

Flow Chart Programming Instructions for : RPM Tachometer

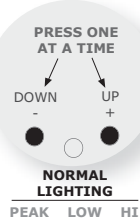
2 1/16" Controller

START HERE

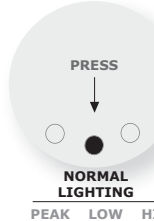
(Press one button at a time)

PROGRAM MAIN MENU

MAIN MENU



NORMAL/DIAL BRIGHTNESS
Press down and up buttons to adjust dial brightness. Press the center button to save and advance to **PEAK PLAYBACK**.



NORMAL/DIAL BRIGHTNESS
ON POWER UP THE GAUGE READS THE SENSOR RPM. Press the center button to advance to **PEAK PLAYBACK**. OR
OPTION:SELECT PPR (Pulses Per Revolution)



PEAK PLAYBACK
Pointer will now display peak playback. Press the center button to advance to **HIGH RED-LINE SETTING**.



PEAK PLAYBACK
Press the center button to advance to **HIGH RED-LINE SETTING**. OR
OPTION:RESTORE FACTORY DEFAULT



HIGH RED-LINE SETTING
Press down and up buttons to move dial pointer to the high threshold. Press the center button to save and advance to **LOW THRESHOLD SETTING**.



HIGH RED-LINE SETTING
Press the center button to advance to **LOW THRESHOLD SETTING**.



LOW THRESHOLD SETTING
Press down and up buttons to move pointer to low threshold. Press the center button to save and advance to **COLOR SCHEME**.



LOW THRESHOLD SETTING
Press the center button to advance to **COLOR SCHEME**.



COLOR SCHEME
Press down and up buttons to select a color scheme. (OFF-VIOLET-BLUE-GREEN-YELLOW-ORANGE-RED-WHITE). Press the center button to save and return to **NORMAL/DIAL BRIGHTNESS**.



COLOR SCHEME
Press the center button to advance to **NORMAL/DIAL BRIGHTNESS**. OR
OPTION A:DEMO MODE
OPTION B:POINTER BRIGHTNESS



- **CAUTION:** FOLLOW WIRING INSTRUCTION CAREFULLY. INCORRECT RELAY WIRING WILL LEAD TO PREMATURE NITROUS OXIDE ACTIVATION.
- **WARNING:** INSTALLATION MUST BE PERFORMED BY AN EXPERIENCED TECHNICIAN. SYSTEM MUST BE INSTALLED ACCORDING TO MANUFACTURER RECOMMENDATIONS.
- DISCONNECT THE NEGATIVE BATTERY TERMINAL BEFORE INSTALLATION.
- USE CARE WHEN CONNECTING OR DISCONNECTING THE WIRING HARNESS. PULL OUT EACH CONNECTOR WHILE PRESSING THE LOCK OF THE CONNECTOR FIRMLY.
- NEVER DISASSEMBLE, MODIFY OR TAMPER WITH THE UNIT.
- PROPARTS,LLC IS NOT RESPONSIBLE FOR INCORRECT TURBOCHARGER SIZING,

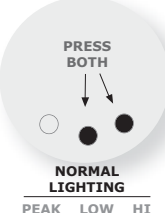
- EXCESSIVE EXHAUST PRESSURE, OR INADEQUATE WASTEGATE OPERATION.
- THIS UNIT IS DESIGNED ONLY FOR DC 12V TYPE VEHICLES WITH NEGATIVE GROUND.
- CHECK THE AIR/FUEL RATIO ONCE THE BOOST PRESSURE IS SET TO PROTECT AGAINST LEAN FUEL SUPPLY THAT COULD CAUSE ENGINE DAMAGE.
- DO NOT USE BOOST CONTROL IN CONJUNCTION WITH ANY TYPE OF "DRAW THROUGH" FUEL SYSTEM.
- DO NOT ADJUST THE UNIT WHILE DRIVING.
- DO NOT USE THIS UNIT UNDER EXTREMELY HOT OR COLD CONDITIONS.
- DISCONTINUE USE OF THIS PRODUCT IF THE GAUGE DOES NOT OPERATE OR A STRANGE ODOR OR SMOKE IS PRESENT.

Flow Chart Programming Instructions for : RPM Tachometer

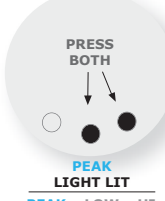
2 1/16" Controller

SUBMENU (ENTER FROM MAIN MENU)

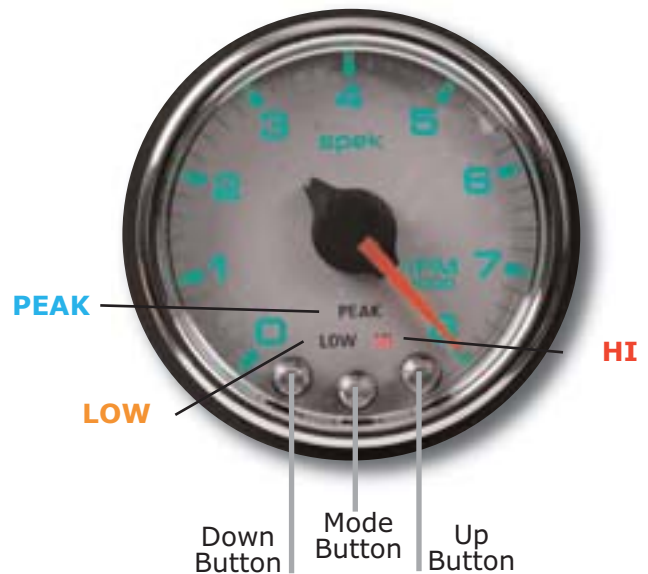
(Press two(2) buttons simultaneously for 5 seconds)

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OPTION: SELECT PPR (Pulses Per Revolution)
While in **NORMAL DIAL BRIGHTNESS**, press and hold center and right buttons for 5 seconds. Dial will flash blue rapidly. Press down and up buttons to select PPR value by moving dial pointer to corresponding RPM. Press the center button to save and return to **NORMAL/DIAL BRIGHTNESS**. (See PPR Chart Page 4)

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OPTION: RESTORE FACTORY DEFAULT
While in **PEAK PLAYBACK**, press and hold the center and right buttons for five seconds. Dial pointer will step five times and return to zero. This will erase all user-programmed calibrations and settings, and return to **NORMAL/DIAL BRIGHTNESS**.



PROGRAM SUBMENU

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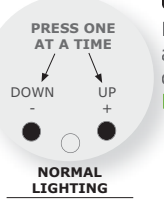
OPTION A: DEMO MODE
WHILE IN **COLOR SCHEME**, press and hold the center and right buttons for five seconds. Dial will scroll through the seven color schemes. The **HI, LOW** and **PEAK** will light, and the dial pointer will move.

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OPTION A: DEMO MODE
Press the center button to return to **NORMAL/DIAL BRIGHTNESS**.

→ 

OPTION B: POINTER BRIGHTNESS
While in **COLOR SCHEME**, press and hold the center and left buttons for five seconds to enter pointer brightness mode. The dial pointer will start to flash and point to the upper right.

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OPTION B: POINTER BRIGHTNESS
Press down and up buttons to adjust the pointer brightness. Press the center button to save and return to **NORMAL/DIAL BRIGHTNESS**.

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Programming Instructions for : RPM Tachometer 2 1/16" Controller

SPEK™ MONITOR AND CONTROL PERFORMANCE GAUGE TACHOMETER

Refer to the "Flow Chart Programming Instructions" while reviewing this guide.

Gauge is field programmable by the operator while installed in the vehicle. This programming is accessed by pressing the control buttons located on the face or the meter dial, **ONE AT A TIME**. The "Down" and "Up" buttons move the pointer to a desired setting or controls the faceplate illumination. The center "Mode" button will save the setting you choose and proceed to the next level. Pressing the "Mode" and "Up" or "Mode" and "Down" buttons simultaneously and holding them for 5 seconds in any level will shift you to the Submenu.



PROGRAMMING STARTS IN MAIN MENU

PRESS PROGRAM BUTTON ONE (1) AT A TIME IN THE MAIN MENU MODE.

1 NORMAL/DIAL BRIGHTNESS:

On power up, the meter usually starts operation in **NORMAL/DIAL BRIGHTNESS**. Gauge reads the sensor value as temperature, pressure, etc. The "Down" and "Up" buttons will control the brightness of the dial lighting. Press the center "Mode" button to save the setting and advance you to **2 PEAK PLAYBACK**

2 PEAK PLAYBACK:

Reads the highest value displayed on the meter since the last time the "Peak" value was displayed. Pressing the "Down" or "Up" control button will control the gauge dial illumination. Press the center "Mode" button to advance to **3 HIGH RED-LINE SETTING**

Programming Instructions for : RPM Tachometer 2 1/16" Controller

MAIN MENU	SUBMENU
NORMAL/DIAL BRIGHTNESS	OPTION:SELECT PPR
PEAK PLAYBACK	OPTION:RESTORE FACTORY DEFAULT
HIGH RED-LINE SETTING	
LOW THRESHOLD SETTING	
COLOR SCHEME	OPTION A:DEMO MODE OR OPTION B:POINTER BRIGHTNESS

3 HIGH RED-LINE SETTING:

Sets the point at which "HIGH" warning threshold is reached for that specific gauge. The "Down and "Up" buttons will move the dial pointer to select **HIGH RED-LINE SETTING**. During normal operation the gauge constantly monitors the sensor value and compares it to the "HIGH" threshold. If the threshold is exceeded, the red "HI" indicator is turned on and an output signal generated. Press the center "Mode" button to save the setting and advance to **4 LOW THRESHOLD SETTING**

4 LOW THRESHOLD SETTING:

Set the Minimum Threshold: Sets the point at which "LOW" warning threshold is reached for that specific gauge. The "Down" and "Up" buttons will move the dial pointer to select the **LOW THRESHOLD SETTING**. During normal operation the gauge constantly monitors the sensor value and compares it to the "LOW" threshold. If the sensor value drops below the threshold, the yellow "LOW" indicator is turned on and an output signal generated. Press the center "Mode" button save the setting and advance to **5 COLOR SCHEME**

5 COLOR SCHEME:

Set Faceplate Color Scheme: Operator can select the color of the gauge dial illumination. Each time you press the "Down" control button you scroll through dial color selection until the dial light goes off. Then press the "Up" button to reverse the scroll. Select your dial color illumination by pressing the center "Mode" button to save the setting and advance to **1 NORMAL/DIAL BRIGHTNESS**

Programming Instructions for : RPM Tachometer 2 1/16" Controller

SUBMENU

SUBMENU IS ACCESSED THROUGH THE MAIN MENU. FIRST GO TO THE APPROPRIATE LEVEL OF THE MAIN MENU AND THEN FOLLOW THE INSTRUCTIONS IN THE PROGRAMMING FLOW DIAGRAM TO ENTER THE SUBMENU. PRESS THE "MODE" AND "UP" OR "MODE" AND "DOWN" BUTTONS SIMULTANEOUSLY FOR 5 SECONDS TO ENTER THE SUBMENU AND ONE BUTTON AT A TIME WHILE IN THAT SUBMENU.

OPTION A:DEMO MODE: Displays the features of the meter. The pointer goes up and down the scale, the dial colors change and the **HI**, **LOW** and **PEAK** warning indicators light. The Demo mode does not time out. If the gauge is turned off in the Demo mode, it will start up in the Demo Mode. Press the "Mode" button to return the gauge to NORMAL operation.

OPTION B:POINTER BRIGHTNESS MODE: The "Down" and "Up" buttons adjust the dial pointer brightness to blend in with original manufacturer's gauges and the owner's requirements.

OPTION:SELECT PPR: (Pulses Per Revolution) Select the PPR value by pressing "Down or "Up" button to move dial pointer to corresponding RPM. For additional information see the Tachometer Sense Line Attachment and Meter Setting section on page 4.

OPTION:RESTORE FACTORY DEFAULT: TO RESTORE FACTORY DEFAULTS, PRESS THE "MODE" BUTTON ONCE TO ENTER THE **PEAK PLAYBACK**. THEN PRESS AND HOLD THE "MODE" AND "UP" BUTTONS FOR FIVE SECONDS. Activation of the Default will erase all field calibration setup settings that are programmed. Factory calibrations will not be affected.

CRITICAL CONDITION ALERT/OUTPUT SIGNAL: The dial faceplate will flash "**Red**" and an output signal generated when the programmed "Threshold Setting" is reached. This setting can be "**HIGH**" or "**LOW**" depending upon the gauge function. That is; a temperature gauge would flash "**Red**" when a "**HIGH**" temperature setting is reached while an oil pressure gauge would flash "**Red**" when the "**LOW**" pressure setting is reached. The operator can turn off this signal through the gauge program. See the PROGRAMMING FLOW CHART. From the main menu press the center mode button 3 times. The "**LOW**" LED will light.You are now in the "LOW THRESHOLD SETTING."

OPTION: THRESHOLD ALERT SIGNAL: While in "Low Threshold Setting: press and hold the center and left buttons for five seconds. Dial pointer will step five times and then go to zero or the twelve o'clock position. Select alert signal status: The alert signal is deactivated if the pointer is at the twelve o'clock position. Pressing the left button selects alert signal "ON". Pressing the right button selects alert signal "OFF"

Programming Instructions for : RPM Tachometer 2 1/16" Controller

GAUGE CRITICAL CONDITION ALERT/OUTPUT FLASHING GUIDE

GAUGE TYPE	ALERT FLASHES "RED"
TEMPERATURE	HIGH
PRESSURE	LOW
TACHOMETER	HIGH
PYROMETER	HIGH
NITROUS OXIDE PRESSURE	LOW
BOOST PRESSURE	HIGH
AIR/FUEL	LOW
VOLTMETER	LOW

PROGRAMMING INFORMATION:

- TO RESET THE PROGRAM TO NORMAL OPERATION FROM ANY MODE PRESS THE "UP" AND "DOWN" BUTTONS SIMULTANEOUSLY. THIS SOFT RESET CANCELS THE INFORMATION YOU PROGRAMMED IN THAT MODE ONLY AND RETURN YOU TO NORMAL OPERATION.
- THE FACEPLATE WILL "FLASH" WHEN BUTTONS ARE DEPRESSED TO ACKNOWLEDGE COMMANDS.
- PROGRAMMING ERRORS WILL BE SIGNALLED BY FLASHING THE FACEPLATE LIGHTING "PURPLE", "BLUE", "GREEN" THEN "ORANGE".
- IF PROGRAMMING IS INACTIVE FOR 120 SECONDS THE MODE WILL TIME OUT AND THE GAUGE WILL RETURN TO NORMAL OPERATION, EXCEPT FOR THE DEMONSTRATION MODE. THE DEMO MODE WILL NOT TIME OUT UNTIL THE CENTER "MODE" BUTTON IS PRESSED IF THE GAUGE IS TURNED OFF IN THE DEMO MODE, IT WILL START UP IN THE DEMO MODE.

TACHOMETER SENSE LINE ATTACHMENTS AND METER SCALING

GASOLINE ENGINES

Attach the sensing line to the primary side of a spark coil, and then set the calibration PPR value for your spark configuration, using directions for the CALIBRATION option.

Once upon a time, there was just one configuration: a spark coil, a distributor, and then wires from the distributor cap to the individual sparkplugs. If your car is like this, use the table below:

Programming Instructions for : RPM Tachometer 2 1/16" Controller

FOR "CLASSIC" ONE-IGNITION-COIL ENGINES

# PLUG	PULSES PER REVOLUTION (PPR)	METER SETTING
2	1	2000
4	2	3000
6	3	4000
8	4	5000
10	5	6000
12	6	7000

IF YOU HAVE ONE COIL PER PLUG CONNECT TO ANY SPARK COIL PRIMARY

# PLUG	PULSES PER REVOLUTION (PPR)	METER SETTING
Any	1/2	1000

IF YOU HAVE ONE COIL PER TWO PLUGS CONNECT TO ANY SPARK COIL PRIMARY

# PLUG	PULSES PER REVOLUTION (PPR)	METER SETTING
Any	1	2000

DIESEL ENGINES

Modern diesel engines usually have camshaft sensors or electronic injector pumps. If there is one injector per cylinder, the signal from the pump drive will be 1/2 PPR. Similarly, if there is a camshaft sensor signal the signal will be 1/2 PPR. Set the calibration at a reading of 1000.

If there is no electronic cam sensing or fuel injection in your diesel engine, the procedure is more complex. A signal can be obtained from the alternator by attaching a wire directly to the winding of the stator before it goes to one of the rectifier diodes. This signal will be proportional to engine speed, but the proportionality must be learned. See the TACH CALIBRATION procedure for details, using meter setting 0 to force learning.

SPECIAL SCALING FUNCTIONS

Several Proparts meters require a setup procedure to define the kind of input they are looking at. These are:

Tachometer – the user needs to tell it the number of "pulses per revolution" (PPR) coming into its sense line. This number varies widely between makes and models of cars.

Speedometer – the user needs to tell it the number of pulses that come in, per mile of travel.

O2 sensor – the user needs to tell it whether the sensor is narrowband (with a 0-1 volt output) or a wideband sensor with a 0...5 volt output. Once the meter is hooked up, the procedures are relatively painless.

Programming Instructions for : RPM Tachometer

2 1/16" Controller

TO SET UP SCALING

Turn the ignition off and on again to assure that the meter is in a reset state. If it starts up with the face changing color and the pointer going up and down continuously, the meter is in demo mode. Press the center button before continuing.

TACH CALIBRATION

First read the section on TACHOMETER SENSE LINE ATTACHMENTS AND METER SCALING in order to find out how you need to set the meter. When you have figured out what PPR setting you are to use, press the Mode and Up buttons simultaneously for five (5) seconds. The dial will flash blue rapidly. This places the meter in the scale-setting mode. Use the Down and Up buttons to move the meter pointer to the appropriate RPM reading according to the table. If you have selected an "RPM" reading of 1000 or up, just press the center button to leave the scale setting mode and resume normal operation with the selected scaling.

If you were forced to use the alternator as a signal source, you selected an RPM of "0." Now you must tell the motor when it is operating at 2000 RPM. Using a strobe light, slowly increase the engine speed till you hit 2000 RPM. The meter will read some nonzero value that increases and decreases with engine speed, but it will not be accurate. While the engine is running steadily at 2000 RPM, press the mode button. Your meter is calibrated. You can verify the setting by turning the ignition switch off and on again, starting the car, and checking whether the idle speed on your tachometer is the same as the speed you measure with a strobe light.