



PTL Compact Type 1 Operations and Maintenance Manual

Your Portable Traffic Lights are compact lightweight traffic lights. As such correct operation for Set-up and Take-down procedure is essential. Please ensure this manual is read and understood before attempting to operate the Data Signs' Portable Traffic Lights (PTL).

Set-up and Maintenance requirements of the PTL are covered by this Manual.



CAUTION:

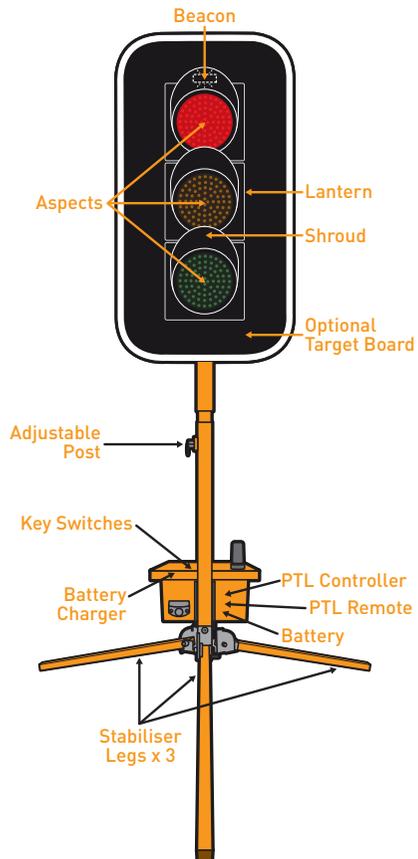
The Data Sign Portable Traffic Lights should only be operated by qualified traffic managers.

If you have hired out this PTL, contact the Hire Company for assistance.

The PTL Compact TYPE 1 is intended to be used to control localized vehicular traffic flow as a safer substitute for STOP/ SLOW (lollipop) signs. It does not incorporate features such as Vehicle Detection or solar powered operation.

It is powered by a LiPo maintenance free battery that needs to be recharged at the end of the day. It is not intended to be left unattended on site and can only be operated via the Remote Control which places a safe distance between the actual Traffic Light and the operator.

An overview of the layout of the PTL Compact equipment is provided here.



Installation - Setting Up for Operation



Complete the setup procedure as per the steps below.

Suitable location:

Ensure that a level surface is chosen for setup.



Push with your feet on the levers to allow the stabilizer feet to fall downwards.


Take care when the feet fall downwards!



Do this for all sides as shown.



Once all feet are down, pull the center post upwards to lock each foot into place.


If high winds are expected, place 20Kg sand bags on each leg.



Once the stabilizers are fixed into position, place the Control Box onto the post.



Align the notches in the control box over the metal bracket and lower onto it.



Remove the light from the carry bag.



Place it on the post until the pin locks it into place.



Plug in the cable by lifting the weather flap and pushing the connector in, then pull up the flap until it 'locks' over the plug.



Raise light by extending the post. Pull out the lower spring clip, lift lights until it clicks back in.



Switch on the Controller(s). Use the PTL Remote to turn on the lights.



Operate from a safe distance.



Optional Target Board:
This is useful when the sun is behind the lights.





This QuickStart Guide covers the PTL Controller Operation as per Australian Standards AS-4191:2015 plus QLD MRTS264 and Various State Authority requirements.

Ensure the units are setup as described in the first section of this booklet. This User Manual applies to Controllers operating on firmware 05.00.XX or later.

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Turning the Controllers On

Both the Master and Slave Controllers are fitted with **ON/OFF key-switches** for security reasons, however operational control is **ONLY** possible via the Remote Controller.

Insert the right-side key and turn the switch to the **ON** position for both Master and Slave units.

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.

The Lights will remain blank until the Remote is switched on and the Power ON button is held down for 5 Seconds, after this the Lights will show Flashing Yellow and progress to showing RED, during this process the Controllers and Lights will complete a self-diagnosis.

SHUTTLE or **PLANT CROSSING** Control is selected with the left side key-switch.

GATING MODE which is **single light use** is selected via the MAIN MENU Screen. Scroll down until the GATING CONTROL menu is shown and select ON/OFF.

For Gating Mode see page 11

If **PROGRAM** selection is activated with the left key-switch, the Controller will wait for further input and all connected traffic lights will display blank.

Note: The left side key cannot be removed from the key-switch while in the **PROGRAM** position. For safe operation, remove the keys after the PTL units have been setup and are operating.

Master Controller: Operational MODE SELECT

Enter **PROGRAM** selection by using the left key-switch on the Master Controller which then allows you to select all other controller programmable functions, use the Up  or Down  buttons to scroll through the MENU selection, then press the **ENTER** Button to select the MENU item.

Press the  button to exit the selected MENU.

M	A	I	N		M	E	N	U											
		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					

QuickStart

This MAIN MENU item lets you quickly set up to get the PTL sets going.

1. Master or Slave.
Select Unit 0 (Master) or Unit 1 (Slave)
Press the **ENTER** button to save the selection.
2. Turn the Key switch to Shuttle or Plant Crossing to Begin operation

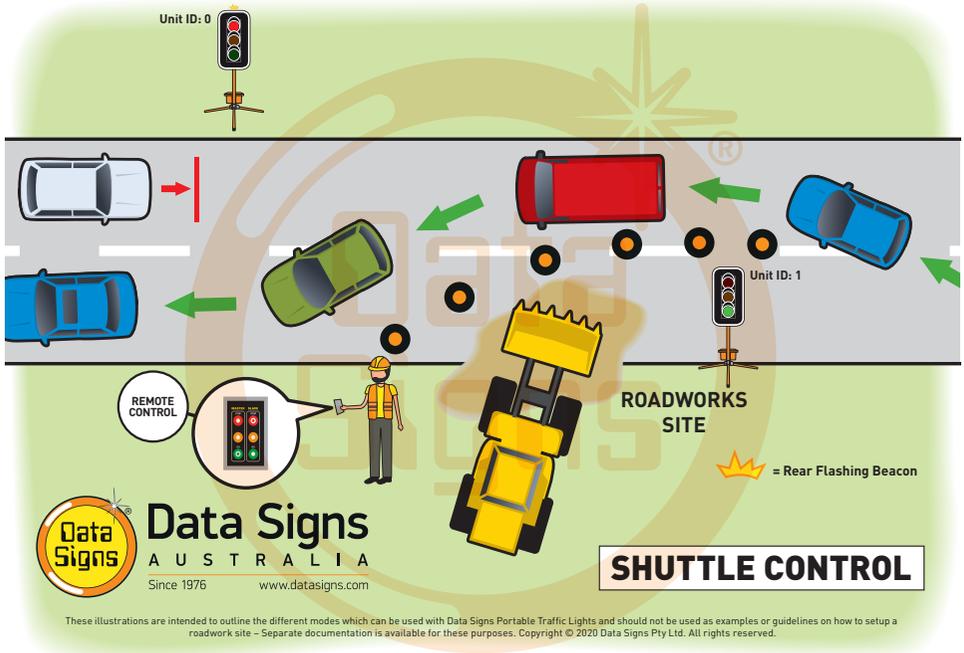
S	E	T	T	I	N	G	S		C	O	M	P	L	E	T	E			
T	u	r	n		k	e	y		s	w	i	t	c	h					
t	o		d	e	s	i	r	e	d		o	p	e	r	a	t	i	n	g
m	o	d	e		t	o		b	e	g	i	n							

Note: The MODE SELECT buttons     are not used for Type 1 Compact PTL.

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 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. See timing diagram later in this manual.

Shuttle Control is active while the left key-switch on the Master Controller is in the SHUTTLE position. Operating mode using Shuttle Control is described in more detail on the following page.

SHUTTLE MODE.

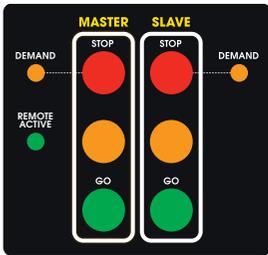
This can only be operated via the PTL Remote

Buttons used:

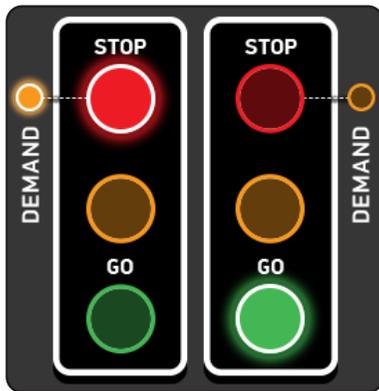
STOP  or GO  on PTL Remote.

A demand for Green or Red signal phase on the Master or Slave is entered on the Remote Control unit. For Shuttle Control, on start-up, both the Master and Slave will rest on Red until a demand for Green is entered.

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



Master / Slave Controller
For display use only



PTL Remote Screen

Shuttle Control example:

1. Slave unit is currently showing the Green signal.
2. **GO** button is pressed for the Master side.
3. If the Green time has expired, the Slave will cycle immediately to Yellow and then Red signal. The Master DEMAND LED will flash until the Green is lit.
4. Press the **GO** button on the Slave side to change the Cycle back in the reverse as per above.
5. Note: You can hold BOTH Master and Slave on Red indefinitely by pressing either Red Light. To return to Green simply select either Master or Slave Green again, the lights will change when the minimum Red time has expired.

The **REMOTE ACTIVE** indicator lights up on both the Master and Slave controllers when the PTL remote is connected.

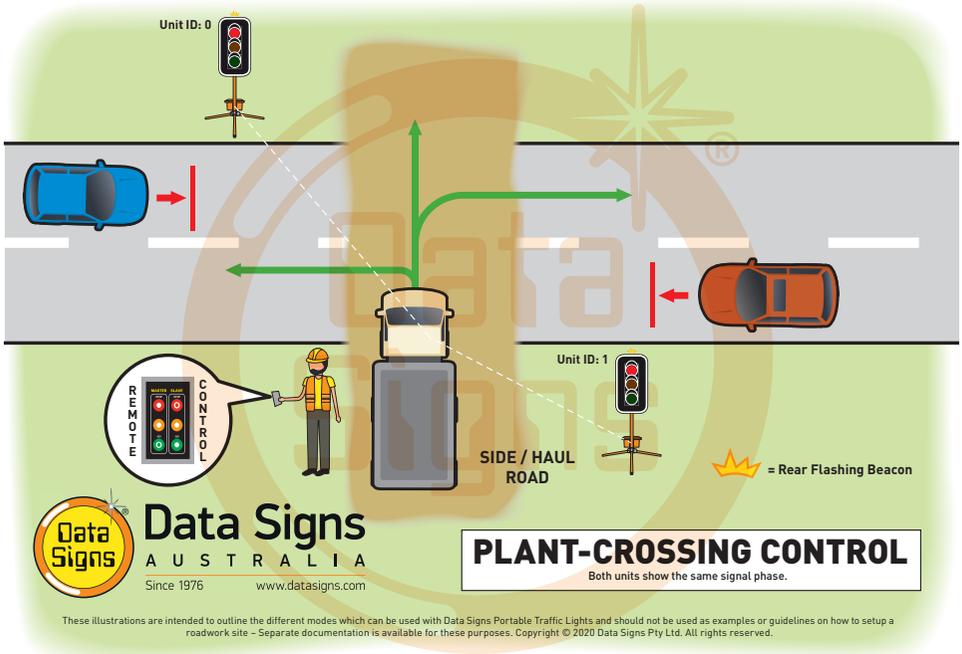
REAR BEACON LAMP:

The Beacon Lamps mounted behind the Traffic Lights flash on each unit when the Red Lights are ON.

Plant-Crossing Control (2-Way)

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.



Plant-Crossing Control is active while the left key-switch is in the **PLANT CROSSING** position on the Master Controller.

REAR BEACON LAMP

The Beacon Lamps mounted behind the Traffic Lights flash on each unit when the Red lights are ON. This acts as a visual indicator to the Plant (vehicles) Crossing the road that it is safe to do so.

PLANT CROSSING MODE.

This can only be operated via the PTL Remote

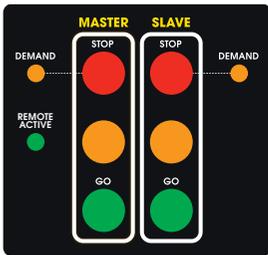
Buttons used:

STOP  or GO  on PTL Remote.

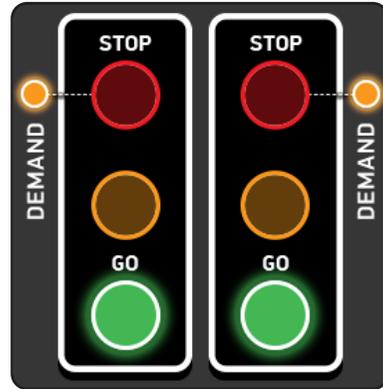
On start-up, both the Master and Slave will rest on Green signal phase for Plant-Crossing Control until a demand for Red signal is entered by the operator.

The operator can enter a demand for Red signal using either **STOP** buttons on 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 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 Green time has not expired, the DEMAND LED will flash.



Master / Slave Controller
For display use only



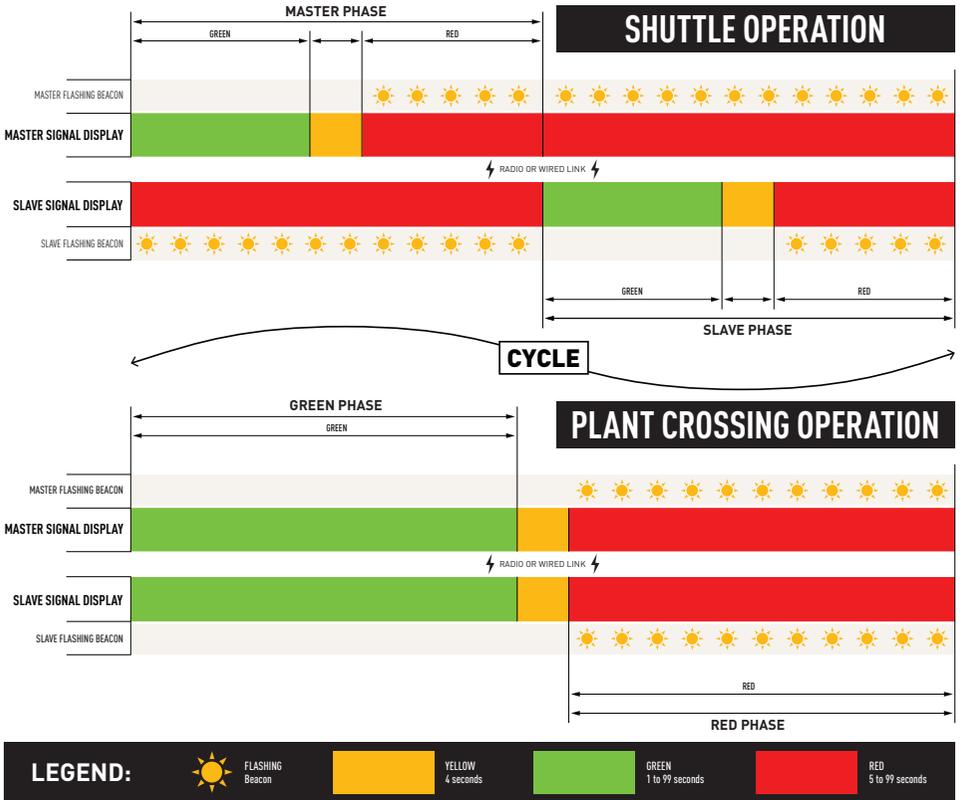
PTL Remote Screen

Plant-Crossing Control, Manual mode example:

1. Both the Master and Slave are on Green.
2. Either the Master: **STOP** or Slave: **STOP** buttons can be pressed on the PTL Remote.
3. If the Green time has expired *both* the Master and Slave will cycle immediately to Yellow and then to Red. Otherwise - if the Green time has not expired - the DEMAND LED's will flash.
4. Once the Green time has expired, the DEMAND LEDs will extinguish and the Master and Slave will cycle to Yellow and then Red.

The **REMOTE ACTIVE** indicator lights up on both the Master and Slave controllers when a button is pressed on the PTL Remote.

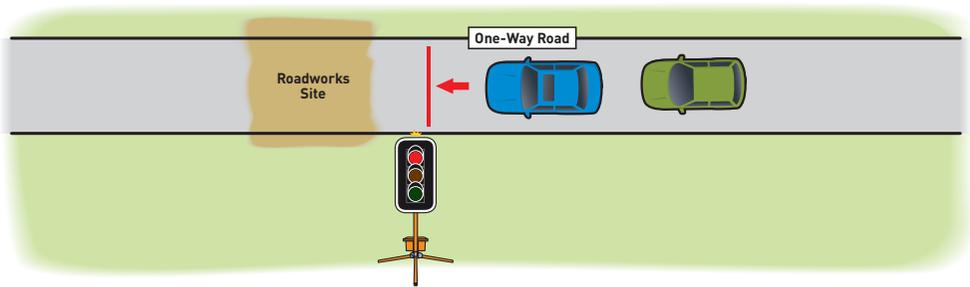
Cycle and Phase Intervals for Shuttle and Plant Crossing Modes



■ Gating Control Mode

Single PTL unit use only.

Gating Control is used to control the flow of traffic from a single traffic flow direction only.



Note: The Gating Operation Mode can only be selected on a controller set up as a MASTER, to activate this mode:

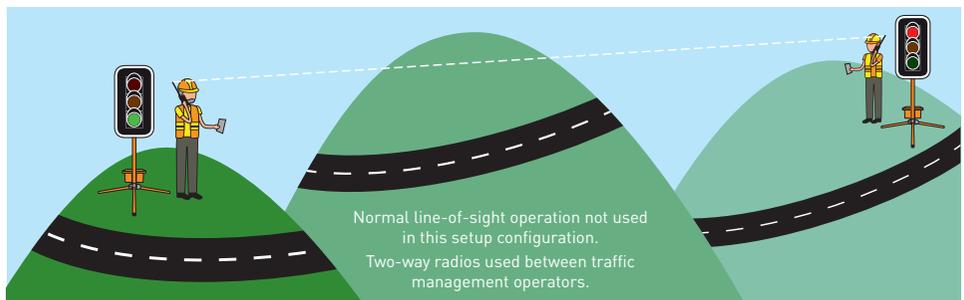
1. Switch the left key to **PROGRAM** MODE.
2. Use the  button to Select GATING CONTROL and select ON.
3. Switch the Key Switch back to SHUTTLE position.

M	A	I	N	M	E	N	U	I	T	Y	E	1]
Q	U	I	C	K	S	T	A	R	T				
U	N	I	T	S	E	T	T	I	N	G	S		
*	G	A	T	I	N	G	C	O	N	T	R	O	L

G	A	T	I	N	G	C	O	N	T	R	O	L		
*	O	N												

To switch off Gating Operation Mode, follow the same process as above, selecting OFF in step 2.

Gating control can also be used with 2 PTL units operating independently by two traffic operators using a Walky-Talky to communicate with each other.

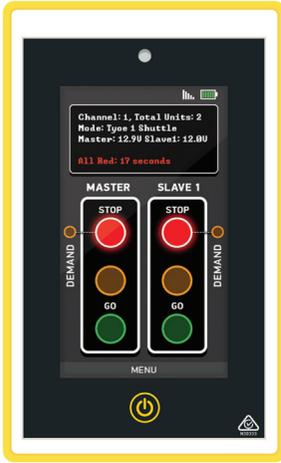


Note: If using 2 PTL Compact in Gating Mode, each PTL must be set on its own unique channel number as there is NO radio-link communication between each unit and also to eliminate risk of possible interference between the two units.

In this mode, the line of sight or distance limit does not apply.

Note: Two independent PTL Remotes are required for this operation.

Type 1 PTSS — PTL Remote Usage



Use the PTL Remote to control, set the Red and Green times, test or power off (blank) the Lights.

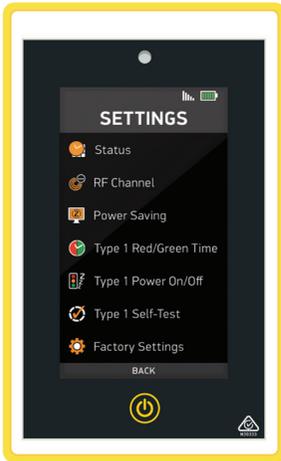
Only the PTL Remote can be used for these functions.

The top of the screen shows the battery level of the PTL Remote. The signal strength between the Master and the PTL Remote is also indicated.

The status box shows current operational type and the countdown timer for the currently displaying Lights.

The main section of the screen shows the state of the connected devices.

Press the Green or Red Light buttons on the main section of the screen to change the lights being displayed.



Use the MENU button on the bottom of the screen to open the SETTINGS menu screen.

From the menu screen, the operator can Power On/Off the connected PTL Compact units, change the pre-set times, and request a PTL Compact self-test to be performed on the connected PTL Compact units.

The RF Channel as well as the STATUS is also selected from this menu.

Press BACK to return to normal operating mode.

Type 1 PTSS — Startup and Shutdown using the PTL Remote



Select **Type 1 Power On/Off** from the menu.

To startup from shut down state, press the button on the screen for 5 seconds. Alternatively, to startup from an inactive state, use the same button and press for 5 seconds.

In shutdown state, the lights are disabled and the LCD's on the PTL Controllers are turned off.

Type 1 PTSS — Self-Test using the PTL Remote



When the SELF TEST button is pressed, the following sequence is run on the PTL Compact to test the aspects, on any connected units:

Green signal, yellow signal, red signal and blank for 0.2 seconds.

Note: the Red and Green Times are reset to the default times of Green = 1 Seconds, Red = 5 Seconds.



It is advisable that the self-test not be carried out while the PTL Compact are setup on the roadway.

SETTING THE RF CHANNEL ON THE REMOTE CONTROL.

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

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

■ MAIN MENU

On Master or Slave Controllers.

While the Controller is in the **PROGRAM** setting, use the Up  or Down  buttons to navigate forward and back through the MENU's to select all other programming functions.

MENU: VIEW PTL STATUS

When this menu item is selected, all the current settings and status of the PTL controller are shown.

Use the Up  or Down  buttons to navigate forward and back through the list.

MENU: QUICK START

Use the **Quick Start** Menu item, this will guide you through the process to set the Master or Slave.

MENU: UNIT SETTINGS

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

SUB-MENU: ID

For the PTL-Type-1 this is the same function as QUICK START.

MENU: OPERATING SETTINGS [Master only]

For GATING CONTROL see section on page 11.

WIRELESS LINK (RF)

Enter the **RF channel** then press the  button.

Note: you will also need to change this value to match on the other unit(s) communicating with a Master unit.

MENU: FAULT LOG

Sub-menu: VIEW LOGS

Select this menu item to scroll through the fault log file.

More information regarding the fault log file is provided in the Fault Conditions section of this manual.

Sub-menu: ERASE ALL

Selecting this menu item deletes the fault log file that is stored on the SD memory card

MENU: ASPECT TEST

Press Master Red, Yellow, Green or Slave Yellow for Beacon Lights. Press  button to exit.

MENU: FACTORY SETTING

This menu item is restricted to Data Signs internal factory use.

Controller display screens for Master and Slave

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

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

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

Second line: Shows TYPE 1 PTSS.

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

Fourth line: Current RF Channel. Right side, Current state remaining time

Slave ID=1. The following values will be shown during normal operation:

U	N	I	T		I	D	:	1										1	3	.	3	V
C	H	N	:	2		S	L	A	V	E												
C	O	N	N	E	C	T	E	D		T	O	:		P	T	L	D	2				
T	I	M	E	O	U	T		I	N	:		0	2		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.

■ Wireless Link (RF) Explained

Each Traffic Light is fitted with an aerial located on the top of the control box. This will provide Wireless Radio (RF) communication between the PTL units; however, the units still need to be positioned in line-of-sight to each other.

The maximum distance is about 800m, depending on surrounding environment.

The radio link module fitted to the PTL unit communicates on one of eight channels. This must be set to the same channel on each unit to maintain wireless communication. This applies to the Master, Slave, and the Remote Control.

Radio Link Operation

If the radio link between the Master and a Slave unit is disrupted for a continuous 2 second period (the default time) all units will revert to red lights and "CONTACTING SLAVE..." will be shown on the display panel on the Master Controller.

Signal Strength

The Remote Control will display the signal strength of the Master Controller to the PTL Remote as a Graphic symbol in the top right corner on the display. The Master and Slave Controllers display the Signal Strength and the Battery Level on the display. The RF Signal Strength is a value out of 5, where 5 is the strongest value.

Fault Conditions

If any fault conditions occur as discussed throughout this document, the Portable Traffic Lights will go to Red.

All critical faults are logged to a file on the SD card fitted to the Master Controller.

The faults logged are outlined below. Reference back to the Australian Standard is provided in the table.

Fault ID	Description
0	Yellow
1	Red
2	Green
3	Beacon
6	Excessive Link
7	Conflicting Link
8	Link Timeout
10	Low Battery
11	Tilt

To view the current fault log file, select **FAULT LOG → VIEW LOGS** from the **PROGRAM** Mode menu. Use the  and  arrow buttons to move through the fault log entries.

The last fault logged is shown first.

A sample fault log entry may be:

```

F A U L T      L O G      ( 1 / 1 )
X X / X X / X X X X      0 0 : 0 0 : 1 4
0 0      -      M A S T E R
Y e l l o w      ( O p e n )
    
```

The time shown with each fault log entry is the time that this fault occurred since the Master Controller was powered up. The second part is the Portable Traffic Light unit affected (i.e. Slave#2 or Master). The last part of the entry is the fault description.

Note: The XX/XX/XXXX is not used for PTL Type-1.

You can also use an SD card reader on a laptop/PC to read the fault log files from the SD card. The file will be in the LOGS directory on the SD card.

Turn the Master Controller OFF and remove the SD card from its slot, leave the power OFF while re-inserting the SD card.

■ Troubleshooting Guide

This section contains some tips on handling some of the issues that may arise when using the Traffic Lights. If you cannot resolve the issue you are experiencing using the information below, please contact Data Signs on the Help Desk Via the Web site. As discussed above, the Fault Log stored on the SD card in the Master Controller may assist in issue diagnosis.

Turning the Controller On

If the POWER light does not come on when the key-switch is turned to **ON**:

- Check that the controller connector is inserted properly.
- Check the fuse inside the Controller and on the battery fuse board.
- Check that the battery voltage is above 10.5 Volts.

Radio Wireless Link failure

If the radio wireless link fails regularly, try changing the Channel set on all Controllers, as some interference may be occurring on the operating channel. Power-cycle each unit after the Channel has been set correctly

SD Card Failure

Never insert or remove the SD-Card with the power on, switch key to OFF first.

In the case of SD card failure, you will be notified on the display. Default values will be used if the SD card fails. All parameters can be changed, however they will not be saved, so you will need to enter your desired parameters each time the Master Controller is turned on, until the SD card is replaced.

Lights Not Working

Check the connections on the controller or the lights.

If you need to ship the Controller or parts back to Data Signs for repair, contact the Help-Desk at datasigns.com.au/ServiceSupport/HelpDesk

Note: If shipping Controllers it is recommended to ship as a set, i.e. Master, Slave and Remote. It will benefit to ship all these items as this will enable our service department to perform a full operational test and diagnosis.

This manual complies with the Specification *MRTS264 Type-1 Portable Traffic Signals* and where relevant *AS4191-2015 Portable Traffic Signals*.

Each state or territory has its own guidelines and training or accreditation requirements for the use of the DataSign-PTL-COMPACT on public roads, particularly for road works usage.

The usage and training requirements are outside the scope of documentation provided by Data Signs. The list below serves as a guide only; please contact the road traffic authority in your state or territory for more information.

- In New South Wales, refer to the *Traffic Control at Work sites* document released by the RTA/RMS. **Note the training requirements in section 2.4.**
- In Victoria, refer to the *Road Management Act 2004 – Worksite Safety – Traffic Management*, Code of Practice for guidance on the use of the DataSign-PTL on roads in Victoria. Note the training requirements.
- In Queensland, see the Traffic and Road Use Management (TRUM) manual that is issued under the authority of Section 166 of the *Transport Operations (Road Use Management) Act 1995*. Also see the *Manual of Uniform Traffic Control Devices (Queensland)*, which within the meaning of the *Transport Operations (Road Use Management) Act 1995*, contains the design of, and the methods, standards and procedures in relation to every sign, signal, marking, light or device, installed on a road. Training requirements are available from the Main Roads QLD website.
- In Western Australia, see the *Traffic Management for Works on Roads - Code of Practice*. Note the accreditation requirements. Also see the *Traffic Controllers' Handbook*.
- In South Australia, there is a Work zone Traffic Management course.
- Generally, the *Australian Standard AS 1742.3-2002: Manual of Uniform Traffic Control Devices, Part 3: Traffic Control Devices for Works on Roads* should also be consulted.

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

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