



AE-201 INDICATOR

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1.0 INTRODUCTION

The AE-201 Indicator is a general purpose weighing indicator for use with strain gauge load cells.

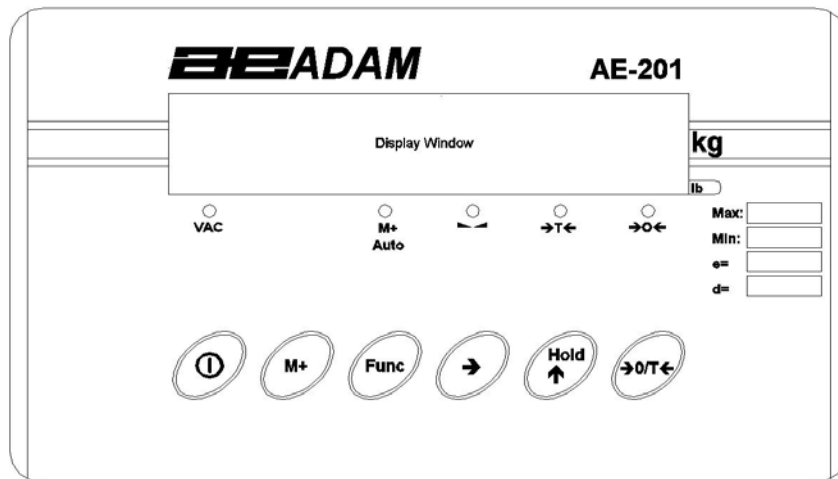
The indicator offers:

- Preset or semi-automatic tare
- Manual or automatic memory accumulation facility
- Unit of weight can be switched between kg and lb
- Selectable digital filtering for animal weighing
- Hold Function to lock the display, either automatic or manual
- Selectable automatic power off
- RS-232 Interface
- Simple operation
- Keyboard calibration and configuration
- Weighing up to 1:15,000 divisions
- Up to 8 load cells of 350 ohm can be used
- Operation from internal rechargeable battery or main power


2.0 SPECIFICATIONS

INPUT SECTION	
Load Cells	Minimum 40 ohm load cells Maximum 1200 ohm
Sensitivity	0.7 μ v/ internal increment
Excitation Voltage	5 V, 125 mA Minimum 40 ohm load cells Maximum 1200 ohm (up to 8 load cells of 350 ohm)
Zero Input Range	0 to +2.5 mV
Input Range	0 to 15 mV
POWER SUPPLY	
External Power Supply	230VAC / 110VAC, 50/60 Hz 10 watts,
Connector	9 Pin d-sub-miniature socket
Internal Batteries	Internal 6V lead acid battery, charged by internal power supply
WEIGHING	
Display Units, default	Kilograms or Pounds
Readability	Selectable, 0.001 kg to 50 kg


2.1 KEYBOARD AND DISPLAY



The AE-201 indicator has the following symbols:

VAC	Main power is applied to the indicator
M+ Auto	The automatic accumulation function is active
	The weight is stable
→T←	A weight has been tared, the display is showing the net weight.
→0←	The scale is at zero
kg	Shows kilograms as unit of weight
lb	Show pounds as unit of weight

The keys perform the following functions:

	On/Off function
[M+]	Manual accumulation function
[Func]	Function selection during normal operation and configuration
[→]	Move the flashing digit to the right during configuration or setting preset tare
[Hold/ ↑]	The function of this key will depend on the following: <ul style="list-style-type: none"> - When the display is at zero pressing this will change kg to lb and vice-versa if enabled - When a weight is shown it will act as a HOLD function. The display will be held until the Tare or this key is pressed again. - During setup it will increment the flashing digit as currently used.
[→T←]	Zero the display, set the zero point or enter a tare value.

3.0 OPERATIONS

3.1 POWER

- Attach the main power cord to the power supply. The indicator will charge the internal battery whenever it is connected to the 230VAC power supply.
- To turn on the AE-201, press the **[On/Off]** key. It may be necessary to hold the key down for a few seconds.
- The display will show the software revision then a self test, showing the segments are all working. The message “**bPt xx**” will be shown before the display goes to zero. This is an indication of the percentage of charge of the internal battery. The value “**xx**” will vary from a low value of about 10% to a maximum of 99%.
- If the scale has not been previously configured or the input signal is out of range then the beeper will sound continuously and the scale may not go to zero.
- To switch off the power press the **[On/Off]** key again. It may be necessary to hold the key a few seconds.

3.2 ZERO FUNCTION

- To zero the display press the key **[→T←]** with nothing on the platform.
- The zero indicator will be on.

3.3 TARE FUNCTION

- When the scale has a container on it press the **[→T←]** key, after the scale displays zero.
- The Tare indicator will be turned on.

3.4 PRESET TARE FUNCTION

- To enter a number for the tare value using the front panel, press the [→] key.
- The display will show “0000.00” with the left digit flashing. Using the [→] key select the digits and press the [Hold/↑] key to increment the flashing digit.
- When the desired value is displayed press the [→T←] key to enter the tare value.
- To clear the tare press the [→T←] key again.

3.5 MANUAL MEMORY ACCUMULATION

- The user can manually add values to memory when the Automatic Accumulation parameter is set to off, (Aut 0 -see section 3.6) and the Printer Parameter is set to allow Manual Accumulation (see Section 4 for details).
- When the scale is enabled, the user can press the [M+] key to perform the manual accumulation. The display will show the value stored in the memory by showing a value, i.e. “n X”. The value of “X” is the number of weights that are stored.
- The indicator must return to zero before pressing the [M+] key again or else it will cause another value to be added to the memory.
- Alternatively the indicator can be set to do an automatic memory accumulation, see section 3.6.

3.6 AUTOMATIC MEMORY ACCUMULATION

- The indicator can be set to store the weight values in memory automatically.
- To set this, press the [Func] key. If the memory already has values stored in it the display will show how many entries have been stored. i.e. “n 5”, followed by the total stored value, this value will scroll across the display if it is too large to fit the display digits (> 999999).

- If the memory has previously been cleared the display will show “n 0” followed by zero weight when [**Func**] is pressed.
- If you wish to clear the memory press the [**→T←**] key.
- Otherwise press [**Func**] again. The display will show “**Aut 0**”. This parameter controls the automatic accumulation function.
- Set the parameter to:

Aut 0	Automatic accumulation is off.
Aut 1	Automatic accumulation is on, accumulates when weight is added.
Aut 2	Automatic accumulation is on, accumulates when weight is removed.

- Use the [**Hold/↑**] key to increment the value. The values from 3-9 are not used.
- Use [**Func**] to store the value and return to normal weighing.

3.7 SWITCH BETWEEN KILOGRAM TO POUND

- The scale can be switched from kilogram to pound only when the display is at zero. Then press the [**Hold/↑**] key to change. The LED next to the lb symbol will be turned on.
- This is allowed only if the kg/lb parameter is enabled. Otherwise the scale will stay in the preset unit.

3.8 HOLD FUNCTION

- The scale will hold a weight value that is greater than zero. Press the [**Hold/↑**] key to **HOLD**. The display will remain unchanged until [**Hold/↑**] or [**→T←**] is pressed again.
- If the animal weighing function is enabled then the weight will be held automatically when the scale becomes stable. The [**Hold/↑**] key is still active to unlock the HOLD and to lock it again, if needed.
- The display will be made to flash on and off during the time the value shown is held.

3.9 ANIMAL WEIGHING

- The scale can be set for animal weighing in the set up section. The scale should use a high level of filtering and the HOLD function will be enabled automatically when it has determined a stable weight for the animal. The display will remain unchanged until **[Hold/↑]** or **[→T←]** is pressed again.
- The display will flash during the time the value shown is held.

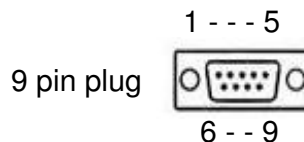
4.0 RS-232 INTERFACE

- The RS-232 Interface is for output of weighing results.
- The RS-232 is normally configured to print a weight when the value is stored into memory, either automatically or when the **[M+]** key is pressed.
- It is possible to change the setting so that the RS-232 will output continuously or when the **[M+]** key is pressed without storing data into memory.
- For the procedure of setting the parameters for RS-232 operation see Section 6.0 on Technical Description of AE-201.

4.1 CONNECTIONS

The RS-232 connector is a 9 pin d-subminiature plug mounted on the rear panel. The output pins are:

Pin 3 Output (TXD)
Pin 5 Signal Ground (GND)



No other pins are used, handshaking is not used.

The output format will depend on the printing parameters (**Prt xx**).

The default baud rate is 4800 baud. Other baud rates (Options are 1200, 2400, 4800 and 9600) can be set. See Section 6.3.2.

The output is ASCII characters.

The parity is none, 8 data bits and 1 stop bit.

4.2 CONTINUOUS OUTPUT

With the printer parameter is set to “**Prt 01**” the RS-232 output will be continuous. This output is primarily meant to be used for PC’s to capture the weight data.

The data format is:

```
<stx>, W7, W6, W5, W4, W3, W2, W1, SA, k, g, <cr>
```

<stx>	= Start of text, = 02hex.
W7, W6 - - W1	= Weight data with decimal point
SA	= See below
k	= letter “k” = 6Ahex
g	= letter “g” = 67hex
<cr>	= Carriage Return = 0Dhex

The output will show “lb” in place of “kg”, when pound is selected.

“**SA**” is a character that will show the status of the scale. It is a 8 bit string with the following characters: **0100ABCD**

A= 1 when the scale is over-range
A= 0 when the scale is not over-range
B= 1 when the net weight is shown, a tare value has been entered
B= 0 when the gross weight is shown
C= 1 when the weight is stable
C= 0 when the weight is unstable
D= 1 when the scale is at zero
D= 0 when the scale is not at zero

SA=0100ABCD	Hex Value	ASCII	Over-range	Tare entered	Stable	At Zero
01000000	40h	@				
01000001	41h	A				X
01000010	42h	B			X	
01000011	43h	C			X	X
01000100	44h	D		X		
01000101	45h	E		X		X
01000110	46h	F		X	X	
01000111	47h	G		X	X	X
01001000	48h	H	X			
01001001	49h	I	X			X
01001010	4Ah	J	X		X	
01001011	4Bh	K	X		X	X
01001100	4Ch	L	X	X		
01001101	4Dh	M	X	X		X
01001110	4Eh	N	X	X	X	
01001111	4Fh	O	X	X	X	X

For example, the net weight is 123.45 kg with the weight of a container tared and the results are stable the output will be: **<stx> 123.45Fkg<cr>**

If the scale is at zero and stable the printout would be: **<stx> 0.00Lkg<cr>**

4.3 AUTOMATIC OUTPUT

When the printing parameter is set to “**Prt 02**” or “**Prt 03**”, the RS-232 will output under the following conditions.

Prt 02

- The RS-232 will output when the **[M+]** key is pressed if the Automatic memory parameter is set to “**AUt 0**” or will output when data is added to the memory automatically when weight is added to the scale (**AUt 1** or **AUt 2** is set).
- The format for automatic printing is based upon the data being added to the accumulation memory. The printed output will consist of a line of data that shows the sample number and the weight. When the results are recalled from memory (See sections 3.5 and 3.6) the output will show the total number of items and the total value stored in memory.

- In the following example three weights are stored into memory and then the results are recalled.

The output will be:

```

1  1.000kg<cr><lf>
2  1.115kg<cr><lf>
3  1.010kg<cr><lf>
*****
n= 3<cr><lf>
total 3.125kg<cr><lf>
<cr><lf>
<cr><lf>

```

The 3 weights are added to the memory either automatically or by pressing the **[M+]** key.

The total from the memory are recalled and printed.

PRT 03

- The RS-232 will output the same as **Prt02** settings plus it will output when the **[M+]** key is pressed but pressing **[M+]** will not add the data to memory, it will only print the weight. The accumulation of the weights will be done automatically.
- Using the example above, except that the **[M+]** key is pressed after the 3rd weight is added-

The output would look like:

```

1  1.000kg<cr><lf>
2  1.115kg<cr><lf>
3  1.010kg<cr><lf>
1.010kg<cr><lf>
*****
n=      3<cr><lf>
total 3.125kg<cr><lf>
<cr><lf>
<cr><lf>

```

The 3 weights are added to the memory automatically.

The weight only is printed by pressing the **[M+]** key.

The totals from memory are recalled and printed.

4.4 MANUAL PRINTING

- When the printing parameter is set to “Prt 04” automatic printing and accumulation to memory is disabled.
- Pressing the **[M+]** key will cause the weight to be printed without adding the value to memory.
- If the **[M+]** key was pressed for the 3 weights in the previous examples the sample printout would look like:

```
1.000kg<cr><lf>
1.115kg<cr><lf>
1.010kg<cr><lf>
```

Summary:

Prt	AUt	[M+] key	Auto Memory	
Prt02	AUt0	Print + Add	No action	Prints when the [M+] key is pressed and weight is added to memory.
	AUt1 or AUt2	No action	Print + Add	Prints when weight is automatically added to memory. [M+] key has no effect.
Prt03	AUt0	Print + Add	No action	Prints when the [M+] key is pressed and weight is added to memory.
	AUt1 or AUt2	Print only	Print + Add	Prints when the weight is automatically added to memory. [M+] key will print but not add to memory.
Prt04	AUt0	Print only	No action	Prints weight only when [M+] key is pressed, do not add to memory.
	AUt1 or AUt2	Print only	No action	Prints weight only when [M+] key is pressed, do not add to memory. Automatic accumulation is not active.

5.0 BATTERY MANAGEMENT

OPERATION WITH THE INTERNAL BATTERY

- When operating from the internal battery it is wise to activate the automatic turn off feature. See section 6.3.2.
- This feature will allow the scale to operate as normal, however if after 3 minutes a key has not been pressed the display will change to “- “ to conserve the battery power. To activate the display again press any key. After 30 minutes the indicator will be turned off.
- Operation time with a fully charged battery will depend upon the number of load cells connected to the indicator and the state of the battery charge. A fully charged battery will last about 30 hours with a single load cell connected and about 20 hours with 4 (350 ohm) load cells connected.
- To view the percentage of the charging level of the battery, turn the scale off or on. The display will show a message showing the percent of battery charge remaining, i.e. “**bPt 75**” for a battery with approximately 75% of its life left.
- If the battery is less than 15%, the display will flash on and off. As the battery life approaches 0% the indicator will turn off to protect the battery from over discharge.
- Connect the AE-201 to the main power supply overnight to fully charge the battery.
- As the battery ages it may not hold the same charge that a new battery would hold. In this case it may be wise to replace the battery. Contact Adam Equipment or your dealer for assistance.

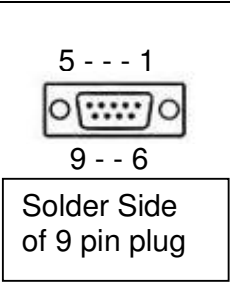
6.0 TECHNICAL DESCRIPTION

6.1 PURPOSE

- When the indicator is first connected to a load cell it is necessary to set up the indicator to display the correct information. To do this, first set up the capacity, resolution, decimal point location and then calibrate the scale.
- This is also the time to set the parameters for automatic turn off, digital filtering and RS-232 parameters.

6.2 LOAD CELL CONNECTIONS

The load cells are connected using the 9 pin plug provided.

Pin 1, Pin 2	+ Excitation, jumper pins 1 and 2	
Pin 3	Shield ground	
Pin 4, Pin 5	-- Excitation, jumper pins 4 and 5	
Pin 7	+ Signal	
Pin 8	-- Signal	
Pins 6 and 9 are not used.		

6.3 CONFIGURATION

The configuration will be split into 2 sections- one for the User Parameters and other one for the Metrological Parameters.

6.3.1 METROLOGICAL PARAMETERS

- To enter the configuration section, press and hold the [→T←] key while you turn on the indicator. The display will show the revision number with the last digit a bar to indicate it is in the configuration section, i.e. "UEr xx". The display will continue to count then go to zero.
- Press the [Func] key to enter the configuration menus. The display will show "CAL SP".

- To calibrate after setting the parameters use the “**CAL SP**” menu. However first press [**Func**] to advance to “– **SEt** – “for setting parameters or “–**A–D**– “for viewing the A/D counts.

6.3.1.1 A/D counts

- To view the A/D counts press [**→**] when “–**A–D**– “is shown.
- The A/D counts should go from a number greater than zero to a larger number as weight is added to the load cells. The value should increase approximately 1 count for every 0.7µV of signal.
- If the A/D counts do not change check the load cell wiring. Do not proceed until you know the A/D counts are acceptable. The maximum number of counts is 400,000. The recommended minimum number of counts is 20,000.
- Press the [**Func**] key to return to weighing.

6.3.1.2 SET menu

The User should be able to select the weighing units to be used to configure the scales, either kilograms or pounds.

When the scale is changed to the other weighing unit by the user the increments, capacity and if necessary the decimal point position will also change automatically.

A new parameter will be added to enable or disable the switching of units using the [**Hold/↑**] key. **See below.**

- This menu will set the necessary weighing parameters.
- Press the [**→**] key when “– **SEt** – “is displayed. The following parameters can be set in order:

<p> “Unt lb” = Select either pounds or kilograms as the base unit “UnS 0” = Enable or disable unit switch “d xx” = The decimal point and division of the scale “n xxxxx” = The number of scale divisions –“rng x” = The auto zero range </p>

“**Unt xx**” = The base unit (kilograms or pounds)

- The display will show the value for the base unit that will be used to configure the scales. Press the **[Hold/↑]** key to change from “**Unt lb**” to “**Unt kg**”.
- The base unit will be used by the scale for the weighing configuration. After the base unit is set, the scale will compute the necessary capacity and increment for the other unit as necessary during operation. For example, if the base unit is set to pounds and the scale is set to 3000kg x 1kg, it would compute the maximum weight and the divisions in kilogram as 1360.0 kg X 0.5kg. The scale will always increment in steps of 1,2,5,10,20 etc.

“**UnS 0**” = Enable or disable unit switch

- Set the option to enable or disable the unit switch abilities. This will allow the scale to switch from kg to pounds if enabled. If it is disabled the scale will always be only in the base unit as set above. Press the **[Hold/↑]** key to change from “**UnS 0**” disabled to “**UnS 1**” enabled.

“**d x.xx**” = The decimal point and division of the scale

- The display will show the value for the last digit, including the decimal point position. Press the **[Hold/↑]** key to change the values. The values will cycle through the options:
- 10—20—50—1—2—5—0.1—0.2—0.5—0.01—0.02—0.05—0.001—0.002—0.005—10—20 etc.--
- Press the **[Hold/↑]** key to modify the value shown.
- Press **[Func]** to enter the value and move to the next parameter.

“**n xxxxx**” = The number of scale divisions

- The display will then show the number of scale divisions already set. It is suggested the indicator to be used for 6000d or less.

- The display will change to show the number of scale divisions, i.e. “n 6009”. The display will show “n 00000” if no values have been entered. Enter the value required using the [→] key to select a digit to change (it will be flashing) and the [Hold/↑] key to increment the flashing digit. Include any over-range required in the value entered. Press the [Func] key to enter the displayed value.
- For example 500kg x 0.2kg is 2500 scale divisions (500/0.2=2500). With 9d additional for the over-range the value entered would be “n02509”.
- If the combination of increment, decimal point and number of scale divisions are not allowed, the beeper will sound until it is changed.

Examples of the capacity and scale division for n=3000, n= 6000 and n=15,000 plus 9d over-range. Other capacity/readability values or over-range can be set.

n=3009		n= 6009		n=15009	
capacity	d =	capacity	d =	capacity	d =
3	0.001	6	0.001	15	0.001
6	0.002	12	0.002	30	0.002
15	0.005	30	0.005	75	0.005
30	0.01	60	0.01	150	0.01
60	0.02	120	0.02	300	0.02
150	0.05	300	0.05	750	0.05
300	0.1	600	0.1	1,500	0.1
600	0.2	1,200	0.2	3,000	0.2
1,500	0.5	3,000	0.5	7,500	0.5
3,000	1	6,000	1	15,000	1
6,000	2	12,000	2	30,000	2
15,000	5	30,000	5	75,000	5
30,000	10	60,000	10	150,000	10
60,000	20	120,000	20	300,000	20
150,000	50	300,000	50	750,000	50

“rng x” = The auto zero range

- The auto zero range determines when the scale will reset the zero point automatically. When the weight is near zero the scale will attempt to maintain an accurate zero point. This is done by resetting the zero when the weight is within a range

around the old zero point. This is used to keep the zero accurate when small accumulations of weight is present on the scale platform or when changes in temperature cause the zero to shift by a small amount.

- Press the **[Hold/↑]** key to modify the value shown (0 to 9).
- The value represents a weight equal to the setting (x) plus 0.4 time the scale division. Range = $(x+0.4) d$. A normal setting would be $x=1$.
- Press the **[Func]** key to enter the value and return to the normal weighing.

6.3.1.3 CAL SP menu

- This menu will set the calibration of the scale. This function should be entered after the parameters have been set.
- From the weighing mode enter the “**CAL SP**” menu by pressing the **[Func]** key. The display will show “**CAL SP**”.
- Press the **[→]** key to enter calibration. The display will change to “**CAL 00**”.

Note: The scale will only calibrate in the base unit- either kilograms or pounds.

- Ensure the scale platform is empty in order to set the zero point and press the **[Func]** key.
- The display will show bars, “- - - -” for a moment then it will show the maximum capacity in kilograms as set in the “**SET**” menu section. For example if the scale was set to 500kg x 0.2kg, the number of divisions was set to 2509 as shown above. This relates to a maximum capacity of 501.8kg. This value can be used for calibration or you can enter another value. To use this value place the mass equal to the weight shown on the scale and then press the **[Func]** key.
- To use another value press the **[Hold/↑]** key to modify the value shown. The display will change to “**0000.00**” with the left digit flashing. Enter the value required using the **[→]** key

to change the flashing digit and the **[Hold/↑]** key to increment the flashing digit.

- Place this mass on the scale and then press the **[Func]** key.
- The scale will calibrate and then return to weighing. If the Automatic accumulation has been enabled the indicator will add this value to memory, showing the “n x” display for a moment.
- **IMPORTANT:** Turn the indicator off and back to on to return to normal operation. Otherwise the setting of menus will be shown whenever the **[Func]** key is pressed.

6.3.1.4 Errors during Calibration

If an error is detected during calibration, the display will show a message “**Err**” and the beeper will sound continuously. Repeat the calibration procedure. If the error is still there, it may be necessary to consider re-setting of some parameters in the “**SEt**” menu.

6.3.2 USER PARAMETERS

This section will set the parameters normally needed by the users.

- The users enter this function by pressing the **[Hold/↑]** key during power on. The displays will be the same as the metrology parameters and will then go to zeros.
- By pressing the **[Func]** key the user will enter the set-up section where only “**CAL SP**” and “**-SEt-**” are shown. “**CAL SP**” will perform calibration exactly as shown above “**- SEt-**” will display the user options.
- Press the **[→]** key when “**- SEt -**” is displayed. The following parameters can be set in order:

<p>“F It xx” = The digital filtering parameter “Anl x” = Animal Weighing enabled “1” or disabled “0” “AUTP x” = The Automatic power off parameter “Prt xx” = The printing parameter “b xxxx” = Baud rate for RS-232 interface</p>
--

“Flt xx” = The digital filtering parameter

- The display will now change to the digital filtering parameter, i.e. **“Flt 20”**.
- As before, press the **[Hold/↑]** key to modify the value shown. The display will change to **“Flt 00”** with a digit flashing. Enter the value required using the **[→]** key to change the flashing digit and the **[Hold/↑]** key to increment the flashing digit.
- The larger the number the slower the scale will be but the more stable it will be in adverse conditions.
- Typical values are **“Flt 04”** to **“Flt 10”**.
- Press the **[Func]** key to enter the value and move to the next parameter.

“Anl x” = Animal weighing function

- The next parameter is the Animal Weighing function, **“Ani 0”** or **“Anl 1”**.
- Setting the parameter to 0 disables animal weighing, setting it to 1 enables animal weighing.
- When animal weighing is enabled the display will hold the value automatically until it is cleared by pressing the **[Hold/↑]** key or the **[→T←]** key. It is suggested the filter be set to a value greater than 20 for animal weighing.
- Press the **[Hold/↑]** key to modify the value shown.
- Press the **[Func]** key to enter the value and move to the next parameter.

“AutP x” = The Automatic power off parameter

- The next parameter is the Automatic Power Off function, **“AutP 0”** or **“AutP 1”**.
- Setting the parameter to 0 disables automatic power off, setting it to 1 enables automatic power off.

- Press the **[Hold/↑]** key to modify the value shown.
- Press the **[Func]** key to store the value and move to the next parameter.

“Prt xx” = The printing parameter

- The printing parameter will determine how the scale uses prints data from the RS-232 interface. See section 4 for details of the actions of each setting.
- Press the **[Hold/↑]** key to modify the value shown. The sections are:

Prt 00	The RS-232 is not configured
Prt 01	Continuous output
Prt 02	Automatic output
Prt 03	Automatic output, Manual print with the [M+] key
Prt 04	Manual print only

- Press the **[Func]** key to store the value and move to the next parameter.

“b xxxx” = Baud rate for RS-232 interface

- To select the baud rate press the **[Hold/↑]** key to modify the value shown.
- The selections can be made from the following options- 1200, 2400, 4800 or 9600 baud.
- Press the **[Func]** key to store the value and return to weighing.

7.0 ERROR CODES

During operation or calibration, certain conditions may appear to be incorrect as determined by the scale. In such cases, an error code will be displayed.

The error codes which may be displayed are:

ERRORS	POSSIBLE CAUSES	EFFECTS
Err 1	If the A/D counts are less than a preset limit, it shows an error code for low A/D	Prevents the scale from functioning when the A/D is not working
Err 2	This is shown when the A/D count is above a preset limit at turn on	Prevents the scale from functioning if the A/D counts are too high to allow proper operation
Err 3	If initial zero is outside the range of the factory setting for zero by greater than 20%, this error will be displayed	Prevents operation if the zero point has shifted too far from the initial zero
Err 4	During calibration the new calibration constant should be compared to the old calibration constant or a preset value. If the calibration constant is too small, calibration is not allowed and an error message is shown	Prevents calibration with the wrong masses or if the load cells are not working correctly
Err 5	During calibration the new calibration constant should be compared to the old calibration or a preset value. If the calibration constant is too large, calibration is not allowed and an error message is shown	Prevents calibration with the wrong masses, no mass on the scale or if the load cells are not working correctly
Err 6	Data unstable	
Err E	E ² prom data error	

8.0 TROUBLE-SHOOTING GUIDE

PROBLEMS	POSSIBLE CAUSES
Display is blank	On/Off switch on rear panel is off Scale not turned on Battery not charged
No turn on test	Battery not charged Power supply not plugged in Power supply faulty Display turned off
Display blank after turn on test or Error message displayed	Load cell not connected correctly Load cell damaged
Display is unstable	Drafts or air currents Load cell connections not secure Obstruction under weighing platform Sample is moving (animal weighing) Vibrations through table or floor Temperature changed dramatically Power supply faulty
Weight value incorrect	Calibration error, Recalibrate Unit calibrated with inaccurate weight Obstruction around platform
Cannot use Full Capacity	Overload stops hitting platform support or hitting bottom of load cell Shipping screw not removed if applicable Electronic problem on A/D Parameters set incorrectly Load cell Damaged
Not Linear	Overload stops hitting too soon Load cell damaged A/D damaged
Off Center Loading error	Overload stops not set correctly Load cell damaged
Battery will not charge	Charging circuit failure Battery failure Main voltage not present or too low



Manufacturer's Declaration of Conformity

This product has been manufactured in accordance with the harmonised European standards, following the provisions of the below stated directives:

Electro Magnetic Compatibility Directive 89/336/EEC

Low Voltage Directive 73/23/EEC

Adam Equipment Co. Ltd.
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United Kingdom

FCC COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. The equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Shielded interconnect cables must be employed with this equipment to insure compliance with the pertinent RF emission limits governing this device.

Changes or modifications not expressly approved by Adam Equipment could void the user's authority to operate the equipment.

ADAM EQUIPMENT is an ISO 9001:2000 certified global organisation with more than 30 years experience in the production and sale of electronic weighing equipments. Products are sold through a world wide distributor network -supported from our company locations in the UK, USA and SOUTH AFRICA. The company and their distributors offer a full range of Technical Services such as on site and workshop repair, preventative maintenance and calibration facilities.

ADAM's products are predominantly designed for the Laboratory, Educational, Medical and Industrial Segments. The product range can be classified as follows:

- Analytical and Precision Laboratory Balances
- Top Loading Balances for Educational establishments
- Counting Scales for Industrial and Warehouse applications
- Digital Weighing/Check-weighing Scales
- High performance Platform Scales with extensive software features including parts counting, percent weighing etc.
- Digital Electronic Scales for Medical use
- Retail Scales for price computing

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