



Stalker PMG | Pole Mounted Graphics Display

Operator Manual

12", 15", and 18" digit height models

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1.0 PMG Setup and Operation

1.1 Product Operation

The PMG has three basic display phases.

- Idle Phase – No vehicle is above the speed limit
- Limit Phase – A vehicle is above the speed limit but not excessively so
- Alert Phase – A vehicle is excessively above the speed limit

The first step in setting up a PMG is deciding what the speed limit and alert limit should be.

1.1.1 Idle Phase

Once the speed thresholds are determined, messages or graphics displayed during each of these phases should be chosen. During the Idle Phase, the sign can be set to show one of several display options. These options include:

- Don't show anything
- Show a vehicle speed if a vehicle is present
- Show a text message
- Show a graphics image
- Show an animation
- Show the time
- Show the temperature
- Show composite sequence

1.1.2 Limit Phase

During the Limit Phase, the PMG can be configured to display any of the same display options listed in the Idle Phase description. The PMG can also be configured to perform an action.

These action options include:

- Perform no action.
- Flash the display, on and off, for the duration of the phase.
- Flash the strobe at the beginning of the phase. (The strobe option must be ordered.)*
- Flash the strobe at the beginning of the phase and then flash the display for the duration of the phase. (The strobe option must be ordered.)*
- Flash the simulated camera flash at the beginning of the phase. (The simulated camera flash option must be ordered.)*
- Record an image at the beginning of the phase. (The camera option must be ordered.)*
- Create an external trigger event at the beginning of the phase. (The IO module option must be ordered.)*

1.1.3 Alert Phase

During the Alert Phase, the PMG can be configured to display any of the same display options listed in the Idle Phase description. During this phase, the PMG can also be configured to perform any of the action options described in the Limit Phase section.

** must have been on your original order.*

1.2 Menu Layout

The PMG menu controls are separated into two groups, those most commonly used controls, and the more detailed controls.

- The commonly used controls are on the Quick Setup Menu tab in the PMG Configuration Application and are used most often. These controls are always available and are the easiest to access.
- The second group of controls is less commonly used, or used only on an initial product set up. These menu controls are accessed by left clicking the (+) plus symbol to display all the Expert Settings tabs. For more details, see Section 5.0.

2.0 Turning the PMG On

To turn the PMG on, insert the key provided into the key switch located on the rear connector panel on the back side. Turn the key to the right (clockwise) until it stops turning.

The key should be removed after the unit has been turned on. Leaving the key inserted could cause the unit to turn off if vibrated. Be sure to keep the key in a safe place.

To turn off the PMG, insert the key and rotate it to the left (counter-clockwise) until it stops turning. Then remove the key.

Note: Not all Connector Panels will look the same. They will be different for each combination of PMG options ordered.

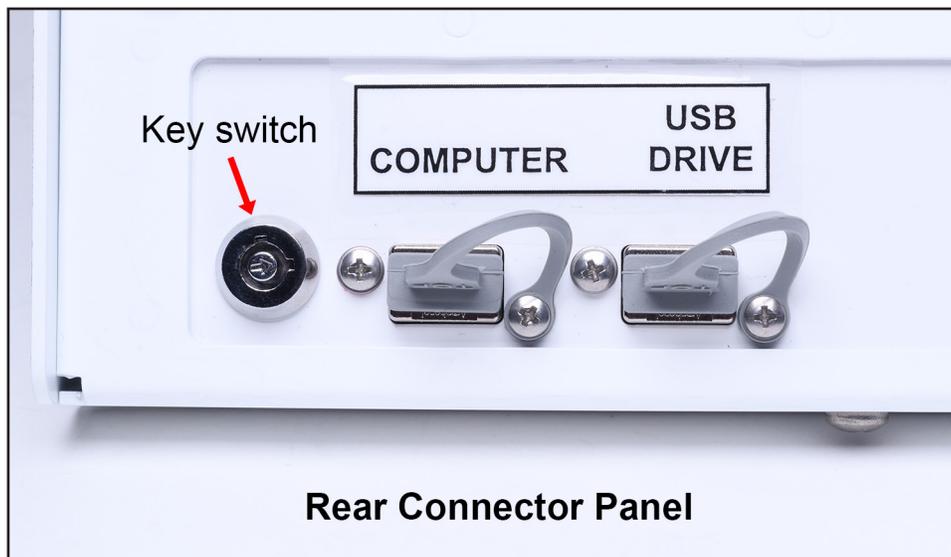


Figure 1

3.0 Using the USB Com Port to Configure a PMG

3.1 Launching the PC Program

The PMG has a USB communication port located on the back side in the lower left corner. Connect this to a personal computer using a standard USB type A-to-A cable.

- Make sure that the PC has the PMG Configuration Application loaded on it. The program is included on a USB flash drive shipped with the product.
- Turn on the PMG. Start the application.

3.2 Connecting to the PMG

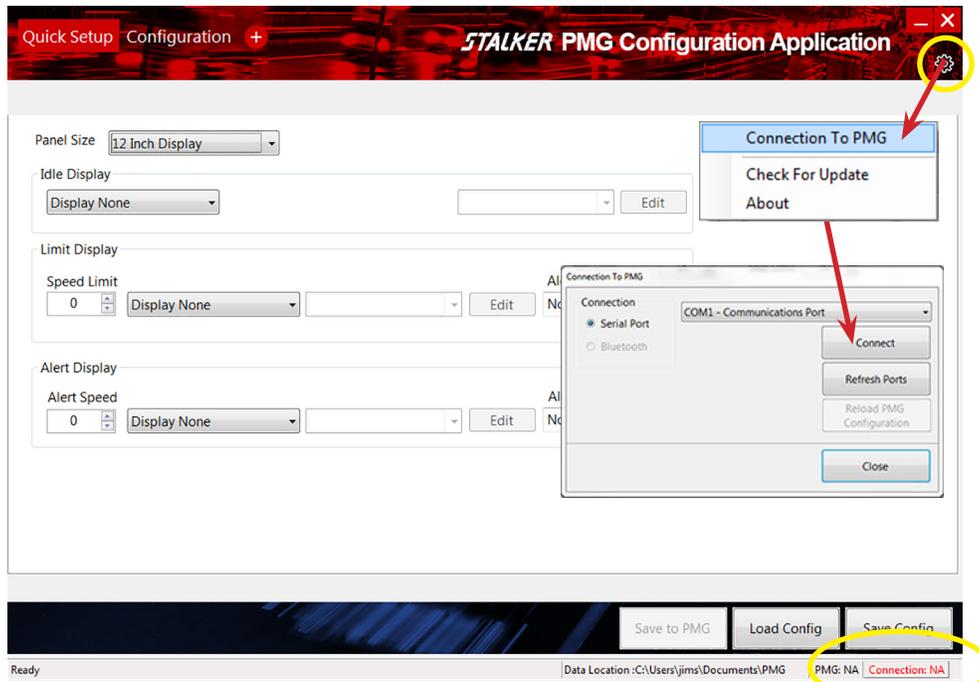


Figure 2

- Open the Settings Gear Icon in the top right corner.
- Click **Connection to PMG**
- Select the COM port where the PMG is attached and click the **Connect** button.
- After the connection is established, click Close to close the window.

The connection status should show that you are now connected.

3.3 Quick Setup

Select the desired Speed Limit, Idle Operation; Over-Limit Operation; and Alert Limit. Refer to Section 1.1 for a description of these controls.

3.4 Saving Your Changes

- **Save to PMG:** sends your selection to the connected PMG.
- **Load Config:** retrieves a file that was previously saved.
- **Save Config:** saves the configuration file to the computer for later use.

3.4.1 Default Setup

The setup configured using the Quick Setup becomes the default setup. This is what the PMG will do whenever it is not in a scheduled operation time. A scheduled operation overrides the default setup. When the scheduled operation time has ended, the PMG reverts to the default setup.

3.5 Program updates

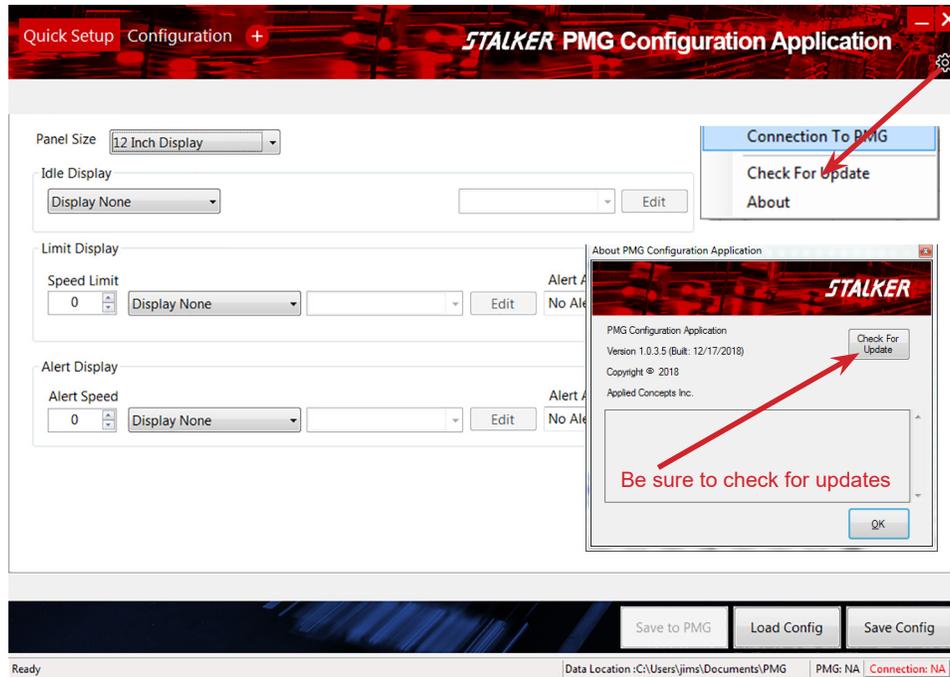


Figure 3

Periodically new updates to this program will be made available. The program will automatically check for updates (if it has Internet access) when it is started. To manually check for updates, click the Settings Gear and then click Check For Updates. If an update is available, you will be told its version and asked if its okay to install the updates.

4.0 PMG Configuration

The following configuration controls are available under the Configuration tab.

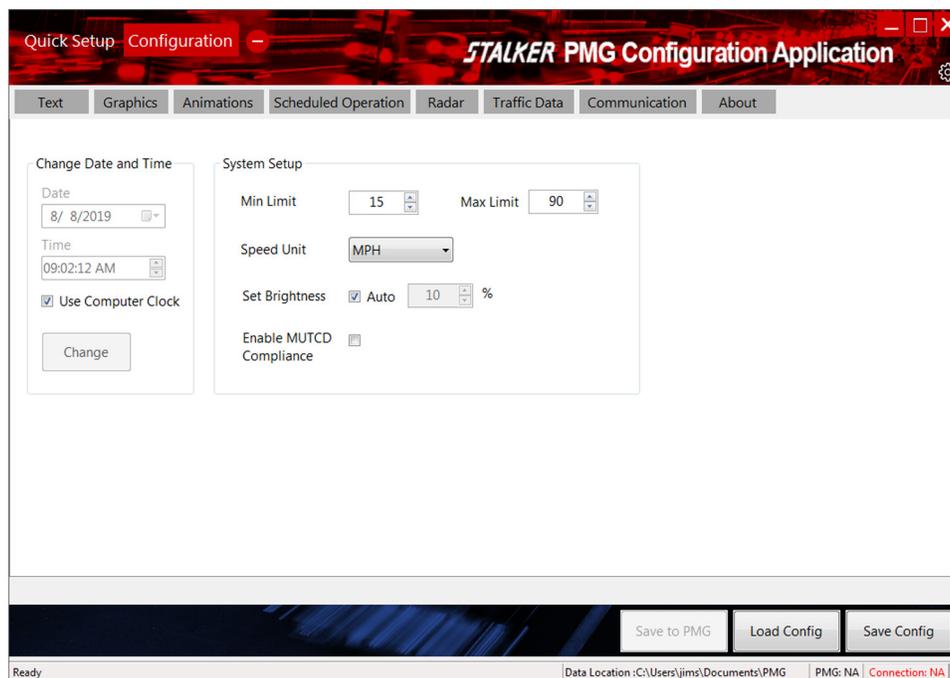


Figure 4

4.1 Setting Time and Date

To use the time and date on the local computer:

- Make sure the **Use Computer Clock** is checked.
- Click **Change**.

To use a custom date and time:

- Uncheck **Use Computer Clock**.
- Set the date using the calendar controls.
- Set the time using the time controls.
- Click **Change**.

4.2 Setting minimum and maximum speeds

The minimum and maximum speed controls set the limits on what speed the sign will show when it is displaying speeds. This control can be used to filter out pedestrian motion and remove visual encouragement for racing.

- Set the desired minimum and maximum speed to be displayed, typically 10 mph (10km/h) and 90 mph (100 km/h).
- Click the **Save to PMG** button.

4.3 Setting speed units

The speed units can be changed based on the local laws.

- Select mph, km/h, Knots, meters/second, or feet/second.
- Click the **Save to PMG** button.

When selecting the Speed Units as km/h the PMG will switch to showing Speeds with 3 digits.

4.4 Setting PMG brightness level

The PMG provides both automatic light intensity controls and manual controls.

To set the light control to Automatic:

- Check the **Auto** check box next to the **Set Brightness** label.
- Click the **Save to PMG** button.

To manually set the light intensity:

- Uncheck the **Auto** check box next to the **Set Brightness** label.
- Select the desired brightness level by changing the percentage control from 0% to 100%; 0% being the dimmest and 100% being the brightest.
- Click the **Save to PMG** button.

4.5 MUTCD Compliance

Some applications require the PMG to work only in a MUTCD (Manual on Uniform Traffic Control Devices) compliant mode. Clicking on the Enable MUTCD compliance check box enables this mode. This does not make the product a MUTCD compliant Variable Message sign, only a MUTCD compliant speed display.

5.0 Expert Operation

The Expert Menu tabs can be accessed by clicking the “+” symbol. Additional tabs will appear providing additional menu options. Which tabs appear will depend on which options are present in the particular PMG that the program is connected to. To close the Expert tabs, click the “-” symbol that is present when the Expert tabs are being shown.

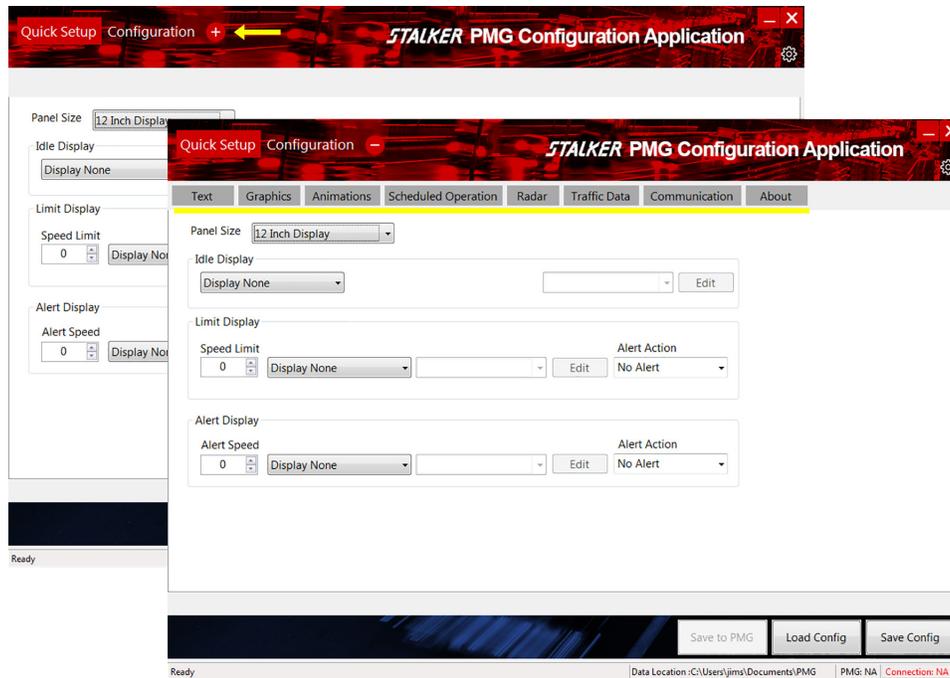


Figure 5

5.1 Creating and Editing Text Messages

Creating a simple two-line text:

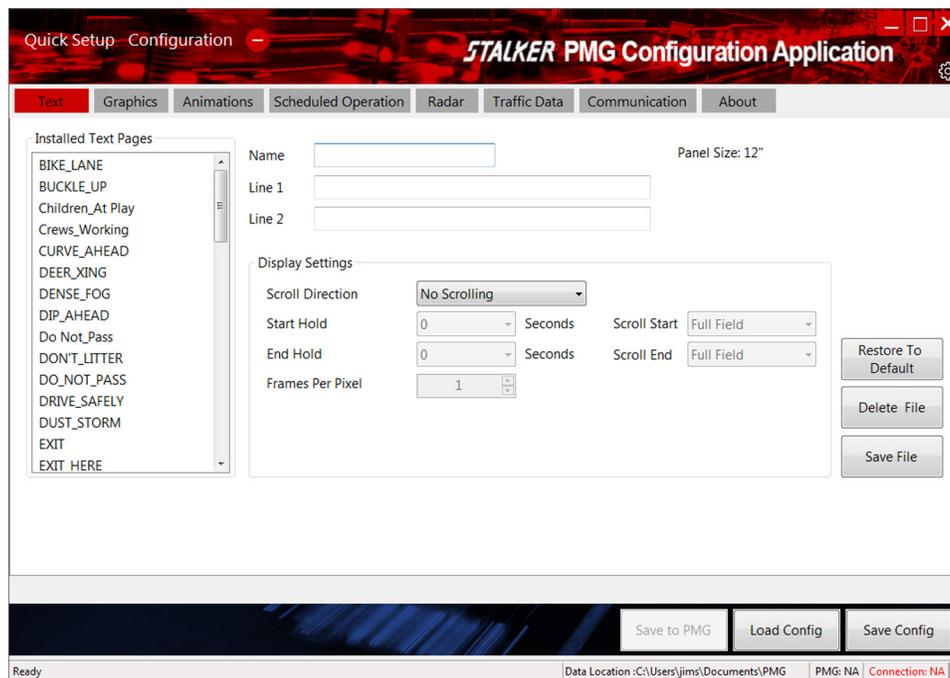


Figure 6

- In the expert menu, open the tab labeled Text.
- Give your Text Page message a name.
- Type in the text for Line 1 and Line 2.
- Click **Save File**.
- The title of the new Page will appear in the list of Text Pages on the left. This indicates it is now available for selection in the Quick Setup.

Text Pages are center-justified when displayed.

5.1.1 Deleting a text

- Choose the Text Page to be deleted by selecting it in the Installed Text Pages column. The message will be displayed in the Line 1 and Line 2 boxes to the right.
- Click the **Delete File** button on the far right.
- The Text Page will be removed from the list, indicating it is no longer available for use.

5.1.2 Scrolling Text

Long text messages can be displayed by using the scrolling feature. Scrolling places a single line of text on the display, limited to the number of characters that can be displayed at one time, and then moving the characters right or left slowly, allowing the entire line to be eventually displayed.

To use the scrolling feature, place the entire text to be displayed in the Line 1 location. The Line 2 location is not used. Choose the scroll direction under the Scroll Type list. The Start and End Hold times set the amount of time in seconds to pause before starting to scroll or pause at the completion of a scroll. The frames per pixel sets how fast to perform the scroll. The display always scrolls one line of LEDs (pixels) at a time. The frames per pixel setting determines how long the current display is held before it is moved to the next line of LEDs. The frame rate of the PMG is 20 frames per second so to freeze the frame for 1 second between each update would require the Frames Per Pixel to be set to 20.

The Scroll Start and Scroll Stop sets how the scrolling begins and ends. For example: the message "WARNING Do not play in the streets" could be set with a Scroll Start as "full frame" and the Start Hold time set to 3 seconds. In this case the word "Warning" would be shown for 3 seconds by itself before it is scrolled off the display and the rest of the message is scrolled onto the display.

5.2 Creating and Editing Graphic Images

Open the tab labeled Graphics

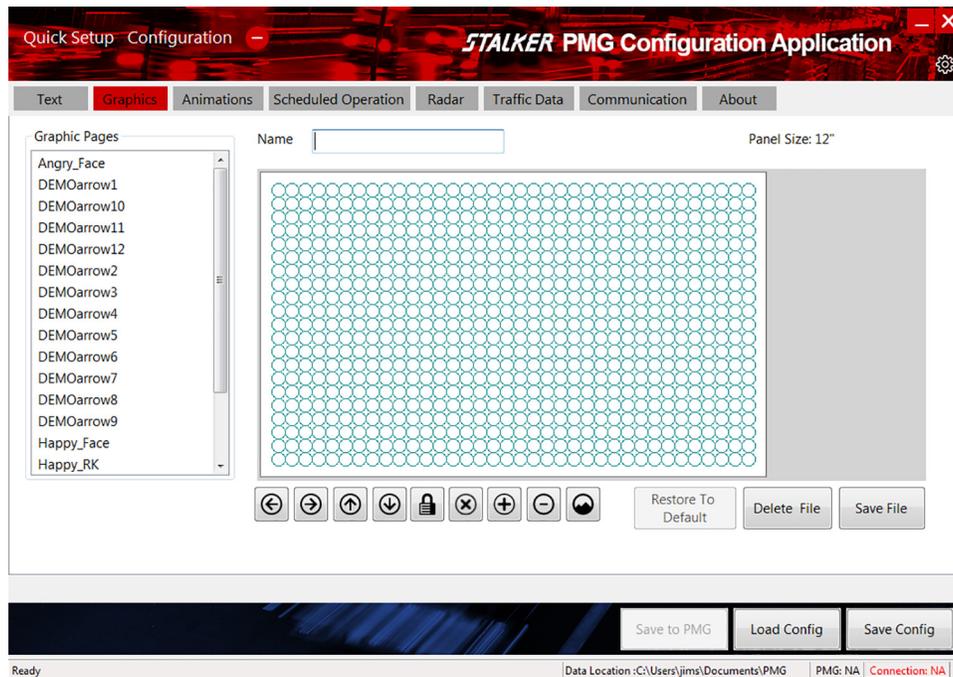


Figure 7

The graphics grid will be automatically sized for the connected PMG.

- Enter a Name for your image.
- Using a mouse, click the circles to toggle them on and off. Turn on the circles that will make up the image.
- Click **Save File** when the image is complete.
- The image name will display in the Graphic Pages list on the left indicating the image is available for selection in the Quick Menu.

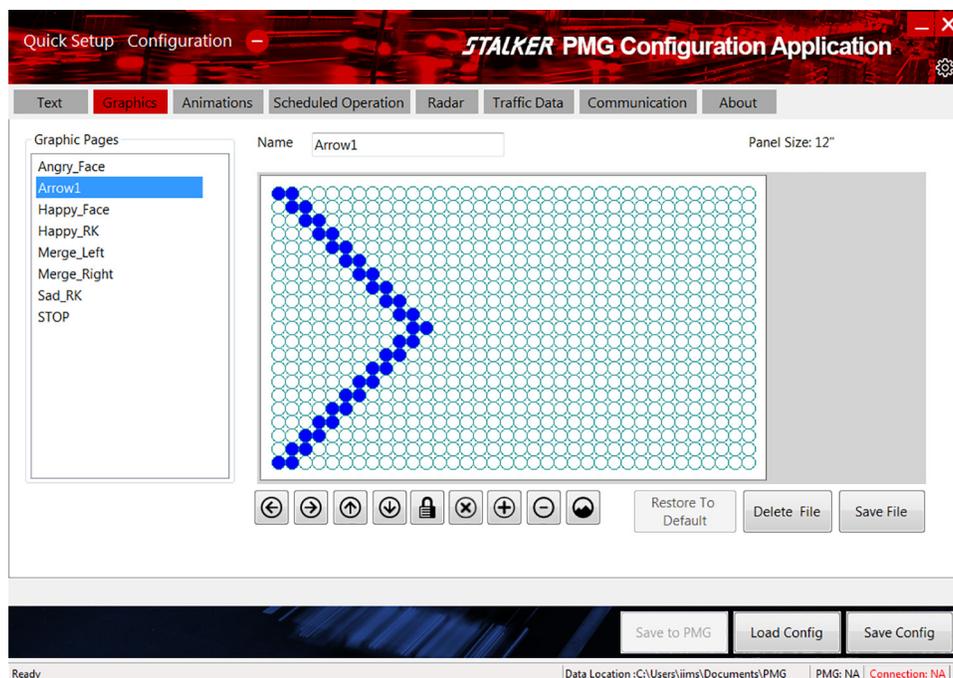


Figure 8

5.2.1 Other Graphic Controls

- Use the arrow buttons beneath the graphics grid to move an image right, left, up, or down.
- Use the X button to clear the current graphic.
- Use the lock button to keep a pixel from moving when moving the rest of the graphics in any direction. The selected pixels are highlighted with a red circle.

5.3 Creating and Editing an Animation

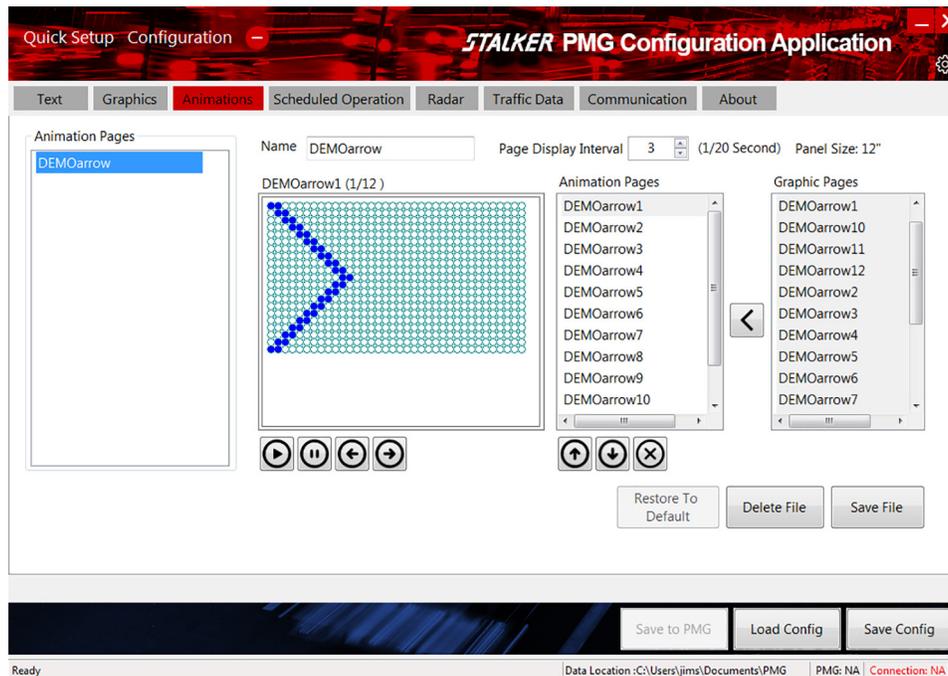


Figure 9

- Create each of the images to be used in the animation under the graphics tab.
- Uniquely name each image frame and save it using the **Save File** button.
- Go to the Animations tab.
- The Graphics Pages created will be listed in the box on the far right.
- Using the mouse, select all of the frames to be used in the animation and click the left arrow button to move the selected graphics pages to the Animation Pages list.
- Sort the images in the order that they are to be shown by selecting a page with the mouse and use the up and down arrows at the bottom of the Animation Pages list to move the selection.
- When a page is selected with the mouse, its contents will be previewed in the box to the left.
- Set the playback speed by changing the value in the Page Delay Interval box. This is also the speed at which the animation will be played on the PMG.
- Use the play controls at the bottom of the display preview to run the animation or single-step forward or reverse.
- Enter a name for the animation in the Name box.
- Click **Save File** button to save the animation.
- The new animation name should appear in the Animation Pages list on the left, indicating it is now available for use in the Quick Menu.

5.4 Create a Composite Page

- The Composite Page tab is on the Home Page of the PCA app.

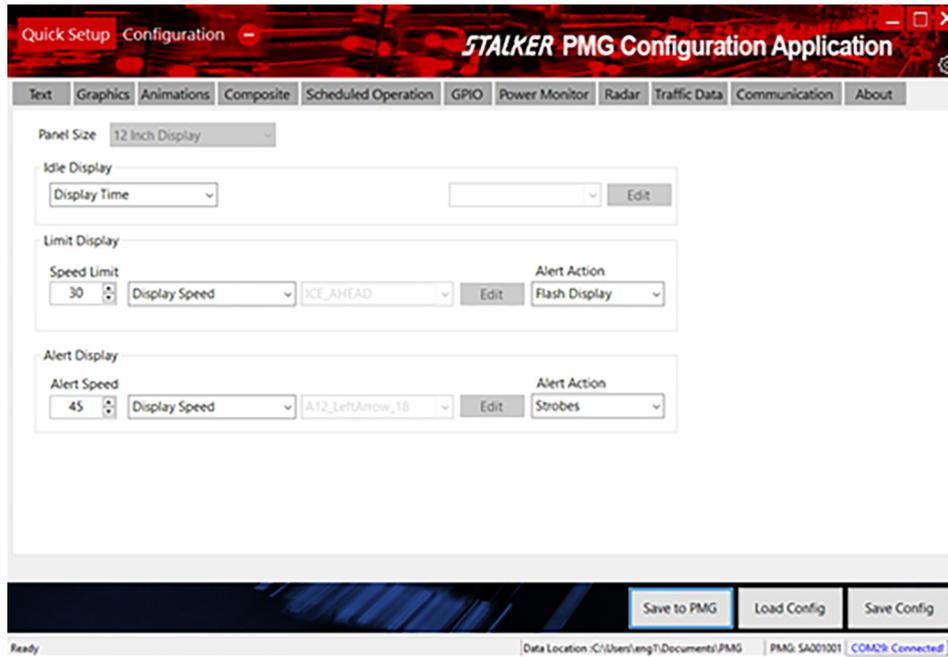


Figure 10

- Selecting the Composite tab directs the user to the Composite page.

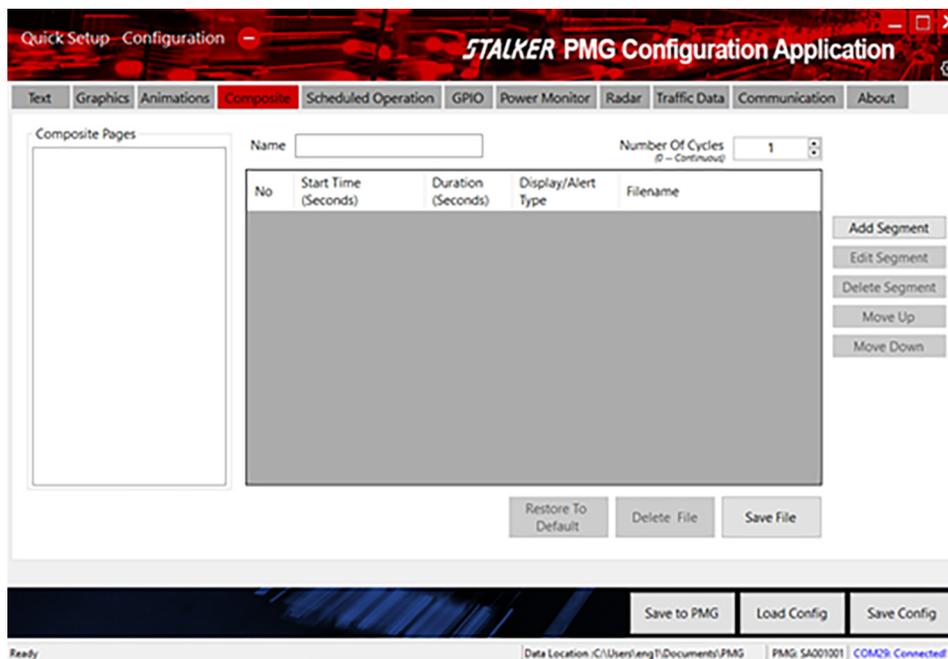


Figure 11

- To create a composite file follow the steps listed below
 - For our example we will create a composite file which will

- i. Display the Time for 4 seconds
 - ii. Display a Text file for 2 seconds
 - iii. Display a Graphic file for 2 seconds
 - iv. Display Speed for 4 seconds
- b. Click on “Add Segment” which will bring up the Add Segment dialog box

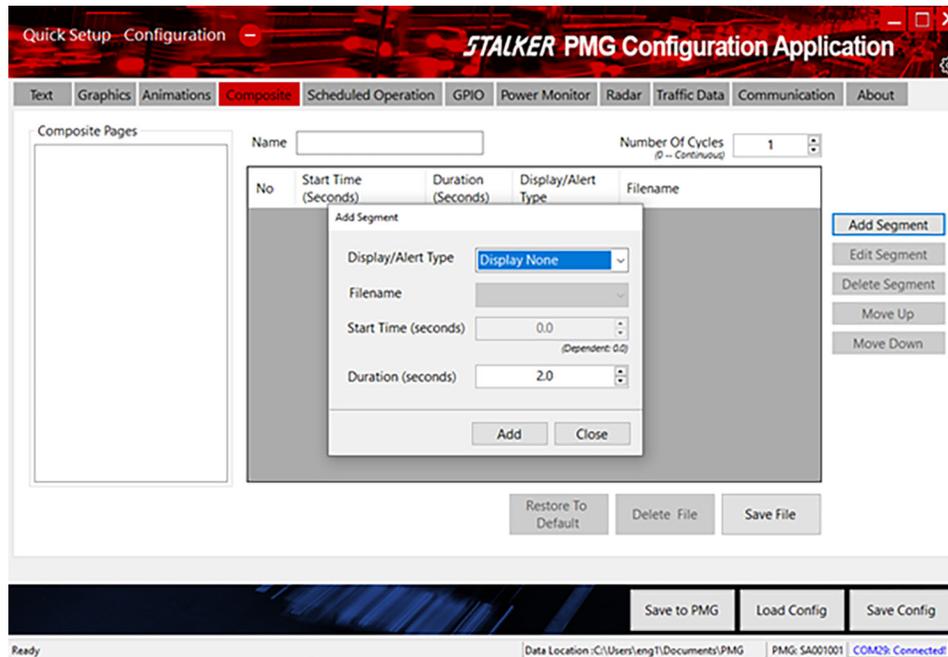


Figure 12

- c. Click on the down arrow next to “Display None” to display the drop down menu

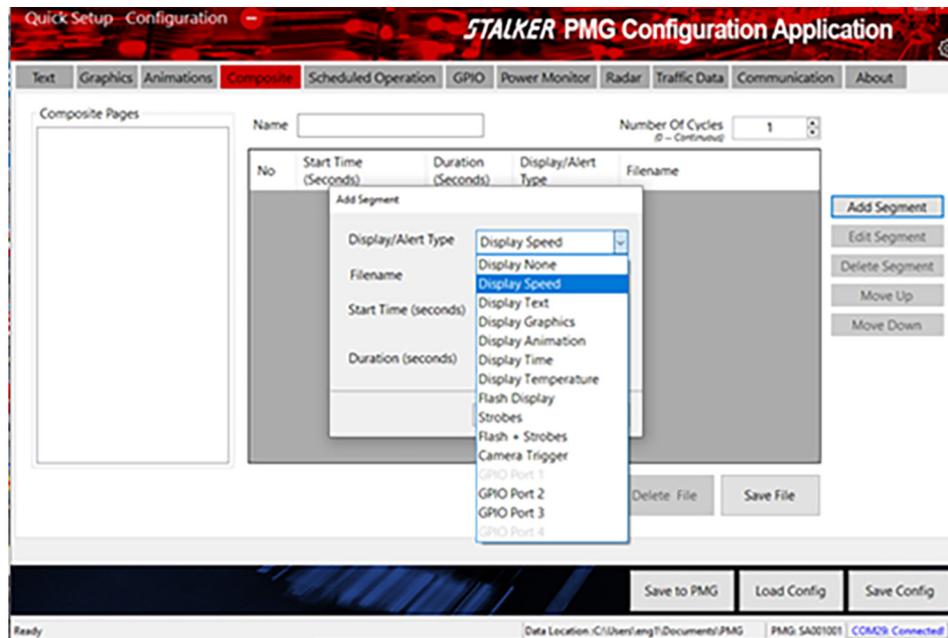


Figure 13

d. Select “Display Time” and change Duration to 4.0 seconds

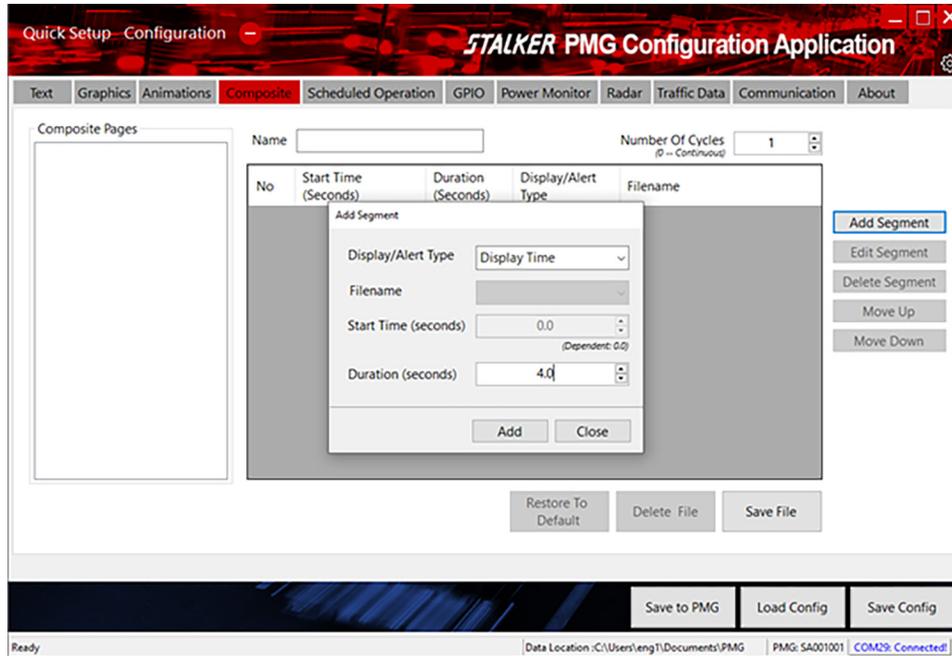


Figure 14

e. Click on “Add” to include the segment in the composite file, then “Close” or only “Close” to discard the segment

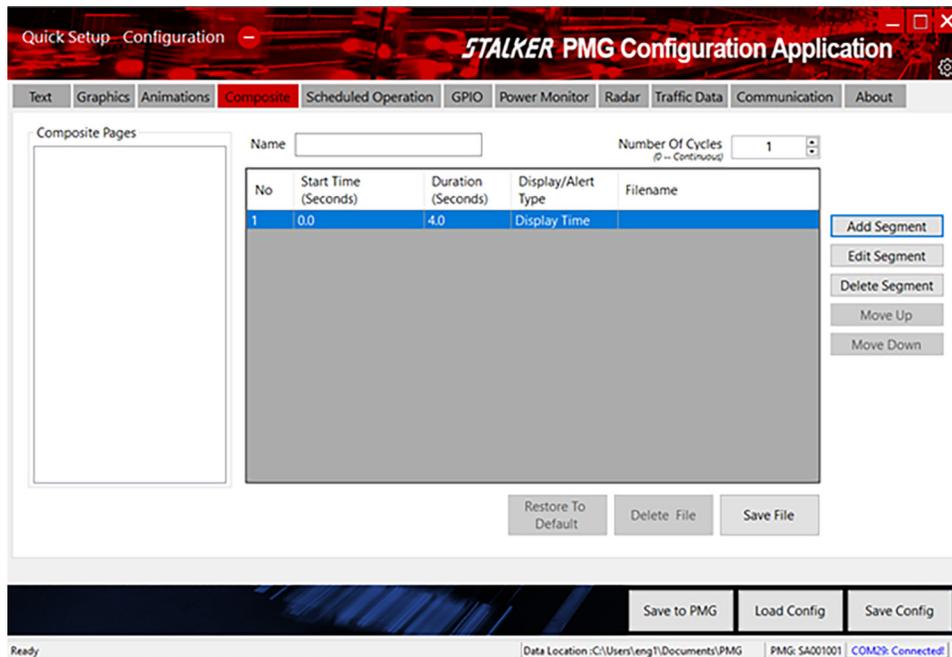


Figure 15

f. Repeat steps b. through e. for the Text, Graphic, and Speed segments. Add a file name for this composite sequence (in this case “Merge_Left_Composite”).

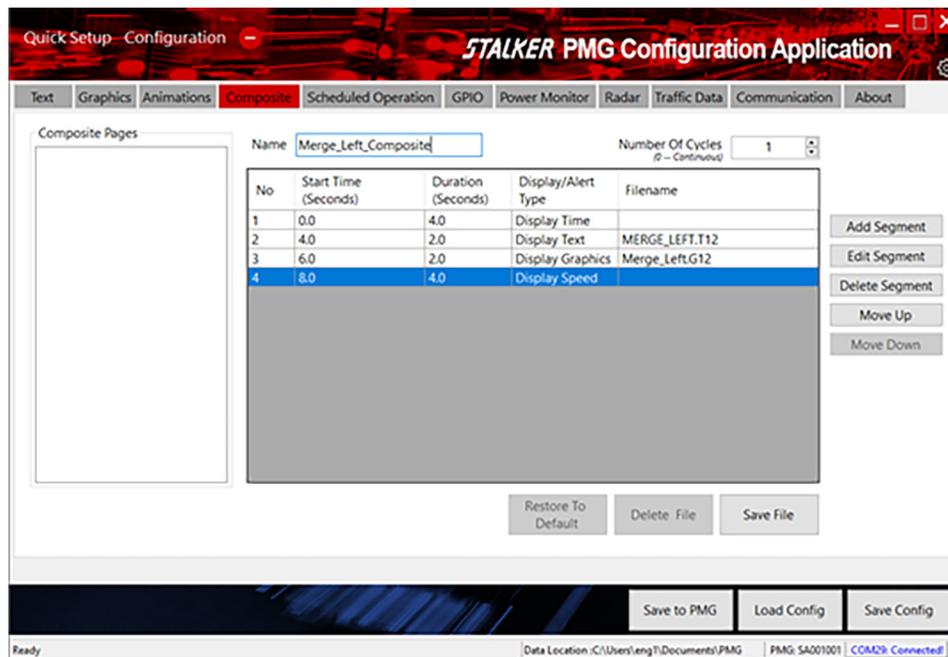


Figure 16

g. Note that the “Move Up” and “Move Down” buttons will move the highlighted segment up or down. Each segment can be edited or deleted using the “Edit Segment” or “Delete Segment” buttons, respectively. Click the “Add Segment” button to add a segment below the currently highlighted segment allowing the user to add a segment anywhere in the sequence.

h. Adding any of the available actions (Flash Display, Camera Trigger, or GPIO Output) can be added anywhere in the sequence even in the middle of a display segment by adjusting the Start Time appropriately. For example, if it is desired to flash the text “Merge Left” a segment can be added above the Display Text segment. The position of the action segment is controlled by the start time. Strobes and Flash + Strobes, however cannot occur concurrently with another display option.

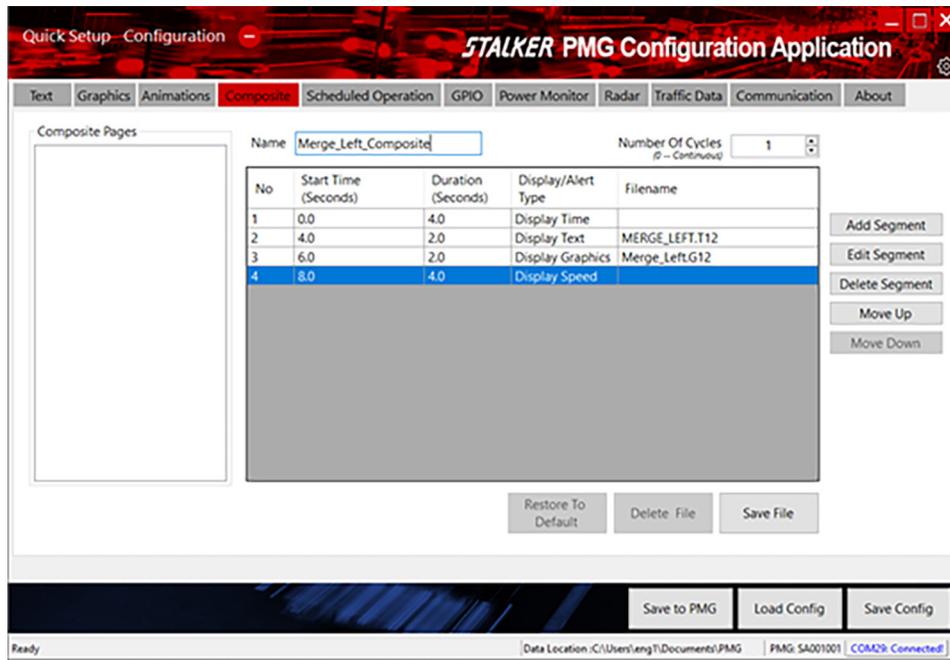


Figure 17

i. Note that the action segment (Flash Display) and the display segment (Display Text) both occur at the same time. The text will flash.

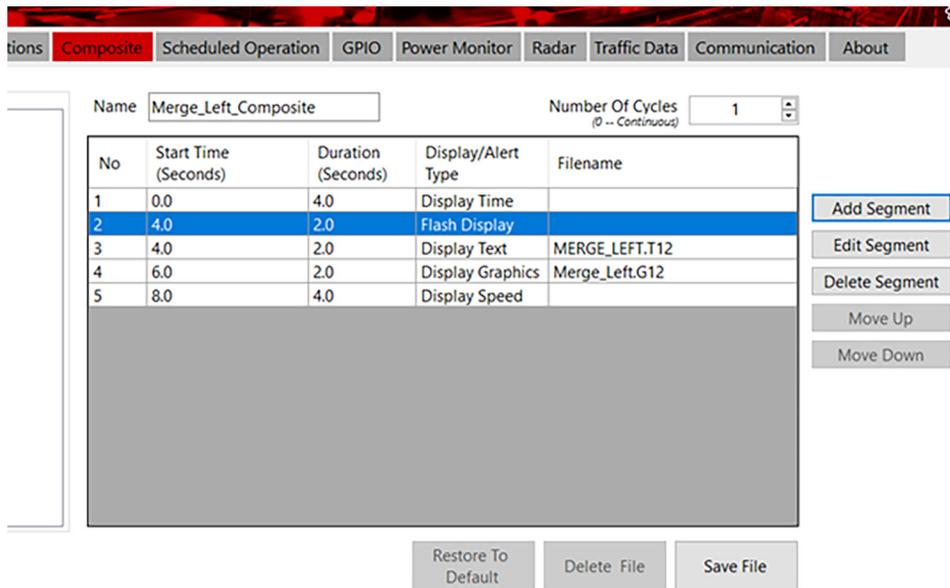


Figure 18

j. Select the Number of Cycles for this sequence. A value of 0 will run the composite sequence continually.

- k. Save the composite file. The composite filename will be displayed in the “Composite Pages” list. A success message will be displayed in the message bar (bottom left corner).

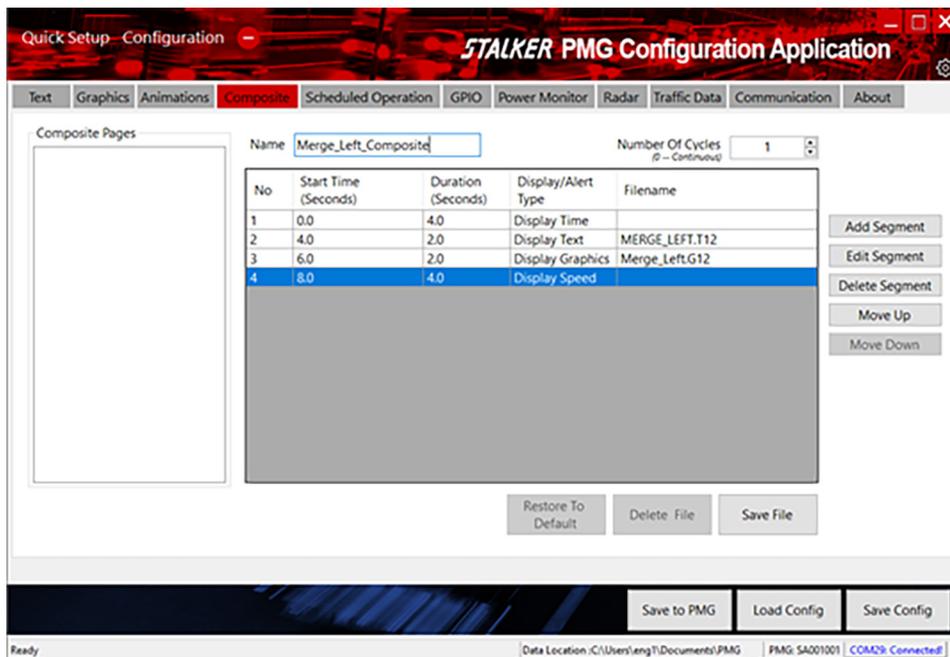


Figure 19

Composite sequences can be used in Scheduled Operations and in the ‘display’ selection on the Quick Setup page as well as in the GPIO inputs.

5.5 Create a Scheduled Operation

The Scheduled Operation is used when you want the PMG to change its setup automatically based on the current date and time. Any configuration that can be set up in the quick menu can also be set up as a scheduled event. Days of Operation for a Scheduled Operation can be set in two ways: date range operation or using a custom-defined Calendar for fine-grained operation. Both options will be described below.

The PMG is configured using the **Quick Setup** as the default setup. This is what the PMG will do whenever it is not in a scheduled operation time. A scheduled operation overrides the default setup. When the scheduled operation period has ended, the PMG will revert to the default set up.

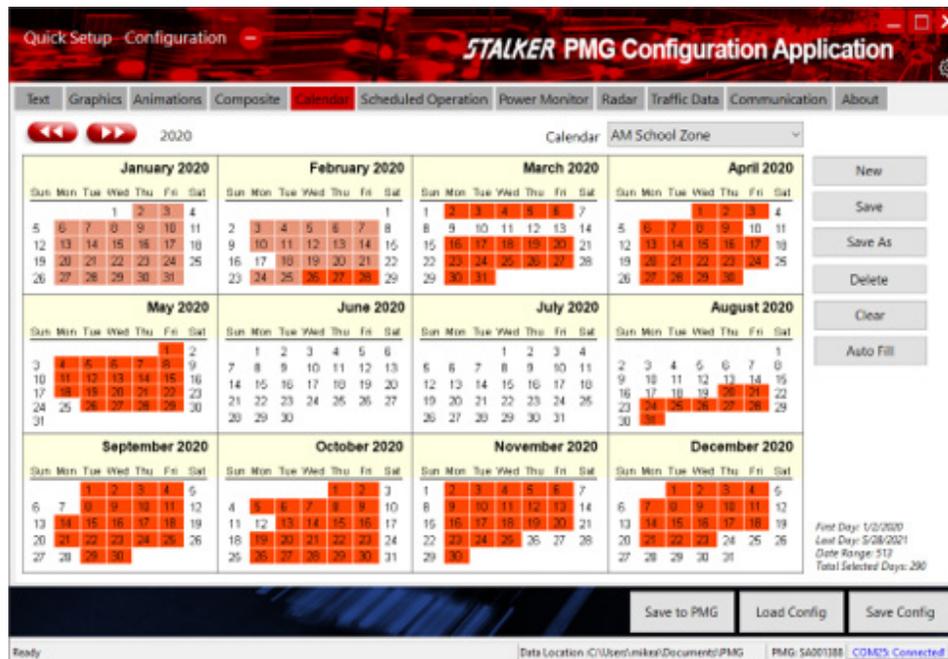


Figure 20

5.5.1 Using the Calendar Option - Creating a Calendar

- Open the **Calendar** tab.
- Click **New** and enter the name for your custom calendar.
- Click **Save**.
- Select each day of operation in the calendar. **Auto Fill** can do some of the work for you by filling in fixed days of the week across a range of dates. Note that days selected in the past are faded.
- Click **Save to PMG**.

Note: The PMG can retain and use up to 32 calendars.

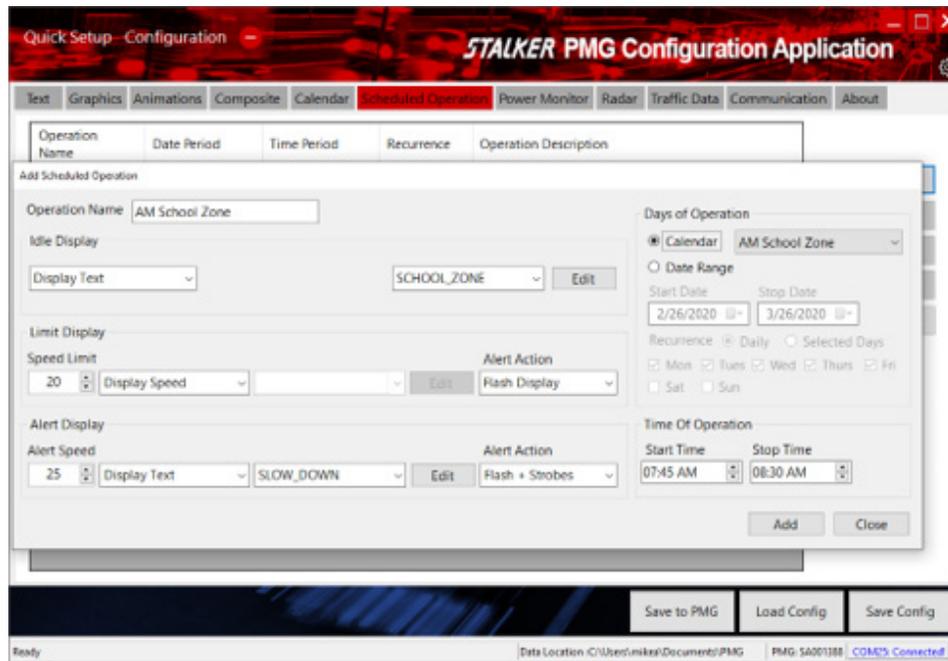


Figure 21

5.5.2 Date Range Option

- Open the **Scheduled Operation** tab.
- Click the **Add** button.
- Under **Days of Operation**, select **Date Range**.
- Set the date range in which the Scheduled Operation is to be active.
- Set the recurrence option: either **Daily**, or **Selected Days** and select the desired days.

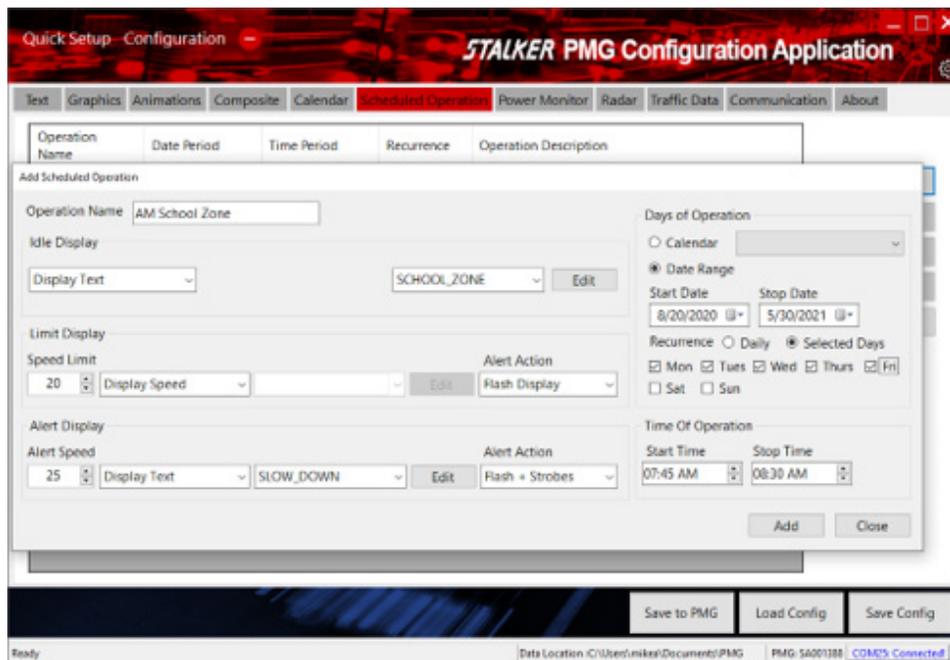


Figure 22

5.5.3 Configuring the PMG operation

- Set up the **Idle Display**, **Speed Limit**, **Limit Display**, **Limit Action**, **Alert Speed**, **Alert Display** and **Alert Action** just like you would in the quick menu.
- Set the Start Time and Stop Time between which the scheduled operation will be active. Note that if the stop time is earlier than the start time, the operation will begin at the appointed start time and continue until the end time on the next day if the next day is a Day of Operation, or at Midnight, otherwise.
- Give the operation a name in the **Operation Name** box.
- Click on **Add**.
- The scheduled operation will show up in the scheduled operation list on the **Scheduled Operation** tab.
- Repeat the process to add additional scheduled operations.
- Click on **Save to PMG** to save the new schedule to the connected PMG.

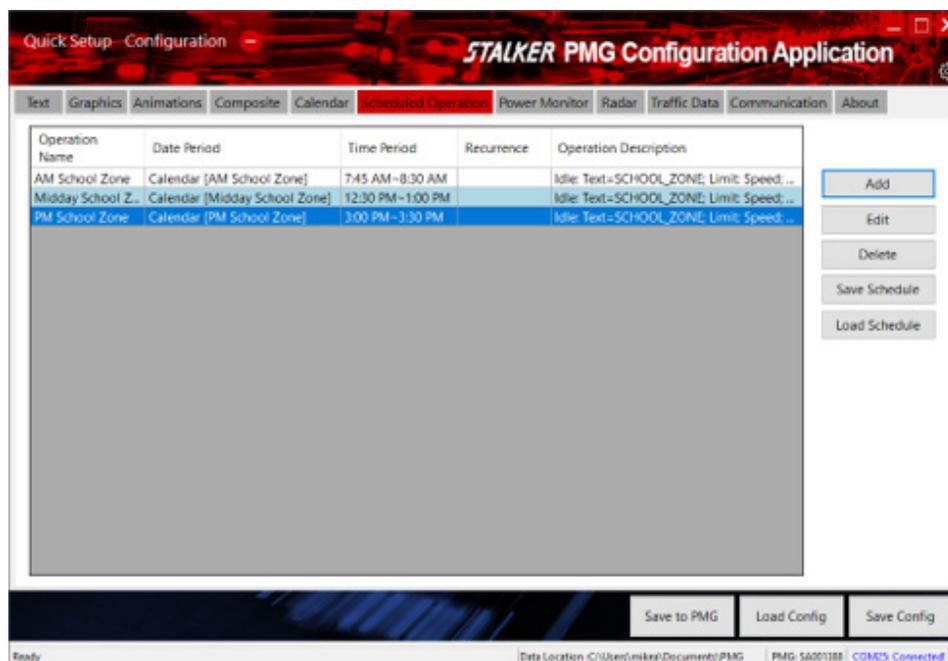


Figure 23

5.5.4 Modifying the PMG operation

- To modify a scheduled operation, select it in the Scheduled Operations list and click Edit.
- Once selected the data fields will show the selected operation's setup in the Edit dialog.
- Make the necessary changes.
- Click **OK**.

5.6 Radar Controls

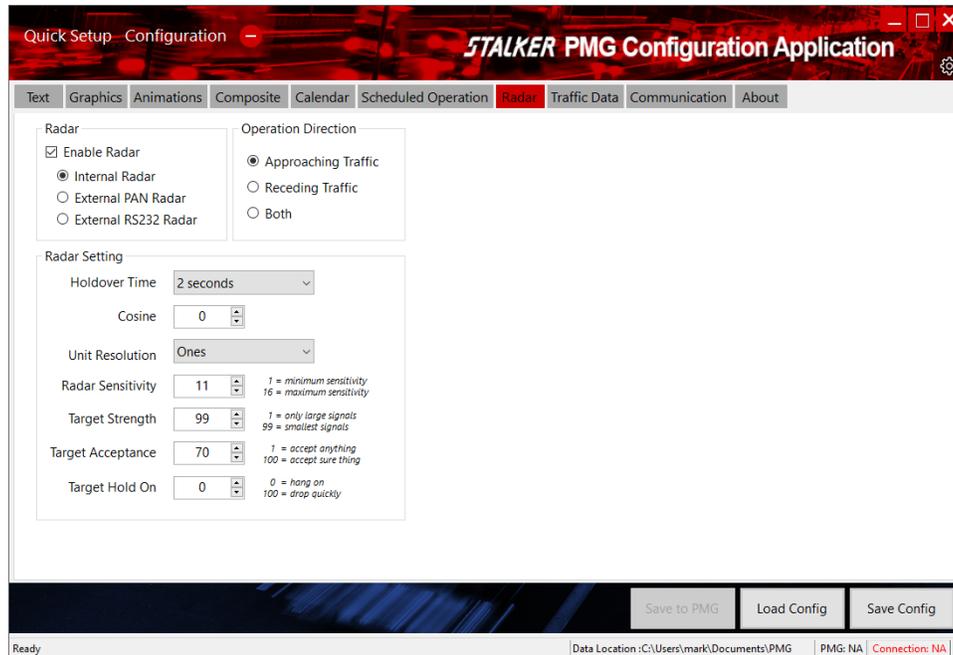


Figure 24

WARNING: The optional PMG radar is configured at the factory for most typical applications. The user is provided controls that allow the radar to be optimized for non-typical applications. Changing these controls incorrectly could cause the PMG to operate poorly. Use caution when making any changes to the radar controls.

Enable Radar: The radar must be enabled to show vehicle speeds or collect traffic statistics. The radar can be disabled to save power if the PMG is only used to display messages.

External PAN Radar: Allows the use of an external PAN connected radar to collect vehicle speed information. The PAN radio option must be installed to use this feature.

External RS-232 Radar: Allows the use of an external RS-232 connected radar to collect vehicle speed information. The RS-232 option must be installed to use this feature.

Internal Radar: Selects the built-in radar as the source of vehicle speed information.

Operation Direction: Selects one or both directions of vehicle travel to be monitored for statistics. Approaching traffic speed is used for speed display.

Holdover Time: Sets how long the sign will continue to show the last speed after the target vehicle is no longer tracked and there are no more vehicles to track.

Cosine: Set this to the angle between the sign and the vehicle direction to show the most accurate speed. When the PMG is not perpendicular to the travel of the vehicle and the Cosine is not set, the vehicle speed will report slower than it is actually traveling.

- Unit Resolution:** Select speed resolution as 1 (whole numbers) or 0.1 (tenths). When tenths mode is selected, the PMG will display speed values with a decimal point up to 99.9.
- Radar Sensitivity:** Changes the sensitivity of the radar; 16 is most sensitive with the most range but could show spurious targets; 1 is least sensitive with very short range and may miss small targets.
- Target Strength:** Changes the minimum signal level required before a vehicle is recognized and shown.
- Target Acceptance:** Changes how consistent a target signal must be before it is recognized and shown.
- Target Hold:** Changes how easily a target signal is dropped so the system can look for a better target signal.

5.6.1 External Radars

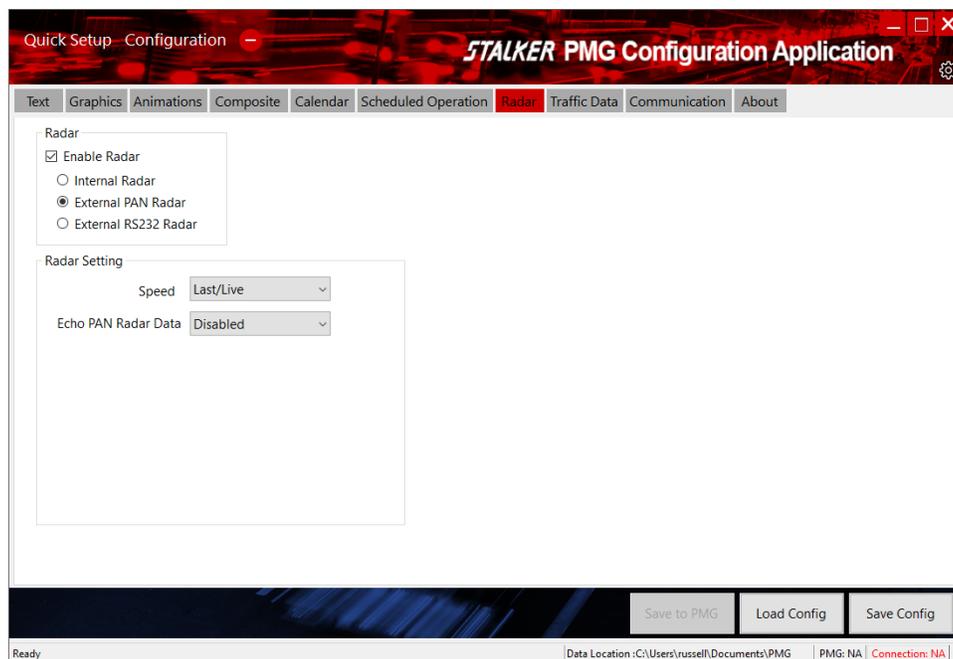


Figure 25

- Using External Radars:** The PMG supports Stalker radars that can output one of the three output formats A, A1, bE. Please refer to your radars owner manual to verify that it supports one of these formats.
- Connecting PAN Radar:** Please refer to your PAN enabled Stalker product owner's manual and follow its instructions to open the connection between the radar and the PMG.
- Connecting RS-232 Radar:** Use the supplied RS-232 cable provided with your PMG to connect your Stalker radar to the unit. (RS-232 option required.)
- Utilizing bE format:** The bE format is a powerful output protocol that allows the PMG to display one of the three provided speeds. When the external radar is in bE output format the speed setting on the radar tab can be used to select which of the three speeds will be shown.

Multiple Speed Display: Multiple PMGs can be chained together by enabling the 'Echo PAN Radar Data' option in the Radar tab. This option will echo all radar data that is received over the PAN network out the RS-232 port. This feature is useful for customers that wish to see all three speeds produced in the bE format. Use the RS-232 cable provided by Applied Concepts to connect multiple PMGs.

5.7 Collecting Traffic Statistics

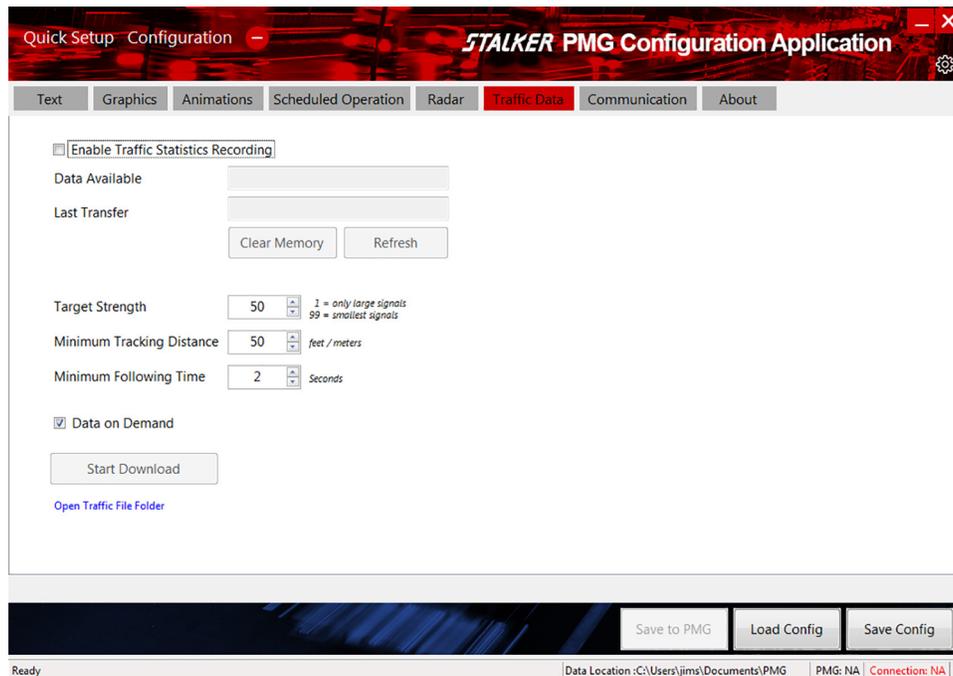


Figure 26

The Traffic Data tab provides controls for collecting traffic statistics information.

Enable Traffic Statistics Recording: When checked allows the PMG to collect data.

Data Available: Indicates how much traffic data is available for download.

Last Transfer: Indicates the last time data was removed from the PMG.

Target Strength: Sets the system sensitivity for collecting traffic data. If spurious speeds are being seen, reduce this level.

Minimum Tracking Distance: Used to set the minimum distance a car must be tracked before it is counted. Increasing this value will help reduce spurious readings from things like branches blowing in the wind. **Caution:** If this value is set longer than the road in front of the PMG, traffic may not be counted at all!

Minimum Following Time: Used to find free flow traffic speeds. If vehicle volume is desired, set this value to zero. If free flow traffic speed is desired, set this to 2 seconds.

Data on Demand: Configures the PMG to export its data either by a flash drive or a wired communication cable.

5.8 Product Information

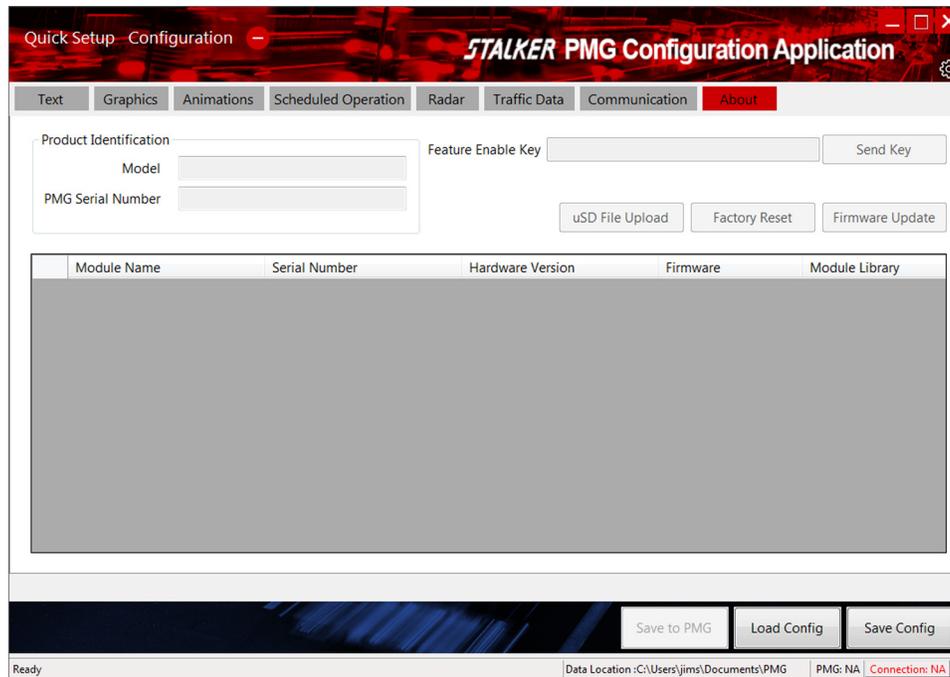


Figure 27

The About tab provides details on the hardware and software configuration of the PMG. All the information provided is set in the hardware when the product is manufactured. Each time the unit is powered up, the internal controller will scan all the internal options the PMG contains and populate this list with everything it finds. This list is generated each time the unit is turned on. Check this list if an option does not work as expected to see if the option is being recognized.

The Product Identification section provides model, serial number, and revision level of the product. This is information you would need if you contact Customer Service regarding the product.

5.8.1 Firmware Updates

Most of the components in the PMG can be upgraded with new firmware when it becomes available. The Firmware Update button under the About tab enables this upgrade. The new firmware file needs to be located on the computer where the PMG Configuration application is running. The default search directory is: Documents/PMG/Firmware. The file will be named according to the PMG function that it updates. There will be a different file for each installed option.

Click the Firmware Update button and a File Explorer window will open. File Explorer will open in its default folder: Documents/PMG/Firmware. If the new firmware is there, select it and then click Open. The firmware updating process will start automatically. If the file is not there, then use the File Explorer to browse to the location of the file, select it, and click on Open.

5.8.2 Internal Web Page Update

Occasionally new updates to the internal web page will become available. To check the version of the currently installed web page go to its profile tab.

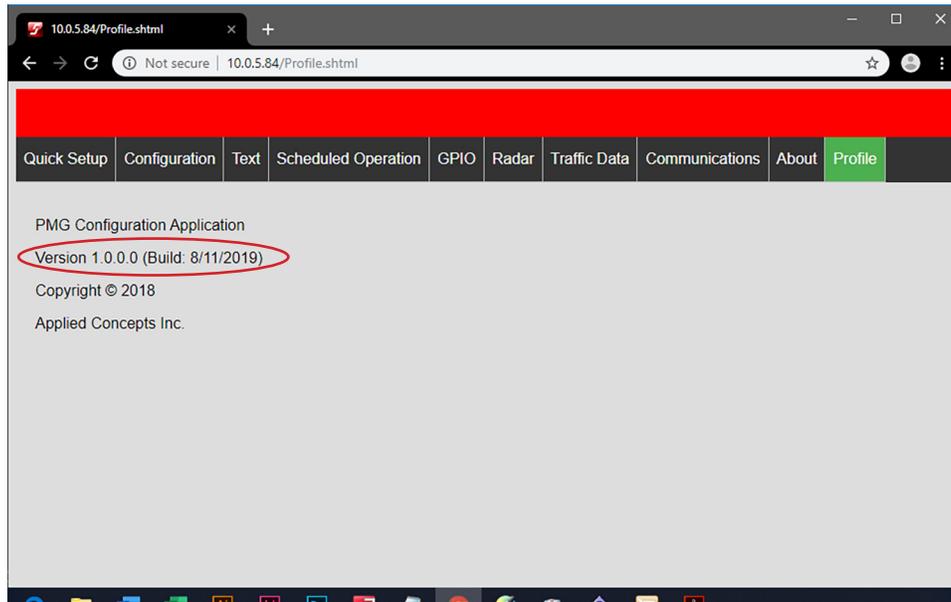


Figure 28

To update the PMG with the new web page file use the uSD File Upload button on the About tab.

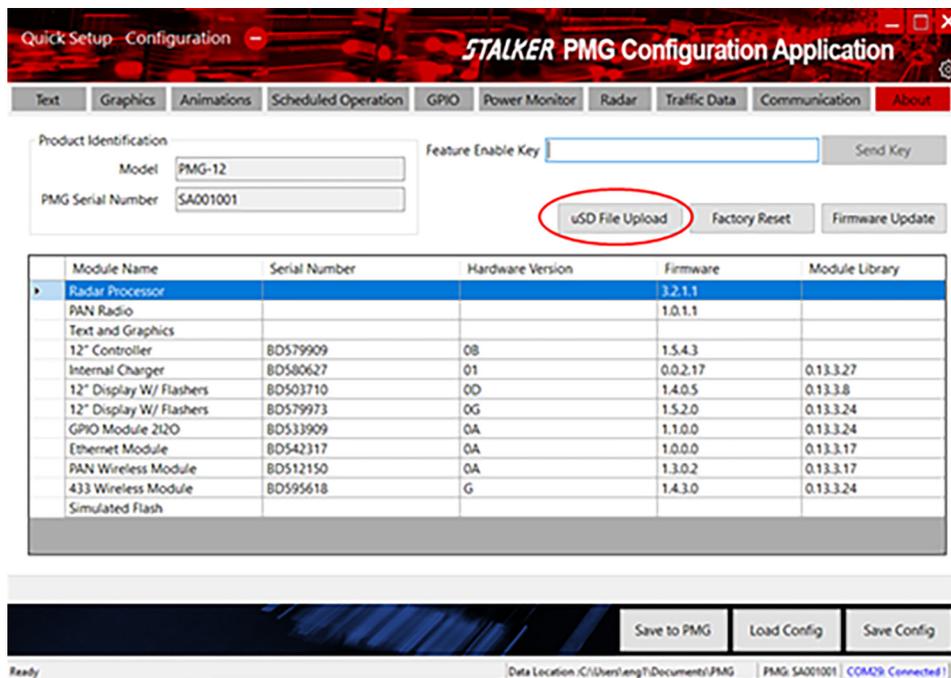


Figure 29

A pop-up window will request a pass code before continuing. Use 135799 as the passcode.

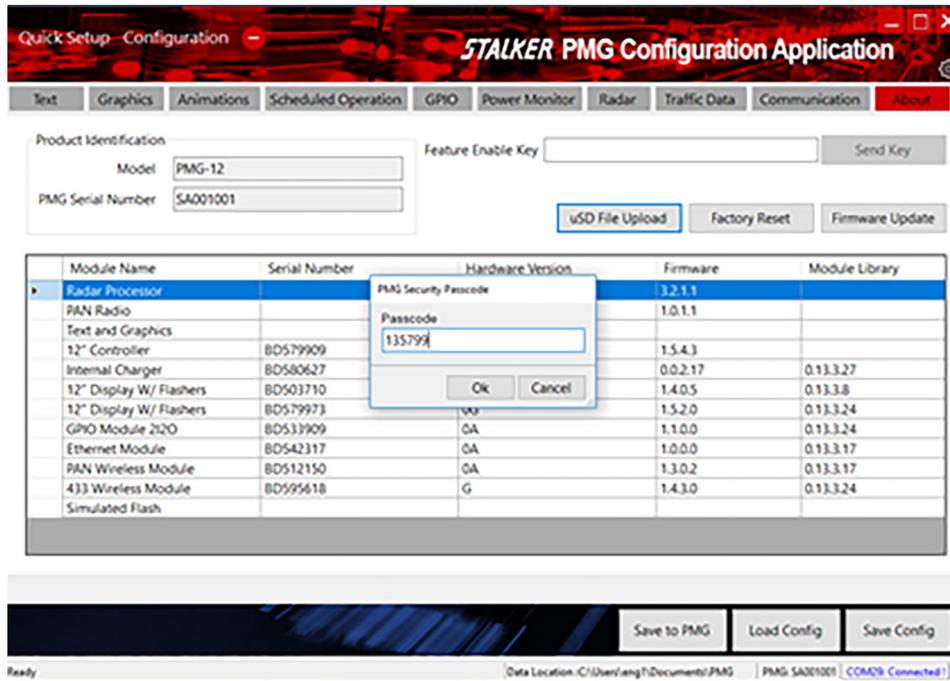


Figure 30

Use the file explorer to navigate to where you have the new file stored. Select new the web page file and click on open.

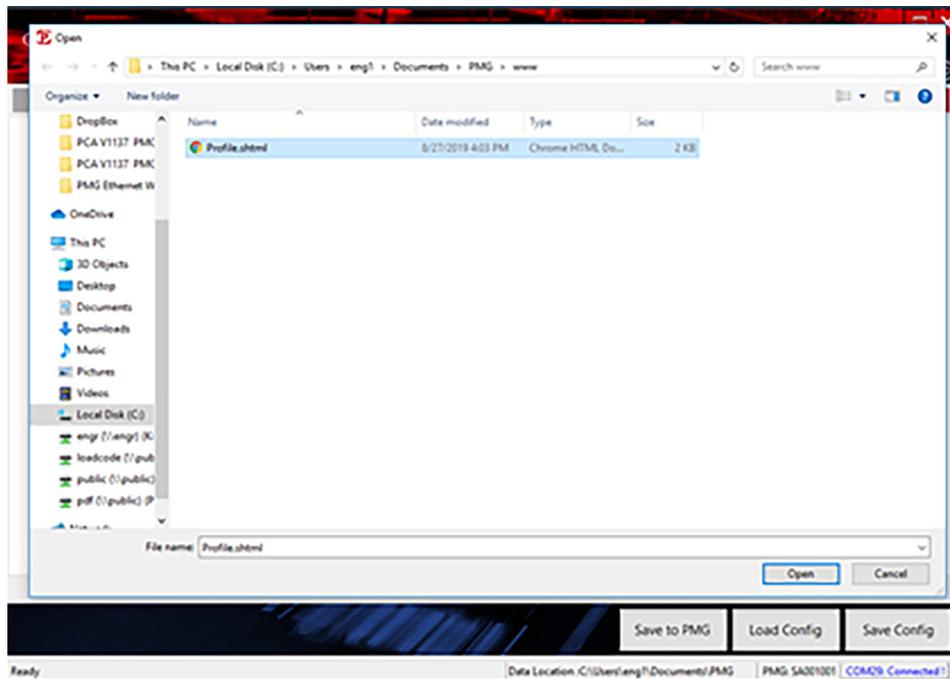


Figure 31

When the update is completed connect to the web page and verify the version number has been updated.

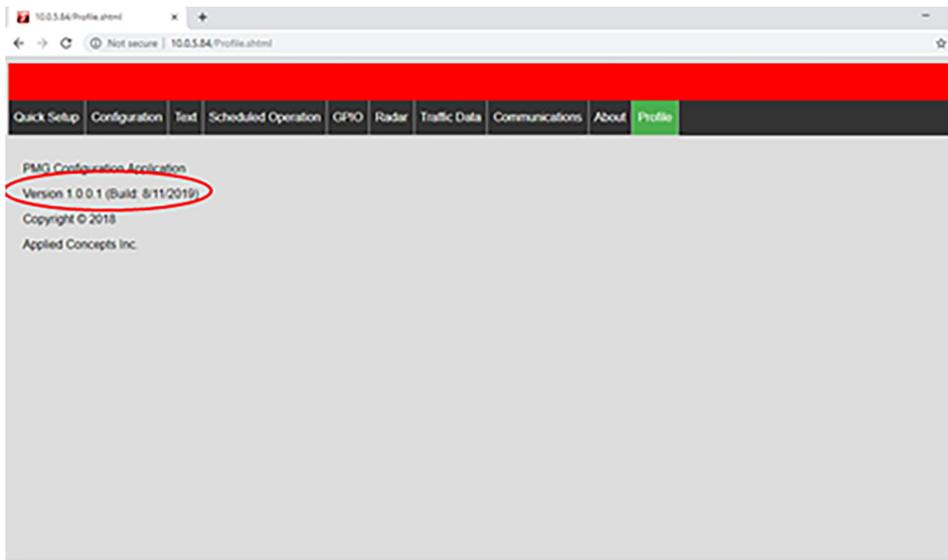


Figure 32

5.8.3 Feature Enable Key

The Feature Enable Key is used to enable software-only features that are only available when purchased. If the user wishes to purchase one of these options after taking possession of the PMG the option can be enabled by entering an activation key. Contact your ACI sales representative for information on what options are available and how to purchase an activation key.

To use the key that has been provided follow these steps.

1. Connect the PMG to a computer with the PC configuration program running.
2. Turn on the PMG and have the configuration program connect to the PMG.
3. Type or paste the key provided by ACI into the key window.
4. Click on the **Send Key** button.

After the key is sent the PMG may need to be restarted (turned off and back on) to get the new feature available for use.

6.0 Product Options

6.1 USB Flash Drive Option

If the PMG has the Statistics option installed, to retrieve the traffic statistics data, insert a USB flash drive into the USB connector on the back of the PMG. It's best to use a flash drive with an internal LED that shows USB activity. Leave the flash drive inserted until the light stops flashing. This will tell you that the file transfer has completed. The larger the file, the longer it will take to transfer the data. Pulling the flash drive before the transfer is complete will corrupt the data. Once data has been moved to a flash drive it will be erased inside the PMG.

6.2 Wireless Key Fob Control

Position the Key Fob with the key ring toward you.

The button locations will match the position of the menu prompts on the PMG.



Figure 33

Note: Each Key Fob is paired with an individual PMG. Take care to keep the two together.

6.2.1 Starting Screen

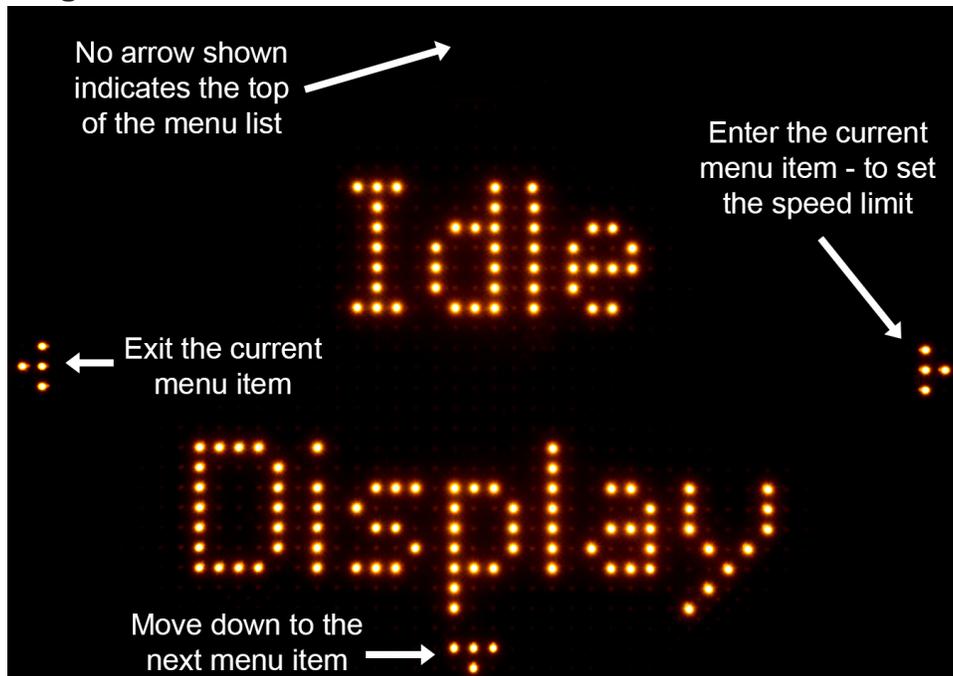


Figure 34

When in the Menu System, the display will show arrows on the four sides that match the Key Fob locations. Each arrow is independently turned on or off. The arrows turned on indicate which Key Fob button can be used on the currently displayed item.

6.2.2 Making a Selection

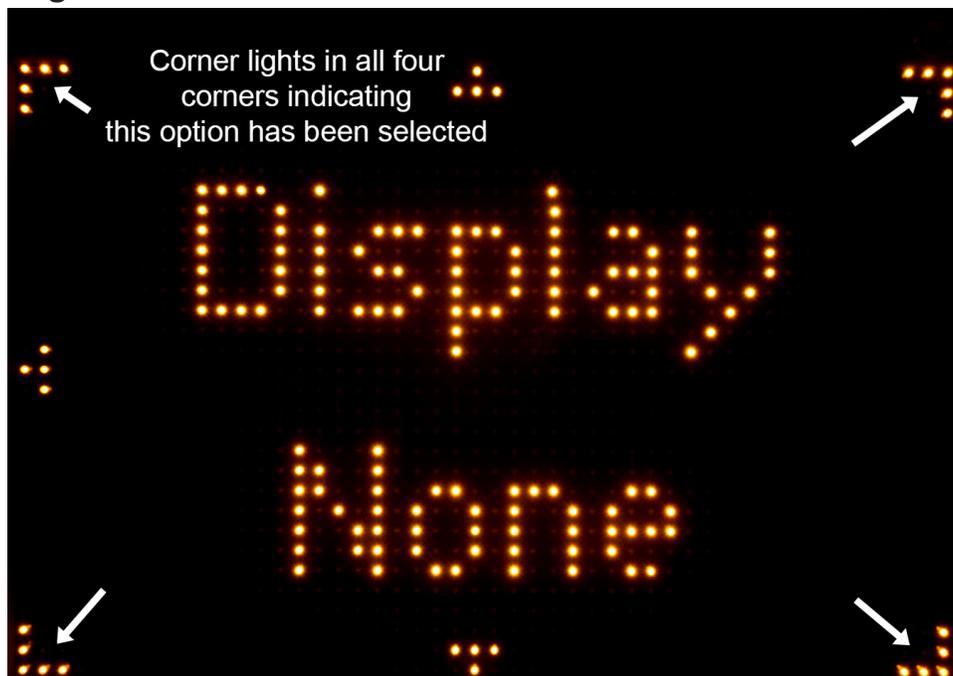


Figure 35

Press the center button on the Key Fob when the display shows the desired selection. Once selected, the LEDs on the four corners of the display will turn on.

When navigating through the menu, the four corners will flash on any currently selected option.

Use the left button to exit this menu item.

6.2.3 Programming the PMG with the Key Fob

Point the end of the Key Fob without the key ring toward the PMG. Press the center button. The PMG will respond with **Idle Display**. Note the blinking arrow heads on each side of the sign. Those arrows indicate which direction commands are available to the operator.

Idle Display indicates that the sign is at the top level of its Quick Menu. Using the Key Fob's top and bottom buttons, scroll through the available top-level menu items:

1. Idle Display
2. Limit Speed
3. Limit Display
4. Limit Action
5. Alert Speed
6. Alert Display
7. Alert Action
8. System Setup

Press the center button to select the desired menu item. **Idle Display** is used here as an example. When **Idle Display** is selected, the first choice of the **Idle Display** sub-menu is displayed, in this case, **Display None**.

As with the top-level menu, use the top and bottom Key Fob buttons to scroll through the list of available sub-menu items:

- a. Display None
- b. Display Speed
- c. Display Text
- d. Display Graphic
- e. Display Animation
- f. Display Time
- g. Display Temp

Press the center button to select the desired item for the PMG to display when "Idle". When selected, the menu item chosen will be highlighted with 5 LEDs lighted in each corner. This lighted-corner status lets the operator know which selection is active during subsequent menu sessions.

To exit the sub-menu back to the Quick Menu, press the left-hand button on the Key Fob.

To exit the Quick Menu, press the left-hand button again. The sign will then enter the "Idle Display" status chosen earlier. For example, in case of Display None, the sign will go dark and return to its ready mode.

6.2.4 Quick Menu Tree

1. Idle Display
 - a. Display None
 - b. Display Speed
 - c. Display Text
 - d. Display Graphic
 - e. Display Animation
 - f. Display Time
 - g. Display Temp
2. Limit Speed
3. Limit Display
 - a. Display None
 - b. Display Speed
 - c. Display Text
 - d. Display Graphic
 - e. Display Animation
 - f. Display Time
 - g. Display Temp
4. Limit Action
 - a. No Alert
 - b. Flash Display
 - c. Strobes
 - d. Flash + Strobes
 - e. Camera Trigger
 - f. Aux Out-1-
5. Alert Speed
6. Alert Display
 - a. Display None
 - b. Display Speed
 - c. Display Text
 - d. Display Graphic
 - e. Display Animation
 - f. Display Time
 - g. Display Temp
7. Alert Action
 - a. No Alert
 - b. Blink Display
 - c. Strobes
 - d. Blink + Strobes
 - e. Camera Trigger
 - f. Aux Out-1-
8. System Setup
 - a. Set Time
 - i. Hour
 - ii. Minute
 - iii. Seconds
 - iv. Time Format
 - b. Set Date
 - i. Date
 - ii. Month
 - iii. Year
 - c. Max Limit
 - d. Min Limit
 - e. Run Demo
 - f. Expert Menu

6.2.5 Pre-Loaded Text Messages

This list is for reference only. New messages may have been added after the publication of this manual.

| | | | | | | | |
|----|--------------|----|---------------|----|-------------------|----|-------------------|
| 1 | School Zone | 15 | Ramp Closed | 29 | Heavy Traffic | 43 | Max Speed 55 km/h |
| 2 | Work Zone | 16 | EXIT | 30 | Keep Left | 44 | Max Speed 60 km/h |
| 3 | Slow Down | 17 | Buckle Up | 31 | Keep Right | 45 | Max Speed 65 km/h |
| 4 | Reduce Speed | 18 | Icy Bridge | 32 | Narrow Lanes | 46 | Max Speed 70 km/h |
| 5 | Stop Ahead | 19 | Slow Traffic | 33 | Max Speed 25 MPH | 47 | Merge Left |
| 6 | Use Care | 20 | Lane Closed | 34 | Max Speed 30 MPH | 48 | Merge Right |
| 7 | Slick Road | 21 | Crews Working | 35 | Max Speed 35 MPH | 49 | No Passing |
| 8 | ICE Ahead | 22 | Dense Fog | 36 | Max Speed 40 MPH | 50 | Don't Litter |
| 9 | DIP Ahead | 23 | Do Not Pass | 37 | Max Speed 45 MPH | 51 | Curve Ahead |
| 10 | Kids Present | 24 | Drive Safely | 38 | Max Speed 50 MPH | 52 | No Texting |
| 11 | Bike Lane | 25 | Dust Storm | 39 | Max Speed 55 MPH | 53 | Children At Play |
| 12 | Deer Xing | 26 | Exit Here | 40 | Max Speed 40 km/h | | |
| 13 | Thank You | 27 | Expect Delays | 41 | Max Speed 45 km/h | | |
| 14 | Ramp Open | 28 | Gusty Winds | 42 | Max Speed 50 km/h | | |

6.2.6 Expert Menu

1. System Info
 - a. Self-Tests
 - i. Max Bright
 - ii. Burn-In
 - iii. LED Test
 - iv. Strobe Test
 - b. Options Present (currently displaying all)
 - i. RF Remote
 - a. Pair Remote
 - b. Delete Remotes (Debug build only)
 - ii. 3G Cellular
 - iii. Wireless
 - a. Pair
 - iv. Wi-Fi
 - v. Emerg. Alert
 - vi. Storm Detect
 - vii. Ethernet
 - viii. Battery Backup
 - ix. Extern. I/O
 - x. GPS
 - xi. Mesh Network
 - xii. Solar Charger
 - a. Solar ___V-A-W
 - b. Batt. ___V-A-W
 - c. Load ___V-A-W
 - xiii. Internal Charger
 - c. Data Logger
 - i. Enable
 - ii. Dump
 - iii. Erase
 - iv. Period
2. Power Controls
 - a. LED Power
3. Stats
 - a. Stats Enable
4. Speed Units
 - a. Spd Unit MPH
 - b. Spd Unit km/h
 - c. Spd Unit knots
 - d. Spd Unit m/s
 - e. Spd Unit ft/s
5. Temp Units
 - a. °C
 - b. °F
 - c. K
 - d. °R
6. MUTCD Comply
7. Factory Defaults
 - a. Factory Reset?
 - i. Are You Sure?
8. System Reset
 - a. Reset Sign?

6.2.7 Adding a New Key Fob

Each PMG with the key fob option installed is sent with one key fob already recognized by that PMG. Each PMG can recognize up to 10 key fobs and additional or replacement key fobs can be ordered.

To add a new key fob to a PMG's list of recognized key fobs, use the controls on the Configuration Application Expert Menu under the Communications tab. Click on Add New Key Fob to start the process. A pop-up message provides instructions to press all buttons on the key pad, one at a time. This activates all the keys on that key fob. The user has only 20 seconds to complete this process before the process terminates. After the process is complete the new key fob is ready to use.

Click Delete All Key Fobs to clear all previously recognized key fobs. After this process, the user will need to use Add New Key Fob to get each key fob recognized again. The user may need to delete and reactivate a lost key fob to ensure it is not used by an unauthorized person.

6.2.8 Resetting a Key Fob

Occasionally the user may wish to reset a key fob so it uses a new random ID number. This will prevent the key fob from working with any PMG it was previously assigned to until they are paired together again. To reset the key fob, locate the small hole on the back of the key fob. Use a small pointed device, like a paper clip, and insert it into the hole to activate an internal switch. When the switch has been pressed, the blue LED on the front of the key fob will begin to flash. While the LED is flashing press all five buttons on the key fob, in any order. Failure to press one of the buttons will cause that button to become inactive until the key fob is reset again. The LED will continue to flash for about 20 seconds. When the LED flashing stops the key fob will have a new random ID number. To use the key fob with a PMG it must go through the pairing process described in section 6.2.7.

6.3 Wireless Control

The Wireless Control option is not included in all PMGs. It must be included in the original PMG order to be installed at the factory. Check the options list under the About tab in the PMG Configurator PC program for a list of which options are present. It will be listed as 'PAN Module.'

The Wireless Control option allows the use of a wireless-enabled device such as an Android phone or a iPhone to manage the PMG. In either case, a PMG app will need to be downloaded to the phone from the Apple App Store (Speedsign) or the Android Play Store.

When searching for a particular PMG in the phone's wireless device listing, look for the one that matches the serial number of the PMG that is to be configured. The PMG will show up listed like "PMG SA001000" where the last 8 characters are the unit's serial number. The serial number of each PMG is posted on its back panel.

The first time the phone is connected to any PMG it will need a PIN number that matches the PIN stored in the PMG. The PMG will initially have a default PIN (4032) set at the factory, but it is recommended the user set their own PIN to protect the PMG from access by unauthorized devices. The PIN in the PMG can be changed to anything the user wishes and is changed by using the PMG configuration program. The PIN is entered in the Expert Menu under the communications tab. The pin can not be more than 6 characters and is limited to only numbers 0 through 9. If the PIN field is grayed-out and cannot be edited, then the Wireless Option is not installed. Click the Save To PMG button after changing the Wireless Control PIN number.



To pair to the PMG for the first time use the default PIN of 4032. The PIN can be changed to any 6-digit value chosen by the user under the communications tab in this program.

6.4 Power Monitor Controls

The Power Monitor tab will be present in the Expert Menu if any of the battery and solar panel options are installed in the PMG.

The Power Monitor tab will show the current status of the battery and solar panel operation. If the battery is external, the PMG will not know its characteristics and the user will need to input this information. This information is required for the Power Monitor to give useful status information. The fields the user needs to input are the battery capacity in Amp-hours and the solar panel size in Watts. The Update Rate input allows the user to set at what rate the display will be updated with new information. Click the Start Update / Stop Update button to have the values in charts continuously refreshed at the update rate.

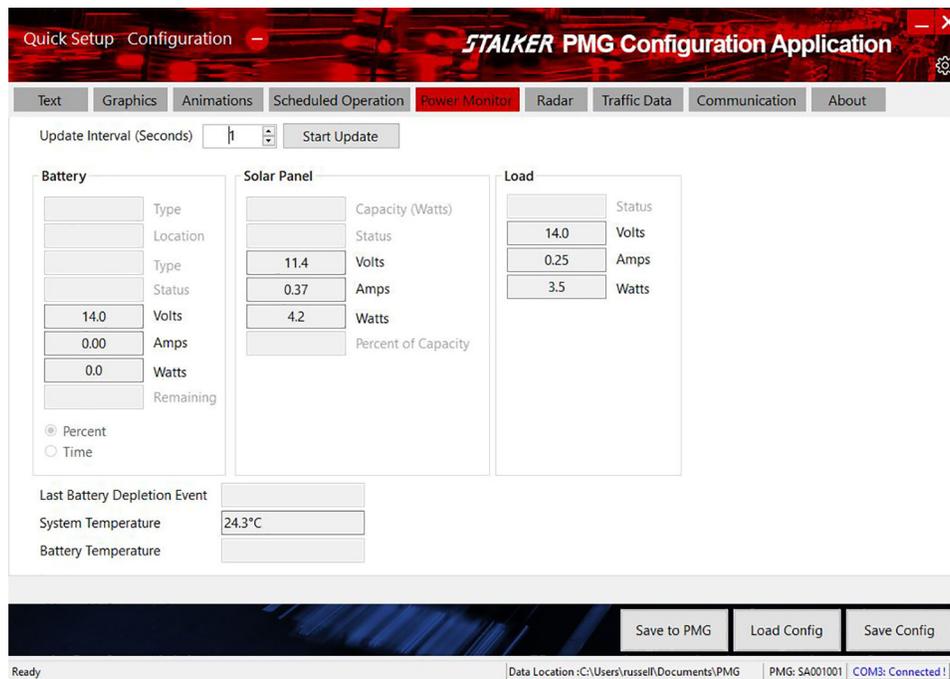


Figure 36

The battery column will show the current status of the battery. It will show if the battery is being charged or not, what amount of current is going into or coming out of the battery and what amount of charge is left in the battery.

The Solar panel column will show the current status of the solar panel. It will show the amount of power the solar panel is delivering along with the percentage that is of its rated output.

The Load Column will show data of the current amount of power the sign is consuming.

If the battery is ever depleted that date and time will be logged and shown as the Last Battery Depletion Date. Battery depletion normally happens when not enough solar power is being delivered by the solar panel to keep the battery charged.

6.5 General Purpose Input/Output (GPIO) Controls

If the attached PMG has a GPIO module installed, a GPIO tab will be available in the Expert Menu group that allows for the configuration of the module. GPIO modules can be ordered with various combinations of inputs and outputs. The example shown here is for a module with two inputs and two outputs.

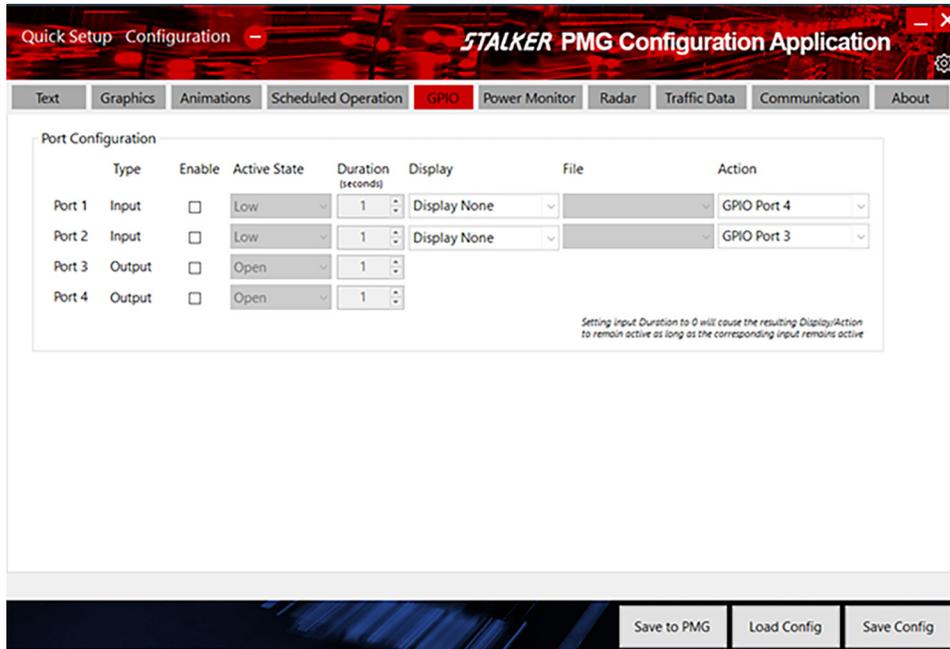
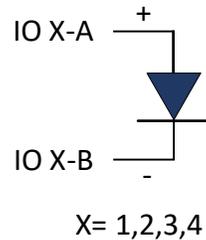


Figure 37

6.5.1 Inputs

The input pins allow the PMG to respond to signals sent to it by external sources. When enabled and activated, the display and actions configured for that input will override any other setting in the PMG. Lower Port numbers have higher priority in the case where multiple inputs are received simultaneously. Input port 1 has the highest priority and overrides all other inputs, input port 2 is next, then input port 3, and input port 4 has the lowest priority.

All inputs are optically isolated from each other and from the PMG, and their proper connections are shown below. The inputs do have a DC polarity that must be followed in order to operate correctly. The inputs are protected from the application of reverse voltages.



Valid inputs are defined as:

- | | |
|--------------------------------|---------------------------|
| • Maximum input voltage | 24 Volts |
| • Minimum logic high | 3.5 Volts |
| • Maximum logic low | 2.0 Volts |
| • Maximum current (logic high) | 10 ±1 ma |
| • Turn on time | less than 10 milliseconds |
| • Turn off time | less than 10 milliseconds |

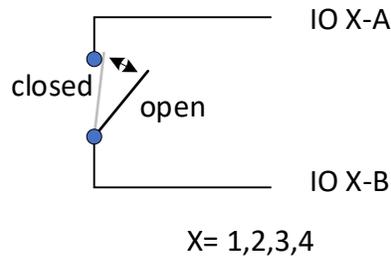
Input configuration settings:

- Select the active state as either low or high. This is the state that will initiate the PMG response.
- Select how long the response will be active. 0 = all the time.
- Select what the PMG is to display during the active state.
- Or, select a file the active state will initiate.
- Select what action the sign is supposed to perform during the active state.
- To enable an input, click on that input's Enable check box.

6.5.2 Outputs

The GPIO outputs allow the PMG to initiate an action in some external equipment. The source of this action can be a speed limit violation, an alert speed violation, or some other PMG internal option. Each output consists of a pair of outputs. Those two outputs are either shorted (closed) or unconnected (open) depending on the state of the Internal switch.

All outputs are optically isolated from each other and from the PMG. The outputs are not polarity sensitive and can work with low voltage AC sources. The connections are shown below.



Output characteristics:

- | | |
|-------------------------------|----------------------------|
| • Output type | Contact Closure |
| • Maximum voltage | 60 VDC, 40 VAC |
| • Maximum current | 100 ma |
| • Maximum power dissipation | 200 mW |
| • Internal current protection | fast blow, resettable fuse |

Output Configuration Settings:

- Select if the active state will be open or closed.
- Select the duration of the output in seconds. 0 = all the time.
- Activate the output action by clicking the Enable check box.

6.5.3 Power Options

The GPIO module can be ordered with an external power option. With this option, IO port #4 is converted to supplying power, either 3.3 volts or 12 volts, depending on how the option is ordered. The power can be used to power an external device that is used to provide or receive the other IO signals. The IO 4-B pin becomes ground and IO 4-A is the power connection. The power is fused with a 100 mA fast-blow fuse.

6.5.4 GPIO external wiring

PMGs with the GPIO option will have a connector on the connector panel in the back for attaching the inputs and outputs. Each input/output pair is assigned to pins as shown below. The specific GPIO option purchased determines if that pin pair is an input or output. The PMG is also accompanied by a kit that includes the mating connector that the user should use to make the mating cable assembly. If that connector needs to be replaced, please use Bulgin part number PX0410/085/6065, with Bulgin contact pins SA3347/1. Or order ACI part #200-1206-69 which includes all the parts.

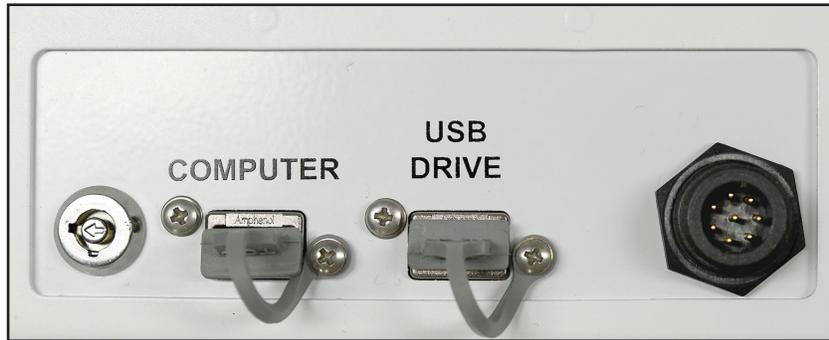
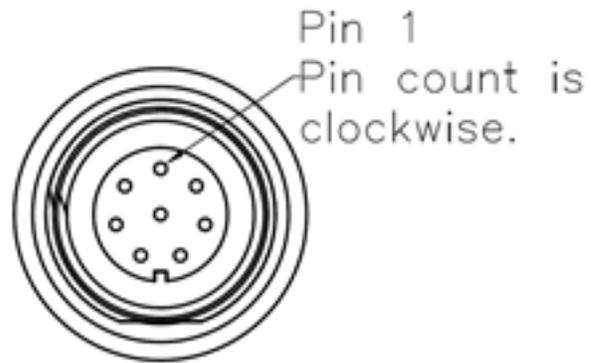


Figure 38

| Pin number | Connection |
|------------|------------------|
| 1 | IO 4-A or power |
| 2 | IO 4-B or ground |
| 3 | IO 1-A |
| 4 | IO 1 B |
| 5 | IO 2-A |
| 6 | IO 2-B |
| 7 | IO 3-B |
| 8 | IO 3-A |



Looking into connection

6.6 Ethernet Option

The Ethernet option is not included in all PMGs. It must be included in your original order and be installed at the factory. Check the options list under the About tab in the PMG Configurator program for a list of options included in your PMG.

The Ethernet option allows the PMG to be connected to the Local Area Networks found in most business and industrial buildings. The connection is a standard RJ-45 connector located on the connector panel on the back of the PMG.

Included with the Ethernet option is an internally hosted web page that gives the user full access to the PMG controls. The look and functionality of the control mirrors those available in the PC application. Refer to Product Information section in this manual on how to update the internal web page. An example is shown here:

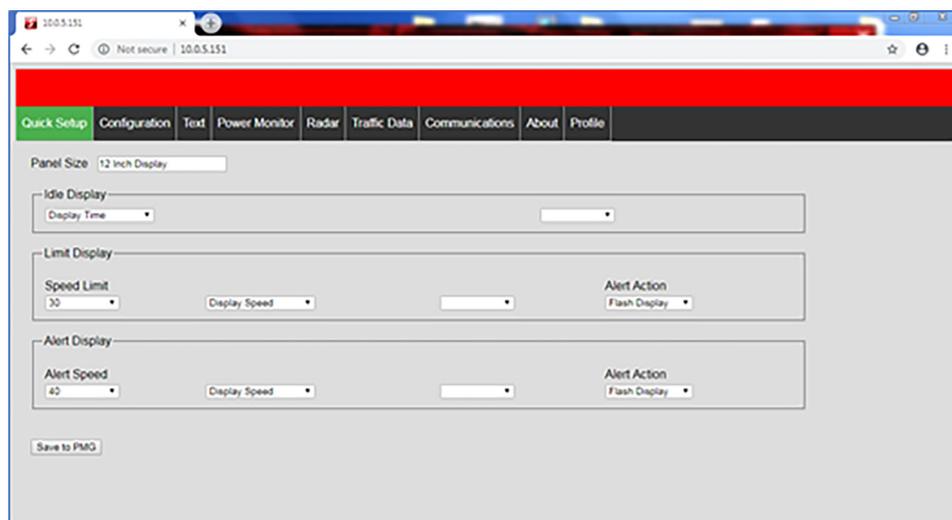


Figure 39

The Ethernet IP settings can be configured using the PC application and can be found under the communications tab.

The default IP setting is Automatic (DHCP) where the PMG will be assigned an IP address by the network. Change the IP setting to 'Manual' to assign the PMG a static IP configuration.

Automatic (DHCP) Configuration: IP Address, Subnet Mask and Gateway are all dynamically assigned from the connected network.

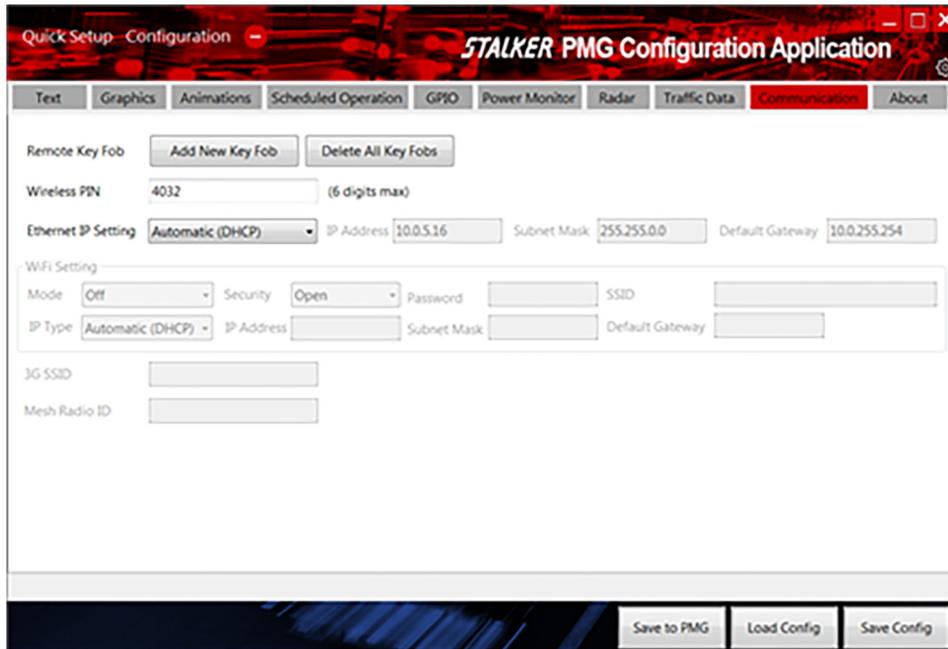


Figure 40

Manual (Static IP): IP Address, Subnet Mask and Gateway must all be manually entered from the information provided by your IT representative.

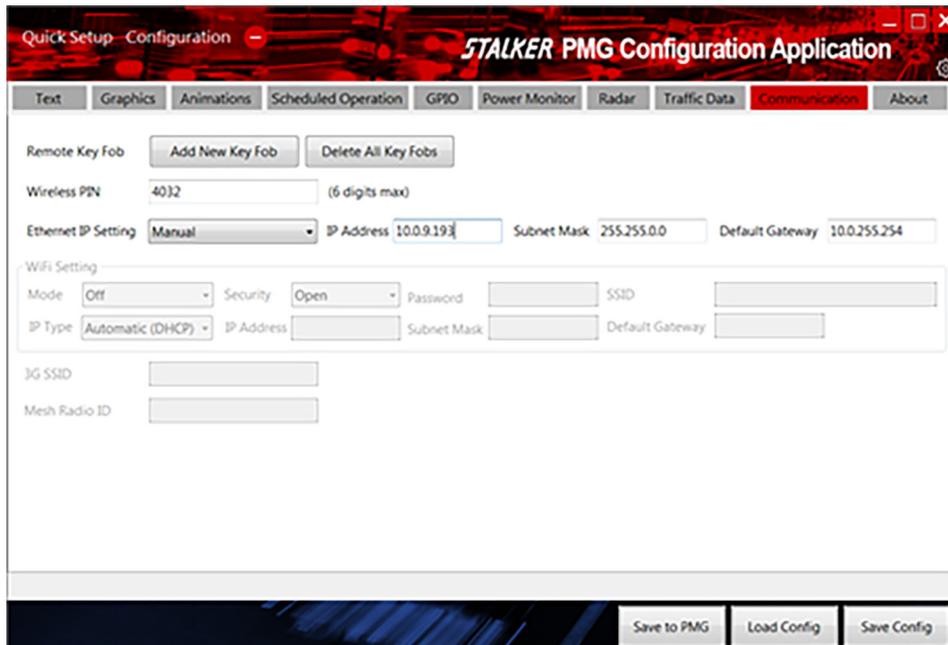


Figure 41

6.7 Wi-Fi option

The Wi-Fi option is not included in all PMGs. It must be included in the original PMG order to be installed at the factory. Check the options list under the About tab in the PMG Configurator PC program for a list of which options are present.

Included with the Wi-Fi option is an internally hosted web page that gives the user full access to the PMG controls. The look and functionality of the control mirrors those available in the PC application. Refer to Product Information section in this manual on how to update the internal web page. An example is shown here:

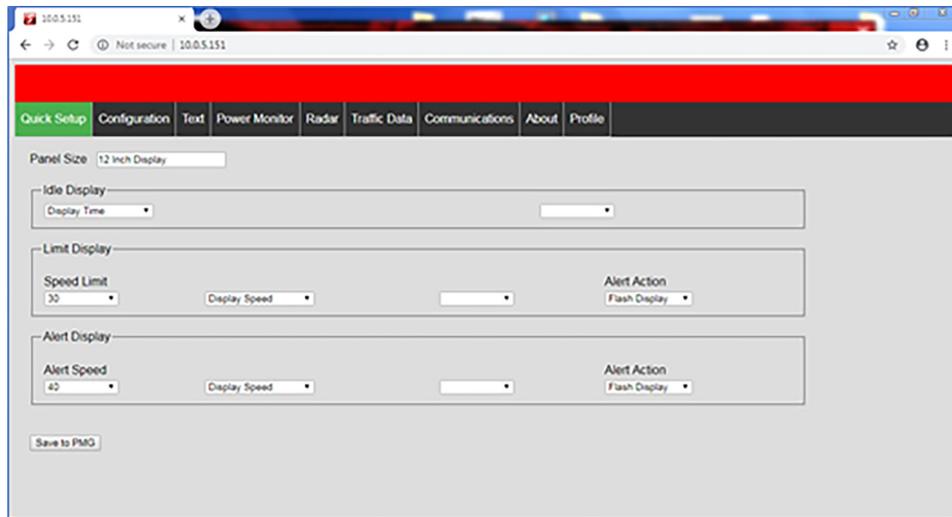


Figure 42

The Wi-Fi connections must be configured using the controls under the communications tab. These controls will be grayed out and non-operable if the PMG does not detect an installed Wi-Fi option.

The Wi-Fi radio can be put into one of three modes, Off, Access Point, and Station mode.

Off Mode: The radio is kept off for power saving benefits.

Access Point Mode: The PMG will start broadcasting a Wi-Fi signal that allows computers or mobile devices to connect to the network. Once a device is connected to the PMG over Wi-Fi the internally hosted web page can be accessed by navigating to the IP address '192.168.1.1'.

Station Mode: This mode allows you to configure the PMG to connect to an existing network. Once the PMG has connected to the network the internally hosted web page can be accessed by navigating to the DHCP generated IP address or the Static IP address that was provided by your IT representative.

Access Point Mode: Select a security setting and set the password. The PMG will start broadcasting a Wi-Fi network with the serial number as the network name.

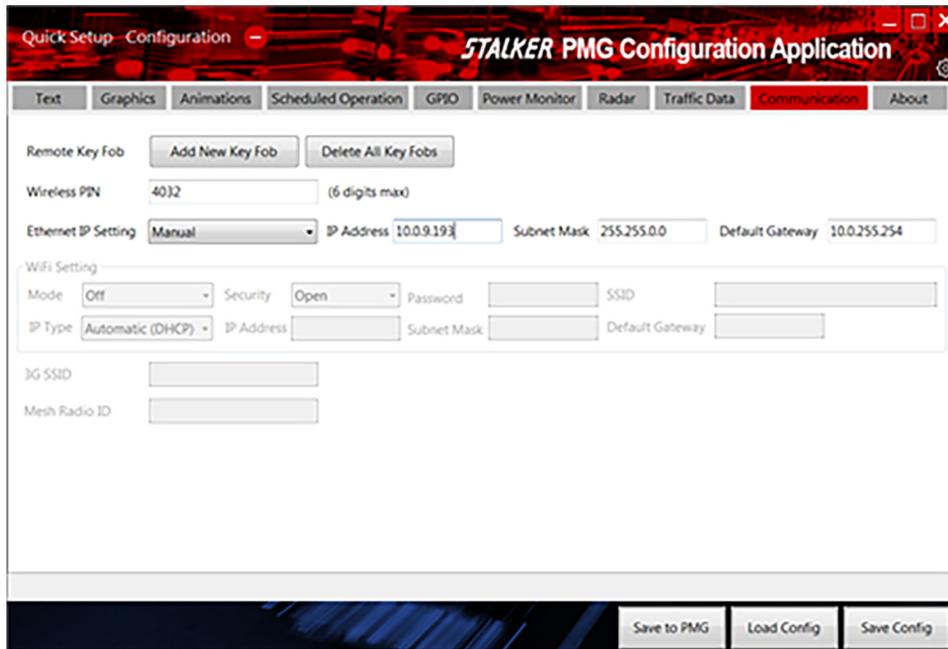


Figure 43

Station Mode: Enter in your access point's SSID, security protocol and password.

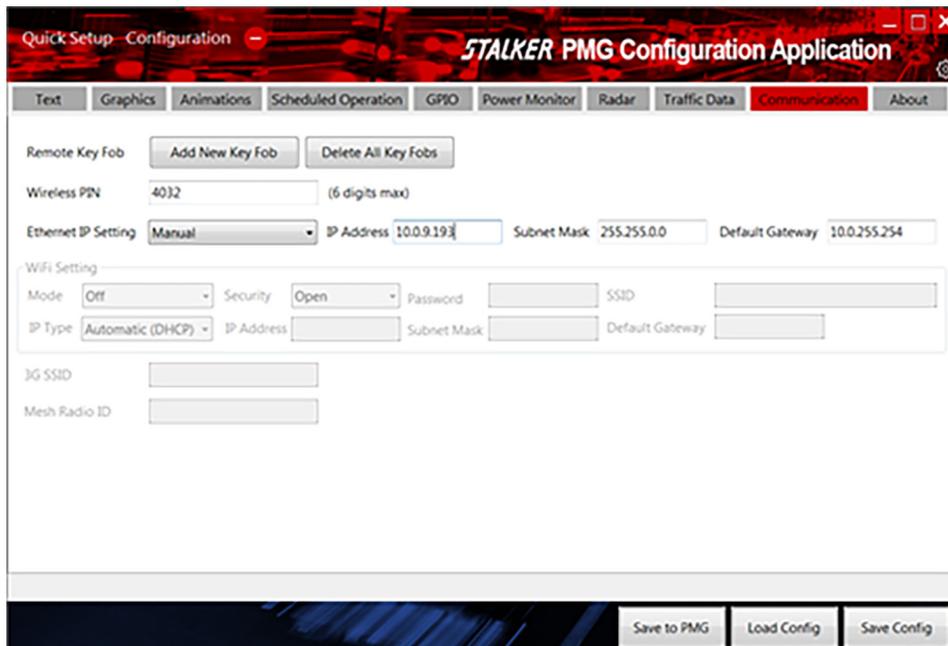


Figure 44

7.0 Power connections

7.1 Inserting Fuse

It is important that the PMG be switched to the “off” position prior to inserting the fuse.

7.2 External DC Source

- This option contains a wiring kit that includes the connector that mates to the DC input connector on the back of the Display, contact pins, and a wiring diagram.
- The DC source and cable are supplied by the end user.
- Once the cable is assembled, plug the cable into the DC input connector on the back of the Display.

7.3 AC/DC Power Supply

- Peel the adhesive strip backing off of the adhesive strips on the AC/DC power supply.
- Plug the connector into the DC input connector on the back of the Display and then press the power supply to the back of the Display and hold for several seconds.
- Run an extension cord to the power supply and plug in the supply.
- When waterproof operation is required, power supply #015-0406-90 (IP67) is required.

7.4 AC Wiring

Remove power panel on back.

- Install elbow.
- Feed wire through elbow.
- Using provided wire nuts, connect like-colored wires together per diagram below.
- Attach green (ground) wire to post at the bottom of the housing using nut provided.
- Re-install the power panel.



Figure 45

| AC Wiring Color Coding | | | | | |
|------------------------|---------------|---|---------------|--|---|
| Conductors | International | | North America | | |
| Line | Brown |  | Black |  | or Brown  |
| Neutral | Blue |  | White |  | or Blue  |
| Ground | Green/Yellow |  | Green |  | or Green/Yellow  |

7.5 Solar Panel and Battery

Note: Before starting, ensure battery wires are not connected to the battery, and solar wires are not connected to the solar panel

Warning

Do not install the battery fuse until all wiring connections are completed.

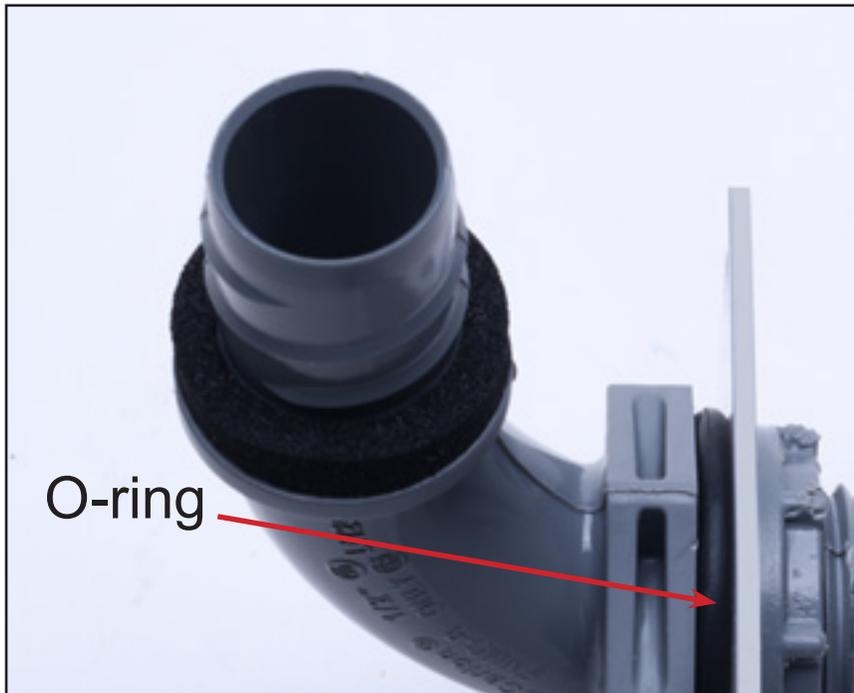
Remove Access Plate exposing the Solar Input and Battery Input wires.



Attach the supplied elbow to Access Plate and tighten.



Note: Ensure the elbow is securely tightened to the Access Plate, with rubber O-ring on the outside of Access Plate.



Cut and strip the ends of the External Solar Wires as shown below using the power panel as a guide for approximate length. Note that the Grey wire is longer than the Black wire.



Cut and strip the ends of the External Battery Wires as shown below using the power panel as a guide for approximate length. Note that the Red wire is longer than the Black wire.



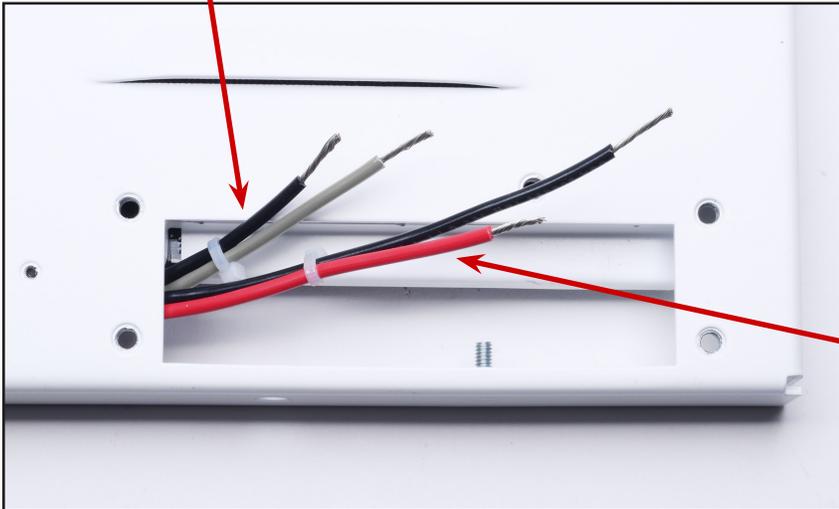
Feed the External Solar Wires and External Battery Wires through elbow as shown.



Cut and strip the Internal Solar Input and Internal Battery Input wires as shown.

Solar Input wires

- Grey and Black
- Grey = Solar (+)
- Black = Solar (-)

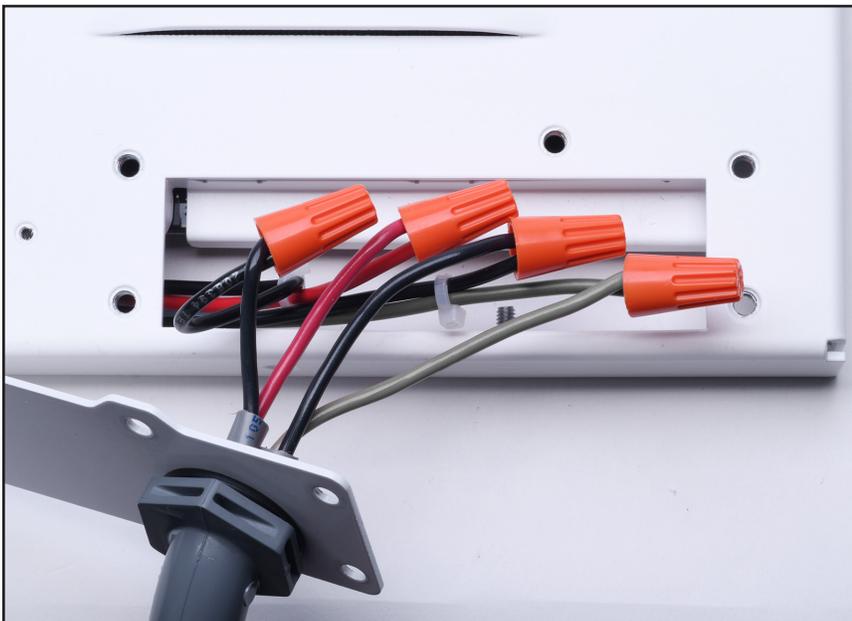


Battery Input wires

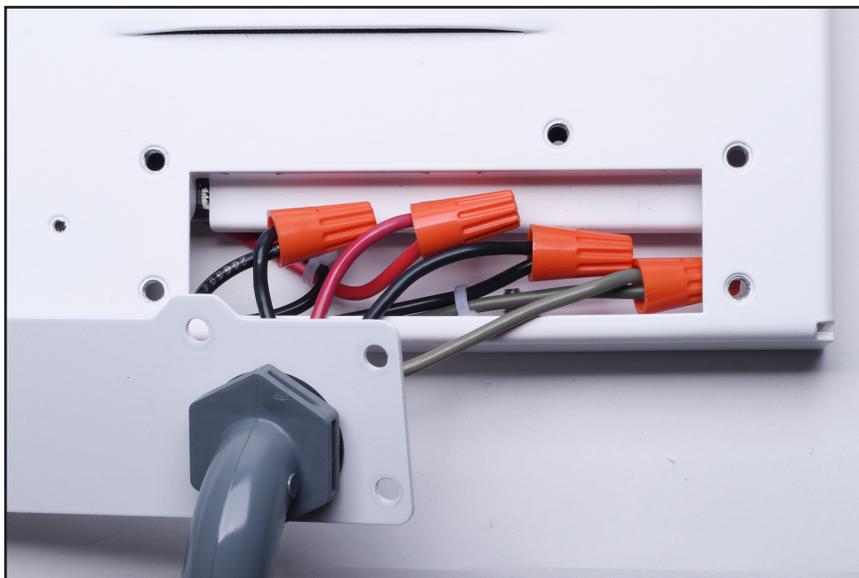
- Red and Black
- Red = Battery (+)
- Black = Battery (-)

Using appropriately sized wire nuts, twist and lock:

- Internal Solar Input (+) wire to External Solar wire (+)
- Internal Solar Input (-) wire to External Solar wire (-)
- Internal Battery Input (+) wire to External Battery wire (+)
- Internal Battery Input (-) wire to External Battery wire (-)



Tuck wires and wire nuts into the PMG sign.



Attach Access Plate to PMG Sign and tighten screws.



Connect the solar panel side of the External Solar Wires as described in Section 8.2.

Connect the battery side of the External Battery Wires as described in Section 8.3.

- a. Ensure the Key Switch is in the OFF position (fully counter-clockwise position).

8.0 Installation Guides

8.1 PMG Installation

- 1) Install pole bracket using bolts, screws, or straps.



1 Pole Bracket Strapped to Pole



- 2) Install PMG to Pole Bracket via pre-installed bolt on PMG. Then Rotate into position

Bolt at bottom keeps unit from shifting
3
3 Padlock can be added for security

- 3) Secure with bolt and lock.



8.2 Solar Panel Installation

Attach the arm to the solar panel

Lay solar panel face down on a smooth, protected surface.

Using a bolt, lock washer, and washer, attach the stationary panel clamp to the arm, tighten loosely. Then, bolt the upper (sliding) panel clamp to arm also using a bolt, lock washer, and washer, tightening loosely. (Figure A)

Center the arm on the back of the panel as shown and position the lower panel clamp under the edge of the panel's lower flange. Make sure that the clamp bolts are resting against the panel's flange before tightening. (Figure B)

Repeat the process with the upper (sliding) panel clamp. Be sure to push the panel clamp tightly under the panel's flange for a secure fit. Make sure the clamp bolts are resting against the panel's flange before tightening.

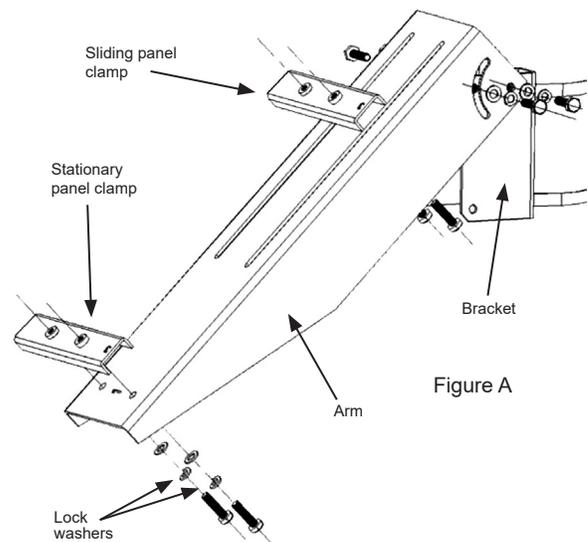


Figure A

Mount the bracket to the pole

Square utility pole:

First, determine the direction the solar panel will face. Attach the square pole adapter to the pole using the (2) bolts. Then thread each hose clamp through the slots and place the bracket on the pole as shown below and tighten. Align the direction of the solar panel as necessary.

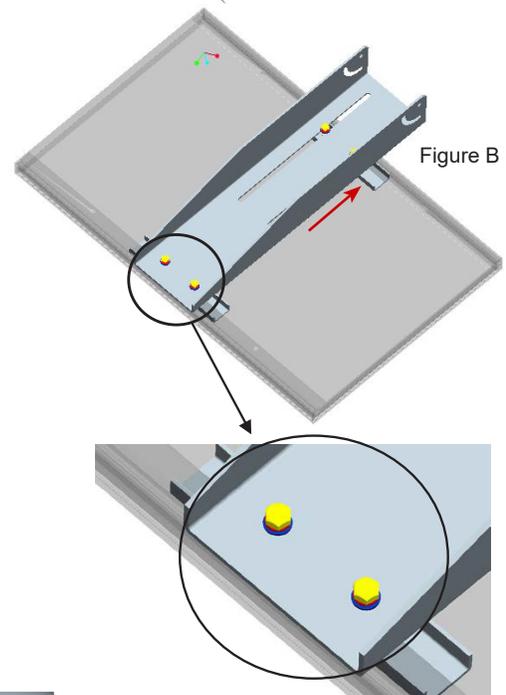
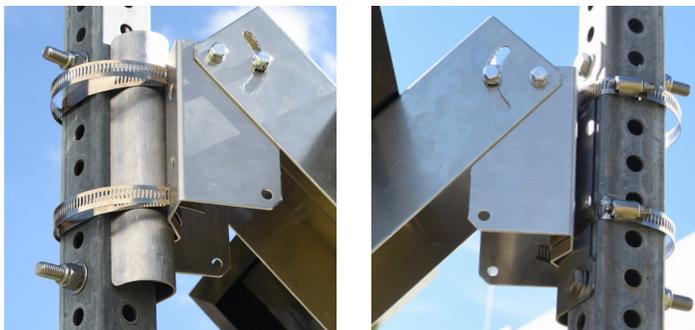


Figure B

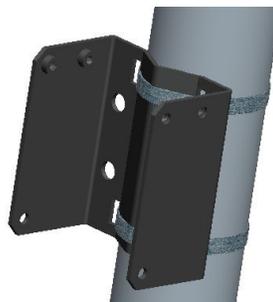


Round utility pole:

Thread each hose clamp through the slots and mount the bracket on the pole as shown.

Wooden pole:

Screw the bracket directly to the wooden pole.

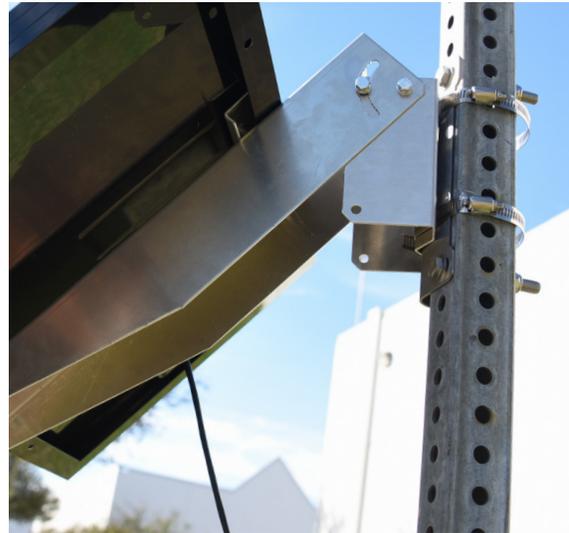


Attach arm to the mounting bracket

First, attach the arm to the bracket using a bolt and washer into the pivot hole on both sides. Tighten loosely.

Then, insert bolts into the adjustable slot on both sides raising the solar panel to the proper angle. Tighten.

Then tighten pivot bolts on both sides.

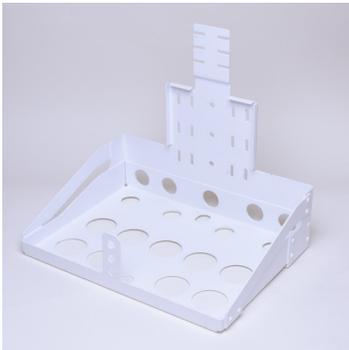


8.3 External Battery Installation

External Battery

This installation is only needed if this option was ordered.

The battery box kit comes complete with all of the brackets and hardware necessary for installation. Note: the battery and cables are not included. The battery shown is for reference purposes only.



Mount the bracket

1. The battery box may be installed on several types of poles or structures with hardware specific to that installation. For the common square pole with predrilled holes, use either (3) supplied 2" or 3" hex bolts and the retainer plate. (Figure 1)

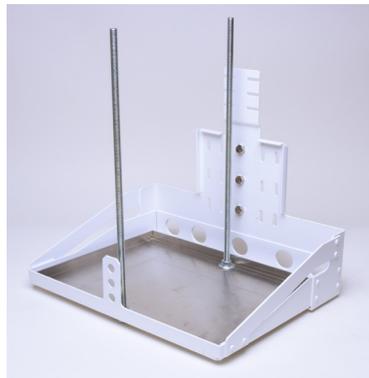
For a round or solid square pole, thread the metal banding through the bracket as shown in Figure 2.



Figure 1



Figure 2

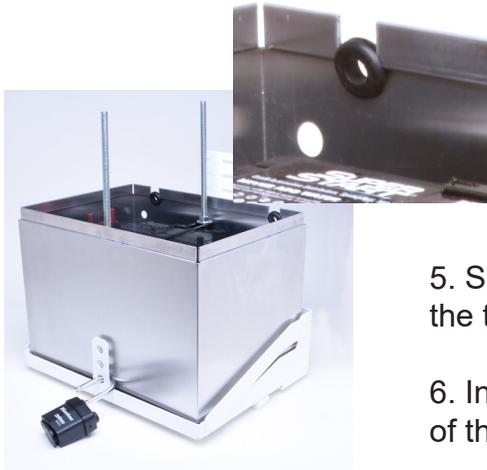


Install the box

2. Lay the box bottom in place, and using the threaded stock, attach the box bottom to the bracket using washers and nuts both above the box bottom and on the underside of the bracket.

3. Place the battery onto the box bottom and secure in place using the battery hold-down bracket with nuts and washers.

4. Loop the padlock through the bottom hole of the lock bracket, but don't fasten the lock.



5. Slide the battery box sides in place, making sure to fit the tabs securely into the box bottom.

6. Install the (2) rubber grommets into the slots at the rear of the box.

7. Connect all wiring and connectors as necessary.

8. Once wiring and connectors are in place, slide the battery box top in place and secure using washers and wing nuts.



9. Finally, install the retainer bar by inserting the top tabs into the rear slotted bracket and looping the bottom hole through the padlock loop.

Secure the padlock.

8.4 Flood Sensor Setup

Part number 200-1424-00

Theory of operation

- The PMG Flood Sensor consists of a tamper-proof metal enclosure which houses the fluid sensor. The PMG Flood Sensor is designed to be able to be submerged in water with no damage.
- The device should be placed in the target area so that the detector level, as indicated by the QR code sticker on the device, is at the desired height of the high-water trigger point.
- When water rises above the QR-code on the label, the sensor will be triggered, and a signal will be sent to the PMG.
- The PMG can be programmed to display a message for the alert. The alert message is selectable by the user from pre-set options or can be customized by the user. The choice of message is based on the recommended action for the location.
- Up to 3 flood sensors can be connected to a single PMG, allowing for progressive levels of alert escalation and de-escalation based on current water levels.



Key Technical information

- PMG must have “Text & Graphics” option enabled.
- The Flood Sensor requires that the PMG be configured with the 3 Input, +12V GPIO option.
- Multiple Flood sensors on a PMG
 - With its built-in GPIO port, a PMG can only support a single Flood Sensor.
 - A 3-port expander is available to allow for up to 3 Flood Sensors to be connected to a single PMG.



Pre-Installation

- Placement of the PMG and detector should be chosen to provide enough warning to the intended recipient to allow for evasive action to be taken, i.e. PMG placed far enough from high water detection point to allow for a car to stop and turn around.
- Extension cables are available for long runs from the detector to the PMG. Optionally a cable termination kit is available to allow for custom cable lengths.
- Pre-made Flood Sensor cables are configured to use GPIO-1 pin ONLY.
- If more than one Flood Sensor is to be used, or it is desired to use the other GPIO input ports, the PMG must have 3-port expander. Note that the expander input lines are all configured as GPIO-1 but will be combined to GPIO-1 through GPIO-3 in the cable back to the PMG.

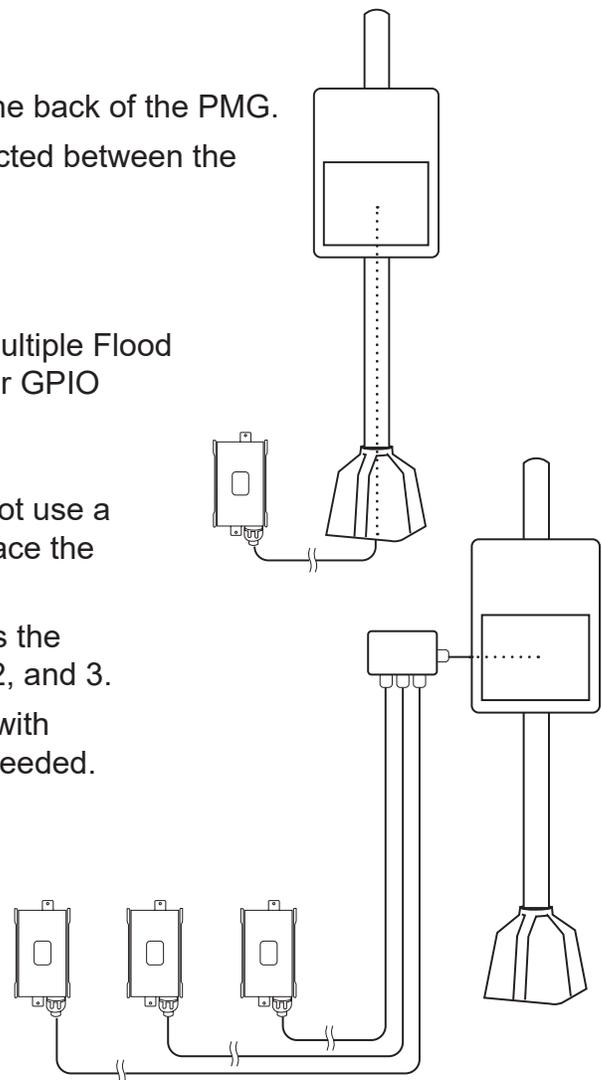


Single Flood Sensor Installation

- The cable from the flood detector plugs into the back of the PMG.
- Flood Sensor extension cables can be connected between the PMG and the Flood Sensor assembly.

PMG 3-Port I/O Expander installation

- The 3-port expander allows for connecting multiple Flood Sensors to a single PMG without the need for GPIO port-specific cables.
- The PMG 3-port expander must be directly connected to the PMG GPIO port. You cannot use a Flood Sensor extension cable to remotely place the 3-port expander.
- Installation of the PMG 3-port expander limits the PMG to GPIO Inputs only for GPIO ports 1, 2, and 3.
- Flood sensors can be connected directly, or with extension cables, to the 3-port expander as needed.
- An extension cable termination kit is available for connecting other sensors to the port expander but must use GPIO-1 pin on the connector.



Sensor to PMG Distance

- Combined cable lengths up to 1025 ft. have been verified as the cable provides both signal and power for the flood sensor setup. This length should provide adequate distance for drivers to read the message on the PMG and be able to stop at various speeds.

Cable Lengths

- Available in 25 ft. and 100 ft lengths.
- Connections and cable are designed to be waterproof.
- Cables should be selected to minimize number of cables and excess cable length based on installation location.
- Recommend that cable be run through 3/4" or larger conduit (3/4" needed to allow cable connector to fit)
- Cable termination kit is available for customer shortening of standard cables. The kit only includes one connector.

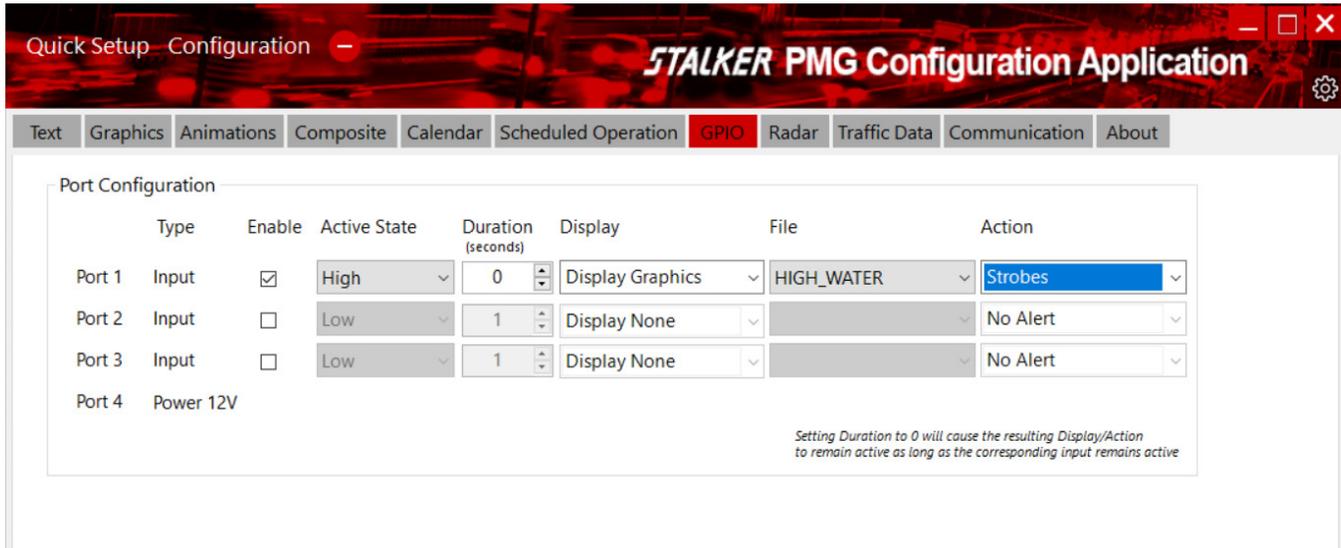
Optional PMG Flood Sensor accessories

- 25 ft Flood Sensor extension cable
155-2588-25
- 100 ft Flood Sensor extension cable
155-2588-00
- PMG 3-Port I/O expander
200-1455-00
- PMG GPIO/CAN connector wiring kit
200-1206-69



8.4.1 PMG Configuration Tool

- We recommend making sure both your PMG firmware and PMG Configuration Application software are up to date prior to installation of the Flood Sensor.
- The latest PMG Configuration Application software version has been updated with graphics specific for alerting drivers about flooding and actions to take.

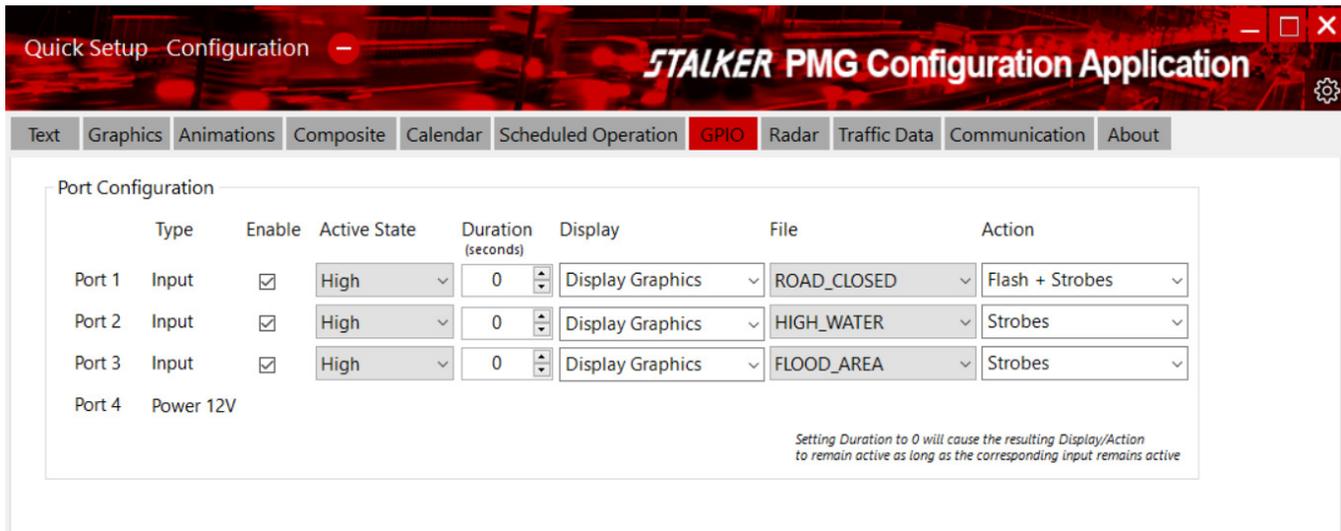


How to configure GPIO for use with the Flood Sensor

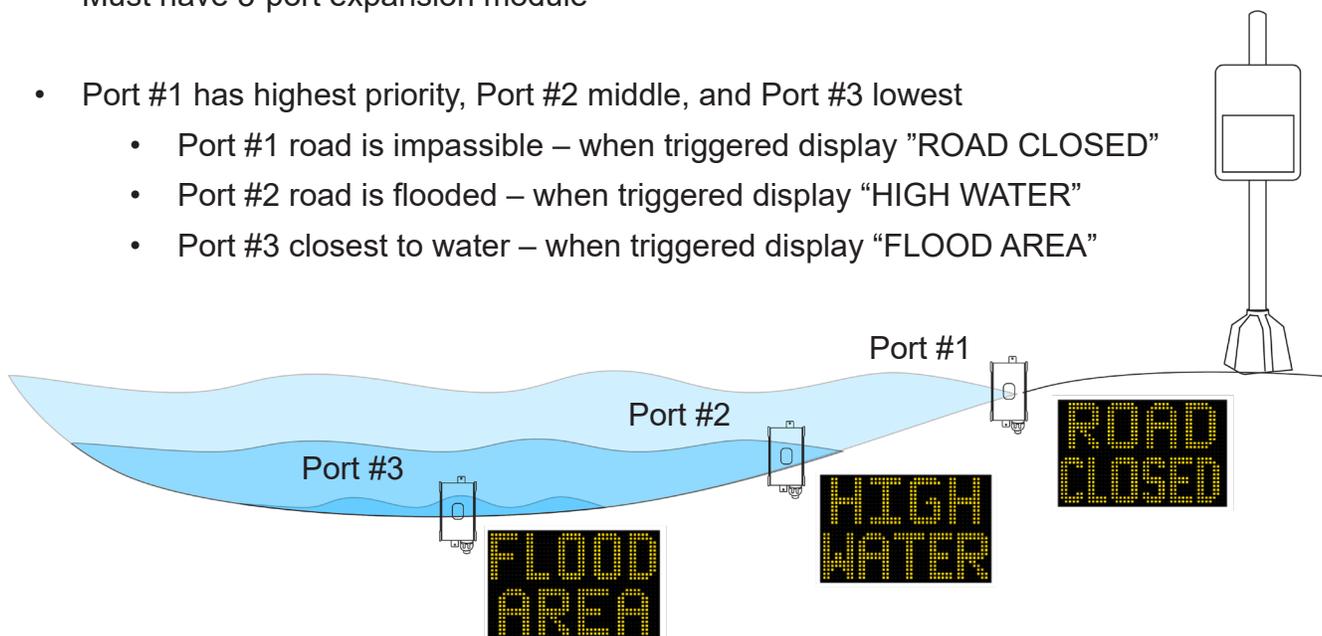
On GPIO Tab

- Enable
 - Checked
- Active State
 - High
- Duration
 - 0 – keep message displayed as long as sensor detects water
- Display
 - Select what to display when sensor is triggered.
- Alert Action
 - Flash display
 - Flash strobes
 - Flash both
 - Trigger simulated camera flash
 - Nothing

To setup multiple sensors as a cascading set of messages, i.e. FLOOD AREA - HIGH WATER – ROAD CLOSED



- Must have 3-port expansion module
- Port #1 has highest priority, Port #2 middle, and Port #3 lowest
 - Port #1 road is impassible – when triggered display "ROAD CLOSED"
 - Port #2 road is flooded – when triggered display "HIGH WATER"
 - Port #3 closest to water – when triggered display "FLOOD AREA"



- As water rises, messages transition through the following.
 - Idle display >> "FLOOD AREA" >> "HIGH WATER" >> "ROAD CLOSED"
- As water recedes, message transition through the following.
 - "ROAD CLOSED" >> "HIGH WATER" >> "FLOOD AREA" >> Idle display

Sample Messages



EXIT
HERE



CLOSED



DO NOT
PASS



FLOOD
AREA



HIGH
WATER



ROAD
CLOSED



SLOW
DOWN



STOP
AHEAD



STOP
HERE

9.0 Specifications

| Display | 12" | 15" | 18" |
|-----------------------------|--|--|--|
| Led count | 756 | 1050 | 1488 |
| LED organization | 21 rows by 36 columns | 25 rows by 42 columns | 31 rows by 48 columns |
| Display color | Amber, 590 nm | Amber, 590 nm | Amber, 590 nm |
| Maximum intensity (typical) | 4000 mcd | 4000 mcd | 4000 mcd |
| Intensity controls | Fixed, Auto, and Combo | Fixed, Auto, and Combo | Fixed, Auto, and Combo |
| Light dispersion | ±15 degrees Horizontal ±15 degrees Vertical | ±15 degrees Horizontal ±15 degrees Vertical | ±15 degrees Horizontal ±15 degrees Vertical |
| Strobes | Red/Blue White Amber | Red/Blue White Amber | Red/Blue White Amber |
| Display height | 12 inches (304 mm) | 15 inches (381 mm) | 18 inches (457 mm) |
| Display width | 18.5 inches (470 mm) | 23 inches (584 mm) | 25.5 inches (647 mm) |

Power Consumption

| | | | |
|-----------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Idle (no display) | 1.6 Watts | 1.6 Watts | 1.6 Watts |
| Display 88, 100% brightness | 14 Watts | 20 Watts | 26 Watts |
| Operating voltages | 12 VDC or 90-240 VAC, 50/60 Hz | 12 VDC or 90-240 VAC, 50/60 Hz | 12 VDC or 90-240 VAC, 50/60 Hz |

Radar Characteristics

| | | | |
|---------------------------------|------------------------|------------------------|------------------------|
| Frequency | 24.125 MHz ±100 MHz | 24.125 MHz ±100 MHz | 24.125 MHz ±100 MHz |
| Output power | 10 mW | 10 mW | 10 mW |
| Directional | Approaching + receding | Approaching + receding | Approaching + receding |
| Typical range | 600 feet (183 m) | 800 feet (244 m) | 900 feet (275 m) |
| Beam width | 32° H x 30° V | 32° H x 30° V | 32° H x 30° V |
| Statistical Tracking capability | 10 vehicles simult. | 10 vehicles simult. | 10 vehicles simult. |

Physical Characteristics

| | | | |
|------------------------------------|--|--|--|
| Case height | 16.1 in. (409 mm) | 19.2 in. (490 mm) | 22.1 in. (560 mm) |
| Case width | 21.2 in. (540 mm) | 25.8 in. (650 mm) | 30.3 in. (770 mm) |
| Depth, base unit excluding bracket | 1.2 in. (31 mm) | 1.2 in. (31 mm) | 1.2 in. (31 mm) |
| Depth, with power module installed | 2.1 in. (54 mm) | 2.1 in. (54 mm) | 2.1 in. (54 mm) |
| Mounting Bracket depth (base unit) | 1.75 in. (44 mm) | 1.75 in. (44 mm) | 1.75 in. (44 mm) |
| Weight, excluding mounting bracket | 9.3 lbs. (4.22 kg) | 13.2 lbs. (6 kg) | 17.45 lbs. (7.9 kg) |
| Window Color | Clear | Clear | Clear |
| Window material | 4.5 mm acrylic | 4.5 mm acrylic | 4.5 mm acrylic |
| Case Color | White/Black | White/Black | White/Black |
| Case material | 2.3 mm aluminum, powder coat finish | 2.3 mm aluminum, powder coat finish | 2.3 mm aluminum, powder coat finish |

Environmental Characteristics

| | | | |
|-----------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Operating temperature Range | -22°F to +122°F (-30°C to +50°C) | -22°F to +122°F (-30°C to +50°C) | -22°F to +122°F (-30°C to +50°C) |
| Ingress rating | NEMA 3R | NEMA 3R | NEMA 3R |

Supplier's Declaration of Conformity

47 CFR § 2.1077 Compliance Information

Pole Mounted Graphics Display

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FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

This product may contain one or more of the following:

FCC ID: UXS-IPS937

FCC ID: QOQ-BGM111

FCC ID: QOQ-WGM110

FCC ID: MCQ-XB3M1



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Standard of Care. You agree not to use this Operator's Manual for any purpose other than in the operation of the Stalker PMG. You agree that the standard of care which you shall use in preventing disclosure of the Operator's Manual to third parties shall be at least the same care that you would take in preserving the confidentiality of your own sensitive information and classified documents. You also agree to exercise reasonable care in overseeing those with access to the Operator's Manual and shall limit such access to only those who have a need to know

StalkerRadar.com

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