min
4. Standby Options
4.1 On ●
4.2 Off
5. Adapter Filter
5.1 Very stable conditions
5.2 Stable conditions ●
5.3 Unstable conditions
5.4 Very unstable conditions
6. ADC Configuration
6.1 Decimal point
6.1.1 0
6.1.2 1
6.1.3 2
6.1.4 3
6.1.5 4
6.2 Basic unit
6.2.1 g
6.2.2 kg
6.2.3 lb ●
6.2.4 oz
6.2.5 t
For some countries, these units are disabled
6.3 Step width
6.3.1 1
6.3.2 2
6.3.3 5
6.4 e<>d frame
6.4.1 On
6.4.2 Off ●
6.5 Adjust FSD (span)
6.5.1 (Enter FSD weight)
6.6 Calibration weight
6.6.1 (Enter CAL weight)
6.7 Linearisation weight
6.7.1 (Enter Lin weight)
7. Reset Menu
7.1 Do not restore
7.2 Restore

Application Programs

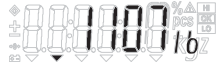
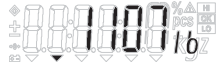
Counting

	Step	Key (or instruction)	Display
a.	Select application program	(Fn/UP) > 2 sec	
b.	Select "Counting"	(Fn/UP) or (G/N/DOWN) repeatedly	
c.	Press PRINT/ENTER. Display shows reference piece selection menu. Counting is blinking.	(PRINT/ENTER)	
d.	Automatically the display will show the reference pieces. Place container and press Tare if required (display "tared").	(TARE/RIGHT)	
e.	Select reference sample quantity: 5, 10, 20, 50 or 100, and put the reference on the scale. (quantity flashes)	(Fn/UP) or (G/N/DOWN) repeatedly	
f.	Press PRINT/ENTER . Now "0" flashes. Automatic optimization is active.	(PRINT/ENTER)	
g.	Place more reference samples on scale (The number is x+2~2x times of the reference pieces (x) selected in step e.)		
h.	Place uncounted parts/samples on the scale		
i.	Toggle between reference piece weight, (G/N/DOWN) total weight, and total pieces.		
j.	Unload the scale		
k.	Counting application: Clear	(ZERO/LEFT) > 2 sec	

Check Weighing

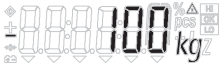
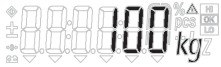
	Step	Key (or instruction)	Display
a.	Select application program	(Fn/UP) > 2 sec	
b.	Select "Checkweighing"	(Fn/UP) or (G/N/DOWN) Repeatedly	
c.	Press PRINT/ENTER to confirm.	(PRINT/ENTER)	
d.	Set lower limit; "LO" flashes.	(Fn/UP) or (G/N/DOWN) and/or (ZERO/LEFT) or (TARE/RIGHT)	
e.	Press PRINT/ENTER to confirm and save.	(PRINT/ENTER)	
f.	Set upper limit, "HI" flashes, and then press PRINT/ENTER.	(Fn/UP) or (G/N/DOWN) and/or (ZERO/LEFT) or (TARE/RIGHT)	
g.	Press PRINT/ENTER to confirm and save.	(PRINT/ENTER)	
h.	Place the sample on the scale. Display shows the difference and HI/LO symbol		
			
i.	Unload the scale		
j.	Checkweighing application: Clear	(ZERO/LEFT) > 2 sec	

Toggling between Weight Units

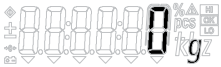
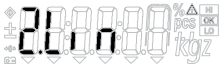
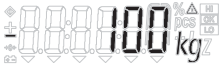
Step	Key (or instruction)	Display
a. Select application program	(Fn/UP) > 2 sec	
b. Select "Toggling Weight Units"	(Fn/UP) or (G/N/DOWN) Repeatedly	
c. Select weight unit 1	(Fn/UP) or (G/N/DOWN)	
d. Confirm weight unit 1	(PRINT/ENTER)	
e. Select weight unit 2	(Fn/UP) or (G/N/DOWN)	
f. Confirm weight unit2	(PRINT/ENTER)	
g. Place sample on the scale		
h. Toggle weight unit	(Fn/UP)	
i. Unit toggling Application: Clear (unit changes to basic unit set)	(ZERO/LEFT) > 2 sec	

Calibration/Span Adjustment

Calibrate the Scale

	Step	Key (or instruction)	Display
a.	Switch on the scale	(ON/OFF)	
b.	Zero the scale	(ZERO/LEFT)	
c.	Select calibration/linearization mode	(TARE/RIGHT) > 2 Sec	
d.	Select calibration	(Fn/UP) or (G/N/DOWN) Repeatedly	
e.	Confirm/start calibration. After the zero point is stored, the required calibration weight is displayed	(PRINT/ENTER)	
f.	Place the required weight on the scale		
g.	If the weight is applied within the defined time limit and tolerance, the "OK" symbol is displayed. Press "(PRINT/ENTER)" to confirm and save calibration. (To exit calibration press (ZERO/LEFT) > 2 sec)	(PRINT/ENTER)	

Linearize the Scale

	Step	Key (or instruction)	Display
a.	Switch on the scale	(ON/OFF)	
b.	Zero the scale	(ZERO/LEFT)	
c.	Select calibration/linearization mode	(TARE/RIGHT) > 2 sec	
d.	Select linearization	(Fn/UP) or (G/N/DOWN) repeatedly	
e.	Confirm/start linearization After the zero point is stored, the required linearization weight is displayed.	(PRINT/ENTER)	
f.	Place the required weight on the scale		
g.	If the weight is applied within the defined time limit and tolerance, the "OK" symbol is displayed. Press "(PRINT/ENTER)" to confirm and save calibration. (To exit linearization, press (ZERO/LEFT) > 2 sec)	(PRINT/ENTER)	
h.	The next linearization weight will be shown on the display after confirmation of the previous linearization weight.		
i.	Place the required weight on the scale.		
j.	If the weight is applied within the defined time limit and tolerance, the "OK" symbol is displayed. Press "(PRINT/ENTER)" to confirm and save calibration. (To exit linearization, press (ZERO/LEFT) > 2 sec)	(PRINT/ENTER)	
k.	Remove the linearization weight		
l.	Linearization complete		

SBI Interface Protocol Description

Output Format with 22 Characters
The following data block format is output:

I	I	I	I	I	I	V	W	W	W	W	W	W	W	W	W		U	U	U	CR	LF

I : ID
V : +/- sign
W : Weight value
U : Unit

ID Codes

S t a t	Indicates a special weighing platform status, e.g., initialization, self-test, adjustment/calibration
N	Indicates net or gross value
N 1	Indicates net value with 1st tare memory assigned (not main tare)
N 2	Indicates net value with 2nd tare memory assigned (not main tare)
S / N	Indicates equipment serial number
M o d e l	Indicates equipment Model

Plus/Minus Sign

+	Plus sign
–	Minus sign

Space (i.e., no plus or minus sign; if weight value is 0 or if output does not include a weighed value)
Unit

	No stable parameter.; no weighed value
g	Grams
k g	Kilograms
l b	Pounds
o z	Ounces
t	Tons

Special Codes
The data block may contain special information.
Special status-dependent codes:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
												S1	S2							CR	LF

The following status codes are output for "S1" and "S2":

: Taring
C : Internal calibration
-- : All numerals shown in stable readout
H : Overload
L : Underload

Special Error-dependent Codes:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
									E	R	R		n	n1	n2					CR	LF

n – n3 contains an error code of up to 3 digits.

Data Input Formats

You can enter certain commands to control weighing platform functions through the SBI interface.
As with data output, data is input as 7-bit ASCII characters; hardware and protocol configuration are identical to those for data output.

Formats:

ESC K CR LF

ESC K K1 – CR LF

ESC : Escape
K : Command character
K1 : 2nd command character (number)
- : Underline
CR : Carriage return
LF : Line feed

The CR and LF characters do not have to be transmitted in the data string.

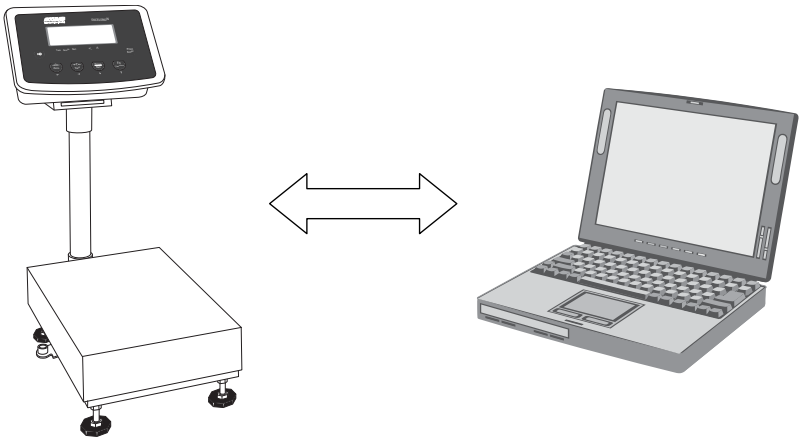
Control Commands

ESC P CR LF	Print, auto print: initiate / stop
ESC T CR LF	Zero/Tare – combination
ESC V CR LF	Zero the weighing platform
ESC U CR LF	Tare the weighing platform
ESC S CR LF	Reset
ESC O CR LF	Lock keyboard
ESC R CR LF	Unlock keyboard
ESC x 1 _ CR LF	Output model name
ESC x 2 _ CR LF	Output serial number

Adaptation to Ambient Conditions

ESC K CR LF	Very stable
ESC L CR LF	Stable
ESC M CR LF	Unstable
ESC N CR LF	Very unstable

RS-232 Interface Diagram



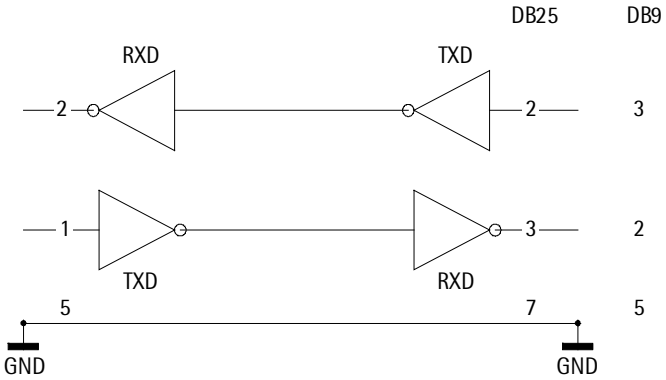


Diagram for interfacing a computer or different peripheral device to the scale using RS-232 cable length up to 15 m.

Print Formats

Printing Mode Options

Printing out Options			
Mode of operation	**Short print**	**Block print (long print)**	**Continuous mode**
Normal weighing mode	Net weight	Gross weight (if tare is active) Tare weight (if tare is active) Net weight	Gross weight (if tare is not active) or Net weight (if tare is active)
Counting mode	Net weight Pcs Ref. weight	Gross weight (if tare is active) Tare weight (if tare is active) Net weight Pcs Ref. weight	Pcs (default) By pressing G/N key, it can switch to: Gross weight (if tare is not active) or Net weight (if tare is active)
Checkweighing mode	Net weight Chk OK/LO/HI	Gross weight (if tare is active) Tare weight (if tare is active) Net weight Chk OK/LO/HI LL (lower limit) HH (upper limit)	Press key to toggle between: Gross weight (with unit 1) and Gross weight (with unit 2)

The print output can be configured for three modes: short mode (option 1.3.1), long/ block mode (option 1.3.2) and continuous mode (option 1.3.3). The SBI interface, explained in the section above, is available in all modes. Sample print outputs are given below for all three printing options in different weighing modes.

Note: To configure serial communication settings and print output options, please refer to "Configuration (Setup menu)". Refer to "Application Programs" to configure the display and control unit for different weighing modes.

a. Print output: Expansion of Abbreviations

N	Net weight
G	Gross weight
T	Tare weight (appears in block printing mode, if tare is not zero)
Chk.	Checkweighing status (If checkweighing application is selected)
OK	Ok (checkweighing mode, if the placed weight is in the range set)
HI	High
LO	Low
LL	Lower limit (checkweighing)
HL	Higher limit (checkweighing)
W.Ref.	Reference weight (counting application)
Pcs	Number of units on the pan
g	Weight in Grams
kg	Weight in kilograms
+	Appears if the value is greater than or equal to zero
–	Appears if the value is less than zero

b. Sample print outputs in different applications

1. Short printing mode:

1.1 Normal weighing

```
G      +      200     g
```

1.2 Counting

```
N      +      400     g
Pcs             10  pcs
W.Ref.         40     g
```

1.3 Checkweighing

Ex 1: If the weight on the pan is <10% of lower limit set.

```
N      +        0     g
Chk.
```

Ex 2: If the weight on the pan < lower limit set.

```
N      +      100     g
Chk.            LO
```

Ex 3: If the weight on the pan is between the set limits.

```
N      +      200     g
Chk.            OK
```

Ex 4: : If the weight on the pan > upper limit set.

```
N      +      410     g
Chk.            HI
```

1.4 Unit toggling

Ex 1: Before toggle key is pressed

```
G      +      300     g
```

Ex 2 : After unit is toggled to kilograms.

```
G      +    0.300  kg
```

2. Block printing mode:

2.1 Normal weighing

Ex 1: If tare is zero

```
G      +      200     g
```

Ex 2: If tare is not zero

```
G      +      100     g
T      +       50     g
N      +       50     g
```

2.2 Counting mode

Ex 1: If tare is zero.

```
G      +      400     g
Pcs             10  pcs
W.Ref.         40     g
```

Ex 2: If tare value is set.

```
G      +      440     g
T      +      400     g
N      +       80     g
Pcs             2  pcs
W.Ref.         40     g
```

2.3 Check weighing mode

Ex 1: If the weight on the pan is <10% of lower limit set, with zero tare.

```
G      +        0     g
Chk.
LL             200     g
HL             400     g
```

Ex 2: If the weight on the pan < lower limit set, with zero tare.

```
G      +      100     g
Chk.            LO
LL             200     g
HL             400     g
```

Ex 3: If the weight on the pan is between the set limits, with zero tare.

```
G      +      200     g
Chk.            OK
LL             200     g
HL             400     g
```

Ex 4: If the weight on the pan > upper limit set.

```
G      +      410     g
Chk.            HI
LL             200     g
HL             400     g
```

Ex 5: If the weight on the pan is <10% of lower limit set, with a set tare value.

```
G      +      400     g
T      +      400     g
N      +        0     g
Chk.
LL             200     g
HL             400     g
```

Ex 6: If the weight on the pan < lower limit set, with a set tare value.

```
G      +      800     g
T      +      400     g
N      +      400     g
Chk.            OK
LL             200     g
HL             400     g
```

Ex 7: If the weight on the pan > upper limit set, with tare value set.

```
G      +      810     g
T      +      400     g
N      +      410     g
Chk.            HI
LL             200     g
HL             400     g
```

2.4 Unit toggling

Ex 1: Before toggle key is pressed.

```
G      +      300     g
T      +      200     g
N      +      100     g
```

Ex 2 : After unit is toggled to kilograms.

```
G      +    0.300     kg
T      +    0.200     kg
N      +    0.100     kg
```

3. Continuous printing mode

3.1 Normal weighing

Ex 1: If tare is not active

```
G      +      200     g
```

Ex 2 : If tare value is present.

```
N      +      200     g
```

3.2 Counting mode

default:

```
Pcs              2 Pcs
```

Ex 1: If tare is not active (G/N key)

```
G      +      200     g
```

Ex 2 : If tare Value is present. (G/N key)

```
N      +      200     g
```

3.3 Checkweighing

Ex 1: If tare is not active

```
G      +      200     g
```

Ex 2 : If tare value is present.

```
N      +      200     g
```

3.4 Unit toggling

Output 1: Before toggle key is pressed

```
G      +      300     g
```

Output 2: After the unit is toggled to kilograms.

```
G      +    0.300     Kg
```

Error Codes

Error codes are shown on the main display. "Err" codes are shown continuously; "Inf." messages are shown for 2 seconds, after which the program returns automatically to the weighing mode.

Problem	Cause	Solution
Nothing appears or some symbols exist desultorily on the display	– No power available – The AC adapter is not plugged in – Battery is drained – LCD cable is loose	– Check the power supply – Plug in the AC adapter – Replace battery; charge battery using external charger – Plug in the cable again or contact customer service
oL	– The load exceeds the scale capacity	– Unload the scale
uL	– Weighing pan is not in place – Something is touching the weighing pan	– Place the weighing pan on the pan – Move the object that is touching the weighing pan
dSPErr	– Display overflow: Value cannot be shown on the display	– Reduce the load on the scale
CALErr	– Calibration parameter not met; e.g.: – scale not zeroed – scale is loaded – scale setting not allowed to the customer	– Calibrate only when zero is displayed – Press (zero) to tare the scale Unload the scale
APPErr	– Weight is too high or there is no sample on the scale with application in use	– Increase the weight on the scale
PrtErr	– Data interface for printing is blocked	– Contact the customer service center
SYSErr	– APP board cannot retrieve data from AD board	– Contact customer service
EPErr	– EEPROM defective	– Contact customer service
FnErr	– Function not allowed in scales verified for use in legal metrology	– Contact customer service
Sb iErr	– SBI command error	– Contact customer service
Err 08	– Zero is not possible if weight value is more than 10% of FSD	– Zero the scale after removing some of the load
Err 09	– Tare is not possible when the gross weight is a minus value	– Zero the scale
FEErr	– Fatal error; cause unknown	– Contact customer service
Err 54 Err 55	– No platform is connected	– Connect a platform or sensor
Max. Weighing capacity is less than indicated under "calibrate"	– The scale was switched on without the weighing pan in place	– Place the weighing pan on the scale and press "On/Off"
The weight readout is obviously wrong	– The scale was not calibrated/ adjusted before weighing – Scale not zeroed	– Calibrate/adjusted the scale – Zero the scale

Care and Maintenance

Cleaning

- Unplug the scale from the AC power before cleaning.
- To clean the weighing platform: use a piece of cloth, wet with a commercially available cleaning agent (IPA – Isopropyl Alcohol) to wipe it down. Follow the manufacturer's instructions for the cleaning agent.

Never use concentrated acids, bases, solvents or pure alcohol to clean the weighing platform.

Do not use high-pressure cleaning equipment to clean the weighing platform.

- If the scale is installed in a pit, make sure that no debris builds up in the crevices between the pit and the platform, to prevent weighing errors.
- Regularly remove debris from the bottom of the pit.

Cleaning the Inside of the Platform

- To clean the inside of the weighing platform, remove the load plate (applicable for single load cell platforms).

Please follow the safety instructions.

- **Use compressed air to blow debris out of the inside of the scale. Make sure that no debris builds up in the gap between the load receptor and the fastening plate, to avoid compromising the overload protection.**

Corrosive Environment

- Remove all traces of corrosive substances from the weighing platform on a regular basis.

Safety Inspection

If there is any indication that safe operation of the scale with the AC is no longer warranted:

- Turn off the power and disconnect the equipment from AC power immediately
- Lock the equipment in a secure place to ensure that it cannot be used for the time being

Safe operation of the scale with the AC is no longer ensured when:

- There is visible damage to the AC adapter
- The AC adapter no longer functions properly
- The AC adapter has been stored for a relatively long period under unfavorable conditions

In this case, notify your nearest service center or the International Technical Support. Maintenance and repair work may only be performed by service technicians who

- Have access to the required maintenance manuals
- Have attended the relevant service training courses

Instructions for Recycling the Packaging

To ensure safe shipment, your scale has been packaged using environmentally friendly materials. After successful installation of the scale, you should return this packaging for recycling. For information on recycling options, including recycling of old weighing equipment, contact your municipal waste disposal center or local recycling depot.

Specifications

No of keys	6
Display	LCD, 6 digits, character height: 25 mm, 7 segment with backlight (amber)
Functions	1. Zero, 2. Tare, 3. Counting, 4. Checkweighing, 5. Net/gross weight, 6. Toggle between weight units, 7. Auto power off (optional battery mode)
Maximum readability	15000d
Temperature range	–10 to +40°C RH85% no condensation
Line power supply	Built-in 100-240V AC (+/- 10%), 50Hz, 15.5 VA (with battery charger circuit) 4 VA (without battery charger circuit)
DC power operation	Optional using 6 "D" size 1.5V dry battery
Load plate	Platform code: DC, ED, FE, GF, GG, IG stainless steel; LL, NL, NN, RN, RR, WR painted steel
Housing material	ABS
Column	Length 350 mm, 500 mm & 750 mm
Measurement category	Category 1, maximum 8.5V
Pollution degree	Degree 2
Compliance	CE

Specifications of the Individual Models:

Model	**ECL6EDP**	**FCC15EDP**	**ECL30EDP**	**ECL60EDP**	**ECL150EDP**	**ECL150EDP**
Weighing capacity (kg)	6	15	30	60	150	300
Verification (g)	0.5	1	2	5	10	100
Readability (×±g)	1	2	4	10	20	100
Linearity (×±g)	1	2	4	10	20	100
Operating temperature	–10…+40°C					

Accessories (Options)

- RS-232 interface (cable 2 m with DB9 pins for PC connection)
- RS-232 interface (cable 2 m with DB25 pins for YDP03 printer)
- Printer YDP03-0CE

CE Marking

The scale complies with the following EC Directives and European Standards:

Directive 2004/108/EC:
"Electromagnetic compatibility (EMC)"

EN 61326-1	Electrical equipment for measurement, control and laboratory use EMC Requirements
Part 1:	General requirements Defined immunity to interference: Industrial areas, continuous, unmonitored operation Limitation of emissions: Residential areas, Class B

Important Note:
The operator shall be responsible for any modifications to Acculab equipment or connections of cables not supplied by Acculab 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).

Directive 2006/95/EC:
"Electrical equipment designed for use within certain voltage limits"

Applicable European Standards:

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

If you use electrical equipment in installations and under ambient conditions subject to stricter safety standards than those described in the manual, you must comply with the provisions as specified in the applicable regulations for installation in your country.

Address label/Dealer's stamp

The status of the information, specifications and illustrations in this manual is indicated by the date given below.
Acculab reserves the right to make changes to the technology, features, specifications and design of the equipment without notice.

Status:
July 2008, Acculab

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