

# DT-30RI SERIES INSTRUMENT INSTALLATION INSTRUCTIONS

## IMPORTANT

Thoroughly read all of the installation instructions before attempting to install your instrument. Failure to do so could result in damage to the instrument or other problems arising.

These instructions cover the installation of all sensors in the "30RI" series. You need only those that apply to your particular Model.

If you have any questions about the installation or problems with the instrument, call the DIGATRON Technical Service Department at (509) 467-3128.

## BATTERY INSTALLATION

Your instrument is supplied with a fresh set of batteries installed. When it is time to replace the batteries, remove the battery cover from the instrument and remove the old batteries. Install 4 new **AA batteries** in the battery holder paying attention to the polarity markings inside the battery holder.

Before reattaching the battery cover, check the battery pressure pad on the inside of the battery cover. This pad must apply pressure to the batteries when the cover is in place. Erratic instrument readings may be experienced if the batteries move around excessively during use.

For longest battery life, we recommend alkaline batteries.

## INSTRUMENT INSTALLATION

Before you begin cutting and drilling your dash panel, two conditions should be met whenever possible.

**1:** A distance of at least 6" must be maintained between the instrument and any ignition components (plug wires, spark plugs, ignition coil, distributor, or magneto) to prevent electrical interference from affecting the operation of the instrument.

**2:** Access to the rear of the instrument should be provided to allow for connecting and disconnecting the sensors. Easy removal of the instrument from the dash panel is also needed for battery changes.

For dash panel mounting the instrument, a correctly sized rectangular opening in the dash panel is required. ( A template is provided with each instrument for your convenience.)

Below is a chart showing the size of the opening required for each model.

MODEL	REAR MOUNT
DT-31	3.500" x 4.500"
DT-32	3.500" x 4.050"
DT-33	3.500" x 6.600"
DT-34	3.500" x 6.600"
DT-35	3.500" x 9.000"

## GROUNDING

If the instrument is not mounted in a well-grounded aluminum dash panel, run a grounding wire from the instrument's mounting bracket to a near by ground point. Keep this wire as short as possible.

The engine of the vehicle should also be grounded to the chassis by a wide, braided ground strap (1/2" or wider and as short as practical) for best instrument operating results. When establishing a **new ground connection**, it is important to make these connections to **clean bare metal**. Paint, anodizing, rust and other contaminants will impede the shorting out of electrical interference which may affect the operation of your instrument. Wire lengths must also be kept as short as possible.

## WIRE ROUTING NOTES

The following instructions apply to the sensors that run from the engine compartment to the instrument. These sensors should always be routed as far away as possible from the ignition system components. (plug wires, spark plugs, ignition coils, distributor or magneto). Leads too close to these components may pick up radiated electrical interference and cause **erratic instrument readings** and operation. A distance of at least 6" from these components is desirable in all installations

Route all the sensor wires from the engine into the driver's compartment through a **protected opening** in the firewall. The opening must provide protection against the sharp metal edges of the hole. Large rubber grommets available from most auto supply or hardware stores work best.

**Do not coil sensor wires together.** Keep the individual sensor wires separated as much as possible. Separating the wires will help to eliminate the induction of electrical interference from one sensor into the other sensor leads. **Induced interference will cause erratic instrument readings.**

**Exhaust Sensor leads must not** be routed together with any **Tach Sensor** leads. Provide a totally separate routing path for the Tach Sensor lead.

**DO NOT OPERATE the instrument with any disconnected or open inputs.** Unused instrument inputs must be terminated at the back of the instrument with a shorting plug available from DIGATRON. Inputs that are left open can cause erratic display readings and in some instances, instrument damage can result.

## DASH INDICATOR WARNING LIGHT

**P/N DI-118BN** Mount the **Dash Indicator light** directly in the driver's line of sight in the dash panel. The indicator mounts in a 1/2" diameter hole. **It is important that the driver be able to see this indicator while driving without looking away from the track.**

After drilling and deburring the 1/2" hole in the dash panel, place the aluminum indicator bezel through the hole from the driver compartment. Press the retaining washer on to the back side of the aluminum bezel. (Takes a lot of pressure.) Insert the lamp assembly through the back of the bezel into the lens. Press the plastic retaining plug into the rear of the bezel to secure the lamp assembly in place. Connect the lead to the **Orange** connector on the back of the instrument. Twist the connector 1/4 turn to lock it in place.

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## EXHAUST TEMPERATURE SENSORS

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*P/N EXT-1 \*\*\* RBN* Because the EGT sensor leads are the most sensitive to ignition interference or electrical interference, it is recommended that the probes be installed in the rear header tubes of a front engine vehicle and in the front header tubes of a rear engine vehicle. Installed in this manner it will be easier to route the leads to maintain the recommended distance from ignition components. Install the sensor into the header at a point approximately **2" from the head side** of the exhaust flange. Drill a 13/64" hole in a location in the header which will allow easy access to the sensor. Install the exhaust clamp assembly on the header aligning the compression fitting base with the drilled hole in the header. The tip of the sensor should be located at a point approximately 1/4" past the center of the header. Tighten the compression fitting nut to secure the sensor in place. Tighten the clamp assembly to secure it to the exhaust header. Route the sensor wires to the instrument paying particular attention to the routing precautions outlined earlier. All exhaust temperature sensors use the same color boot on their connectors. You may want to use a permanent marking pen on the boot to code the leads from the engine

Connect the sensors to the Gray terminals on the back of the instrument. The placement of the terminals on the instrument corresponds with the window that EGT is displayed in.. Twist the connector 1/4 turn to lock it in place.

The long black wire near the sensor probe must then be attached to a convenient ground point on the engine. This wire is covered with a high temperature Teflon that can withstand a good deal of heat but should not rest on top of the header pipes.

Repeat this process for any remaining exhaust sensor(s).

**NOTE:** The **Exhaust Temperature Sensor** leads are the most susceptible to electrical interference. In extreme circumstances where electrical interference cannot be eliminated by following the outlined procedures, try the following suggestions. Route your Exhaust Temperature Sensor leads through a grounded metal tube to the instrument.

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## REMOTE STORE SWITCH

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*P/N SA-CBN* The **Remote Store Switch** should be mounted in a steering wheel spoke within thumbs reach of the driver. This switch requires a 15/32" mounting hole for installation. If a steering wheel spoke is not available to accommodate the switch, a bracket must be fabricated for mounting. Mount

the bracket to the steering wheel in a position that will provide easy access to the switch while driving.

Tie the coil cord to the steering wheel and or column where needed to prevent it from interfering with the driver. Connect the lead to the **White** connector on the back of the instrument. Twist the connector 1/4 turn to lock it in place.

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## OIL TEMPERATURE SENSOR

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*P/N OT-1 \*\*\* BN* Any port normally used to monitor the oil temperature may be used for the **Oil Temperature Sensor**. The compression fitting supplied with the sensor is a standard **1/8" Iron pipe thread**. Insert the end of the sensor through the compression fitting into the oil to a depth of at least 1". Tighten the compression nut to secure the sensor in place.

Route the sensor wire to the instrument, paying attention to the above wire routing notes. Attach the lead to the **Yellow** connector on the rear of the instrument. Twist the connector 1/4 turn to lock it in place.

In some installations, a reducing bushing may be required to adapt the compression fitting to an available oil temperature port.

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## WATER TEMPERATURE SENSOR

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*P/N WT-1 \*\*\* BN* The location of the **Water Temperature Sensor** should be well below the water level in the engine block or in a location provided in the engine for the purpose of monitoring water temperatures. **Do not use the radiator** for monitoring water temperature readings. The water temperature sensors use the same compression fitting as the oil temperature sensor.

Route the sensor wire to the instrument, paying attention to the above wire routing notes. Attach the lead to the **Red** connector on the rear of the instrument. Twist the connector 1/4 turn to lock it in place.

In some installations, a reducing bushing may be required to adapt the compression fitting to an available water temperature port.

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## TACH SENSOR INSTALLATION NOTE

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If this instrument has a **Tach function** included as a standard feature, the tach sensor must be connected to the ignition system to provide a tach signal to the instrument. If this lead is not used the instrument will automatically turn itself off after a period of approximately 10 minutes.

Digatron builds three general types of **Tach Sensors** designed for different types of ignition systems. A sensor designed for a CDI type ignition will not work on a vehicle with a magneto. If you change to another *type* of ignition system, **do not connect the old tach sensor** to this new system. **SERIOUS** instrument damage may result from using the wrong Tach Sensor.

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## DBN Type TACHOMETER SENSOR

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*P/N TS-1 \*\*\* DBN* This type of **Tach sensor** is designed for use with electronic ignition systems with an **Auxiliary Tach output** connector on the ignition.

Attach the spade connector from the tach sensor to the tach output on your ignition system. Route this sensor lead *keeping it as far from your other leads as practical* to the back of the instrument. Attach the lead to the **Blue** connector on the back of the instrument. Twist the sensor connector 1/4 turn to lock it in place. **Note:** There is a resistor installed in the ignition end of this sensor lead. **Do not** attempt to shorten the tach lead without replacing this resistor.

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## MBN Type TACHOMETER SENSOR

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*P/N TS-1\*\*\* MBN* This type of **Tach sensor** is designed for use with electronic ignition systems *without* an **Auxiliary Tach output** connector on the ignition.

Attach the ring terminal from the tach sensor to the *negative* side of the coil on your ignition system. Route this sensor lead *keeping it as far from your other leads as practical* to the back of the instrument. Attach the lead to the **Blue** connector on the back of the instrument. Twist the sensor connector 1/4 turn to lock it in place. **Note:** There is a resistor installed in the ignition end of this sensor lead. **Do not** attempt to shorten the tach lead without replacing this resistor.

**NOTE:** If the Tach does not work as connected, switch the sensor connection to the *positive* side of the primary winding.

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## M-5BN Type TACHOMETER SENSOR

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*P/N TS-1 \*\*\* M-5BN* This type of **Tach sensor** is used on *non electronic* ignitions that use a **mechanical (point)** mechanism to generate the spark. Attach this sensor to the *point* side of the coil *primary winding* or to the **magneto side** of the kill switch. This sensor lead has electronic components built into the boot on its terminal end. *Serious instrument damage will result* if these components are removed.

Route this sensor lead *keeping it as far from your other leads as practical* to the back of the instrument. Attach the **Blue** sensor connector to the **Blue** connector on the back of the instrument. Twist the sensor connector 1/4 turn to lock it in place.

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## OIL PRESSURE SENSOR

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*P/N OP-150S and OP-EXT-1 \*\*\* SBN* The **Oil Pressure Sensor** will replace the one you are currently using. The sensor will monitor pressures up to **150 PSI**. Mount the sensor directly to the engine block or to a steel braided hose with an added grounding wire. When locating the sensor, remember to avoid the ignition system. If using a braided hose to attach the sensor, a clamp will be required to mount the sensor securely. (A 1 3/4" muffler clamp works well for this purpose) Be

sure that the clamp assembly is grounded to the block. Attach the **Sensor Extension** terminal end to the post on the rear of the sensor.

Route this sensor extension lead to the instrument paying attention to the wire routing notes listed earlier. Attach the **Green** sensor extension connector to the **Green** connector on the back of the instrument. Twist the sensor connector 1/4 turn to lock the connector in place.

**NOTE:** Oil pressure in a cold engine is always the greatest when the engine is first started. You may want to delay turning on the instrument until the engine has been warmed up to eliminate this high pressure reading from being retained as the maximum reading in the instrument's memory.

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## FUEL PRESSURE SENSOR

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*P/N OP-16S and FP-EXT-1 \*\*\* SBN* -16 PSI.

*P/N OP-150S and FP-EXT-1 \*\*\* HBN* -150 PSI.

The **Fuel Pressure Sensor** supplied with your instrument will monitor pressures up to **16 PSI** for the **OP-16S** or **150 PSI** for the **OP-150S**.

This sensor should be installed into the fuel system to monitor the fuel pump outlet pressure. The sensor should be mounted in the same way as the **Oil Pressure Sensor**. Attach the **Sensor Extension** terminal end to the post on the rear of the sensor. Route this sensor extension lead to the instrument paying attention to the wire routing notes listed earlier. Attach the **Brown** or **Violet** sensor extension connector to the **Brown** or **Violet** connector on the back of the instrument. Twist the sensor connector 1/4 turn to lock it in place.

**NOTE:** If you are burning alcohol, you must *remove* the sensor after draining your fuel. Alcohol vapors will damage the seals in the sensor.

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## POST INSTALLATION NOTES

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Before washing the vehicle, the instrument should either be **removed or protected** from getting wet. Moisture will normally not harm the instrument. If the instrument does get wet internally it may not work properly until thoroughly dried.

If during use your instrument seems to get lost (displays nonsensical numbers) and will not respond to it's switches, you can usually reset it by turning the engine off, and then removing and reinstalling one of its batteries. This condition can be caused by electrical interference from the ignition, poor sensor connections, bad grounds or even moisture entering the instrument.

If you are getting erratic readings on your instrument and have checked to be sure that all sensor leads are the recommended distance from the ignition components and that the instrument is well grounded, you may need a new set of "magnetic suppression" type plug wires. Digatron highly recommends the use of **Moroso "Blue Max." Spiral Core** or **MSD Heli-Core** plug wires.