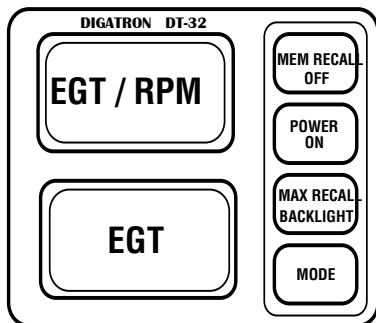


# OPERATING INSTRUCTIONS      MODEL DT-32Ri

## INSTRUMENT CONFIGURATION



## POWER ON

To turn the instrument on, press the **POWER ON** button. The instrument will turn on after a 2 second delay.

When turned on, the instrument will begin a 10 second display test. At the end of the test your instrument's serial number will be displayed. **To bypass this test, press the "MODE" switch.**

## SETTING FUNCTION LIMITS

The first thing to do before putting your instrument into service is to set the function operating limits. This will allow the instrument to give the driver a visual warning when any of the inputs exceed the limits you have set. *Limits should not be set to such an extreme that engine damage occurs before the driver can react to the problem.* To set the limits, use the following procedure. Turn the instrument on by pressing the **POWER ON** button. Then, press the **MAX RECALL** and the **MEM RECALL** button simultaneously and hold for approximately 2 seconds. This will put the instrument into the **SET LIMITS** mode of operation, which is indicated by a flashing display. The non flashing display will show it's currently set limit.

To *increase* any limit by the minimum amount quickly press and release the **MAX RECALL** button. To *decrease* the limit, quickly press and release the **MEM RECALL** button. To increase or decrease the limits by a large amount, press and *hold* either the **MAX RECALL** or the **MEM RECALL** button until the approximate limit value is reached. When finished setting the first limit, press and release the **MODE** button to move to and set the next limit. Repeat the procedure outlined above to set the remaining limits.

**Temperature limits** should be set to a level *high enough for normal operation but not so high that engine damage occurs* before the driver can respond to a problem.

NOTE: The EGT limits are not individually settable. The first EGT limit you set will be for *both* displays.

The **TACH limit** will be the last limit set before exiting the set limits mode. The **TACH Limit** requires the setting of *two* separate parameters. The first setting is the *maximum RPM* limit for safe engine operation. The second setting is the **TACH calibration number** required to display the correct engine RPM. Set

the RPM limit exactly as previously outlined. Then press the **MODE** switch to move to Tachometer calibration.

The instrument will show a number between .5 and 31 in the Tach display. The instrument divides the tach input signal by this number in order to display RPM correctly for different ignitions and engine types. Select a number using the **UP** and **DOWN** arrow buttons that will provide the correct display reading for your application.

The Following is a partial list of settings for various engines:

Set at .5 for single cylinder 4 cycle motors that fire every other revolution.

Set at "1" for single cylinder 2 cycle motors.

Set at "2" for 2 cylinder 2 cycle and 4 cylinder 4 cycle motors.

Set at "3" for 3 cylinder 2 cycle and 6 cylinder 4 cycle motors.

Set at "4" for V8 motors.

If you are unsure of the exact TACH calibration number, experiment. For example, if the calibration number is set at "2" and the RPM reading is double what it should be, set the calibration number at "4". Alternately, if the RPM reading is half of the correct value, decrease the calibration number to half it's original value.

To **SAVE** the current limits and to exit the **"SET LIMITS"** mode, press the **REMOTE STORE** switch.

Your instrument is now set up and ready for use.

## MODE BUTTON

During operation the **MODE** button is used to change from the primary function to the secondary function in any display having two functions. When the instrument is first turned on, the primary function is displayed. The secondary function operates in the background until the mode button is pressed.

The **MODE** button is also used when *Setting Limits* and *TACH Calibration*, or in conjunction with the **MAX RECALL** button to operate the **BACKLIGHT**.

## REMOTE STORE SWITCH

Each time (Up to 3 times) the **REMOTE STORE** switch is pressed the current reading for each sensor input is stored in the instruments memory. The **WARNING INDICATOR LIGHT** and the instruments' displays will flash briefly indicating a successful store of information.

This instrument contains enough memory to store three complete sets of sensor input readings. After three sets of readings are stored, additional attempts to store information will be ignored.

In addition to these user stored readings, a set of **maximum** readings for this “power on” period are stored automatically for each sensor input.

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### MAX RECALL

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The **MAX RECALL** button is used to display the **maximum** reading each function has reached. Storage of these readings takes place automatically and requires no input from the user.

To display these readings, before turning the instrument off, hold down the **MAX RECALL** button. The maximum readings will be displayed in each window until the button is released.

Alternating with the maximum reading in one of the displays will be the percentage of battery life remaining.

**NOTE:** If your instrument has a display with a secondary function, to see the stored readings you must first switch to that function with the **MODE** switch and *then* press the **MAX RECALL** button.

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### MEM RECALL

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The **MEM RECALL** button is used to recall the readings you have stored in memory using the **REMOTE STORE** switch.

To recall the first set of readings you have stored, press and release the **MEM RECALL** button. The contents of the first memory will be displayed and the *left* decimal point in the lower display will flash, indicating memory one.

Press **MEM RECALL** again for the second set of readings which will be indicated by the *middle* decimal point.

A third press of **MEM RECALL** will bring up the last set of stored readings, indicated by the *right* decimal point.

Press **MEM RECALL** once more to return to normal display mode.

**NOTE:** If your instrument has a display with a secondary function, to see the stored readings press the **MODE** switch while in the **MEM RECALL** function.

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### BACKLIGHTS

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To turn the Backlighting on or off, press and hold the **MODE** and **MAX RECALL** buttons simultaneously for approximately 2 seconds.

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### DISPLAY of OVERLIMIT/ OVERRANGE

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When conditions exceed the set limits, the display where the over limit condition occurs will flash. The instrument *automatically* switches to this function if it is not being displayed.

When conditions exceed the range of the instrument, the display will show 3 bars at the top of the display where the over range condition occurs. This condition can also be caused by a bad or disconnected sensor.

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### WARNING INDICATOR LIGHT

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The **WARNING LIGHT** provides the following information to the user.

1. Flashes constantly when any of the *limits* you have set are exceeded. Flashing will stop when the **OVERRANGE** condition falls below the **SET LIMIT**.

2. Flashes once when either the **REMOTE STORE** switch is pressed to store data. No flash when either of these buttons is pressed indicates the memory is full.

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### BATTERY LIFE

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A fresh set of AA alkaline batteries will last for about 120 hours of operation with the backlight in the instrument turned *off*. With the backlight *on* the battery life will be approximately 40 hours. Heavy duty batteries will last approximately half as long as the alkaline batteries. As outlined under the **MAX RECALL** heading, the instrument will display the percentage of battery life remaining. The instrument will also warn you of a low battery condition by displaying “**lo b**” in one of the displays. When this indication turns on the **TACH** display will give accurate information for approximately one hour. All the temperature functions will become inaccurate.

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### POWER OFF

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This instrument will turn itself off automatically approximately ten minutes after the engine is shut off.

You may also turn the instrument off manually by pressing the **MEM RECALL** and **STORE** buttons at the same time.

*Any stored data will be lost at the moment the power is turned off.* Record or view all stored information before turning the instrument off.

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### ELECTRICAL INTERFERENCE

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If the instrument encounters excessive electrical interference it will display three vertical decimal points (⋮) in the **TACH** display. This indicates that the stored data could be invalid. This can also indicate an incorrect instrument or sensor installation.

A large noise spike can cause the limits and calibration to reprogram themselves. If your instrument appears to be doing strange things, put it in the “**SET LIMITS**” mode and check to see that the limits and calibration are still where you set them.

If you have any questions about the operation of your instrument please call. One of our technicians will be happy to help you.

**DIGATRON**  
**120 N. Wall St. Ste. 300**  
**Spokane, WA 99201**  
**www.digatronusa.com**  
**Phone: (509) 467-3128**  
**Fax: (509) 467-2952**