



**ADW Series Torque Wrench  
Users Guide  
for Basic Model with Memory**



<b>CONTENTS .....</b>	<b>2</b>
<b>INTRODUCTION .....</b>	<b>3</b>
Description .....	3
System Specifications .....	3
<b>Description of Functions .....</b>	<b>4</b>
Functional Settings .....	4
Setting Limits .....	4-5
Top Panel Inputs I/O Descriptions .....	6
Serial .....	6
Charging the Batteries .....	6
Executing Serial Send .....	7
Serial Transfer Protocol .....	7
Serial Datastream Format .....	7
Serial Cable Pinouts .....	7
<b>PROGRAMMING &amp; NAVIGATION .....</b>	<b>8</b>
<b>Menu Functions .....</b>	<b>9</b>
Button Operation: .....	9
<b>MENU Options .....</b>	<b>10-11-12</b>
Peak Options Menu .....	10
System Menu .....	11
Data Menu .....	12
<b>SERVICE AND WARRANTY .....</b>	<b>13</b>

# INTRODUCTION

## DESCRIPTION

The AUDITOR Torque wrench is designed to provide for auditing torque applications in the smallest foot print at a very reasonable price. Features include an LCD graphics display, built-in battery pack and a communications port for data transfer. A new menu based user interface allows for a wide range of software configurations while keeping the wrench easy to use.

## SYSTEM SPECIFICATIONS

<b>Dimensions</b>	Varies by model. 3 frame sizes are available
<b>Power Requirements</b>	9V DC, 150 mA (120V mains adapter standard, 240v mains adapter available) or internal NiMH batteries.
<b>Operating Temperature Range</b>	0°C to 50°C
<b>Data Communications</b>	Serial
<b>Accuracy</b>	1 % of Indicated Reading
<b>Range</b>	10% to 100% Optional 5% to 100%
<b>Lockout Combinations</b>	Mode, Auto Clear, Mode & Auto Clear, Engineering Units, Mode & Engineering Units, Auto Clear & Engineering Units, Mode & Auto Clear & Engineering Units, None (Off)
<b>Display</b>	4 active digits plus decimal Optional 5 active digits
<b>Units</b>	8 Selectable engineering units. Special units available, please inquire.
<b>Filter</b>	Selectable Hz filter: 7, 62, 125, 250, 500, 750 and 1000

## DESCRIPTION OF FUNCTIONS

The following is a description of the standard features of the AUDITOR Digital Wrench.

### OPERATING MODE

Current operating mode (Peak, 1st Peak or Track) will show on the display. Press the down arrow key to toggle between them. ▼

#### Peak

Displays and retains the maximum torque experienced by the wrench, as occurs when operating the wrench in the tightening direction.

#### 1st Peak

Detects the "first peak" of torque, then captures initial torque as occurs when the fastener moves.

#### Track

Displays torque as it is being applied to the transducer. Track mode is used primarily for Calibration.

#### Memory

The Auditor can store readings into memory for easy download to a PC or Data printer. All readings are viewable on the screen with SPC information available on some models. Stored readings are sequential and FIFO when memory buffer is full.

### ENGINEERING UNITS

Display reports current engineering units. ▲ Press the up arrow key to cycle through the eight possible choices: Kgf m, KgfCm, gfCm, cNm, Nm, FT LB, IN LB, IN OZ.

### FULL SCALE

This "information" screen in the System Menu shows the Full-Scale value of the Wrench. This is not a field adjustable value.

### LOW LIMIT

Setting limits by entering the "Peak Options Menu" and then scrolling to the "Edit Limits" sub menu. Then select your Low and High limits to adjust as described below. Use the low limit setting as a means of visually flagging the operator when a reading fails to reach a desired minimum value. A small down arrow will appear on the screen if a peak is captured below the limit setting.

The limit is adjusted by using the navigation buttons to set the first four digits to the desired value. The fifth digit is used to select the decimal point position. The up and down buttons under the "Soft" button **Change** will change the value from 0-9. Pressing the "soft" **DIG** will scroll through the digit positions. When the correct value is entered, pressing the **ENT** button will return you to the menu system.

Once all the digits have been set, press the **MEM** key to accept the value and return to Program Function mode. The next time a reading is taken, "LO" will appear on the display if the captured value is less than the low limit

### **HIGH LIMIT**

Use the high limit setting as a means of visually flagging the operator when a reading is over a desired maximum value. High limits are set in the identical way as low limits. Please refer to the Low Limit section for details.

***NOTE ON LIMITS: The green LED on the front of the display will flash when a peak is captured that is within the limit setting.***

# I/O DESCRIPTIONS

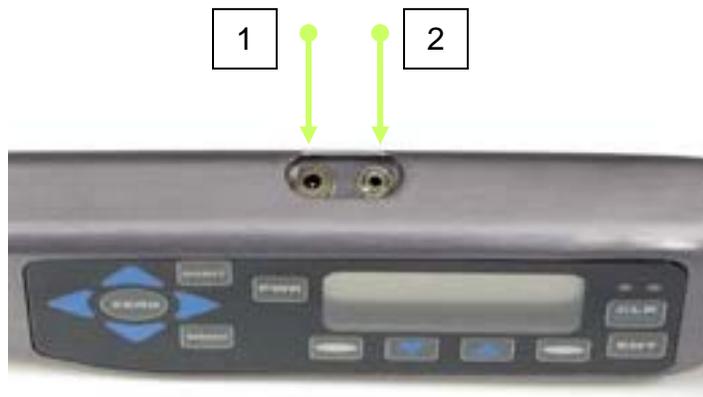
## TOP PANEL INPUTS

### 1 DC In

The interface for the AC Adapter supplied with the unit. Use this if you plan on working under Mains power. Use only the AC adapter provided with the unit. Use of another power source will void the warranty and may cause severe damage to the display.

### 2 Serial

If you are downloading to a printer, data collector, computer, etc., this is the mini-plug interface for the Serial cable. Values are sent via Serial every time the unit auto-clears or the ENT button is pressed



## CHARGING THE BATTERIES

1. The batteries in this system should last approximately 12 hours when fully charged. The Low-Battery indicator on the display will illuminate when the battery voltage is low. Typically, the user will have between 15-30 minutes before the batteries become too weak to power the unit.
2. The batteries are charged any time the system is plugged-in. In Fast Charge mode, i.e. the unit is plugged in and the power is **OFF**, charge time is between 2 and 5 hours depending on battery charge level. The green LED on the front panel will flash when the battery is charging and turned off. It is recommended the wrench be plugged in when not in use. This will not harm the unit and will increase battery life.

Note: If the wrench is to be stored for several months, always ensure the battery is completely charged prior to storage.

## EXECUTING SERIAL SEND

The AUDITOR wrench can be connected to a printer, computer or data collector via its Serial interface. Every time a reading is accepted into memory, a peak is cleared, or data is transmitted via the print data menu(s), the reading or data is transmitted via the Serial port. To download the readings, go to the DATA MENU.

### Serial Transfer Protocol

Protocol	Value
Cable	9 pin to mini-plug.
Baud	9600
Parity	None
Bits	8
S Bit	1
Flow	None

### Serial Datastream Format

**mmmbssddddd buuuucl**, where:

<b>m</b>	Memory Location (if On)	<b>c</b>	Carriage Return
<b>s</b>	Sign (space or -)	<b>l</b>	Line Feed
<b>d</b>	Data with Decimal Point	<b>b</b>	Blank
<b>u</b>	Units		

Data stream note: The following information may follow the data stream (u) if equipped with the appropriate software and # is not zero:

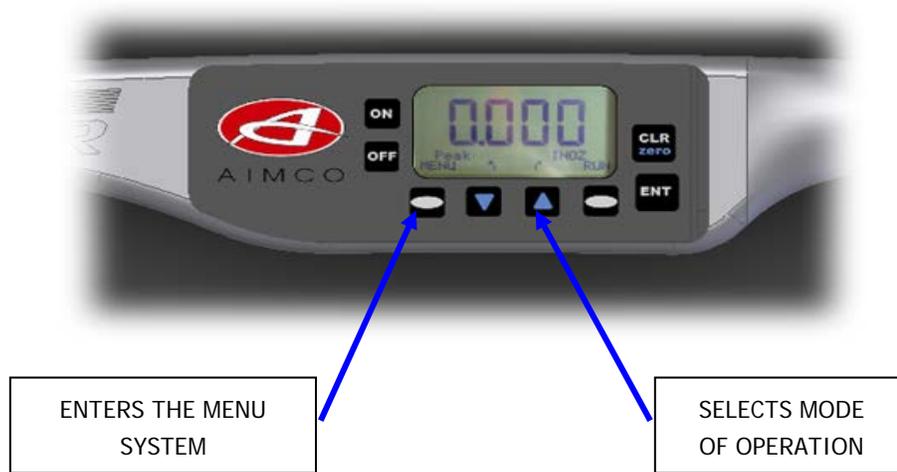
Count: #

Angle: #

### Serial Cable Pinouts

Pin #	Description	Pin #	Description
1	Unused	6	Unused
2	Transmit	7	Unused
3	Receive	8	Unused
4	Unused	9	Unused
5	Ground		

## PROGRAMMING & NAVIGATION

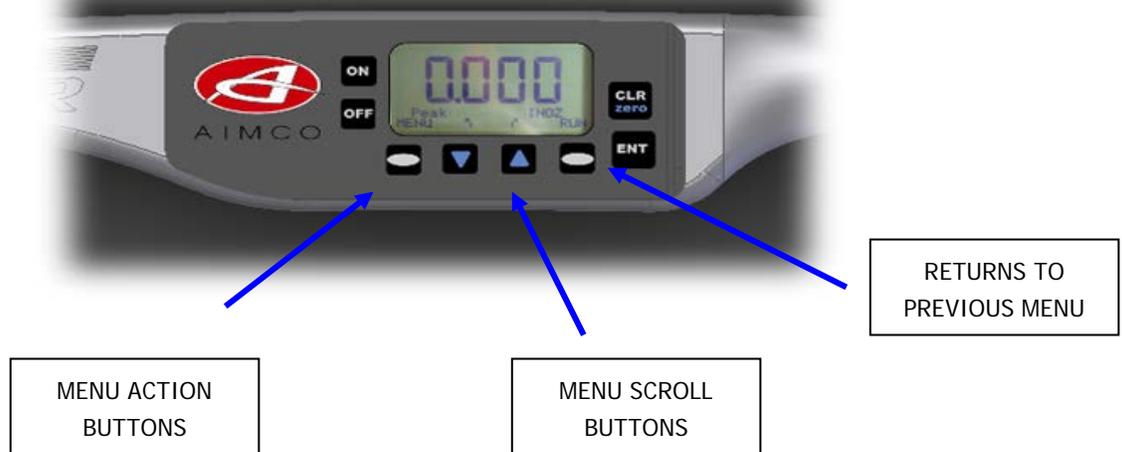


The AUDITOR product line has been designed to provide a consistent interface throughout the product line. We have made the user interface menu driven, as opposed to 'hard coded'. This has provided several advantages. First, once you learn the basics, you can operate any of our products with the shortest learning curve possible. Second, it allows us to offer a greater array of functionality than was previously possible. Third, it allows the user the opportunity to economically upgrade and/or customize our products at any point in the future.

*The graphics shown in this manual may differ slightly from your exact product, but the functions are identical. Other products in the Auditor line include The Auditor Wrench, Auditor Collector Wrench, Auditor Portable Display, Auditor Data Collector, UET series Torque Tester, UET/MTM Torque Display and various 'Other Branded' Equipment*

The four buttons below the LCD are programmable or "Soft Buttons". The functionality of the buttons will vary with the current selection. There are two ways to change settings, or otherwise gain access to the operation of the tester:

1. Live programming: Where the "soft" buttons have text above them, pressing the button will scroll through the options. In the picture above, pressing the down arrow will scroll through the Modes of Operation. These include Peak, 1<sup>st</sup> Peak and Track. The Up Arrow will scroll through the engineering units.
2. Menu Driven: There are two sets of menus in the display.
  - a. Bottom right Oval button will scroll through the Tester Operating Functions. For basic testers, this includes the RUN MODE and MEMORY (MEM) MODE. Toggling this button will change the functions of the other soft buttons appropriately.
  - b. MENU (bottom left oval) will take you to the main menu system. Shown below is a sample of one menu screen



## MENU TREE

Operation Overview: There are 8 buttons on the display face: Off, On, four (4) programmable or 'soft' buttons CLR/Zero and Enter. The exact function of the soft buttons is defined by the bottom two rows of text and will vary depending on the current mode of operation. Pressing the ENT button will take you back to the previous screen, until you return to the run mode.

### Button Operation:

Run Mode (Current mode displayed):

CLR/zero: Clears the peak reading, Zero's the display and erases the memory location otherwise.

ENT: Save current reading to memory if memory is on and clears the peak reading.

Memory Mode (MEM displayed instead of Run):

ON: Goes to run mode without erasing memory location.

ENT: Scrolls to next empty location.

Either Mode:

RUN -> MEM: (soft button) changes the mode of the arrow buttons.

Up and Down: (soft buttons) Units and mode respectively for RUN; Memory location for MEM. Depends on the right programmable button.

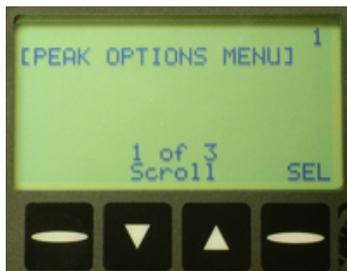
MENU: Enter menus.

### MENU Operation:

ENT: Previous menu.

Up and Down: Scroll through the current menu.

Programmable keys: Menu actions. The text varies depending of the active menu selection.



## MENU TREE:

### 1 PEAK OPTIONS MENU

SEL: Enters menu.

#### 1-1 Auto clear

+, - Set time in seconds.

Auto-clear works in Peak and 1<sup>st</sup> Peak modes, freeing the operator from manually clearing the display after taking a reading. Auto-clear can be set from one to nine seconds, or completely off.

With AutoClr disabled, this reading will continue to display until the operator stores it by pressing the ENT button, or clears it by pressing the CLR button.

Pressing the + key will change "Off" to a value of "1", referring to the number of seconds the system will hold a reading on the screen before clearing. Repeatedly pressing the arrow key to scroll from "Off" to "9". When the desired value is shown, press the enter button.

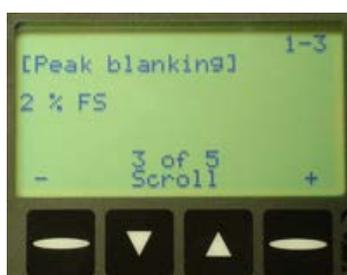
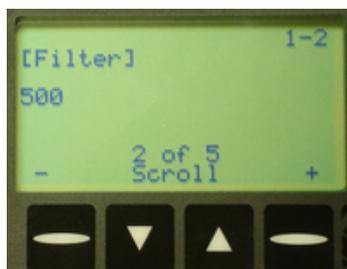
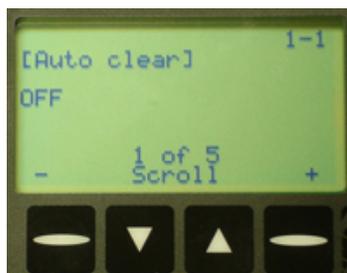
Once the unit is returned to operational mode, AC will show on the bottom of the display. Because AutoClr is now active, this reading will show for the user specified number of seconds and then clear the display. From now on, every reading will clear and be stored automatically into memory.

\* Remember AutoClr will not work in Track Mode.

#### 1-2 Filter

+, - Set filter value in Hz.

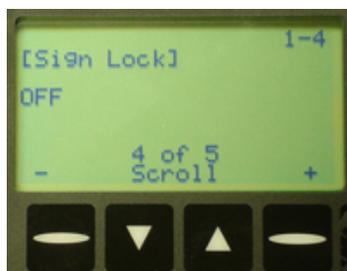
125, 250, 500, 1000, 1500 & 2000.



#### 1-3 Peak Blanking

+, - Set blanking in percent of full scale.

Peak Blanking sets the minimum threshold at which torque is captured as a peak. Pressing the + and - buttons will scroll from 2% through 50% of Full Scale.

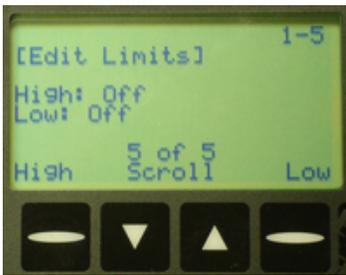


#### 1-4 Sign Lock

+, - Toggle On or Off.

The Sign Lock feature allows the user to select the torque direction of the peak to be captured. With Sign Lock ON, the initial direction or sign is the default direction. Any peak measured in the non-selected direction will be measured, but not captured as a peak. To reset the sign, either cycle the power or zero the unit.

With Sign Lock OFF, the tester will capture both CW and CCW torque.



## 1-5 Edit Limits

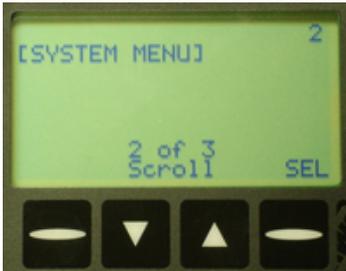
High or Low edits that limit.

Limit editing:

Up and Down: Change the digit specified (5 is decimal point, OFF turns the limit off)

DIG: Changes which digit to edit.

ENT: Accepts changes.



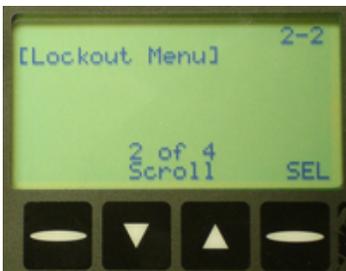
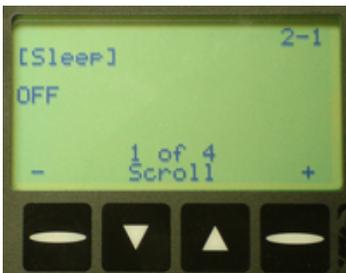
## 2 SYSTEM MENU

SEL: Enters menu.

### 2-1 Sleep

+, -: Set time in minutes.

To conserve battery life, the display is equipped with a "sleep" mode, which sets the limit to standby after a user-settable amount of time has passed without activity. Press the + key to increase the number of minutes the unit will wait for input, or the - key to decrease the number. The highest possible sleep setting is 20 minutes.



### 2-2 Lockout Menu

SEL: Enter menu.

#### 2-2-1 Mode Lockout

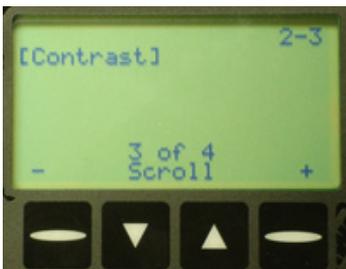
+, -: Toggle on or off.

#### 2-2-2 Units Lockout

+, -: Toggle on or off.

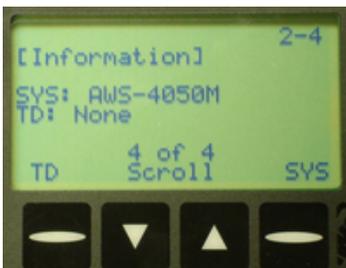
#### 2-2-3 Scroll Lockout

+, -: Toggle on or off.



### 2-3 Contrast

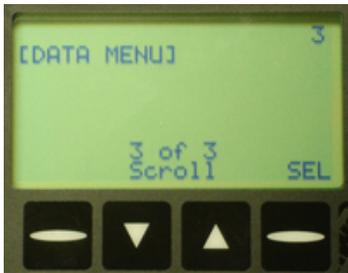
+, -: Change the contrast of the display.



### 2-4 Information

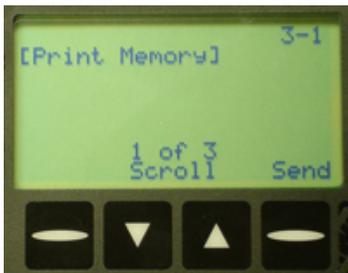
SYS: Gives detailed info about the system.

TD: Gives detailed info about the transducer.



### 3 DATA MENU

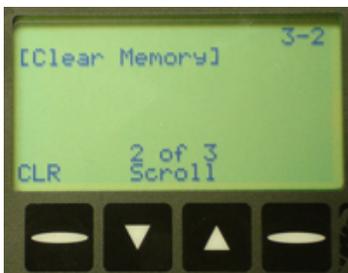
SEL: Enters menu.



#### 3-1 Print Memory

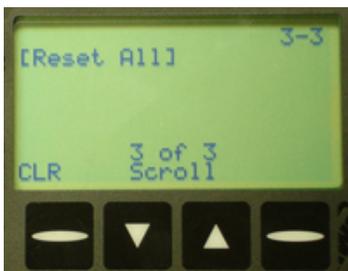
Send: Prints the currently saved readings.

Memory note: The Auditor Wrench can be equipped with either a flat memory with 1000 memory locations, or 'Sets' memory where a common group of readings have an identifier field.



#### 3-2 Clear Memory

CLR: Followed by ENT clears the readings saved in memory.



#### 3-3 Reset All

CLR: Followed by ENT clears all readings and all sets. Should be used approximately every 5000 readings.

## SERVICE AND WARRANTY

### SERVICE

To ensure the best possible support for our customers AIMCO maintains a complete calibration and repair facility for all its products. We keep in stock most replacement parts for torque testers, transducers, and our line of digital wrenches. When you buy a product from us, the only place you need to go for parts and service is...us! For service 503 254 6600, Monday through Friday, between the hours of 9:00am and 5:00pm Pacific Coast Time.

### THE WARRANTY CARD

In order to ensure protection of the warranty as described below, you MUST fill in the appropriate information on the warranty card that came with your unit and return it to AIMCO. within 30 days of receipt of item.

We wish to call your attention to the fact that this system and various components need calibration and certification on a periodic basis. By returning the card to us, you will receive timely notification as to when this re-calibration and re-certification is due.

### STATEMENT OF LIMITED WARRANTY

AIMCO products are warranted free of defects in material and workmanship for a period of one (1) year from date of shipment. This warranty does not include failures due to application of torque to transducers or loaders beyond the stated capacity, operating system with a damaged transducer cord, nor any other misuse, abuse, or tampering. When used with impact type wrenches, the warranty is limited to the electronic digital display units only. This warranty does not cover calibrations.

All freight charges are the responsibility of the company or individual returning the item(s) for repair. Freight collect shipments will not be accepted.

Any modification to any of this equipment, without the express written approval of AIMCO will void this warranty. AIMCO disclaims any and all liability, obligation or responsibility for the modified product; and any claims, demands or causes of action for damage or for personal injuries resulting from the modification and/or use of such a modified AIMCO product.

AIMCO'S OBLIGATION WITH RESPECT TO ITS PRODUCTS SHALL BE LIMITED TO REPAIR OR REPLACEMENT, AND IN NO EVENT, SHALL AIMCO BE LIABLE FOR ANY LOSS OR DAMAGE, CONSEQUENTIAL OR SPECIAL, OF WHATEVER KIND OR NATURE OR ANY OTHER EXPENSE WHICH MAY ARISE IN CONNECTION WITH OR AS A RESULT OF SUCH PRODUCTS OR THE USE OR INFORMATION THEREOF IN A JOB. THIS WARRANTY IS EXPRESSLY MADE IN LIEU OF ALL OTHER WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. NO EXPRESS WARRANTIES AND NO IMPLIED WARRANTIES WHETHER OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE OTHER THAN THOSE EXPRESSLY SET FORTH ABOVE SHALL APPLY TO AIMCO.







**AIMCO CORPORATE HEADQUARTERS**

10000 SE Pine Street  
Portland, Oregon 97216  
Phone: (503) 254-6600  
Toll Free: 1-800-852-1368

**AIMCO CHINA**

Room 607, No. 3998 Hongxin Rd Dibao Plaza  
Minhang District, Shanghai  
China  
Phone: 0086-21-34319246  
Fax: 0086-21-34319245

**AIMCO CORPORATION DE MEXICO SA DE CV**

Ave. Cristobal Colon 14529  
Chihuahua, Chihuahua. 31125  
Mexico  
Phone: (01-614) 380-1010  
Fax: (01-614) 380-1019

**AIMCO SPAIN**

Avenida Río Gallo, 431  
19174 Galápagos - Guadalajara  
Spain  
Phone: + 34 673 34 99 25