AGD® | SAFER GREENER MORE EFFICIENT

PRODUCT MANUAL

AGD94X

Pedestrian Near Side Signals

AGD-SYSTEMS.COM

TABLE OF CONTENTS

AGD94X

Pedestrian Nearside Signals

INTRODUCTION

PRODUCT OVERVIEW AND TECHNOLOGY

A comprehensive range of modern nearside signals conforming to HA specification TR2511 offering market leading optical performance and high quality signal presentation close to the public.

The full suite comprises Puffin, Toucan and Pegasus combined signals. Puffin and Toucan variants are also available as two part solutions with a separate push-button unit. These compact two part signals can be deployed as high level repeaters on busy crossing sites.

KEY FEATURES

- Fully ELV compatible
- Compact one and two-part solutions
- Lowest power one-part signal in class
- Elexon codes available - visit www.elexon.com or AGD website www.agd-systems.com
- High signal uniformity and high phantom performance
- Wrap around shape that hugs the mounting pole
- Illuminated vandal resist push button
- Ease of installation and maintenance
- Proven reliability
- Patent GB2417817 applies

INTRODUCTION

PRODUCT OVERVIEW IMAGES

946

COMBINED PUFFIN NEARSIDE SIGNAL

The AGD946 combined Puffin nearside signal and demand unit consists of a two legend signal (a red waiting man and a green walking man) and a Call Accepted Indicator with an illuminated push button to provide a one part solution for Puffin installations.

947

COMBINED TOUCAN NEARSIDE SIGNAL

The AGD947 combined Toucan nearside signal and demand unit consists of a two legend signal (a red cycle and waiting man with a green cycle and walking man) and a Call Accepted Indicator with an illuminated push button to provide a one part solution for Toucan installations.

These compact solutions offer a very modern style with rotational adjustment on the pole, market leading optical performance with the option of factory fitted Narrow Field of View optics (NFOV). An internal hinge design in the compact housing gives cleaner lines, allows easy adjustment when mounting to the pole, and better access to the tactile unit if fitted.

INTRODUCTION

PRODUCT IMAGES

941

PEDESTRIAN DEMAND UNIT

The AGD941 is intended to replace the "WAIT" type pedestrian demand unit for use in Puffin and Toucan applications.

Featuring modern styling and offering rotational adjustment on the pole the AGD941 would generally be used with the latest generation of Puffin and Toucan nearside signals. The AGD941 also has uses as a stand-alone unit where no nearside signal is installed or required.

940

PUFFIN NEARSIDE SIGNAL

The AGD940 Puffin nearside signal consists of a two legend signal (a red waiting man and a green walking man). It is generally used with the AGD941 Pedestrian Demand Unit to provide a two part solution for Puffin installations. The compact AGD940 is also recommended for use as a high level Puffin repeater on busy crossing sites.

942

TOUCAN NEARSIDE SIGNAL

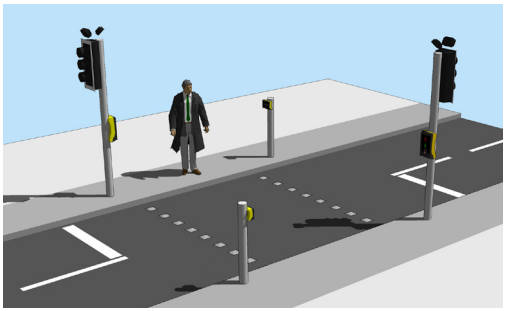
The AGD942 Toucan nearside signal consists of a two legend signal (a red waiting man and cycle and a green walking man and cycle). It is generally used with the AGD941 Pedestrian Demand Unit to provide a two part solution for Toucan installations. The AGD942 is also recommended for use as a high level Toucan repeater for busy crossing sites.

These compact solutions offer a very modern style with rotational adjustment on the pole, market leading optical performance and the option of factory fitted Narrow Field of View optics (NFOV). An internal hinge design in the compact housing gives cleaner lines and allows the signal to be mounted close to the AGD941 on the pole.

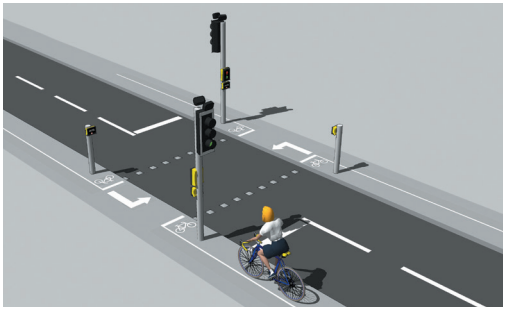
INTRODUCTION

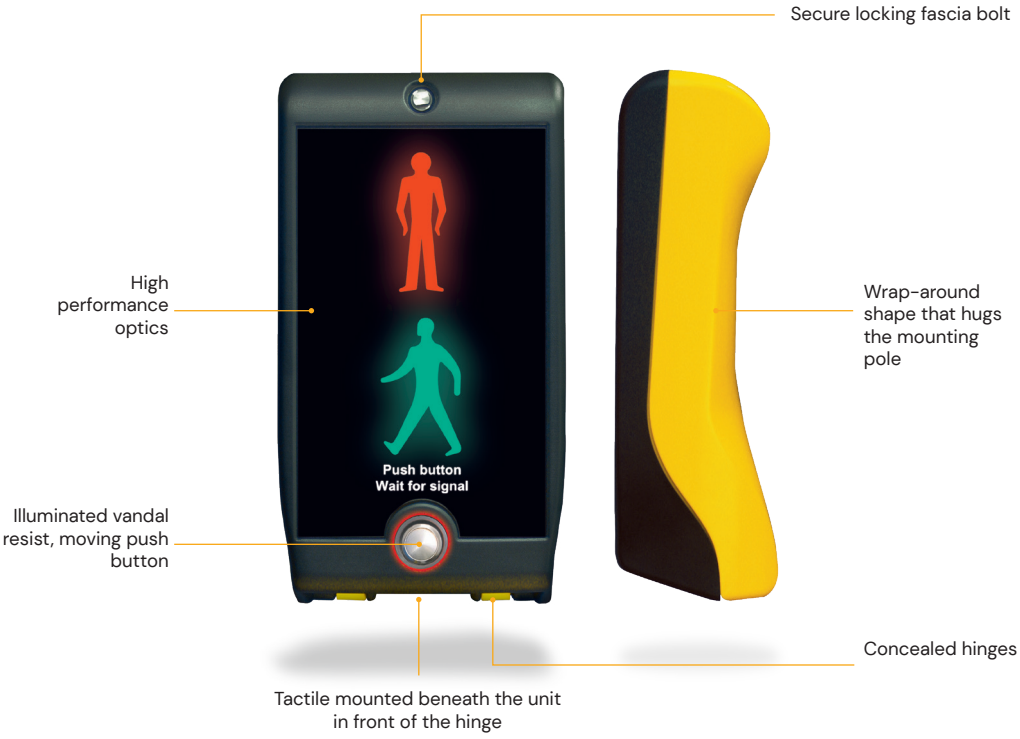
TYPICAL APPLICATIONS

Pedestrian control



Pedestrian & cycle control





INTRODUCTION

OPTICAL PERFORMANCE

AGD's market leading optical performance for the nearside signals is qualified in the table below. This performance is verified in the manufacturing test cycle on page 35.

	PUFFIN (946/940)		TOUCAN (947/942)	
Aspect	Red	Green	Red	Green
Colour	X = 0.6936 Y = 0.3043	X = 0.0786 Y = 0.5718	X = 0.6936 Y = 0.3043	X = 0.0786 Y = 0.5718
Phantom ratio	7.5 : 1	7.4 : 1	3.9 : 1	7.4 : 1
Signal uniformity	1.4 : 1	2.7 : 1	2.2 : 1	2.0 : 1
On-axis luminous intensity (cd)	29	27	32	26
Horizontal viewing angle	±35°	±35°	±35°	±35°
Optional NFOV viewing angle	±35°	±25°	±35°	±25°

PRODUCT OVERVIEW

946/947

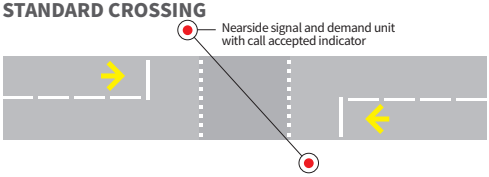
NEARSIDE SIGNAL PUFFIN & TOUCAN

The combined nearside signals incorporate both a Puffin or Toucan nearside signal and pedestrian demand unit (with 'call accept indicator'). The AGD946/947 are designed for use on pedestrian crossings and should be mounted on the upstream pole from the wait area. The combined nearside signal runs from a nominal 48V ac. If the controller employs dimming, the signal will automatically be lit to the dim level on the application of power within the specified voltage range for dim operation.

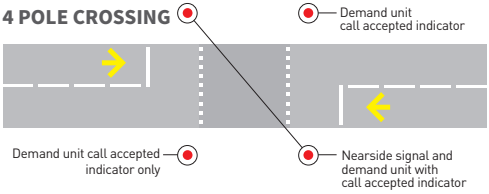
The screen legend is available in English, Welsh/English or English/Welsh text.

SITE DESIGN CONSIDERATIONS

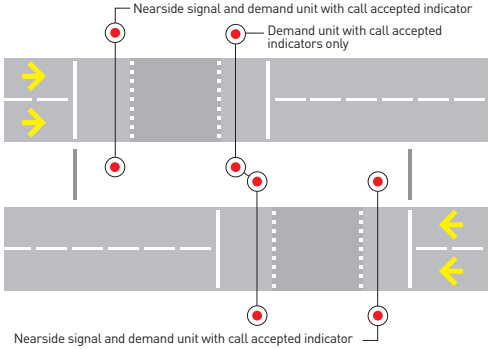
STANDARD CROSSING



4 POLE CROSSING



DUAL CROSSING



PRODUCT OVERVIEW

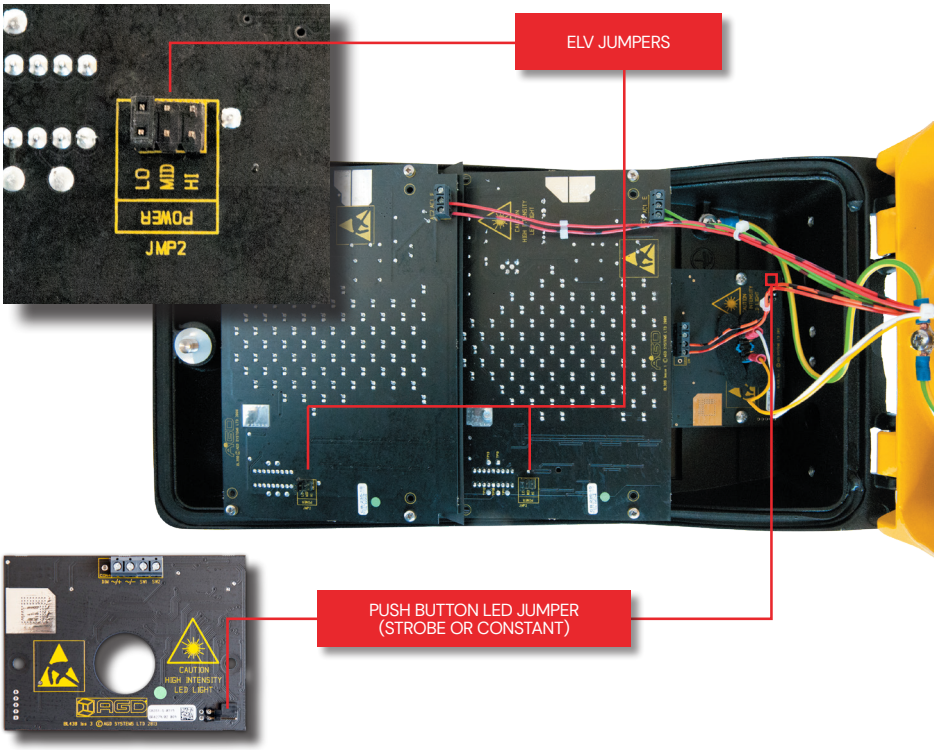
ELECTRICAL CONNECTIONS

The nearside signal is designed to work around 48Vac. If the controller drops the voltage for night-time environment the unit will auto select the correct light intensity. It is essential that the nearside signal 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 signal head is connected to earth also at the terminal.

In some installations where the supply is at a greater distance there may be a voltage drop caused from the resistive load of the wire. This may result in incorrect dim operation. To overcome this problem the threshold should be adjusted. This threshold can be selected for each aspect via a jumper located on both PCB's. It is essential that both aspects be changed together at the same time and tested during commissioning.

For correct operation with all controllers and especially ELV with DCM (Lamp Monitoring), the Jumper for both red and green aspects, as shown, should be in the LO (low) position. Failure to adhere to this may compromise the correct operation for ELV and DCM functionality.

NB. ELV controllers only – jumpers to be in low position

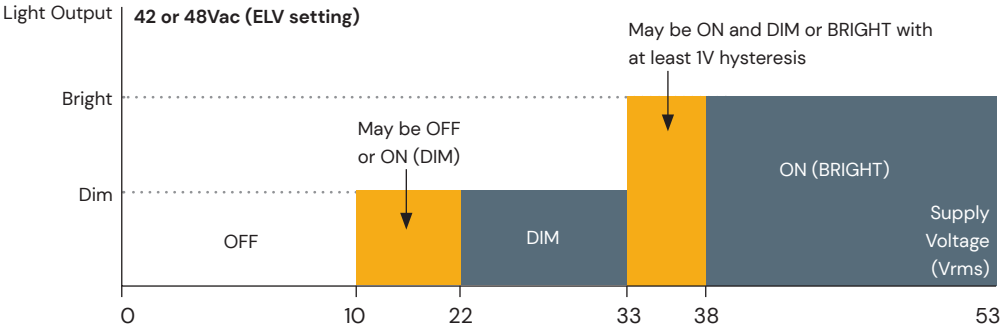


PRODUCT OVERVIEW

ELECTRICAL CONNECTIONS (CONTINUED)

PUFFIN /TOUCAN VOLTAGE SUPPLY (ELV SETTING)

	OFF	DIM SUPPLY RANGE	BRIGHT SUPPLY RANGE	BRIGHT CURRENT (TYPICAL AT 50VAC)	DIM CURRENT (TYPICAL AT 31VAC)
Red	<21Vac	22-35Vac	36-53Vac	Puffin 190mA Toucan 250A	Puffin 90mA Toucan 110mA
Green	<22Vac	22-35Vac	36-53Vac	Puffin 300mA Toucan 400mA	Puffin 130mA Toucan 160mA



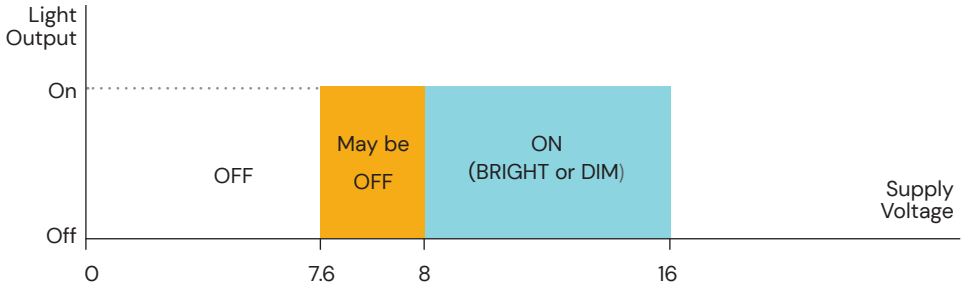
AGD signals meet the requirement of TS 505509:2007 Annex A.1 as shown above

PRODUCT OVERVIEW

ELECTRICAL CONNECTIONS (CONTINUED)

ELECTRICAL PERFORMANCE 12V VARIANT

CONNECTION	FUNCTION	VOLTAGE
+12V dc Red Red Aspect	+ve supply input for Red Aspect	8 -16V dc
0V dc Red		0V
Earth	Potential grounding	-
+12V dc Green Green Aspect	+ve supply input for Green Aspect	8 -16V dc
0V dc Green		0V
Dim	Dim Control Input - Apply >4.5V to enable dim function	+12V dc nominal (4.5-16 Range)



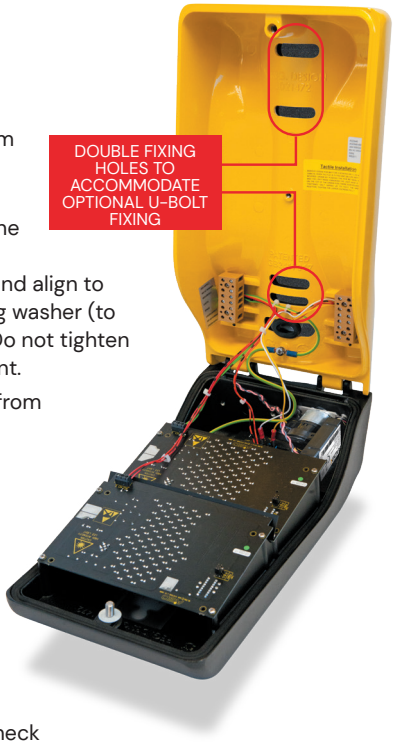
PUFFIN CURRENT CONSUMPTION (12V VARIANT)

	BOARD NO.	BRIGHT CURRENT	DIM CURRENT
Red	CB-278	315mA	95mA
Green	CB-279	530mA	150mA
Button	CB-283	65mA	35mA

Reading taken at 12V dc, voltage range is 8 -16V dc

INSTALLATION AND COMMISSIONING

946/947/949

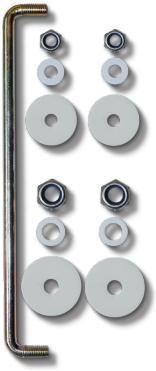


1. Position the AGD946/7/9 on the pole within range 1.0m to 1.1m from push button to the ground in line with local authority requirement. Mark and drill holes in signal pole and de-burr.
2. Fix to pole using U Bolt provided. Fit retaining washer over one threaded end of relevant U-Bolt (to prevent U-Bolt being dropped inside pole). Feed U-Bolt through hole in the pole and align to allow other end to protude 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. Power input cable should be sealed at point of entry with appropriate silicon sealant to prevent water ingress. Use a suitable product recommmended 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. Lock into position by tightening central locking screw preventing sideways movement.
7. Close unit and tighten T bolt fully. If unit is bagged double check T bolt is fully tightened to prevent water ingress.
8. Please refer to page 23 and ensure the sealing procedure is carried out to prevent water ingress.
9. 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

Lateral adjustment (±15°) and central locking screw

Wrap-around shape that hugs the mounting pole



Standard pole
MOUNTING KIT MS-074
Contents:
M8 Mounting U-Bolt - 200mm
Retaining washers (large)
Sealing washers (small)
Locking nuts
Safety Earth label

PRODUCT OVERVIEW

941

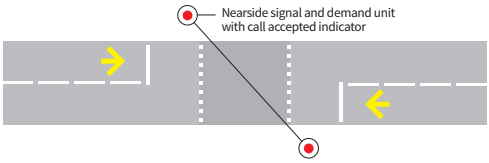
PEDESTRIAN DEMAND UNIT

The AGD941 pedestrian demand unit incorporates a call-accepted indicator and is designed for use on Puffin/Toucan pedestrian crossings and should be mounted on the upstream pole in conjunction with AGD940/942 or as a stand alone unit on the downstream pole from the wait area. The AGD941, housed in a robust, aluminum die-cast enclosure with a polycarbonate screen to resist vandalism, is available with either a moving vandal resist button or a non-moving vandal resist button.

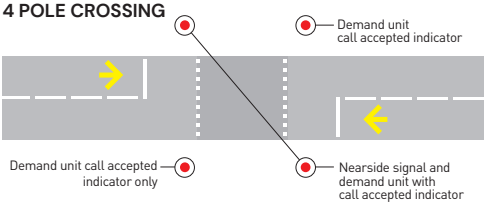
The screen legend is available in English, Welsh/English or English/Welsh text.

SITE DESIGN CONSIDERATIONS

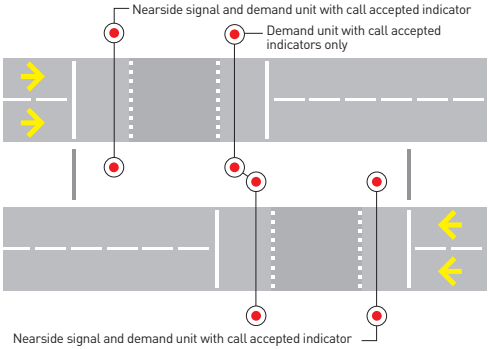
STANDARD CROSSING



4 POLE CROSSING



DUAL CROSSING



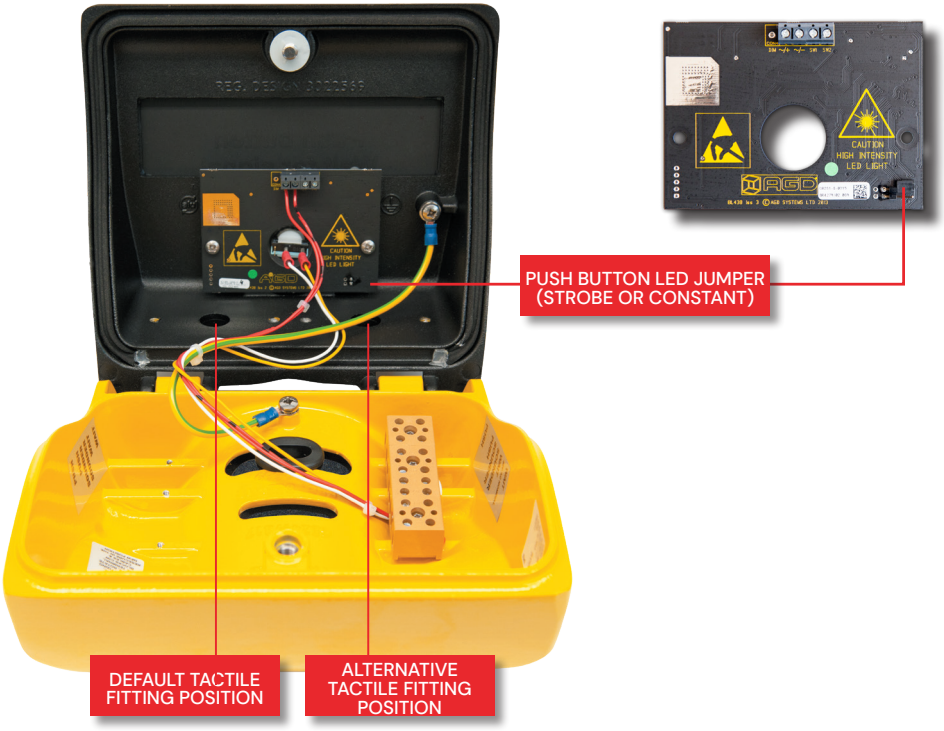
PRODUCT OVERVIEW

ELECTRICAL CONNECTIONS

The AGD941 is designed to work around 48V ac. If the controller drops the voltage for night-time environment the unit will auto select the correct light intensity. It is essential that the AGD941 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 terminals. Consideration must be given to the multiple grounding of supplies and its effect on the whole system. The standard unit is designed to have a tactile unit fitted in the position shown below.

Should the tactile need to be fitted in the alternative position (e.g. when the AGD941 is used on a stub pole or sites where it is on the left of the waiting pedestrian) then the main terminal block will require repositioning as described on the Tactile installation label (shown below as the alternative fitting position).

For more information on call accepted indicator illumination settings refer to page 28.The table below shows typical currents (amps) at various different voltages and operating temperatures.

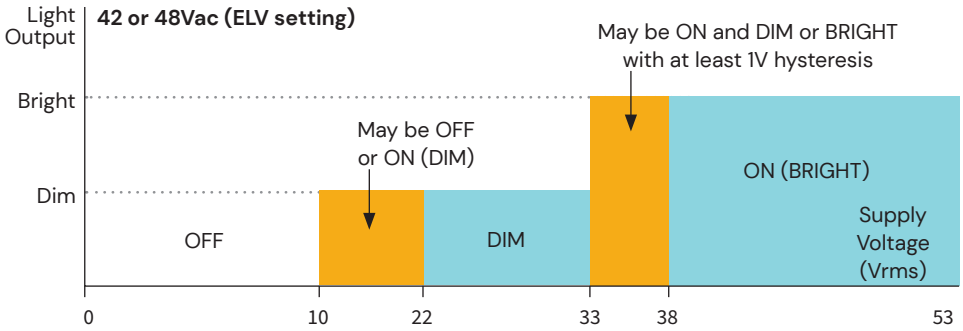


PRODUCT OVERVIEW

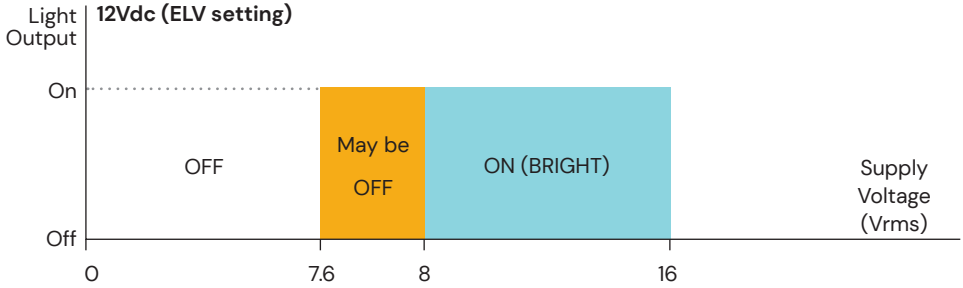
ELECTRICAL CONNECTIONS (CONTINUED)

DEMAND UNIT VOLTAGE SUPPLY

	Off	Dim Supply Range	Bright Supply Range	Bright Current (Typical at 50Vac)	Dim Current (Typical at 31Vac)
Red	<15Vac	15-34Vac	36-53Vac	100mA	50mA



AGD signals meet the requirement of TS 505509:2007 Annex A.1 as shown above



PUFFIN CURRENT CONSUMPTION (12V VARIANT)

	BOARD NO.	BRIGHT CURRENT	DIM CURRENT
Red	CB-278	450mA	100mA
Green	CB-279	730mA	140mA
Button	CB-283	60mA	35mA

Reading taken at 12V dc, voltage range is 8 -16V dc

INSTALLATION AND COMMISSIONING

941

1. Position the AGD941 demand unit 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 protude 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. Power input cable should be sealed at point of entry with appropriate silicon sealant to prevent water ingress. Use a suitable product recommmended for use with electronics (non acetic acid).
5. Ensure correctly positioned so that on tightening fixing bolts the foam gasket at rear of enclosure forms a watertight seal.
6. Lock into position by tightening central locking screw preventing sideways movement.
7. Close unit and tighten T bolt fully. If unit is bagged double check T bolt is fully tightened to prevent water ingress.
8. Please refer to page 23 and ensure the sealing procedure is carried out to prevent water ingress.
9. Please allow 25mm gap between demand unit and Nearside Signal positioned above for enclosures to open.
10. 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

STANDARD POLE MOUNTING KIT MS-095

Contents:

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

PRODUCT OVERVIEW

940/942

NEARSIDE SIGNAL PUFFIN & TOUCAN

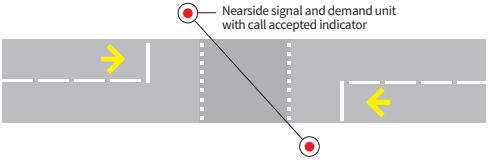
The AGD940 (Puffin) and AGD942 (Toucan) nearside signals are designed for use on pedestrian crossings and should be mounted on the upstream pole from the wait area. The nearside signal runs from a nominal 48Vac. If the controller employs dimming, the signal will automatically be lit to the dim level on the application of power within the specified voltage range for dim operation.

An AGD941 Demand Unit (supplied separately) will need to be installed to allow a call or crossing demand to be entered to the controller. The AGD941 also incorporates the call accepted indicator.

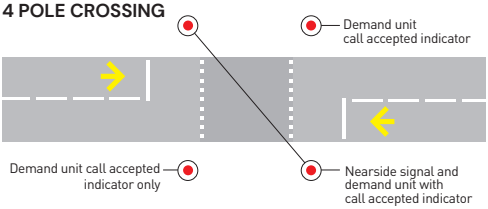
The units are available with either Standard or Narrow Field of View (NFOV) Optics.

SITE DESIGN CONSIDERATIONS

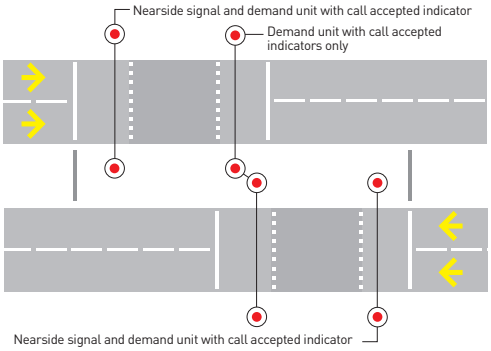
STANDARD CROSSING



4 POLE CROSSING



DUAL CROSSING



PRODUCT OVERVIEW

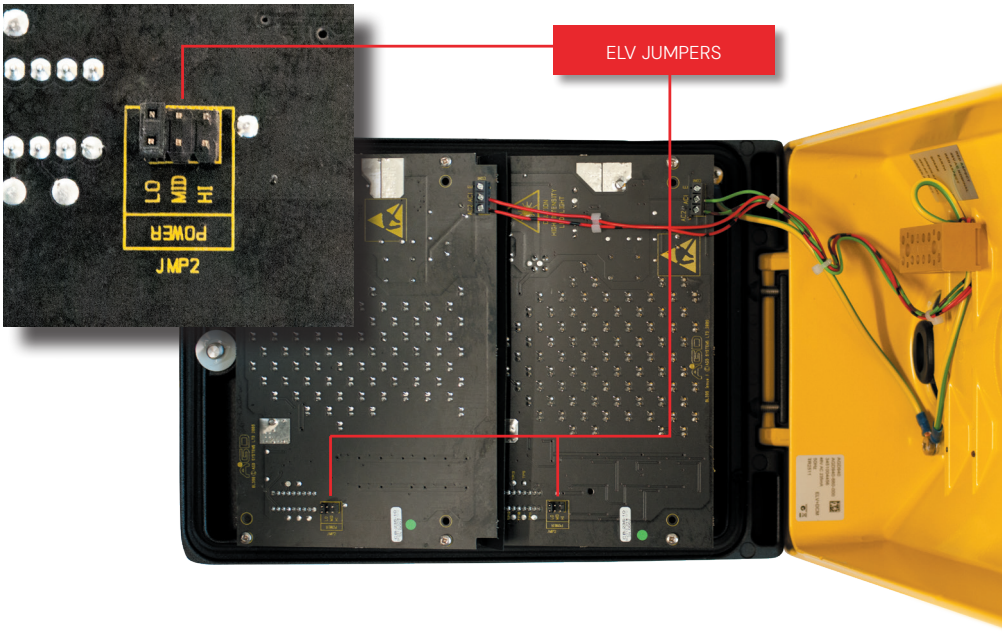
ELECTRICAL CONNECTIONS

The nearside signal is designed to work around 48Vac. If the controller drops the voltage for night-time environment the unit will auto select the correct light intensity. It is essential that the nearside signal 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 signal head is connected to earth also at the terminal.

In some installations where the supply is at a greater distance there may be a voltage drop caused from the resistive load of the wire. This may result in incorrect dim operation. To overcome this problem the threshold should be adjusted. This threshold can be selected for each aspect via a jumper located on both PCB's. It is essential that both aspects be changed together at the same time and tested during commissioning.

For correct operation with all controllers and especially ELV with DCM (Lamp Monitoring), the Jumper for both red and green aspects, as shown, should be in the LO (low) position. Failure to adhere to this may compromise the correct operation for ELV and DCM functionality.

NB. ELV controllers only – jumpers to be in low position

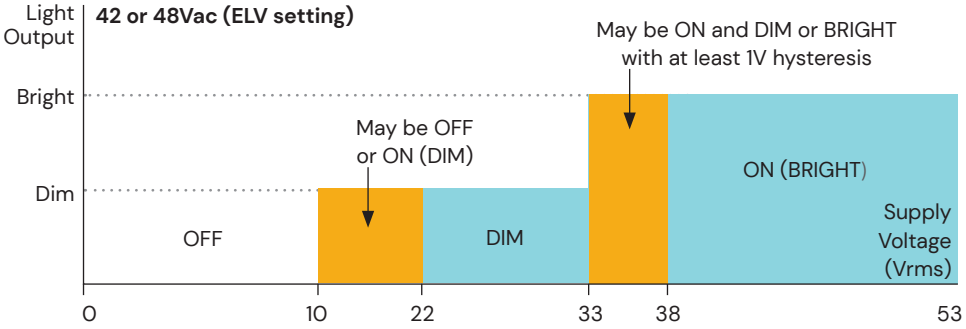


PRODUCT OVERVIEW

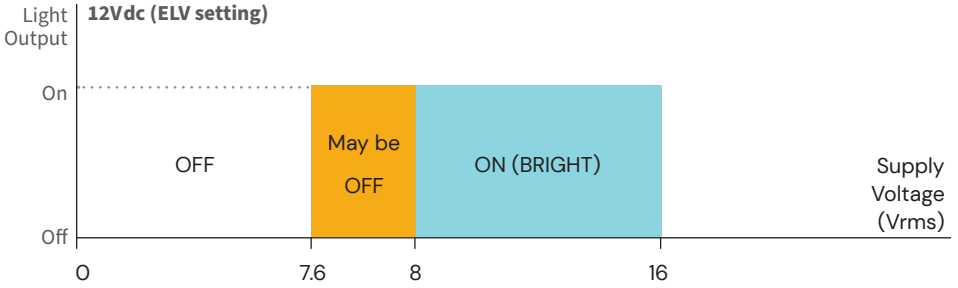
ELECTRICAL CONNECTIONS (CONTINUED)

PUFFIN /TOUCAN VOLTAGE SUPPLY (ELV SETTING)

	OFF	DIM SUPPLY RANGE	BRIGHT SUPPLY RANGE	BRIGHT CURRENT (TYPICAL AT 50VAC)	DIM CURRENT (TYPICAL AT 31VAC)
Red	<21Vac	22-35Vac	36-53Vac	Puffin 190mA Toucan 250A	Puffin 90mA Toucan 110mA
Green	<22Vac	22-35Vac	36-53Vac	Puffin 300mA Toucan 400mA	Puffin 130mA Toucan 160mA



AGD signals meet the requirement of TS 505509:2007 Annex A.1 as shown above



PUFFIN CURRENT CONSUMPTION (12V VARIANT)

	BOARD NO.	BRIGHT CURRENT	DIM CURRENT
Red	CB-278	450mA	100mA
Green	CB-279	730mA	140mA
Button	CB-283	60mA	35mA

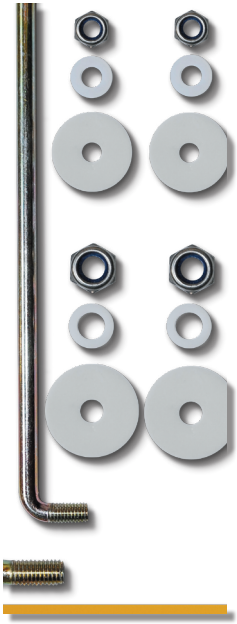
PRODUCT OVERVIEW

INSTALLATION

1. Position the AGD941 demand unit on the pole such that the push button is in the range 1.0m to 1.1m from the ground depending on the local authority requirement. The AGD940/942 nearside signal should be positioned above the demand unit with a 25mm gap between the two enclosures. 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 protude 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. Power input cable should be sealed at point of entry with appropriate silicon sealant to prevent water ingress. Use a suitable product recommmended for use with electronics (non acetic acid).
5. Ensure correctly positioned so that on tightening fixing bolts the foam gasket at rear of enclosure forms a watertight seal.
6. Lock into position by tightening central locking screw preventing sideways movement.
7. Close unit and tighten T bolt fully. If unit is bagged double check T bolt is fully tightened to prevent water ingress.
8. Please refer to page 23 and ensure the sealing procedure is carried out to prevent water ingress.
9. If unit(s) is removed from pole at later date units rear gasket MUST be replaced to prevent water ingress.
10. The AGD940/942 signals should be mounted in accordance with the Puffin Good Practice Guide available from the DfT in relation to the kerb edge and wait area.

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



STANDARD POLE MOUNTING KIT MS-094

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

WIDE POLE INSTALLATION

NSS WIDE POLE (165MM / 144MM DIAMETER) FITTING INSTRUCTIONS

941 MOUNTING KIT MS-196

Contents:

Rear Gasket x2
M8 Mounting U-Bolt 50mm
Retaining washers (large)
Washers (small)
Locking nuts
Safety Earth label

940/942 MOUNTING KIT MS-197

Contents:

Rear Gasket x2
M8 Mounting U-Bolt 125mm
Retaining washers (large)
Washers (small)
Locking nuts
Safety Earth label

946/947/949 MOUNTING KIT MS-198

Contents:

Rear Gasket x2
M8 Mounting U-Bolt 200mm
Retaining washers (large)
Washers (small)
Locking nuts
Safety Earth label

WIDE POLE INSTALLATION

NSS WIDE POLE (165MM / 144MM DIAMETER) FITTING INSTRUCTIONS CONTINUED

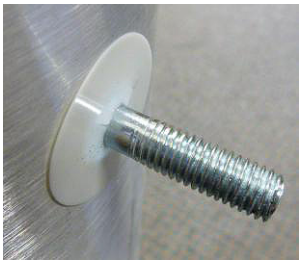
New Product - Remove the backing sheet from one of the kit gaskets and position the kit gasket over the top of the existing products gasket **to give double thickness**.

NOTE: The remaining kit gasket can be retained for future use or disposed of.

Previously installed product – remove the products existing rear gasket and replace with the new gasket. Position one of the gaskets onto the product first, aligning to the enclosure cut-outs and then apply the second over the top of the first gasket **to give double thickness**.

Pole mounting – Remove any previously fitted U-Bolts.

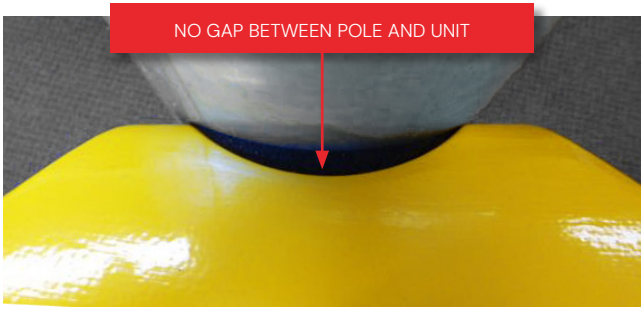
For 165mm/144mm diameter poles the **extended thread length U-bolts must be used**. Fit as normal but ensure the U-bolt is pulled snugly to the pole and the polyester retaining washers are pushed **fully** over the thread and up to the pole.



CORRECTLY FITTED

INCORRECTLY FITTED

Fit the unit as normal, by applying the small washer and nut. Tightening each nut equally and alternatively until the gap between the pole and the unit is closed.



INSTALLATION - ALL MODELS

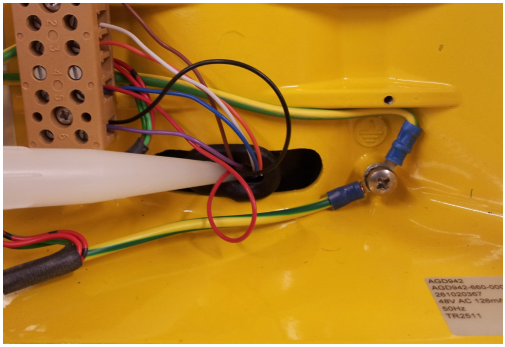
94X SEALING PROCEDURE

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

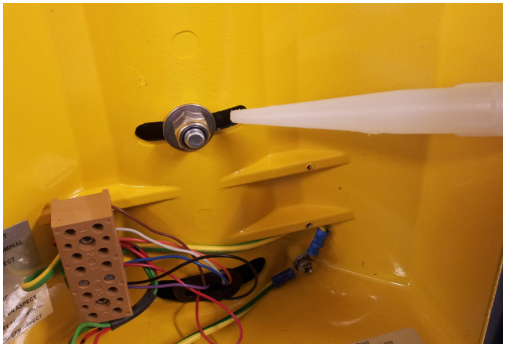
When installing any of the 94X equipment it is important to seal all of the mounting holes and cable entry points with a non-corrosive silicon sealant that is suitable for use with electronic components (non acetic acid).

Using the 942 as an example, the following points require sealing:

1. The cable entry gland. Both the inside of the grommet and the outer gap should be



2. The bottom mounting bolt



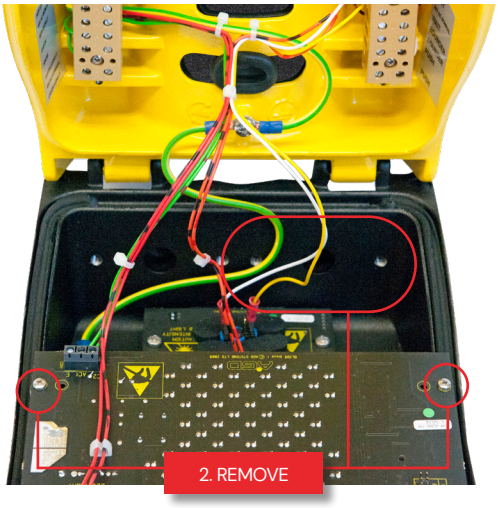
3. The top mounting bolt

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

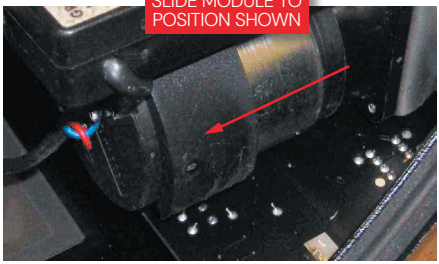
FITTING A TACTILE

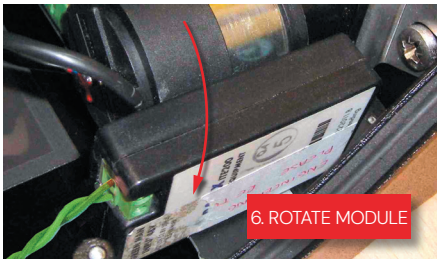
TACTILE INSTALLATION

1. Ensure power to the near side signal is turned **OFF** prior to installing the tactile.
2. Remove the screws from the green aspect (bottom) and push out blanking grommits in base.



3. Remove the large central blanking plug and carefully slide the green aspect PCB towards the front panel hinge and lift away the green aspect to enable the tactile parts to be fitted.





4. Fit and secure the tactile into position, NOTE the orientation of the tactile bracket. It MUST be fitted in this orientation otherwise damage to the Call Demand PCB may occur.
5. Fit appropriate cables to the tactile (colours shown are for indication purposes only) and slide the tactile module to the position shown.
6. Rotate the module to the side, replace the green aspect and secure with the two screws.
7. Connect the tactile cables to the green aspect at the main terminal block.

ORDER CODES

PRODUCT DESCRIPTION	48V AC ORDER CODES
Puffin Unit / High level Puffin Repeater, standard optics	940-660-000
Puffin Unit / High level Puffin Repeater, NFOV optics	940-661-000
Combined Puffin Unit, standard optics with vandal resist button (moving)	946-660-000
Combined Puffin Unit, NFOV optics with vandal resist button (moving)	946-662-000
Toucan Unit / High level Toucan Repeater, standard optics	942-660-000
Toucan Unit / High level Toucan Repeater, NFOV optics	942-661-000
Combined Toucan Unit, standard optics with vandal resist button (moving)	947-660-000
Combined Toucan Unit, NFOV optics with vandal resist button (moving)	947-662-000
Combined Pegasus Unit, standard optics with vandal resist button (moving)	949-660-000
Demand Unit English, with vandal resist button (moving)	941-660-000

PRODUCT DESCRIPTION	12V DC ORDER CODES
Puffin Unit / High level Puffin Repeater, standard optics	940-160-000
Demand Unit English, with vandal resist button (moving)	941-160-000
Combined Puffin Unit, standard optics with vandal resist button (moving)	946-160-000

Full Elexon codes available on Elexon website **www.elexon.com** or AGD website **www.agd-systems.com**
Please contact **sales@agd-systems.com** for other ordering options.

SPECIAL OPTIONS

NEARSIDE SIGNAL PEGASUS - 949

The AGD949 "combined" Pegasus nearside signal and demand unit consists of a two legend signal (a red horse with rider and a green horse with rider) and a Call Accepted Indicator with an illuminated push button to provide a "one part solution" for Pegasus installations. The rider can conveniently press the button without the need to dismount.

Please contact AGD for order code information.

LANGUAGES

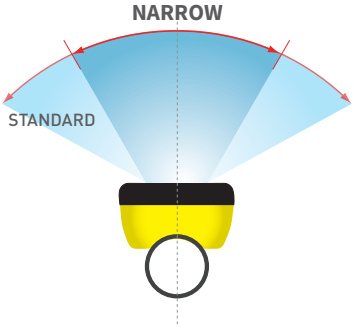
All units incorporating call accepted indicators are also available in Welsh/English and English/Welsh legends. Other languages are available on request.

NARROW FIELD OF VIEW OPTION (NFOV)

NFOV (narrow field of view) optics feature a reduced viewing angle on the green man/green man and bicycle reducing the potential for 'read through' and ensuring the pedestrians focus remains with the main nearside signal. These versions are only available as factory fitted options.

'Read through' on standard Puffin nearside signal optics

Same nearside signal view but with special optics fitted to green aspect



Standard optics ± 35° on axis.
NFOV option ± 25° on axis.

MAINTAINANCE

The AGD nearsides feature robust die-cast aluminium housings combined with strong polycarbonate front screens for durability in a roadside environment.

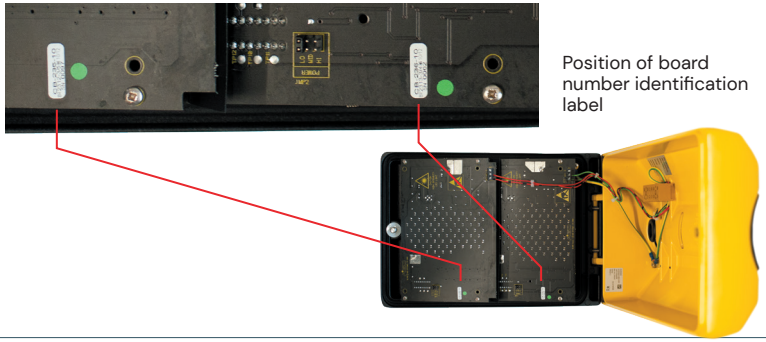
Maintenance is limited to confirmation of push button operation and verification of illumination of the call accepted indicator and red/green aspects.

Direct current monitoring of the signal aspects can be performed at the controller to enable quick identification of any malfunctioning units.

Maintenance spares can be ordered from AGD and are detailed below. Please contact sales@agd-systems.com

The table below identifies the latest signal PCB board numbers - if your board number is not shown in the table below obtain clarification from AGD technical support.

NEARSIDE UNIT	OPERATING VOLTAGE	RED SIGNAL ASPECT BOARD NUMBER	GREEN SIGNAL ASPECT BOARD NUMBER	CALL ACCEPTED INDICATOR BOARD NUMBER
AGD941 (12V)	12Vdc			CB-283
AGD941 (48V)	48Vac			CB-281
AGD940 Puffin	12Vdc	CB-278	CB-279	-
AGD940 Puffin	48Vac	CB-235	CB-236	-
AGD946 Puffin	12Vdc	CB-278	CB-279	CB-281
AGD946 Puffin	48Vac	CB-235	CB-236	CB-281
AGD942 Toucan	48Vac	CB-237	CB-238	-
AGD947 Toucan	48Vac	CB-237	CB-238	CB-281
AGD949 Pegasus	48Vac	CB-229	CB-230	CB-281



CALL ACEPTED INDICATOR

941/946/947/949

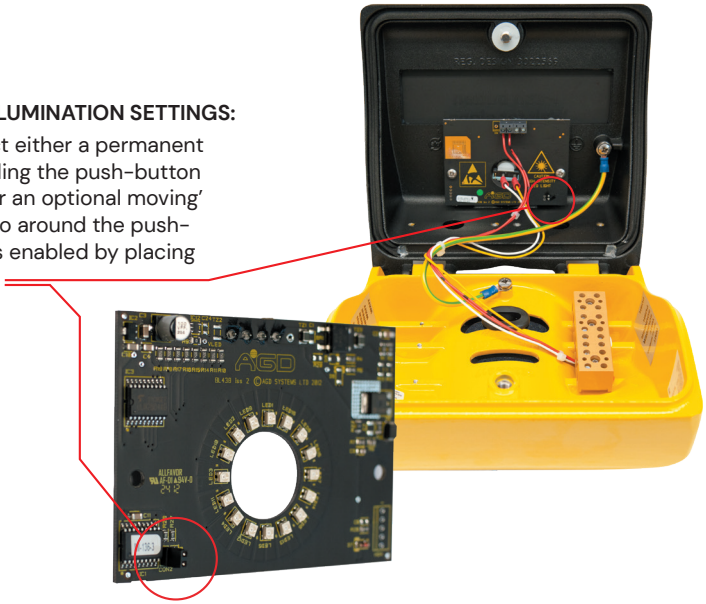
The call accepted indicator on the AGD nearside signal range offers a choice of two push-buttons shown below:

The standard vandal resist moving push button provides positive mechanical feedback to the user. The call accepted indicator will illuminate in red the halo around the push-button when the button is pressed acknowledging the call for the pedestrian phase.

The optional vandal resist non-moving push button is a piezo style switch which provides operation even with a gloved hand. This version is available as a factory fitted option.

CALL ACCEPTED INDICATOR ILLUMINATION SETTINGS:

The user has the option to select either a permanent illumination of the halo surrounding the push-button (standard) or to elect instead for an optional moving' rotational' illumination of the halo around the push-button. This innovative feature is enabled by placing Jumper1 in the position shown:



Please note that the jumper connector may be located on the reverse of the push-button pcb for earlier revisions of this assembly.

HELP

FREQUENTLY ASKED QUESTIONS

MOUNTING & INSTALLATION

What height should the nearside 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. The height of the nearside signal units used for two part & high level repeater applications can also vary in line with local authority requirements in the same way.

Can AGD nearside signals be deployed on both LV & ELV Signal Controllers?

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

Can AGD nearside units have both Audible & Tactile units fitted inside?

Yes, all units are capable of accepting both audible & tactile devices, except the reduced size high level repeater units. These parts can be factory fitted by AGD.

SITE CONSIDERATIONS

What is Narrow Field of View?

Narrow Field of View (NFOV) is a special optical arrangement fitted to the Green Aspect only on nearside signals, which narrows the pedestrian viewing angle from +/- 35 degrees to +/-25 degrees either side of axis. This is normally deployed for safety reasons where another nearside unit on a different signal phase can be seen by the pedestrian-known as 'see through'.

Are the AGD nearside signals able to be adjusted?

Yes, all of the AGD nearside signals have an adjustable 15 degree rotational slot to aid correct pole alignment on-street. This is a useful additional feature when the unit has NFOV fitted.
Can I Direct Current Monitor the nearside signals on an LV (Low Voltage) Traffic Signal Controller?
No, the Direct Current Monitoring function is only available when the AGD Nearside 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 nearside signals will work on both LV & ELV Signal Controllers and the part number is the same for both controller versions.

Are there any DfT recommendations for use and installation of nearside signals?

The DfT have produced an advice document called The Puffin Good Practice Guide which is downloadable from www.dft.gov.uk/pgr/roads/tss/gpg/puffingoodpracticeguide.pdf

HELP

FREQUENTLY ASKED QUESTIONS

SITE CONSIDERATIONS

Do I need to protect the units from water ingress?

The AGD94X 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 21-22.

Which products are recommended for use as high level repeater units for busy town/city centre sites?

The AGD940 series Puffin signal or AGD942 Toucan signal are commonly used in these applications.

Where can I access information on spares for your AGD94x NSS range?

Please refer to the maintenance section on page 27.

MISCELLANEOUS AND POWER RATINGS

Do AGD have a touch sensitive push button switch available?

Yes, all of the AGD Nearside signals can have this option factory fitted, however it is a Piezo version, not touch sensitive and will work even if the user has gloves on.

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

On the AGD94X nearside 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 Nearside Signal variants?

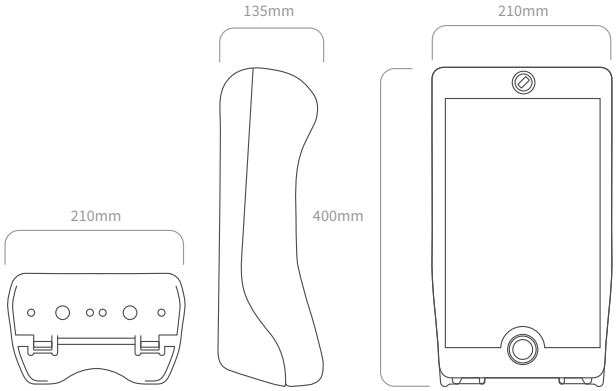
Please refer to the technical specifications section in this manual or visit the
Elexon website at: www.elexon.com

TECHNICAL SPECIFICATIONS

946/947

AGD94X

Pedestrian Nearside Signals



SPECIFICATIONS	
Technology	High intensity LED
Weight	4.9kg
Screen Impact Resistance	IK10 – BS EN 50102 (single impact)
Housing Material	Die-cast aluminium alloy
Paint Finish	Exterior grade UV resistant polyester powder coat
Signal Colour	Meets requirement of BS EN 12368 Signal uniformity < 2:1
Operating Temperature	-30°C to +60°C
Power Supply	48Vac (12V dc 946 option available)
Power	Bright - Green 10W Red 7W Dim - Green 3.0W Red 2.3W
Nominal Wattage (as per Elexon Code*)	Puffin 13.0W Toucan 16.0W
Dimming	20% of the nominal normal intensity
Rotational Pole Adjust	±15° Rotational
Fixing Centres	200mm
MTBF	>20 years based on field data from 9000 units installed over 5 years
Approved to	BS EN 50293 / TR2511

Owing to the Company's policy of continuous improvement, AGD Systems Limited reserves the right to change their specification or design without notice. AGD products should be installed by a competent person.

RoHS COMPLIANT
Restriction on Hazardous Substances

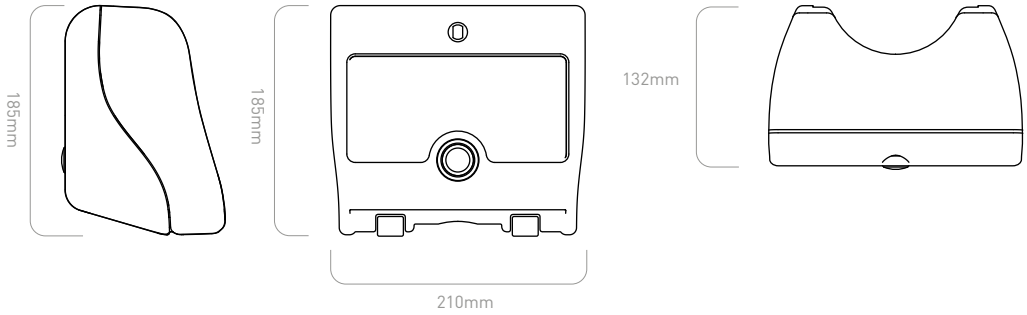
REACH COMPLIANCE
Registration Evaluation Authorisation and Restriction of Chemicals

TECHNICAL SPECIFICATIONS

941

AGD94X

Pedestrian Nearside Signals



SPECIFICATIONS	
Technology	High intensity LED
Weight	1.6kg
Screen Impact Resistance	IK10 – BS EN 50102 (single impact)
Housing Material	Die-cast aluminium alloy
Paint Finish	Exterior grade UV resistant polyester powder coat
Indicator Colour	Red to BS EN 12368
Operating Temperature	-30°C to +60°C
Power Supply	48Vac (12Vdc 941 option available)
Power	4.3W Bright 2.3W Dim @48V ac
Nominal Wattage (as per Elexon Code*)	4.0W
Dimming	20% of the nominal normal intensity
Rotational Pole Adjust	±15° Rotational
Fixing Centres	50mm
MTBF	>20 years based on field data from 10000 units installed over 4 years
Approved to	BS EN 50293 / TR2511

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RoHS COMPLIANT
Restriction on Hazardous Substances

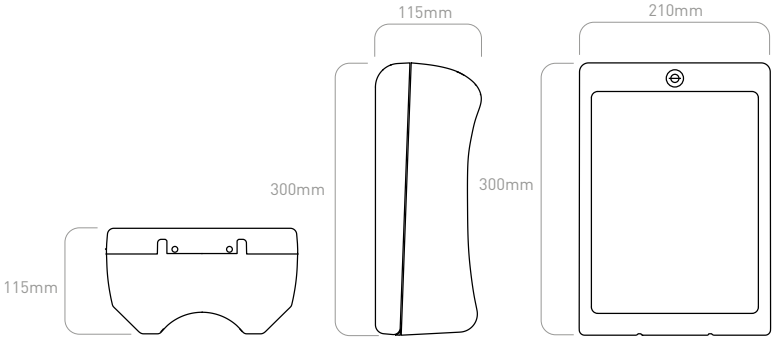
REACH COMPLIANCE
Registration Evaluation Authorisation and Restriction of Chemicals

TECHNICAL SPECIFICATIONS

940/942

AGD94X

Pedestrian Nearside Signals



SPECIFICATIONS	
Technology	High intensity LED
Weight	2.8kg
Screen Impact Resistance	IK10 – BS EN 50102 (single impact)
Housing Material	Die-cast aluminium alloy
Paint Finish	Exterior grade UV resistant polyester powder coat
Signal Colour	Meets requirement of BS EN 12368
Operating Temperature	-30°C to +60°C
Power Supply	48Vac (12Vdc 940 option available)
Power	Bright - Green 10W Red 7W Dim - Green 3.0W Red 2.3W
Nominal Wattage (as per Elexon Code*)	Puffin 9.0W Toucan 12.0W
Dimming	20% of the nominal normal intensity
Rotational Pole Adjust	±15° Rotational
Fixing Centres	125mm
MTBF	20 years based on field data from 4000 units installed over 5 years
Approved to	BS EN 50293 / TR2511

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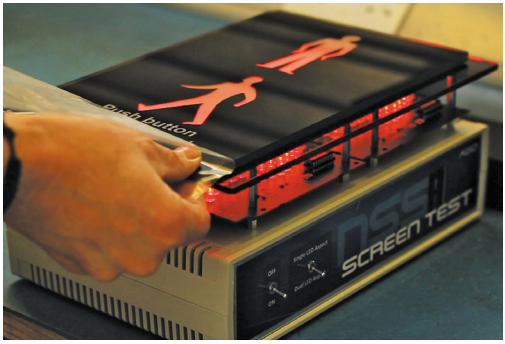
RoHS COMPLIANT
Restriction on Hazardous Substances

REACH COMPLIANCE
Registration Evaluation Authorisation and Restriction of Chemicals

PRODUCT DEVELOPMENT

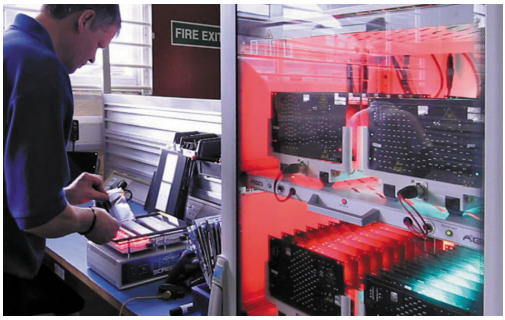
Reliability

AGD has the largest installed base of nearside signals in the UK. The latest generation signals include many improved features derived from important market feedback that are now offered as standard. Reliability is key with successive improvements and confidence in the products extends to a market leading three year warranty.



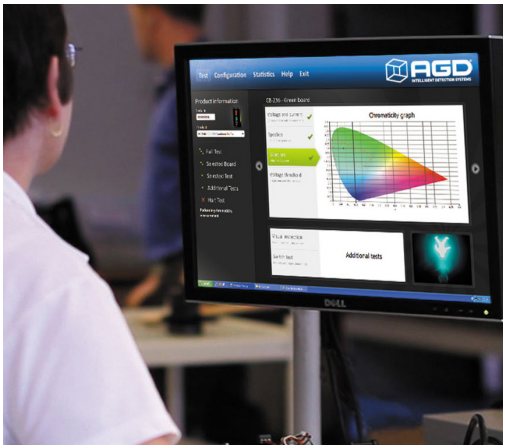
Unparalleled Range of Products

With double the product range of its competitors, offering both one and two part modern compact solutions, AGD nearside signals are the clear market leader. Great care is taken at the product design stage to ensure high optical performance to provide junction designers with products that are both visually and technically complementary.



Innovation and Development

Through a program of investment AGD is committed to maintaining its unrivalled reputation for product innovation. New features for users will keep the products at the forefront of the market. AGD nearside signals offer high quality, modern, reliable street hardware - close to the public.



MANUFACTURING

TEST PROCESS

Orbitor™ and **Neptune™** are bespoke sets of test equipment designed and developed by AGD Systems. They are dedicated to the testing of the 94X nearside signals 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 Nearside Signal:

- Aspect optical chromaticity measurement
- Push button switch test
- Aspect voltage and current measurements
- Test cycle time of 5 minutes

Orbitor is a sophisticated test chamber where an optical specbos travels beneath the illuminated aspects in both normal and dim modes to measure and display the optical chromaticity of each individual nearside signal aspect. Aspect voltage and current measurements are taken in both operating modes and full push button operation is verified during the test cycle.

LIFETIME PRODUCT TRACEABILITY

There are clearly defined pass and fail criteria at all stages within the Orbitor and Neptune 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.

The key test functions performed by Neptune to Certify the premium performance of your Nearside Signal are:

- Testing of aspects on full and dim voltages
- Push button switch board test cycling
- Full NSS screen test
- Burn in > 15hrs

100% of signal aspect and switch board assemblies are Certified by Neptune.

MICRO SWITCH AND SWITCH REPLACEMENT INSTRUCTIONS FOR NSS

Please follow the procedure below. Initial replacement of the micro-switch itself should restore the switch of the NSS to full operation. Should this not be the case then we recommend replacement of the full switch barrel assembly including the micro-switch. Please return the removed switch parts to AGD for further investigation.

To replace micro-switch assembly only :

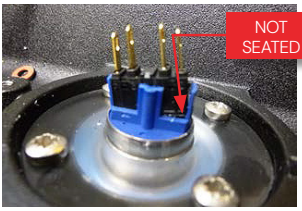
- Remove 2 screws from Halo pcb
- Disconnect cable loom from switch terminals
- Carefully ease out securing lugs from sides of switch body allowing micro-switch to be removed
- Replace new micro-switch ensuring it is located squarely and that both retaining lugs slot back into position
- Reconnect cable loom to switch terminations
- Refit and secure Halo pcb ensuring fibre washers are in place where fitted
- Re-test switch for full operation

In the event that the switch is not fully operational then replace full switch barrel assembly including micro-switch :

- Remove tactile and sounder if fitted
- For 946/947's remove green aspect pcb
- Disconnect cable loom from switch terminals
- Remove Halo pcb securing screws
- Loosen full switch barrel (clockwise) from the housing using pipe
  pliers and then remove by hand.
- Fit replacement switch assembly by hand screwing and tightening using the pipe pliers.
- Refit switch Halo pcb ensuring fibre washers are in place where fitted
- Reconnect cable loom to switch terminations
- For 946/947's replace green aspect pcb and refit tactile and sounder
- Re-test switch for full operation

Remove Halo pcb and terminals

Replace micro switch



Micro switch located INCORRECTLY

Loosen switch barrel using pipe pliers

Remove by hand from front

IMPORTANT

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 take 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.

DISCLAIMER

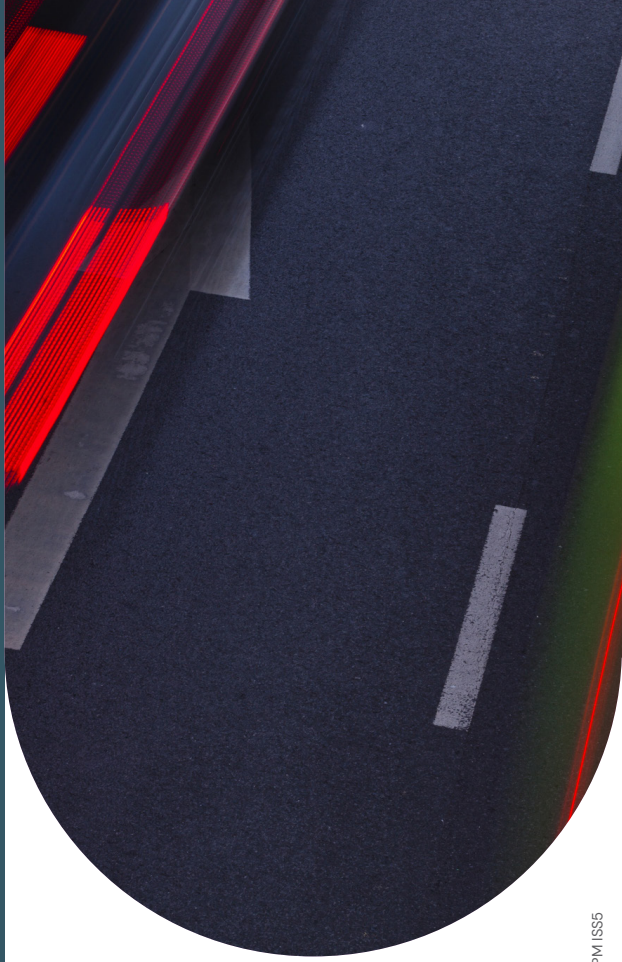
While we (AGD Systems) endeavour to keep the information in this manual correct at the time of download or print, we make no representations or warranties of any kind, express or implied, about the completeness, accuracy, reliability, suitability or availability with respect to the information, products,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

Revision
Issue 5 May 2021



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