Ecoglo International Limited

Technical Manual
for
Hybrid Photoluminescent (PL) Exit Signs

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Contents:

V24.2

Section 26 53 00

Ecoglo Photoluminescent Exit Signs – Hybrid Photoluminescent Signs

This specification has been numbered, organized and formatted in accordance with the MasterFormat, Section Format and Page Format documents published jointly by Construction Specifications Institute (CSI).

It is offered as a guide to experienced and knowledgeable construction professionals who assume full responsibility for its interpretation and use.

Square brackets [ ] containing text indicate an option to be considered/inserted by the specifier. Remove brackets and unused options before printing.

Section 26 53 00

Photoluminescent Exit Signs – Hybrid Photoluminescent Signs

Part 1 General

1.1 Summary

A Work Included: Supply and installation of hybrid photoluminescent exit signs.

1.2 References

A SA TS 5367:2021, Photoluminescent exit signage — Hybrid photoluminescent signage — Product specification, installation and operation

1.3 Quality Assurance

A Manufacturer Qualifications: to have a minimum of 25 years' experience manufacturing photoluminescent materials.

1.4 Submittals

A Submit the following [in accordance with Section 01 33 00 – Submittal Procedures]:

1 Product Data: Manufacturer's printed product data sheets for materials used in system.
2 Shop Drawings: Provide drawings showing details, dimensions, extent of work, and other data necessary for the satisfactory installation of the products stated herein.
3 Manufacturer's Instructions: Pre-printed material describing installation of product, system or material, including special notices, and maintenance and cleaning instructions.
4 Test Reports: Showing compliance with SA TS 5367:2021 and required codes.
5 Substitutions: Not permitted, however requests for substitutions will be considered provided substitute products and methods of execution are submitted at least 15 days prior to the bid closing date. All requests shall include test results, product descriptions, confirmation of piece design and engineering calculations meeting design criteria.

1.5 Delivery, Storage and Handling

A Handle and store Products in a manner to prevent damage, deterioration and soiling to Products, other building components, assemblies, other Products, the structure, the Site and surrounding property and in accordance with manufacturer's instructions.

B Store packaged or bundled Products in original and undamaged containers and packaging with manufacturer's seals and labels intact. Do not remove from packaging or containers until ready to be installed.

C Store products subject to damage from weather in weatherproof enclosures.

1.6 Warranty

A Provide manufacturer's limited warranty. Warranty to cover defects in materials and workmanship.

1 15 Year Warranty on performance of hybrid photoluminescent exit signs including LEDs and driver.

Part 2 Products

2.1 Manufacturers

A Contract Documents are based on products by Ecoglo International Ltd (www.ecoglo.com)

B Substitutions: [Under provisions of Division 01.] [Not permitted.]

2.2 Materials

A Hybrid LED Exit Signs

1 Energy storage panel comprising photoluminescent pigment embedded in a thermoplastic matrix to integrally bond the active ingredients.
2 High efficiency, low power consumption LED charging source.
3 LED driver.
4 Housing comprising: Plastic canopy encasing electronics; Acrylic back plate and cover plate.
5 PET Graphics.

2.3 Components

A Basis of design: Ecoglo Hybrid LED Exit Signs

1 Description:

a. No batteries and no backup power required for power outages.
b. Stores energy from a high efficiency, low power consumption LED charging source built into the unit.
c. Input: 230/240 Vac, 50/60 Hz, single and double sided sign.
d. Power Consumption: 0.5W single and double sided sign.
e. Includes mounting holes for fixing directly to ceiling or wall.
f. Non-toxic, non-radioactive.

B Visibility rating: [16 metres] [24 metres]

C Optional mounting brackets: [Ceiling recess] [Flag] [Weatherproof enclosure]

[As per Schedule attached at end of Section] [As indicated in drawings]

Click here to view Ecoglo Hybrid LED Exit Signs

SPEC NOTE: The listed data included below provide product information for comparison purposes.

Product Code	Product Description	Graphics included	Maximum Viewing Distance
HYU1.2	Single sided hybrid sign with white housing	1 x Running Man (RM), 1 x Running Man Right (RMR), 1 x Running Man Left (RML)	16m
HYU1.2-RMRL	Single sided hybrid sign with white housing	1 x RM Double Arrow	16m
HYU2.2	Double sided hybrid sign with white housing	2 x Running Man (RM), 1 x Running Man Right (RMR), 1 x Running Man Left (RML)	16m
HYU2.2-RMRL	Double sided hybrid sign with white housing	2 x RM Double Arrow	16m
HYU1.2-BLK	Single sided hybrid sign with black housing	1 x Running Man (RM), 1 x Running Man Right (RMR), 1 x Running Man Left (RML)	16m
HYU1.2-RMRL-BLK	Single sided hybrid sign with black housing	1 x RM Double Arrow	16m
HYU2.2-BLK	Double sided hybrid sign with black housing	2 x Running Man (RM), 1 x Running Man Right (RMR), 1 x Running Man Left (RML)	16m
HYU2.2-RMRL-BLK	Double sided hybrid sign with black housing	2 x RM Double Arrow	16m
HYU1.3-WHT	Single sided hybrid sign with white housing	1 x Running Man (RM), 1 x Running Man Right (RMR), 1 x Running Man Left (RML)	24m
HYU2.3-WHT	Double sided hybrid sign with white housing	2 x Running Man (RM), 1 x Running Man Right (RMR), 1 x Running Man Left (RML)	24m
HYU1.3-BLK	Single sided hybrid sign with black housing	1 x Running Man (RM), 1 x Running Man Right (RMR), 1 x Running Man Left (RML)	24m
HYU2.3-WHT	Double sided hybrid sign with white housing	2 x Running Man (RM), 1 x Running Man Right (RMR), 1 x Running Man Left (RML)	24m

BR3-CR.WHT	White ceiling recess bracket	N/A	N/A
BR3-CR.BLK	Black ceiling recess bracket	N/A	N/A
BR3-FM.WHT	White flag mount bracket	N/A	N/A
BR3-FM.BLK	Black flag mount bracket	N/A	N/A
BR3-EXHS.WHT	White weatherproof exit enclosure	N/A	N/A

Part 3 Execution

3.1 Examination

A Before installation, examine surfaces on which the Work of this Section depends. Notify [Contractor] if surfaces do not comply with requirements of this Section.

B Do not proceed with Work of this Section until all unsatisfactory conditions have been corrected, if any.

C Commencement of Work will imply acceptance of surfaces.

3.2 Preparation

A Clean surfaces to remove debris, dirt, dust, grease, oil, loose material, or other matter that may affect installation of products.

3.3 Installation

A Install Signs [as per Schedule attached at end of Section] [as indicated in Drawings].

B Unless otherwise indicated in the specifications, install Signs in accordance with manufacturer's instructions. Obtain installation instructions from www.ecoglo.com or directly from manufacturer.

3.4 Cleaning

A At completion of installation, clean soiled Sign surfaces in accordance with manufacturer's instructions.

3.5 Waste Management and Disposal

A Separate waste materials for [reuse] [and] [recycling] at nearest used building materials facility.

3.6 Protection

A Do not allow heavy objects to come into contact with installed Signs.

3.7 Signage Schedule

Specification articles (product selections) contained within square brackets [ ] are shown as example choices only.

Sign Designation	Product Code	Maximum Viewing Distance	Optional Mounting Kit
[Sign designation on drawing]	[HYU1.2-RMRL]	16m	[BR3-CR.WHT]
[Sign designation on drawing]	[HYU2.3-BLK]	24m	N/A

End of Section

Appendices to

Ecoglo International Ltd
Technical Manual
for
Hybrid PL Exit Signs

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Contents:

Appendix 1

Ecoglo International Ltd

Product Data Sheets

HYBRID SERIES

Product Data Sheet - Hybrid LED Exit Sign HYUX.2

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Surface Mount

Ceiling Mount

Surface and ceiling mountable without additional accessories

The Hybrid LED Exit Sign combines Ecoglo's internationally recognised photoluminescent technology with Class II LEDs and the next generation patented electronics.
Requiring no battery backup, the internally illuminated photoluminescent exit sign is effective in all lighting scenarios. Designed to be used in and about buildings to identify escape routes for compliance with performance based building codes, the signs will be clearly visible and readily understandable under all conditions of foreseeable use, including emergency conditions.

PRODUCT CODE	PRODUCT DESCRIPTION	GRAPHICS INCLUDED	MAXIMUM VIEWING DISTANCE
HYU1.2	Single Sided Hybrid Sign	1 x RM, 1 x RMR, 1 x RML	16 metres
HYU1.2-RMRL	Single Sided Hybrid Sign	1 x RM Double Arrow	16 metres
HYU1.2-RMB	Single Sided Hybrid Sign	1 x RM Low Light Black	16 metres
HYU1.2-EXB	Single Sided Hybrid Sign	1 x Exit Low Light Black	24 metres
HYU1.2-EX	Single Sided Hybrid Sign	1 x Exit	24 metres
HYU1.2-EXR	Single Sided Hybrid Sign	1 x Exit Right	16 metres
HYU1.2-EXL	Single Sided Hybrid Sign	1 x Exit Left	16 metres
HYU2.2	Double Sided Hybrid Sign	2 x RM, 1 x RMR, 1 x RML	16 metres
HYU2.2-RMRL	Double Sided Hybrid Sign	2 x RM Double Arrow	16 metres
HYU2.2-EX	Double Sided Hybrid Sign	2 x Exit	24 metres
HYU2.2-EXRL	Double Sided Hybrid Sign	1 x Exit Right, 1 x Exit Left	16 metres
HYU2.2-EXB	Double Sided Hybrid Sign	2 x Exit Low Light Black	24 metres

Above signs include one or more of graphics shown below.

Note: Custom graphics can be produced to suit regional requirements.

RM
Exit straight on from here

RML
Exit left from here

RMR
Exit right from here

RM DOUBLE ARROW
Exit right or left from here

RM (Low Light)
Exit straight on from here

EXIT (Low Light)
Exit straight on from here

EXIT
Exit straight on from here

EXIT LEFT
Exit left from here

EXIT RIGHT
Exit right from here

COMPLIANCE

Ecoglo Hybrid LED Exit Signs can be used in Performance Solutions to meet the requirements of building codes such as NFPA 101 Life Safety Code, International Fire Code (IFC), Building Code of Australia (BCA), and any other performance based building codes.

PERFORMANCE

Provides a minimum of 90 minutes of visibility after failure of the main lighting.

INPUT

230/240 Vac, 50/60 Hz, Single and Double Sided Sign

RATED POWER CONSUMPTION

0.5W Single and Double Sided Sign

SUPPLY

The signs are currently available in one size.
See table for maximum viewing distance of each sign.

Signs with black housing are also available- contact Ecoglo for more information

HYBRID SERIES

Product Data Sheet - Hybrid LED Exit Sign HYUX.2

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PRODUCT FEATURES

- LED/Photoluminescent Exit Sign System
- Meets most performance based international building codes.
- No batteries or backup power required for power outages
- High efficiency low power consumption LED charging source
- Long life LEDs (>100,000 hours)
- Works in all lighting scenarios
- Non-toxic, non-radioactive photoluminescent technology
- UL 924 tested and listed models available
- UL certified for 120 minute operating time at 16 metres. 24 metres model also available

INTERNAL SPECIFICATIONS

AC LED: standard 230/240 VAC input

PRODUCT DIMENSIONS

Height: 221mm
Width: 362mm
Depth: 62mm

PRODUCT WEIGHT

Single Sided Sign: 1.30kg
Double Sided Sign: 1.45kg

COMPREHENSIVE WARRANTY

15 years.

PROTECTION RATING

IP44 - Splashproof
(Suitable for outdoor environments where there is overhead protection such as a building eave or canopy, but should not be installed in fully exposed outdoor locations.)

INSTALLATION

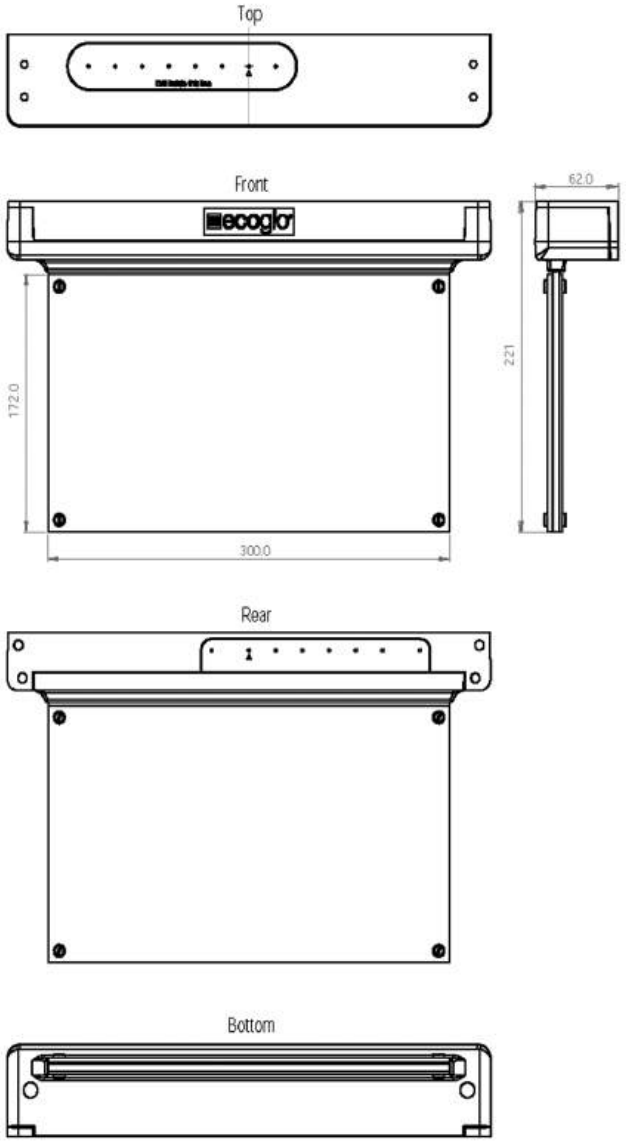
The sign can be fixed directly to the ceiling or wall using the moulded mounting holes on each end of the sign.

Operating Temperature Range: 0°C to 40°C
When installed in our IP65 housing the operating temperature range is -20°C to +40°C
Contact Ecoglo for more details.

BR3-CR.WHT (white ceiling recess kit)
BR3-FM.WHT (white flag mount kit)
BR3-EXHS.WHT (white weatherproof exit enclosure)

Installation needs to be carried out strictly in accordance with Ecoglo installation instructions.
Consult installation instructions on website for full details.

CEILING AND WALL MOUNT



Contact

Ecoglo Fire Protection Product Trading
Address: 36-C Gloria Street, Barangay San Carlos, Binangonan Rizal 1940, Philippines
Office: +632-8802-4760
Cell: +63917-514-6803
+63968-356-4773
Email: keith.phillips@ecoglo.com
Web: www.ecoglo.ph www.EcogloAsia.com www.EcogloVenues.com

HYBRID SERIES

Product Data Sheet - Hybrid LED Exit Sign HYUX.2-BLK

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Non Stock item. Check availability.

Surface Mount

Ceiling Mount

Surface and ceiling mountable without additional accessories

The Hybrid LED Exit Sign combines Ecoglo's internationally recognised photoluminescent technology with Class II LEDs and the next generation patented electronics.
Requiring no battery backup, the internally illuminated photoluminescent exit sign is effective in all lighting scenarios. Designed to be used in and about buildings to identify escape routes for compliance with performance based building codes, the signs will be clearly visible and readily understandable under all conditions of foreseeable use, including emergency conditions.

PRODUCT CODE	PRODUCT DESCRIPTION	GRAPHICS INCLUDED	MAXIMUM VIEWING DISTANCE
HYU1.2-BLK	Single Sided Hybrid Sign	1 x RM, 1 x RMR, 1 x RML	16 metres
HYU1.2-BLK-RMRL	Single Sided Hybrid Sign	1 x RM Double Arrow	16 metres
HYU1.2-BLK-RMB	Single Sided Hybrid Sign	1 x RM Low Light Black	16 metres
HYU1.2-BLK-EXB	Single Sided Hybrid Sign	1 x Exit Low Light Black	24 metres
HYU1.2-BLK-EX	Single Sided Hybrid Sign	1 x Exit	24 metres
HYU1.2-BLK-EXR	Single Sided Hybrid Sign	1 x Exit Right	16 metres
HYU1.2-BLK-EXL	Single Sided Hybrid Sign	1 x Exit Left	16 metres
HYU2.2-BLK	Double Sided Hybrid Sign	2 x RM, 1 x RMR, 1 x RML	16 metres
HYU2.2-BLK-RMRL	Double Sided Hybrid Sign	2 x RM Double Arrow	16 metres
HYU2.2-BLK-EX	Double Sided Hybrid Sign	2 x Exit	24 metres
HYU2.2-BLK-EXRL	Double Sided Hybrid Sign	1 x Exit Right, 1 x Exit Left	16 metres
HYU2.2-BLK-EXB	Double Sided Hybrid Sign	2 x Exit Low Light Black	24 metres

Above signs include one or more of graphics shown below.

Note: Custom graphics can be produced to suit regional requirements.

RM
Exit straight on from here

RML
Exit left from here

RMR
Exit right from here

RM DOUBLE ARROW
Exit right or left from here

RM (Low Light)
Exit straight on from here

EXIT (Low Light)
Exit straight on from here

EXIT
Exit straight on from here

EXIT LEFT
Exit left from here

EXIT RIGHT
Exit right from here

COMPLIANCE

Ecoglo Hybrid LED Exit Signs can be used in Performance Solutions to meet the requirements of building codes such as NFPA 101 Life Safety Code, International Fire Code (IFC), Building Code of Australia (BCA), and any other performance based building codes.

PERFORMANCE

Provides a minimum of 90 minutes of visibility after failure of the main lighting.

INPUT

230/240 Vac, 50/60 Hz, Single and Double Sided Sign

RATED POWER CONSUMPTION

0.5W Single and Double Sided Sign

SUPPLY

The signs are currently manufactured in one size.
See table for maximum viewing distance of each sign.

NOTE: This is a non stock item.
Please check with Ecoglo for availability

Signs with white housing are also available-
see Products at www.ecoglo.ph for more information

HYBRID SERIES

Product Data Sheet - Hybrid LED Exit Sign HYUX.2-BLK

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PRODUCT FEATURES

- LED/Photoluminescent Exit Sign System
- Meets most performance based international building codes.
- No batteries or backup power required for power outages
- High efficiency low power consumption LED charging source
- Long life LEDs (>100,000 hours)
- Works in all lighting scenarios
- Non-toxic, non-radioactive photoluminescent technology
- UL 924 tested and listed models available
- UL certified for 120 minute operating time at 16 metres. 24 metres model also available

INTERNAL SPECIFICATIONS

AC LED: standard 230/240 VAC input

PRODUCT DIMENSIONS

Height: 221mm
Width: 362mm
Depth: 62mm

PRODUCT WEIGHT

Single Sided Sign: 1.30kg
Double Sided Sign: 1.45kg

COMPREHENSIVE WARRANTY

15 years.

PROTECTION RATING

IP44 - Splashproof
(Suitable for outdoor environments where there is overhead protection such as a building eave or canopy, but should not be installed in fully exposed outdoor locations.)

INSTALLATION

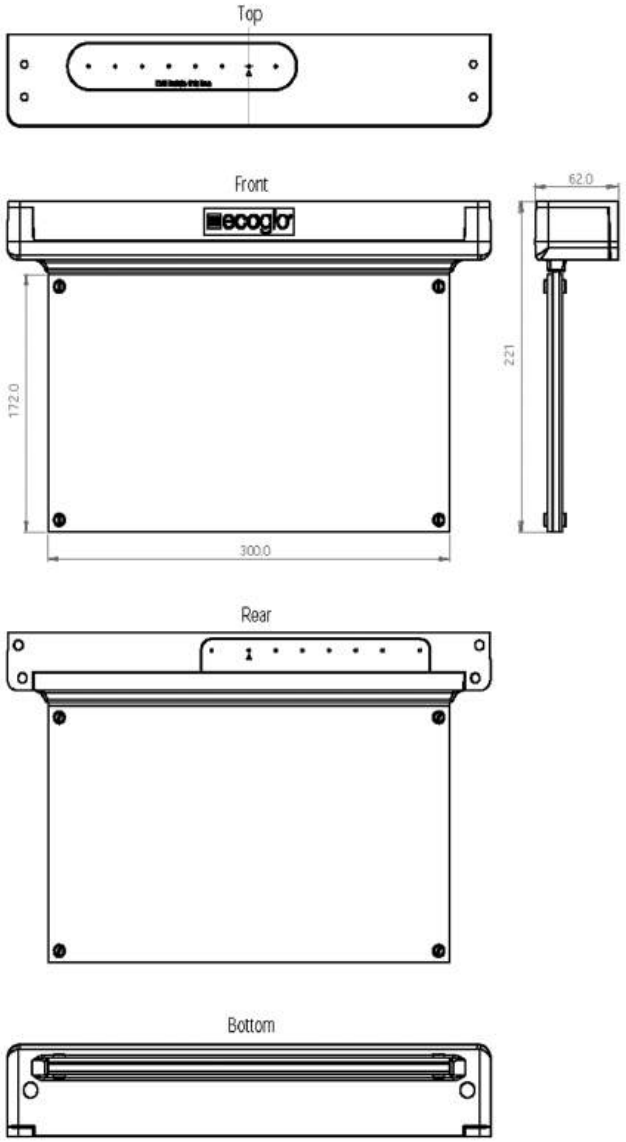
The sign can be fixed directly to the ceiling or wall using the moulded mounting holes on each end of the sign.

Operating Temperature Range: 0°C to 40°C
When installed in our IP65 housing the operating temperature range is -20°C to +40°C
Contact Ecoglo for more details.

BR3-CR.BLK (black ceiling recess kit)
BR3-FM.BLK (black flag mount kit)
BR3-EXHS.WHT (white weatherproof exit enclosure)

Installation needs to be carried out strictly in accordance with Ecoglo installation instructions.
Consult installation instructions on website for full details.

CEILING AND WALL MOUNT



Contact

Ecoglo Fire Protection Product Trading
Address: 36-C Gloria Street, Barangay San Carlos, Binangonan Rizal 1940, Philippines
Office: +632-8802-4760
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+63968-356-4773
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Product Data Sheet - Ceiling Recess Bracket BR3-CR

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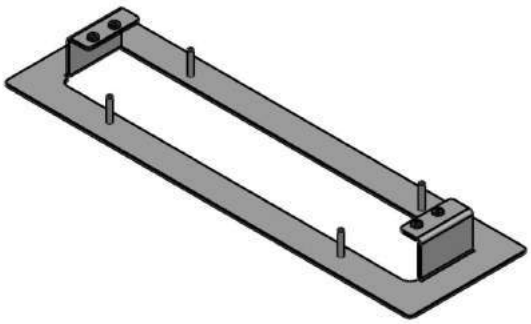

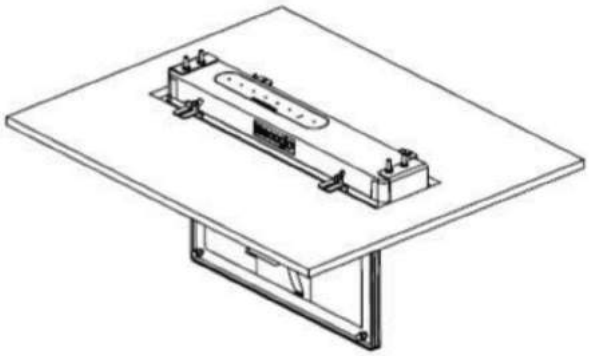

Ceiling Recess Bracket – BR3-CR

The BR3-CR ceiling recess bracket is designed for use with Ecoglo HYUx.2 and HYUx.3 hybrid signs. With all wiring, fixers and the housing itself hidden in the ceiling recess, all that remains visible is the blade style hybrid sign presenting an unobtrusive and stylish mounting option for designers.

Note: Stocked item as shown here is white.
Black item for use with HYUx.2.BLK or HYUx.3.BLK can be made to order.

COMPOSITION
The bracket is manufactured from steel and has a white powder coated finish.

WEIGHT
450g

DIMENSIONS
The dimensions of the bracket are 422mm x 122mm. When fully assembled the bracket extends 37.4mm into ceiling recess.

INSTALLATION
Installation needs to be carried out strictly in accordance with the Ecoglo installation instructions.
Consult Installation Instructions on website for full details.

SUPPLY
The Ceiling Recess Bracket is supplied as a kit containing all parts required to successfully install an Ecolgo hybrid sign (sold separately) in ceiling recess.

BR3-CR.WHT White ceiling recess bracket kit
BR3-CR.BLK Black ceiling recess bracket kit

Contact

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Address: 36-C Gloria Street, Barangay San Carlos, Binangonan Rizal 1940, Philippines
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Product Data Sheet - Flag Mount Bracket BR3-FM

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Note: Stocked item as shown here is white.
Black item for use with HYUx.2.BLK or HYUx.3.BLK can be made to order.

The BR3-FM flag mount bracket is designed for use with Ecoglo HYUx.2 and HYUx.3 hybrid signs offering a wall mount option for designers. All wiring is hidden in the housing above the blade style sign.

COMPOSITION
The bracket is manufactured from steel and has a white powder coated finish.

WEIGHT
690g

INSTALLATION
Installation needs to be carried out strictly in accordance with the Ecoglo installation instructions.
Consult Installation Instructions on website for full details.

SUPPLY
The Flag Mount Bracket is supplied as a kit containing all parts required to successfully install an Ecoglo hybrid sign (sold separately). When fully assembled the dimensions of the sign including bracket are 380mm wide x 240mm high with the wall plate extending a further 42mm above the sign.

BR3-FM.WHT White flag mount bracket kit
BR3-FM.BLK Black flag mount bracket kit

Contact

Ecoglo Fire Protection Product Trading
Address: 36-C Gloria Street, Barangay San Carlos, Binangonan Rizal 1940, Philippines
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+63968-356-4773
Email: keith.phillips@ecoglo.com
Web: www.ecoglo.ph www.EcogloAsia.com www.EcogloVenues.com

Product Data Sheet - Weatherproof Exit Enclosure BR3-EXHS

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Weatherproof Exit Enclosure – BR3-EXHS.WHT

BR3-EXHS Weatherproof Exit Enclosure is an IP65 rated weatherproof unit designed to house externally located Ecoglo HYUx.2 and HYUx.3 hybrid signs (sold separately). Protects the sign from the elements so that it continues to operate in all weather conditions.

COMPOSITION

The enclosure unit is manufactured from non-corrosive polycarbonate.

SPECIFICATIONS

IP Rating - IP65
Nominal Voltage - 240V
Nominal Frequency (Hz) - 50Hz
Rated Maximum Ambient Temperature - 40°C
Dimensions - 430mm (L) x 155mm (W) x 231 (D)

INSTALLATION

The BR3-EXHS enclosure unit must be installed by a qualified electrician strictly in accordance with the Ecoglo installation instructions.

The enclosure unit is suitable for cantilever/flag bracket and suspended mounting.

Consult Installation Instructions on website for full details.

SUPPLY

The enclosure unit is supplied complete with a wall bracket and ceiling mount clips to enable quick installation without the need to perforate the housing. The unit is also fitted with an IP rated breather to equalise the internal temperature with the ambient to avoid build up of condensation inside.

BR3-EXHS.WHT White Weatherproof Exit Enclosure

Contact

Ecoglo Fire Protection Product Trading
Address: 36-C Gloria Street, Barangay San Carlos, Binangonan Rizal 1940, Philippines
Office: +632-8802-4760
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Email: keith.phillips@ecoglo.com
Web: www.ecoglo.ph www.EcogloAsia.com www.EcogloVenues.com

Appendix 2

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Installation Instructions

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Installation Instructions For

Hybrid PL Exit Sign

Ceiling and Surface Mounted HYU1.2

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Ecoglo International Limited
Email: info@ecoglo.com
www.ecoglo.com

Important Safeguards

When using electrical equipment, basic safety precautions should always be followed including the following:

READ AND FOLLOW ALL SAFETY INSTRUCTIONS

Disconnect power before performing work on electrical equipment.

WARNING: All terminals are unsafe to touch. Every part of the circuit is directly connected to the 230Vac electrical supply. The circuit must be operated with all of its protective coverings in place. Only access terminals when the electrical supply is isolated.

Do not use in locations that are fully exposed to rain.

Do not mount near gas or electric heaters.

Equipment should be mounted in locations and at heights (outside arm's reach) where it will not be subjected to tampering by unauthorized personnel.

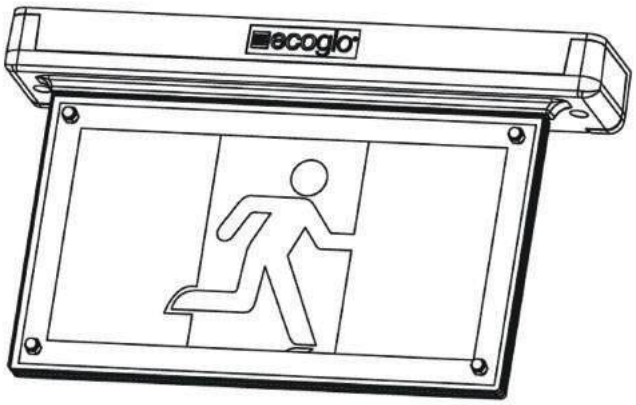
The use of accessory equipment is not recommended by Ecoglo as it may pose a safety hazard.

Do not use this equipment for any purpose other than its intended use.

SAVE THESE INSTRUCTIONS

The Ecoglo Hybrid electrical Exit Signs shall have (unswitched) electricity supplied from the lighting circuit supplying general lighting in the area concerned. Circuit breakers for the relevant lighting circuits shall be labeled "Emergency Exit Sign - Do not isolate"

Ecoglo recommends that the electrical supply to the hybrid signs is NOT disconnected by any emergency lighting "test" switch as this can cause confusion during system inspection.



Hybrid Exit Sign Specification

Input: 230/240 VAC 50/60Hz
Current: 14mA
Rated power consumption: 0.5W

Maximum ambient temperature (Ta): 40^0C
Protection: IP44 (Indoor and sheltered outdoor locations)

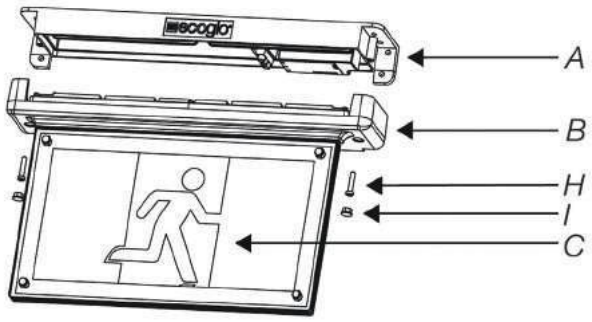
MAINTENANCE

- To ensure ongoing compliance with the relevant building code, the signs should undergo a six-monthly inspection, with written records kept. The inspection should confirm that the signs are in the correct location, clearly legible, and illuminated. Signs must be replaced before they become illegible, and replaced immediately should they be missing.
- **CAUTION**: Always turn off AC power before servicing. The servicing of any parts should be performed by qualified service personnel. The use of replacement parts not supplied by Ecoglo may cause equipment failure and will void the warranty.
- **NOTE**: The light source contained in this luminaire is not replaceable; when the light source reaches its end of life the whole luminaire shall be replaced.

Check all Parts are Present

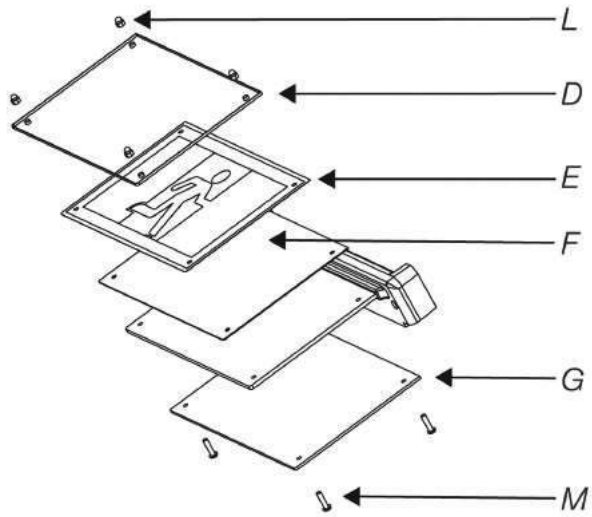
Please contact Ecoglo if parts are missing or damaged.

Overview



PART	DESCRIPTION	QTY
A	Canopy	1
B	Blade Holder	1
C	Sign Blade	1
H	M4x20 Plastite Screw	2
I	Blank Caps	2
J	8Gx50 Self Tap Screw	4
K	8Gx32 Nylon Wall Plug	4

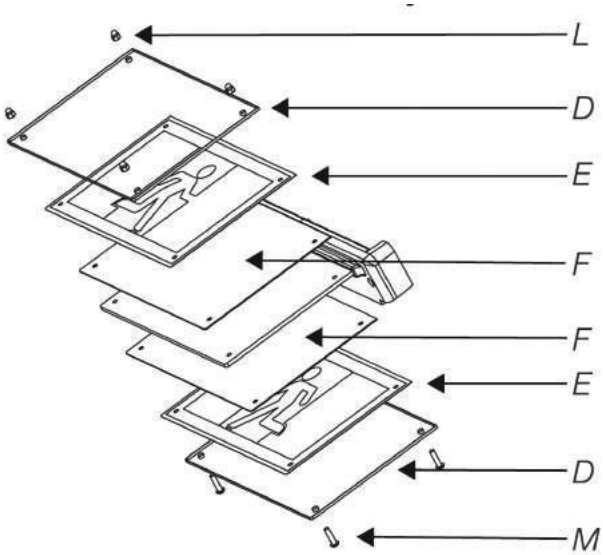
HYU1.2 Blade Assembly



PART	DESCRIPTION	QTY
L	M5 Dome Nut	4
D	Clear Acrylic Front Plate	1
E	Directional Graphic 1x RM (Pictoram Straight) 1x RML (Pictogram Left) 1x RMR (PictogramRight)	3
F	Photoluminescent Sheet	1
G	White Backing Plate	1
M	M5x16 Bolt	4

Note: Tighten dome and nut finger tight only

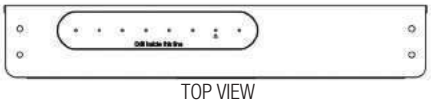
HYU2.2 Blade Assembly



PART	DESCRIPTION	QTY
L	M5 Dome Nut	4
D	Clear Acrylic Front Plate	2
E	Directional Graphic 2x RM (Pictoram Straight) 1x RML (Pictogram Left) 1x RMR (PictogramRight)	4
F	Photoluminescent Sheet	2
M	M5x20 Bolt	4

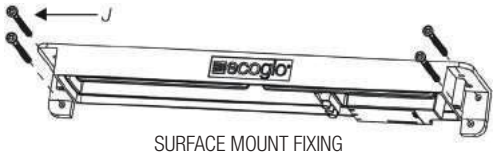
Note: Tighten dome and nut finger tight only

Canopy Installation

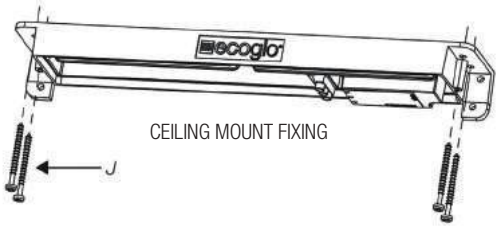


TOP VIEW

BACK VIEW



SURFACE MOUNT FIXING



CEILING MOUNT FIXING

- Determine the appropriate location for the power cable to enter the canopy.
- Remove necessary material from the canopy but stay inside the pre-formed markings

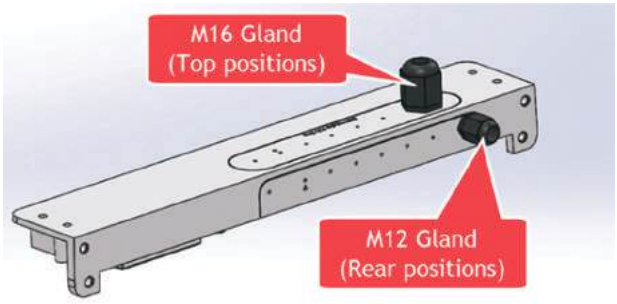
- Pull cable into the canopy and check fitment on the wall
- Optionally, the cable could be connected to the terminal block now.
- Ideally the canopy will be fixed to the wall studs but if that is not an option then nylon wall plugs into drywall or concrete may be used.
- Ensure fixers are used in all all 4 mounting points.
- Connect cable to the terminal block now if not already connected.

Brackets for alternative mounting sold separately

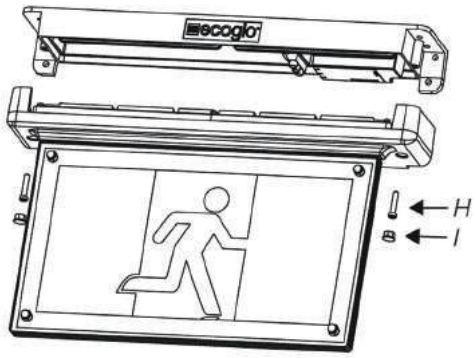
FLAG MOUNT

RECESS MOUNT

Suggested entry locations for glands or conduit

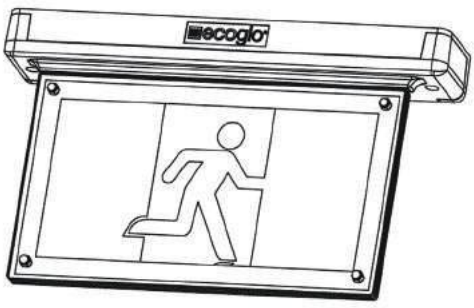


Attaching the Blade Assembly to the Canopy



- Check the correct artwork is fitted within the sign blade.
- If change is required then disassemble the blade with 4 corner fasteners.
- Reassemble sign blade.
- Gently fit blade holder into the sign canopy. The blade holder will only fit in one direction.
- Fix screws to fasten blade holder and canopy together.
- Insert blanking caps into screw holes.
- Remove protective film from acrylic front panel.

Checking the Operation of the Sign Once Installed

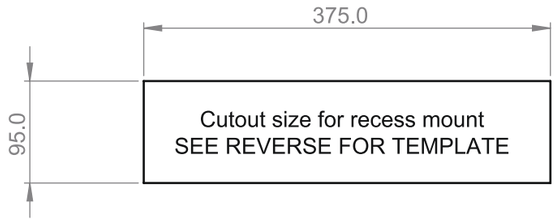


- Check that the whole sign face is illuminated when the electrical supply is connected.
- There is no need to disconnect the electrical supply: the sign does not contain batteries or a battery charging circuit. Instead, the photoluminescent material ensures the sign remains visible in all conditions, should the supply to main lighting fail.
- Note that if the electrical supply is disconnected the ‘glow’ may not be apparent in a well lit environment. However, the sign will still be clearly visible, and the sign will clearly glow when viewed in dark conditions.

Making the Cutout in the Ceiling

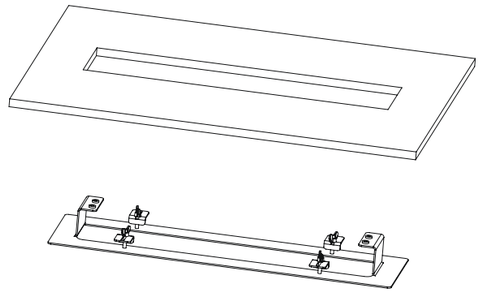
- Determine the appropriate location of the sign.
- Mark out a hole size 375mm long and 94mm wide.
- Cut the hole and ensure edges are smooth.
- Pull the electrical cable down through the hole.

Important:
- Check there are no obstacles or cables above the marked area before cutting.
- Maximum ceiling thickness is 18mm.



Prepare the Bracket for Installation

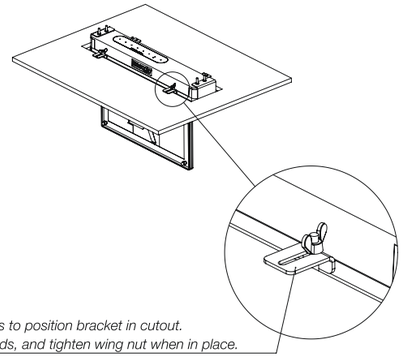
- Take the 4 clamp brackets and fit over the stand offs as shown.
- Loosely fasten the 4 wing nuts with a couple of turns on to the stand off.
- **Check orientation of the recess bracket - rounded side of the bracket must face the direction that the sign is required to face.**
- Make sure all clamps are pushed back within the outer perimeter of the bracket and push the bracket up into the cut out space in the ceiling with the electrical cable hanging through the bracket opening.



Mounting the Bracket to the Ceiling

- Reach up inside the bracket and push the 4 clamp brackets so that the short face is hard up against the edge of your cutout.
- Tighten down the 4 wing nuts on to the clamps.

This completes the bracket installation and the electrical cable can now be attached to the top sign housing (refer to HYUX.2 installation instructions)

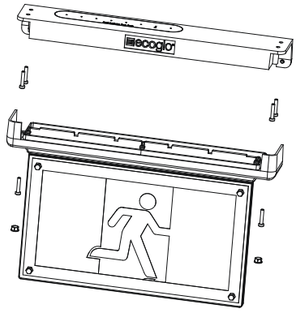


Slide clamp inwards to position bracket in cutout.
Slide clamp outwards, and tighten wing nut when in place.

Fastening the Sign to the Bracket

- Check the top housing of the sign is orientated correctly and push it up into the bracket.
- Fasten the top housing to the bracket with the 4 included
- M4x10 machine screws.
- Now that the bracket and top housing is secure the blade assembly can be re-installed.

Note: Only manual screwdrivers should be used.



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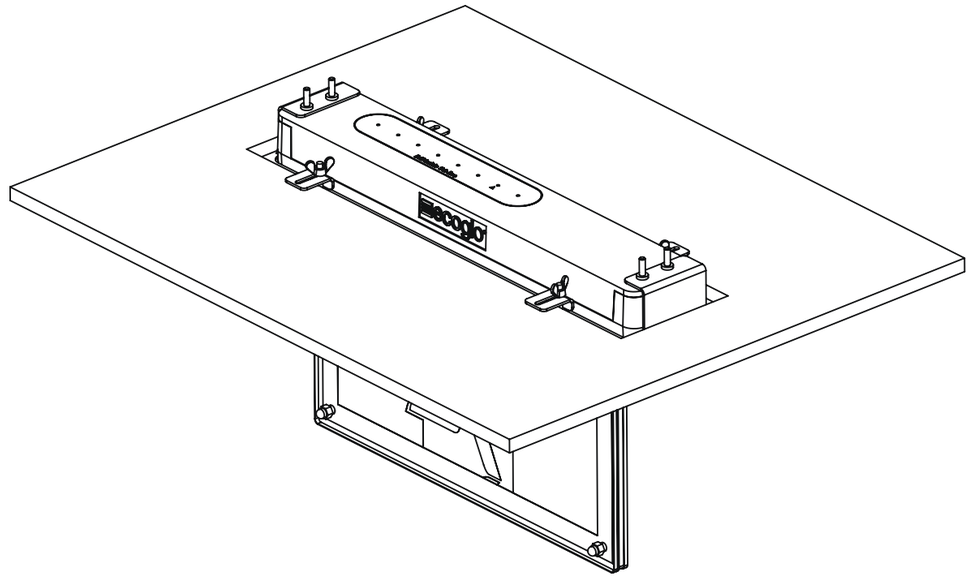
v21.1

Installation Instructions For

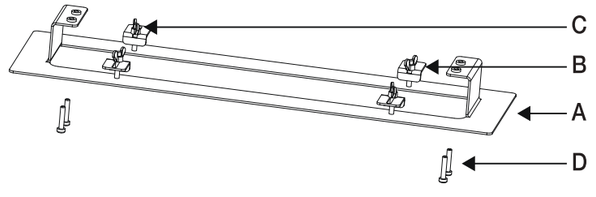
BR3-CR Bracket

Ceiling Recess Mounted HYUX.2



Check all Parts are Present

Please contact Ecoglo if parts are missing or damaged.



PART	DESCRIPTION	QTY
A	Recess Bracket	1
B	Clamp Bracket	4
C	M4 Wingnut	4
D	M4x10 Screw	4

Ecoglo International
Email: info@ecoglo.com
www.ecoglo.com

CUT OUT TEMPLATE

MAXIMUM CEILING THICKNESS = 18mm

Scale 1:1

CHECK CLEARANCE AROUND CLAMPING BRACKETS

CHECK CLEARANCE AROUND CLAMPING BRACKETS

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v22.1

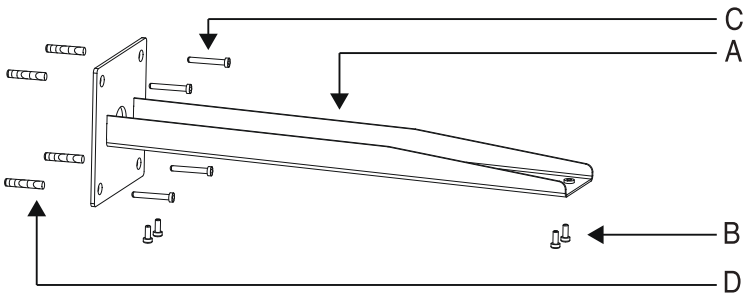
Installation Instructions For

BR3-FM Bracket

Flag Mounted HYUX.2

Check all Parts are Present

Please contact Ecoglo if parts are missing or damaged.



PART	DESCRIPTION	QTY
A	Flag Bracket	1
B	M4x10 Screw	4
C	8Gx32 Screw	4
D	Nylon Wall Plug	4

Ecoglo International
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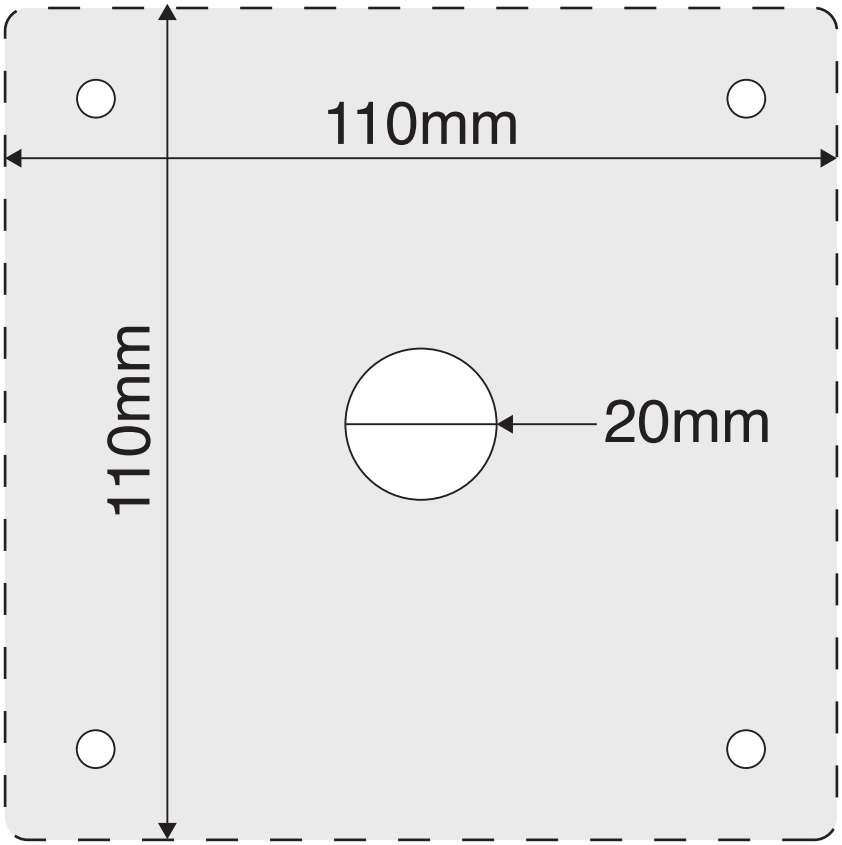
www.ecoglo.com

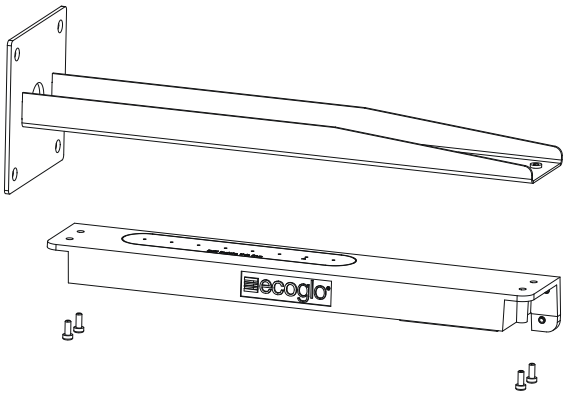
CUT OUT TEMPLATE

Scale 1:1



Prepare the Bracket for Installation

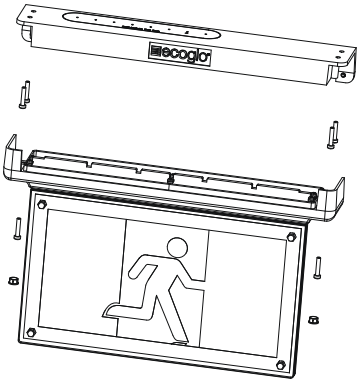
- Cut out the template above and remove the centre hole out of the template.
- Locate the centre hole over the cable protruding from the wall.
- Drill the 4 outer holes with a 6mm bit.
- Remove the template.
- Insert the nylon wall plugs into each hole.
- Feed the electrical cable through the centre hole of the bracket and offer the bracket up to the wall.
- Insert screws through the bracket into each hole and tighten hand tight.
- Place the self adhesive dots over the fitted screws to hide the screw heads.



Fastening the Sign to the Bracket

- Check the top housing of the sign is orientated correctly and push it up into the bracket.
- Fasten the top housing to the bracket with the 4 included
- M4x10 machine screws.
- Now that the bracket and top housing is secure the blade assembly can be re-installed.

Note: Only manual screwdrivers should be used.



Appendix 3

Ecoglo International Ltd

Product Test Reports

Testing to Meet SA TS 5367:2021 Photoluminescent exit signage - Product specification, installation and operation

Ecoglo Models: HYU1.3, HYU2.3, HYU1.2 and HYU2.2

Contents Page

WAVES

Testing, Research and Consulting

REPORT NO: 18887-1

CLIENT: Ecoglo International Ltd

Testing of Hybrid Exit Sign to SA TS 5367:2021

Sample: HYU1.3 Single Sided Hybrid Exit Sign

Initials ADC

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WAVES
Testing, Research and Consulting

TEST REPORT

REPORT No: 18887-1 **DATE OF TESTS: 15th – 19th December 2022**

CLIENT:	**Ecoglo International Ltd** **Christchurch** **New Zealand**
TEST:	**Testing of Hybrid Exit Sign to SA TS 5367:2021**
ITEM DESCRIPTION:	**HYU1.3 single sided hybrid exit sign** **Sample 1: Sign 1T RMR (running man right)** **Sample 2: Sign 2 RMR (running man right)** **Sample 3: Sign 4 RML (running man left)** (See photographs on pages 12 – 14)
Excitation Source:	Internal 16 x LED strip
Control Gear:	Ecoglo Model HYUX.2, 230-240 Vac 50/60 Hz, 14mA. Output to LED: 50 Vdc 20mA Batch: Not shown
TESTS REQUESTED:	The sample was tested to the following clauses of SA TS 5367:2021 Photoluminescent Exit Signage – Hybrid photoluminescent signage – Product specification, installation and operation, and New Zealand building code. - 2.2.1 General Graphical Requirements - 2.2.2 Graphical Composition - 2.2.3 Sign Colours - 2.3.2 Test for photoluminescent performance with verification against 2.2.5 viewing distance, pictorial element dimensions, and luminance under emergency conditions limits. - 2.4 Luminance contrast, and luminance uniformity during normal power conditions with verification against 2.2.6 viewing distance, pictorial element dimensions, and luminance under normal power conditions and 2.4 (i), (ii), (iii) and (iv). - 2.6.1 Light source life (LSL) for hybrid signs as per Appendix A. - Charging illumination on photoluminescent material

Approved Signatory _____ Date of issue: 21st December 2022
Adrian Cupitt

WAVES Testing, Research and Consulting

TEST REPORT

Report No: 18887-1

Test: Hybrid Exit Sign to SA TS 5367:2021 and NZ Building Code
Sample: HYU1.3 single sided hybrid exit sign

RESULTS SUMMARY

Clause 2.2.1	General Graphical Requirements	PASS
Clause 2.2.2	Graphical Composition	PASS
Clause 2.2.3	Sign Colours Green	PASS
	White	PASS
Clause 2.2.5	Viewing distance, pictorial element dimensions, and luminance under emergency conditions	PASS
Clause 2.2.6	Viewing distance, pictorial element dimensions, and luminance under normal power conditions	PASS
Clause 2.4(i)	Conformity to minimum luminance requirement of Table 2.2.6 at all measurement points	PASS
Clause 2.4(ii)	Ratio of C_{60}:C_0 luminance	PASS
Clause 2.4(iii)	Ratio of C_0 photoluminescent measurement sites to nearest background measurement site	PASS
Clause 2.4(iv)	Variation in C_0 luminance between any two background measurement sites	PASS

NOTES ON PROCEDURE:

The sample was tested against the limits of SA TS 5367:2021 and New Zealand Building Code, as indicated below.

The sample was conditioned for clause 2.3.1 prior to arrival at WAVES Testing, Research and Consulting (WAVES). The sample was then placed in a dark-chamber for more than 48 hours to ensure the luminance was below threshold measurement levels.

As per 2.3.2(a), an area of at least 30mm diameter of the visible photoluminescent portion of the pictorial element in the sign that, from visual observation, received the least charging light. For this sample that was in the head of the arrow.

As per 2.3.2(b), the internal LED source was activated at 94 ± 1 % of the nominal voltage for 60 minutes ± 10 seconds prior to measurements being taken. The voltage was monitored using a Yokogawa WT210 power meter (Serial No 91H238344) which was calibrated by Energy Queensland.

Luminance was measured near normal to the front surface of the sample with a Minolta LS-100 luminance meter (Serial No 72413006) with a 1° field of view. The meter was zeroed before the first measurement and then before each measurement beyond the 10 minutes measurement. The luminance was measured at the following intervals after the excitation source was switched off: 10, 20, 30, 60, 90, and 120 minutes. Measurements were taken within ±10 seconds of the specified time.

Approved Signatory  Date of issue: 21st December 2022
Adrian Cupitt

WAVES

Testing, Research and Consulting

REPORT NO: 18887-2

CLIENT: Ecoglo International Ltd

Testing of Hybrid Exit Sign to SA TS 5367:2021

Sample: HYU2.3 Double Sided Hybrid Exit Sign

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TEST REPORT

REPORT No: 18887-2 **DATE OF TESTS: 13th – 19th December 2022**

CLIENT:	**Ecoglo International Ltd** **Christchurch** **New Zealand**
TEST:	**Testing of Hybrid Exit Sign to SA TS 5367:2021**
ITEM DESCRIPTION:	**HYU2.3 Double Sided hybrid exit sign**
Side 1:	**Sign 7 RMR (running man right),** **Sign 8 RMR, and Sign 9 RMR.**
Side 2:	**Sign 7 RML (running man left),** **Sign 8 RML, and Sign 9 RML.**
	(See photographs on pages 14 – 17)
Excitation Source:	Internal 16 x LED strip
Control Gear:	Ecoglo Model HYUX.2, 230-240 Vac 50/60 Hz, 14mA. Output to LED: 50 Vdc 20mA Batch: Not shown
TESTS REQUESTED:	The sample was tested to the following clauses of SA TS 5367:2021 Photoluminescent Exit Signage – Hybrid photoluminescent signage – Product specification, installation and operation, and New Zealand building code. - 2.2.1 General Graphical Requirements - 2.2.2 Graphical Composition - 2.2.3 Sign Colours - 2.3.2 Test for photoluminescent performance with verification against 2.2.5 viewing distance, pictorial element dimensions, and luminance under emergency conditions limits. - 2.4 Luminance contrast, and luminance uniformity during normal power conditions with verification against 2.2.6 viewing distance, pictorial element dimensions, and luminance under normal power conditions and 2.4 (i), (ii), (iii) and (iv). - 2.6.1 Light source life (LSL) for hybrid signs as per Appendix A. - Charging illumination on photoluminescent material

Approved Signatory _____ Date of issue: 21st December 2022
Adrian Cupitt

WAVES Testing, Research and Consulting

TEST REPORT

Report No: 18887-2

Test: Hybrid Exit Sign to SA TS 5367:2021 and NZ Building Code
Sample: HYU2.3 Double Sided hybrid exit sign

RESULTS SUMMARY

Clause 2.2.1	General Graphical Requirements	PASS
Clause 2.2.2	Graphical Composition	PASS
Clause 2.2.3	Sign Colours Green	PASS
	White	PASS
Clause 2.2.5	Viewing distance, pictorial element dimensions, and luminance under emergency conditions	PASS
Clause 2.2.6	Viewing distance, pictorial element dimensions, and luminance under normal power conditions	PASS
Clause 2.4(i)	Conformity to minimum luminance requirement of Table 2.2.6 at all measurement points	PASS
Clause 2.4(ii)	Ratio of C_{60}:C_0 luminance	PASS
Clause 2.4(iii)	Ratio of C_0 photoluminescent measurement sites to nearest background measurement site	PASS
Clause 2.4(iv)	Variation in C_0 luminance between any two background measurement sites	PASS

NOTES ON PROCEDURE:

The sample was tested against the limits of SA TS 5367:2021 and New Zealand Building Code, as indicated below.

The sample was conditioned for clause 2.3.1 prior to arrival at WAVES Testing, Research and Consulting (WAVES). The sample was then placed in a dark-chamber for more than 48 hours to ensure the luminance was below threshold measurement levels.

As per 2.3.2(a), an area of at least 30mm diameter of the visible photoluminescent portion of the pictorial element in the sign that, from visual observation, received the least charging light. For this sample that was in the head of the arrow.

As per 2.3.2(b), the internal LED source was activated at 94 ± 1 % of the nominal voltage for 60 minutes ± 10 seconds prior to measurements being taken. The voltage was monitored using a Yokogawa WT210 power meter (Serial No 91H238344) which was calibrated by Energy Queensland.

Luminance was measured near normal to the front surface of the sample with a Minolta LS-100 luminance meter (Serial No 72413006) with a 1° field of view. The meter was zeroed before the first measurement and then before each measurement beyond the 10 minutes measurement. The luminance was measured at the following intervals after the excitation source was switched off: 10, 20, 30, 60, 90, and 120 minutes. Measurements were taken within ±10 seconds of the specified time.

Approved Signatory  Date of issue: 21st December 2022

Adrian Cupitt

WAVES

Testing, Research and Consulting

REPORT NO: 18365-1

CLIENT: Ecoglo International Ltd

Testing of Hybrid Exit Sign to SA TS 5367:2021

Sample: HYU1.2 Single Sided Hybrid Exit Sign

Initials ADC

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TEST REPORT

REPORT No: 18365-1 **DATE OF TESTS: 11th May – 5th June 2022**

CLIENT:	**Ecoglo International Ltd** **Christchurch** **New Zealand**
TEST:	**Testing of Hybrid Exit Sign to SA TS 5367:2021**
ITEM DESCRIPTION:	**HYU1.2 single sided hybrid exit sign** **Sample 1: Sign 1T RMR (running man right)** **Sample 2: Sign 2 RMR (running man right)** **Sample 3: Sign 3 RML (running man left)** (See photographs on pages 10 and 11)
Excitation Source:	Internal 16 x LED strip
Control Gear:	Ecoglo Model HYUX.2, 230-240 Vac 50/60 Hz, 14mA. Output to LED: 50 Vdc 20mA Batch: 5033 05/21
TESTS REQUESTED:	The sample was tested to the following clauses of SA TS 5367:2021 Photoluminescent Exit Signage – Hybrid photoluminescent signage – Product specification, installation and operation, and New Zealand building code. - 2.2.1 General Graphical Requirements - 2.2.2 Graphical Composition - 2.2.3 Sign Colours - 2.3.2 Test for photoluminescent performance with verification against 2.2.5 viewing distance, pictorial element dimensions, and luminance under emergency conditions limits. - 2.4 Luminance contrast, and luminance uniformity during normal power conditions with verification against 2.2.6 viewing distance, pictorial element dimensions, and luminance under normal power conditions and 2.4 (i), (ii), (iii) and (iv). - 2.6.1 Light source life (LSL) for hybrid signs as per Appendix A. - Charging illumination on photoluminescent material

Approved Signatory Adrian Capitt Date of issue: 29th July 2022

WAVES Testing, Research and Consulting

TEST REPORT

Report No: 18365-1

Test: Hybrid Exit Sign to SA TS 5367:2021 and NZ Building Code
Sample: HYU1.2 single sided hybrid exit sign

RESULTS SUMMARY

Clause 2.2.1	General Graphical Requirements	PASS
Clause 2.2.2	Graphical Composition	PASS
Clause 2.2.3	Sign Colours Green	PASS
	White	PASS
Clause 2.2.5	Viewing distance, pictorial element dimensions, and luminance under emergency conditions	PASS
Clause 2.2.6	Viewing distance, pictorial element dimensions, and luminance under normal power conditions	PASS
Clause 2.4(i)	Conformity to minimum luminance requirement of Table 2.2.6 at all measurement points	PASS
Clause 2.4(ii)	Ratio of C_{60}:C_0 luminance	PASS
Clause 2.4(iii)	Ratio of C_0 photoluminescent measurement sites to nearest background measurement site	PASS
Clause 2.4(iv)	Variation in C_0 luminance between any two background measurement sites	PASS

NOTES ON PROCEDURE:

The sample was tested against the limits of SA TS 5367:2021 and New Zealand Building Code, as indicated below.

The sample was conditioned for clause 2.3.1 prior to arrival at WAVES Testing, Research and Consulting (WAVES). The sample was then placed in a dark-chamber for more than 48 hours to ensure the luminance was below threshold measurement levels.

As per 2.3.2(a), an area of at least 30mm diameter of the visible photoluminescent portion of the pictorial element in the sign that, from visual observation, received the least charging light. For this sample that was in the head of the arrow.

As per 2.3.2(b), the internal LED source was activated at 94 ± 1 % of the nominal voltage for 60 minutes ± 10 seconds prior to measurements being taken. The voltage was monitored using a Yokogawa WT210 power meter (Serial No 91H238344) which was calibrated by Energy Queensland.

Luminance was measured near normal to the front surface of the sample with a Minolta LS-100 luminance meter (Serial No 72413006) with a 1° field of view. The meter was zeroed before the first measurement and then before each measurement beyond the 10 minutes measurement. The luminance was measured at the following intervals after the excitation source was switched off: 10, 20, 30, 60, 90, and 120 minutes. Measurements were taken within ±10 seconds of the specified time.

Approved Signatory  Adrian Cupitt

Date of issue: 29th July 2022

WAVES

Testing, Research and Consulting

REPORT NO: 18365-2

CLIENT: Ecoglo International Ltd

Testing of Hybrid Exit Sign to SA TS 5367:2021

Sample: HYU2.2 Double Sided Hybrid Exit Sign

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TEST REPORT

REPORT No: 18365-2 **DATE OF TESTS: 31st May – 29th August 2022**

CLIENT:	**Ecoglo International Ltd** **Christchurch** **New Zealand**
TEST:	**Testing of Hybrid Exit Sign to SA TS 5367:2021**
ITEM DESCRIPTION:	**HYU2.2 Double Sided hybrid exit sign**
Side 1:	**Sign 5T RMR (running man right),** **Sign 6 RMR, and Sign 7 RMR.**
Side 2:	**Sign 5T RML (running man left),** **Sign 6 RML, and Sign 7 RML.** (See photographs on pages 14 – 17)
Excitation Source:	Internal 16 x LED strip
Control Gear:	Ecoglo Model HYUX.2, 230-240 Vac 50/60 Hz, 14mA. Output to LED: 50 Vdc 20mA Batch: 5033 05/21
TESTS REQUESTED:	The sample was tested to the following clauses of SA TS 5367:2021 Photoluminescent Exit Signage – Hybrid photoluminescent signage – Product specification, installation and operation, and New Zealand building code. - 2.2.1 General Graphical Requirements - 2.2.2 Graphical Composition - 2.2.3 Sign Colours - 2.3.2 Test for photoluminescent performance with verification against 2.2.5 viewing distance, pictorial element dimensions, and luminance under emergency conditions limits. - 2.4 Luminance contrast, and luminance uniformity during normal power conditions with verification against 2.2.6 viewing distance, pictorial element dimensions, and luminance under normal power conditions and 2.4 (i), (ii), (iii) and (iv). - 2.6.1 Light source life (LSL) for hybrid signs as per Appendix A. - Charging illumination on photoluminescent material

Approved Signatory _____ Date of issue: 30th August 2022
Adrian Gupitt

WAVES Testing, Research and Consulting

TEST REPORT

Report No: 18365-2

Test: Hybrid Exit Sign to SA TS 5367:2021 and NZ Building Code
Sample: HYU2.2 Double Sided hybrid exit sign

RESULTS SUMMARY

Clause 2.2.1	General Graphical Requirements	PASS
Clause 2.2.2	Graphical Composition	PASS
Clause 2.2.3	Sign Colours Green	PASS
	White	PASS
Clause 2.2.5	Viewing distance, pictorial element dimensions, and luminance under emergency conditions	PASS
Clause 2.2.6	Viewing distance, pictorial element dimensions, and luminance under normal power conditions	PASS
Clause 2.4(i)	Conformity to minimum luminance requirement of Table 2.2.6 at all measurement points	PASS
Clause 2.4(ii)	Ratio of C_{60}:C_0 luminance	PASS
Clause 2.4(iii)	Ratio of C_0 photoluminescent measurement sites to nearest background measurement site	PASS
Clause 2.4(iv)	Variation in C_0 luminance between any two background measurement sites	PASS

NOTES ON PROCEDURE:

The sample was tested against the limits of SA TS 5367:2021 and New Zealand Building Code, as indicated below.

The sample was conditioned for clause 2.3.1 prior to arrival at WAVES Testing, Research and Consulting (WAVES). The sample was then placed in a dark-chamber for more than 48 hours to ensure the luminance was below threshold measurement levels.

As per 2.3.2(a), an area of at least 30mm diameter of the visible photoluminescent portion of the pictorial element in the sign that, from visual observation, received the least charging light. For this sample that was in the head of the arrow.

As per 2.3.2(b), the internal LED source was activated at 94 ± 1 % of the nominal voltage for 60 minutes ± 10 seconds prior to measurements being taken. The voltage was monitored using a Yokogawa WT210 power meter (Serial No 91H238344) which was calibrated by Energy Queensland.

Luminance was measured near normal to the front surface of the sample with a Minolta LS-100 luminance meter (Serial No 72413006) with a 1° field of view. The meter was zeroed before the first measurement and then before each measurement beyond the 10 minutes measurement. The luminance was measured at the following intervals after the excitation source was switched off: 10, 20, 30, 60, 90, and 120 minutes. Measurements were taken within ±10 seconds of the specified time.

Approved Signatory  Date of issue: 30th August 2022

Adrian Cupitt

Comtest Laboratories Pty Ltd

Unit 1 570 City Road
South Melbourne 3205
AUSTRALIA

Telephone (+613) 9645 5933
Facsimile (+613) 9645 5944

Email comtest@comtest.com.au

Date: 29/11/2022

Report number: C53895411

Applicant's name: Ecoglo International Ltd

Address: 77 Kingsley Street, Syndenham, Christchurch, New Zealand, 8023

Model: HYU1.3, HYU2.3

Report on the conditioning treatment applied to four samples of the HYU1.3 and four samples of the HYU2.3 lighting products for Ecoglo International Ltd.

Ecoglo International Ltd requested the samples were to be placed in a humidity test chamber for 72 hours at 32 °C and a relative humidity was set to 85%., after which the samples should be placed in a dark environment at room temperature for a minimum of 24 hours.

The eight samples were placed in the humidity chamber with the temperature set to 32 °C and the relative humidity set to 85% for 72 hours. After the 72 hours the samples were placed in a dark environment at room temperature for greater than 24 hours.

The temperature and humidity were recoded for the duration of the test at intervals of 10 minutes with the E + E Elektronik Australia EE31 Integral Sensor, asset number CE0526, which has been calibrated with an uncertainty measurement of ±0.13 °C and ±2.3% RH.

The measurement results for the 72 hour testing were as follows;
Temperature: Minimum – 31.3 °C, Maximum – 32.6 °C, Average – 32.1 °C.
Relative humidity: Minimum – 78.5 %, Maximum – 89.4 %, Average – 83.9 %.

Temperature measurement uncertainties of ± °C has been calculated with a confidence level of 95% and a coverage factor of k = 2.
Relative humidity measurement uncertainties of ± °C has been calculated with a confidence level of 95% and a coverage factor of k = 2.


HYU1.3-RMR-24m
BCA E4P2 & NZBC F8
www.ecoglo.com
TOLEDO

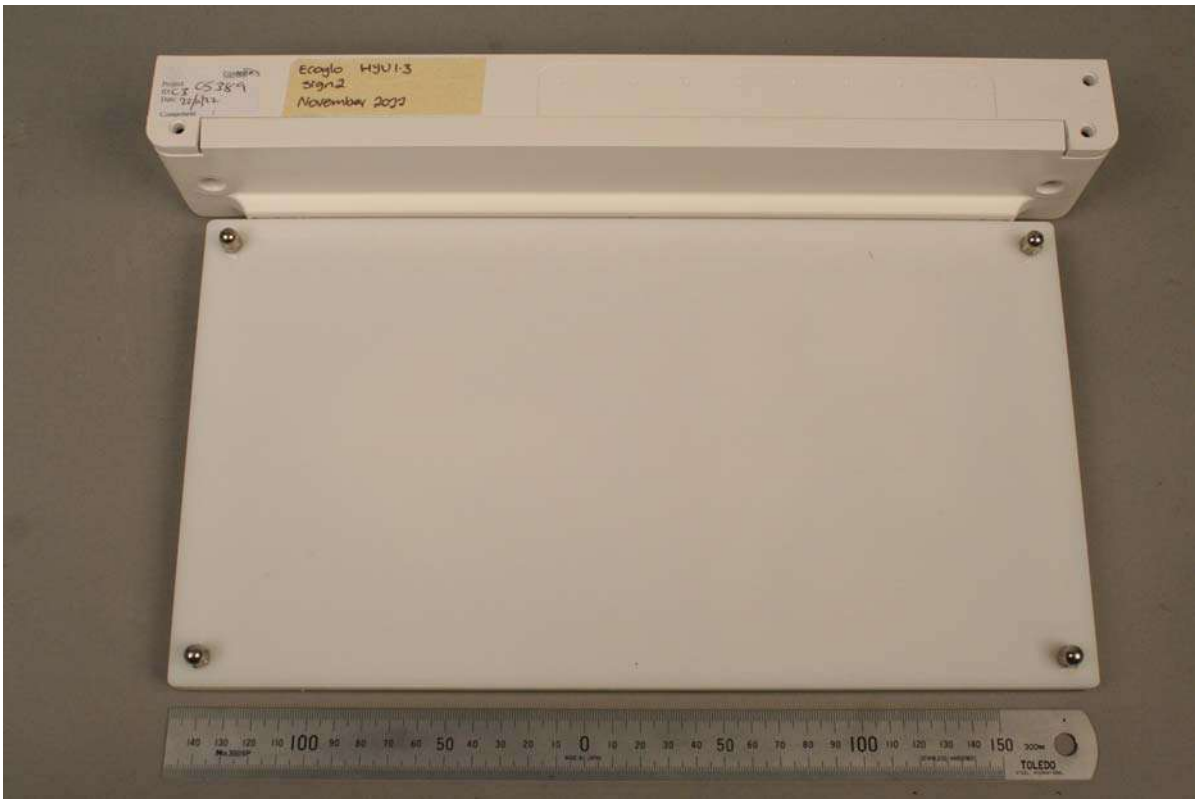
HYU2.3


Ecoglo HYU2.3
Sign GT
November 2022
HYU1.3-RML-24m
BCA E4P2 & NZBC F8
www.ecoglo.com
TOLEDO

HYU2.3


ecoglo
HYU1.3-RMR-24m
BCA E4P2 & NZBC F8
www.ecoglo.com
TOLEDO

HYU1.3


Ecoglo HYU1.3
Sign2
November 2011
TOLEDO

HYU1.3

Independent Test Laboratories Ltd
218A Annex Road
Middleton
Christchurch 8024
New Zealand

July 18, 2022

Mark Watson
Ecoglo International Ltd.
PO Box 7698,
Sydenham,
Christchurch, 8240,
NEW ZEALAND

Dear Mark,

The requested non-endorsed testing to SA TS 5367 Conditioning Test for 72 hours at 32 °C, 85 % RH and results for LED In-situ Case Temperature and Drive Current measurement was carried out, as attached.

The testing was completed on Model HYU2.2 as this was the electrically the same as model HYU1.2 the only difference was model HYU2.2 was a double sided sign with the removal of the rear white plastic sheet and the addition of artwork and acrylic cover.

This letter dated 18th July 2022 replaces the previous letter dated 29th June 2022 in regards to a clarification of the model tested.

This letter dated 29th June 2022 replaces the previous letter dated 8th June 2022 in regards to a clarification of the temperature and voltage the EUT was under during the measurements for the LED In-situ Case Temperature and Drive Current measurements, as otherwise environment was interpreted as the 32 °C, 85 % RH required for another lot of testing.

Please contact me for any further information regarding the testing and results.

Our reference: ITL SAF 221003-2.

Sincerely,

Brent Pearson
Product Safety Test Engineer

Results

Conditioning Test:

Conditioning test carried out on x8 samples for 72 hours at 32 °C, 85 % RH. See Figure 1. Required for SA TS 5367 Photometric Data Tests.

LED In-Situ Case Temperature and Drive Current Measurement Tests:

Measurement tests were conducted at 40 °C ± 2 °C ambient at 1.06 x rated voltage = 1.06 x 240 = 254.4 V.

LED In-Situ Case Temperature Measurement:

LED Case Temperature = 41.6 °C.

Drive Current Measurement:

Measured = 9.59 mA.

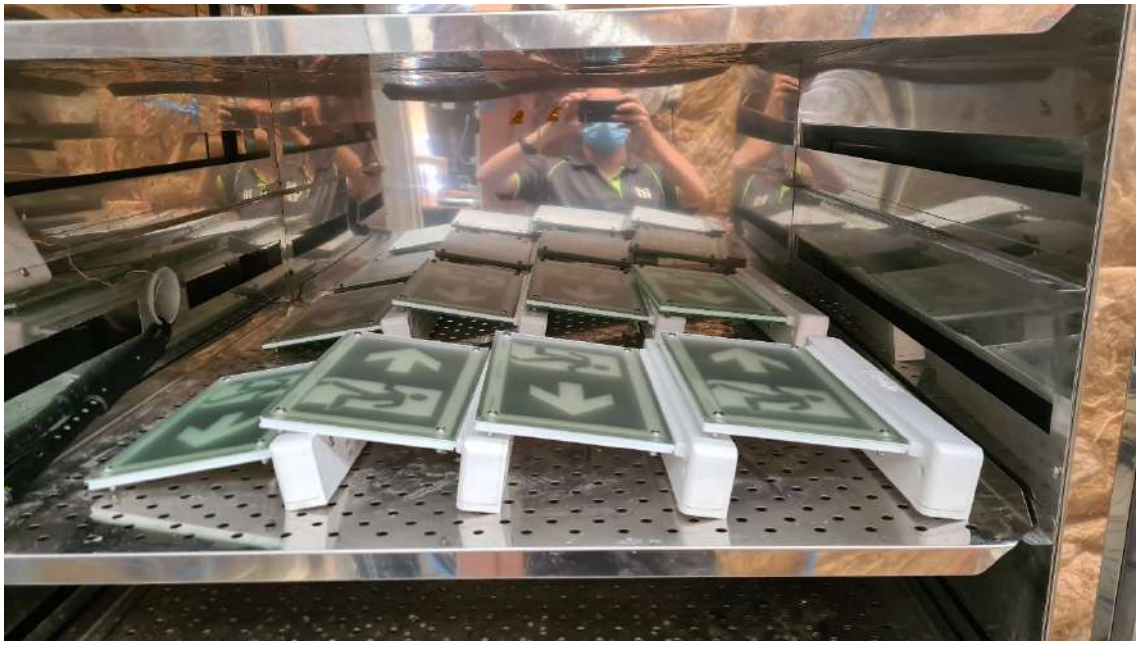


Figure 1: Samples in Environmental Chamber for Conditioning Test view.

Report Reference No.: ITL SAF 221003

Client:	Ecoglo International Ltd.		
Test Item:	Hybrid Internally Illuminated Sign/Luminaire.		
Identification:	Ecoglo.	**Model No.:**	HYU1.2 and HYU2.2.
Project No.:	ITL SAF 221003.	**Date Of Purchase Order:**	14/12/2021.
Testing Started:	14/03/2022.	**Testing Completed:**	02/06/2022.
Testing Location:	Independent Test Laboratories 218A Annex Rd, Middleton, Christchurch 8024, New Zealand		
Test Specification:	**IEC 60598.2.22:2019** Luminaires Part 2.4: Particular requirements – Luminaires for emergency lighting (IEC 60598-2-22, Ed. 4.1 (2017) MOD). Including national variations for: **AS 60598.2.22:2019.** In conjunction with: **IEC 60598-1 Ed 8.0** Luminaires Part 1: General requirements and test (IEC 60598-1, Ed. 8.0:2014, MOD). Including national variations for: **AS/NZS 60598.1:2017 + A1 + A2.**		
Test Result:	The test item **PASSED** as detailed in General Notes – Note 1. Reported compliance decisions do not include Measurement Uncertainty – Refer to General Notes.		
Testing Laboratory:	PowerLab Limited 5 Sheffield Crescent, Christchurch 8053, New Zealand		

Tested By:

Date	Name	Signature
09/06/2022	Brent Pearson	

Authorised Signatory:

Date	Name	Signature
09/06/2022	Manuel Shimasaki	

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation. Laboratory Accreditation Number: 42

International Accreditation New Zealand (IANZ) has a Mutual Recognition Arrangement (MRA) with International Laboratory Accreditation Cooperation (ILAC), such that both IANZ and National Association of Testing Authorities, Australia (NATA) recognize accreditations by IANZ and NATA as being equivalent.

Users of inspection reports / certificates are recommended to accept inspection reports / certificates in the name of either accrediting body.

Other Aspects:

Abbreviations: ***P*** *= pass* ***F*** *= fail* ***N*** *= not applicable* ***NT*** *= not tested*

This test report relates to the received test sample/s.

Report Reference No.: ITL ENV 201008

Client:	Ecoglo International Ltd.		
Test Item:	Hybrid Internally Illuminated Sign/Luminaire.		
Identification:	Ecoglo.	**Model No.:**	HYU1.2 and HYU2.2.
Project No.:	ITL ENV 201008.	**Date Of Purchase Order:**	26/05/2020.
Testing Started:	26/05/2020.	**Testing Completed:**	27/05/2020.
Testing Location:	Independent Test Laboratories 218A Annex Rd, Middleton, Christchurch 8024, New Zealand.		
Test Specification:	**AS/NZS 60598.1:2017 + A1:2017, Clause 9.2** Luminaires, Part 1: General requirements and test (IEC 60598-1, Ed. 8.0:2014, MOD). With reference to: **AS 60529-2004 (R2018)** Degrees of protection provided by enclosures (IP Code) (IEC 60529 Ed 2.1:2001).		
Test Result:	The test item **PASSED** Clause 9.2 only to IP44. Reported compliance decisions do not include Measurement Uncertainty – Refer to General Notes.		
Testing Laboratory:	PowerLab Limited 5 Sheffield Crescent, Christchurch 8053, New Zealand.		

Tested By:

09/06/2020	Brent Pearson	
Date	**Name**	**Signature**

Signatory:

09/06/2020	Manuel Shimasaki	
Date	**Name**	**Signature**

All tests reported herein have been performed in accordance with the Laboratory's terms of registration. Laboratory Registration Number: 42

International Accreditation New Zealand (IANZ) has a Mutual Recognition Arrangement (MRA) with International Laboratory Accreditation Cooperation (ILAC), such that both IANZ and National Association of Testing Authorities, Australia (NATA) recognize accreditations by IANZ and NATA as being equivalent.

Users of inspection reports / certificates are recommended to accept inspection reports / certificates in the name of either accrediting body.

Other Aspects:

Abbreviations: ***P*** *= pass* ***F*** *= fail* ***N*** *= not applicable*

This test report relates to the received test sample/s.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

Report Reference No.: ITL SAF 191058A*-1

Client:	Ecoglo International Ltd.		
Test Item:	Hybrid Internally Illuminated Sign/Luminaire.		
Identification:	Ecoglo.	**Model No.:**	HYU1.2 and HYU2.2.
Project No.:	ITL SAF 191058A*.	**Date Of Purchase Order:**	05/12/2020.
Testing Started:	03/05/2020.	**Testing Completed:**	12/06/2020.
Testing Location:	Independent Test Laboratories 218A Annex Rd, Middleton, Christchurch 8024, New Zealand.		
Test Specification:	**IEC 60598-1 Ed 8.0** Luminaires Part 1: General requirements and tests (IEC 60598-1, Ed. 8.0:2014, MOD). Including national variations for: AS/NZS 60598.1:2017 + A1.		
Test Result:	The test item **PASSED**. Reported compliance decisions do not include Measurement Uncertainty – Refer to General Notes.		
Testing Laboratory:	PowerLab Limited 5 Sheffield Crescent, Christchurch 8053, New Zealand.		

Tested By:

Date	Name	Signature
15/06/2022	Brent Pearson	

Authorised Signatory:

Date	Name	Signature
15/06/2022	Michael Renner	

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation, Laboratory Accreditation Number: 42

International Accreditation New Zealand (IANZ) has a Mutual Recognition Arrangement (MRA) with International Laboratory Accreditation Cooperation (ILAC), such that both IANZ and National Association of Testing Authorities, Australia (NATA) recognize accreditations by IANZ and NATA as being equivalent.

Users of inspection reports / certificates are recommended to accept inspection reports / certificates in the name of either accrediting body.

Other Aspects:

Abbreviations: ***P*** *= pass* ***F*** *= fail* ***N*** *= not applicable*

This test report relates to the received test sample/s.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

Report Reference No.: ITL SAF 191058A*-2

Client:	Ecoglo International Ltd.		
Test Item:	LED Driver.		
Identification:	Ecoglo.	**Model/Type No.:**	HYU1.2 and HYU2.2.
Project No.:	ITL SAF 191058A*.	**Date Of Purchase Order:**	05/12/2020.
Testing Started:	03/05/2020.	**Testing Completed:**	09/06/2020.
Testing Location:	Independent Test Laboratories 218A Annex Rd, Middleton, Christchurch 8024, New Zealand.		
Test Specification:	**IEC 61347-2-13 Ed. 1.0** Lamp controlgear Part 2.13: Particular requirements for d.c. or a.c. supplied electronic controlgear for LED modules (IEC 61347-2-13, Ed. 1.0:2006, MOD). Including national variations for: AS/NZS 61347.2.13:2013. In conjunction with: **IEC 61347-1 Ed. 3.0** Lamp controlgear Part 1: General and safety requirements (IEC 61347-1, Ed. 3.0:2015, MOD). Including national variations for: AS/NZS 61347.1:2016 + A1:2018.		
Test Result:	The test item **PASSED**. Reported compliance decisions do not include Measurement Uncertainty – Refer to General Notes.		
Testing Laboratory:	PowerLab Limited 5 Sheffield Crescent, Christchurch 8053, New Zealand.		

Tested By:

Date	Name	Signature
15/06/2022	Brent Pearson	

Authorised Signatory:

Date	Name	Signature
16/06/2022	Manuel Shimasaki	

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation, Laboratory Accreditation Number: 42

International Accreditation New Zealand (IANZ) has a Mutual Recognition Arrangement (MRA) with International Laboratory Accreditation Cooperation (ILAC), such that both IANZ and National Association of Testing Authorities, Australia (NATA) recognize accreditations by IANZ and NATA as being equivalent.

Users of inspection reports / certificates are recommended to accept inspection reports / certificates in the name of either accrediting body.

Other Aspects:

Abbreviations: ***P*** *= pass* ***F*** *= fail* ***N****= not applicable* ***NT*** *= not tested*

Test Report EMC

Test Location:
Independent Test Laboratories Ltd
218A Annex Road, Middleton,
Christchurch 8024, New Zealand

Test Laboratory:
PowerLab Limited
5 Sheffield Crescent,
Christchurch 8053, New Zealand

All tests reported herein have been performed in accordance with the Laboratory's terms of registration. Laboratory Registration Number: 42

Equipment under Test:

Applicant:	Ecoglo International Ltd
Manufacturer/Supplier:	Ecoglo International Ltd PO Box 7698 Sydenham Christchurch 8240 NEW ZEALAND
Project No:	ITL/EMC191144
EUT:	Ecoglo Hybrid Exit Sign Series
Brand/model:	HYU1.2, HYU2.2
EUT received:	4 December 2019

Applied standards:

Australian / New Zealand Standard (AS/NZS)	European Standard	IEC/CISPR-Standard
AS CISPR 15: 2017 AS/NZS CISPR 15: 2011	BS EN 55015: 2019	IEC / CISPR 15: Ed.9.0: 2018

Remarks to the Standards:	Tested to the requirements of the applied standard – "Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment".

Result:	**PASSED**

Date of issue:	24 January 2020	
Tested by:	Vinesh Chand ***Senior Test Engineer***	
Reviewed by:	Manuel Shimasaki ***IANZ Signatory***	

Appendix 4

Ecoglo International Ltd

Quality Assurance Document

Ecoglo International Ltd

QUALITY POLICY

E.I.L is a world leader in the manufacture of photoluminescent signage and path marking. We pride ourselves on our strong focus on compliance and durability. Our policy is to achieve sustainable growth by offering quality products and service. All of our staff are committed to continual quality improvement. The company has earned respect and credibility, at an international level, as a result of our contributions to building code development around photoluminescent system design.

E.I.L maintains an ISO 9001:2015 compliant Business Management System. Management will ensure that all staff are committed to the principles of this system and its continual development.

Our key objectives are:

- To ensure that all products meet contractual and relevant regulatory obligations, both national and international.
- To offer a cost effective and sustainable alternative to traditional electrical lighting that all areas of industry can adopt in a safe and practical manner.
- To offer the most durable photoluminescent products on the market and back them with the best warranty and after-sales support.
- To identify and implement new processes to reduce our product cost without increasing our environmental impact.

Our strategy to achieve these goals is:

- Maintain a high level of staff input on quality control.
- Focus on keeping our staff fully aware of our expected quality output.
- Explore all opportunities to improve our products and processes.
- Effectively recognise the limitations of our product range and work with our clients and competitors to deliver the best result for our clients.
- Be active and engaged in the wider fire safety industry.
- Review any complaints or criticism and use them to construct educational material that assists all levels of industry, both national and international.

Ecoglo International Ltd.

77 Kingsley Street
Christchurch, New Zealand
www.ecoglo.com

Signed: 

Name: Sam Haughey

Date: 30/06/2023

Appendix 5

Ecoglo International Ltd

Warranty

Ecoglo International Limited

Warranty for Hybrid Signs (HYUX.2)

1. The term of this warranty is **fifteen** years from the date of installation.

2. This warranty assumes correct installation and normal conditions of use and maintenance but does not cover normal wear and tear. This warranty does not cover deterioration due to abuse, mistreatment, natural disasters (eg. fire, flood), exposure to harmful chemicals or environments or any other use or exposure not recommended in our Signs literature. In particular, this warranty is void in the following circumstances:

   2.1 The Signs have been misused, neglected, damaged, abused or involved in an accident.

   2.2 The Signs have been improperly installed, operated, repaired or maintained.

   2.3 The Signs have been modified.

   2.4 The Signs have been used outside their stated specifications, capacity and operating parameters.

3. If you have a claim that, in our reasonable judgement, satisfies the terms of this warranty, we shall replace the defective Sign (product only).

4. This is an express warranty. It is your sole and exclusive remedy. We disclaim any other express or implied warranties, including warranties of merchantability or fitness for purpose, to the maximum extent permitted by law. Under no circumstances shall we accept liability for any injury to persons, damage to property, loss of profits, loss of operations or other direct, indirect, special, incidental, or consequential losses, costs and damages whether incurred by you, your guests, licensees, invitees or other third parties. Our liability under any circumstance, whether in contract, tort or otherwise, shall not, in the aggregate, exceed the price that you paid for the Sign.

5. Some countries do not allow certain disclaimers, limitations or exclusions in warranties. Therefore, the above disclaimers, limitations and exclusions may not apply to you. This warranty gives you specific legal rights. You may have other rights or remedies pursuant to the laws of your country. Nothing in this limited warranty should be construed as limiting or restricting any other right or remedy available to you, except as allowed by the law in your country.

Appendix 6

Ecoglo International Ltd

Maintenance and Cleaning Instructions

ecoglo®

VISIBLY BETTER

V23.1

Instructions For

Maintenance and Cleaning

Hybrid PL Exit Signs

Ecoglo International Limited
Email: info@ecoglo.com
www.ecoglo.com

Maintenance and Cleaning Instructions For Hybrid PL Exit Signs

Overview

- Regular maintenance and cleaning to remove any obstructions or built up dirt and deposits will help ensure Ecoglo Hybrid signs continue performing to expectation.

Monthly inspection should be carried out to check the following:

- All signs are still configured as at installation and there is no material damage to any of these products.
- All signs are clean from general dust build up and any other specific obscuring deposits.
- All signs are clearly visible and have not been covered up.
- All Ecoglo Hybrid signs are still illuminated.

Monthly preventative maintenance and responsive maintenance should be carried out to ensure the following:

- All signs are still configured as at installation and there is no material damage to any of these products.
- All signs are clean from general dust build up and any other specific obscuring deposits.
- All signs are clearly visible and have not been covered up.
- All Ecoglo Hybrid signs are still illuminated.

Dusting with a soft cloth should be enough to keep the sign clean. Do not use any cleaning agents on the sign.

For more comprehensive inspection and maintenance procedures check out the following video -
https://youtu.be/YLNH5TmvyLY

ecoglo®
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Ecoglo Fire Protection Product Trading
Address: 36-C Gloria Street, Barangay San Carlos,
Binangonan Rizal 1940, Philippines
Office: +632-8802-4760
Cell: +63 917 545 0090 (call / text / whatsapp / viber)
Email: InfoPHL@ecoglo.com
Web: www.ecoglo.ph / www.EcogloAsia.com /
www.EcogloVenues.com

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