



DT-64
INSTRUCTION
MANUAL

NOTES

Congratulations on your purchase of the DT-64 "Phoenix". This is the most powerful, most versatile, and most heavily researched instrument we have ever had the pleasure of producing. With it, you will be able to read and store data from up to four temperature sensors, up to two tach sensors, a beacon receiver, and have the option to record data from a MPH sensor. Best of all, more options are on the way. Through our new multi-IO port, you will be able to record data from up to an additional 8 sensors.

It is programmable to allow you to display your data via a number of different options. It has a backlight for low light driving conditions. And it has enough memory capacity for over 3-1/2 hours of continuous data collection, for those truly long days at the race track.

So, without further delay, let us show you the basics of how to operate your new Digatron instrument.

If you have any questions or are having difficulty with any of the instructions, additional information and graphical guides are available on our website:

www.DigatronUSA.com

And if you cannot find what you are looking for there, we have live technicians ready to take your call. Our hours are Mon. thru Thurs. 7:30am to 4:30 pm. Friday 7:30 am to 3:00 pm. So please, feel free to call:

(509) 467-3128

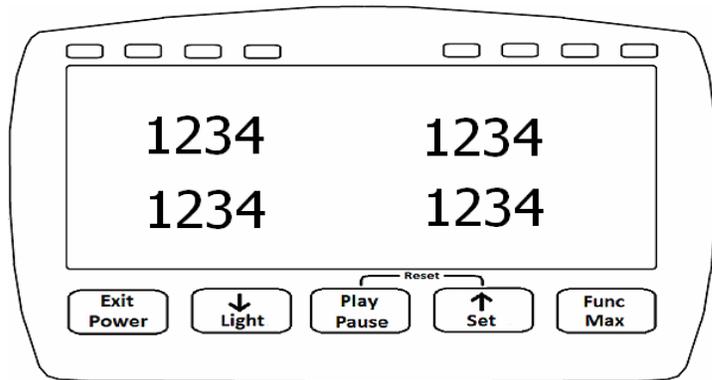
NOTES

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The Controls:

The DT-64 instrument is laid out with the following control face:



There are five buttons to control the functions:



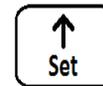
As the “**Power**” button, this will turn the DT-64 on and off. As the “Exit” button, this allows you to navigate one step back from the menu currently being displayed.

As the “**Arrow Down**” button, this allows you to set a lower limit value in “Set” Limits mode. As the “**Light**” button, this allows you to turn the backlight on and off.²³

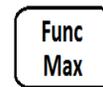




As the "**Play**" button, this allows you to access and play back recorded data. As the Pause button, this allows you to pause what is being played back. In "**Set**" limits mode this is used to step you through options in the setup menu.



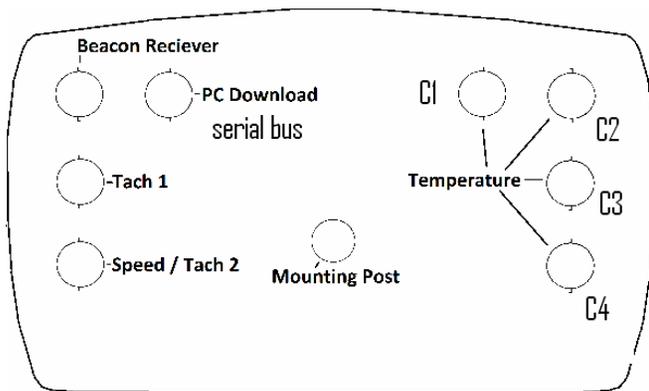
As the "**Arrow Up**" button, this allows you to set a higher limit value in "**Set**" limits mode. As the "**Set**" button, this allows you to enter setup and program the DT-64.



As the "**Func**" button, this allows you to enter into the functions menu, as well as cycle through functions in the "**Set**" limit mode. As the "**Max**" button, this allows you to display the maximum value within the current recorded data set, for instance the highest temperature recorded on a sensor. This is also used to select options when in the "**Set**" limits mode menu.

The Sensor Jacks:

The DT-64 has a collection of 8 sensor jacks on the back of the instrument. On the left, you have the Multi IO / PC Download jack (blue boot sensors). The Beacon Receiver jack (white boot sensors). The Tach 1 jack (black boot sensors). And the Tach 2 / MPH/JS jack (orange boot sensors). On the right, you have four Temp jacks (gray boot sensors).



Appendix of Terms:

Sensor Boot Color

All sensors made by Digatron use a color coded system on the rubber boot, the part of the connector which plugs into your gauge. Those colors are designed to quickly show where the sensors can connect to on the back of your DT-64, such as temperature or MPH readings. Since the DT-64 is set up to take certain sensors on certain jacks, it is generally quite simple to match up the color of the boot with the color map on the back of the instrument.

Tach / Power ----- (Black)
 Speed / Jack Shaft---- (Orange)
 Temperature ----- (Gray)
 Beacon / PC ----- (White)
 Water Temp ----- (Red)

Over Ranging / Under Ranging

When a sensor produces too high a reading for a set of limits, it is called over ranging or over limit condition. When it produces too low a reading, it is called under ranging or under limit condition.

Contacts:

www.DigatronUSA.com
(509) 467-3128

Digatron LLC
120 N. Wall St. Suite 300
Spokane, WA 99201

Battery Installation:

Your DT-64 uses a combination battery system to operate. There is a small internal rechargeable battery which is designed to maintain power for a short while as you transfer the instrument from where you have it mounted on your vehicle to connecting it to your computer. But the primary power source for the instrument is TPM (Tach Power Module). These power the device under normal operation, while recharging the internal battery.

The memory will not be affected by a complete loss of power. So your recorded data is always safe. The DT-64 should not be operated for more than 1 hour when using only the internal rechargeable battery. Note that the LED's and backlight are not operable when only using the internal battery.

Maintaining Your DT-64:

The DT-64 is a water resistant electronics device. It is designed to withstand rain and the occasional splashing of water without any harm. However, it will be damaged by submersing it into water, or by pressure washing it with the rest of your vehicle.

Caustic chemicals can damage and pit the surface of the DT-64. Oil contamination can permanently compromise the sensor jacks. Solvents and concentrated exposure to fumes from racing fuels and exhaust can damage the DT-64 control face.

To clean your DT-64, use soap and water on a damp cloth.

To mount your DT-64, we suggest using our mounting bracket or mounting it firmly to a point on your vehicle which receives the least amount of vibration. While only the most severe vibration will affect the DT-64, large continuous vibrations tend to damage sensor cables and jacks.

While fumes and other contaminants are not likely to affect the DT-64 to any significant degree where you would normally have it mounted, we do recommend adding protective conduit to your sensor cables. The fumes from racing fuel have been known to break down the insulation of the wiring and shorten the life of your sensors.

Warranty:

If you have any questions about the operation of your instrument, please call. One of our technicians will be happy to help you. Please have your instrument nearby to help while troubleshooting with the technician.

Your instrument is warranted to be free from factory defects and electronics failure for two years from the date of purchase. Physical damage during usage is not covered under the warranty. Be sure to fill out and return your warranty card with in 90 days for our records. If we do not have a card on file for your instrument, you will be charged for repairs unless you can provide us with a proof of purchase date.

When returning an instrument for repair, please use the repair form found on our website, or enclose a note indicating your return address, phone number, and a detailed description of the problem. Send your instrument and sensors so that we can check your complete system before returning it to you.

Ship repairs to:

**Digatron LLC
120 N. Wall St. Suite 300
Spokane, WA 99201**

P C	Communicating with PC - Download
C1, C2	Channel 1 - temp 1, Channel 2 - temp 2
--- (top)	Over ranging
--- (bottom)	Under ranging
SCL	Set clock - Setup
SbA	Beacon setup automatically - Setup
Sbb	Beacon setup with buttons - Setup

Display Abbreviations:

RPM1	Tach 1
CHT	Cylinder head temperature
MEM	Memory
RPM2	Jackshaft RPM, Tach 2
EGT	Exhaust gas temperature

Error Codes:

lob	Low battery - Any
-----	-------------------

Please note that when the battery is low, the backlight will not function. This is a power saving measure so you can record data for a few more minutes.

Software Installation and Use:

Included with your DT-64 is a software disk. To begin the installation, insert the disk into your computer.

Most versions of Windows will ask if you want to open up a folder for the disk. You do. Installation help files are located on the disk, and you will be able to see them in the folder.

To install the software, double click on Setup. Windows computers often ask if you are sure you want to run this file. Say you are. This will launch the installation wizard, which will guide you through the rest of the steps to install the software.

Wait for the software to install. The progress bar will finish, and the software will switch windows to say that the software has installed correctly.

If installation seems to have stopped, wait for 10 minutes to see if there is a change, before you do anything drastic, such as restart your computer. Small pauses during an installation are normal. Any progress in 10 minutes means everything is going just fine. Depending on what you have running in the background and the power of your computer, software installation can take some time. Turning off the power mid-install is a bad idea for almost any software.

Understanding the Control Instructions:

Before we begin, it is important that we can communicate clearly. Each button of your DT-64 has two purposes. For example, “**Exit / Power**” does not only turn the instrument on and off, it also allows you to exit out of the menu you are in.

Additionally, a button can be pressed momentarily for one effect, or held down for another effect. We will be using a picture of the button to show you just which button you are to use. And below the picture, there will either be the word Press for a simple momentary press or the word Hold when you are to hold the button down. Most of the time, Hold means to just keep the button pressed down to look at something or while you press something else. On occasion, you'll need to hold it down for a specific length of time to do something. In that event, the instructions below the bubble will let you know. If you see the + symbol, you must use two or more buttons together to get the result you want.

All instructions to get into a menu are written with the idea in mind that you are starting from the main menu, where live data from any sensors you have connected would be displayed.

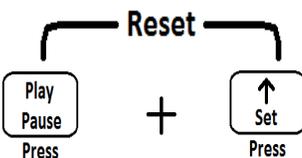
So, here are a couple examples:



Momentary press the “**Exit / Power**” button.



Hold down the “**Func / Max**” button



Press the “**Play / Pause**” and “**Up /Set**” buttons together. This begins the “**Reset**” function.

What do these messages mean?

A number of codes can appear on your DT-64's display. Most tell you which menu you are in. Far less frequently, you may see an error code. Here is a listing of each of those messages:

Common Codes:

SEL	Set display limits - Setup
SLL	Set warning lights - Setup
NONE	No recorded data - Play
OFF	Warning light turned off - Setup
CAL	Calibrating Tach or MPH - Setup
lob	Low battery - Any
PrES Play	Proceed with memory reset - Reset
CLr	Memory cleared - Reset
no CLr	Memory not cleared - Reset
LLP	Last lap time
CLP	Current lap time
bLP	Best lap time
diS	Lap distance
HrS	Total hours
odo	Odometer
rEC	Recording - Play

The backlight doesn't turn off:

If you've pressed the “**Down Arrow/Light**” button and the backlight won't turn off, try turning off the power. If you can't turn off the power either, you're most likely in a loop.

Try the process from Troubleshooting (Exiting a Loop). That should resolve the problem. If that doesn't work, please contact Digatron Technical Support.

I can see something on the display, but I can't read it:

Your display contrast setting is likely too high or too low. Follow the instructions for adjusting display contrast on page 12. If that does not resolve the issue for you, please contact Digatron Technical Support.

Where's my stored data?

Data is stored on the DT-64 automatically as it runs an event. Your data can be accessed with the “**Play/Pause**” button. If there is nothing recorded, there are two possibilities. First, no event trigger was sent, so data did not start recording. Second, the memory was reset either through pressing the Reset combination of “**Play/Pause**” and the “**Up Arrow/Set**” buttons or through the software while the DT-64 was connected to a computer. In either event, no useful data will be available for the event you had meant to review.

Can I recover data which had a recording error?

While it is possible to do some data reconstruction at the manufacturer's facility, it is not particularly possible to do it in the field. Additionally, not all data is recoverable due to the limits of memory capacity and how data is stored. If the data was vital, please contact Digatron Technical Support and make sure to stop using the DT-64 immediately until we can make an assessment of the memory state.

Setup for a New Task:**Auto-record Settings:**

Note: The DT-64 requires a tach signal to be present in order to start recording data and will not record when the engine is turn off.

Your DT-64 is designed to start recording when it receives one of three triggers. It records data in events, and stores all the information coming in from each of the connected sensors until that event ends either by turning your vehicle off, if in auto-record mode, or by pressing the “**Exit/Power**”.

The first type of trigger is a beacon receiver signal. This would be used when you're at the track and pass a Digatron Beacon Transmitter. To use this, you need a beacon receiver sensor connected to your DT-64, and a Digatron beacon transmitter located on the track where you want to start recording the Lap data.

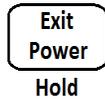
The second type of trigger is a manual switch signal. Connected to the same jack as a beacon receiver would normally be, this is a replacement option which is popular with non-racers. You just press the button on the manual switch to start and stop the recording. The “**Exit/Power**” button can also be used to manual pause and restart the recording; note that you cannot turn the instrument off while the engine is running.

The third type of trigger is the auto-record feature. These parameters can only setup within the Digatron configuration software and optional download cable. As an example you could set it to watch for the RPM that is greater than 1000, for longer than 3 seconds before recording starts. You can also set the parameters to stop recording in the same way. Whatever the parameters are that you set to watch for all the conditions must be meet before the recording will starts or stops.

To set up these limits, follow the instructions on page 13, Setting up “Set Display Limits (**SEL**)”

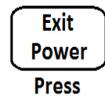
Basic Operation:

Turning on your DT-64:



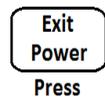
When the display shows nothing, the DT-64 is more than likely turned off. Pressing the “Power” button once will turn it on. It will run through a display test showing serial # and version before fully powering up.

Turning off your DT-64:



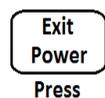
The DT64 is turn on when any value is being displayed. Press the “Power” button until the display turns off. Note that the DT64 will turn off if it is still recording.

Exiting a menu:



All of the various menus of the DT-64 share the “Exit” button as a way to step back out of menu option. Press the “Exit” button once to exit a menu.

Communicating to your PC:



Normally, the DT-64 boots up and is ready to start recording an event. However, holding down the “Power” button when you turn on the DT-64 will cause it to boot up in PC mode, this will let you communicate to your computer using Digatron software.

Hold down the “Exit/Power” button until the first LED lights turn on. When you release this button, all the LED's lights start flash in sequence. Your DT-64 is now trying to communicate with the Digatron software on your PC with the optional download cable.

Frequently Asked Questions:

I don't know which menu I'm in:

Since the DT-64 has many layered menus, this can be a common concern. If you've mistakenly pressed a button to get into a menu, or you just had to walk away and came back, there's a simple fix. Press the Exit / Power button repeatedly until you either see the main menu and sensor readings or your DT-64 turns off. If the power was turned off, press the Exit / Power button once, and the DT-64 will be back on and in the main menu again.



What to do if you're DT-64 is on, but stops doing anything:

While this is rare, it can happen when the DT-64 gets stuck or is in a loop. This can happen when something unexpected happens to the instrument, such as a PC Download cable being unplugged during an operation.

To attempt fixing this, see the Troubleshooting section (Exiting a Loop). That should resolve this problem. If that doesn't work, please contact Digatron Technical support.

The power doesn't come on:

Chances are, the AA battery in the TPM is dead and the internal battery has used up the power reserve. Try replacing the AA battery in the TPM. If the power still won't come on when you press the Exit / Power button, then it is possible the DT-64 is stuck in a loop.

Try the process from Troubleshooting (Exiting a Loop). That should resolve the problem. If not please contact Digatron Technical Support. You're instrument maybe damaged.

The power doesn't turn off:

Most likely, the DT-64 is in a loop. Try the process from Troubleshooting (Exiting a Loop). That should resolve the problem. If that doesn't work, please contact Digatron Technical Support.

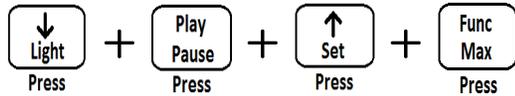
The backlight doesn't come on:

If you press and hold the “Down Arrow/Light” button and no backlight shows up while in a dim room, you might simply have a low battery. The DT-64 won't turn on your backlight if you're running on low battery power. Try changing the batteries. If that doesn't work, please contact Digatron Technical Support. You may have a damaged instrument.

Troubleshooting:

Exiting a Loop:

Sometimes the Programming in your DT-64 may become unresponsive, looking for inputs that are not there. This can happen for various reasons, such as disconnecting a PC Download cable while a communication is in progress. There may or may not be anything displayed on the screen. To recover, follow this procedure:



If that doesn't work:



Hold for 10 seconds.

No customer serviceable parts:

Before you break out a screwdriver and hammer to pry apart your DT-64 in order to try and fix it, consider this:

Inside you will find a large number of custom parts, requiring custom tools.

In contrast, you can just your instrument in to Digatron to have it repaired or replaced at a discount. Most repairs are quick and inexpensive. See so on our website at.

www.DigatronUSA.com
(509) 467-3128

Digatron LLC
120 N. Wall St. Suite 300
Spokane, WA 99201

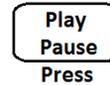
Toggleing the backlight:



Hold for 2 seconds

From the main display, you can turn on backlight by holding the “**Light**” button. Hold down the button for about 2 seconds you’ll notice that the LED’s at the top of the instrument start dimming, release button when LED’s go dim or when backlight turn on. To help prevent being blinded by the LED’s during night-time operation the LED’s will automatically dim when the backlight is turned on. To turn off the backlight, press the “**Light**” button again.

Replaying the stored data:



From the main display, pressing the “**Play**” button will allow you to enter the event memory display menu.

Changing which data you're looking at:



The memory display menu's default screen shows you the event, lap and time. You can change which lap you're looking at by pressing the “**Up**” or “**Down**” arrow buttons. Pressing the “**Func/Max**” button will display the maximums for this particular lap (minimum and maximum values are display for tachs functions).

Playing and pausing:



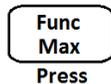
Once you have selected the event you wish to review, pressing the “**Play**” button will start playback at normal speed. The playback can be pause by pressing the “**Play/Pause**” button again.

Forward and reverse:

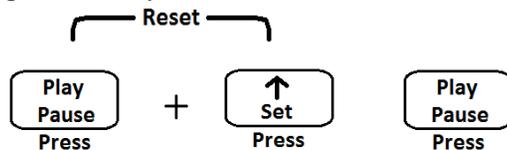
Once your event is playing, pressing the “**Down Arrow**” button will cause the playback to reverse playing the event backward. Pressing the “**Up Arrow**” button will resume the forward playback.

Fast forward and fast reverse:

While playing back your event, you can hold the “**Up Arrow**” button to fast forward through the event, or the “**Down Arrow**” button to quickly reverse the playback. For ultra-fast playback, press any other button while holding down the “**Up Arrow**” button or “**Down Arrow**” buttons.

Looking at the sensor data:

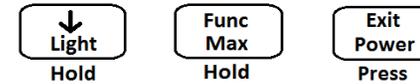
Each connected sensor is recorded for each lap or event. The “**Func**” button cycles through all the functions set to be displayed. This can be done while an event is being playing back or is paused.

Clearing the memory:

From the main display, pressing the “**Reset**” combination (“**Play + Set**”) a countdown from 10 will start. If you press Play before the countdown reaches 0, the memory will be cleared. Any other button exits the countdown. Make sure you really don't want the data before you reset the memory. It can't be recovered. Note this reset only the recorded data not the engine limits or LED's lights.

Selecting type of Power:

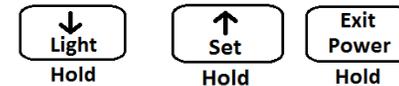
The DT-64 receives power through the Tach 1 input using a Tach Power Module (TPM) or through a power port on the back.



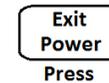
To select the power port, the DT-64 needs to be off, now press and hold down both the “**Down Arrow/light**” button and “**Func/Max**” button and then press the “**Exit/Power**” button. Then Release all buttons. Now press the “**Play/Pause**” button before the countdown ends. This will change between the different power types. On the initial display when you turn the DT-64 on, you'll see dashes on the bottom right hand side next to the serial number: example (Serial# _)

(Serial # -) = Center dash – TPM

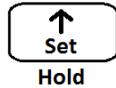
(Serial # _) = Low dash – Rear port

Resetting the DT-64 to factory default settings:

You may want to restore to the factory default settings when changing the vehicle your DT-64 is mounted on, or when buying a used unit. You can do a factory default reset by turning off your DT-64 and holding both the “**Up Arrow**” button and the “**Down Arrow**” button then press the “**Exit/Power**”. Release all 3 buttons then press “**Play/Pause**” during the countdown on the screen, then wait until the screen clears.

Updating or configuring your DT-64:

To update your firmware (the internal programming) you need to start your DT-64 in Communication Mode, hook it up to your computer with a PC Download cable, and update it from the software on your computer. While in this mode you can also configure personal preferences, change how functions are displayed, change limits, change LED's and operating parameters. The software shows you how.

Set Beacon Receiver A (SbA):

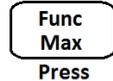
This allows you to choose which beacon transmitters to use on the track.

Set Beacon Receiver B (Sbb):

Selecting the function item (Sbb) (as described above)



Press the “**Up Arrow**” button or the “**Down Arrow**” button to selects which beacon code number you wish to set. Next press the “**Func/Max**” button to select which lap type to uses with that beacon number. Note setting all beacon codes to **NONE** (Factory default) will pickup all Digatron beacon transmitted codes.



None – Ignore (All Codes transmitted from beacon) use this if only one transmitter is on the track.

Lap – Start/stop lap

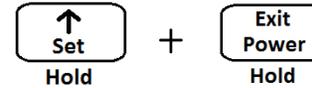
SPL – Record split time

Display the last 4 error codes:

This shows the last 4 error codes stored in the DT-64's memory. This can be very



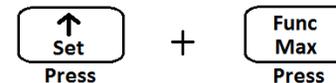
useful when speaking with one of our technicians

Displaying the Ambient Temperature:

This displays the temperature in the upper left hand display of the DT-64 from an internal sensor. Note: make sure you hold the “**Set**” button down first. Otherwise, you’ll turn off the power to the DT64.

Adjusting LED Brightness:

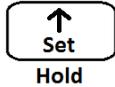
By default the LED's brightness is set to full for daytime operations and minimum when using the backlight. There is however a mid range that can be set if they are too bright for what you are doing. To adjust the brightness, you hold down the “**Light**” button. The LED's will shine at full brightness, and then slowly decrease. Release the button when the LED's are at the correct brightness for you.

Setting the display contrast:

To set the Display contrast press the “**Set**” button and the “**Func/Max**” button down at the same time (“**Set + Func/Max**”). You should see the word **DISPLAY** on the screen. Pressing the “**Up Arrow**” button will lighten or decrease the display contrast. Pressing the “**Down Arrow**” buttons will darken or increase the display contrast.

Setting Limits:

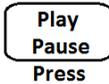
In this menu, you are setting up the function limits for your engine. This determines when your DT-64 will flash the display to indicate an over or under limit condition.



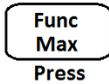
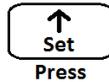
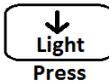
Hold for 2 seconds.

To enter the Setup menu. From the main display, press and hold the “Set” button for about 2 seconds or until you see (SEL) displayed. You can select a function you wish to setup by press the “Play” button. Once you have selected the function, press the “Func/Max” button to enter into that menu. These menus are described below.

To select a function from the Set Menu, Press.



To cycle through the menu options, press.

**Set Display Limits (SEL):**

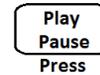
Selecting the function item (SEL) (as described above) you can set the limit for that function by pressing the “Down Arrow” button to decrease its value or by pressing the “Up Arrow” button to increase its value.



Pressing the “Func/Max” button will cycle you to the next function. At the last function in the menu, pressing the “Func/Max” button will cycle you back to the first function again.

Set Warning Lights (SLL):

In this menu, you are selecting an LED indicator lights with a function. Each LED light will come on when the LED chosen function limit is exceeded. Multiple LED’s can be assigned to single a function.



Selecting the function item (SLL) (as described in the beginning) Note that the first LED on the left hand side will be on.



To select a function for this LED light press the “Play/Pause” button. Note that one of the options is “OFF” (The LED will not be displayed)

To set the LED light limit, press the “Down Arrow” button to decrease its values or the “Up Arrow” button to increase its value.



To proceed to the next LED light, press the “Func/Max” button. Once you are at the last LED, pressing the “Func/Max” button again will take you back to the beginning (first LED)

Set Clock (SCL):

In this menu, you can set the time, date, and year stored by the internal clock.

Selecting the function item (SCL) (as described in the beginning)



To set the current selection values lower or higher press the “Down Arrow” button to increase its value or the “Up Arrow” button to decrease its value.



Pressing the “Func/Max” button will cycle you to the next Time / Date Option