

DETECTO®



AP-Series All Purpose Scale Operation Manual

INTRODUCTION

The AP-Series All Purpose Scale is a compact solid scale, designed to fill a variety of weighing needs. Please read this manual before attempting to put scale into use and keep it handy for future reference.

This manual is for the following AP Scales:

AP-4K	AP-4K-C	AP-4KD
AP-4KD-C	AP-4KDEX	AP-4KDEX-C
AP-4KEX	AP-4KEX-C	AP-6
AP-6-C	AP-6EX	AP-6EX-C
AP-8	AP-8-C	AP-10
AP-10-C	AP-10EX	AP-10K
AP-10K-C	AP-10KEX	AP-10KEX-C
AP-20	AP-20-C	AP-20EX

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DISCLAIMER

While every precaution has been taken in the preparation of this manual, the Seller assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from use of the information contained herein. All instructions and diagrams have been checked for accuracy and ease of application; however, success and safety in working with tools depend to a great extent upon the individual accuracy, skill and caution. For this reason the Seller is not able to guarantee the result of any procedure contained herein. Nor can they assume responsibility for any damage to property or injury to persons occasioned from the procedures. Persons engaging the procedures do so entirely at their own risk.

FCC COMPLIANCE STATEMENT

This equipment generates, uses and can radiate radio frequency, and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been designed within the limits for a class a computing device pursuant to subpart J of part 15 of FCC rules to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area may cause interference in which case the user will be responsible to take whatever measures necessary to correct the interference.

SPECIFICATIONS

Construction:	304 Stainless Steel
Display:	4 digit, 1/2" red LED digital display
Dimensions:	7 1/2" W x 7" D x 2 3/4" H
Weight:	3.5 lb
Zero:	Established on power up routine and maintained automatically by auto-zero circuitry.
Power:	110-240 VAC 50/60 Hz: AC adapter with 6" power cord
Operating Temperature:	14°F to 104°F (-10c to 40°C)
Humidity:	75 % without condensation
Accuracy:	Class III
Capacity:	AP-4K: 4 kilo - 3999g x 1g AP-6: 6 lb - 99.95 oz x .05 oz AP-8: 8 lb - 7.998 lb x .002 lb AP-10: 10 lb - 9.995 lb x .005 lb AP-20: 20 lb - 19.99 lb x .01 lb

UNPACKING

Remove the scale from the shipping carton and inspect it for any damage that may have taken place during shipment. *Keep and use the original carton and packing material for return shipment if it should become necessary.* The purchaser is responsible for filing all claims for any damages or loss incurred during transit.

Serial Number: _____
Date of Purchase: _____
Purchased From: _____

RETAIN THIS INFORMATION FOR FUTURE USE

PRECAUTIONS

Before using this scale, read this manual and pay special attention to all "WARNING" symbols:



IMPORTANT



ELECTRICAL
WARNING

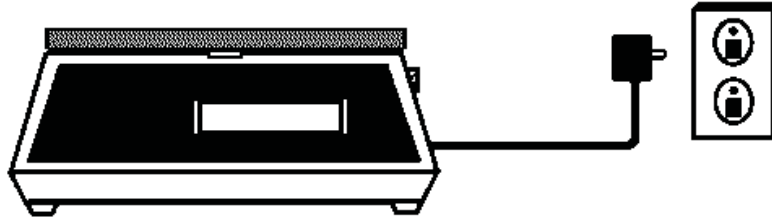
INSTALLATION

Please read this entire manual before operating the scale and pay special attention to the precautions provided on the last page and to the do: and do not: instructions affixed to the underside of your scale's tray.

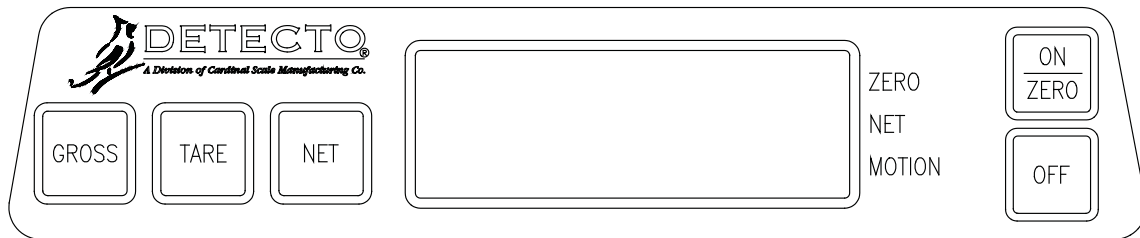
Set the scale on a stable, vibration-free surface, away from direct sunlight and any rapidly moving air source. Then place the scale's tray, lip side down, onto its platform.

POWER CONNECTION

To apply power to your AP Series scale, plug the AC adapter's round connector into the scale and then plug the power adapter into the proper electrical outlet. Your scale is now ready for operation.



OPERATION



When applying power, make certain the scale platform is empty. Press and hold the **ON/ZERO** key until one of the annunciators (ZERO, NET or MOTION) turn on. When one of the annunciators turn on, release the **ON/ZERO** key. After a second or so the display should indicate a zero weight with the ZERO annunciator turned on. Weighing may now begin. If the display does not indicate zero, press the **ON/ZERO** key again to zero the weight display.

GROSS WEIGHT

The normal display mode for the AP scale is the gross weight mode where the display shows the total weight on the scale platform. **NOTE!** In the gross weight mode, the NET annunciator is turned off. If you are in the net display mode and wish to return to the gross weight display mode, simply press the GROSS key.

TARE WEIGHT ENTRY

The AP scale has an automatic tare feature that allows you to enter tare weights up to the three least significant digits of the scale capacity. This tare weight feature is often used to subtract the empty container weight or other unwanted fixed weight values from the weight reading.

The following table lists the maximum tare weight allowed for each model of the AP scale.

Model	Capacity	Maximum Tare Weight
AP-4K	4000 gm x 1 gm	999 gm
AP-6	99.95 oz x .05 oz	9.95 oz
AP-8	8 lb x .002 lb	.998 lb
AP-10	9.995 lb x .005 lb	.995 lb
AP-20	20.01 lb x .01 lb	9.99 lb

OPERATION, CONT.

TARE WEIGHT ENTRY, Cont.

Pressing the **TARE** key will cause the currently displayed gross weight to be stored as the new tare weight and cause the scale to enter the net weight display mode. The net weight display mode is indicated by turning on the net annunciator. Example: on an AP-20, if the displayed gross weight is 2 lb and you press the **TARE** key, the 2 lb would be entered as the new tare weight. The scale would then enter the net weight mode and subtract the 2 lb tare value from the gross weight, displaying a net weight of 0.00 lb. If you added another 2 lb to the platform, the display would indicate 2 lb of net weight. Pressing the **GROSS** key would return the scale to the gross weight mode and display 4 lb.

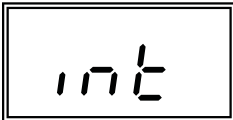
NOTE: Remember the scale will only weigh to its maximum capacity. Any combination of NET plus TARE weights over the scale capacity will result in an overload condition and display $\square\bar{L}$. For example, using the AP-20 from above, with a tare weight of 2 lb, adding 19 lb to the platform will cause an overload condition. This is because the 2 lb tare weight plus the 19 lb load weight equals 21 lb gross weight, which exceeds the capacity of the scale.

NET WEIGHT

To display a net weight without entering a new tare value, simply press the **NET** key. The NET annunciator will be turned on and the display will show the net weight (gross weight less the stored tare weight). If there is no currently stored valid tare weight, the AP scale will ignore this key.

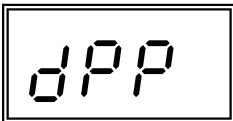
SETUP REVIEW

The Setup Review mode allows you to review the operational parameters, but does not allow you to change them. To enter the setup review mode, with the instrument off, press and hold the **GROSS** key, then press and release the **ON/ZERO** key. Release the **GROSS** key. The display will then show: $\text{int} \bar{L}$. Follow the steps listed.



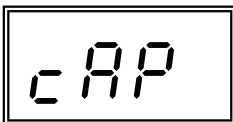
Scale Interval

With the display showing $\text{int} \bar{L}$, press the **NET** key. The scale interval will be displayed. The interval is smallest change in value that can be displayed by the scale. Press the **NET** key to advance to the next step.



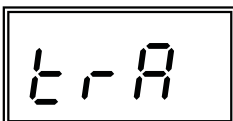
Decimal Point Position

With the display showing $\text{dpp} \bar{L}$, press the **NET** key. The decimal point position (the number of digits to the right of the decimal point) will be displayed. Press the **NET** key to advance to the next step.



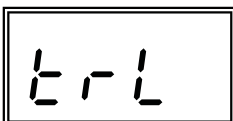
Scale Capacity

With the display showing $\text{cap} \bar{L}$, press the **NET** key. The capacity of the scale will be displayed. Press the **NET** key to advance to the next step.



Zero Tracking Range

The scale display will now show $\text{tra} \bar{L}$. Press the **NET** key to show the value assigned to the Automatic Zero Tracking range. This value (0.5) is the scale divisions that will be automatically zeroed off. For example, if the scale divisions are 0.5 and the zero tracking is set to 3, the scale will automatically zero weights of 1.5 or less. Press the **NET** key to advance to the next step.



Tracking Range Limit

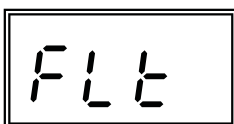
The display will now show $\text{trl} \bar{L}$. Press the **NET** key to show the current setting (*no*) of the tracking range limit. This limit, is a 4% limit placed on the Automatic Zero Tracking feature. **NOTE:** At the time this was printed, the 4% limit is not a US requirement. Press the **NET** key to advance to the next step.

SETUP REVIEW, CONT.



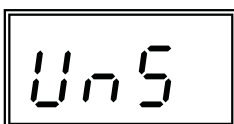
Power Up Zero

With the display showing *PU0*, press the **NET** key to show current setting (yes) of the power up zero feature. Press the **NET** key to advance to the next step.



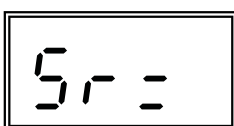
Digital Filter Level Selection

The display will now show *FLt*. Press the **NET** key to show current setting, (0 = minimal filtering) for the selection of the digital filtering level. Press the **NET** key to advance to the next step.



Motion (UNSTABLE) RANGE

With the display showing *Un5*, press the **NET** key to show current setting, (1 division) for the motion (unstable) range. Changes in weight exceeding this value will turn the stable indicator off. Press the **NET** key to advance to the next step.



Sample Rate

The display will now show *5r=*. Press the **NET** key to show current setting (4 samples per second) for the sample rate. Press the **NET** key to advance to the next step.

ERROR AND STATUS DISPLAYS

Display	Meaning
<i>UnSt</i>	Motion is present when the AP is attempting to perform one of the following operations: Power Up Entry of a Tare value Zero Weight Display
<i>UnLd</i>	The weight on the scale platform exceeds the zero range on Power On.
<i>LoRd</i>	The scale deadload is less than the zero range on Power On.
<i>-OC-</i>	Attempting to display a weight greater than the scale capacity.
<i>-OF-</i>	Attempting to display a negative number greater than -999 or a count greater than 9,999
<i>CALb</i>	Indicates that the scale has not been calibrated or has been interrupted during the calibration process.
<i>Err</i>	Indicates a disallowed keyboard entry: Attempt to enter a tare value of zero or less Attempt to enter a tare value of greater than 999 Attempt to zero when the gross weight is outside the scale zero range. EEProm failure
<i>ErrR</i>	No load cell signal or load cell signal polarity reversed.

PRECAUTIONS

The heart of your AP Series is its precision load cell located in the center of the scale base. It will provide years of accurate operation if protected against overload of scale capacity, dropping items onto the scale, or other occasions of extreme shock. Affixed to the underside of your scale's tray is a list of DO's and DO NOT's. Please refer to them frequently and follow them completely to insure long dependable performance from your AP Series Scale.



The membrane keyboard is not to be operated with pointed objects (pencils, pens, fingernails, etc.). Damage to keyboard resulting from this practice will *NOT* be covered under warranty.

- **DO NOT** submerge scale in water, pour or spray water directly on instrument.
- **DO NOT** use acetone, thinner or other volatile solvents for cleaning.
- **DO NOT** expose equipment to temperature extremes.
- **DO NOT** place equipment in front of heating/cooling vents.
- **DO** clean the scale with a damp soft cloth and mild non-abrasive detergent.
- **DO** remove power before cleaning with a damp cloth.
- **DO** provide clean AC power and adequate protection against lightning damage.
- **DO** keep the surroundings clear to provide clean and adequate air circulation.

BEFORE YOU CALL FOR SERVICE

The AP Series Scale has been designed to provide you with years of trouble-free operation. In spite of this, troubles sometimes happen. Before calling for service assistance you should make some initial checks to verify that a problem does exist. The following describes several types of symptoms along with suggested remedies.

Problem	Possible Solutions
Display does not turn on	Is DC power supply cable plugged into the scale? Is AC power adapter plugged into wall receptacle? Check wall receptacle for proper AC power. Try another electrical appliance in the same receptacle, does it work? Check the circuit breaker. Has there been a power failure of any kind?
Incorrect weight displayed	Insure that the scale platform isn't touching an adjacent object. Have proper operation procedures been followed?
Scale will not display weight	Refer to Error and Status Displays section and make certain that the <i>Unld</i> or <i>Lodz</i> messages are not on. If so, and scale is not loaded, contact a qualified scale technician.



If you have any problems, DO NOT TRY TO REPAIR THIS SCALE YOURSELF! Unplug the power cord and contact a qualified scale technician.

STATEMENT OF LIMITED WARRANTY

DETECTO warrants its equipment to be free from defects in material and workmanship as follows: DETECTO warrants to the original purchaser only that it will repair or replace any part of equipment which is defective in material or workmanship for a period of **two (2) years from date of shipment**. Detecto shall be the sole judge of what constitutes a defect.

During the **first ninety (90) days** DETECTO may choose to replace the product at no charge to the buyer upon inspection of the returned item.

After the first ninety (90) days, upon inspection of the returned item, DETECTO will repair or replace it with a remanufactured product. The customer is responsible for paying for the freight both ways.

This warranty does not apply to peripheral equipment not manufactured by DETECTO; this equipment will be covered by certain manufacturer's warranty only.

This warranty does not include replacement of expendable or consumable parts. This does not apply to any item which has deteriorated or damaged due to wear, accident, misuse, abuse, improper line voltage, overloading, theft, lightning, fire, water or acts of God, or due to extended storage or exposure while in purchaser's possession. This warranty does not apply to maintenance service. Purchased parts will have a ninety (90) day repair or replacement warranty only.

DETECTO may require the product to be returned to the factory; item(s) must be properly packed and shipping charges prepaid. A return authorization number must be obtained for all returns and marked on the outside of all returned packages. DETECTO accepts no responsibility for items lost or damaged in transit.

Conditions Which Void Limited Warranty

This warranty shall not apply to equipment which:

- A.) Has been tampered with, defaced, mishandled or has had repairs and modifications not authorized by DETECTO.
- B.) Has had serial number altered, defaced, or removed.
- C.) Has not been properly grounded according to Detecto's recommended procedure.

Freight Carrier Damage

Claims for equipment damaged in transit must be referred to the freight carrier in accordance with freight carrier regulations.

This warranty sets forth the extent of our liability for breach of any warranty or deficiency in connection with the sale or use of the product. DETECTO will not be liable for consequential damages of any nature, including but not limited to, loss of profit, delays or expenses, whether based on tort or contract. Detecto reserves the right to incorporate improvements in material and design without notice and is not obligated to incorporate improvements in equipment previously manufactured.

The foregoing is in lieu of all other warranties, express or implied including any warranty that extends beyond the description of the product including any warranty of merchantability or fitness for a particular purpose. This warranty covers only those DETECTO products installed in the forty-eight (48) contiguous continental United States.



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