

**BTLC-100
User Manual
Version 2.8**



Designed, Manufactured and Serviced by:

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2.6	Explained all the features, changed images	05/02/2020	-NOT RELEASED-
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2.8	Warranty Terms updated (Rev.3.0)	15/09/2022	Ray Read

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WARNING: Traffic Light Trailers contain electromechanical actuators to raise and lower the mast. When lowering the mast, a crush hazard exists. Operators should take care to ensure they and other persons are clear of the hazard zones while operating the mast.

WARNING: When raising the mast, a hazard exists with respect to overhead power lines. Operators should assess and mitigate this risk prior to raising the mask.

NOTE: The Traffic Light Mast assemblies are manufactured to be a Serviceable item. BARTCO recommends that they be visually inspected regularly and non-destructive tested at scheduled intervals as necessary to ensure that structural integrity is maintained.

Inspection Guide Only for General Usage (*Increase according to the rate of usage*)

Up to a Maximum of 3 Month Intervals

- Visual Inspection around the Masts Base, Gusset Sections and the External Walls of the Mast to check for any fatigue cracking or signs of breakage.

The First 5 Years of Service Life, then at Every 2 Year Intervals thereafter

- Non-Destructive Testing (eddy current test) of the Mast Assembly to verify its structural integrity.
- Contact BARTCO for a list of companies that can perform this inspection.
- If the mast post /frame is bent or has visible cracks, the trailer must not be used until a new BARTCO replacement mast is purchased and fitted.

Please contact BARTCO to order the new replacement mast assemblies.



Quality
ISO 9001

BARTCO Warranty Terms and Conditions

1. BARTCO warrants that our manufactured product sold, will be free from defects in material and workmanship for a period of two (2) years (excluding batteries) from date of supply, subject to the conditions and restrictions contained herein.
2. BARTCO further warrants that product repaired by Bartco, are covered within thirty (30) days from the date the repaired product is dispatched to the customer.
3. All Batteries supplied by Bartco are warranted from defects for a period of 1 year.
4. Warranty is provided as a **RTB Return to Base warranty in your Capital City**. Product (s) to be returned are shipped at the Owner's expense and any supplied parts, must be returned in protective packaging for shipment. Shipment to and from the Owner is at the Owners risk. If shipping insurance is required, then this is also to be arranged by the Owner. For all warranty requests on Fire Signs, please provide the Fire Sign Identification Number and details of the installed location in order to assist processing of the on-site warranty claim & service for this product.
5. This warranty does not apply to a product that has not been installed or maintained in accordance with BARTCO instructions, been subjected to damage in an accident, abused or neglected during operation, repaired or modified by persons not approved by BARTCO, or failed to have initial operator training undertaken and regular, routine maintenance.
6. BARTCO's responsibility in respect to warranty claims is limited solely to repair or replacement at our option, of product found by BARTCO to be defective. BARTCO does not pay for labour charges, transportation charges, cross hire charges or any incidental or consequential damages connected with removal of a product deemed to be defective or with installation or replacement of repaired product. Further, BARTCO disclaims any liability for any incidental or consequential damages, including lost or duplicated time or expense, accruing for any reason to the owner or user of any products sold by BARTCO, whether claim is made in contract or tort or under any warranty or in negligence or otherwise.
7. BARTCO reserves the right to make changes to its products without incurring any obligations to incorporate such improvements in any products previously sold or in service.
8. The terms and conditions of this warranty cannot be altered whatsoever without the written approval of BARTCO.
9. This warranty does not apply to any product which has not been paid for according to the terms under which the product has been invoiced. In addition, BARTCO will not honor any warranty claim from a customer whose account is not current according to BARTCO payment terms.
10. BARTCO **does not** warrant certain batteries, lighting elements, and electrical ballast and items *considered to be expendables* as deemed by Bartco.
11. The foregoing warranty is exclusive and in lieu of all other express, statutory and implied warranties including those of merchantability and fitness for any particular purpose.

1. Overview

This manual covers the operation of BARTCO Traffic Equipment BTLC100 portable traffic lights.

The BTLC100 has been designed and constructed in accordance with AS 4191 – Australian Standard for Portable Traffic Signal Systems.

Circuitry has been designed to prevent the possibility of a fault which could result in more than one lantern aspect turning ON at any given time.

Unauthorised operation of the unit is prevented by means of Administrator and Operator passwords.



The Maximum towing speed recommended for this Portable Traffic Light/s is 80 km/h.

Electrical

Supply voltage	11 – 18 Volts DC
Current consumption	250mA @13 volts (Tx off, lanterns off)
Max lantern drive current	5 W @ 12 Volts
Minimum Operational time on batteries alone	7 Days

RF

Cellular

Supported technologies	3G and 4G Network
------------------------	-------------------

UHF Radio Link

Frequency Bands	915 – 928 MHz (ISM License Free)
Security	56-bit DES encryption
Range	1000 M (Line of Sight)
Channels	8

Physical Controller

Width	275mm
Height	220mm
Depth	77mm
Weight	2.88 KG

Physical Trailers (Together)

Width	1640mm
Minimum Height (When Masts are fully lowered)	2250mm(Solar Panel) 2950mm(Top of Antenna)
Length	3470mm
Weight	1120 KG

Physical Master (Setup Size)

Width	1640mm
Maximum Height (When Masts are fully raised)	3550mm (Top of the Antenna)
Length	2360mm
Weight	560 KG

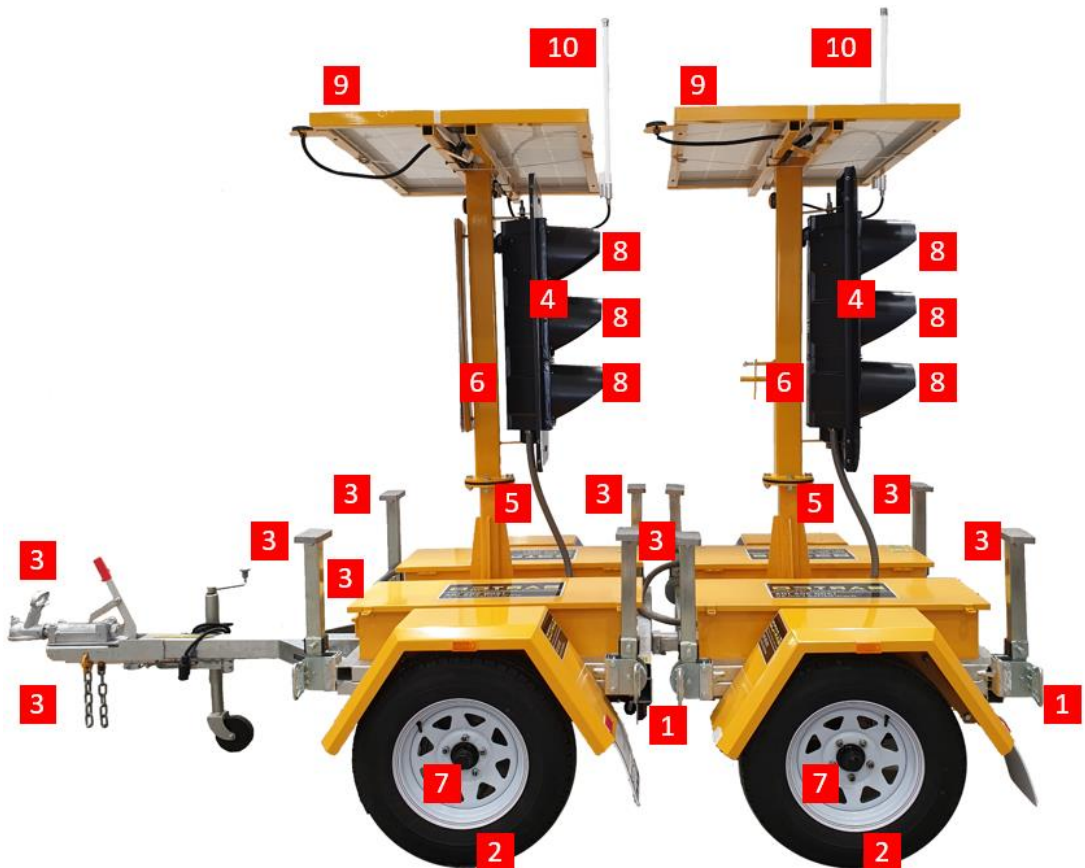
Physical Slave (Setup Size)

Width	1640mm
Maximum Height (When Masts are fully raised)	3550mm (Top of the Antenna)
Length	2300mm
Weight	560

2. General Inspection & Maintenance Addendum

Ensure that the following Inspections and scheduled Maintenance is adhered to at all times.

1. Check the trailers taillights for correct operation before towing.
2. Check all tyre pressures as per the VIN plate and examine tyres for excessive wear and damage before towing.
3. Inspect all moving parts, joints and locking pins for excess wear, for correct adjustments, installation and for vandalism and/or damage before towing the trailers (Master and Slave units) or raising the traffic signals.
4. Check that traffic signal lantern doors are securely fastened.
5. Check that mast bolts, and nuts are secure.
6. Ensure that traffic signal lanterns are fully lowered when in the travelling position.
7. Under normal operating conditions re-pack and adjust the wheel bearings annually.
8. Clean all traffic signal lantern reflectors and inside and outside surfaces of the lenses with a soft cloth at regular periods, not exceeding three months.
9. Clean Solar panels with water when they are covered with dirt or other elements.
10. Check the overhead height signs and make sure to have enough room for Antennas.



3. General Setup Addendum

Slave (Rear Trailer section)

1. Remove the lantern covers, and disconnect the rear taillight plug from each trailer section.
Keep the Master trailer connected to the towing vehicle at this stage.
2. Remove the pin located on the Master, (front trailer's) draw bar.
3. Carefully slide out the rear trailer away from the Master trailer (whilst still being connected to each other) to create a slight distance between the slave & Mastertrailer.
4. Lower the front and rear stabiliser legs on the slave trailer in preparation for adjustment, then completely remove the slave trailer from the Master trailer.
5. Move the trailer into its ideal fixed position.
6. Adjust the stabiliser legs for secure fixture to the ground and ensure that the trailer is secured correctly without movement whatsoever.
7. Connect the radio aerial to its fitting, located on the top lantern mounting bracket.
8. Carefully raise up/down as required the traffic signal mast to the desired height using the up/down electronic actuator switch.
9. Ensure the traffic signal lanterns are aimed correctly by taking note of the following,
 - Vertical Alignment (By use of the levelling jacks)
 - Horizontal Alignment (By positioning and securely affixing the trailer)

Master (Front TrailerSection)

1. When towed into the desired position, lower the stabilizer legs, uncouple the Master trailer using the jockey wheel to raise the trailers hitch up from the tow coupling. Once disconnected and the trailer is stable, the trailers chains and plug can be disconnected.
2. Carefully remove the Master trailer from towing vehicle.
3. Follow steps 5 to 8 as above.
4. Switch on the Master unit

If any assistance required, please contact BARTCO Technical Support department on 1300 306 106 and select option 2 for Service.

4. Control Interface

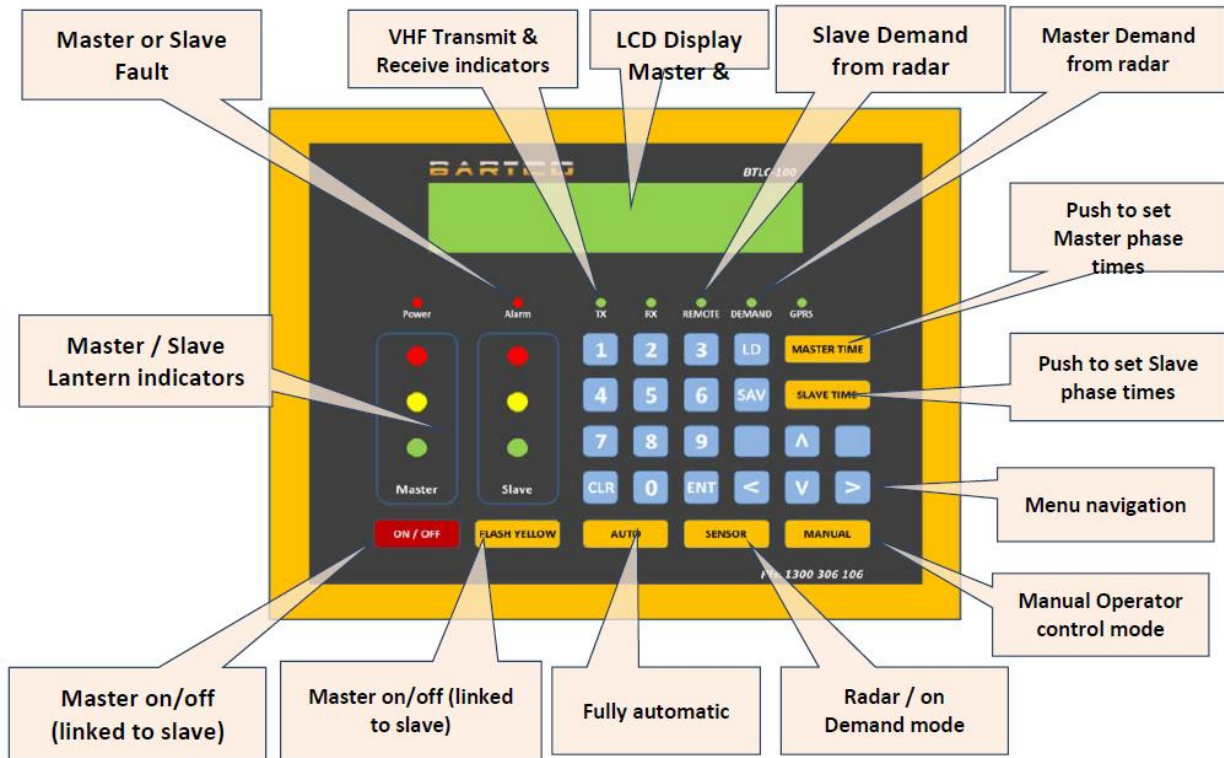


Fig 1 – Controller Interface

5. External Connections

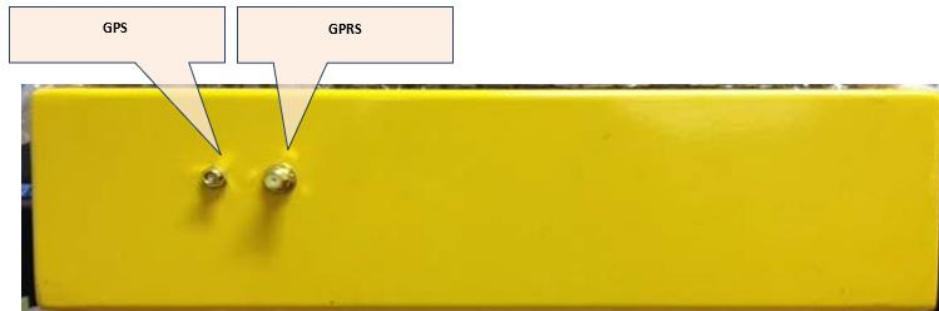


Fig 2 – Top end

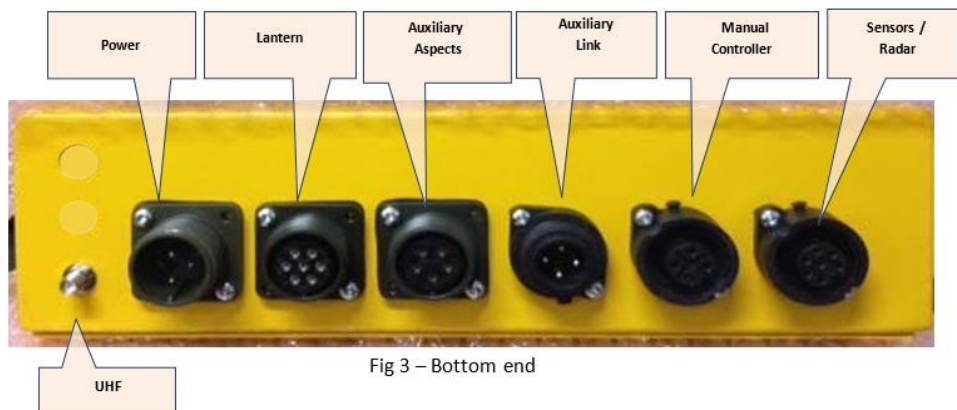


Fig 3 – Bottom end

6. Operational Overview

The BTLC100 requires at least one unit within a group to be designated as a Master. The Masters' role is to issue aspect change commands to all slaves and monitor the overall health of the network.

6.1 Power Up

Slave units that are joined to a network, will listen for the Master to start-up so when the Master is powered up, all slaves on a network will power up as well.

Press **ON / OFF** on the control interface (Fig 1).

User may briefly see the following start-up message. "Waiting for slave controller(s)..."

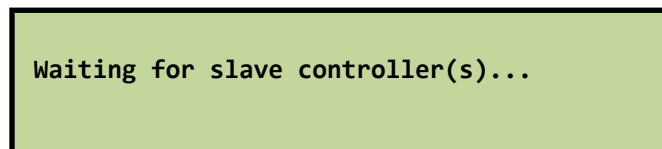


Fig 4: Boot up screen.

If this message does not disappear after a few seconds, please check the slave and consult the trouble shooting guide in Appendix A – Trouble Shooting

Once the Master has established communication with the slave, user will be presented with the standard main screen as shown below in figure 5

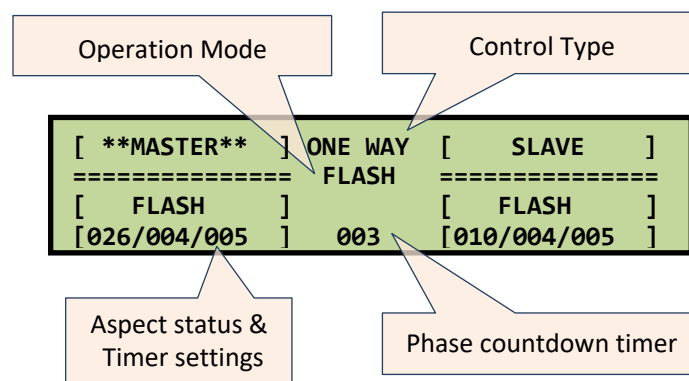
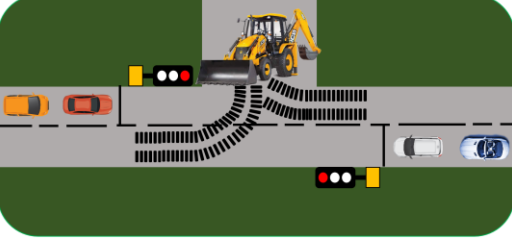



Fig 5: LCD main operation screen

AS4191 (2.3, a); The traffic lights are designed to flash yellow for 10 seconds at start up.

6.2 Control Types

All Single Master-Single Slave (MS) and Single Master-Multi Slave (MnS) configurations share two common operation modes as detailed in the table below.

Two Way – Plant Mode	One Way – Shuttle Mode
 <p data-bbox="225 712 738 779">Fig 6 : Two Way Plant Mode</p>	 <p data-bbox="751 745 1401 779">Fig 7: One Way Shuttle Mode</p>
<p data-bbox="220 779 743 891">Purpose: To stop traffic in two directions and allow plant vehicles to enter or leave work zones safely.</p>	<p data-bbox="743 779 1409 891">Purpose: To allow road user to safely share a single lane.</p>
<p data-bbox="220 891 743 1341">Explanation: In <i>Two Way</i> mode the Master and Slave units mirror one another. When the Master turns Green then the Slave unit also turns Green. Both Master and Slave aspects are normally Green until a demand signal is received. The demand signal can only come from the manual hand controller when the units are</p> <p data-bbox="220 1272 743 1341">Set to the MANUAL control type.</p>	<p data-bbox="743 891 1409 1341">Explanation: In <i>One Way</i> mode the Master and Slave units take turns at being Green.</p> <p data-bbox="743 1003 1409 1070">At no time is it possible for the Master and slave to be green simultaneously.</p> <p data-bbox="743 1115 1409 1182">The demand signal may come from any of the following control types.</p> <div data-bbox="767 1193 1066 1305" style="display: flex; flex-wrap: wrap; gap: 10px;"> <div style="border: 1px solid black; padding: 2px 5px; background-color: yellow;">AUTO</div> <div style="border: 1px solid black; padding: 2px 5px; background-color: yellow;">SENSOR</div> <div style="border: 1px solid black; padding: 2px 5px; background-color: yellow;">MANUAL</div> </div>

WARNING – Care must be taken to select the correct Operation Mode for the specific work site situation prior to the deployment of units.

6.2.1 Operation Modes

FLASH YELLOW

Set all units such as Master and slave lanterns to flashing yellow.

⚠️ Flashing Yellow also used to indicate a fault with traffic lights.

AUTO

Alternate traffic light sequences between Master and slave units based on the set times.

⚠️ Not Available in TWO way mode

SENSOR

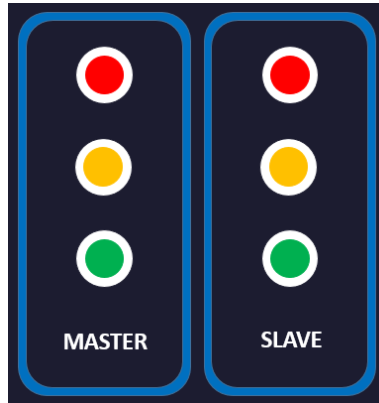
Prioritizes the traffic flow on one direction over the other using the vehicle detection Radars.

⚠️ Not Available in TWO way mode

MANUAL

All Operation Modes controlled by operator using the wired or radio (wireless) remote control.

Master
LED indicator lights on each controller interface will always represent the physical lantern status of Master trailer.
Example: If the Master trailer GREEN lantern is ON then all controllers in the network (Master and Slaves) will indicate the GREEN light under Master section.



Slave
LED indicator lights on each controller interface will always represent the local lantern status of that trailer.
⚠ On Master trailer this will represent Slave#1 trailer lantern status.

Fig 8: Lantern Aspect indicators on the controller

6.3 Selecting One Way or Two Way operating modes.

On the Master and from the main operating screen press **ENT** to access the main menu.

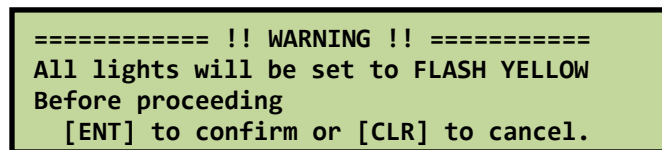
Enter the administrator password (if any) using the numeric keypad and press **ENT**

(The default is **ENT** or no password)

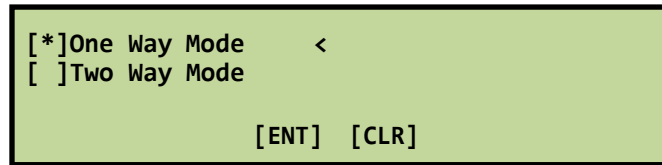
Use the **^** and **v** to select "Control Type" Setting and press **ENT**



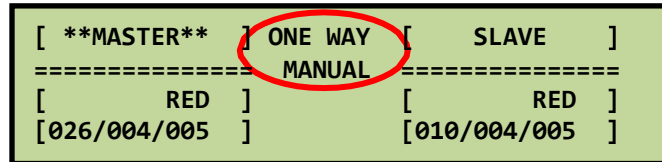
If the traffic lights are operating in **AUTO**, **SENSOR** or **MANUAL** modes then the user will see the following warning before proceeding. Press **ENT** to confirm.



Use the **^** and **v** keys to select the desired mode to toggle between One Way (Shuttle) or Two Way (plant) modes, please refer to 4.2 regarding the behaviour of these modes.



Press **ENT** to confirm selection. User will be returned to the main operating screen. Check the mode has changed on the main operating screen.



The Master and Slave controllers are now in ONE WAY (Shuttle Mode)

6.4 Aspect Times

The timing of each individual aspect can be adjusted to suit local regulations and the speed limit of the road.

Aspect times can be accessed by pressing **MASTER TIME** and **SLAVE TIME** buttons from the control interface.

AS4191 (2.9); The Australian standard defines the following minimum, maximum time increments.

Green Max: It can be 10-50 seconds in increments of 4 seconds and 50-160 seconds in increments of 10 seconds. A total of 160 seconds is the maximum selectable range.

Green Extend: It is 3, 4, 5 or 6 seconds. The green extend is the extension of the current green phase if an additional demand is present during the set GREEN Max phase. **Example:** It is the time that Master will wait between each vehicle detection. If after the set 6 seconds Green extend, there are no vehicles detected then the lights will go back to RED phase.

The demand for Green Extend may come from the vehicle detection radar or a manual wired / radio (wireless) remote.

RED: Minimum time any aspect must be RED before proceeding with next phase, also known as the RED Clear Time. Settings are 5 through 30 seconds in 5 second increments and 30 through 100 seconds in 10 second increments. Minimum Red time of 2 seconds can also be selected for manual operator mode.

NOTE: Red Times must be selected from the following graph (Fig 9.)

YELLOW: Constant yellow time of either 4 or 5 seconds duration.

Warning: The duration of yellow aspect is defined by the mandated law in Australian states.

GREEN MAX <010s>	[==== MASTER ====]
GREEN EXT 003s	[</> Change]
RED 005s	[^/v Select]
YELLOW 004s	[ENT/CLR]

6.5 RED TIME GRAPH

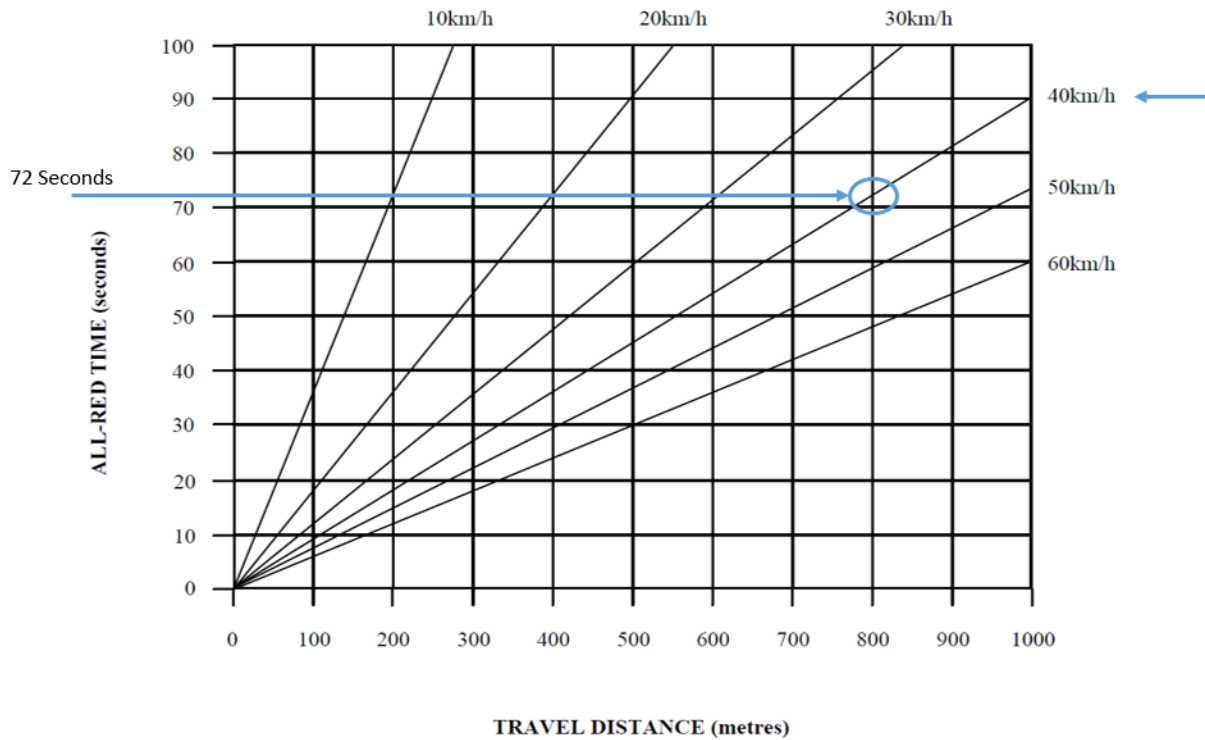


Fig 9: Red Time Graph

⚠ If the distance between the signals is 800m on the worksite and the traffic is travelling at 40km/h, the Master Red Times are set to approx. 80 seconds.


6.6 Security Settings

The BTLC100 has two levels of security to prevent unauthorised personal from operating or altering the configuration.





The administrator password is set/required to access the main menu. This prevents operators from tampering with the operation of the traffic lights.

The operator password can also be set to limit users turning the units on or off, phase time settings and profile loading and saving.


Access the security settings.

Press  to access the main menu.

```
Control Type
Multi Way
Security <
Communication
```

Select the "Security Setting" option using the  and  keys and press  to confirm. Highlight and press  on "Operator Password" or "Admin Password" to change.

```
Permission
Operator Password
Admin Password <
```

Enter the new password using the numeric keys (0 – 9) and press .

Repeat the password again to confirm and press  to confirm.

```
===== ADMIN PASSWORD SETTING =====
Enter new password: _____
Repeat for verification _____
[ENT] / [CLR]
```


6.7 Permissions

Operator permissions can be any of the following





PASSWORD – Requires operator password to access

UNLIMIT– No password required

DISABLE – Feature not accessible even with password.

From the security menu select “Permissions” and press 

```
Permissions      <
Password
Admin Password
```

Use the  and  keys to select the permission user wish to change and then use the  and  keys to change the setting.

```
<UNLIMIT>--- ON /OFF      [<> change]
UNLIMIT --- time setting [      ]
UNLIMIT --- File load    [ENT save ]
UNLIMIT --- File save    [CLR cancel]
```

```
=====  
===== ADMIN PASSWORD SETTING =====  
Enter new password: _____  
Repeat for verification _____  
[ENT] / [CLR]
```

6.8 Communication Settings

The radio network setup, Master / slave configuration, radio output power and channel selection are configured from the “Communication Settings” menu.

All BTLC100 units are identical and have no fixed Master and Slave configuration - any unit can be a Master or Slave. A radio network is formed between two or more units. Each network must have a Master that issues aspect change commands to all slaves and continuously monitors the health of the network.

6.8.1 Setting up a basic two-unit network

This is the standard and typical configuration. A single Master unit interacts with a single slave. Every pair of BTLC100 controllers supplied will always be paired together in the Master-Slave configuration.

In order to set up a basic network consisting of single Master and single Slave units...

1. On both the Master and slave units - Navigate to the "Communication" menu

```
Control Type
Multi Way
Security
Communication <
```

2. Select "Reset Radio Network" to erase any existing network settings.

```
Reset Radio Network <
Add Slave Controller
Add Remote Controller
Del Remote Controller
Radio Output Power
```

3. Press **ENT** to confirm reset.

```
====!! WARNING !!====
This will reset radio connection
All lights will be set to FLASH YELLOW.
[ENT] to confirm or [CLR] to cancel.
```

4. On the unit that is to be the new MASTER controller, select desired Channel by pressing the **>** key.


5. Press **V** and **>** to change the mode from SLAVE to MASTER as shown in the image below.

```
=== Set Radio Channel === [^/v Select ]
Channel:      2           [</> Change ]
Mode   : < MASTER >     [ENT Save   ]
Output : [=====] [CLR Cancel ]
```

6. Press **ENT** to confirm the new configuration settings.

The Master will now start searching for slave controller(s) that are not currently a member of another network.

```
___ SEARCHING FOR SLAVE 1 ON CH-2: ___
                                   [</> Change ]
                                   [ENT Save   ]
                                   [CLR Cancel ]
```

 The above configuration refers to Radio Channel 2 setup.

7. Repeat the steps 1-6 (as shown above) on the new SLAVE controller, Set the “mode” to < SLAVE > and press **ENT** to confirm.

```

=== Set Radio Channel === [^/v Select ]
Channel:      2          [ </> Change ]
Mode   : < SLAVE >     [ENT Save   ]
Output : [=====] [CLR Cancel ]
    
```

```

== Join Network on CH-2 =====
[                               ]
[  Waiting for Master ...       ]
[                               ]
    
```

8. Return to the MASTER controller, the LCD display will now list the new SLAVE controller serial number.

```

____ SEARCHING FOR SLAVE 1 CH-2: ____
[*]A001TLC021    [ </> Change ]
                  [ENT  Save   ]
                  [CLR  Cancel ]
    
```

9. Select the SLAVE controller with the **^** or **v** and press **ENT** to confirm.
10. Once Slave 1 is paired successfully, the Master will start searching for Slave 2.

```

____ SEARCHING FOR SLAVE 2 ON CH-2: ____
                  [ </> Change ]
                  [ENT  Save   ]
                  [CLR  Cancel ]
    
```

11. Press **CLR** to return to the main menu as there are no more slave controllers to pair.

The network is now established.

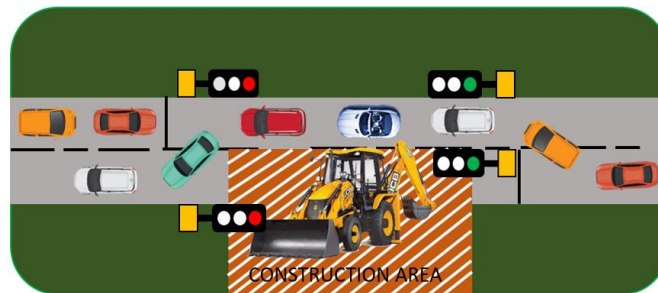
6.8.2 Multiway



Multi-way is not permitted in NSW



BTLC100 offers a unique method to deploy and control up to three slave units with a single Master. Various models are available to provide maximum flexibility in three or four way operations, image below is of a 4 way operation.



6.8.2.1 Multiway overview

Three and four way operation is best thought of as an extension to standard two way (Master / slave) as described in 4.6.1.

Before proceeding it is advised that user follow the steps described prior to establishing a network with a single Master and single slave unit.

The single slave unit from the previous setup is designated as Slave 1, below we show how to add Slave 2 and optionally Slave 3? As advised earlier that the Master unit will always be in charge of managing the Slaves.

6.8.2.2 Add Slave #2 to network.

To add an additional slave to an existing network, first Identify the current network channel by accessing the system information page by pressing **V** key on the keypad of any controller in the current network.

Once the network channel is identified, then go to “communications” setup page on the second Slave trailer to be configured.

From the main menu select “Communication” and press **ENT**



Select "Reset Radio Network" to clear any existing network settings.

```
Reset Radio Network <
Add Slave Controller
Add Remote Controller
Del Remote Controller
Radio Output Power
```

Press **ENT** to confirm reset.

```
===== !! WARNING !! =====
All lights will be set to FLASH YELLOW
Before proceeding
[ENT] to confirm or [CLR] to cancel.
```

On the next screen select the identified network channel used for the Master and Slave 1 – set the mode as SLAVE and press **ENT** to confirm.

```
=== Set Radio Channel === [^/v Select ]
Channel:      2           [ </> Change ]
Mode   : < SLAVE >      [ENT Save   ]
Output : [=====] [CLR Cancel ]
```

The new slave will now wait for the Master.

```
== Join Network on CH-2 =====
[                               ]
[ Waiting for Master ...       ]
[                               ]
```

On the Master controller, Press **ENT** from the main screen to access the "Communication" setting and press **ENT** to select.

```
Control Type
Multi Way
Security
Communication <
```


Select "Add Slave Controller" and press **ENT**

```
Reset Radio Network
Add Slave Controller <
Add Remote Controller
Del Remote Controller
Radio Output Power
```

The Master will start searching for the Slave#2 and list the available controller serial number(s) once found.


```

SEARCHING FOR SLAVE #2 on CH-2:
[*]A001TLC022      [ </> Connect ]
                   [ ^/v Select ]
                   [ ENT Save   ]
    
```

Once the desired second Slave trailer controller serial number is selected from the list press  to confirm and join it to the network.

The established current network should consist of one Master and two Slave controllers.

If required, repeat the above steps to add a fourth controller (Slave #3)

 After pairing each slave controller, the newly paired Slave controller will receive its corresponding slave number i.e, SLAVE 2 for 2nd slave unit and SLAVE 3 for the 3rd slave unit. As shown below

```

[ **MASTER** ] ONE WAY [ SLAVE 2 ]
===== MANUAL =====
[ RED ] [ RED ]
[026/004/005 ] [010/004/005 ]
    
```

If any of the newly paired units report “SLAVE 0” instead of corresponding slave number, then please repeat the pairing process again

6.8.2.3 Configure Multi-way settings.

From the main menu of the Master controller select “Multi Way” and press 

```

Control Type
Multi Way      <
Security
Communication
    
```

user will receive a warning when the lights go into FLASH YELLOW mode. This will affect all lights in the network.

```

===== !! WARNING !! =====
All lights will be set to FLASH YELLOW
Before proceeding
[ENT] to confirm or [CLR] to cancel.
    
```

Multway allows for the following modes to be configured on Slave #2 or Slave #3.

```

== Multi Way Setting ===== [^/v Select ]
Slave-2: < Auto Mode > [ </> Change ]
Slave-3: < Auto Mode > [ ENT Save ]
[ CLR Cancel ]
    
```

Auto Mode	When the Master is operating in Auto or Sensor mode, all units will turn GREEN on a round-robin basis. If the Master is in Manual operation, then the local Slave will remain disabled on RED. ⚠ This mode is not RTA/RMS Approved for use in New South Wales.
-----------	--

```

== Multi Way Setting ===== [^/v Select ]
Slave-2: < MANUAL Mode > [ </> Change ]
Slave-3: < MANUAL Mode > [ ENT Save ]
[ CLR Cancel ]
    
```

Manual Mode	If the Master is operating in Auto or Sensor mode, Master and Slave #1 will take turns on a round-robin basis and the local Slave will have its turn when there is demand signal.
-------------	---

```

== Multi Way Setting ===== [^/v Select ]
Slave-2: <Mirror Master> [ </> Change ]
Slave-3: <Mirror Master> [ ENT Save ]
[ CLR Cancel ]
    
```

Mirror Master	This option will turn the local Slave unit to operate the same as the Master
---------------	--

```

== Multi Way Setting ===== [^/v Select ]
Slave-2: <Mirror Slave> [ </> Change ]
Slave-3: <Mirror Slave> [ ENT Save ]
[ CLR Cancel ]
    
```

Mirror Slave	This option will turn the local Slave unit to operate the same as the Slave#1
--------------	---

6.8.3 Add Remote Controller

This option lets the user to pair the radio remote controller. Refer section 5.

```

Reset Radio Network
Add Slave Controller
Add Remote Controller <
Del Remote Controller
Radio Output Power
    
```

6.8.4 Delete Remote Controller

This option is to remove any previously paired remote controller(s) from the network, Refer section 5.

```




Reset Radio Network
Add Slave Controller
Add Remote Controller
Del Remote Controller <
Radio Output Power
    
```

6.8.5 Radio Output Power

The units UHF output power can be adjusted to suit the operating environment. Setting a lower power level, will increase the running time of the traffic lights but may reduce the distance between the units spaced on the work site.

```

Reset Radio Network
Add Slave Controller
Add Remote Controller
Del Remote Controller
Radio Output Power <
    
```

Use the  button to decrease and  button to increase the radio output power.
 Press  to save.

```

===== Radio Output Power Setting =====
[=====]
[</> Change] [ENT save] [CLR cancel]
    
```

7. Radio Remote Controller (BTLR-100)

BARTCO's radio remote controller allows a wireless manual operation of portable traffic lights up to 300m in line of site from the configured Master controller.

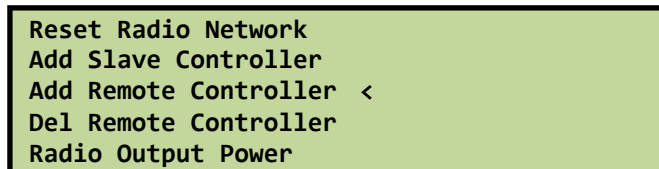
This section will describe the setup and operating procedures.

7.1 Configuration

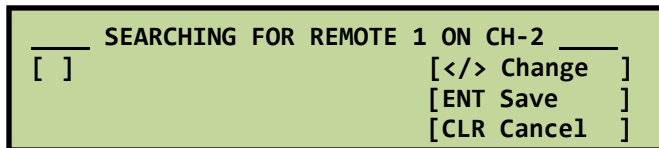
From the Master controller Navigate to the "Communication" menu



Select "Add Remote Controller"



The Master will then start searching for a remote controller.



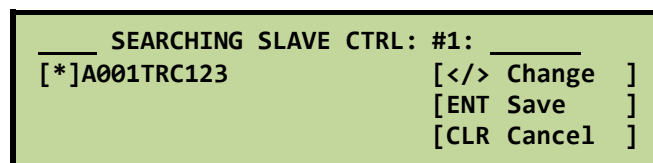
On the BTLR-100 remote controller, hold both green buttons down before turning the power ON to reset and initiate channel scanning mode.



The radio remote will begin scanning through channel 1 to channel 8,



The Master controller will now display the detected remote controller serial number(s).



Select the desired remote controller serial number from the available list, press **ENT** to confirm the successful pairing.

7.2 Radio Remote/Wired remote Controller operations

The Radio remote/wired remote controller operation is only available when the traffic lights are set to operate on Manual mode operation.

Upon the setup of Manual mode operation, all the lights will turn to RED upon completing the minimum Flash Yellow time.

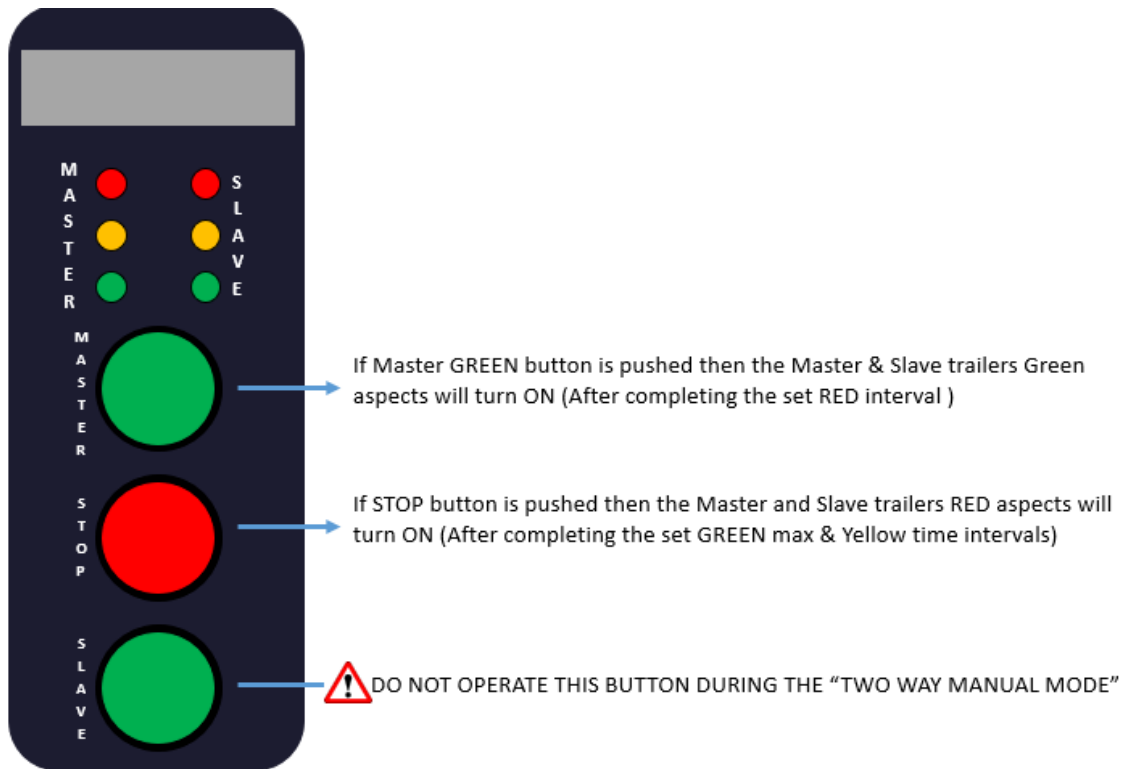
The Wired remote / Radio remote will operate differently depending on the type of Manual mode operation.

ONE WAY Manual mode operation



BARTCO BTLC100 Traffic lights doesn't require user to push STOP button during the phase changes between Master & Slave trailers.

TWO WAY Manual mode operation

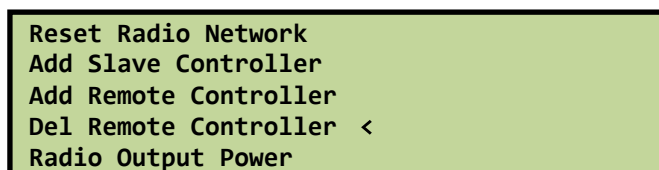


7.3 Delete Radio Remote Controller

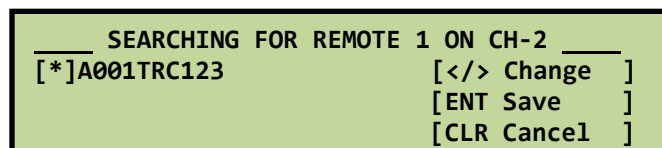
From the Master controller Navigate to the "Communication" menu



Select "Del Remote Controller"



The Master will now list all of the previously paired remote controllers, Select the remote controller that needs to be removed and press **ENT** to confirm.



! BARTCO BTLC100 Portable Traffic lights support up to four radio remote controllers.

APPENDIX A – Troubleshooting.

For all Technical queries please do not hesitate to contact a BARTCO Service team member.

The Master or Slave will not turn on.

If the battery voltage is low, then the LCD display may not turn ON when **ON / OFF** pressed. In this case, press **V** key to access the “System Information” page to check the battery voltage.

```
SERIAL:      A007TLC186
FIRMWARE:   1.0.02TAS900-032
DATE:       OCT/07/2019 16:42
BATTERY:    13.4V
```

Press **V** key one more time to access the page 2 of “System Information” page.

```
RADIO:      CH-2, 748.0mw
SLAVE-A009TLC161: 13.2V -50dBm
SLAVE-A006TLC864: 12.8V -54dBm
```

Flashing Amber

When a fault occurs, the traffic lights are designed to enter “Flashing Yellow” mode. This advises road users to “proceed with caution”. This is a normal behaviour and is designed to prevent the traffic lights from displaying incorrect information to road users.


Main fault conditions that can occur.

- 1) Low Voltage
- 2) Communication Failure
- 3) Lantern Fault
- 4) System Failure

Once wiring and battery voltages have been checked the fault may be cleared by selecting any of these modes




For any Communication Failure, check that the antenna is not damaged & the antenna cable connections are secured well. The Rx LED light on the controller will start flashing once the communication with the Slave controller / any remote device is established.

 Check the surrounding environment and try reducing the distance between the two units if the problem persists.

Intermittent Flashing Amber

Intermittent Flashing amber can be a result of weak signal strength between master and slave trailers.

- Make sure the trailers are in line of sight.
- Check the RF levels between each unit by pushing the down button  on each controller interface twice. As shown below


```
RADIO:          CH-2, 748.0mW
SLAVE-A009TLC161: 13.2V -50dBm
SLAVE-A006TLC864: 12.8V -54dBm
```


- Push the down button 20 times or so to make sure the -dbm value is stable.

 Information on the above page refreshes, every time the user opens it up.

LCD Brightness adjustment

If the display on the Master /Slave LCD is not visible, then use the right and left arrows to adjust the brightness while on the main screen.

To decrease the brightness press 


To increase the brightness press 

Lights stuck on GREEN phase

If the Master or the Slave stuck on GREEN light and doesn't follow the times, then please power cycle all the units in the network.

Power cycle can be done as described below.

- Push ON/OFF button and turn off the lights.
- Locate the fuses that supply power to the controllers or unplug the power source to the controllers. To double check that the power has been lost, push the ON/OFF button on the controller if there is no beep or light on the LCD screen then the user has successfully disconnected the power.
- Leave the unit powered down for 3 minutes.
- Repeat the above process on all the other units in the network.

 All units must be powered down together, do not power cycle one unit and move on to the next one.