

Illuminated School Bus Sign (ISBS) Type A,C & D Bus Models

Open Cavity (Replace Sign) Installation Instructions



FIRST LIGHT
SAFETY PRODUCTS

QUICK STEPS

1. Please read the instructions thoroughly.
2. Identify all parts and hardware.
3. Review the required tools.

1. Install sealing plates
2. Drill holes and install threaded inserts
3. Prepare electrical connections
4. Mount sign unit and fasten mounting hardware
5. Turn on sign unit(s) and test operation

NEED PRODUCT SUPPORT?

Our technical support team is available Monday to Friday, 8 a.m. to 5 p.m. CST

Please have the following information ready:

Serial Number | Date of Purchase | Dealer of Purchase

- Contact us:**
- www.firstlightsafety.com
 - techsupport@firstlightsafety.com
 - toll-free in North America 866.216.2605

Find additional support documents on our website:
<https://www.firstlightsafety.com/document-library/>



Scan the QR code to see the
Installation Instruction video

WARNING!

IMPORTANT: PLEASE READ ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLING. FAILURE TO DO SO MAY CAUSE PERSONAL INJURY OR DAMAGE TO PRODUCT AND/OR PROPERTY.

This manual has been created for basic informational purposes only. The activities described herein can be dangerous unless proper safety precautions are taken. If you are not comfortable or are inexperienced with the processes and tools described in this manual, you should not attempt to install the product. These instructions do not purport to cover all details or variations in the equipment and do not claim to provide for every possible contingency met in connection with the installation. Installation of this product should always be performed by a qualified technician and in accordance with safe work procedures. First Light Safety Products (a division of Smartrend Manufacturing Group (SMG), Inc., hereinafter "First Light Safety Products") shall not be held responsible for any errors or omissions respecting installation as they are the responsibility of the installing technician and/or the customer. First Light Safety Products does not make any representation, warranty, guarantee or condition respecting third-party installation or any other service provided by a third-party, and any such representations perceived by the reader/customer are hereby fully disclaimed. Any reliance on this manual is solely at the risk of the customer/reader. First Light Safety Products assumes no responsibility for other's use of this manual and hereby expressly disclaims any and all liability to any party for any direct, indirect, implied, punitive, special, incidental or other consequential damages arising directly or indirectly from any improper or incorrect use of this manual.

Have Questions?

866.216.2605 | techsupport@firstlightsafety.com

Type A, C & D Bus Models Open Cavity (RS)

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RECOMMENDED TOOLS

1. Ladder
2. Masking Tape
3. Marker
4. Center Punch
5. 1/8" Allen Key
(Mounting Screws)
6. Caulking Gun
7. Multimeter
8. Drill Bits and Drill
 - Stepper Bit recommended up to final size
 - Sign Power Cable (3/4" Pilot Hole)
 - Rivet Nuts (25/64" Pilot Hole)
 - Plus Nut (11/32" Pilot Hole)
 - Low Profile Rivet Nuts (A/C) (7/16" Pilot Hole)
9. Threaded Insert Tool (Manual)
 - 7/8" Wrench
 - 11/16" Wrench or Socket
 - 5-32 Allen Key

* Rivet Nut Installation Tool is available for purchase Part Number: 100521

OPEN CAVITY - REPLACE SIGN (Type A/C Bus Models)

| PART NUMBER | DESCRIPTION | FITS MODEL YEAR | SIGN-FRONT | SIGN-REAR | SEALING PLATE | FRAME HARDWARE KIT | FRAME HARDWARE KIT AC | RIVNUTS | RIVNUTS LP AC | PLUS NUTS | SIGN POWER HARNESS | SILICONE |
|-------------|-------------|-----------------|------------|-----------|---------------|--------------------|-----------------------|---------|---------------|-----------|--------------------|----------|
| | | | REFERENCE | A1 | A2 | B1 / B2 | C1 / C2 | D1 / D2 | E1 / E2 | F1 / F2 | G1 / G2 | H1 / H2 |
| 100787 | BB VISION | 2003 - 2022 | 1 | 1 | 2 | 2 | - | 12 | - | - | 2 | 1 |
| 100804 | IC CE | 2005 - PRESENT | 1 | 1 | 2 | 2 | - | 10 | - | - | 2 | 1 |
| 102124 | TBB HDX/EFX | 2006 - PRESENT | 1 | 1 | 2 | 2 | - | 5 | - | 5 | 2 | 1 |
| 102126 | TBB DRW | 2006 - PRESENT | 1 | 1 | 2 | 2 | - | - | - | 10 | 2 | 1 |
| 102128 | TBB SRW | 2006 - PRESENT | 1 | 1 | 2 | 2 | - | - | - | 10 | 2 | 1 |

SETS INCLUDE 2 BOXES

Box 1

- Sign Unit Front (A1)
- Sealing Plate (B1)
- Frame Hardware Kit (C1-D1)
- Threaded Inserts (E1-F1-G1)
- Sign Power Harness (H1)
- Silicone (I1)

Box 2

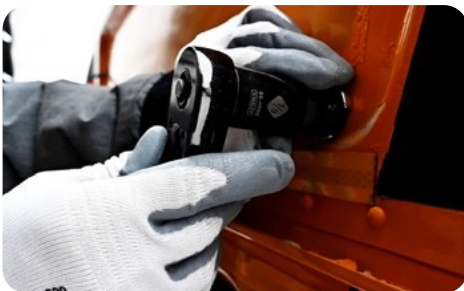
- Sign Unit Rear (A2)
- Sealing Plate (B2)
- Frame Hardware Kit (C2-D2)
- Threaded Inserts (E2-F2-G2)
- Sign Power Harness (H2)

STEP 1 - PREPARE SIGN LOCATION AND INSTALL SEALING PLATE(S)



- a. Remove existing open cavity sign components and any gasket or sealing material.
 - Ensure to disconnect vehicle power before removing existing lighting/wiring
 - Maintain existing power wires for later connection to sign power harness (H)
- b. Clean off any remaining adhesive or residue on the bulkhead left from the discarded components.
- c. Locate the supplied sealing plates (B) and silicone (I).
- d. Apply a continuous bead of silicone around the outside perimeter of the opening.
- e. Press the sealing plate into the silicone bead.
- f. Ensure the sealing plate is oriented with the middle power cable hole on the left side.
- g. Mark the hole locations with a marker and indent hole locations with center punch for ease of drilling step.

STEP 2 - DRILL HOLES AND INSTALL THREADED INSERTS



- a. Drill pilot holes for the mounting locations and power cable. It is recommended to increase the hole sizes incrementally for best results. If an A/C (air conditioning) unit is present, disconnect support screws and shift A/C unit forward before drilling to avoid any damage.
- b. Use proper pilot hole drill bit for the perimeter corner mounting holes. Refer to tools list for drill bit size depending on type of threaded insert being used.
- c. Use 3/4" drill bit for the power cable hole.
- d. Install threaded inserts (E/F/G) using manual tool or equivalent electronic or pneumatic options.
- e. Ensure installation is secure and flange is seated to the surface of the bulkhead. Refer to rivet nut installation guide available at www.firstlightsafety.com/document-library/ for more detail.

STEP 3 - PREPARE ELECTRICAL CONNECTIONS



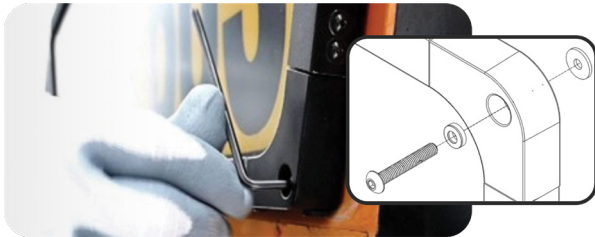
- a. Locate the existing vehicle power wires remaining in the bulkhead from the previous step.
- b. Strip the wire insulation 11mm (7/16").
- c. Connect the sign power harness (H) to the vehicle power wires using the supplied Wago quick connectors.
 - Ensure the polarity between the existing vehicle power wires and the sign power harness is the same. Verify with a multimeter, if required. Color schematic may be different between the vehicle and the sign unit.

STEP 3 - PREPARE ELECTRICAL CONNECTIONS CONTINUED



- d. ISBS power requirements:
- 12 Volts and 3.5 Amps (max)
 - White wire (Power) and Black wire (Ground)

STEP 4 - MOUNT SIGN UNIT AND FASTEN MOUNTING HARDWARE



- a. Assemble the mounting hardware (C/D) into the frame as shown on the packaging label (10-32 screw, bonded washer and sealing washer).
- b. Connect the Delphi MP150 connector between the sign unit (A) and sign power harness (H).
- c. Ensure the power cable grommet is seated into the 3/4" hole and the cable is pushed into the bulkhead as the sign is positioned for mounting.
- d. Start to thread each mounting screw before fully tightening to the recommended torque (25-40 in-lbs).

STEP 5 - TURN ON SIGN UNIT(S) AND TEST OPERATION



- a. Restore electrical power to the vehicle. Turn on the vehicle and verify the sign illuminates and operates properly.
- b. ISBS power requirements:
- 12 Volts and 3.5 Amps (max)
 - White wire (Power) and Black wire (Ground)

TROUBLESHOOTING

1. Ensure the vehicle engine is running.
2. Use a multimeter to test circuit wiring.
3. Inspect fuse.
4. Check the polarity between the sign and the power harness.