
	<h1>924</h1>	 INTELLIGENT DETECTION SYSTEM
	LED SOLUTIONS	
	Pedestrian LED Wait Indicator	



PRODUCT MANUAL



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INTRODUCTION

PRODUCT & TECHNOLOGY



924 FARSIDE

The AGD924 LED wait indicator is intended for use in traditional applications as a direct replacement for the original lamp based units.

The signal incorporates long life high intensity LED's which allows for high signal uniformity and a high phantom performance.

The unit operates on a 48V ac supply and offers over 80% power saving on traditional lamp based indicators whilst increasing product life.

The robust polyester powder coated aluminium alloy housing is designed to allow the optional additional fitting of an audible sounder and a tactile device.

Patent GB2417817 applies.

KEY FEATURES

- Market leading range of LED wait indicators
- Long life high intensity LED's
- High signal uniformity and performance
- 80% power saving on lamp based indicators
- Options are available featuring vandal resistant non-moving button and language variants across the range
- 12V dc available for temporary traffic solutions
- Elexon codes available - visit www.elexon.com or AGD website www.agd-systems.com
- Modern style with patented rotational adjustment features
- Ease of installation and maintenance
- Proven reliability

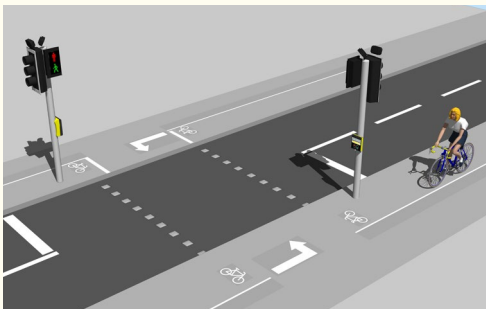
INTRODUCTION

TYPICAL APPLICATIONS

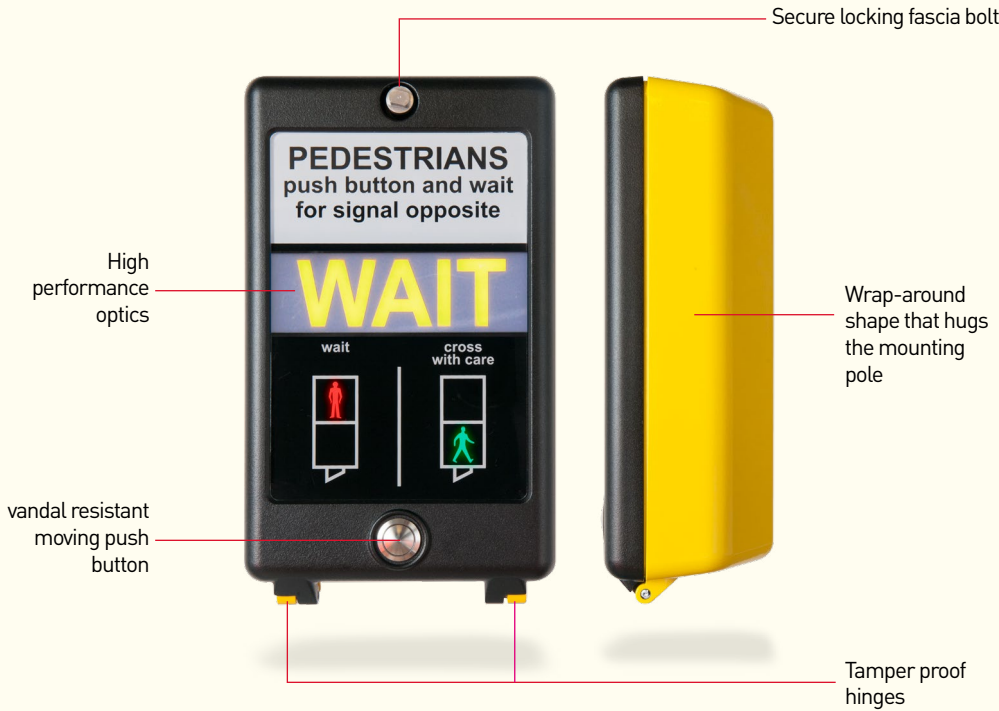
Pedestrian control



Pedestrian & cycle control



PRODUCT OVERVIEW



INTRODUCTION

PRODUCT OPTIONS

This comprises Dual and Toucan Legend signals.



924 DUAL LEGEND

The 924 Dual Legend LED wait indicator is intended for use in pedestrian control applications where far side signals are used.

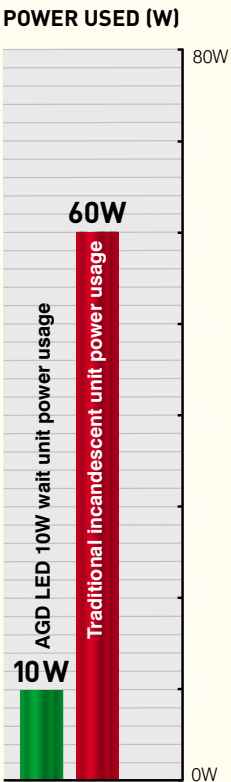


924 TOUCAN LEGEND

The 924 Toucan Legend LED wait indicator is intended for use in Cycle and Toucan applications where far side signals are used.

>80% POWER SAVING

The graph below demonstrates the power saving over the traditional unit.



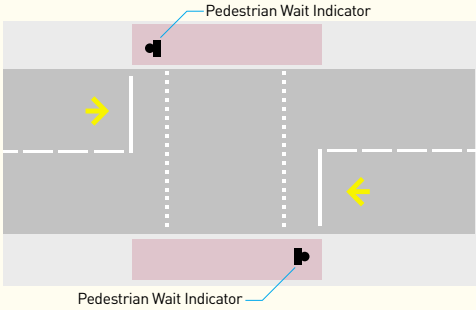
OPTICAL PERFORMANCE

- Phantom ratio 0.04:1 based on external illumination of 40,000 Lux
- On-axis luminous intensity (cd) 30cd bright and 14cd dim

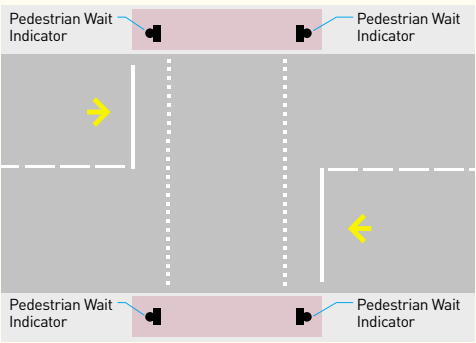
PRODUCT OVERVIEW

SITE DESIGN CONSIDERATIONS

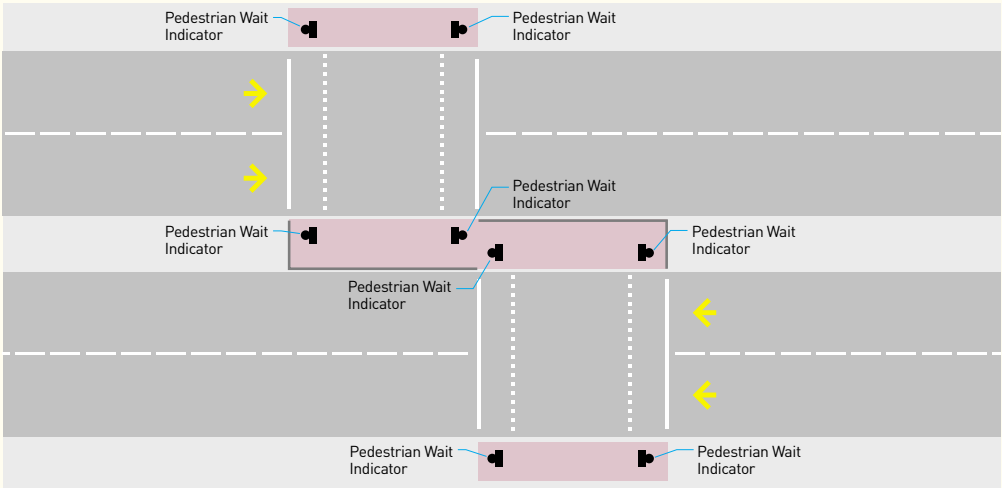
STANDARD CROSSING



FOUR POLE CROSSING



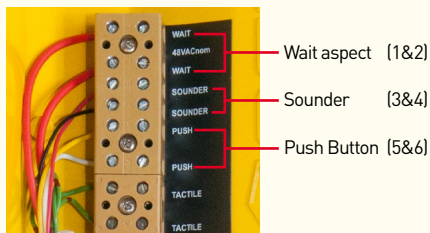
DUAL CROSSING



PRODUCT OVERVIEW

ELECTRICAL CONNECTIONS

Ensure correct voltage is applied dependent on application. If the controller drops the voltage for night-time environment the unit will auto select the correct light intensity. It is essential that the unit is connected to the correct power supply where connection is made internally. The supply is brought through the back of the unit from the pole to be connected to the screw terminal. Consideration must be given to the multiple grounding of supplies and its effect on the whole system. The unit is connected to earth also at the terminal.



12Vdc

Off	May be OFF	ON (Bright)
0 - 7.6	7.6 - 8	8 - 16

924-180-000

Bright 500mA nominal at 12V dc
Dim 100mA nominal at 12V dc
(dim line High to enable DIM mode)

42 or 48Vac (ELV setting)

Off	May be OFF or ON (DIM)	DIM	May be ON and DIM or BRIGHT	ON (Bright)
0 - 10	10 - 15	15 - 33	33 - 38	38 - 53

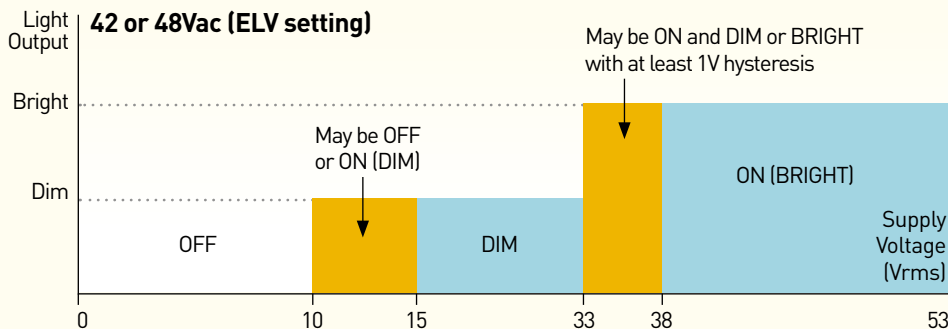
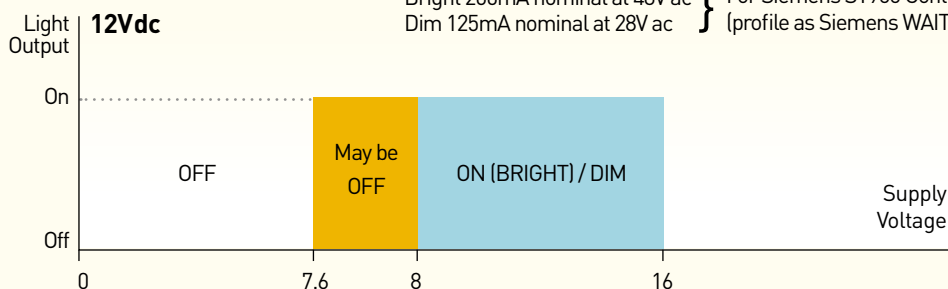
924-680-000, 924-681-000, 924-682-000, 924-683-000

Bright 220mA nominal at 48V ac
Dim 80mA nominal at 24V ac

924-690-000, 924-691-000

Bright 260mA nominal at 48V ac
Dim 125mA nominal at 28V ac

} For Siemens ST900 Controller
(profile as Siemens WAIT unit)



AGD signals meet the requirement of TS 50509:2007 Annex A.1 as shown above

INSTALLATION

INSTALLATION

The Pedestrian Wait Indicator should be positioned on the pole such that the push button should be in the range 1.0m to 1.1m from the ground depending on the local authority requirement. All units are supplied with U-bolts for fixing to the pole in the usual manner.

The unit should be positioned on the pole such that the optical axis meets the specific site or local authority requirements.

Note for Temporary Crossing care should be taken to ensure they are installed, where applicable, to the relevant HA and Local Authority requirements.

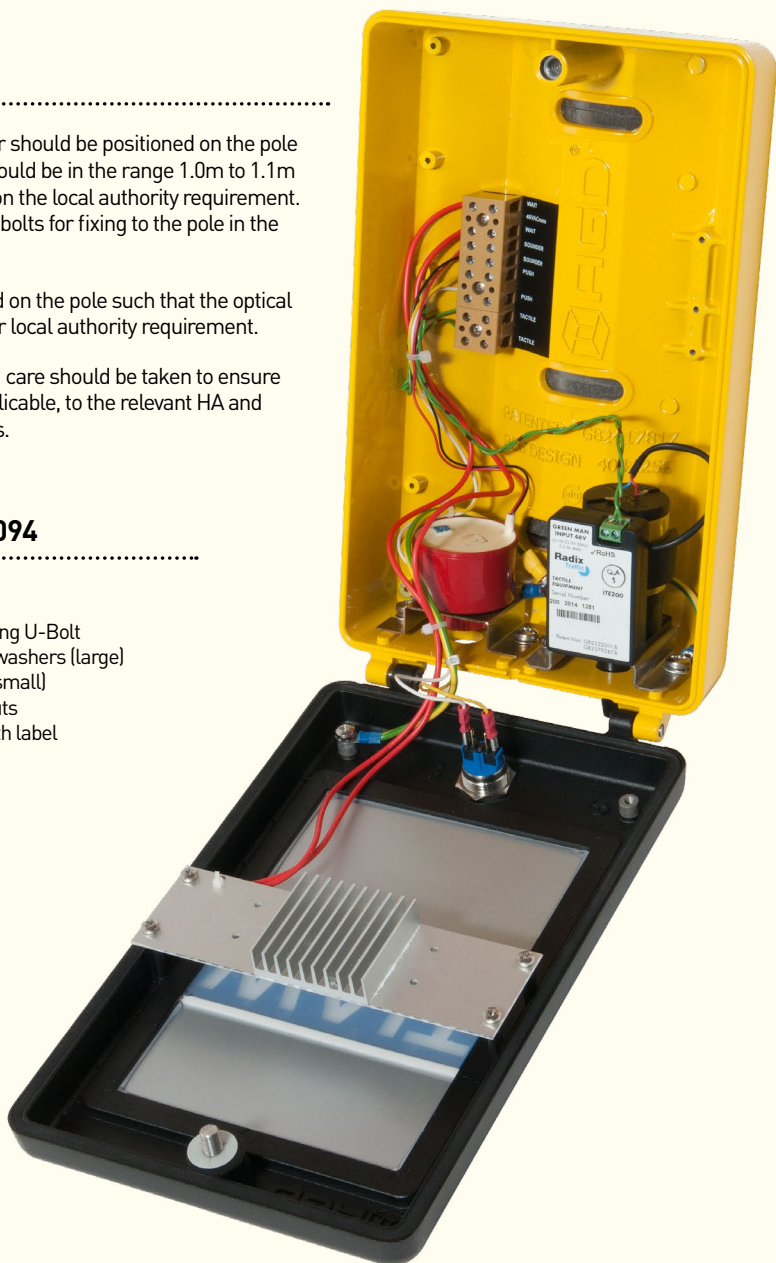
STANDARD POLE MOUNTING KIT MS-094

Contents:

- M8 Mounting U-Bolt
- Retaining washers (large)
- Washers (small)
- Locking nuts
- Safety Earth label

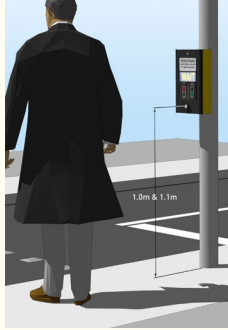


Wrap-around shape that hugs the mounting pole

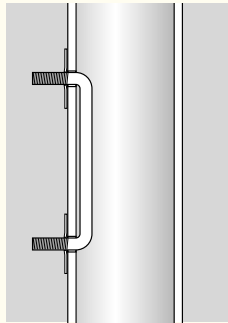


INSTALLATION

1. Position the AGD924 on the pole within range 1.0m to 1.1m from push button to the ground in line with local authority requirement. Mark and drill holes in signal pole and de-burr.



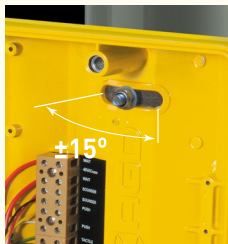
2. Fix to pole using U Bolt provided. Fit retaining washer over one threaded end of relevant U-Bolt (to prevent U-Bolt being dropped inside pole). Feed U-Bolt through hole in the pole and align to allow other end to protrude through second hole.



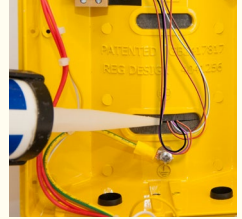
Fit retaining washer (to prevent U-Bolt being pushed into pole when fitting signal). Do not tighten fixing bolts fully, ensure sufficient slack to allow for movement.



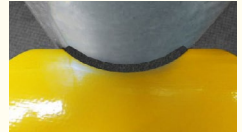
3. Cable up and adjust lateral position to a max +/-15 degrees from centre to on site viewing angle required.



4. Seal the power input cable at the point of entry with the appropriate silicone sealant to prevent water ingress. Use a suitable product recommended for use with electronics (**non acetic acid**).



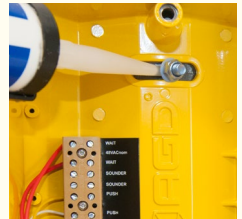
5. Ensure the positioning so that on tightening fixing bolts the foam gasket at rear of enclosure forms a watertight seal.



6. It is important to seal the top and bottom mounting holes with a non-corrosive silicone sealant.

NOTE: The sealing should only be performed once the final positioning of the unit has been completed.

NOTE: this is not an exhaustive list and every used point of ingress from the mountings or cables should be sealed.



7. Close unit and tighten T bolt fully. If unit is bagged double check T bolt is fully tightened to prevent water ingress.

8. If unit is removed from pole at later date units rear gasket **MUST** be replaced to prevent water ingress.

The installation should conform to the latest edition of IEE Wiring Regulations

ORDER CODES



ORDERING CODES	CURRENT CODE	OLD CODE
LED WAIT / 12V / Dual legend / Moving push button	924-180-000	924-160-000
LED WAIT / 48V / Dual legend / Moving push button / ELV+DCM	924-680-000	924-664-000
LED WAIT / 48V / Dual legend / Moving push button / ELV+DCM (For Siemens ST900 installations - Profile as Siemens WAIT)	924-690-000	924-690-000



ORDERING CODES	CURRENT CODE	OLD CODE
LED WAIT / 48V / Toucan legend / Moving push button / ELV+DCM	924-682-000	924-668-000
LED WAIT / 48V / Toucan legend / Moving push button / ELV+DCM (For Siemens ST900 installations - Profile as Siemens WAIT)	924-691-000	924-691-000



ORDERING CODES	CURRENT CODE	OLD CODE
LED WAIT / 48V / Dual legend / Moving push button / ELV+DCM / Welsh/English	924-681-000	924-670-000



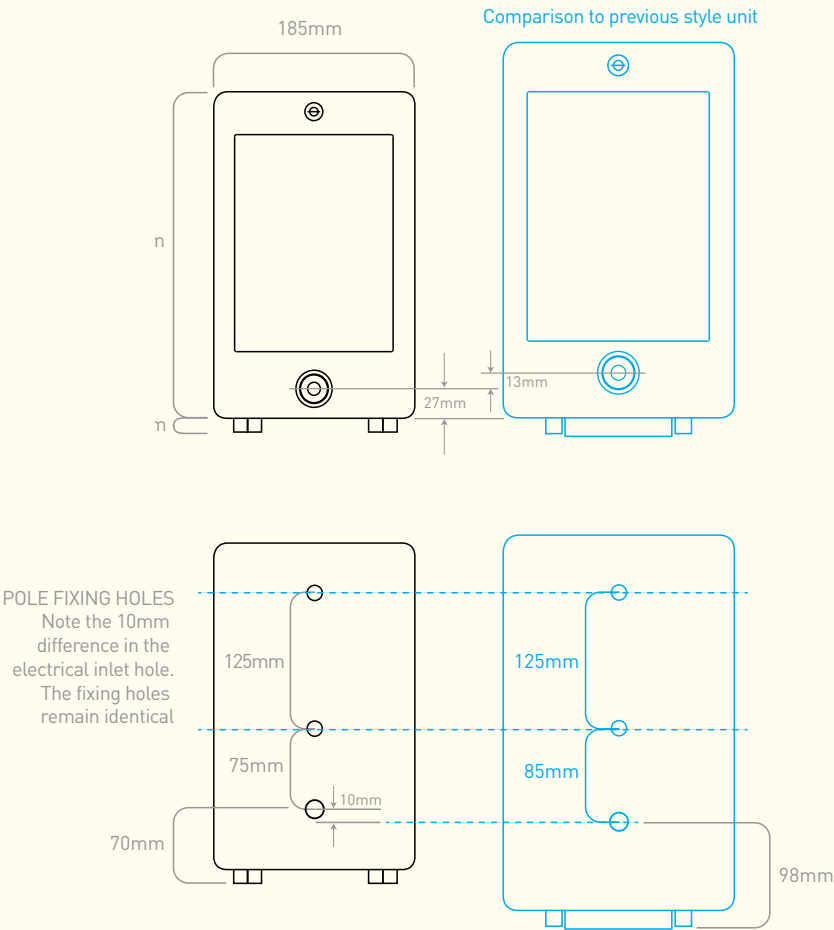
ORDERING CODES	CURRENT CODE	OLD CODE
LED WAIT / 48V / Toucan legend / Moving push button / ELV+DCM / Welsh/English	924-683-000	None

RETRO FIT COMPONENTS

- CP-09-009 Piezo vandal resist button (non-moving)
- CP-09-015 Microswitch for latest pushbuttons - 4 pin contact
- MS-094 Standard U-Bolt Kit

SIZE COMPARISON

Comparison to previous style unit



FREQUENTLY ASKED QUESTIONS - FAQ'S

MOUNTING & INSTALLATION

What height should the signal units be mounted at on a traffic signal pole?

Mounting heights can vary in line with local authority requirements around the UK, install the units with the centre of the push button between 1.0 and 1.1 metres from the footway level.

Can the 924 signals be deployed on both LV & ELV Signal Controllers?

Yes, all of the AGD signal switched/demand units can be deployed on both LV & ELV Controllers from all of the current signal controller manufacturers in the UK.

Can the 924 signals units have both Audible & Tactile units fitted inside?

Yes, all units are capable of accepting both audible & tactile devices.

SITE CONSIDERATIONS

Are the 924 signals able to be adjusted?

Yes, all of the AGD signals have an adjustable 15 degree rotational slot to aid correct pole alignment on-street.

Can I Direct Current Monitor the 924 signals on an LV (Low Voltage) Traffic Signal Controller?

No, the Direct Current Monitoring function is only available when the AGD Signals are connected to a Signal Controller that is using ELV (extra low voltage) 48V ac.

Do I have to order separate part numbers for use on LV & ELV controllers?

No, the AGD signals will work on both LV & ELV Signal Controllers and the part number is the same for both controller versions.

FREQUENTLY ASKED QUESTIONS - FAQ'S

SITE CONSIDERATIONS

Do I need to protect the units from water ingress?

The 924 range are designed to fit snugly on a 114mm diameter pole with the fitted rear gasket. It is advisable to seal the rear cable entry point using silicone that is suitable for electronic wiring. This will alleviate any situation where condensation that builds up in the signal pole could potentially track along the cable to the inside of the unit. For wide base pole fitting (165/144mm) please refer to pages 10-11.

Where can I access information on spares for your 924 range?

Please refer to the maintenance section on page 23.

MISCELLANEOUS AND POWER RATINGS

Do AGD have a touch sensitive push button switch available?

Yes it is a Piezo version, not touch sensitive and will work even if the user has gloves on.
Only available for retrofit to existing or new units. See page 11.

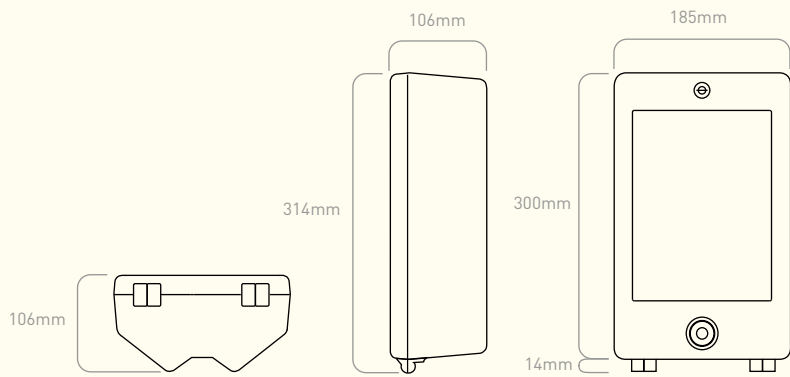
Can the front screen be changed if it gets damaged or vandalised?

On the 924 variants the front screen is glued in and is not able to be removed.
In this instance a replacement door assembly needs to be ordered.

What are the power ratings of all AGD Signal variants?

Please refer to the technical specifications section in this manual or visit the
Elexon website at: www.elexon.com

TECHNICAL SPECIFICATIONS



SPECIFICATIONS



Technology	High intensity LED
Weight	2.2kg
Screen Impact Resistance	IK10 - BS EN50102 (single impact)
Housing Material	ADC 12 (High Pressure Aluminium Die Cast)
Paint Finish	Exterior Grade UV Resistant Polyester Powder Coat
Operating Temperature	-30°C to +60°C
Power Supply	48V ac
Current Drain	220mA Nominal
Dimming	20% of the nominal bright intensity
EMC Specification	EN50293
Fixing Centres	125mm

Owing to the Company's policy of continuous improvement, AGD Systems Limited reserves the right to change their specification or design without notice.



Restriction on Hazardous Substances

MANUFACTURING TEST PROCESS

	TEST EQUIPMENT:	ORBITOR™	 <small>ORBITOR™ was designed and developed by AGD Systems</small>
	PRODUCT TEST:	92X 94X 95X	
	TEST FUNCTION:	<ul style="list-style-type: none"> Aspect optical chromaticity measurement Push button switch test Aspect voltage and current measurements Test cycle time of 5 minutes 	

Orbitor™ is a bespoke set of test equipment designed and developed by AGD Systems. It is dedicated to the testing of the 924 LED signal aspects and 100% of units manufactured at AGD are Certified by Orbitor.

The key test functions performed by Orbitor to Certify the premium performance of your LED signal aspect:

- Aspect voltage and current measurements
- Test cycle time of 5 minutes

Orbitor is a sophisticated test chamber where a spectroradiometer travels beneath the illuminated aspects in both normal and dim modes to measure and display the optical chromaticity of each individual LED signal aspect. Voltage and current measurements are taken in both bright and dim modes.



UNRIVALLED

Market leading optical performance Certified by Orbitor



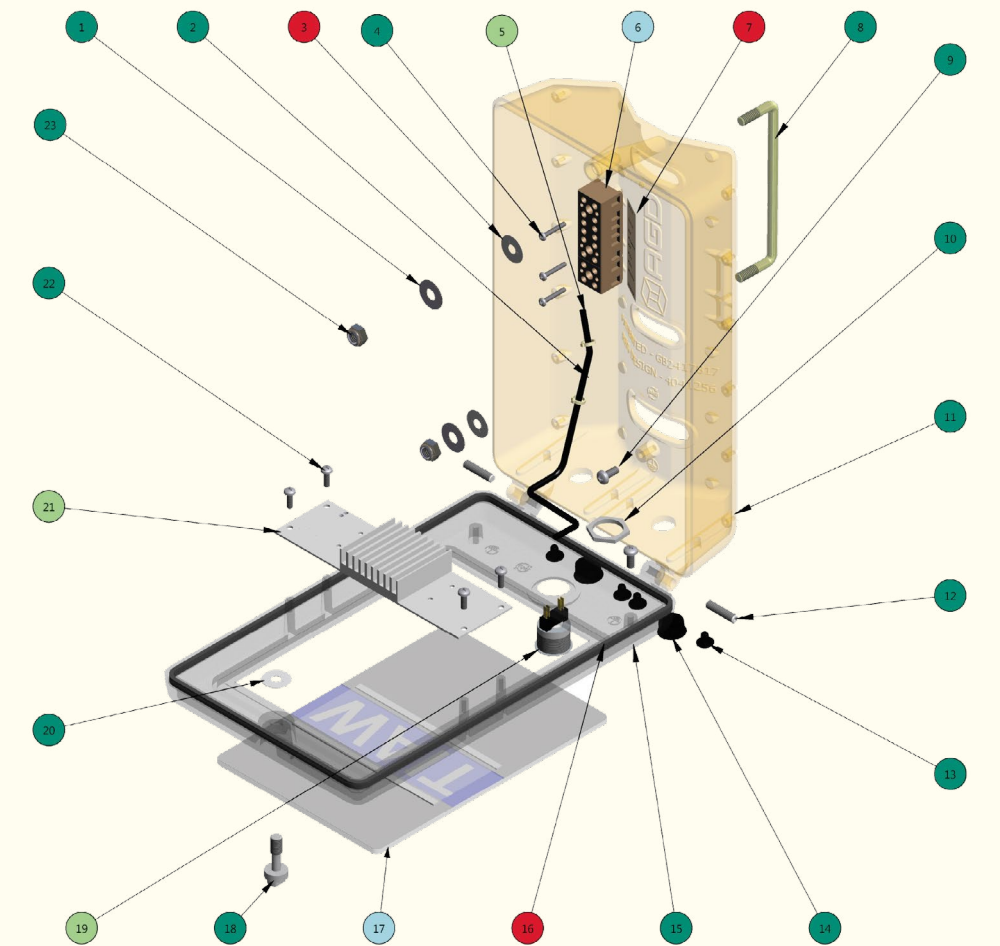
LIFETIME PRODUCT TRACEABILITY

There are clearly defined pass and fail criteria at all stages within the Orbitor test processes. The test results in association with the product build revision are recorded on a product serial number basis. The full suite of test measurements is instantly sent to the dedicated product database within the AGD secure server facility, providing full traceability during the product lifetime.

The AGD Certified symbol is your mark of assured performance.

END OF LIFE – DISPOSAL INSTRUCTIONS (EOL)

AGD924 PEDESTRIAN LED WAIT INDICATOR



Item	Qty	Material
1	2	Steel
2	1	Cable Assembly
3	2	Nylon
4	2	Steel
5	1	Cable Assembly - Mixed Metal + PVC
6	2	Steel & Plastic
7	1	Polypropylene
8	1	Steel
9	2	Steel
10	1	Steel
11	1	Aluminium – Steel insert
12	2	Steel

Item	Qty	Material
13	4	LDPE
14	2	LDPE
15	1	Aluminium – Steel insert
16	1	Neoprene
17	1	Polycarbonate
18	1	Steel
19	1	Electronic Assembly
20	1	Nylon
21	1	Electronic Assembly - Mixed Metal & PCB
22	4	Steel
23	2	Steel

- Reuse / Recycle
- Separate & Recycle
- Downcycle
- Hazardous Recovery
- Non - Recyclable

This document serves as a guideline only for EOL procedures and further guidance may need to be sought from the appropriate authority or agency.

RETROFIT LED INDICATOR

PRODUCT & TECHNOLOGY

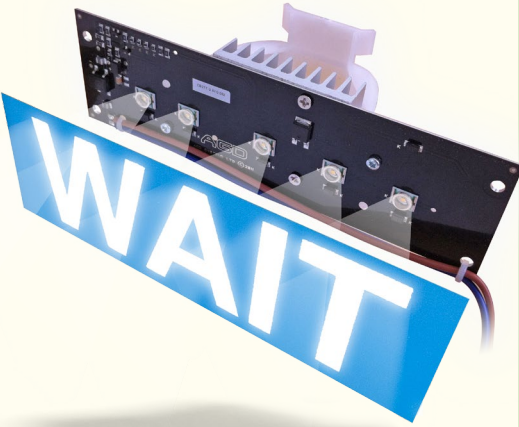


924R

The AGD924R is a specifically designed retro-fit LED indicator intended for use in a variety of bulb wait housings. The mounting bracket has universal fittings and can be orientated to fit multiple cases.

The signal incorporates long life high intensity LED's which allows for high signal uniformity and a high phantom performance.

The unit operates on a 48V ac supply and offers over 80% power saving on traditional lamp based indicators whilst increasing product life.



KEY FEATURES

- Quick, easy-to-fit retro option for existing wait housings
- Long life high intensity LED's
- High signal uniformity and performance
- 80% power saving on lamp based indicators
- Order code: SA-146

POWER & WIRING

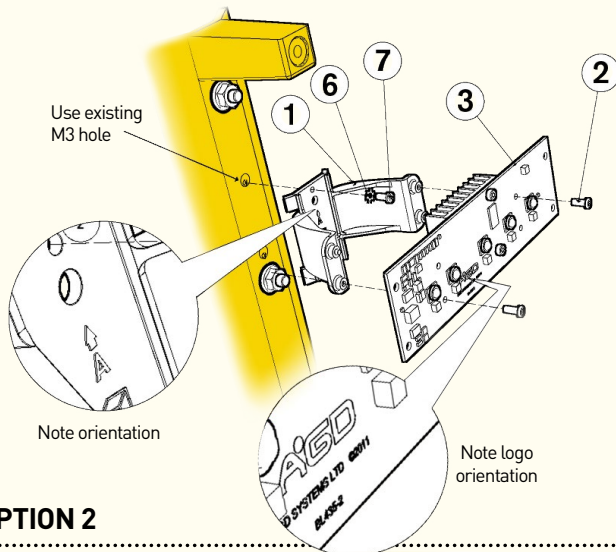
Wire Colour	Function	Nominal power consumption in bright mode 10.2W - 11.2W 48V ac.
Red	48V ac	
Red	48V ac	

INSTALLATION

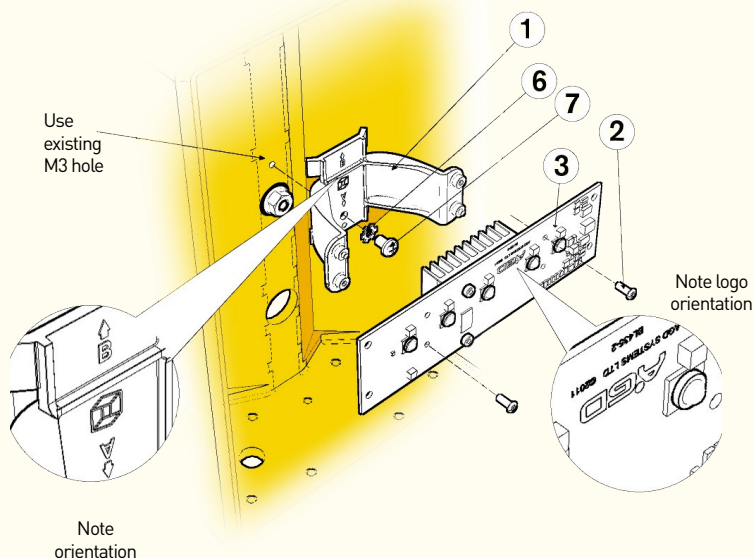
OPTION 1

PLEASE NOTE

The kit is supplied with the pcb **reversed** on the bracket to protect the LED's whilst in transit.



OPTION 2



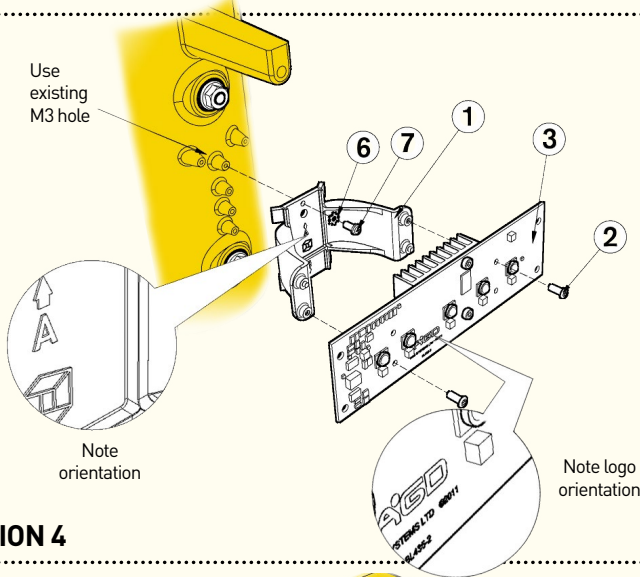
The bracket (BR-230) and pcb (CB-277) are designed to cover a range of bulb wait housing options. For each of these the orientation of bracket and pcb are very specific as detailed in the diagrams above.

Please note particularly that the bracket has **two** orientations **marked A&B**.

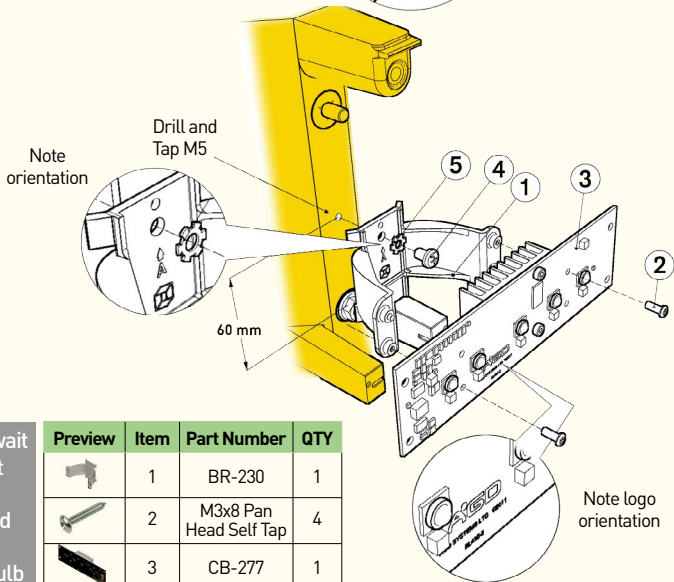
1. Identify existing bulb unit as Option 1-4
2. Remove existing lamp configuration and wiring as appropriate
3. Remove the pcb CB-277 from the bracket, keeping the screws to one side ensuring no contact is made directly with the LED's

INSTALLATION

OPTION 3



OPTION 4



The LED wait retro fit kit (SA-146) is designed to replace existing bulb version Waits with a 48Vac low power LED pcb and comprises:

Preview	Item	Part Number	QTY
	1	BR-230	1
	2	M3x8 Pan Head Self Tap	4
	3	CB-277	1
	4	M5x8 Pan Head	1
	5	M5 Shk Proof	1
	6	M3 Shk Proof	1
	7	M3x6 Pan Head	1

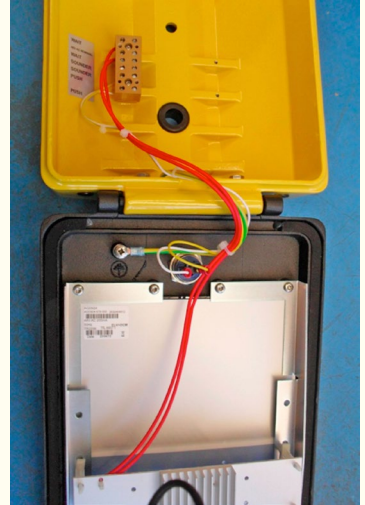
4. Using the appropriate screw fixings secure the bracket BR-230 to the rear housing in the position shown
5. Refit the pcb to the bracket noting the orientation of the AGD logo on the pcb on the relevant diagram
6. Connect wiring per the table below

INSTALLATION

OPTION 5

FOR AGD924 ONLY - TO REPLACE OLD STYLE AGD LED PCB CB-139

1. Remove the red, green and black wires from the existing PCB and remove the red and black wires from the main terminal block. These wires are now not required.
2. Remove existing PCB from the four pillars by carefully pressing the tabs.
3. Remove the bracket if supplied from the new PCB (bracket not required for an AGD unit retro fit).
4. Do not touch the LED's replace the new board onto the four pillars.
5. Wire the two red wires into the 48V ac as shown in the photograph.
6. Tyrap into position.



SAFETY PRECAUTIONS

Important note: Do not touch the surface of the LED's. For maintenance purposes users should take particular care and avoid exposure to the high intensity LED light output. Although the LED's are not laser devices they have a high brightness and thus to ensure maintenance engineer "eye-safety", DO NOT LOOK DIRECTLY INTO THE LEDS when opening the unit or powering the pcb.

The kit is supplied with the pcb reversed on the bracket to protect the LED's only whilst in transit.

WARRANTY

All SA-146 retrofit pcb's are covered by a one year return to factory warranty. Products falling outside this period may be returned to AGD Systems for evaluation and chargeable repair.

**AGD SYSTEMS LIMITED**

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Declaration of Conformity

Certificate No: CE-069 Issue: 1

We AGD SYSTEMS Limited

Of White Lion House, Gloucester Road, Staverton, Cheltenham,
Gloucestershire, GL51 0TF, United Kingdom

as manufacturer hereby declare under our sole responsibility that the following product(s)

Equipment Type: AGD924-
180-xxx, 680-xxx, 681-xxx, 682-xxx, 683-xxx, 690-xxx, 691-xxx
Equipment Description: Push Button Box - Wait Indicator

Equipment Type: SA-146
Equipment Description: LED Retro Fit Kit for Wait Signal

Conform with the provisions of the following EC Directives, including all amendments, and to national legislation implementing these directives:

2004/108/EC relating to Electromagnetic Compatibility and 2006/95/EC relating to Low Voltage Directive (Safety)

and that the following harmonised standards have been applied:

EMC: BSEN 50293:2001
Safety: BSEN 60950:2002

Where applicable the products also conform with the following National and / or International standards and specifications:

TSG2016 schedule 14 part 2 as applicable

Tested in accordance with BS EN 50556:2011 for;
Dry Heat - BS EN 60068-2-2 Test Bd Temperature 60°C Class AB3
Cold Test - BS EN 60068-2-1 Test Ab Temperature -30°C

Signed

For and on behalf of AGD Systems Ltd
P M Hutchinson
Managing Director

Dated:

25/4/16



Registered in England and Wales
Number: 2666986

SAFETY PRECAUTIONS

All work must be performed in accordance with company working practices, in-line with adequate risk assessments. Only skilled and instructed persons should carry out work with the product. Experience and safety procedures in the following areas may be relevant:

- Working with mains power
- Working with modern electronic/electrical equipment
- Working at height
- Working at the roadside or highways

1. This product is compliant to the Restriction of Hazardous Substances (RoHS - European Union directive 2011/65/EU).
2. For maintenance purposes users should take particular care and avoid exposure to the high intensity LED light output from the red and green aspects.
3. Should the product feature user-accessible switches, an access port will be provided. Only the specified access port should be used to access switches. Only non-conductive tools are to be used when operating switches.
4. The product must be correctly connected to the specified power supply. All connections must be made whilst the power supply is off or suitably isolated. Safety must always take precedence and power must only be applied when deemed safe to do so.
5. Under no circumstances should a product suspected of damage be powered on. Internal damage may be suggested by unusual behaviour, an unusual odour or damage to the outer casing. Please contact AGD for further advice.
5. **Important note:** Do not touch the surface of the LED's. For maintenance purposes users should take particular care and avoid exposure to the high intensity LED light output. Although the LED's are not laser devices they have a high brightness and thus to ensure maintenance engineer "eye-safety", DO NOT LOOK DIRECTLY INTO THE LEDS when opening the unit or powering the pcb.



NOTES

This image shows a full page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, leaving small margins at the top and bottom. There are no vertical margin lines, text, or other markings on the page.

DISCLAIMER

While we (AGD Systems) endeavour to keep the information in this manual correct at the time of print, we make no representations or warranties of any kind, express or implied, about the completeness, accuracy, reliability, suitability or availability with respect to the information, products, services, or related graphics contained herein for any purpose.

Any reliance you place on such information is therefore strictly at your own risk. In no event will we be liable for any loss or damage including without limitation, indirect or consequential loss or damage, or any loss or damage whatsoever arising from loss of data or profits arising out of, or in connection with, the use of this manual.

WARRANTY

All AGD products are covered by a 12 month return to factory warranty. Products falling outside this period may be returned to AGD Systems for evaluation, repair, update or re-calibration, any of which may be chargeable.

The product(s) detailed in this manual has a number of light elements constructed from a multiple of Light Emitting Diodes (LEDs). As well as the given power saving advantages, the use of multiple LEDs gives a high design redundancy to help maximise the operational life of the product when compared to traditional bulb based sources.

During manufacture every product is soak-tested and optically tested to ensure full 100% functionality of all the LED sources. Over the operational life of the product, individual LEDs may fail to perform to specification. The design of the product is such that any failure of individual LEDs is minimised to allow the product to continue to operate.

The limits stated below are those for which individual LED failures do not affect the operation or impair the ability of the product to perform its intended function and therefore are not considered a defect under this warranty.

PRODUCT – 924 (ALL VARIANTS)

Period	LED Quantity
On delivery	0
Up to 1 year	1



AGD Systems Limited

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