



AUDITOR

AUET & AUET/MTM Desktop Torque Testers

User Guide



CONTENTS

Safety Requirements	4
<u>Descriptions and Specifications</u>	
Unit Specifications.....	4
Screen and Button Diagram.....	5
Side Panel Diagrams.....	6
<u>Operating Instructions</u>	
Charging the AUET-MTM.....	7
Basic Navigation.....	7
Turning On / Off.....	7
Preparing the AUET-MTM for Use.....	8
<u>Basic Functions</u>	
Operating Mode.....	8
Selecting Operating Mode.....	9
Selecting the Proper Data Mode.....	9
Setting Engineering Units.....	9
<u>Using the AUET/MTM in Run Mode</u>	
Clearing a Torque Value / Run Mode.....	9
<u>Using the AUET/MTM in Memory Mode</u>	
Storing Rundown Torque Values.....	10
Clearing / Entering the Current Torque Value / Memory Mode.....	10
Clearing a Previous Torque Value / Memory Mode.....	11
Reviewing Rundown Torque Values.....	11
Reviewing Statistical Information.....	11
<u>AUET/MTM Menu Functions</u>	
Accessing Menu Functions.....	12
I <u>Peak Options Menu</u>	
Accessing the Peak Options Menu.....	12
Auto Clear.....	12
Setting Auto Clear.....	13
Filter.....	13
Setting the Filter Value.....	13
Peak Blanking.....	13
Setting the Peak Blanking Value.....	13
End Timer.....	13
Sign Lock.....	14
Turning Sign Lock On/Off.....	14
Resetting Sign Lock.....	14
Edit Limits.....	14
Setting High and Low limits.....	14
II <u>System Menu</u>	
Accessing the System Menu.....	15
Sleep.....	15
Setting the Sleep Timer.....	15
Lockout Menu.....	15
Setting the Lockout Modes.....	16
Contrast.....	16
Information.....	16
Accessing the Information Screens.....	16
III <u>Data Menu</u>	
Accessing the Data Menu.....	17
Print Data Requirements.....	17
RS232 Transfer Protocol.....	17
Data Stream Format.....	17
Pinout Diagram.....	17
Print Memory.....	17
Print Memory w/SPC (Statistics).....	17
Display SPC Info (Statistics).....	18
Clear Memory.....	18
Reset All.....	18
<u>Transducer Setup</u>	18-19

SAFETY REQUIREMENTS

SAVE THESE INSTRUCTIONS

1) WORK AREA

- a) **Keep work area clean and well lit.** *Cluttered and dark areas invite accidents.*
- b) **Do not operate power tools in explosive atmospheres, such as the presence of flammable liquids, gases or dust.** *Power tools create sparks which may ignite the dust or fumes.*
- c) **Keep children and bystanders away while operating a power tool.** *Distractions can cause you to lose control.*

2) ELECTRICAL SAFETY

- a) **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** *Unmodified plugs and matching outlets will reduce risk of electric shock.*
- b) **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges, and refrigerators.** *There is an increased risk of electric shock if your body is earthed or grounded.*
- c) **Do not expose power tools to rain or wet conditions.** *Water entering a power tool will increase the risk of electric shock.*
- d) **Do not abuse the cord. Never use the cord for carrying, pulling, or unplugging the power tool. Keep cord away from heat, oil, sharp edges, or moving parts.** *Damaged or entangled cords increase the risk of electric shock.*
- e) **When operating a power tool**

outdoors, use an extension cord suitable for outdoor use. *Use of a cord suitable for outdoor use reduces the risk of electric shock.*

3) PERSONAL SAFETY

- a) **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol, or medication.** *A moment of inattention while operating power tools may result in serious personal injury.*
- b) **Use safety equipment. Always wear eye protection.** *Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.*
- c) **Avoid accidental starting. Ensure the switch is in the off-position before plugging in.** *Carrying power tools with your finger on the switch or plugging in power tools that have the switch on invites accidents.*
- d) **Remove any adjusting key or wrench before turning the power tool on.** *A wrench or a key left attached to a rotating part of the power tool may result in personal injury.*
- e) **Do not overreach. Keep proper footing and balance at all times.** *This enables better control of the power tool in unexpected situations.*
- f) **Dress properly. Do not wear loose clothing or jewelry. Keep your hair, clothing, and gloves away from moving parts. Loose**

clothes, jewelry, or long hair can be caught in moving parts.

- g) If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used. Use of these devices can reduce dust-related hazards.**

4) POWER TOOL USE AND CARE

- a) Do not force the power tool. Use the correct power tool for your application. The correct power**

tool will do the job better and safer at the rate for which it was designed.

- b) Do not use the power tool if the switch does not turn it on and off. Any power tool that cannot be controlled with the switch is dangerous and must be repaired.**
- c) Do not exceed transducer torque value or the rated torque value of joint rundown kit. Applying excess torque will damage transducer and joint rundown kit.**

UNIT SPECIFICATIONS

AUET

Dimensions

Width: 4.75", Height: 3.75" (w/o Joint Simulator),
Depth: 5.0"

Weight

5.15 Lb

Power Requirements

Main power 100–240VAC, 60hz from supplied
charger, or internal NiMH battery pack

Operating Temperature Range

0° to 50° C

Data Communication

RS-232 C

Accuracy

.5% +/- of indicated reading for top 90% of built-in
transducer full scale

AUET/MTM

Dimensions

Width: 7.00", Height: 3.75" (w/o Joint Simulator),
Depth: 6.50"

Weight

5.15 Lb

Power Requirements

Main power 100–240VAC, 60hz from supplied
charger, or internal NiMH battery pack

Operating Temperature Range

0° to 50° C

Data Communication

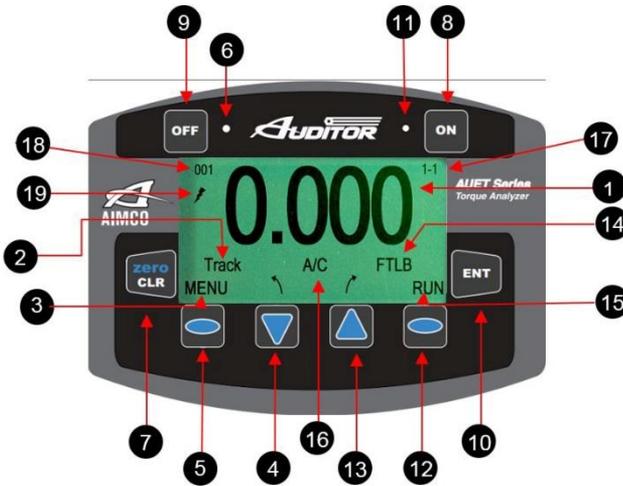
RS-232 C

Accuracy

.5% +/- of indicated reading for top 90% of built-in
transducer full scale

SCREEN AND BUTTON DIAGRAM

Figure 1



- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Data Display 2. Operating Mode 3. Menu Mode Status 4. Selection Arrow – Down <ul style="list-style-type: none"> ➤ Change Operating Mode ➤ Scroll Down through Menu screens 5. Left Selection Button <ul style="list-style-type: none"> ➤ Menu Mode ➤ Reduce Parameter Value ➤ Select Parameter 6. NOK Value Indicator LED (RED) 7. Clear Data Display Value / Manually ZERO Display 8. Power On 9. Power Off / Charging Mode 10. Enter <ul style="list-style-type: none"> ➤ Set Values ➤ Back up one Menu Screen | <ol style="list-style-type: none"> 11. OK Rundown / Charging Mode Indicator LED (GREEN) 12. Right Selection Button <ul style="list-style-type: none"> ➤ Data Storage Mode ➤ Increase Parameter Value 13. Selection Arrow – Up <ul style="list-style-type: none"> ➤ Change Engineering Units ➤ Scroll Up through Parameter Screens 14. Data Storage Mode Status 15. Engineering Unit Status 16. All Clear Status Indicator (Absent when A/C turned OFF) 17. Menu Screen Indicator / Stored Rundown Number 18. Angle / Pulse Value Display 19. External Power Supply Indicator |
|--|--|

Figure 2

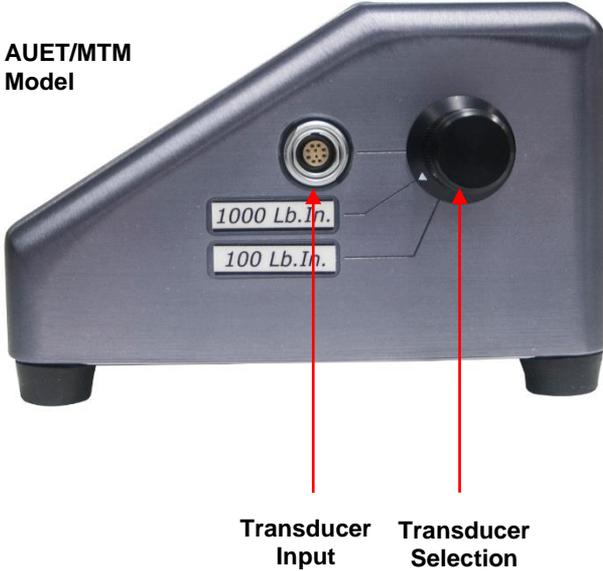
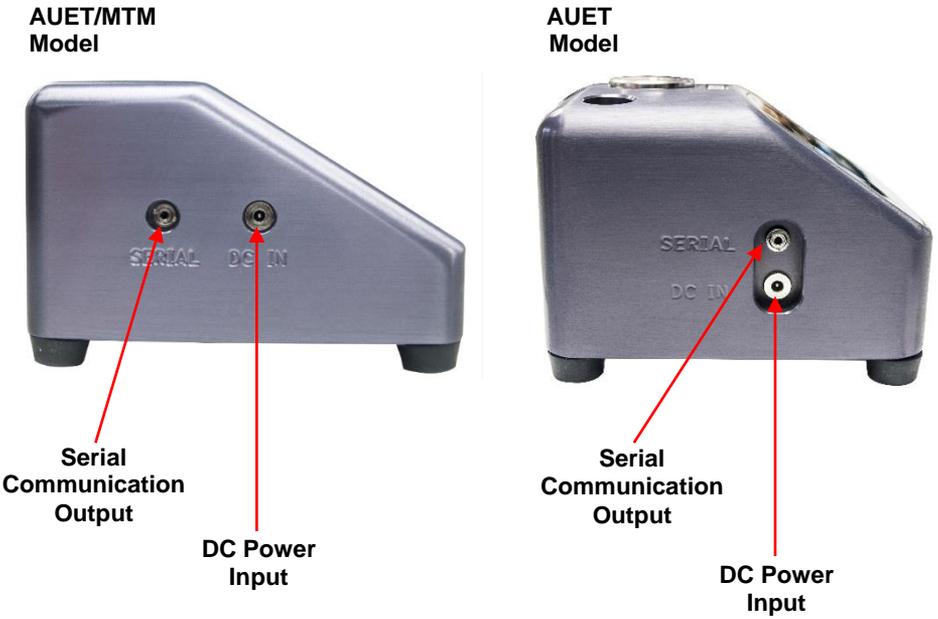


Figure 3



OPERATING INSTRUCTIONS

Selecting the Active Transducer

1. Rotate the Transducer Selection knob (Fig 2.) to select the active transducer.
2. All functions of the AUET/MTM system outlined below will pertain to the active transducer only
3. Active transducer will be shown by an illuminated LED lamp adjacent to the active built-in transducer, or no LED lamp visible when using a transducer connected to the external port.
4. Built-in transducers are preset and ready for use immediately upon selection. External transducers require setup and an additional cable (optional accessory). Intellect transducers do not require setup. (See page 17)

Charging the Auditor AUET/MTM Desktop Torque Tester

1. Plug the 100 – 240 VAC Charger into DC Power Supply port (Figure 3)
2. Plug the Charger into a 100–240 VAC power outlet using the appropriate plug end.
3. Press the “Off” button on the front panel (Figure 1)
4. The Charging Mode Indicator LED (Green, next to “ON” button) should begin to flash green.

 symbol will be displayed on the Main Display screen if the unit is turned on.

5. When the AUET/MTM is fully charged the LED will stop flashing.
6. The AUET/MTM can be used as normal in AC mode with the charger connected.
7. When used in DC mode (Battery) and the battery charge is low, the  symbol (low battery) will show on the Main Display screen, see Figure 1, (19). The 100–240VAC Charger should be plugged into the unit immediately to continue uninterrupted operation.

Basic Navigation and Use of the Keypad

Many functions of the Auditor AUET/MTM Desktop Torque Tester can be accessed by using the button directly below the associated text on the display screen. For example, if the following screen were displayed:



the **LEFT SELECTION BUTTON**, which is directly below the **MENU** text field, would allow the user to access the **MENU** features.

At any time during use, pressing the **ENTER** button (Figure 1) will allow the user to back up by one screen. Pressing the **ENTER** button enough times will always take the user back to the main display screen.

Pressing the **CLR** button will return you to the **RUN** or sequential **MEM** mode of the AUET/MTM tester.

Turning On / Off

To turn the **AUET/MTM** on, press the “**ON**” button (Figure 1). The AIMCO logo will be displayed for approximately 4 seconds, then the unit will start at the **RUN** or sequential **MEM** mode of the tester.

To turn the **AUET/MTM** off, simply press the “**OFF**” button.

Preparing the AUET/MTM for Use

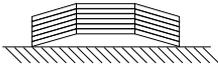
The AUET/MTM testers feature a supplied **Joint Simulation Kit** (Fig. A) that is configurable to a variety of joint conditions.

Fig. A



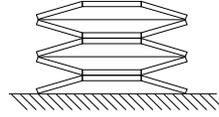
The Joint Kit is made up of a series of **Belleville Washers** that allow the user to pre-configure the joint to match the actual application joint as closely as possible. Each of the **Belleville Washers** is concave in shape. By aligning all the concave curves in the same direction a simulated hard joint is achieved (Fig. B).

Fig. B



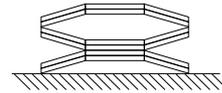
Alignment of the concave shapes in an opposing manner a simulated soft joint is achieved (Fig. C).

Fig. C



Differing combinations allow for simulated medium joints to be achieved (Fig. D).

Fig. D



Joint kits can be adjusted by loosening the **Hex Screw** and aligning the stack the **Belleville Washers** according to your joint condition needs. Hand thread the **Hex Screw** into the housing several threads. Place the square drive end of the simulator into the female square drive on the AUET/MTM Tester.

BASIC FUNCTIONS

OPERATING MODE Descriptions

By selecting the proper **Operating Mode**, the user can properly take torque readings from a variety of manual and powered tools.

- **PEAK**

This mode will provide a display of the maximum torque value achieved by the tool during operation. This mode is used for all continuous drive tools, impact or impulse tools, dial wrenches and to identify highest torque delivered with click type wrenches.

- **1st PEAK**

This mode will detect and display the “first peak” achieved by click wrenches and cam-over screwdrivers.

- **PULSE**

This mode counts the number of events (pulses or impact blows) in a cycle. This mode does not change the manner in which peak torque is identified.

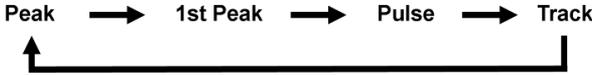
- **TRACK**

This mode will display torque in real-time as it is applied to the connected transducer. Track mode is used primarily for calibration of the unit or identifying the condition of the transducer. In Track Mode with no torque on the transducer, the display should show zero.

Selecting the Proper OPERATING MODE

While in the Main Display screen, press the **Selection Arrow-Down** button to

cycle through the available Operating Mode choices. The choices will be displayed in the following order:



Selecting the Proper DATA MODE

The **AUET/MTM** contains two **Data Modes**. **RUN** and **MEMORY**.

RUN mode simply allows the tester to display Torque data from the driving source immediately after rundown is complete. Data will be displayed on the screen until manually cleared or until preset Auto Clear time has elapsed. No values are stored while in **RUN** mode.

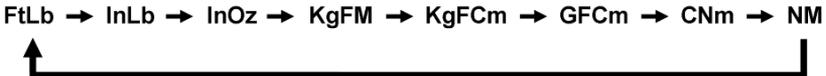
MEMORY mode displays the Torque data from the run and stores it sequentially in the internal memory of the tester. The memory location is displayed in the upper left corner of the tester screen. When entering **MEMORY** mode, the **UP** arrow key must be pressed to reach the first open memory location (ie. 001). If values have already been stored in the tester memory, the up arrow will need to be pressed until the next open memory location is reached (if 12 values are

stored, then the **UP** arrow would need to be pressed until the memory location display reads 013). If it is desired to return to the **RUN** mode (no storage), the **DOWN** arrow should be pressed repeatedly until the memory location indicator goes to 000 and disappears. Pressing the **MEM** menu key will then return the unit to **RUN** mode

Setting ENGINEERING UNITS

The **AUET/MTM** must be in **RUN MODE** in order to change the **Engineering Units**. If torque values have been stored in the **AUET/MTM** while in **MEMORY MODE**, then the memory must be cleared in order to change the Engineering Units.

While in the Main Display screen, press the **Selection Arrow-Up** button to cycle through the available Engineering Unit choices. The choices will be displayed in the following order:



Using the AUET/MTM in RUN MODE

RUN MODE can be used to quickly and easily take torque readings using a variety of tools in situations where storage of data and statistical feedback is not necessary.

With the **AUET/MTM** turned **ON**, observe the Data Storage Mode Status field (Figure 1). If **RUN** is displayed, the **AUET/MTM** is in **RUN MODE** and can then be configured accordingly. If the status reads **MEM**, then the **AUET/MTM**

is in **MEMORY MODE**.

Install the supplied driving bit into the Torque applying device to be tested. Engage the driving bit into the Hex screw in the supplied joint kit and run the torque applying device per its instructions. The Main Display Screen will show the Torque value received by the built in transducer.

Clearing a Torque Value / RUN MODE

When in RUN MODE, if **Auto Clear** is turned on by selecting a time value, the display screen will automatically convert back to a zero value after the set amount of seconds. **Auto Clear** clears the display and sends the value out to the serial port automatically.

When in RUN MODE, if **Auto Clear** is turned OFF, the operator must manually

clear a torque value from the display:

1. Set the **Auto Clear** function to OFF.
2. While in the Main Display screen, conduct a rundown.
3. After observing the torque value for the rundown, press **CLEAR**.
4. The Main Display will convert back to a zero value and the torque value is sent out to the serial port automatically.

Using the AUET/MTM in MEMORY MODE

Prior to using Memory Mode for the first time, it is advised to perform a Reset All to insure that any data is erased and that all Memory locations are formatted (see Reset All, pg. 17).

MEM MODE can be used to store up to 999 torque readings. Those stored readings can then be reviewed and statistical analysis can be conducted. The **AUET/MTM** also provides the capability to print out the data with or without the associated statistical information.

With the **AUET/MTM** turned **ON**, observe the Data Storage Mode Status field (*Figure 1*). If **MEM** is displayed, the **AUET/MTM** is in **MEMORY MODE** and can then be configured accordingly. If the status reads **RUN**, then the **AUET/MTM** is in **RUN MODE** and will not store any of the following rundown values.

To switch the unit to **MEMORY MODE** from **RUN MODE**, press the **RIGHT SELECTION BUTTON** (*Figure 1*) and verify that **MEM** is displayed in the **DATA STORAGE MODE** field.

Storing Rundown Torque Values

1. Enter **MEMORY MODE**.
2. Press the **SELECTION ARROW – UP** button to scroll to memory position 1, which will be indicated by a **001** in the Stored Rundown Number field (*Figure 1*). The subsequent rundown value will be stored as #001 and all other

rundowns will automatically be stored as sequentially higher numbers.

In **MEMORY MODE**, torque values are automatically stored when the value is cleared; this time-value is determined by the time-value set in the **Auto-Clear** function. If the **Auto Clear** function is turned off, the user must press **ENTER** after each rundown in order to store the associated torque value.

Clearing / Entering the Current Torque Value / MEMORY MODE

When in **MEMORY MODE**, if **AUTO CLEAR** is turned ON, the torque value from a rundown will automatically be entered into memory after the set number of seconds, the display will convert back to a zero value and the **AUET/MTM** will be ready to record another torque value.

When in **MEMORY MODE**, if **AUTO CLEAR** is turned OFF, the user must manually enter the value into memory or clear the value.

1. Set the **AUTO CLEAR** function to OFF.
2. While in the Main Display, conduct a rundown.
3. After observing the rundown, the user must decide whether to save or clear the value.
4. If the rundown is determined to be valid, press the **ENTER** button to store the value. The Main Display will

convert back to zero, the next Stored Rundown Number will be displayed and the system will be ready to record another torque value.

5. If the rundown is determined to be invalid (statistical outlier, operator error during rundown, tool error during rundown, etc.), press **CLEAR** to delete the value. The Main Display will convert back to zero, the Stored Rundown Number will remain the same and the system will be ready to record another torque value.

Once a rundown torque value is displayed, the value must be entered or cleared before a subsequent value can be displayed.

Clearing a Previous Torque Value/ MEMORY MODE

To clear a torque value that was previously entered into memory:

1. Use the **Selection Arrow** buttons to scroll to the desired torque reading.
2. Press **CLEAR** *twice* to clear the value from memory and to subtract it from any statistical calculations. The Stored Rundown Number of all values entered after the cleared value will automatically be reduced by one.

To switch the unit to **RUN MODE** from **MEMORY MODE**, press the **RIGHT SELECTION BUTTON** (Figure 1) and verify that **RUN** is displayed in the **DATA STORAGE MODE** field.

Reviewing Rundown Torque Values

To review rundown values that have been stored in **MEMORY MODE**:

1. Enter **MEMORY MODE**
2. Using the **SELECTION ARROW** buttons, scroll **UP** or **DOWN** through the list of stored rundown values.

It is possible to scroll to a stored-rundown-number which is above the highest stored value; for example, if 10 rundowns have been stored, it is possible to scroll to stored-rundown-number 15, however all rundown values above 10 will display as zero values.

Reviewing Statistical Information

Once rundown torque values have been stored to memory, it is possible to view statistical values based on those rundowns.

To view statistical information:

1. From either **MEMORY MODE** or **RUN MODE** press the **MENU** button.
2. Press the **UP** menu scroll button until the **Data Menu** (3 of 3) item is displayed
3. Press **SEL** to enter into the **Data Menu** area
4. Press the **UP** menu scroll button until **Display SPC Info** 3 of 5) item is shown
5. Press **SEL** to select and display Statistical Information for the set of data stored in the AUET/MTM

A screen will display showing the following statistical values:

n = number of rundowns stored into memory

X = mean torque value of all stored rundowns

Min = the lowest stored torque value

Max = the highest stored torque value

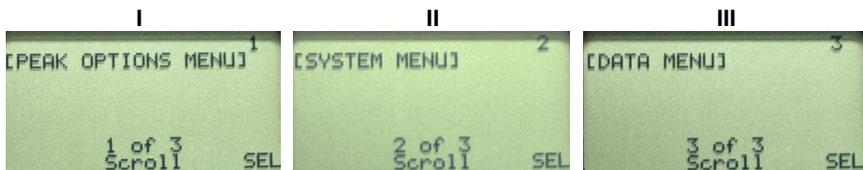
To disable MEMORY MODE, the user must clear the memory and enter RUN MODE. For instructions on how to clear memory, see Clear Memory (3-4, 3-5) on page 17.

AUET/MTM MENU FUNCTIONS

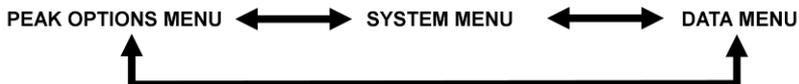
Basic set-up features of the **AUET/MTM** are accessed through the **MENU** function. Data management, system set-up, display characteristics, and power management can all be configured from this area to match the users' needs.

Accessing the MENU Functions

1. Turn the **AUET/MTM** On.
2. The **MENU** structure is accessed by pressing the **Left Selection** button directly under the displayed **MENU** on the screen.



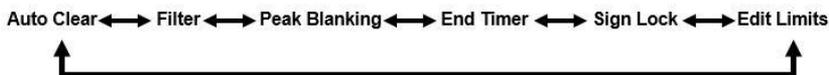
From this screen the **SELECTION ARROW** buttons can be used to access the individual menu options. By pressing the button, the menu options will display in the following order:



I [Peak Options Menu]

Accessing the PEAK OPTIONS menu

1. From the Main Display screen, press **MENU**.
2. **PEAK OPTIONS MENU** should be displayed. If it is not, use the **SELECTION ARROW** buttons to display.
3. Press the **Right Selection** button for **SELECT (SEL)**.
4. The user can then use the **SELECTION ARROW** buttons to scroll through the following options in the order shown:



(1-1) Auto Clear

The **Auto Clear** function determines the length of time, in seconds, that a torque reading will display on the screen after a peak value is captured. If **MEMORY MODE** is active, then the **Auto Clear** setting also determines the length of time after a rundown is conducted before the associated torque reading is entered into memory.

The values available to the operator are **1 – 9** seconds and **OFF**. When **Auto Clear** is set to **OFF**, the user must manually clear the value from the screen or enter the value into memory.

If **Auto Clear** is turned on, **A/C** will be displayed on the Main Display Screen.

Setting Auto Clear

1. From the main display press **MENU**
2. Press the **Right Selection Button** to select **(SEL) PEAK OPTIONS MENU**
3. **Auto Clear** will be displayed
4. Use the **Left Selection** button to decrease the **Auto Clear** time from **9** seconds to **OFF**. Use the **Right Selection** button to increase the **Auto Clear** time from **OFF** to **9** seconds. Either button, when continuously pressed, will advance the value in a loop.
5. When the desired value is selected, press **ENTER** to save and progress to the next **Menu** level.

*At any **Menu** level, pressing **ENT** twice will return to the Main Display Screen at the previously set **Operating Mode**.*

(1-2) Filter

The **FILTER** is a setting used to “screen out” unwanted signals produced by hand and power tools, which can adversely affect the torque values generated by a transducer. The **FILTER** of the **AUET/MTM** can be programmed in order to best match the type of tool being used and to provide the most reliable readings. The values are shown in values from 125 – 2000 Hertz (Hz). A general starting point for programming is 500 Hz for most tools but more consistent values may be obtained with other settings, depending on tool design, joint characteristics and other factors.

Setting the Filter Value

1. From the main display press **MENU**
2. Press the **Right Selection** button to select **(SEL) PEAK OPTIONS MENU**
3. Use the **SELECTION ARROW** buttons to select **FILTER**
4. Use the **Left Selection** button **(-)** to decrease the **FILTER** value. Use the **Right Selection** button to increase **(+)** the **FILTER** value. Either button, when continuously pressed, will advance the value in a loop.
5. When the desired value is selected, press **ENTER** to save and progress to the next **MENU** level.

*At any **Menu** level, pressing **ENT** twice will return to the Main Display Screen at the previously set **Operating Mode**.*

(1-3) Peak Blanking

PEAK BLANKING determines the minimum threshold at which a torque peak is captured. It is entered as a percentage of the full scale value of the transducer contained in the **AUET/MTM** and can be displayed in values from 2 – 50% of transducer full scale. Accurately setting the **PEAK BLANKING** value can help prevent invalid torque readings and can enable the user to avoid taking readings related to high prevailing torque in an application.

Setting the Peak Blanking Value

1. From the main display press **MENU**.
2. Press the **Right Selection** button to select **PEAK OPTIONS MENU**.
3. Use the **SELECTION ARROW** buttons to select **PEAK BLANKING**.
4. Use the **Left Selection** button to decrease **(-)** the **PEAK BLANKING** value. Use the **Right Selection** button to increase **(+)** the **PEAK BLANKING** value. Either button, when continuously pressed, will advance the value in a loop.
5. When the desired value is selected, press **ENTER** to save and progress to the next **MENU** level.

*At any **Menu** level, pressing **ENT** twice will return to the Main Display Screen at the previously set **Operating Mode**.*

(1-4) End Timer

The Auditor™ family of products shares software with other items in the Auditor™ line. The End Timer has no purpose with the AUET/MTM products.

Settings in this screen have no effect on the operation of the tester.

Press **ENTER** to progress to the next **MENU** level.

At any **Menu** level, pressing **ENT** twice will return to the Main Display Screen at the previously set **Operating Mode**.

(1-5) Sign Lock

The **SIGN LOCK** feature allows the user to select the rotation direction in which a torque peak will be captured. With **SIGN LOCK** set to **ON**, the initial first rundown direction is set as the default direction.

If the initial rundown was performed in a clockwise direction a positive reading indicates a reading taken in the clockwise direction while a negative torque value indicates a reading taken in the counter-clockwise direction. If the initial rundown is taken in a counter clockwise manner, then the opposite will hold true. Any readings taken in the non-selected direction will be measured, but not captured / displayed as a peak value.

With **SIGN LOCK** turned **OFF**, peak values in both the clockwise and counter-clockwise directions will be captured and displayed.

Since most torque rundowns are conducted and readings are taken in the clockwise direction, the user may find it beneficial to turn this feature **ON**.

Turning Sign Lock ON / OFF

1. From the main display press **MENU**.
2. Press the **Right Selection** button to select **PEAK OPTIONS MENU**.
3. Use the **Selection Arrow** buttons to select **SIGN LOCK**.
4. Use the **Left Selection** button to toggle **SIGN LOCK** on or off.
5. When the desired value is selected, press **ENTER** to save and progress to the next **MENU** level.

At any **Menu** level, pressing **ENT** twice will return to the Main Display Screen at the previously set **Operating Mode**.

Resetting Sign Lock

If **SIGN LOCK** is **ON** and the rotation direction needs to be reset turn the

AUET/MTM OFF then turn the **AUET/MTM** back on and follow the above procedure.

(1-6) Edit Limits

By using the **EDIT LIMITS** feature to set high and low limits for torque readings, the user can receive visual feedback regarding the rundown results.

Setting the **HIGH** and **LOW** limits appropriately will result in the following display signals:

Reading *outside* of set limits:

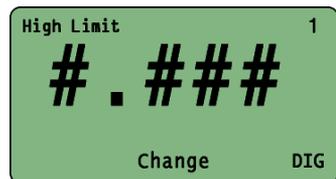
- A **RED** LED being lit on the **AUET/MTM** (Next to **OFF** button).
- A **▼** symbol for **LOW** readings and a **▲** symbol for **HIGH** readings being displayed on the screen (Figure 1).

Reading *within* set limits:

- A **GREEN** LED being lit on the **AUET/MTM** (Next to **ON** button) (Figure 1).

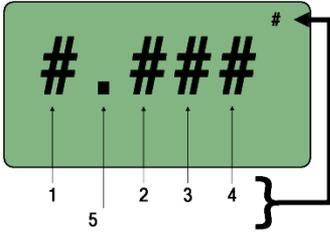
Setting High and Low Torque Limits

1. From the main display press **MENU**.
2. Press the **Right Selection** button to select **PEAK OPTIONS MENU**.
3. Use the **Selection Arrow** buttons to select **EDIT LIMITS**.
4. Press the appropriate **Left** or **Right Selection** button to select the **HIGH** or **LOW** limit.
5. If, as an example, the **High** Limit is being set, the following screen will be displayed:



6. Press the **Right Selection (DIG)** button to select one of the two available options.
 - One of the four numeric position (1 – 5)
 - **OFF**

The number in the top-right corner of the display indicates which option is selected. The number displayed will correspond to the following numeric position:



7. If **OFF** is selected with the Right Selection button, the *corresponding LIMIT* will be disabled.
 - If **HIGH** is disabled, then only readings *below* the **LOW LIMIT** will generate a **RED** LED signal. Any

reading above the **LOW LIMIT** will generate a **GREEN** LED signal.

- If **LOW** is disabled, only values above the **HIGH LIMIT** will generate a **RED** LED signal. Any value below the **HIGH LIMIT** will generate a **GREEN** LED signal.

8. Once the selected limit is set, press **ENTER** to return to the **EDIT LIMITS** screen.
9. To select and edit the other limit, proceed as previously.
10. Once either or both limits have been set, press **ENTER** to return to the **PEAK OPTIONS MENU** screen.

*At any Menu level, pressing ENT twice will return to the Main Display Screen at the previously set **Operating Mode**.*

II [System Menu]

Accessing the System Menu

1. From the Main Display screen, press **MENU**.
2. Use the Selection Arrow buttons to scroll to **System Menu**.
3. Press the **Right Selection** button for **SELECT (SEL)**.
4. The user can then use the **SELECTION ARROW** buttons to scroll through the following options in the order shown:



(2-1) Sleep

To conserve battery life, the **AUET/MTM** is equipped with a **SLEEP** mode. If a selected amount of time, from **OFF** to **20** minutes, has passed without any activity, the **AUET/MTM** will go into a standby condition.

Setting the Sleep Timer

1. From the main display press **MENU**.
2. Use the **Selection Arrow** buttons to select **SYSTEM MENU**.
3. Press the **Right Selection** button to select **(SEL) SYSTEM MENU**.
4. Use the **Left and Right Selection** buttons to adjust the **SLEEP** timer. If **OFF** is selected, the **AUET/MTM** will

remain on until manually powered **OFF**.

5. When the desired time is set, press **ENTER** to set and return to the **System Menu** screen.

(2-2) Lockout Menu

The **LOCKOUT MENU** provides various levels of protection against unauthorized or accidental adjustment of basic settings to the **AUET/MTM**. By turning the **LOCKOUT MODE ON** or **OFF** for various functions, the user can *allow* or *prevent* adjustment to these functions.

The functions that can be locked out are:

- **Mode (2-2-1)** - Measurement mode of Peak, 1st Peak, Pulse or Track
- **Units (2-2-2)** - Engineering units of FtLb, InLb, InOz, KgFM, KgFCm, GFCm, CNm, Nm
- **Scroll (2-2-3)** - Prevents using the Selection Arrow buttons to scroll in order to enable MEMORY MODE or to scroll through stored rundown values

Setting Lockout Modes

1. From the main display press **MENU**.
2. Use the **Selection Arrow** buttons to scroll to **SYSTEM MENU**.
3. Press the **Right Selection** button to select **(SEL) SYSTEM MENU**.
4. Use the **Selection Arrow** buttons to scroll to **LOCKOUT MENU**.
5. Press the **Right Selection** button to select **(SEL) LOCKOUT MENU**.
6. The user can then use the **SELECTION ARROW** buttons to scroll through the following options in the order shown:



7. Use the **Left** and **Right Selection** buttons to turn each lockout mode **ON** or **OFF** separately
8. Once all **LOCKOUT MODES** are set properly, press **ENTER** to return to the **SYSTEM MENU**

*At any **Menu** level, pressing **ENT** twice will return to the Main Display Screen at the previously set **Operating Mode**.*

(2-3) Contrast

1. From the main display press **MENU**.
2. Use the **Selection Arrow** buttons to scroll to **SYSTEM MENU**.
3. Press the **Right Selection** button to select **(SEL) SYSTEM MENU**.
4. Use the **Selection Arrow** buttons to scroll to **CONTRAST**.
5. Press the **Right Selection** button to select **(SEL) CONTRAST**.
6. Use the **Left** and **Right Selection** buttons to adjust the **CONTRAST** of the screen LCD display.

*At any **Menu** level, pressing **ENT** twice will return to the Main Display Screen at the previously set **Operating Mode**.*

(2-4) Information

Important information regarding the **AUET/MTM** and the internal transducer can be viewed in the **INFORMATION** section of the **SYSTEM MENU**. This information may be valuable when contacting AIMCO customer service or technical support.

Accessing the Information Screens

1. From the main display press **MENU**.
2. Use the **Selection Arrow** buttons to scroll to **SYSTEM MENU**.
3. Press the **Right Selection** button to select **(SEL) SYSTEM MENU**.
4. Use the **Selection Arrow** buttons to scroll to **INFORMATION**.
5. Use the **Left Selection** button to view information regarding the internal transducer.
6. Use the **Right Selection** button to view information about the **AUET/MTM** system information.
7. To return to the **SYSTEM MENU** screen, press **ENTER**.

III [Data Menu]

The Data Menu options allow the user to print and clear the stored rundown data and associated statistical information.

Accessing the DATA MENU

1. From the Main Display screen, press **MENU**.
2. Use the **Selection Arrow** buttons to scroll to **Data Menu**.
3. Press the **Right Selection** button for **SELECT (SEL)**.
4. The user can then use the **SELECTION ARROW** buttons to scroll through the following options in the order shown:



Print Data Requirements

Data can be transmitted by cable through the built in Serial port using AIMCO's Part # **ICBL-USB**. The data can be transmitted to a serial printer or to a terminal emulation program on the user's computer PC such as Hyper Terminal. When connecting to a serial printer a NULL Modem adapter is also required.

RS232 Transfer Protocol (Single Direction)

Cable	<i>9-pin to mini-plug</i>
Protocol	<i>Value</i>
Baud Rate	<i>9600</i>
Parity	<i>None</i>
Bits	<i>8</i>
S bit	<i>1</i>
Flow	<i>None</i>

Data Stream Format mmbsdxxxxdbuuuuucl

m	<i>memory location</i>
s	<i>sign (space or -)</i>
d	<i>data w/decimal point</i>
u	<i>units</i>
c	<i>carriage return</i>
l	<i>line feed</i>
b	<i>blank</i>

Pinout Diagram

<u>Pin #</u>	<u>Description</u>
1	<i>Unused</i>
2	<i>Transmit</i>
3	<i>Receive</i>
4	<i>Unused</i>
5	<i>Ground</i>
6	<i>Unused</i>
7	<i>Unused</i>
8	<i>Unused</i>
9	<i>Unused</i>

(3-1) Print Memory

Connect the **AUET/MTM** to a serial printer or computer using the appropriate cable (**AIMCO part # ICBL-USB**)

1. From the Main Display screen, press **MENU**.
2. Use the **Selection Arrow** buttons to scroll to **Data Menu**.
3. Press the **Right Selection** button for **SELECT (SEL)**.
4. Press the **Right Selection** button for **SEND** to transmit the data.
5. When printing is complete, press **ENTER** to return to the **Data Menu** screen.

(3-2) Print Memory with SPC (Statistics)

1. Connect the **AUET/MTM** to a serial printer or computer using the appropriate cable (**AIMCO part # ICBL-USB**)
2. From the Main Display screen, press **MENU**.
3. Use the **Selection Arrow** buttons to scroll to **Data Menu**.

4. Press the **Right Selection** button for **SELECT (SEL)**.
5. Use the **Selection Arrow** buttons to scroll to **Print Mem with SPC**.
6. Press the **Right Selection** button for **SEND** to transmit the data.
7. When printing is complete, press **ENTER** to return to the **Data Menu** screen.

(3-3) Display SPC Info (Statistics)

1. Connect the **AUETMTM** to a serial printer or computer using the appropriate cable (**AIMCO part # ICBL-USB**)
2. From the Main Display screen, press **MENU**.
3. Use the **Selection Arrow** buttons to scroll to **Data Menu**.
4. Press the **Right Selection** button for **SELECT (SEL)**.
5. Use the **Selection Arrow** buttons to scroll to **Display SPC Info**.
6. Press the **Right Selection** button for **SEL** to display the information on the LED screen.
7. When observation is complete, press **ANY KEY** to return to the **Data Menu** screen.

(3-4) Clear Memory

To erase all stored rundown data:

1. From the Main Display screen, press **MENU**.
2. Use the **Selection Arrow** buttons to scroll to **Data Menu**.

3. Press the **Right Selection** button for **SELECT (SEL)**.
4. Use the **Selection Arrow** buttons to scroll to **Clear Memory**.
5. Press the **Left Selection** button for **CLR**.
6. Press **ENTER** to confirm the desire to erase the data.
7. Press **Enter** to return to the **Clear Memory** screen (3-4).

*At any **Menu** level, pressing **ENT** twice will return to the **Main Display Screen** at the previously set **Operating Mode**.*

(3-5) Reset All

To erase all stored rundown data and format the memory allocation:

1. From the Main Display screen, press **MENU**.
2. Use the **Selection Arrow** buttons to scroll to **Data Menu**.
3. Press the **Right Selection** button for **SELECT (SEL)**.
4. Use the **Selection Arrow** buttons to scroll to **Reset All (3-5)**.
5. Press the **Left Selection** button for **CLEAR**.
6. Press **ENTER** to confirm the desire to erase the data and format the memory allocation.
7. Press **Enter** to return to the **Reset All (3-5)** screen.

SETUP OF EXTERNAL TRANSDUCER

The **AUET/MTM** can be used with a variety of external transducers, whether supplied by AIMCO or another manufacturer. Because manufacturers use a wide range of transducer technologies and connector types, verify that the transducer you plan to use is capable of being connected to and communicating with the **AUET/MTM**. For assistance with this, please contact your AIMCO Distributor or authorized AIMCO Sales Representative.

AIMCO's lines of **Auditor™** industry-standard transducers are manufactured with the proper connector-style for easy use with the **AUET/MTM** and will be used

as the example in all following instructions. Two (2) optional cables are available from AIMCO to connect **Auditor™** brand transducers to the **AUET/MTM**:

- Part # **ATDBLIS**: Connects the ATDA to any **Auditor™** ABRT- or ARTIS Torque/Angle series transducer
- Part # **ATDBRIS**: Connects the ATDA to any **Auditor™** ARTIS Torque Only series transducer

Contact your AIMCO Distributor or AIMCO authorized Sales Representative for information on ordering these cables.

Connecting a Transducer

Align the red dot on the transducer-cable connector with the red dot on the **TRANSDUCER CABLE INPUT** port (Figure 2) and firmly press the connector into the port. Set rotary switch to **external port**.

Setting up the Transducer to be used

The **Auditor™** AUET/MTM must be set to recognize the transducer connected to the instrument. *Most transducers can be made to allow the Auditor™ AUET/MTM to self-recognize the transducer simply when a connection is made. For assistance with this, please contact your AIMCO Distributor or authorized AIMCO Sales Representative for a transducer upgrade quotation.*

For the typical, Industry Standard (IS) type of transducer, the setup procedure is as follows:

1. Turn the AUET/MTM **On**.
 2. Within 3 seconds of pressing the **ON** button, press the **LEFT SELECTION BUTTON** (Figure 1) for **CAL**.
 3. Press **ENT** to **SELECT UNITS**. If a transducer has been previously setup, the data for that previous setup will be shown.
 4. Units of measure for use in setting up the transducer may be changed in this screen by pressing the **UP OR DOWN SELECTION ARROW** to scroll through the available units. Pressing **ENT** will select the displayed unit of measure for use in setup and then display the **SELECT FULL SCALE** screen.
 5. To change the number displayed to match the transducer being setup, press the **RIGHT SELECTION BUTTON** to **EDIT** the number.
 6. The upper right corner of the screen will display the digit number that use of the **UP or DOWN SELECTION ARROWS** will effect. The bottom left corner of the screen shows the increment of adjustment that each
- press of the **UP or DOWN SELECTION ARROWS** changes the digit by.
7. Once the number displayed on the screen matches the transducer to be used, press **ENT** to confirm the set value.
 8. The next screen will display “(+/-) 0.000” and the A-D counts. Press and hold the **RIGHT SELECTION BUTTON** to **EDIT** the mV/V rating of the transducer being setup. System defaults to 2.00000 which is standard for all Auditor IS transducers. To insure that the selection is correct a change should be made even if the default of 2.00000mV/v is correct. Using the **UP** and **DOWN SELECTION ARROWS** adjust the reading up and down to then display the desired value. Press **ENT** if this value is correct for the transducer being setup. *It is important to be sure that the sign (+/-) shown on the A-D matches the direction of the Cal mode. If in +Cal then the sign must be positive. If in -Cal then the sign must be -. Rotation of the transducer shaft will facilitate a change from + to - should that be necessary.*
 9. Percentage of Full Scale is the next adjustment. Default is 100. Should it be desired to limit the readable range of the transducer to be used, use the **RIGHT SELECTION BUTTON** and the **UP or DOWN** arrows to change this value. Hit **ENT** once the desired value is displayed.
 10. Press the **DOWN SELECTION ARROW** to set the **-Cal**. Confirm **-Cal** by hitting **ENT**. Repeat steps 8 & 9.
 11. After mV/V and Full Scale have been entered, the display returns to the A-D count screen. Hit **ENT**.
 12. If the value is correct, press **ENT** and **PGM** will show on the screen.
 13. Press the **LEFT SELECTION BUTTON** to Save the setting. The unit will power itself off and will hold the set value until it is changed in the future or a different Intellect transducer is attached to the unit.

Should you have any additional questions, please contact your local
AIMCO-Auditor™ Series Representative



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 EUROPE

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