3-3/8" PROGRAMMABLE RECALL TACHOMETER INSTALLATION INSTRUCTIONS

GENERAL INFORMATION

BACKLIGHT: LED

OPERATING VOLTAGE: 9-32 VDC

INPUT: IGNITION (COIL OR ELECTRONIC MODULE), MAGNETIC SENSOR, PULSE GENERATOR, HALL-EFFECT SENSOR OR ALTERNATOR AC TAP

TRANSIENT PROTECTION: +100V, -400V

REVERSE VOLTAGE: PROTECTED

RECALL: HIGHEST ENGINE RPM

CALIBRATION: 0.1 PULSE PER REV TO 255 PULSES PER REV (0.1 INCREMENTS UP TO 25.5)

INSTALLATION

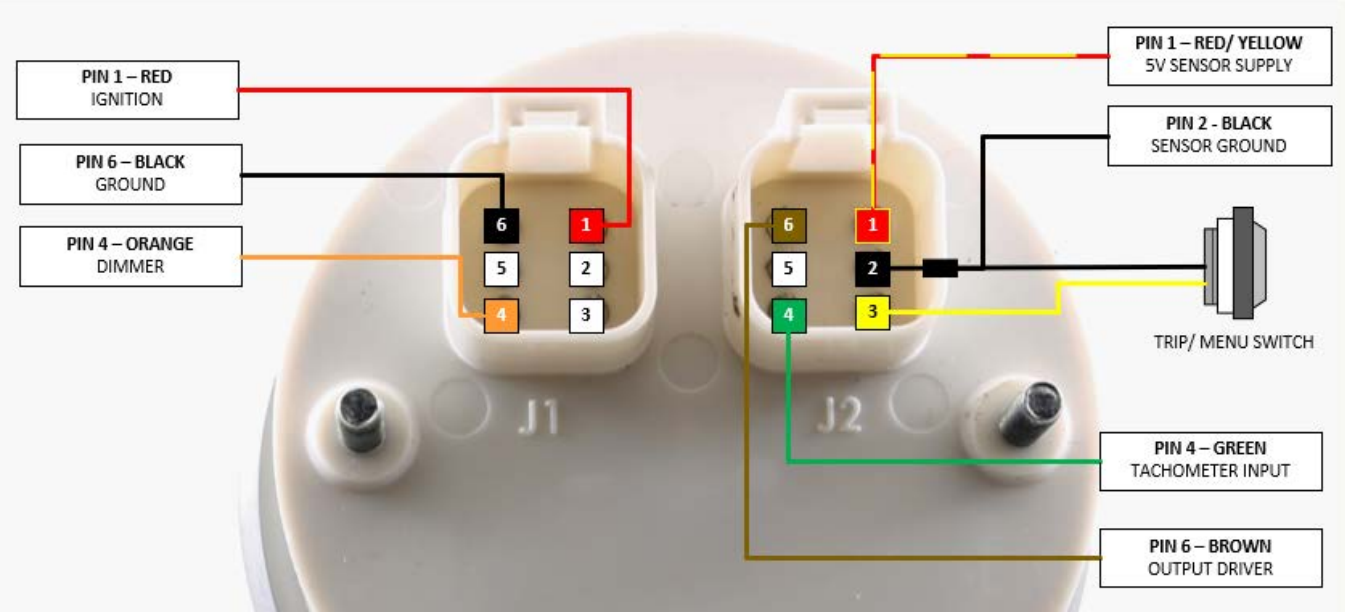
ICON KEY
CAUTION
Tools may be required
Shown in picture

1 **Disconnect batteries**. Do not reconnect battery power until wiring is fully completed to avoid risk of shock or fire.

2 **CARE SHOULD BE TAKEN WHEN ROUTING WIRES FROM THE ENGINE COMPARTMENT TO THE INTERIOR. SECURE WIRES SUCH THAT IT DOES NOT INTERFERE WITH MOVING PARTS AND USE A GROMMET WHEN PASSING THROUGH THE FIREWALL OR ANY SHARP EDGES.**

ISSPRO, INC. • 2515 N.E. Riverside Way • Post Office Box 11177 • Portland, Oregon 97211-1899
503-528-3400 • 800-888-8065 • Fax: 503-528-3495
www.isspro.com

3 Connect wiring harness to the vehicle as listed below:



J1 Connector

PIN 1 – **Red:** Ignition; Connect to a circuit that switches on with the key switch. If the circuit does not have a fuse or the existing fuse is higher than 3 amps - use a 3-amp inline fuse.

PIN 4 – Orange: Dimmer; Connect to the factory dimmer circuit either by tapping into the in-cab fuse block or by connecting directly to the wire running from the dimmer on the headlight switch.

PIN 6 – Black: Ground; Connect to a clean ground, such as a factory ground bolt.

Pin 2, 3, and 5 – Not used.

J2 Connector

***PIN 1** – **Red/Yellow**: 5V output, used if a sensor requires a 5V source (e.g., Hall Effect sensor).*
***PIN 2 – Black** Sensor Ground; Connect to sensor ground.*

***Pin 4 – Green**: Tachometer input (see input list); connect to the output of the sensor or negative (-) coil terminal.*
***Pin 6 – Brown:** Programmable Output Driver. Connect to ground side of relay coil, with the other side of coil connected to a battery + circuit fused for no more than 1 amp, activated at a programmed level of engine speed. Examples include overspeed warning buzzers or shift solenoids.*

***Pin 5 –** Not used.*

ISSPRO, INC. • 2515 N.E. Riverside Way • Post Office Box 11177 • Portland, Oregon 97211-1899
503-528-3400 • 800-888-8065 • Fax: 503-528-3495
www.isspro.com

Remote pushbutton (Trip/ Menu Switch) Installation

1. *Drill a 15/32" (0.469") hole in the mounting surface where the pushbutton will be mounted.*
2. *Using a small flat-blade screwdriver, remove the orange retaining wedge from the end of the J2 connector on the harness.*
3. *Use the screwdriver to carefully pry up the retaining tang inside the connector housing for the yellow wire's terminal in Pin #3, while pulling the yellow wire back out of the connector housing.*
4. *Repeat Step #3 for the black wire in Pin #2.*
5. *Remove the nut and washer from the back of the pushbutton.*
6. *Pass the wires of the pushbutton through the hole drilled in Step #1.*
7. *Pass the wires through the washer and nut, then tighten the nut onto the pushbutton using a 9/16" wrench.*
8. *Insert the yellow wire back into Pin #3 of the connector, and the black wire back into Pin #2.*
9. *Press the orange wedge-lock back into the end of the connector.*
10. *Secure all wiring so that it does not interfere with any moving parts or chafe on sharp edges.*

PROGRAMMING

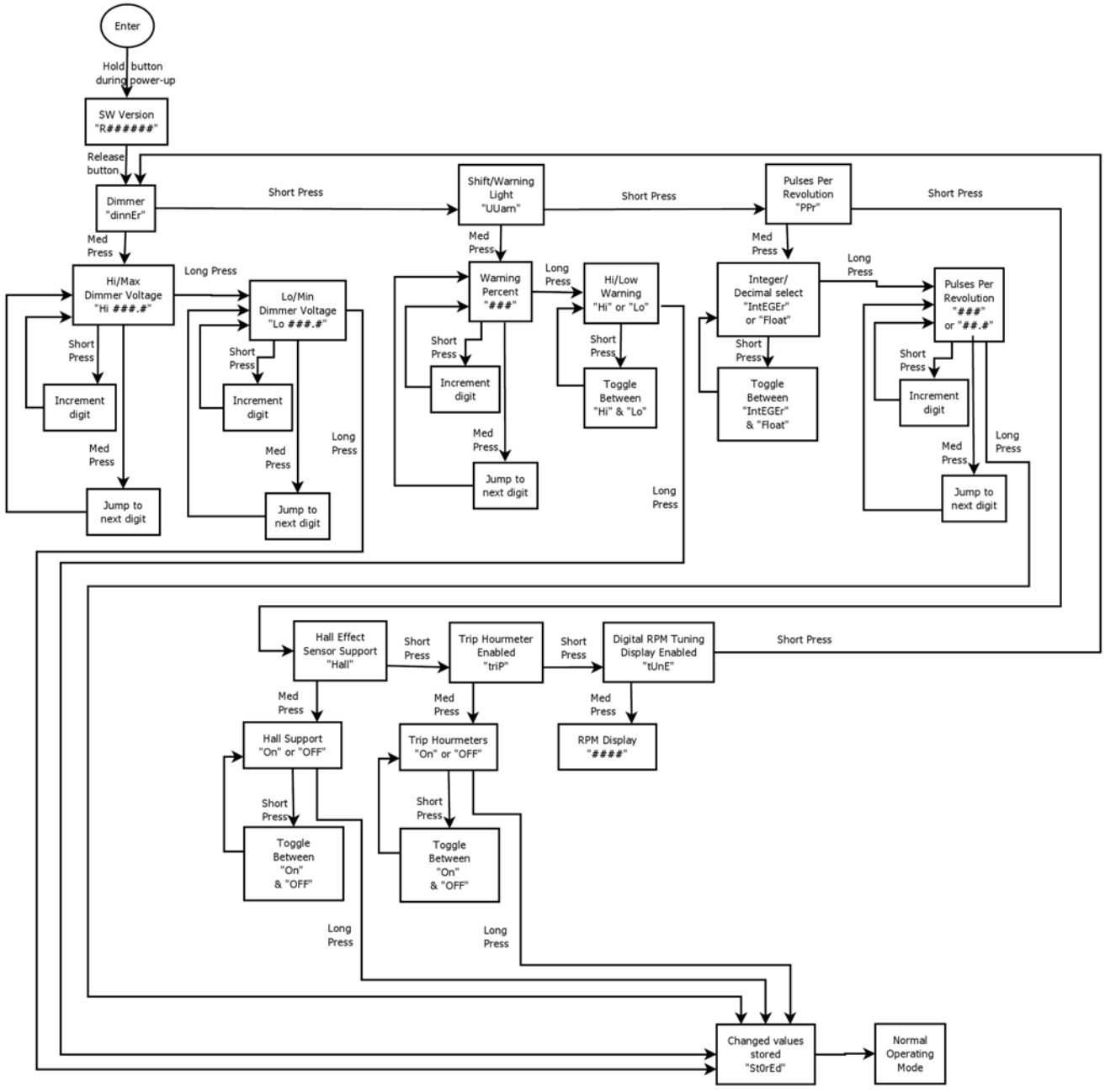
With the on-board menu the user can program the backlight curve, shift light activation level, calibration (pulses per revolution), enable Hall Effect sensor support, enable Trip Hourmeter, and select "Tune" mode to display RPMs digitally on the LCD. All of these adjustments as well as programming Output Driver function can be done using the Attribute Programmer cable & software, P/N R82010.

ENTERING AND NAVIGATING MENU:

- Hold down the front button while turning on power to the tachometer. The display will show the installed software version while the button is held.
- Release the button to enter the menu (display will read "dinnEr" representing "Dimmer" or backlighting adjustment).
- Navigation is done with 3 Button Press options:
    - Short Press – Momentary press less than 3 seconds, Warning Light stays off
    - Medium Press –More than 3 seconds and less than 8 seconds, Warning Light turns on
    - Long Press – More than 8 seconds, Warning light flashes quickly
- Use Short Press steps to pass from one setting to the next as shown in the Menu Structure.
- For all stored setting changes, the gauge must be powered off and back on for the change to be in effect.
- If the gauge is powered off while in the menu and before the "Stored" step has been completed, all changes are lost and the gauge reverts back to the prior settings.

ISSPRO, INC. • 2515 N.E. Riverside Way • Post Office Box 11177 • Portland, Oregon 97211-1899
503-528-3400 • 800-888-8065 • Fax: 503-528-3495
www.isspro.com

MENU STRUCTURE



ISSPRO, INC. • 2515 N.E. Riverside Way • Post Office Box 11177 • Portland, Oregon 97211-1899
503-528-3400 • 800-888-8065 • Fax: 503-528-3495
www.isspro.com

Dimmer Curve (matching the gauge's dimming curve to the vehicle), LCD shows "dinnEr"

- Before setting this value, use a digital voltmeter to measure the voltage from the vehicle's dimmer circuit (which should be connected to the gauge's orange wire and into pin J1-4) with the dimmer turned down until the dash lights are at their minimum or have just turned off (for Dimmer Lo setting), and with the dimmer turned up with the dash lights at full brightness. Some vehicles have a reverse dimmer curve, where the voltage will be lowest with the dash lights at full brightness. For example, if the dimmer is at 0.5 volts with the dash lights at full brightness, and 5.0 volts with the dash lights at minimum, set the Dimmer Hi to 0.5 and Dimmer Lo to 5.0. Also the "Hi" value may be set beyond the range of actual voltage on the dimmer circuit, which would result in a lower light output at maximum brightness than if the dimmer could reach the programmed value. For example, if the dimmer only goes to 14.0 volts at max brightness and the "Hi" value is set to 18.0 volts, the light output at 14.0 volts would be less than the maximum brightness.
- Press and hold the button for a Medium Press (more than 3 seconds but less than 8 seconds) to revise the dimmer settings.
- When releasing the button the display will change to "Hi ###.#" (with numbers representing the currently stored setting in place of the "#"). This is the dimmer input voltage at which the gauge lights will be at maximum brightness.
- Use Short Press (< 3 sec) steps to increment the first digit, then use a Medium Press (3 sec to 8 sec) to skip to the next digit.
- Once all 3 digits are set to the desired value, perform a Long Press (>8 sec) to move to the Dimmer Low value.
- When releasing the button the display will change to "Lo ###.#" (with numbers representing the currently stored setting in place of the "#"). This is the dimmer input voltage at which the gauge lights will be at minimum brightness.
- Use Short Press (< 3 sec) steps to increment the first digit, then use a Medium Press (3 sec to 8 sec) to skip to the next digit.
- Once all 3 digits are set to the desired value, perform a Long Press (>8 sec) to save the value and exit the menu.
- Power the gauge off then on again to activate the new settings

Shift/Warning Light Activation, LCD shows "UUarn"

- The integral shift/warning light may be programmed to activate above or below a set level.
- Press and hold the button for a Medium Press (more than 3 seconds but less than 8 seconds) to revise the warning settings.
- When releasing the button the display will change to "###" (with numbers representing the currently stored setting in place of the "#"). This is the percentage of full scale at which the warning light switches on or off. For example, if it is an 8000 RPM tachometer and you want the light to activate or deactivate at 6000 RPM, it would be 100x6000/8000=75%, or 075 as the entered value.
- Use Short Press (< 3 sec) steps to increment the first digit, then use a Medium Press (3 sec to 8 sec) to skip to the next digit.
- Once all 3 digits are set to the desired value, perform a Long Press (>8 sec) to move to the

ISSPRO, INC. • 2515 N.E. Riverside Way • Post Office Box 11177 • Portland, Oregon 97211-1899
503-528-3400 • 800-888-8065 • Fax: 503-528-3495
www.isspro.com

Hi/Low warning selection.

- When releasing the button the display will change to “Lo” or “Hi” (depending on the presently stored value).
- Use Short Press (< 3 sec) steps to toggle between “Lo” and “Hi” as desired.
- Perform a Long Press (>8 sec) to save the value and exit the menu.
- Power the gauge off then on again to activate the new settings

Calibration Number – Integer/Float selection & Pulses Per Revolution, LCD shows “PPr”

The Calibration/PPR setting is the number of pulses that the sensor detects per engine revolution. For example if using a sensor mounted through the flywheel housing to detect the flywheel teeth the PPR would be the number of flywheel teeth. If using an ignition input, the PPR would be the number of cylinders divided by 2. In the case of reading an alternator tap circuit for RPM sensing, Floating-Point (Decimal) Calibration settings may be required for accuracy (such as 17.4 Pulses Per Revolution). Floating Point PPR can be set from 0.1-25.5, and Integer PPR can be set from 1-255.

- Press and hold the button for a Medium Press (more than 3 seconds but less than 8 seconds) to revise the Calibration Number settings.
- When releasing the button the display will change to “IntEGEr” or “Float” (representing the currently stored setting of Integer or Decimal/Floating Point).
- Use Short Press (< 3 sec) steps to toggle between “IntEGEr” and “Float” as desired.
- Perform a Long Press (>8 sec) to save and move to the PPR selection.
- When releasing the button the display will change to “###” if Integer or “##.#” if Decimal/Floating Point (with numbers representing the currently stored setting in place of the “#”).
- Use Short Press (< 3 sec) steps to increment the first digit, then use a Medium Press (3 sec to 8 sec) to skip to the next digit.
- Once all 3 digits are set to the desired value, perform a Long Press (>8 sec) to save the value and exit the menu.
- Power the gauge off then on again to activate the new settings.

Hall Effect Sensor Support, LCD shows “Hall”

Many sensors including Hall Effect type require the Tachometer input signal to have a resistor pull-up to 5V to operate properly. Other sensor types will not work with this pull-up enabled. The gauge uses an internal transistor to enable or disable the pull-up as needed.

- Press and hold the button for a Medium Press (more than 3 seconds but less than 8 seconds) to revise the Hall Effect Sensor Support settings.
- When releasing the button the display will change to “On” or “OFF” (representing the currently stored setting).
- Use Short Press (< 3 sec) steps to toggle between “On” and “OFF” as desired.
- Perform a Long Press (>8 sec) to save the setting and exit the menu.
- Power the gauge off then on again to activate the new settings.

ISSPRO, INC. • 2515 N.E. Riverside Way • Post Office Box 11177 • Portland, Oregon 97211-1899
503-528-3400 • 800-888-8065 • Fax: 503-528-3495
www.isspro.com

Trip Hourmeter Enabled/Disabled, LCD shows "trIP"

The tachometer will always record to a primary hourmeter during engine run time. Two separate Trip Hourmeters are available for maintenance tracking, such as for oil changes and air filter changes. If the Trip Hourmeters are enabled, the Peak Recall function is disabled.

- Press and hold the button for a Medium Press (more than 3 seconds but less than 8 seconds) to Enable or Disable the Trip Hourmeters.
- When releasing the button the display will change to "On" or "OFF" (representing the currently stored setting).
- Use Short Press (< 3 sec) steps to toggle between "On" and "OFF" as desired.
- Perform a Long Press (>8 sec) to save the setting and exit the menu.
- Power the gauge off then on again to activate the new settings.

Enable Digital RPM Tuning Display, LCD shows "tUnE"

Some applications such as dual-engine boats may temporarily need a precise digital display of engine RPM. This setting allows the temporary display of engine RPM on the LCD.

- Press and hold the button for a Medium Press (more than 3 seconds but less than 8 seconds) to activate the "Tune" RPM display.
- When releasing the button the display will change to show the current engine speed on the LCD.
- The RPM display will continue until the next power off-on cycle of the tachometer, at which time it will resume normal display operation.

GAUGE OPERATION

Normal Operation:
When powered up, the gauge pointer will start at the position from when it was last powered down, sweep counterclockwise until the pointer hits the pointer stop below 0, then immediately move to the RPM value being read. The LCD will show the main Hourmeter (representing the total time with the engine running since the gauge was installed).

Peak Recall (only functions if Trip Hourmeters are disabled):
A Short Press (less than 3 seconds) and release of the pushbutton will move the pointer to the highest stored RPM since the last time it was cleared, and display the peak value on the LCD. While in Peak Recall mode, pressing and holding the button for over 3 seconds will clear the stored peak value. A Short Press (< 3 seconds) will switch back to Normal Mode.

Trip Hourmeters (only functions if enabled in the menu):
A Short Press (less than 3 seconds) and release of the pushbutton will change the LCD to "Trip A" Hourmeter hours. A second Short Press will change the LCD to "Trip B" Hourmeter hours. Pressing and holding the button for over 3 seconds while either Trip A or Trip B Hourmeter is displayed will clear that Hourmeter total. A Short Press while Trip B Hourmeter is displayed will return to the main Hourmeter display.

ISSPRO, INC. • 2515 N.E. Riverside Way • Post Office Box 11177 • Portland, Oregon 97211-1899
503-528-3400 • 800-888-8065 • Fax: 503-528-3495
www.isspro.com