



# INSTALLATION INSTRUCTIONS

## PIC - PRS Tach Operating Instructions

(Programming Interface Controller)



## TACHOMETER

### WIRING

The four conductor harness with the white connector is used to connect the PIC module for programming and setting up the operating parameters in the Elite PRS Tach or the CAN Tach. The connectors provided on the PIC will allow the PIC to be connected directly to the Elite PRS tach. A PIC jumper harness (5277) must be used when connecting to a CAN tach.

## NORMAL OPERATION

The back light of the dial will function as a Pit Road Speed indicator, and as a Red Line/Over-Rev light. The back light will turn on steady red when the RPM reaches Red Line limit. When the RPM goes above Over-Rev limit, the Shift Lite/dial will flash Red. Refer the EDITABLE PARAMETERS section to set these limits and band widths. The back light will also function as a Pit Road Speed indicator and Corner RPM indicator as shown in the following table:

**NOTE:** The following table shows RPM set points for the factory default values.

SET POINT	RPM	PIC MENU	COMMENT
Pit Road Speed	3900	<i>SPTS-PRSR</i>	See Capture Position for more information
Shift Point	9500	<i>SPTS-SP</i>	
Over-Rev	9700	<i>SPTS-OUSP</i>	
Corner RPM	7000	<i>SPTS-CRMR</i>	Bottom of corner <i>GO</i> band

**NOTE:** The following table shows RPM ranges and the shift light (back light) operation for the factory default values. Within each defined RPM band, the number of lit LEDs in the ring of 10 level indicators will be proportional to the RPM range for that band.

RPM RANGE	BAND	SHIFT LIGHT	PIC MENU	COMMENT
500-2,900	N/A			
2,900-3,400	<b>PRS LOW</b>	Green	<i>BMDS-LO</i>	Yellow for Elite tach with traffic signal off
3,400-3,900	<b>PRS GO</b>	Yellow	<i>BMDS-GO</i>	Green for Elite tach with traffic signal off
3,900-4,400	<b>PRS HI</b>	Red	<i>BMDS-HI</i>	
4,400-4,900	<b>PRS TOO HI</b>	Flashing Red	<i>BMDS-TOHI</i>	
4,900-6,500	N/A			
6,500-7,000	CORNER LOW	Green	<i>BMDS-CRLO</i>	Corner bands available in CAN tach.
7,000-7,500	CORNER GO	Yellow	<i>BMDS-CRGO</i>	
7,500-8,000	CORNER HI	Red	<i>BMDS-CRHI</i>	
8,000-9,100	N/A			
9,100-9,500	SHIFT-POINT LEAD-IN		<i>BMDS-PRSL</i>	
9,500-9,700	SHIFT-POINT	Red	<i>SPTS-SP</i>	
9,700 and up	OVER-REV	Flashing Red	<i>SPTS-OUSP</i>	

## PIC

### Wiring

The PIC is powered through the harness from the PRS Tach. The connector can be attached to the PRS Tach at any time, power on or off. When the PIC is connected to the PRS Tach, with power applied, the PIC will display the following sequence on its display:

**PIC** - Product identification, displayed for 1.5 second

**U3.02** - Firmware version, displayed for 1.5 second

- - - - - Dash appearing right to left in sequence

**READ** - Indication the tach data has been read,

**TACH** firmware version of connected tach displayed for 1.5 second

**V2.03**

**RTD** or **RCAL** - **RCAL** - will be displayed if a tach profile is stored in the PIC memory, otherwise **RTD** will be displayed

# PIC Command Menu

When the PIC is powered on, the full menu is available. A successful read of the tach parameters is indicated by a flashing decimal point at the lower right corner of the display and the display will show **READ** for 1/2 second. If a decimal point in the middle of the display begins flashing, the transfer of parameters failed. This can be corrected by pressing **ENTER** while **RTD** is displayed. If using the **RCAL** function the display will momentarily show **RCLD** to indicate the parameters were successfully loaded.

Once the parameters have been loaded into the PIC, the following menu options become available by pressing **MODE**. Each press of **MODE** advances to the next menu item.

Elite PRS Tach Main Menu (V1.XX)	CAN Tach Main Menu (V2.02 & Higher)
<i>RCAL</i> - Recall from PIC Memory	<i>RCAL</i> - Recall from PIC Memory
<i>RTD</i> - Read Tach Data	<i>RTD</i> - Read Tach Data
<i>PEAC</i> - Peak RPM Recall	<i>PEAC</i> - Peak RPM Recall
<i>SPTS</i> - Shift Point Menu	<i>SPTS</i> - Shift Point Menu
<i>PPR</i> - Pulse Per Rev	<i>PPR</i> - Pulse Per Rev
<i>BNDS</i> - Pit Road Speed Bands	<i>BNDS</i> - Pit Road Speed Bands
<i>CPOS</i> - Capture Position	<i>CPOS</i> - Capture Position
<i>TRLT</i> - Traffic Light Option	<i>CLRS</i> - Colors
<i>UPDT</i> - Update Tach Data	<i>CANO</i> - CAN Options
<i>STTD</i> - Store Data to PIC Memory	<i>UPDT</i> - Update Tach Data
	<i>STTD</i> - Store Data to PIC Memory

Pressing **MODE** again will jump back to the beginning of the list (**RTD**)

## Button Functions

While text is displayed, the buttons function will be as follows:

- **MODE** (▲) - Cycles through different menu options.
- **ENTER** (▼) - Selects the current action.
- **RETURN** (■) - Goes back to the previous menu.

While a number is displayed, the buttons function as follows:

- **MODE** (▲) - Increases the number being displayed.
- **ENTER** (▼) - Decreases the number being displayed.
- **RETURN** (■) - Returns to the menu, and saves the number displayed in the PIC settings.

## Operation

### EDITABLE PARAMETERS

Each item in the menu can be entered and the value or values can be edited as follows:

#### • **PEAC** - Peak RPM Recall

- Press **ENTER** to view the Peak RPM recorded.
- To clear the Peak, press **MODE**.
- Press **RETURN** to return to the Main Menu.
- Press **MODE** to clear peak.
- Press **MODE** again to advance to the Shift Point Menu. (**SPTS**)

#### • **SPTS** - Shift Point Menu

- Press **ENTER** to enter the Shift Point Menu. **PRSR** will be displayed, which indicates Pit Road Speed RPM. Press **ENTER** to view the current value. If the value needs to be modified, use ▲(up) and ▼(down) to edit the values. Once the desired RPM is displayed, press **RETURN**.
- Press **MODE** and the display will now show **SP**, which is the Red Line shift point. Press **ENTER** to view the current value. If the value needs to be modified, use ▲(up) and ▼(down) to edit the values. Once the desired rpm is displayed, press **RETURN**.
- Press **MODE** and the display will now show **OUSP**, which is the Over Rev shift point. Press **ENTER** to view the current value. If the value needs to be modified, use ▲(up) and ▼(down) to edit the values. Once the desired RPM is displayed, press **RETURN**.

#### **CAN Tach Only:**

- Press **MODE** and the display will now show **CRNR**, which is the Corner Speed RPM. Press **ENTER** to view the current value. If the value needs to be modified, use ▲(up) and ▼(down) to edit the values. Once the desired RPM is displayed, press **RETURN**.

Press **RETURN** or **MODE** to go to the main menu. The display now shows **SPTS**.

#### • **PPR** - Pulse Per Rev

- Press **MODE** and the display will now show **PPR**. Press enter to view and/or edit the **PPR**. The display shows the current **PPR** (typically 4 on V8 applications). If the value needs to be modified, use ▲(up) and ▼(down) to edit the values. Once the desired **PPR** is displayed, press **RETURN**. The Display now shows **PPR**.

**NOTE:** Any changes made to the PIC settings must be uploaded to the tach in order to take effect, and/or stored in the PIC's non-volatile memory.

Engine		Most 2 cyl.		Most 4 cyl.		Most 6 cyl.	Most 8 cyl.		
<b>PPR</b>	<b>0.5</b>	<b>1</b>	<b>1.5</b>	<b>2</b>	<b>2.5</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>

**Note:** Changes to PPR require a tach reset after update (power cycle).

• **BND5 - Pit Road Speed Bands Menu**

Press **MODE** and the display will now show **BND5**.

**NOTE:** When editing any of the RPM bands, the PIC will perform calculations to prevent an entry that would cause RPM bands to overlap. In fact, the PIC will ensure a minimum 500 RPM separation between the top of the TOO HI band and the bottom of the CORNER LO band, as well as between the top of the CORNER HI band and the bottom of the PRE-SHIFT lead in band. If an entry is attempted that would exceed this minimum, the display will show "AT LMT".

Press **ENTER** to enter the PRS Speed Bands Menu. **LO** will be displayed, which indicates **LO** RPM band. Press **ENTER** to view the current value. If the value needs to be modified, use ▲(up) and ▼(down) to edit the values. Once the desired RPM is displayed, press **RETURN**.

Press **MODE** to advance to the next the PRS Speed Band. **GO** will be displayed, which indicates **GO** RPM band. Press **ENTER** to view the current value. If the value needs to be modified, use ▲(up) and ▼(down) to edit the values. Once the desired RPM is displayed, press **RETURN**.

Press **MODE** to advance to the next the PRS Speed Band. **HI** will be displayed, which indicates **HI** RPM band. Press **ENTER** to view the current value. If the value needs to be modified, use ▲(up) and ▼(down) to edit the values. Once the desired RPM is displayed, press **RETURN**.

Press **MODE** to advance to the next the PRS Speed Band. **TOHI** will be displayed, which indicates to **TOHI** RPM band. Press **ENTER** to view the current value. If the value needs to be modified, use ▲(up) and ▼(down) to edit the values. Once the desired RPM is displayed, press **RETURN**.

Press **MODE** to advance to the **PRSL** Band. **PRSL** will be displayed, which indicates Progressive Shift Light band. Press **ENTER** to view the current value. If the value needs to be modified, use ▲(up) and ▼(down) to edit the values. Once the desired RPM is displayed, press **RETURN**.

Press **MODE** to advance to the Hysteresis Band. **HYST** will be displayed, which indicates PRS LED Hysteresis band. Press **ENTER** to view the current value. If the value needs to be modified, use ▲(up) and ▼(down) to edit values. Once the desired RPM is displayed, press **RETURN**. Repeat for **CRLO**, **CRGO**, and **CRHI**.

Press **MODE** or **RETURN**. **BND5** will be displayed indicating the return to the Main Menu.

**NOTE:** Use the hysteresis band to minimize flickering LED's due to minor fluctuations in the engine RPM signal (typically set between 5-10 rpm).

**NOTE:** Any of the bands above can be removed by setting the value to zero.

• **CPOS - Capture Position Option**

Press **MODE** and the display will now show **CPOS**. Press enter to view and/or edit the current **CPOS** setting. Press the **MODE** button to select the Top of the **GO** band. Press the **ENTER** button to select the Bottom of the **GO** band. Press **RETURN** to go to the main menu. The display will now show **CPOS**.

**NOTE:** The following option, Traffic Light Sequence, will not be available if the PIC is connected to a CAN tach.

• **TRLT - Traffic Light Sequence**

Press **MODE** and the display will now show **TRLT**. Press enter to view and/or edit the current **TRLT** setting. Press the **MODE** button to turn ON the Traffic Light color sequence. Press the **ENTER** button turn OFF the Traffic Light color sequence. Press **RETURN** to go to the main menu. The display will now show **TRLT**.

**NOTE:** The following menus, Colors (**CLRS**) and CAN Options (**CANO**), will only be available if the PIC is connected to a tach CAN Tach.

• **CLRS - Colors Menu**

**NOTE:** The colors available for use for the normal backlight are purple (**PUR**), blue (**BLU**), cyan (**CYM**), green (**GRN**), yellow (**YEL**), red (**RED**) and white (**LUHT**). All colors except white can be used for the ring of 10 indicators in any of the RPM bands and modes. Also, for each band, the backlight can be set to follow the selected color (**BL 1**) or not (**BL 0**), flash (**FL 1**) or not (**FL 0**) and switch to hi brightness (**BRT 1**) or not (**BRT 0**).

Press **MODE** and the display will now show **CLRS**.

Press **ENTER** to enter the Back Light Menu. **BLIT** will be displayed, which indicates Back Light color. Press **ENTER** to view the current color. If the color needs to be changed, use ▲(up) and ▼(down) to move through the selections. Once the desired color is displayed, press **RETURN**.

Press **MODE** to advance to the PRS Lo Color. **PRLO** will be displayed. Press **ENTER** to view the color. If the color needs to be changed, use ▲(up) and ▼(down) to move through the selections. Once the desired color is displayed, press **RETURN**. The **BL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. The **FL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. The **BRT** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. **PRLO** will be displayed.

Press **MODE** to advance to the PRS Go Color. **PRGO** will be displayed. Press **ENTER** to view the color. If the color needs to be changed, use ▲(up) and ▼(down) to move through the selections. Once the desired color is displayed, press **RETURN**. The **BL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. The **FL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. The **BRT** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. **PRGO** will be displayed.

Press **MODE** to advance to the PRS Hi Color. **PRHI** will be displayed. Press **ENTER** to view the color. If the color needs to be changed, use ▲(up) and ▼(down) to move through the selections. Once the desired color is displayed, press **RETURN**. The **BL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. The **FL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. The **BRT** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. **PRHI** will be displayed.

Press **MODE** to advance to the PRS Too Hi Color. **PRTH** will be displayed. Press **ENTER** to view the color. If the color needs to be changed, use ▲(up) and ▼(down) to move through the selections. Once the desired color is displayed, press **RETURN**. The **BL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. The **FL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. The **BRT** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. **PRTH** will be displayed.

Press **MODE** to advance to the Corner Lo Color. **CORL** will be displayed. Press **ENTER** to view the color. If the color needs to be changed, use ▲(up) and ▼(down) to move through the selections. Once the desired color is displayed, press **RETURN**. The **BL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. The **FL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. The **BRT** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. **CORL** will be displayed.

Press **MODE** to advance to the Corner Go Color. **CORG** will be displayed. Press **ENTER** to view the color. If the color needs to be changed, use ▲(up) and ▼(down) to move through the selections. Once the desired color is displayed, press **RETURN**. The **BL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. The **FL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. The **BRT** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. **CORG** will be displayed.

Press **MODE** to advance to the Corner Hi Color. **CORH** will be displayed. Press **ENTER** to view the color. If the color needs to be changed, use ▲(up) and ▼(down) to move through the selections. Once the desired color is displayed, press **RETURN**. The **BL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. The **FL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. The **BRT** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. **CORH** will be displayed.

Press **MODE** to advance to the Pre-Shift Color. **PSHF** will be displayed. Press **ENTER** to view the color. If the color needs to be changed, use ▲(up) and ▼(down) to move through the selections. Once the desired color is displayed, press **RETURN**. The **BL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. The **FL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. The **BRT** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. **PSHF** will be displayed.

Press **MODE** to advance to the Shift Color. **SHFT** will be displayed. Press **ENTER** to view the color. If the color needs to be changed, use ▲(up) and ▼(down) to move through the selections. Once the desired color is displayed, press **RETURN**. The **BL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. The **FL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. The **BRT** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. **SHFT** will be displayed.

Press **MODE** to advance to the Over Rev Color. **ORUV** will be displayed. Press **ENTER** to view the color. If the color needs to be changed, use ▲(up) and ▼(down) to move through the selections. Once the desired color is displayed, press **RETURN**. The **BL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. The **FL** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. The **BRT** setting will be displayed. Use the ▲(up) to enable and ▼(down) to disable the setting. Press **RETURN**. **ORUV** will be displayed.

Press **MODE** or **RETURN**. **CLRS** will be displayed.

#### • **CANO** - CAN Options

**NOTE:** The tach can be configured to operate in one of three modes: CAN (CAN - signal is taken from McLaren's ECU CAN bus), Analog (**ANLG** - standard tach signal), or CAN Safe Mode. In CAN Safe Mode, the signal will be taken from the CAN bus, but if the CAN signal is missing for longer than 3 seconds, the tach will use the analog signal. Once the CAN signal becomes valid, it will switch back to the CAN signal.

Press **MODE** and the display will now show **CANO**. Press **ENTER** to view and/or edit the current setting (**CAN** or **ANLG**). Press ▲(up) to select CAN or ▼(down) to select **ANLG**. Press **RETURN**. **CS** will be displayed, indicating the current CAN Safe Mode setting. Press ▲(up) to select enable CAN Safe Mode (1) or ▼(down) to disable Can Safe Mode (0). Press **RETURN**. **CANO** will be displayed.

**NOTE:** In Analog Mode, the CS setting will have no effect.

## DATA TRANSFER

#### • **UPDT** - Update Tach Data

To transmit the edited tach parameters back to the PRS tach, press **ENTER**. The ring of 10 indicators on the tach will flash green if the transfer was successful. If there was an error in the transfer, the tach will flash red lights. Press **ENTER** again to retry if the indicators did not flash green.

#### • **STTD** - Store Tach Data

The current settings in the PIC memory are stored in the PIC's non-volatile memory for later recall. Press **ENTER** to store the PIC setting to memory, **STRD** will be momentarily displayed.

**NOTE:** Previously stored settings will be overwritten.

#### • **RCAL** - Recall PIC Settings

The settings stored in the PIC's non-volatile memory are recalled for transferring into the currently connected tach. Press **ENTER** to retrieve the stored PIC settings, **RCLD** will be momentarily displayed.

**NOTE:** PIC settings must be uploaded to tach to take effect.

#### • **RTD** - Read Tach Data

The current editable parameters from the tach will be loaded into the PIC settings.