

DENVER INSTRUMENT COMPANY

# AC SERIES

Top Loading Electronic Balances

Operating Instructions

600482.1

## SPECIFICATIONS

### Denver Instrument AC Series

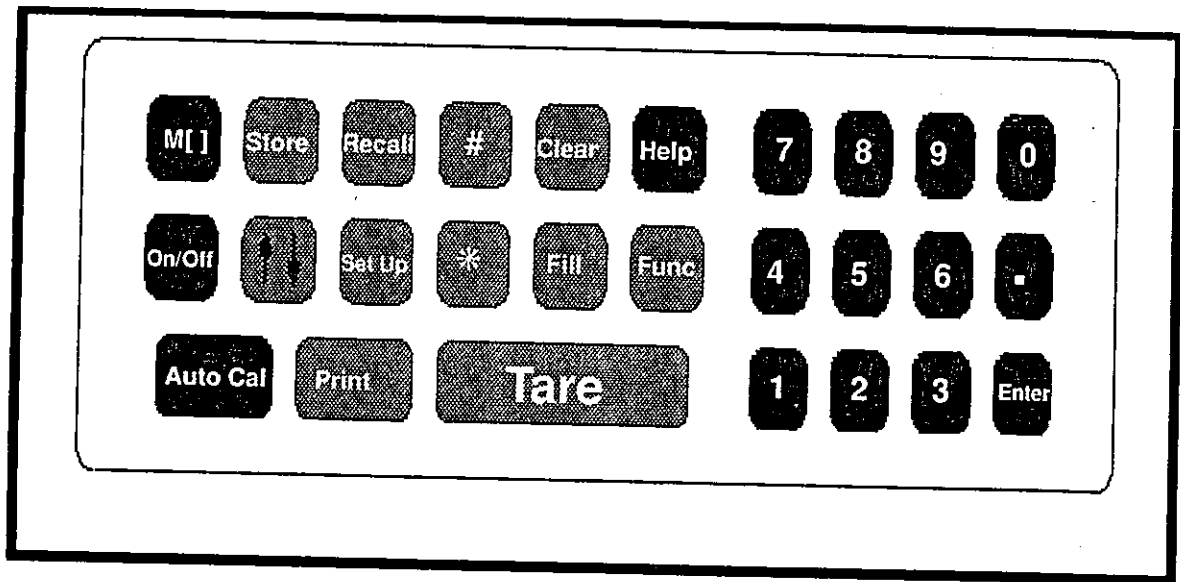
<u>MODEL</u>	<u>CAPACITY</u>	<u>SENSITIVITY</u>	<u>PAN SIZE</u>
ACA-100	100 g	0.0001 g	3 1/4" (8.3cm)
AC-400	400 g	0.001 g	4" (10.2 cm)
AC-800	800 g	0.01 g	5 1/2" (14 cm)
AC-2200	2200 g	0.01 g	5 1/2" (14 cm)
AC-4K	4000 g	0.01 g	8x9" (20x23 cm)
AC-5K	5000 g	0.1 g	8x9" (20x23 cm)
AC-8K	8000 g	0.1 g	8x9" (20x23 cm)
AC-12K	12000 g	0.1 g	8x9" (20x23 cm)
AC-400D	400/100 g	0.01/0.001 g	4" (10.2 cm)
AC-1200D	1200/120 g	0.01/0.001 g	5 1/2" (14 cm)
AC-2KD	2000/200 g	0.01/0.001 g	5 1/2" (14 cm)
AC-4KD	4000/400 g	0.1/0.01 g	8x9" (20x23 cm)
AC-8KD	8000/800 g	0.1/0.01 g	8x9" (20x23 cm)

#### Common Specifications and Features For All AC Series Models

Electrical Requirements ..... 115/230 vac 50/60 Hz\*  
 Response Time ..... Variable, 2-5 seconds  
 Controls ..... Silicone Rubber Keyboard, 26 Keys plus Tare  
 Display, Numeric ..... .5" Vacuum Fluorescent, seven segment character  
 Display, Message ..... .25" Vacuum Fluorescent, 14 segment, 10 characters  
 Multiple Functions  
 Statistical Analysis  
 RS-232 Bi-directional Interface, 5 different formats  
 Automatic Calibration  
 Counting

\* Models **ACA-100** and **AC-2KD** use an external transformer.

## AC Keyboard



Function Keypad

Numeric Keypad

## Keyboard Description

The keys are used individually and in combination with other keys to perform the various balance operations.

The function keys are used to set your balance parameters or to activate certain balance operations. See the appropriate section of your manual for the necessary key strokes.

The numeric keypad is used to enter data and to recall stored values.

Use the **Help** key to obtain balance information.  
(See page 18 for additional directions.)

Use the **Tare** key to zero the display before weighing or to exit any menu during Set Up. (See page 19.)

## Auto Cal

All balances are calibrated at the factory prior to shipment. However, you should calibrate your balance before using it for the first time and you should periodically check calibration to ensure accuracy. We recommend that you check the calibration once a week or whenever the balance has been moved or excessive temperature variations have occurred. Use only calibrated weights. Calibrated weights may be purchased from your **Denver Instrument** representative.

The Auto Cal allows you to permanently change the scale factor adjustment without making a potentiometer adjustment or using other equipment. Use only permissible weights for calibration. To view permissible weights for your model, press the **Help** key and then the **Auto Cal** key. The Message Display then shows the permissible weights.

Calibration is **not** possible if the balance is **not** stable. In addition, the balance displays *NO CAL* and does **not** complete calibration if weights being used are out of range or the balance capacity is exceeded.

### PROCEDURE

1. Press the **Tare** key.
2. Place calibration weight on pan.
3. When the unstable indicator disappears, press the **Auto Cal** key.
4. When calibration is complete, remove weight.

### MESSAGE DISPLAY SHOWS

TARING

CAL

CAL -value-

It is possible to use other standards for calibration when a standard permissible weight is not available. (See Example 3 in Appendix C.)

## Using Your Balance For Basic Weighing Applications

If you have properly installed your balance, have allowed adequate warm-up time, and have checked the calibration, you are now able to do any basic weighing application without further adjustments. The factory settings (see page 12) are automatically activated when the balance initially is powered up.

- ✓ Use the **Func** key to advance to one of the pre-set weighing modes - Gram or Ounce.
- ✓ Press the **Tare** key to zero the Numeric Display.
- ✓ Place your sample on the weighing pan and wait for the unstable indicator (*U*) to disappear on the Message Display.
- ✓ Record the results shown on the Numeric Display.
- ✓ Continue by placing another sample on the weighing pan.

*Doing a simple weighing task*

## Help Key

The **Help** key assists you by giving a description of a selected key or function and how it is used. The information scrolls across the Message Display for easy reading.

**PROCEDURE**

1. Press the **Help** key.
- 2a. Press the key in question.  
or
- 2b. While in a function, press the **Help** key for information on how to continue.  
*A programmed message scrolls across the Message Display.*
3. To stop the scrolling Help message, press the **Tare** key. The message stops and the balance returns to normal operation.

*Using the Help Key*



## Tare Key

Press the **Tare** key during a weighing operation to zero the balance. Tare (zero) the balance before beginning any weighing operation.

*Using the Tare Key*

Press the **Tare** key during a Set Up procedure to exit that operation.

## Taring (Zeroing)

Balances have tare capabilities up to their total weight capacity. (Check your balance capacity with the specifications for your model on page 2.)

If you Tare the balance while it is unstable, the Displays show



until the balance becomes stable. To weigh a sample in its container with the Numeric Display showing the actual weight of the sample, use the following Tare Procedure:

**PROCEDURE**

1. Place sample container on pan, wait for the unstable indicator (U) to disappear, and then press the **Tare** key.
2. Now place sample in its container on the pan.
3. When the balance is stable, the Numeric Display shows the weight of the sample.

(See Example 2a in Appendix C.)

Read all instructions prior to operating your balance! Remember, this is a precision weighing instrument and should be handled with care.

**NOTICE**

Strict compliance with all warranty stipulations must be maintained or warranty service will be voided. Repair or internal adjustments performed by unauthorized personnel may cause serious damage and will void the warranty.

For your reference and protection, record:

Model Number \_\_\_\_\_

Serial Number \_\_\_\_\_

Purchase Date \_\_\_\_\_



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