



# PTL Compact Type 2 Operations and Maintenance Manual

## Controller QuickStart Guide

Operating as Type-2 (Control possible via Main controller or Optional Remote)

**NxG**

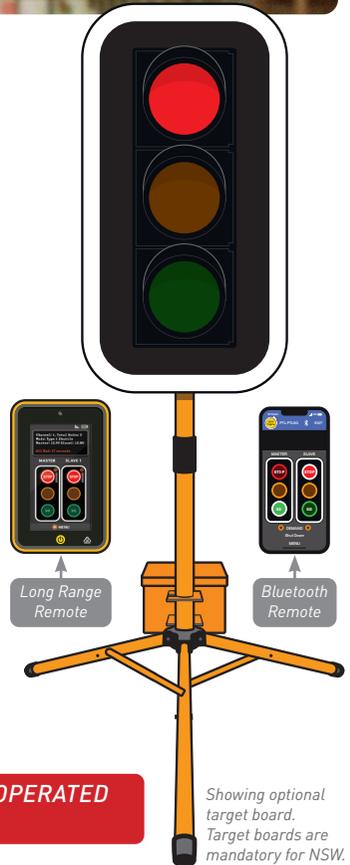


This QuickStart Guide covers the PTL Controller Operation as per Australian Standards AS- 4191:2015 and Various State Authority requirements. For Advanced Features, download the Portable Traffic Lights Advanced Features Document, this covers the sections as follows:

1. All-Red Time, Yellow and Green Manual programming.
2. Additional operational modes. These are not part of the Australian Standards and may not apply to specific state Type approvals.
3. Additional features, Radio Link explained, Fault logging as per Australian Standards, troubleshooting guide.

This User Manual applies to Controllers operating on firmware 07.01.xx or later.

For the purpose of this manual, the PTL-Compact controller must be set to Type-2 operational mode. See page 17 for more information on how to set this mode.



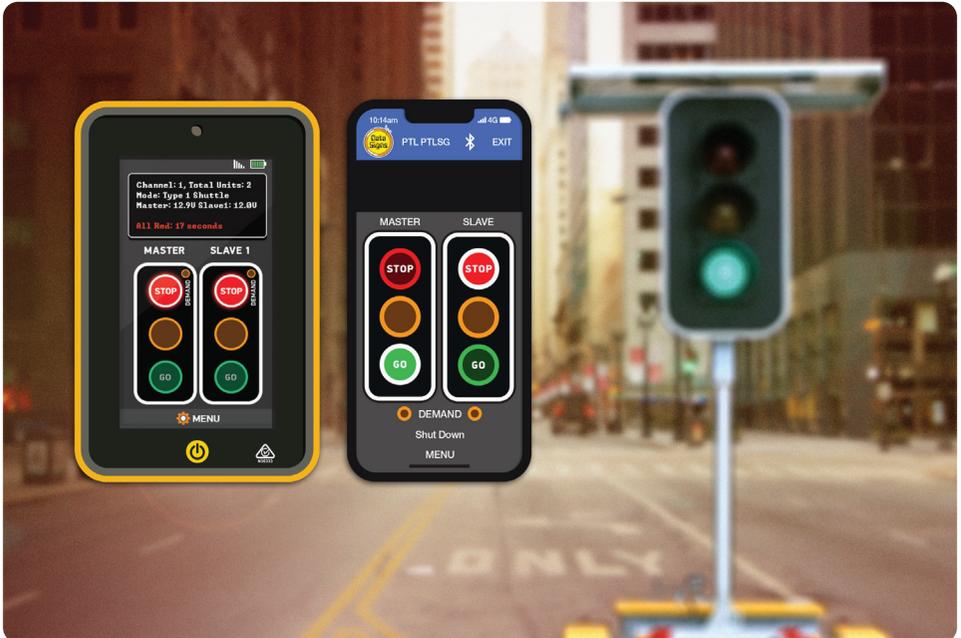
Showing optional target board. Target boards are mandatory for NSW.

**! THE PORTABLE TRAFFIC LIGHTS SHOULD ONLY BE OPERATED BY QUALIFIED TRAFFIC MANAGERS.**



# ■ Contents

Turning the Controllers On	3
Master Controller: Operational MODE SELECT	4
QUICK START	4
Controller display screens for Master and Slave	5
Shuttle Control – Single-Lane Usage	6
Plant-Crossing Control – 2 way Traffic	9
Yellow Flash mode	11
The Remote Control	12
Bluetooth Remote Controller	14
Main Menu – Program Settings	16



## ■ Turning the Controllers On



To switch the controller on, press the ON/OFF button  (and enter code if required).

The POWER lights will come on and the Controllers will begin the start-up sequence.

The Master and the Slave controllers will begin to establish a radio link as indicated by the **TX** and **RX** green lights on the controllers.

Both the units will show Flashing Yellow aspects and progress to showing RED aspects during this process. The Controllers will complete a self-diagnosis and check any connected external equipment such as the *optional* vehicle detectors.

The status of the external equipment will be shown on the display panel of the Master Controller.

During Start-up, the display on the Master will show the time remaining in seconds for start-up to complete.

The Controllers will start up in the last mode previously selected. If  is activated, the Controller will wait for further input and all connected traffic lights will display Flashing Yellow.

# Controller: Operational MODE SELECT

Press the PROGRAM MODE SELECT button  (and enter code if required), which allows you to select all other controller programmable functions.

Use the Up  or Down  buttons to scroll through the MENU selection, then press the  Button to select the MENU item.

Press the Program Menu  button to exit the selected MENU.

M	A	I	N		M	E	N	U					[	A	U	T	O	]
		V	I	E	W		P	T	L		S	T	A	T	U	S		
*		Q	U	I	C	K		S	T	A	R	T						
		U	N	I	T		S	E	T	T	I	N	G	S				

## QUICK START

This Main Menu item, lets you quickly set up all the necessary items to get the PTL set's going. It will guide you through the process to automatically calculate the correct signal timing for your specific site condition.

- Master or Slave. (If slave selected the QUICK START finishes after this.)
- Enter control area Length in meters i.e. 500 Meters
- Enter Site Speed limit in Km/H i.e. 40Km/h
- The signal timing is then calculated and set.
- Enter the Green Time.

Press any of the MODE SELECT buttons    to make your selection.

The current MODE setting is shown on the top display line in between square brackets, i.e. [AUTO] as per above display screen.

- **DEMAND** is Vehicle-actuated MODE of operation. Vehicle detectors MUST be fitted.  
*For this Manual, DEMAND will always mean Vehicle-actuated*
- **AUTO (TIMED)** AUTO MODE of operation.  
*For this Manual, AUTO will always mean (Automatic Timed Mode)*
- **MANUAL** is Manual MODE of operation.

*For Manual programming of any of these items see the Advance Functions Document.*

# Controller display screens for Master and Slave

**Master ID=0** The following values will be shown on the display panel during normal operation

1	2	.	1	V		G	S	M	:	N	/	A			1	2	.	4	V	
		A	U	T	O	-	T	I	M	E	D				M	A	S	T	E	R
N	O	R	M	A	L										G	R	E	E	N	
C	H	N	:	1										0	5	6		S	e	C

**First line:** Master Battery Voltage, GSM status. Right side, Slave Battery Voltage. & Signal Strength

**Second line:** Current MODE in use.

**Third line:** Control Type (i.e. NORMAL). Right side, Current light sequence

**Fourth line:** Current time if GSM module fitted, current RF Channel, or RS485  
Right side, Current state remaining time

**Slave ID=1 (or more)** The following values will be shown during normal operation:

U	N	I	T		I	D	:	1							1	2	.	4	V
C	H	N	:	1											S	L	A	V	E
C	O	N	N	E	C	T	E	D		T	O	:		1	2	A	4	5	
T	I	M	E	O	U	T		I	N	:		0	5		S	e	c		

**First line:** The ID of this unit. Right side, current Battery Voltage.

**Second line:** RF Channel set on this unit.

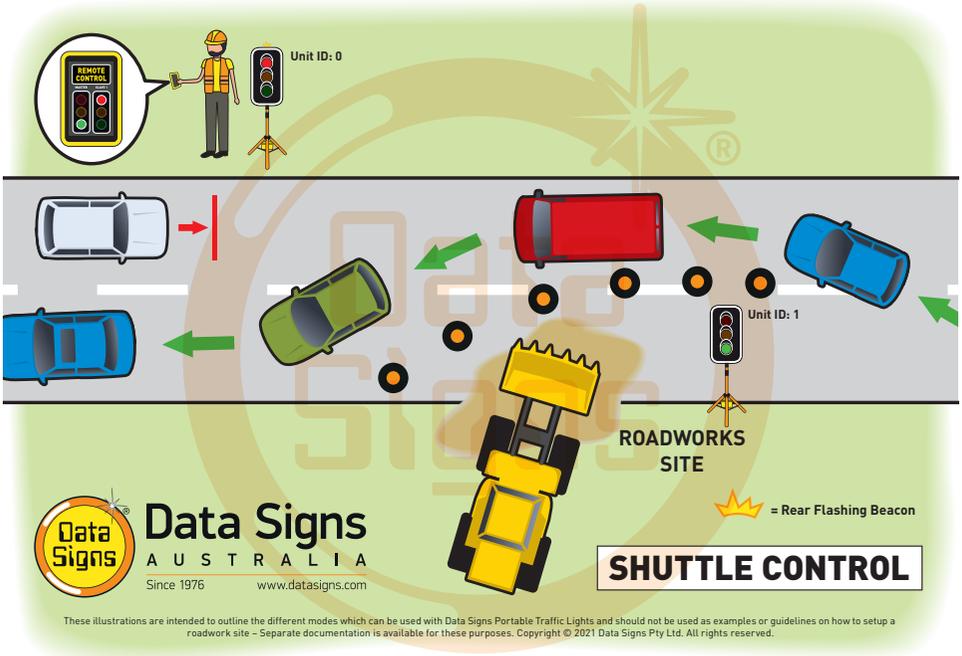
**Third line:** The Serial Number of the Master Controller this unit is connected to.

**Fourth line:** The current RF timeout value. If this starts to count down there are interruptions to the RF communications. For more information regarding the radio link, see the Radio Link Explained in the PTL Advance Features Document.

# Shuttle Control – Single-Lane Usage

Shuttle Control is a form of traffic control used where a portion of the roadway is closed so that only a single lane can be used alternatively by traffic from opposite directions. Only one Portable Traffic Light unit can show the Green signal phase at any time; either the Master or the Slave. The diagram below illustrates the traffic control scenario where Shuttle control would typically be used.

*Note: This diagram should not be used as a guideline for setting up a roadwork site, it is provided as an example only.*



Each PTL unit will go to the Green signal phase in turn, with the All Red sequence in between each green phase. See Appendix for more details.

## SHUTTLE: MANUAL MODE.

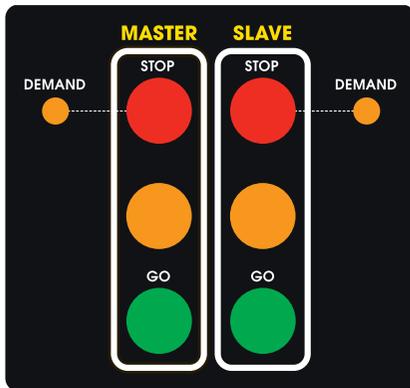
Buttons used:  

**MASTER:** STOP  or GO 

**REMOTE:** STOP  or GO 

Manual mode is used when an operator wants to control the traffic; a demand for Green or Red signal phase on the Master or Slave is entered on either the Master Controller or Remote Control unit. For Shuttle Control, on start-up, both the Master and Slave will rest on All-Red phase until a demand for Green phase is entered.

To enter a demand for either Red or Green phase, press the **STOP** or **GO** buttons on either the Master Controller or Remote Control. The DEMAND LED is activated indicating a demand for either the Master or Slave.



Master / Slave Controller



PTL Remote Screen

### Shuttle Control, Manual mode example:

1. Slave unit is currently showing the Green signal phase.
2. Master: **GO** button is pressed (on either Master or Remote Control).
3. If the Minimum Green time (5 seconds) has expired, the Slave will cycle immediately to Yellow and then Red signal phase. If the Minimum Green time has not expired, the Master DEMAND LED will flash.
4. Once the Minimum Green time has expired, the Master DEMAND LED will extinguish and the Slave will cycle to Yellow and then Red.
5. Both Master and Slave now show Red signal phase for the pre-set All-Red interval.
6. The Master then cycles to Green **and remains on Green** until a Slave **GO** or a Master **STOP** button is pressed, the sequence can then be repeated.

*In Manual mode the signal phases can remain indefinitely on Green/Red, Red/Green or All-Red.*

## SHUTTLE: AUTO MODE

Buttons available for HOLD-RED/RESUME feature:

**MASTER:** STOP  or GO 

**REMOTE:** STOP  or GO 

In AUTO mode, the Portable Traffic Lights will operate in cyclic order according to the pre-set times.

To set the correct Site-Signal-Timing, Use 'QUICK START' Menu and follow the prompts.



**IT IS EXTREMELY IMPORTANT THAT THE ALL-RED INTERVAL IS SET CORRECTLY FOR EACH TRAFFIC CONTROL SITUATION.**

## PAUSE – HOLD ALL-RED / RESUME

Also for this mode, the operator can Pause and (hold) on All-Red

Press the **STOP** button on either the Master Controller or Remote Control to hold All-Red for as long as required – while actually in All-Red phase. The display will show 'PAUSING'. To resume the AUTO mode cycle, press the **GO** buttons on either the Master Controller or Remote Control.

## SHUTTLE: DEMAND MODE

(optional Vehicle detector must be fitted)

Buttons available to introduce artificial demands:

**MASTER:** STOP  or GO 

**REMOTE:** STOP  or GO 

For DEMAND mode to operate, the optional Vehicle Detector must be fitted to each Portable Traffic Light unit. A "NO VEHICLE DETECTOR" message will appear on the Master Controller display if no vehicle detector is attached and the DEMAND mode is selected. In Demand mode, all units must be equipped with vehicle detectors for DEMAND mode to function; only fully-actuated is allowed.

The vehicle detector is preset to detect and create a DEMAND signal when vehicles approach the Portable Traffic Light at speeds between 10 km/h and 80 km/h. However, this can be changed, using the UNIT SETTINGS menu on both the Master and Slave units.

## REAR BEACON LAMP

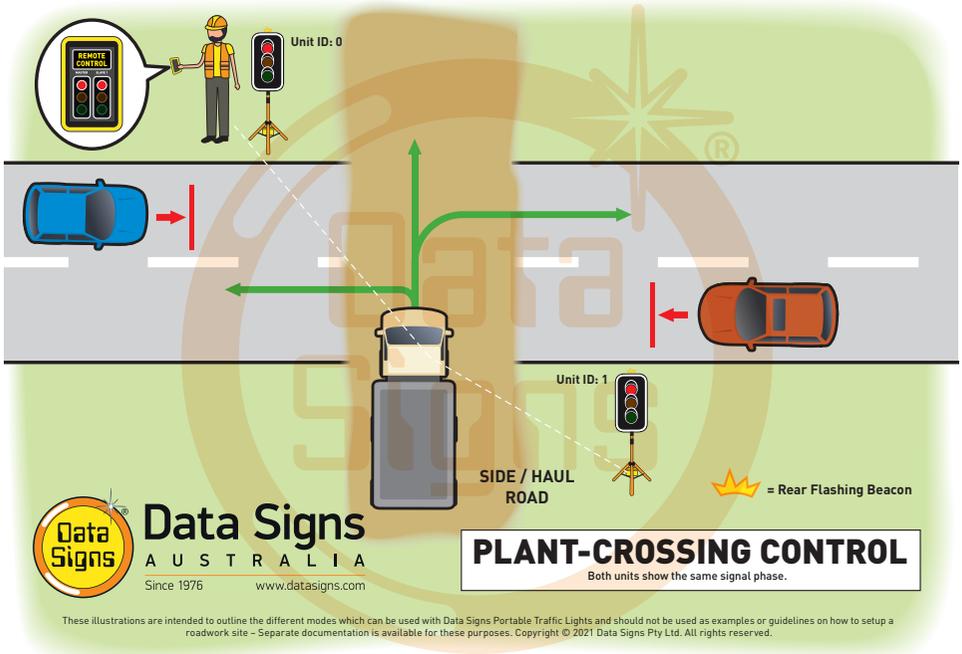
When enabled, the Beacon Lamps mounted behind the aspects flash when the Red Aspects is ON.

This acts as a visual indicator to the Traffic controller that the Aspect is on Red, it also serves as a 'caution light' to oncoming traffic.

# Plant-Crossing Control (2-way Traffic)

Plant-Crossing control is used to enable both directions of traffic flow along a roadway to be simultaneously stopped, e.g. to allow road construction vehicles to cross. The diagram below illustrates Plant-Crossing control usage.

*Note: This diagram should not be used as a guideline for setting up a roadwork site, it is only provided as an example.*



*Normally, the operator would use a Remote Control to change the Master and Slave unit to the Red signal phase when a plant vehicle requires thoroughfare.*

## REAR BEACON LAMP

When enabled, the Beacon Lamps mounted behind the aspects flash on each unit when the Red Aspects are ON. This acts as a visual indicator to the Plant (vehicles) Crossing the road that it is safe to do so.

## PLANT CROSSING: MANUAL MODE.

Buttons used:  

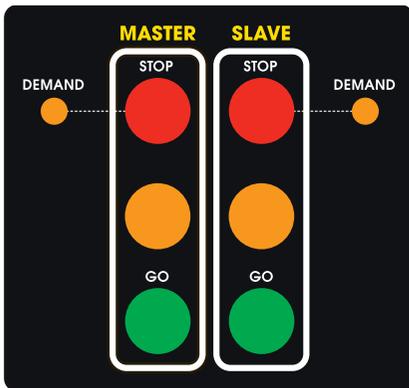
**MASTER:** STOP  or GO 

**REMOTE:** STOP  or GO 

On start-up, both the Master and Slave will rest on Green signal phase for Plant-Crossing Control until a demand for Red signal is entered by the operator.

The operator can enter a demand for All-Red signal using either the Master: **STOP** or Slave: **STOP** buttons on the Master Controller or the Remote. Both the Master and Slave units will then cycle to Yellow and the Red signal phase.

To change back to Green signal, either the Master: **GO** or Slave: **GO** button is pressed. When the All-Red time has expired, the lights will cycle back to the Green signal. If the Master: **STOP** or Slave: **STOP** button is pressed and the Minimum-Green time has not expired, the DEMAND LED will flash.



Master / Slave Controller



PTL Remote Screen

### Plant-Crossing Control, Manual mode example:

1. Both the Master and Slave are on the Green signal phase.
2. Either the Master: **STOP** or Slave: **STOP** buttons are pressed (on either the Master Controller or Remote Control).
3. If the Minimum-Green time has expired *both* the Master and Slave will cycle immediately to Yellow and then to Red signal phase. Otherwise - if the Green time has not expired - the DEMAND LED's will flash.
4. Once the Green time has expired, the DEMAND LED's will extinguish and the Master and Slave will cycle to Yellow and then Red signal phase.

5. Both the Master and Slave now show Red signal phase for the preset All-Red interval.
6. **If the Auto-Return option is enabled**, the Master and Slave will cycle back to Green signal phase automatically after the All-Red interval has expired.  
Or, if the Master: **GO** or Slave: **GO** button is pressed (on either Master or Remote Control), the Master and Slave will cycle back to Green signal phase.

## PLANT CROSSING: AUTO MODE

**No buttons are active for this mode on the Master or Remote Control.**

In AUTO mode, the Portable Traffic Lights will operate in cyclic order according to the pre-set times.

The pre-set All-Red Time is used as the All-Red signal phase time for Plant-Crossing Control, AUTO mode.

The pre-set Maximum Green Time is used as the All-Green signal phase time for Plant-Crossing Control.

AUTO mode allows plant vehicles to regularly cross over the road, or to turn onto the road. This would suit sites with heavy plant traffic.

*Note: This mode is not permitted in some Australian states. Check the guidelines in your state before using this option.*

*See the PTL Advanced Features Document for more information.*

## PLANT CROSSING: DEMAND MODE

*Demand mode is normally not used, if required see the PTL Advanced Features Document for more information.*

# ■ YELLOW FLASH mode

The Flashing Yellow mode operates in response to specific fault conditions or it is active when the PROGRAM MODE SELECT  button is pressed.

During Flashing Yellow mode, all lights controlled by the Master - and the Master itself - will flash the Yellow signal at a flash rate of sixty flashes per minute.

# ■ The Remote Control

## REMOTE CONTROL STARTUP

To switch the actual PTL-Remote on, press and hold the  button for one second.

The unit will beep twice and the startup screen will appear after a few seconds.

To put bring the remote in and out of STANDBY mode, press the  button briefly.

To SHUTDOWN the PTL-Remote, press and hold the  button, the unit will give a two second beep and shutdown.

Use the Power Saving Menu option and recommended operation mode to manage the Battery duration (*see Data Signs YouTube videos*).



The Optional Remote Control is used by the operator to control traffic flow when the Master Controller has been set to Manual mode either in Shuttle or Plant-Crossing operation.

To enter a Demand for either Red or Green signal phase, press the **STOP** or **GO** buttons. On each Demand, the DEMAND LED's will flash to indicate a demand on the Master or the Slave.

Refer to previous sections regarding comprehensive use of the Remote Control in various operational modes.

The display screen will indicate whether the Master is in the correct mode to use the Remote Control. It will also show relevant status and time left for a selected phase. The current signal phase on the Master and Slave unit 1 is shown on the Remote Control.

When the battery on the Remote Control gets low, a warning message will appear on the display panel. To recharge the Remote Control, plug it into the remote cradle in the Control box on the Master unit or via an external charger and connect the charge cable. When the Remote Control is charging, the battery indicator shows a lightning symbol and the green Light the top is ON while charging is occurring.

## SETTING THE RF CHANNEL ON THE REMOTE CONTROL

To set the RF Channel on the Remote Control, follow these instructions.

1. Press the  button on the bottom/left of the screen to go to settings.
2. Press the RF Channel option.  RF Channel
3. Enter the new channel number.
4. Press the ENTER button  to save.
5. To re-start normal operation, press the BACK button. 

## ADDITIONAL MONITORING

If operating more than two PTL units, press the Slave AMBER button  and slide to the LEFT to switch between the displays for each of the Slave units.

Data Signs can supply a fully configured, DEDICATED Bluetooth device as part of your PTL-Compact purchase.



## Bluetooth Remote

For use with Bluetooth enabled devices.

The PTL Compact Lights are fitted with a Bluetooth interface. This allows for connection to a Bluetooth enabled phone or device.



1. Press the PTL Connect Icon. If it is the first time enter the password (*The default is 123456*).
2. The Password is set by using the Menu on the controller. This is covered on page 17.
3. Press Scan on the screen. Your device will now look for the Bluetooth in the PTL controller.
4. Once the PTL is found the Logo and the PTL Serial number will appear on the screen. Press the Logo. The screen will then Prompt for the Password. Enter this and press the Connect button. Your device will now show the Remote operation screen.  
*(Note next time you activate your device to use as a Remote, a password is not needed as it is now stored in the device.)*

*Note, the light and any other actions work by tapping the screen. i.e. to change to a RED light, tap the Red light on the screen.*

### Status screen.

The top line shows date and time, if this count is active your device is connected.

The second line shown how many units are connected. i.e. 1 Unit(s) - Type 1

The third line shows the Mode the PTL Compact is operating as currently, i.e. Gating Control

The fourth Line show the remaining time for the phase. i.e. All Red: 6 Seconds



For a more descriptive manual, please scan this QR code:  
[\[datasigns.com.au/documents/HelpDesk/Local-Bluetooth-Connect-Manual.pdf\]](https://datasigns.com.au/documents/HelpDesk/Local-Bluetooth-Connect-Manual.pdf)



## THE MAIN SCREEN

The Main screen will display the lights for the Master on the left and the Slave on the right side of the screen. If in Gating mode only one PTL will be visible.

The Battery voltage of the PTL is shown below each PTL Master or Slave Label.

An Alarm will indicate if the battery reaches a too low level.

Tap the STOP Red lamp to change to Red if the light is on Green

If the minimum time has not expired yet the DEMAND light will flash indicating a demand has been registered. Once the count is at 0 the light will change.

Same operation applies for GO Green lamp.

### ◀ SHUT DOWN

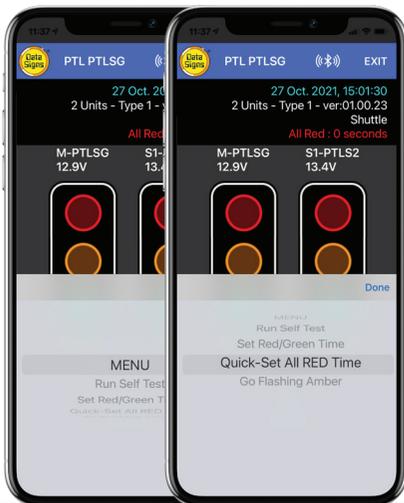
To Shut the lights down or Start them up again, tap the Shut Down button and confirm by pressing Yes.

The Light(s) will go blank, or start up whichever the case might be.

### RED / GREEN TIME ▶

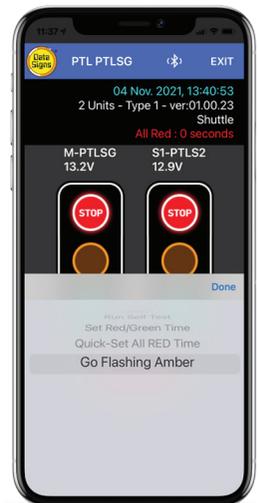
To set the Red or Green Times. This is the minimum time that the Phase shows on either Red or Green.

From the MENU, scroll to select, **set Red/Green Time** and follow the prompts, **or** select **QUICK-Set All RED Time** (select this to automatically calculate the correct All RED Time used for Shuttle or Plant Modes).



### FLASHING YELLOW LIGHT ▶

You can set the Lights to Flash Yellow only. This might serve as a caution or warning lights.



## ■ MAIN MENU

While the Controller is in the  PROGRAM MODE SELECT setting, use the Up  or Down  buttons to navigate forward and back through the MENU's to select all other programming functions. *Note: for more comprehensive information see the PTL Advanced Function Document*

### MENU: VIEW PTL STATUS

When this menu item is selected, all the current settings and status of the PTL controller. Use the Up  or Down  buttons to navigate forward and back through the list.

### MENU: QUICK START

Use the **Site Quick Set-Up** Menu item, this will guide you through the process to automatically calculate the correct signal timing and Mode for your specific site condition.

### MENU: UNIT SETTINGS

Use this menu to set the Unit ID, Communications and Vehicle Detection settings.

#### SUB-MENU: ID

The **ID** (unit ID) governs the timing control sequence. **The Master is ALWAYS unit ID:0** the **Slave(s) are ID:1 or higher**. See the various Intersection Control sections later in this document and the PTL Advanced Features Document for more information.

### MENU: OPERATING SETTINGS [Master only]

#### SUB-MENU: ON-THE-FLY-MODE [Default: Disabled]

You can change the Red, Yellow and Green Times without having to enter  PROGRAM Mode. *You can also change from AUTO to MANUAL modes by selecting those buttons.*

*Note: The new time values entered on-the-fly are not saved, they are only used while the PTL's are running. When the Master Controller are turned off, it reverts back to the previously saved times.*

To keep the time settings, change the times while in  PROGRAM Mode.

#### SUB-MENU: AUTO RETURN [Default: Disabled]

*This option should not be used in NSW - check your state or territory guidelines for more information.*

Use this menu item to set the Auto Return function. See the Auto-Return Explained section in the *PTL Advanced Manual* for details.

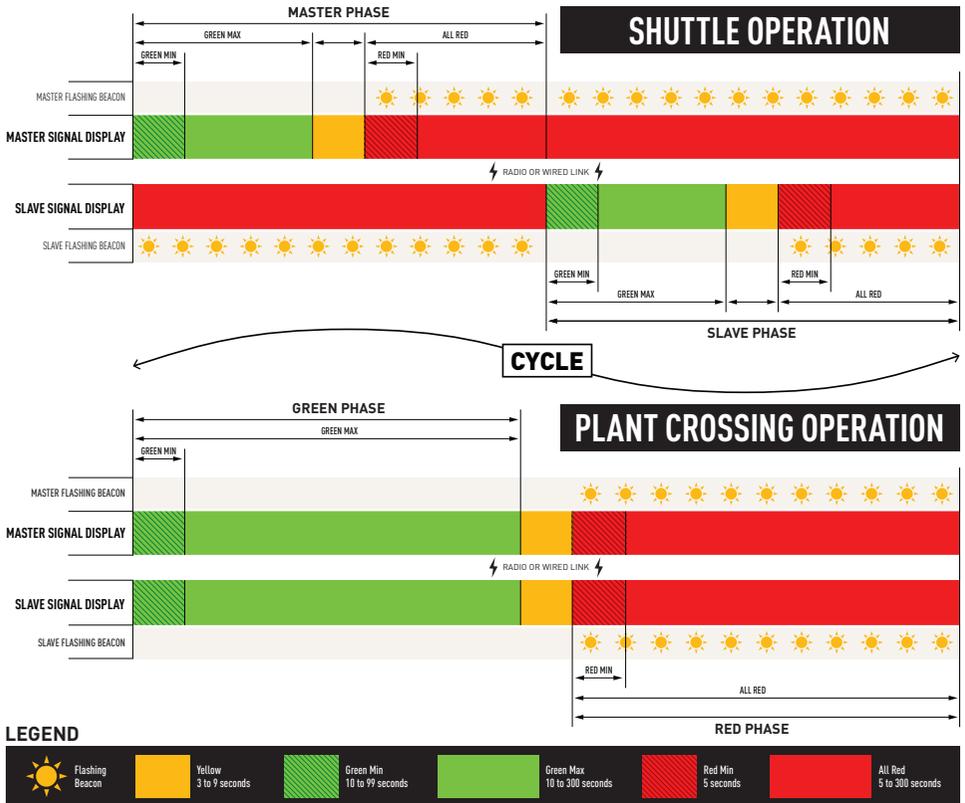
#### SUB-MENU: DEMAND CYCLE [Default: 3 minutes]

In DEMAND mode, if there are no vehicles detected, you can set period of time that an automatic demand cycle is introduced. If the DEMAND CYCLE value is set to 0, no automatic demand cycle will be introduced. Otherwise specify the minutes to wait where no vehicles are detected before introducing an automatic demand cycle.

*For more menu items under the 'Operating settings Menu', see the PTL Advance Manual.*



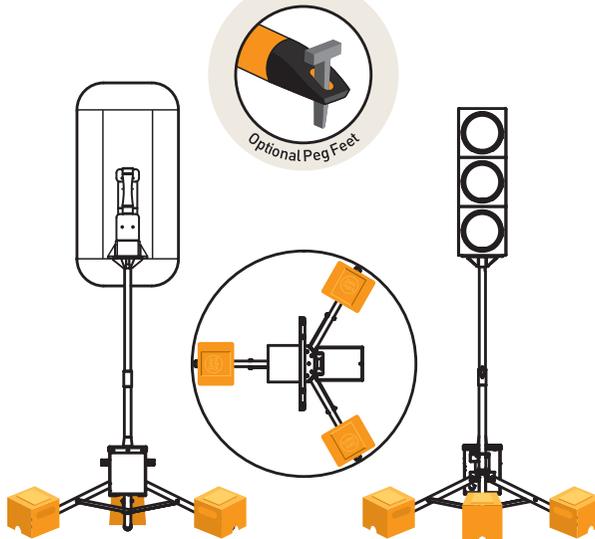
# APPENDIX 1: PTL CYCLE & PHASE INTERVALS FOR SHUTTLE AND PLANT CROSSING



# WIND LOADING

RATING FOR 20M/SECOND (72 Kph)

If the PTL is fitted with optional Peg Feet, where suitable you can secure it with pegs instead of weights.



Note: Your PTL has a TILT sensor which will indicate on the PTL-Remote if the unit is tilted by more than 20 degrees (*i.e. It has fallen over*).

This manual complies with the Specification *MRTS264 Type-1 Portable Traffic Signals* and *TSI-SP-062,049* and 50 where relevant *AS4191-2015 Portable Traffic Signals*.

## Suggestions & Improvements

Data Signs develops its products with the end users in mind. As such, we are always open to suggestions for product improvement. Contact Data Signs, Head Office in Australia at: [datasigns.com.au/help](https://datasigns.com.au/help)

## Disclaimer

The information contained in this document is proprietary information of Data Signs Pty Ltd unless otherwise indicated. Data Signs Pty Ltd make every effort to ensure the quality of the information it makes available. Notwithstanding the foregoing, Data Signs Pty Ltd does not make any warranty as to the information contained herein and does not accept any liability for any injury, loss or damage of any kind incurred by use of or reliance upon the information.

Data Signs Pty Ltd reserves the right to make modifications, additions and deletions to this document at any time and without notice.

The Data Signs logo is a registered trademark of Data Signs Pty Ltd in Australia, New Zealand, United Kingdom, India and United States of America, and a trademark in other countries.

