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THE ORANGE BOOK

XLPed® operator's guide

PSL1780 issue 1 rev e

Contents

Required reading

- ‘The use of vehicle actuated portable traffic signals’ (the ‘Pink Book’) ISBN: 0115529365
- ‘Safety at street works and road works’ (the ‘Maroon Book’) ISBN: 0115519580
- ‘Traffic signs regulations and general directions’ (TSRGD) Chapter 8 ISBN: 0110429427

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Introduction

Welcome

Thank you for choosing the XL Pedestrian system which allows you to set up and operate a fully functioning temporary pedestrian crossing.

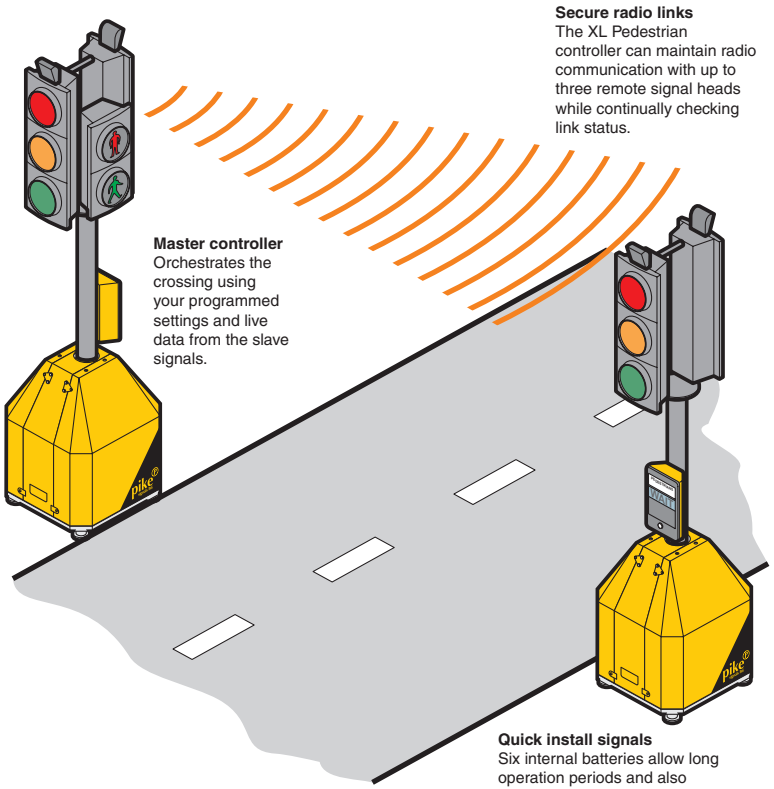
Using sophisticated radio links and integral failsafe measures, the XL Pedestrian system lets you quickly and safely install the crossing without the complication of cables.

The XL Pedestrian master controller has a logical layout, allowing you to quickly apply settings and easily monitor every aspect of the system in operation.

The XL Pedestrian controller is fully type approved to Highways Agency specification TR 2503B and is manufactured in the UK in accordance with ISO 9001 Quality Assurance procedures.

Important

This system should be installed and operated only by fully trained and experienced personnel. The junction layout examples given in this document are for guidance only. Always consult your supervisor if you are in any doubt about correct procedures or if you are concerned about safety. Equipment must only be repaired by Pike Signals Ltd or authorised repair agents.



Master control panel layout

The master control panel is arranged logically for ease of set up and use.

V.A. DEMAND
When the mode switch is set to MANUAL, this button simulates the microwave vehicle detector being triggered for that phase.

PED DEMAND
When pressed, this button simulates a pedestrian demand request.

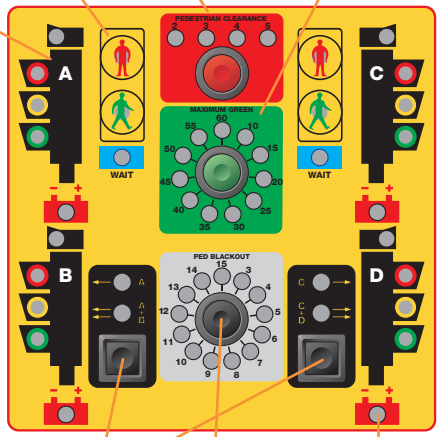
Status
Displays green or red to indicate the current status of operation (see page 26).

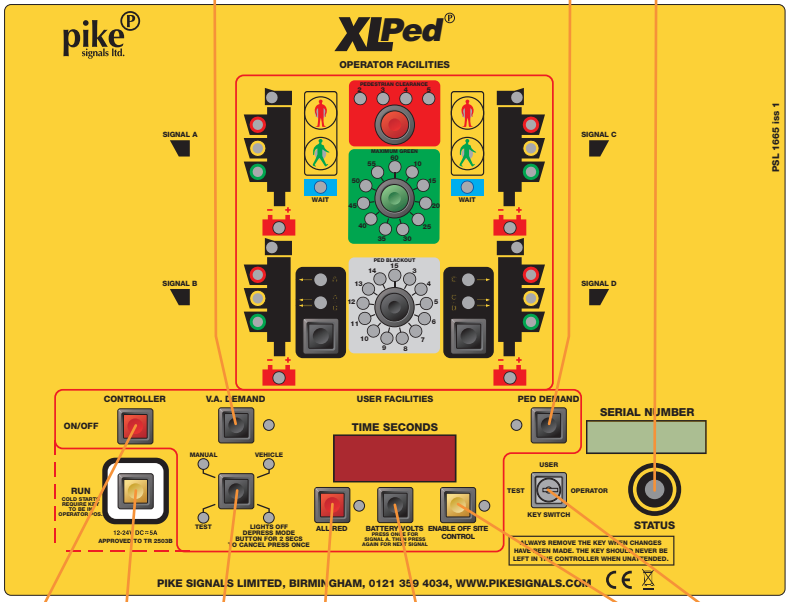
Pedestrian signal mimics
These indicators mirror the status of the pedestrian signals.

PEDESTRIAN CLEARANCE
Determines additional crossing time (see page 10).

MAXIMUM GREEN
Sets the time that traffic signals should remain on green before responding to crossing requests (see page 11).

Signal head mimic
These indicators show the signals currently being given at the traffic head(s). The top (demand) indicator shows when the microwave vehicle detector recognises an approaching vehicle (see page 26).





Phase groupings
These determine which signal heads are used and how they are grouped (see page 9).

PED BLACKOUT
Determines the time period that the pedestrian indicators are blank during crossing (see page 10).

Low battery indicator
Illuminates to warn that one or both of the remote heads on this phase are getting low on battery charge (see page 19). Also used with BATT. VOLTS button when checking head batteries.

ON/OFF
Press and release to switch on, press and hold for two seconds to switch off (see pages 8 & 9).

RUN
Press to begin running the programmed sequences (see page 11).

Operation mode
Selects the main operation mode for the system as a whole (see page 23).

ALL RED
Press to hold all signals at red see page 24).

BATTERY VOLTS
Press to check the batteries in each signal head (see page 20).

TIME display
Counts the elapsed time in the current phase of operation and also displays error codes (see page 27).

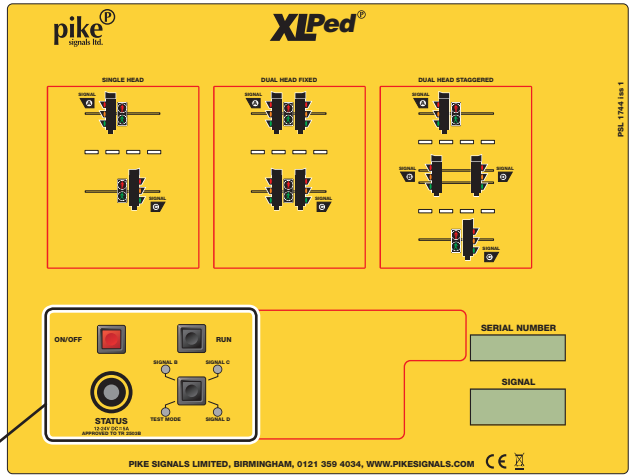
Off site
For future expansion.

Key switch
Protects against unauthorised changes during operation (see page 9).

Slave controller panel layout

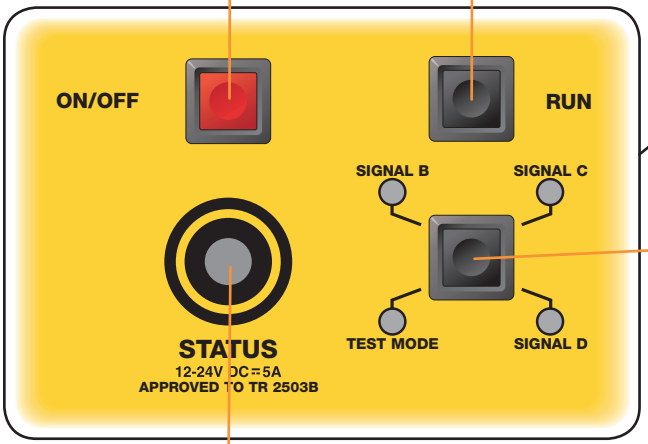
All XL Pedestrian slave controllers must be configured before the XL Pedestrian master controller begins operation.

See page 8 for details about configuring controllers.



ON/OFF
Press and release to switch on, press and hold for two seconds to switch off (see page 8).

RUN
Once the identity is set, press to enter receive mode (see page 8).



Identity of this head
Use this button to choose the appropriate identity of this slave head as determined by its position within the junction/cross-ing layout (as depicted in the diagrams on the panel).

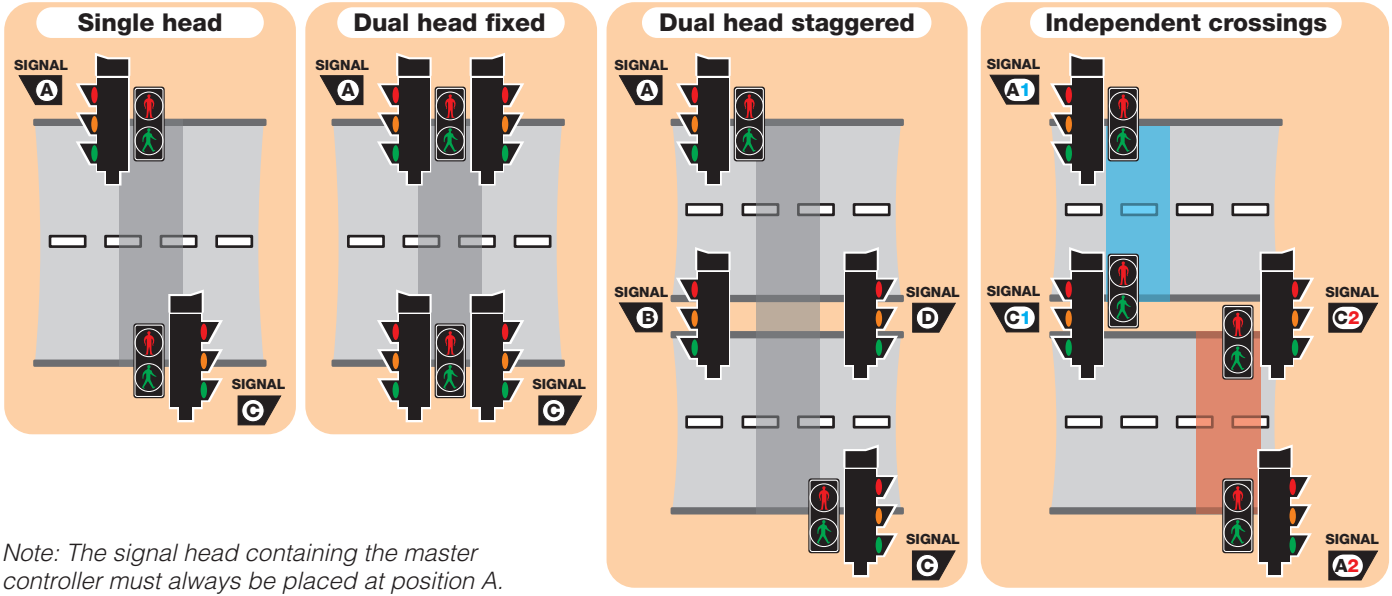
The master head is always signal A, which is why that option is lacking on the slave panel.

Status
Displays green or red to indicate the current status of operation (see page 26).

Installation

Setting up the heads and controllers

1 **Arrange the signal heads in any of the following three configurations, as best suits the site:**

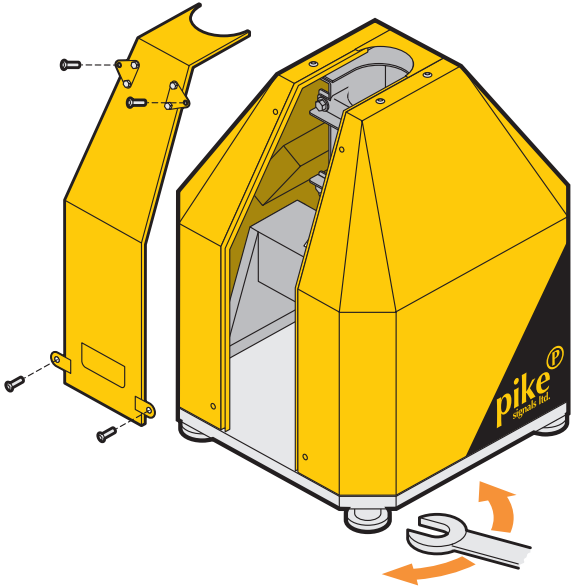


Note: The signal head containing the master controller must always be placed at position A.

See the next page for signal head construction details.

1 Arrange the signal heads... (continued)

a Position each base unit at the roadside location, level it and then open the covers.

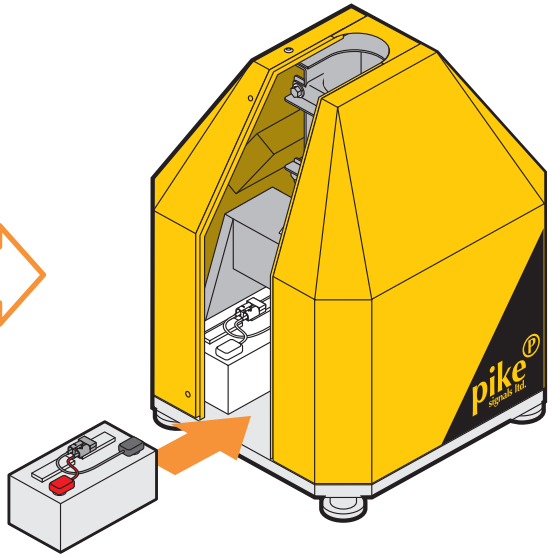


(see pages 16 and 12 for details)

IMPORTANT

Base units must be used only on hard, level surfaces.

b Insert and connect the batteries.



(see page 18 for details)

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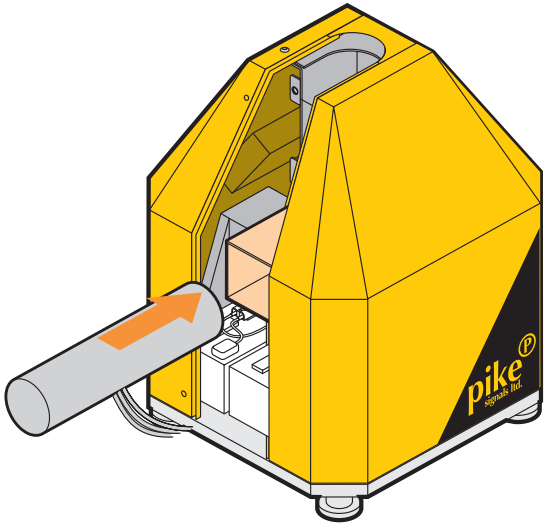
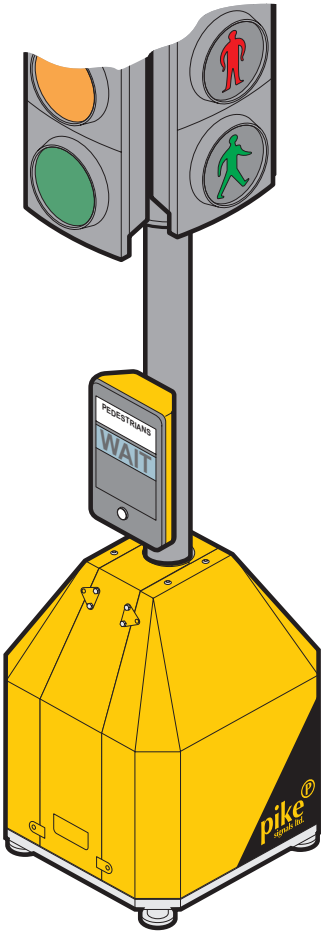
c Insert and secure the signal head pole.



(see page 15 for details)

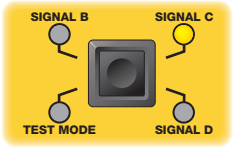


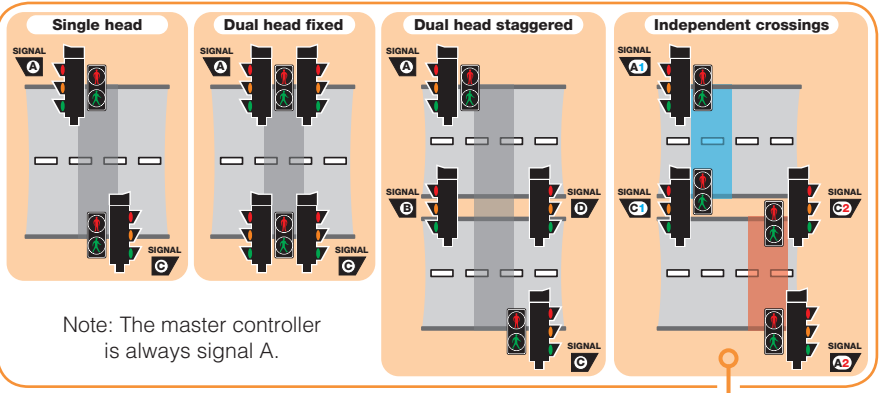
2 On each slave signal controller:

a Switch on.

See below for details about using different radio channels when two installations are close together.

b Select an appropriate identity for the signal according to its position in the layout.





Note: The master controller is always signal A.

c Press the RUN button.

Using two sets of XL Pedestrian units in close proximity

Whenever two separate crossings are placed near to each other (within 600 metres), one XL Pedestrian set (including master and slaves) must use radio channel 1. *Note: A minimum distance of 5 metres must be maintained between any two heads operating on different frequencies.*

At every switch on (master and slave units)

i Press and hold **RUN**...

ii ...then press **ON/OFF** to switch on. Then release both buttons.

Radio channel 1 will be selected. Continue with setup as usual. Remember to always switch on each controller within the group using the method shown above. The master unit will display CH 1 until you release the **RUN** button. The slave units do not give confirmation of the channel number being used. Continue programming each set as normal.

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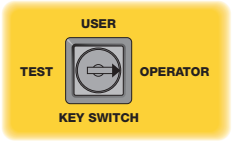
3 On the master controller:

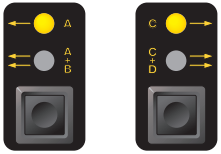
a Switch on.

See opposite for details about using a different radio channel when two installations are close together.

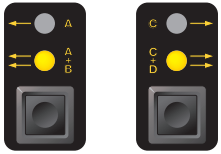
b Insert the key and change to **OPERATOR** mode.



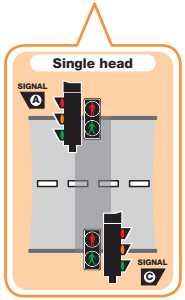
4 On the master controller, choose the appropriate phase groupings:

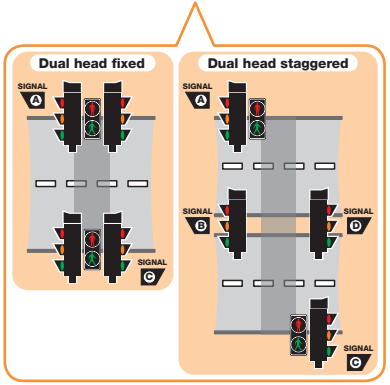


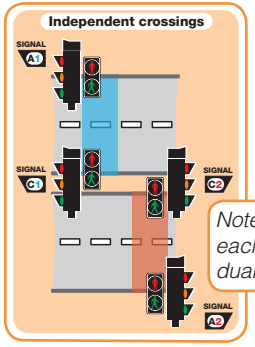
For a **Single Head** layout, choose the **A** and **C** settings.



For a **Dual Head Staggered** or a **Dual Head Fixed** layout, choose the **A+B** and **C+D** settings.

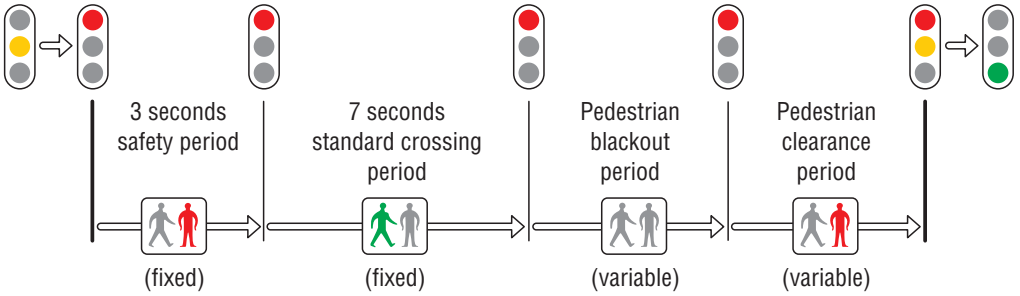


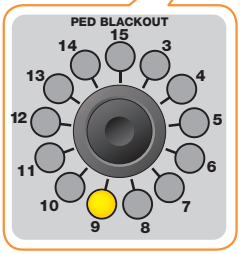




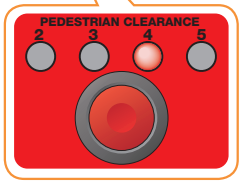
Note: Independent crossings can each operate with single head or dual head layouts, as appropriate.

5 **On the master controller, determine the appropriate timings:**





Choose a **Pedestrian Blackout** period (in seconds) that is sufficient to allow an able bodied pedestrian to walk the whole of the crossing.



The **Pedestrian Clearance** setting allows you to determine an additional safety factor (4 seconds is the usual setting).

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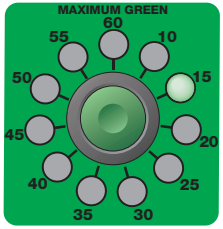
6 On the master controller, determine the appropriate MAXIMUM GREEN timing:



The **MAXIMUM GREEN** time determines how long the traffic signal heads will remain on green (when traffic is flowing) before responding to a pedestrian crossing request. Whenever traffic is not present, the maximum green time reduces (temporarily) to ten seconds to improve the response time for pedestrians.

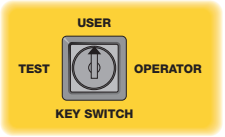
For busy roads, it may be necessary to increase this setting in order to lengthen the periods between crossings to reduce traffic congestion.

7 On the master controller, start operation and lock the controller:

a Ensure the mode is set to **VEHICLE**.

b Press the **RUN** button.

c Turn the keyswitch to **USER** to prevent unauthorised changes.



Further information

- Making adjustments during operation page 23
- Recovering operation after an incident page 24

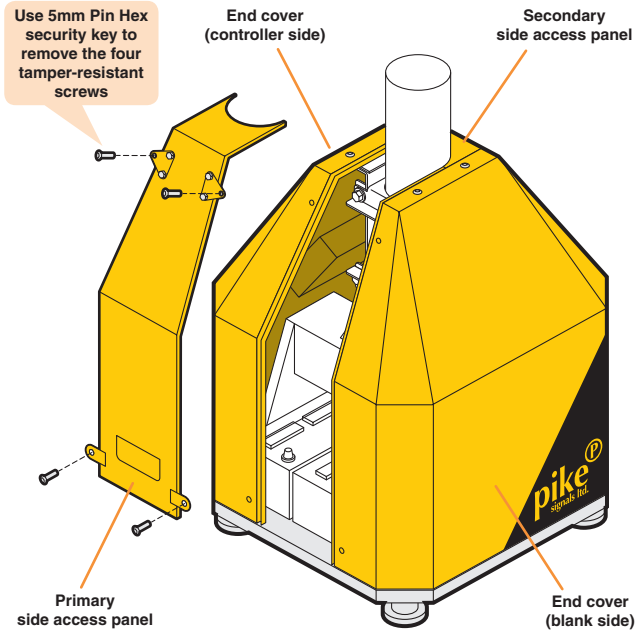
Removing covers

Each XL Pedestrian unit has two end covers and two side access panels.

When installing or removing the signal pole, it is only necessary to remove the front access panel.

To remove a side access panel

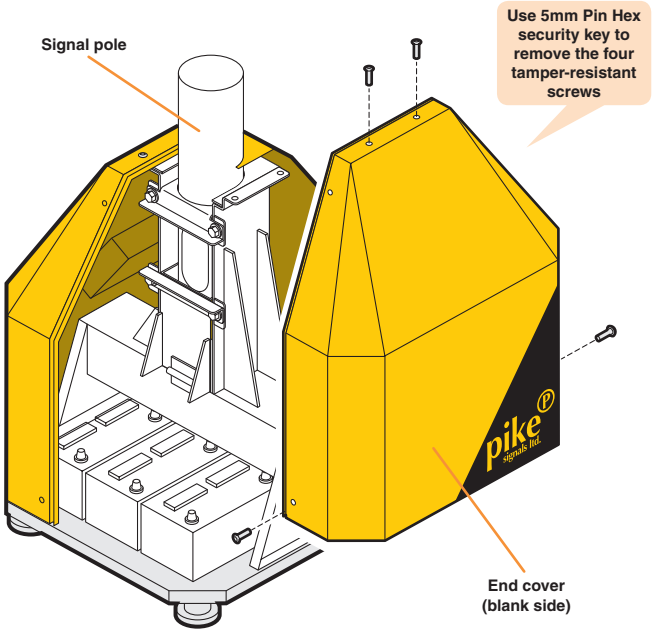
1 Remove the four retaining screws of the primary side access panel using a 5mm Pin Hex security key. Keep all screws in a safe place.



The batteries can be installed and removed either through the one or both of the side access panels. Alternatively you can remove an end cover to provide greater access.

To remove an end panel

1 First remove both side access panels and then use a 5mm Pin Hex security key to remove the four retaining screws of the end cover. If you remove the controller side end cover, you will need to first disconnect the controller (see opposite).



Controller connections

The signal pole links to the rear of the controller panel using three military grade screw-down connectors. Before the signal pole is removed, you must first disconnect the three connectors.

To disconnect

1 Remove the primary side access panel (see page opposite).

2 Locate the rear of the controller panel.

3 On each of the three connectors, fully unscrew the outer collar of the plug anti-clockwise until it disengages. Then, separate the plug from the socket by pulling gently on the body of the plug, never by its cable.

To connect

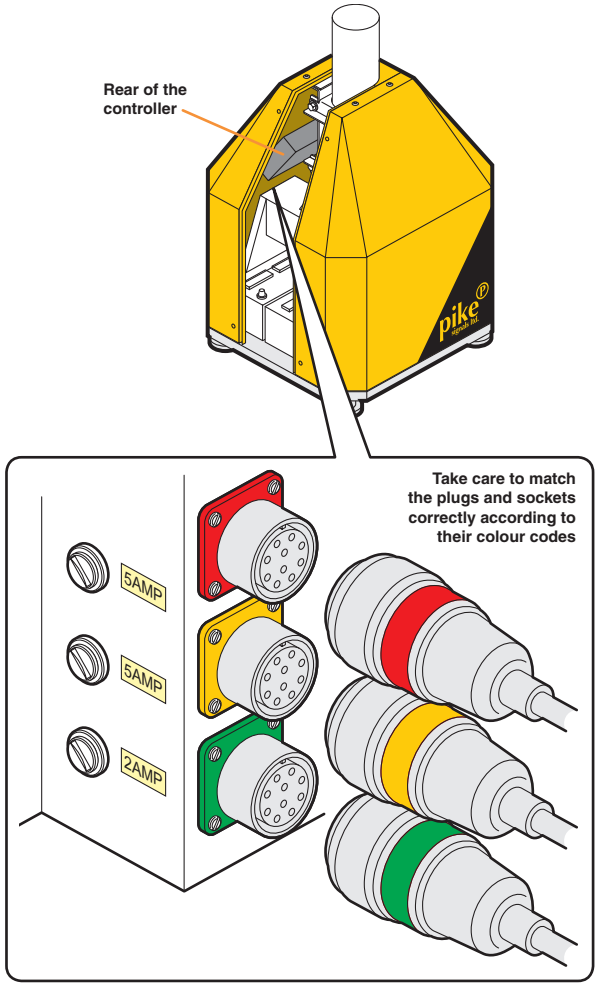
1 Remove the primary side access panel (see page opposite).

2 Install and secure the signal pole (see page 15).

3 Locate the rear of the controller panel and guide the three leads emanating from the pole to the panel.

4 The plugs and sockets are colour coded in red, yellow and green - take care to match each pair correctly.

In each case, align the small orientation slot of the plug with the key of the corresponding socket. Once the plug is engaged, screw the outer collar clockwise until the plug is tightly locked into place.



Removing the signal pole

Before attempting to move an XL Pedestrian unit, it is important to first remove the signal pole.

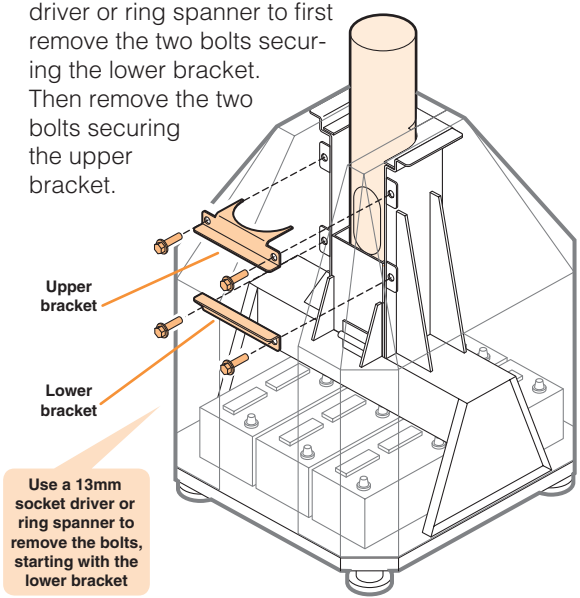
IMPORTANT: This is a two person job. Do not attempt this alone.

To remove the signal pole

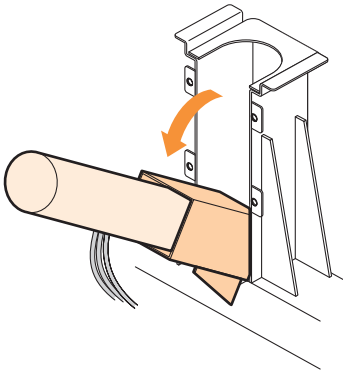
1 Remove the primary side access panel (see page 12).

2 Unplug the three connectors from the rear of the control panel (see page 13).

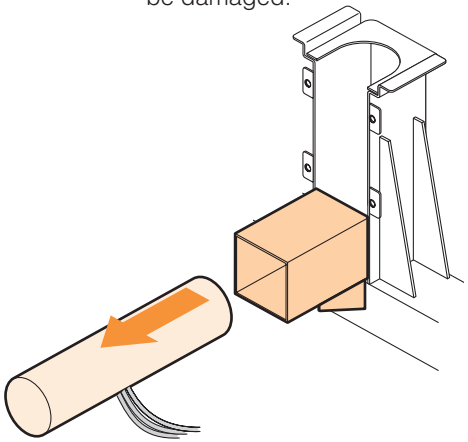
3 While a colleague supports the signal pole, use a 13mm socket driver or ring spanner to first remove the two bolts securing the lower bracket. Then remove the two bolts securing the upper bracket.



4 Carefully begin tilting the signal pole forward until it is almost horizontal.



5 With the aid of your colleague, slide out the signal pole and store it carefully where it cannot be damaged.



Fitting the signal pole

Before attempting to fit a signal pole, place the base unit in the required location (hard level surfaces only) and install the batteries. The six batteries form an important counterweight and the unit may not be sufficiently stable without them fitted.

IMPORTANT: This is a two person job. Do not attempt this alone.

To fit the signal pole

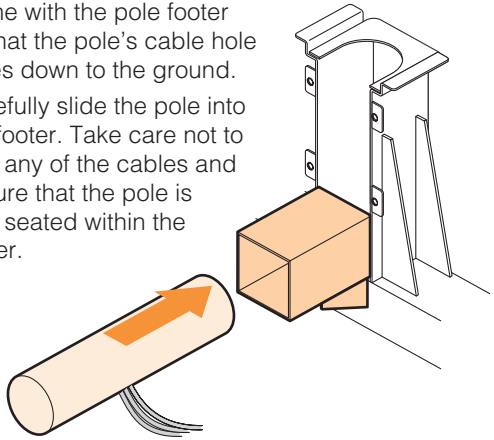
1 Place the XL Pedestrian base unit in the required location and remove the primary side access panel (see page 12).

2 Install and connect the batteries (see page 18).

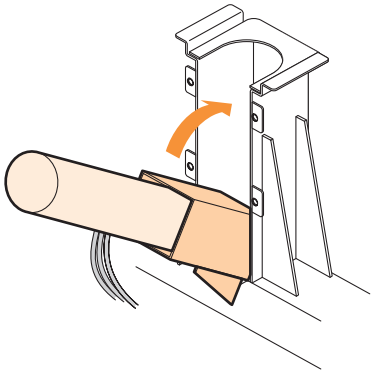
3 Remove the upper and lower pole brackets (if fitted) and swing down the pole footer.

4 With the aid of your colleague, lay the end of the signal pole in line with the pole footer so that the pole's cable hole faces down to the ground.

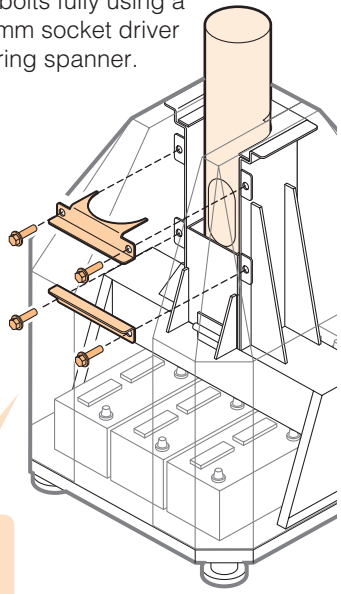
5 Carefully slide the pole into the footer. Take care not to trap any of the cables and ensure that the pole is fully seated within the footer.



6 Tilt up the signal pole until it stands vertically.



7 While your colleague supports the pole to prevent it tipping forward, attach first the upper bracket and then the lower bracket. Tighten all bolts fully using a 13mm socket driver or ring spanner.



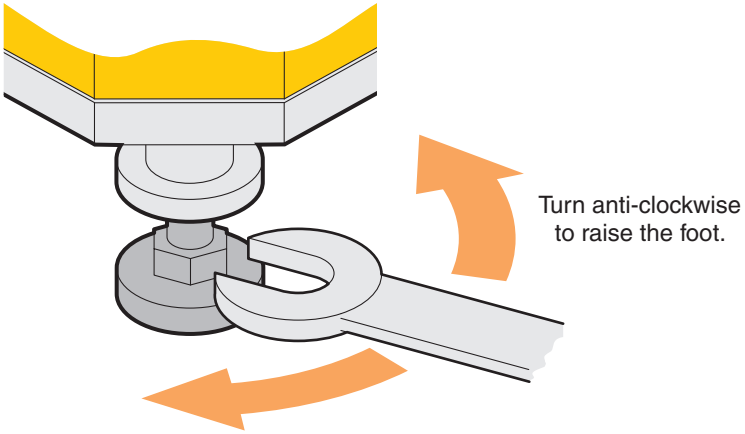
Levelling a base unit

XL Pedestrian base units feature adjustable legs to compensate for slightly uneven surfaces. Each leg offers 25mm of adjustment and should be considered as a fine adjustment only. If the mounting surface is very uneven or sloped, then you may need to find a slightly better location or improve the surface conditions.

Note: The levelling operation is much easier to do when the batteries and signal pole are not fitted.

To level a base unit

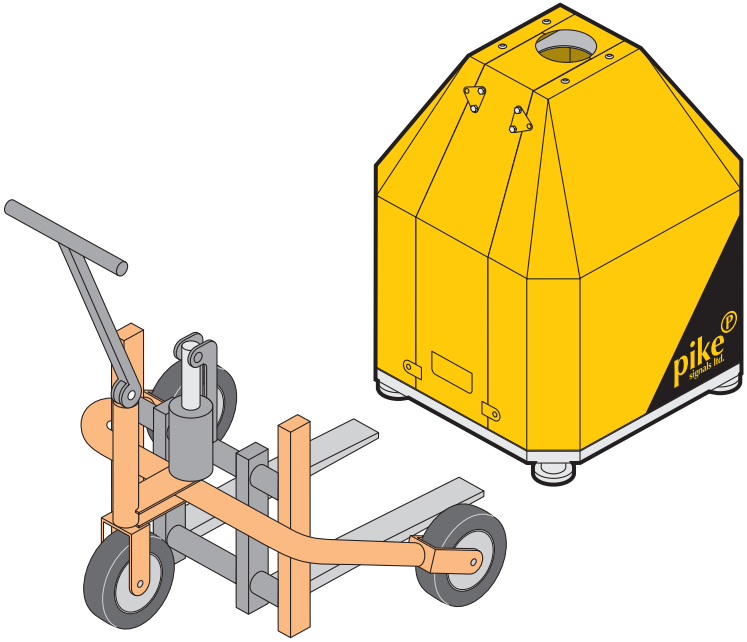
1. Place the empty base unit in position on a flat hard surface that is as level as possible.
2. Use a 30mm spanner to adjust each of the four legs until they are roughly half way along their 25mm (1") travel. From this starting position it is easier to see where adjustments are needed. Also, you can be sure that all four legs then have up and down movement available.
3. Check the base unit for general stability and true level - a spirit level is useful here.
4. Using the 30mm spanner, adjust the legs as necessary until the base unit is level and fully stable.

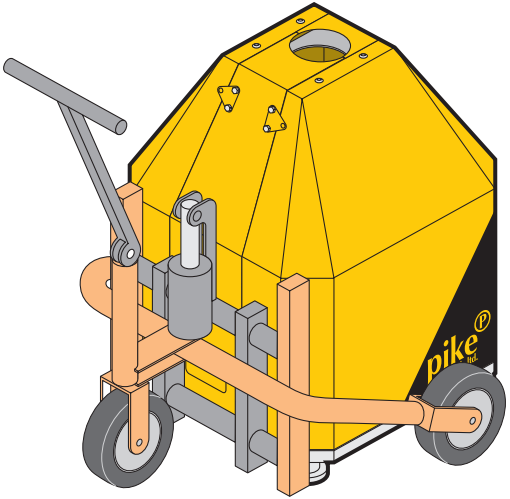


Optional trolley jack

When moving or repositioning an XL Pedestrian unit, it is usually necessary to remove the signal pole and batteries due to the weight. An optional trolley jack is available that allows you to move units without the need to empty them of their batteries.

Note: The signal head pole must still be removed before attempting to move a unit using the trolley.





Battery connections

Each XL Pedestrian unit is powered by either six 12-volt or six 6-volt deep cycle batteries located in the base unit. A special loom inside the base unit allows each battery to be quickly and safely connected/disconnected. As part of the quick-release loom, each battery has its own Anderson-style connector as well as an in-line fuse to protect against short circuits and overloads.

Note: When 6-volt batteries are used, extra care is required as some terminal connections must be made once the batteries are placed inside the unit.

The batteries are generally removed whenever an XL Pedestrian unit is moved. However, an optional trolley is available to allow the base to be moved with the batteries still in place (see page 17).

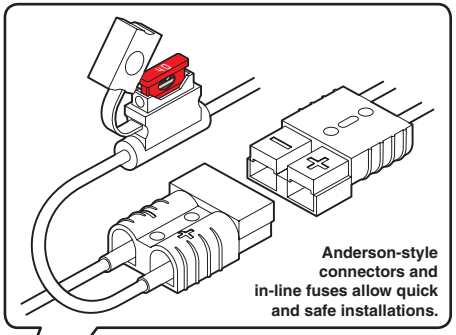
Note: The signal pole should always be removed before removing the batteries or before attempting to move the unit using the trolley (see page 14).

To remove 12-volt batteries

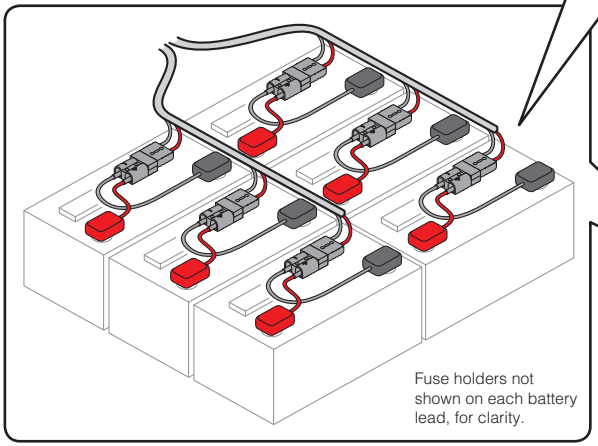
1 Remove the signal pole (see page 14).
2 Remove the two side access panels (see page 12).
3 Disconnect each battery from the loom and remove from the base unit.

To install 12-volt batteries

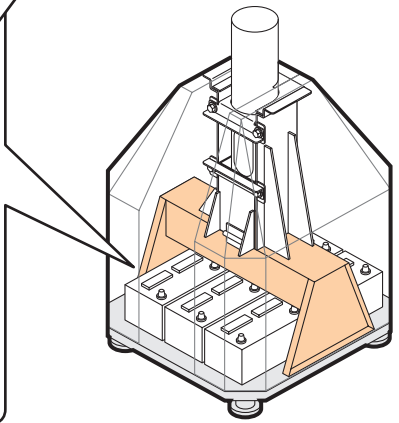
1 Position the XL Pedestrian unit in its required position.
2 Remove the two side access panels (see page 12).
3 Slot each battery into place within the enclosure and as you do so, attach the battery's lead to the corresponding connector on the loom.
4 Once all six batteries are in place and connected, refit the side access panels and fit the signal pole (see page 15).



Anderson-style connectors and in-line fuses allow quick and safe installations.



Fuse holders not shown on each battery lead, for clarity.



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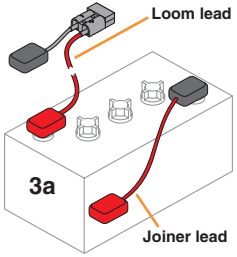
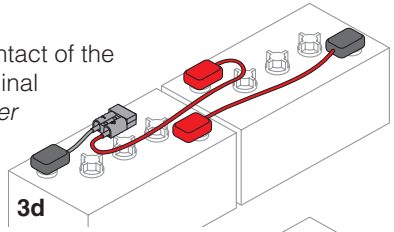
To remove 6-volt batteries

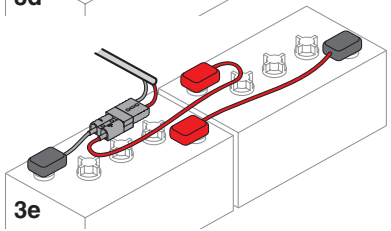
1 Remove the signal pole (see page 14).
2 Remove the two side access panels (see page 12).
3 Disconnect each battery from the loom and remove from the base unit.

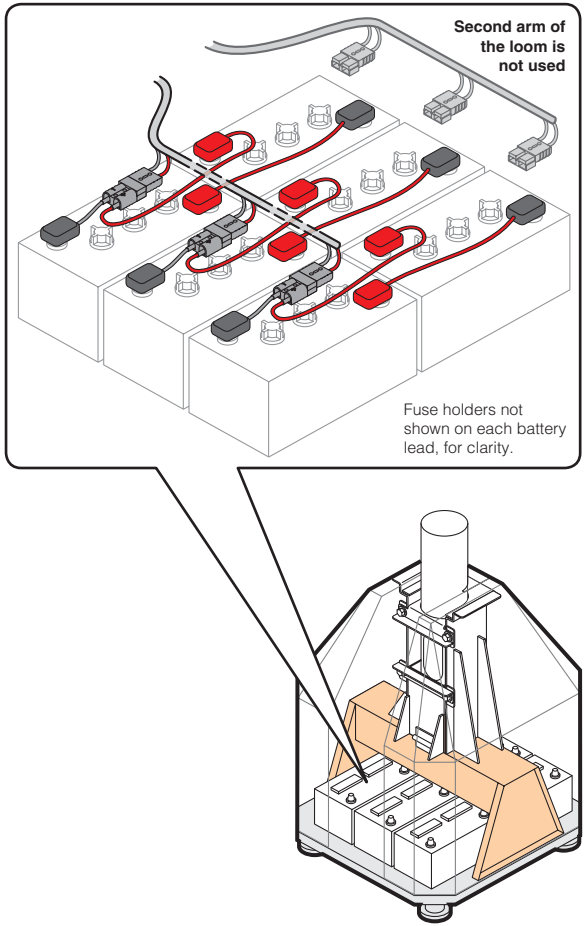
To install 6-volt batteries

1 Position the XL Pedestrian unit as required.
2 Remove the two side access panels (see page 12).
3 For each pair of batteries:
   a On the first battery, connect the red contact of the *Loom lead* to the positive terminal and the black contact of the *Joiner lead* to the negative terminal.
   b Place the first battery into the chassis.
   c Place the second battery into the chassis, end-on to the first, with its positive terminal closest to the first battery.
   d Carefully connect the black contact of the *Loom lead* to the negative terminal and the red contact of the *Joiner lead* to the positive terminal.
   e Connect the Anderson plug to one of the main plugs of the chassis loom.
4 Repeat steps 3a to 3e for the other two pairs of batteries.
5 Once all six batteries are in place and connected, refit the side access panels and fit the signal pole (see page 15).









Battery care

XL Pedestrian batteries should be inspected on a regular basis in order to detect and correct potential problems before they can cause harm.

IMPORTANT: Always wear protective clothing, gloves and goggles when handling batteries, electrolyte and charging batteries.

Battery charge checking

During operation, if the battery charge of any signal head within an XL Pedestrian installation falls to 11.5V, it will be reported at the master controller. The corresponding battery indicator will illuminate.

To check battery charge status (during operation)

1 On the master controller, press the **BATTERY VOLTS** button.

2 The battery indicator adjacent to the signal mimic for head A (the master controller's batteries) will flash and the **TIME** display will first show the serial number of the controller and then show the voltage level of the batteries. A healthy battery set will show 12V or more.

3 Press the **BATTERY VOLTS** button to test the next signal head. The battery indicator for that head will respond in the same manner as described above. Meanwhile, the **TIME** display will show the serial number followed by the voltage level.

4 Repeat step 3 until all signal head batteries are checked.

After last selected battery voltage is displayed the controller will return to its previous state.

Battery inspection

Inspection guidelines

1 Examine the outside appearance of the battery.

- Look for cracks in the container.
- The top of the battery, posts and connections should be clean, free of dirt, fluids and corrosion.
- Repair or replace any damaged batteries.
- Always check condition of battery with a hydrometer, this simple and inexpensive tool accurately gives the state of charge to the batteries individual cells. The use of this tool cannot be stressed enough.

2 Any fluids on or around the battery may be an indication that electrolyte is spilling or leaking out.

- Replace any leaking batteries.

3 Check all battery cables and their connections.

- Look closely for loose or damaged parts.
- Battery cables should be intact; broken or frayed cables can be extremely hazardous.
- Replace any cable that looks suspicious.

4 Make certain there is good contact with the terminals and tighten all wiring connections.

WARNING: Do not over tighten the terminals. Doing so can result in post breakage, post meltdown or fire.

- Keep all terminals cleaned and lubricated with grease.

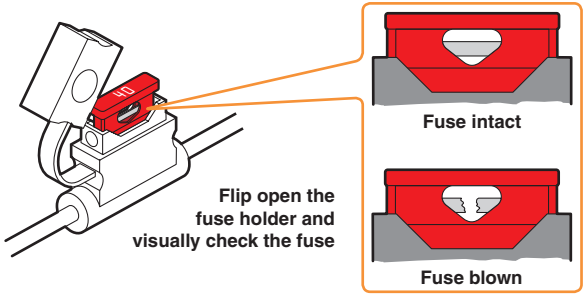
Battery charging

This operation must be carried out in a well ventilated area, the use of protective clothing, gloves and goggles is essential. Never smoke within the charging area.

Before charging, check the in-line fuse on each battery lead. If any fuse has blown then the respective battery will not be charged, increasing the burden on the other batteries and shortening operation times.

If a fuse has blown, there will be a reason why. Check the wiring to that battery and replace if necessary. Using a hydrometer, check the charge status. If the battery is completely discharged, a high in-rush current may have caused the problem during a previous charging attempt. Replace the battery if this is the case.

Check that the electrolyte in each battery covers the plates (see 'Battery inspection' left).



When you are happy that all connections, fuses and batteries are ready to be charged, connect the charger to a suitable power source. Check whether the charger requires a 110 volt or 230 volt supply and use the appropriate supply lead or step-down transformer, as necessary.

Pike battery chargers have three levels of charge indication:

- Bulk (red): Applies a normal charge into the battery.
- Equalise (orange): Overcharges the battery in order to stir the electrolyte up from the bottom of the battery and distribute it around the battery plates.
- Float (green): Puts a very low charge into the battery, this action charges deep within the plates. The green indication is not an indication of a fully charged battery, use a hydrometer to check battery state.

Charging duration depends on state of discharge, if fully discharged, the charging period will be between 18 and 24 hours.

DO NOT attempt to test the battery using either a drop tester or by jump starting an engine – this action could damage plates, causing irreversible damage. Use a hydrometer to check the battery state.

A more sophisticated instrument will check (without the need to remove electrolyte from the battery) the current voltage (allow the battery to stand for approximately ten minutes if taken off the charger), the state of charge indicated by percentage and can perform a further test to indicate percentage battery life remaining.

The use of some form of battery state testing is very important.

All deep cycle batteries are designed when fully charged (100%) to give 80% of available energy. All Pike equipment is designed to give low battery warnings and eventually to shut down prior to the last 20% of battery power available being used.

Battery watering

Flooded batteries need water. More importantly, watering must be done at the right time and in the right amount otherwise battery performance and longevity will suffer.

Water should always be added after fully charging the battery. However, prior to charging, there should be enough water to cover the plates. If the battery has been discharged (partially or fully), the water level should also be above the plates.

Maintaining the water at the correct level after a full charge will prevent having to worry about the water level at a different state of charge.

Depending on the local climate, charging methods, application, etc., we recommend that batteries be checked once a month until you become familiar to how 'thirsty' your batteries are.

Important things to remember

- Do not let the plates become exposed to air. This will corrode the plates, causing irreversible damage.
- Do not fill the water level in the filling well to the cap. This most likely will cause the battery to overflow acid, consequently losing capacity and causing a corrosive hazard.
- Do not use water with a high mineral content, i.e. tap water. Use distilled or de-ionised water only.

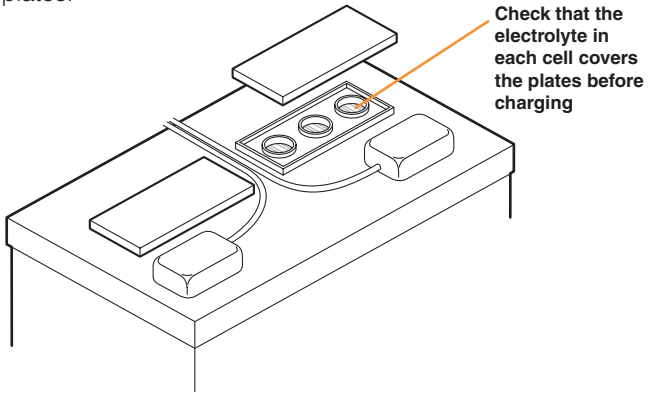
  CAUTION: The electrolyte is a solution of acid and water so skin contact should be avoided.

Watering procedure

IMPORTANT: Always wear protective clothing, gloves and goggles when handling batteries.

1 Open the vent caps and look inside the fill wells.

2 Check electrolyte level; the minimum level is at the top of the plates.



3 If necessary, add just enough distilled or de-ionised water to cover the plates at this time.

4 Put batteries on a complete charge before adding any additional distilled or de-ionised water.

5 Once charging is completed, open the vent caps and look inside the fill wells.

6 Add distilled or de-ionised water until the electrolyte level is 3mm below the bottom of the fill well. A piece of rubber can be used safely as a dipstick to help determine this level.

7 Clean, replace and tighten all vent caps.

WARNING: Never add acid to a battery.

Operation

Making adjustments

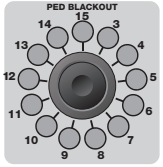
When the system is running, continue to monitor the ability of pedestrians to cross in time and also the build up of traffic.

Timing adjustments can be made at any time provided the key switch is set to the OPERATOR position. The effects of timing changes will be incorporated during the next full cycle of operation for each phase.

> Note
> Introduce timing changes in small steps and one at a time. Observe the results before making any further changes.

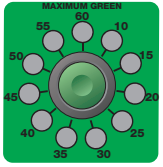
Pedestrians regularly caught on the carriageway as the traffic phase begins

In small increments, increase the **PED BLACKOUT** setting to provide a longer crossing time.



Large traffic tailbacks being caused due to sustained pedestrian requests

If substantial vehicle queues begin to form, increase the **MAXIMUM GREEN** settings in order to increase the time taken to respond to each pedestrian request.

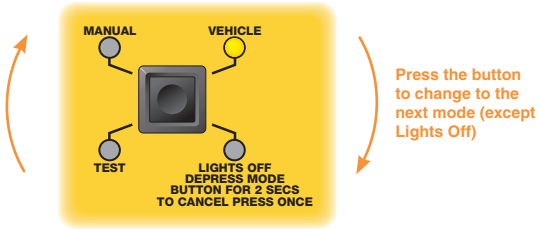


Operation modes

The mode switch determines how the system operates. The key-switch must be in the **OPERATOR** position to change the mode.

MANUAL
In this mode, the microwave vehicle detectors of the heads are ignored. The pedestrian demand button responses are displayed but are not serviced. All control is determined by the DEMAND buttons on the master controller.

VEHICLE
The master controller uses the configured timings and responds to the microwave vehicle detectors plus the pedestrian demand buttons. This is the most efficient mode of operation and should be used in most situations unless there are special circumstances.



TEST
Used when checking the functionality of the system.

LIGHTS OFF
Allows you to temporarily extinguish all signals with the ability to reinstate them quickly. Press the mode button for two seconds to enter this mode. To cancel, press the mode button once.

Calling ‘hold all red’

The system allows the ‘hold all red’ mode to be called only from the master controller.

To call ‘hold all red’

1 On the XL Pedestrian master controller, press the **ALL RED** button.

The adjacent red indicator will illuminate and operation will be affected according to the current mode:

- When running in **MANUAL** mode:
  - Any signals currently at green will wait for a minimum of 10 seconds and then return to red.
  - The **ALL RED** indicator will extinguish and the controller will continue running in Manual mode with all signals at red until a **DEMAND** button is pressed.
- When running in **VEHICLE** mode:
  - Any signals currently at green will wait for a minimum of 10 seconds and then return to red.
  - The **ALL RED** indicator will then extinguish and the time display will show LRC (local red call). Operation will remain halted with all signals at red until you restart it:
  - **To resume operation**: press the **RUN** button.

Incidents during operation

In accordance with Highways Agency specification TR 2503B, the XL Pedestrian controller and all associated signal heads monitor themselves continually for faults or unexpected incidents during operation. The system as a whole adheres to a defined set of responses for particular failures, as discussed here.

Signal conflicts

If the traffic and pedestrian phases show conflicting signals at any time:

- All signals will blank out and remain blank until the system is reset.
- On the XL Pedestrian controller, the **TIME** display will show CFLt (conflict) and the mimic indicator representing the signal head that caused the conflict will flash.

See Resetting the system overleaf.

Resetting the system

Certain failures within the XL Pedestrian system require the operator to cure/acknowledge the failure and reset the system as a whole. In such cases system operation may be automatically suspended.

To reset the system after an error

1 Inspect the indicators on the master controller to trace the problem.

2 If the problem is traced to one or more signal heads, visit each affected head and check the slave control panel(s).

Depending on the fault:

- If possible, rectify the problem and reset the slave signal head(s),

  or

- Replace the signal head(s) and follow the set up instructions in **step 2** (shown **on page 8**) to choose the correct signal head identity.

3 When all affected heads have been reset, on the master controller press the **RUN** button to restart operation.

This is known as a 'warm start' and is possible while the keyswitch is still set to **USER**. Any other setting change or a restart after switching on the master controller (known as a 'cold start') will need you to change the keyswitch to the **OPERATOR** position.

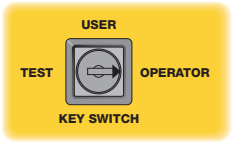
Monitor the system operation until you are sure that it is working correctly.

Decommissioning the system

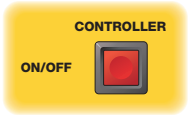
When the portable pedestrian crossing is no longer required, please follow this procedure to decommission its use:

1 Ensure that the traffic lanes and pedestrian areas are cleared of obstructions (with the exception of the signals heads, their cones and related warning signs).

2 On the master controller, insert the key and select the **OPERATOR** position.



3 On the master controller, press and hold the **ON/OFF** button until the panel shuts down.



4 In turn, go to each signal head and press and hold the ON/OFF button on each slave controller.

5 If there will be a delay in removing the all of the signal heads, place 'Signal not in use' signs that are visible to both pedestrians and vehicle drivers.

6 Remove the signal heads from the carriageway.

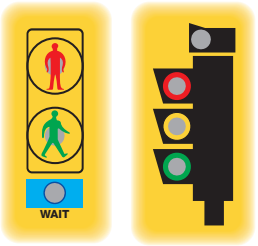
7 Carefully remove all cones, then the signs, all in accordance with the recommended procedures given in the guide "Safety at street works and road works" ISBN: 0115519580.

Error indications

The master controller uses its various indicators to provide assistance in tracing and solving operational problems.

Mimic indicators

In normal operation these displays mimic the currently active lamps of each vehicle and pedestrian signal head with a steady illumination of the appropriate lamp colour. If a lamp fails or a conflict is detected, the relevant indicator(s) will flash to highlight the location of the problem. The top indicator of the vehicle signal mimic shows when a vehicle is detected by the microwave vehicle detector.



Battery indicators

The battery indicator will flash when there is roughly two hours of operational time remaining within a signal head battery. When the battery becomes too low for operation, the signal head will switch off and the indicator on the master controller will remain on.

Status indicator

In normal operation the status indicator will show a constant green light or other states as follows:

Constant green	System running correctly.
Constant red	System unconfigured, not running.
Flashing green	Attempting to locate a remote head that is registered to be available according to panel settings. or Setting/state change made at the control panel but not yet transferred to the affected signal head(s). or Loss of communication.

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Time display

The four digit display at the bottom of the master control panel shows a continual count of the elapsed time for the current signal of the active phase. In error situations, this display is used to provide alphanumeric status codes, as follows:

- **BATT** Low Battery. If flashing, system still running. If on, system has powered down.
- **CFLT** Green (or other) conflict. Check mimics for further information.
- **CnFG** When **RUN** was pressed the PED master was unable to locate the required Slaves. System was not correctly configured.
- **CONN** Master is running and trying to configure.
- **Err1** Either PED or vehicle red is not connected/working at start-up
- **Err2** PIC secondary monitor failure
- **Err3** Not currently used
- **Err4** PED master red lamp monitor failure
- **Err5** PED slave red lamp monitor failure
- **FUSE** Aspect positive supply not present (ruptured fuse)
- **SIG** System was running correctly but developed a communications failure. Under normal operating condition when communications is recovered the System will restart operation, and **SIG** will change to normal running times.

  SIG and flashing **0000** indicates communications still lost.

  SIG and a displayed time indicates communications has recovered and system is running recovery time.
- **STOP** Operation has been stopped due to serious fault. Check mimics for further information.

Troubleshooting

Green mimic indicator flashing

A green conflict has been detected. Reset or replace the corresponding signal head, as necessary. See **Resetting the system** on page **25**.

Red mimic indicator flashing

A red lamp failure has been detected. Check and replace the affected signal lamp or head, as necessary. See **Resetting the system** on page **25**.

The Status indicator is flashing

Flashing green Communications - attempting to locate a remote head that is registered to be available according to the panel settings.

or

Setting/state change made at the master controller but not yet transferred to the affected signal head(s).

The TIME display is displaying a code

See page **27** for a list of all display codes.

Battery symbol flashing

The indicated signal head has roughly two hours or less of operation remaining before it must shut down. Check the control panel of the affected signal head and replace its battery.

Battery symbol on

The indicated signal head has shut down due to insufficient battery power. Change the battery of the affected signal head.

Master controller does not respond to ON/OFF button

A fuse may have blown within the controller. See page **29** for details.

Fuse replacement

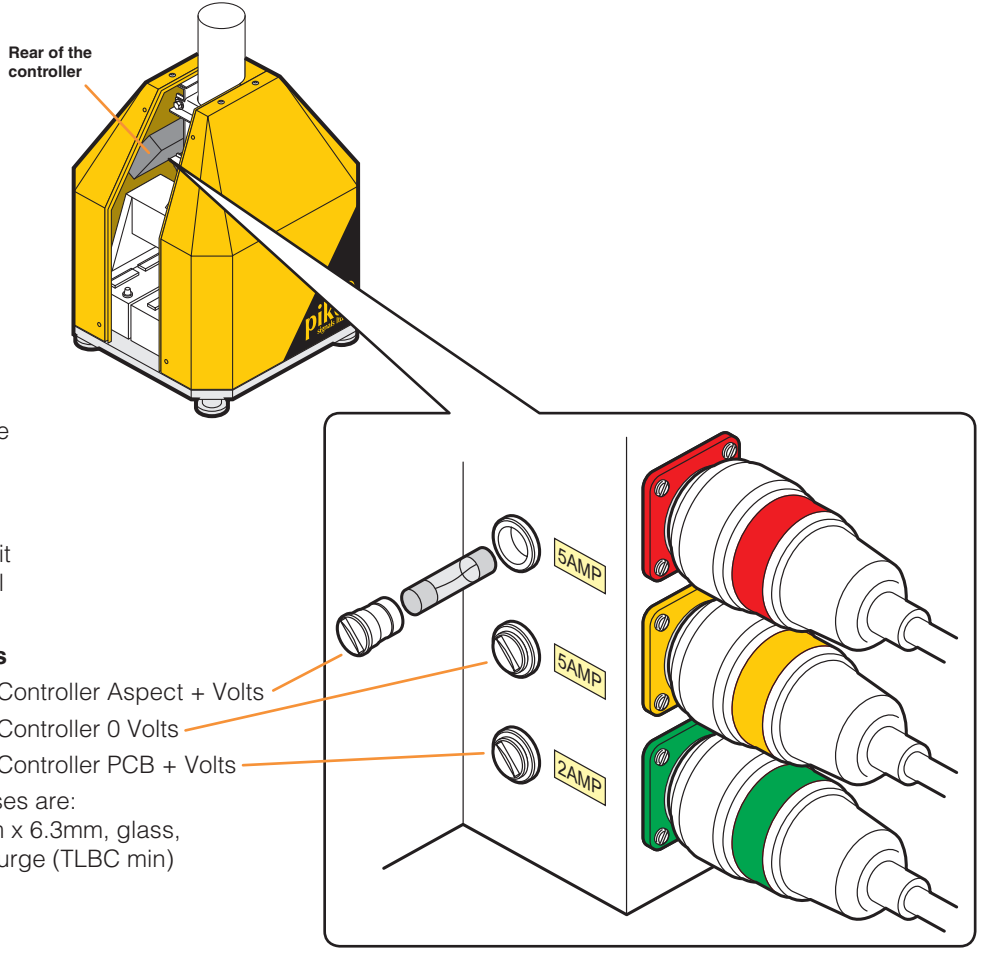
The master controller has three fuses located on its right hand side which are accessible from within the battery compartment.

To change a fuse

1 Switch off the master controller, if it is still switched on - all slave signals will show red until the controller is reinstated. If traffic needs to be directed, make immediate provision of alternative controls while the master controller is out of action.

2 Open the master signal head enclosure (see page 12).

3 Unscrew and pull out each fuse and inspect it visually (and with a meter, if necessary). If a fuse is blown, replace it with an identically rated fuse. Check all three fuses.



Fuses

5A Controller Aspect + Volts

5A Controller 0 Volts

2A Controller PCB + Volts

All fuses are:
32mm x 6.3mm, glass,
anti-surge (TLBC min)

Warranty

XL Pedestrian units are guaranteed against failure subject to fair wear and tear, correct operation and return to our works carriage paid. We undertake to repair or replace equipment free of charge providing:

- It has been maintained in good condition and operated with due care, and
- Any failures are directly traceable to faulty material or workmanship.

However, we cannot entertain any claims for labour or other expenditure in connection therewith. Items or components subject to another manufacturer's guarantee are subject to the terms of that guarantee only.

Any warranty given is void if seals on equipment are subsequently found to have been broken without prior permission by Pike Signals Limited.

Any item of equipment repaired by Pike Signals Limited is guaranteed from failure for three months from the date of repair, provided that the item has been subjected to fair usage and regular maintenance.

Disclaimers

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It is a policy of Pike Signals Ltd to seek registered design and/or patent protection for its products.

Environmental information

EU directive 2002/95/EC on the Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

It is Pike Signals Limited's desire to meet customer requirements with respect to the RoHS initiative. We are actively working to achieve the important objective of making our products compliant with the EU RoHS directive (and similar initiatives) through efficient product design that reduces unnecessary waste; the use of recyclable materials throughout, and a transfer to lead-free components and solder.

EU directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE)

Pike Signals Limited is focussed on developing a compliance program for the European Union ("EU") Directive on Waste Electrical and Electronic Equipment, Directive 2002/96/EC. Under the EU WEEE Directive, manufacturers of covered electronic equipment are obligated to take back such products at the end of their useful life.

Pike Signals Limited is committed to meeting or exceeding environmental standards in the production of all products and is engaged in a comprehensive, company-wide effort towards full compliance with the EU WEEE Directive.

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