Larson Electronics LLC
9419 E US HWY 175, Kemp, TX 75143
Phone: 800.369.6671

www.LarsonElectronics.com
Email: sales@LarsonElectronics.com
Fax: 903.498.3364

EPL-AEB-16.16.8

Explosion Proof Enclosure, C1D1, 16" x 16" x 8" Internal Dims, Surface Mount, N3R

Product ID: 224416



Larson Electronics LLC manufactures a wide variety of products, including custom built to spec designs. The pictures displayed for this unit are a general representation of form factor for the product line and may not accurately represent this exact configuration in every detail due to custom builds and changes between similar products in our standard catalog. The specifics for this configuration are listed in the specification table and supporting documentation (CAD files, Dimensional Drawing, Name Plate Diagram, Wiring Diagram, etc.). This means that specific details (receptacles, plugs, wires, connections, mounting brackets, external finishes, etc.) may not be accurately represented in images vs specifications. Please review specifications and do not order based solely on images.

EPL-AEB-16.16.8 Explosion Proof Enclosure

Listing: United States, Canada
Internal Dimensions: 16" (406mm) L x 16" (406mm) H x 8" (203mm) D
External Dimensions: 20.38" (517.65mm) L x 20.38" (517.65mm) H x 11.19" (284.23mm) D
Pan Dimensions:14" (355.6mm)L x 14" (355.6mm)W
Available Dimensions for Devices: 15.37" (390.4mm) L x 15.37" (390.4mm) H x 8.00" (203.20mm) D
Weight: 138 lb (62.65 kg)
Maximum Conduit Size: 5” NPT
Maximum Operators on Lid: 36 (6 rows of 6)
Total Hub Quantity: 0
Lid (Top) Hubs: 0
North Side Hubs: 0
South Side Hubs: 0
East Side Hubs: 0
West Side Hubs: 0
Bottom (Back/Base) Hubs: 0
Conduit: Operator Provided
Operating Window: N/A
Hinges Included: No
Hinges Material: N/A
Internal Mounting Pan Included: N/A
Internal Mounting Pan Taps: N/A
Internal Mounting Pan Material: N/A
Internal Mounting Pan Dimensions: N/A
Internal Grounding Lug: N/A
Breather Plug: N/A
Drain Plug: N/A
Suggested Operator Series: Long Length

Features/Ratings

Listed for NEC and CEC
Class I, Divisions 1 & 2, Groups B**, C, D
Class I, Zones 1 & 2, Groups IIB+H2, IIA
Class II, Divisions 1 & 2, Groups E, F, G
Class III, Divisions 1 & 2
NEMA 3R, 4, 7, 9
UL 886 Certified
UL 698 Certified
UL 1203 Certified
CSA C22.2 No 30 Certified

**Conduit seals required within 18" for Group B applications

Replacement Internal Mounting Pan: %PAN%

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Ambient Operating Temp Range: -30Â° C to +85Â°C
Operating Temp Rating: T5/T6 Rated
Enclosure Material: Copper Free Cast Aluminum (less than 4/10 of 1%)
Hardware Material: Zinc Plated Steel
Enclosure Finish: Aluminum Lacquer Paint; Custom Available
Mounting: Surface Mount Legs
Mounting Leg Height: 0.25"
Mounting Dimensions Height: 10.94" (277.88mm) Center to Center
Mounting Dimensions Width: 18.94" (481.08mm) Center to Center
Shipping Weight: 198 lb
Shipping Dimensions: 48"L x 48"W x 21"H
All grounding shall comply with state and local codes and meet the minimum requirements of the National Electronic Code section 250

Special Orders - Special Requirements
Contact us for special requirements

Toll Free: 1-800-369-6671
Intl: 1-903-270-1187
Fax: 1-903-498-3364
E-mail: sales@larsonelectronics.com

The EPL-AEB-16.16.8 from Larson Electronics is an Explosion Proof Enclosure that provides operators with a Class I and II, Divisions 1 and 2 cast aluminum enclosure designed to hold electrical equipment up to 16" by 16" by 8" in size. This explosion proof enclosure is ideal for indoor or outdoor applications where flammable vapors, gases, or dusts exist or stand the potential to exist.

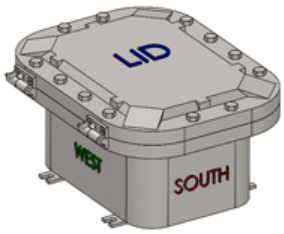
PLEASE NOTE: ANY FREE SHIPPING OFFERS DO NOT APPLY TO EXPLOSION PROOF ENCLOSURES

The EPL-AEB-16.16.8 explosion proof enclosure is made of cast aluminum, equipped with steel bolts and includes a weatherproof gasket for a NEMA 3R / NEMA 4 protection rating. This hazardous location device enclosure box is NEMA 7 (Groups B, C, and D) and NEMA 9 (Groups E, F, and G) rated. The internal cavity of this flameproof enclosure measures 16" in length by 16" in width by 8" in height. A backplate is available for this unit at an extra cost.

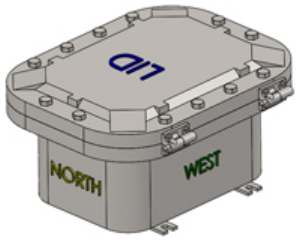
The EPL-AEB-16.16.8 explosion proof enclosure has a maximum input/output conduit size of 5? NPT. The enclosure does not come with conduit hubs. Customized conduit taps can be factory drilled using Larson Electronics CNC machines at an additional cost. The lid of the enclosure allows for a maximum of 36 Long operator devices (switches, push buttons, indicator lights, etc) in a configuration of 6 rows of 6. Customized boxes with selected operators can be factory installed at customer`s request.

This explosion proof enclosure is designed to house a wide range of compact electronics, control stations, meters, relays, starters, circuit breakers, terminal blocks and industrial equipment, for safe use in combustible work sites. Other applications include systems requiring junction, pull and/or splice boxes.

Click Photos to Enlarge

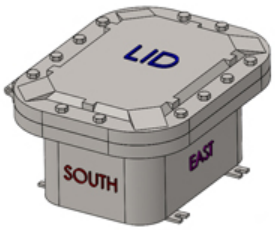


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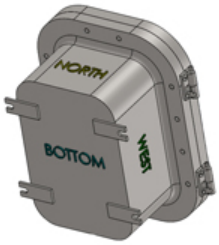


Click To Enlarge

Larson Electronics can customize each unit with drilled and tapped operator hubs and/or conduit hubs per customer request. Please view the above and below images for orientation. When looking at the top cover (labeled Lid), all four sides are labeled for the orientation when looking at the Lid. All hubs are CNC machined for precision. Please see below specifications table for included taps and dimensional drawing for exact locations.



Click To Enlarge



Click To Enlarge

Construction: Each unit in the EPL-AEB series is certified to NEC standards for United States and CEC Canada. We offer an ATEX/IEC Ex model for global applications (ATEX-EPL-AEB series). These explosion proof enclosures are NEMA 3R rated, for indoor and outdoor use and provide a degree of protection against dirt, water, and ice. NEMA 4X equipment can be equipped upon request. NEMA 4X models include all stainless steel external hardware. Operator lid hinges can be fitted on the enclosure for regular opening and closing. Breather plugs, drain plugs, and grounding lugs can be added at customer request.
Customization: Larson Electronics can customize this explosion proof enclosure for compatibility with existing systems, assemblies, work flows and processes or assist in designing units for new installation. We can add indicator lights, windows, hinges, operator handles, push button switches, momentary push button switches, emergency stop push buttons, selector switches, on/off switches, terminal blocks, relays, PLCs, mounting pans and more. Customized labels are also available for each operator in order to meet various requirements.
Unless otherwise specified in the specification tables and drawing, each unit comes without factory conduit hub taps. Conduit openings can be tapped on all sides and back of the explosion proof enclosure. Tapping of conduit hubs is facilitated at Larson Electronics using a CNC machine for precise cutting. Larson Electronics offers customization on conduit opening size and locations. Taps include female NPT (National Pipe Thread), female BSPT (Bristish Standard Pipe Thread), and Metric ISO thread. Please contact us for specific requirements. Additional equipment can be provided from factory, including nipples, unions, seal-offs, and operator devices.
Suggested Applications: The EPL-AEB series of explosion proof enclosures are approved for use within indoor and outdoor environments where flammable or combustible gases, vapors, dusts, fibers, and flying exist or stand the potential to exist, and is ideal for a wide variety of applications.
Applications include but not limited to aircraft maintenance, alcohol processing, aerospace, chemical manufacturing, coke processing, cold storage, compressed natural gas (CNG) facilities, cranes, cryogenics, distilleries, food processing, fuel storage, gas processing plants, grain processing, laboratories, liquefied natural gas (LNG) facilities, liquid propane gas (LPG), machine operations, manufacturing, marine vessels, methane production, mining, offshore, oil drilling rigs, oil refineries, paint spray booths, paper processing, petrochemical, petroleum refineries, pharmaceuticals, power plants, production refineries, sand blast cabinets, sewage and septic tanks, shipyards, solvent and cleaning areas, storage facilities, tank farms, tankers, textile, washdown areas, waste treatment plants, and woodworking. Click here to read the NEC description for explosion proof and hazardous locations.
At Larson Electronics, we do more than meet your lighting needs. We also provide replacement, retrofit, and upgrade parts as well as industrial grade power accessories. Our craftsmen can custom build any lighting system and/or accessories to fit the unique demands of your operation. A commitment to honesty, quality, and dependability has made Larson Electronics a leader in the lighting and electronics business since 1973. Contact us today at 800-369-6671 or message sales@larsonelectronics.com for more information about our custom options tailored to meet your specific industry needs.









Certification

Manufacturer: Larson Electronics LLC
Address: 9419 US-HWY 175
Kemp, Texas 75143

Declare the following equipment conforms to the standard(s) as listed:

Model: EXP-AEB Series
Description: Explosion Proof Enclosure

Evaluated Listings:

UL: E83969 – NEC / United States standards
CSA: 1723354 – CEC / Canada standards
ATEX: PTB 07 ATEX 04 **–** ATEX standards
IEC Ex: IECEx QPS 17.0014X – IEC Ex / International standards
ETL: Modifications to enclosure under UL 1203, UL 508A – NEC / United States standards
ETL: Modifications to enclosure under CSA C22.2 No. 14, No. 30, No. 25– CEC / Canadian standards

The EXP-AEB Series is certified to NEC, CEC, ATEX, and IEC Ex standards for hazardous locations for:

- NEC: Class I, Divisions 1&2, Groups B, C, D; Class II, Divisions 1&2, Groups E, F, G
- NEC: Class I, Zones 1 & 2, Groups IIB + H2, IIA
- CEC: Class I, Divisions 1&2, Groups B, C, D; Class II, Divisions 1&2, Groups E, F, G
- CEC: Class I, Zones 1 & 2, Groups IIB + H2, IIA
- ATEX: Ex II 2 G D Ex d IIB+H2 T6 or T5, Ex II 2 G Ex tD A21 IP66 80°C or 95°C
- IEC EX: Ex db IIB+H2 Gb T6 or T5, Ex tb IIIC Db IP66 T85°C ot T100°C, -60°C ≤ Ta ≤ +70°C, -50°C ≤Ta≤+70°C

The EPL-AEB Series is comprised of a Killark EXP or EXBLT series device enclosure. This device enclosure may be modified with custom hub locations and external or internal mounting accessories, custom mounting of electronics, wire connections. This assembly is built to NEC, CEC, ATEX, and IEC standards for hazardous locations.

Signed for and on behalf of: Larson Electronics, LLC
Place of issue: Kemp, TX

Signature: James Thomas

Name: James Thomas
Position: Operations Manager

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Product Description

Title:	INDUSTRIAL CONTROL PANELS
Company:	LARSON ELECTRONICS LLC - Kemp, TX USA
Product Information:	Industrial Control Panels For General Use.
Evaluated to the following:	A representative sample of the listed devices have been tested, investigated and found to comply with the requirements of the Standard(s) for Industrial Control Panels (UL-508A) and are identified with the ETL Listed Mark.

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Contact Us

ETL listed products that are in doubt or for products that do not appear in the directory, please request a verification of certification.
Americas+1-888-347-5478 (or +1-847-660-7407)
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Product Description

Title:	EXPLOSION-PROOF & DUST IGNITION-PROOF ELECTRICAL EQUIPMENT FOR USE IN HAZARDOUS (CLASSIFIED) LOCATIONS
Company:	LARSON ELECTRONICS LLC - Kemp, TX USA
Product Information:	Explosion-proof or dust-ignition-proof Industrial Control Panels for use in Hazardous (Classified) Locations, Model Nos. Custom Industrial Control Panels
Evaluated to the following:	A representative sample of the listed devices have been tested, investigated and found to comply with the requirements of the Standard(s) for Explosion-Proof and Dust Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations (UL-1203) and are identified with the ETL Listed Mark.

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Product Description

Title:	INDUSTRIAL CONTROL EQUIPMENT
Company:	LARSON ELECTRONICS LLC - Kemp, TX USA
Product Information:	Industrial Control Panels For General Use. Industrial Control Panels Relating to Hazardous (Classified) Locations, Custom Industrial Control Panels. Power Distribution System, Model Nos. MGL, MPD, MGS series; Followed by AAK-PBB.FFF-SCC.GGG-EEXCCC.DDD; Where AA = 2,3,5,7,9,15,20,25,30,45,50,75; BB = 1P, 3P; FFF = 480,240,208,120; CC = 1P,3P; GGG = 480,240,208,120; EE = # of outlets; CCC = voltage; DDD = outlet amperage.
Evaluated to the following:	A representative sample of the listed devices have been tested, investigated and found to comply with the requirements of the Standard(s) for Industrial Control Equipment (CAN/CSA-C22.2 No. 14) and are identified with the cETL Listed Mark.

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Product Description

Title:	ENCLOSURES
Company:	LARSON ELECTRONICS LLC - Kemp, TX USA
Product Information:	Explosion-proof or dust-ignition-proof Industrial Control Panels for use in Hazardous (Classified) Locations, Model Nos. Custom Industrial Control Panels Luminaires, Model Nos. EPL-48-2L-LED-SFC, EPL-24-2L-LED-SFC. for use in Hazardous Locations: Class I, Div. 1, Groups C and D T5 or T6 -20°C < Tamb < 40°C Class II, Div. 1., Groups E, F, and G; Class III Div.1 T3B -20°C < Tamb < 40°C
Evaluated to the following:	A representative sample of the listed devices have been tested, investigated and found to comply with the requirements of the Standard(s) for Enclosures for use in Class II, Groups E, F, G Hazardous Locations (CAN/CSA-C22.2 No. 25) and are identified with the cETL Listed Mark.

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Product Description

Title:	EXPLOSION-PROOF ENCLOSURES FOR USE IN CLASS I HAZARDOUS LOCATIONS
Company:	LARSON ELECTRONICS LLC - Kemp, TX USA
Product Information:	Explosion-proof or dust-ignition-proof Industrial Control Panels for use in Hazardous (Classified) Locations, Model Nos. Custom Industrial Control Panels
Evaluated to the following:	A representative sample of the listed devices have been tested, investigated and found to comply with the requirements of the Standard(s) for Explosion-Proof Enclosures for Use in Class I Hazardous Locations (CAN/CSA-C22.2 No. 30) and are identified with the cETL Listed Mark.

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Material Safety Data Sheet

To Whom It May Concern,

The Larson Electronics LLC EPL-AEB industrial line of enclosures for hazardous locations are considered "ARTICLES" under 29 CFR 1910-1200, the OSHA Hazard Communication Standard, and do not require a Material Safety Data Sheet (MSDS). This document does not expire.

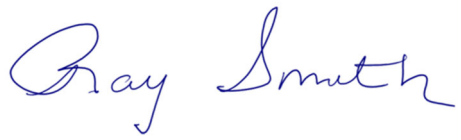
Articles are specifically exempt from the regulations of this standard. OSHA defines an article as follows:

1910-1200(c) – Article means a manufactured item other than a fluid or particle:

i. Which is formed to a specific shape or design during manufacture;
ii. Which has end use function(s) dependent in whole or in part upon its shape or design during end use; and
iii. Which under normal conditions does not release more than very small quantities.

The "hazardous location" and "explosion proof" are terminology for the environment where these products will be installed. This is not to be confused with "hazardous materials;" this product does not contain any hazardous materials.

Regards,



Ray Smith
Larson Electronics, LLC.

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CERTIFICATE OF COMPLIANCE

Certificate Number	20170907-E83969
Report Reference	E83969-19871112
Issue Date	2017-SEPTEMBER-07
Issued to:	KILLARK, DIV OF HUBBELL INC (DELAWARE) 3940 MARTIN LUTHER KING DR ST LOUUIS MO 63113
This is to certify that representative samples of	Enclosures for Use in Class I, Groups B, C, and D; Class II, Groups E, F and G, Models EXB and EXBLT, followed by P or C, followed by three numbers, may be followed by -N34, -SPM, -MOD, -N4, -N4X, and/or -N4XTL. Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	UL 1203, Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations. CSA C22.2 No. 25-M1966, Enclosures for Use in Class II Groups E, F, and G Hazardous Locations (R2014). CAN/CSA C22.2 No. 30-M1986, Explosion-Proof Enclosures for Use in Class I Hazardous Locations
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product

Bruce Mahrenholz, Director North American Certification Program

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at http://ul.com/aboutul/locations/

Certificate of Compliance

Certificate: 1723354 **Master Contract:** 151933

Project: 80001569 **Date Issued:** 2019-05-21

Issued To: **Killark, Div of Hubbell Inc. (Delaware)**
3940 Dr. Martin Luther King Dr.
St. Louis, Missouri, 63113
United States

Attention: Thomas J. Michalski

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.

Issued by: *Domenic Somma*
Domenic Somma

PRODUCTS

CLASS - C321802 - INDUSTRIAL CONTROL EQUIPMENT Motor Controllers - Auxiliary Devices-For Hazardous Locations
CLASS - C321882 - INDUSTRIAL CONTROL EQUIPMENT-Motor Controllers-Auxiliary Devices For Hazardous Locations-Certified to U.S. Standards

Class I, Div. 1, Groups B, C and D; Class II, Div. 1, Groups E, F and G; Class III, Div. 1; Encl. Types 3 and 4 (where applicable).

Control stations, Series EXB, with or without auxiliary devices (91 max) and/or rectangular or round windows, Series Cat Nos: EXB-664, -684, -6124, -886, -8104, -8106, -8126, -8128, -10106, -10108, -10146, -10148, -12126, -12128, -12186, -12188, -12246, -12248, -122412, -12368, -123610, -14146, -14148, -16166, -16168, -16248, -162410, -18186, -18188, -18248, -182410, -18308 -18368, -183610, -203611, -24248, -242410, -24368, -243610 and 24308; max conduit size 6 in.

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Certificate: 1723354 **Master Contract:** 151933
Project: 80001569 **Date Issued: 2019-05-21**

Control stations, Series EXBLT, with or without auxiliary devices (91 max) and/or rectangular or round windows, Series Cat Nos: EXBLT-664, -684, -686, -6124,-6126, -886, -8104, -8106, -8126, -8128,-9116, -10106, -10108, -10146, -10148, -12126, -12128, **12186, -12188, -12246, -12248, -122412, -14146, -14148, -14248, -14308, -16166, -16168, -16248, -162410;** max conduit size 6 in.

Notes:

1. Series EXB and EXBLT control stations may be furnished with blank mounting pans and Certified terminal blocks (secured to mounting pan).

2. Control stations are equipped with hinged covers.

3. Control stations may be provided with submittor's Certified Series "G" auxiliary devices (eg. pushbuttons, pilot lights, selector switches etc.) rated 600V max.

4. Instruction sheets packed with each unit.

5. Series EXB and EXBLT control station when followed with suffix N34 denotes Encl. Types 3 and 4.

6. The overall hazardous location designation is governed by the lowest hazardous location rating of any auxiliary device used.

1. Series EXB Control station may be provided with rectangular (9 x 9 in) max or round (7-3/4 in max) window(s) viewing area on the cover.

APPLICABLE REQUIREMENTS

CAN/CSA-C22.2 No 0-10	-	General Requirements
CAN/CSA-C22.2 No. 14-M91	-	Industrial Control Equipment
CSA Std C22.2 No. 25-1966 (R2009)	-	Enclosures for Use in Class II, Groups E, F and G Hazardous Locations
CSA Std C22.2 No. 30-M1986(R2012)	-	Explosion-Proof Enclosures for Use in Class I Hazardous Locations
C22.2 No. 94.1-07(R2012)	-	Enclosures for Electrical Equipment, Non-Environmental Considerations
C22.2 No. 94.2-07(R2012)	-	Enclosures for Electrical Equipment, Environmental Considerations
ANSI/UL 1203 Ed 5	-	Explosion-Proof and Dust-Ignition-Proof Electrical Equipment For use in Hazardous (Classified) Locations
UL50 (Ed 12)	-	Enclosures for Electrical Equipment, Non-Environmental Considerations

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Certificate: 1723354 **Master Contract:** 151933
Project: 80001569 **Date Issued: 2019-05-21**

UL50E (Ed 1)	- Enclosures for Electrical Equipment, Environmental Considerations
UL Standard 508	- Electric Industrial Control Equipment

MARKINGS

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and U.S. Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only.

- The CSA Mark with the C US qualifier adjacent to the CSA Mark
- Company name/logo or CSA File No.
- Hazardous location designation;
- Catalogue number, style, or designation;
- Complete electrical ratings (If equipped with control devices).
- Date code and/or serial number
- Enclosure Types 3 and or 4 (where applicable)

BILINGUAL CAUTIONS:

- " A SEAL SHALL BE INSTALLED WITHIN 18 INCHES OF THE ENCLOSURE."
- "UN SCELLEMENT DOIT ETRE INSTALLE A MOINS DE 18 POUCES DU BOITIER."
- "COVER JOINTS MUST BE CLEANED BEFORE REPLACING COVER." "NETTOYER LES SURFACES DE CONTACT DU COUVERCLE AVANT DE LE REMETTRE EN PLACE."
- "KEEP COVER TIGHT WHILE CIRCUITS ARE ALIVE." "GARDER LE COUVERCLE BIEN FERME TANT QUE LES CIRCUITS SONT SOUS TENSION."

- Caution "WARNING: MORE THAN ONE LIVE CIRCUIT SEE DIAGRAM" and "AVERTISSEMENT: CET EQUIPMENT REN-FERME PLUSIEURS CIRCUITS SOUS TENSION VOIR LE SCHEMA". (If equipped with control devices)
- To prevent external fire or explosion, do not connect to a circuit capable of delivering more than 10,000 RMS symmetrical amperes

Markings shall appear on a metal nameplate at least 0.02 in thick, permanently attached to the enclosure by means of drive screws or pins.

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Supplement to Certificate of Compliance

Certificate: 1723354 **Master Contract:** 151933

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
80001569	2019-05-21	Update to Certificate 1723354, CPB 70172604 to expand Series EXBLT Explosion Proof Enclosures sizes EXBLT-12186 to 162410 for use in Class I, Div. 1, Groups B, C and D; Class II, Groups E, F and G; Class III; Enclosure Types 3 and 4 (where applicable).
000070172604	2018-03-02	Update to Certificate Report 1723354 (CPB 70010980)to cover alternate construction of Series EXB enclosures having thinner walls.
000070010980	2014-11-06	UPDATE TO CERTIFICATE 1723354 (PROJECT BIN 70007902) TO ADD ALTERNATE CEMENT FOR THE LENS TO COVER JOINTS FOR SERIES EXB CONTROL STATIONS.
0002205523	2010-02-02	Update to certificate 1723354 to add Control Station EXB-24308 and Round Windows Type GL 537, GL 600 & GL 775 for use in Cl. I, Gr. B, C & D; CL. II, Gr. E, F & G; CL. III
0002189800	2009-07-15	Update to certificate 1723354 to add US requirements to Control Station Series EXB for use in Cl. I, Gr. B, C & D; CL. II, Gr. E, F & G; CL. III
0002161864	2009-04-08	Update to certificate 1726654 to add Control Station EXB-18308 for use in CI.I, Gr.B, C & D; CL. II, Gr.E, F & G, CL. III
0001723354	2005-12-06	Update to Report LR11714-65 to add Control Stations Series Cat. No EXB-684 and -6124

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Engineering Specification

Larson Electronics LLC
9419 US-HWY 175
Kemp, Texas 75143

Name: **LARSON ELECTRONICS' MODIFIED SAE ALUMINUM ALLOY 310** Part #: **EPL-AEB**

Purpose: This specification establishes requirements for aluminum sand casting alloy used in Larson Electronics' products.

Applicability: This specification is applicable to all modified SAE 310 secondary aluminum sand casting alloy purchased and used by foundries producing sand castings for Larson Electronics. Cross reference to modified SAE 310 is modified ANSI, ASTM or AA No. 712.2.

Authority: Revisions to this specification shall be granted only after being submitted to Product Engineering for approval.
All casting drawings using this specification should have the material called out in the "Notes" area as follows:

"MATERIAL: Modified SAE 310 Aluminum Alloy per Larson Electronics' Engineering Specification APL-AEB."

General: Product Engineering must investigate any changes that could affect third party listings or approvals. Changes may require resubmittal to one or more third party agencies (e.g. for Factory Mutual use Form 797).

1.0 General

Modified SAE 310 aluminum sand casting alloy is used for general structural castings requiring high strength and shock resistance without requiring heat treating.
The 310 alloy has an average ability to withstand contraction stress while cooling through hot-short or brittle temperature ranges and above average pressure tightness and fluidity of liquid alloy to flow readily filling thin sections.

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2.0 Aging of Castings

2.1 Castings must be aged 21 days at room temperature to obtain full strength. Normal machining can only be done after the aging process is completed.

2.2 Accelerated aging can be obtained by oven treatment of the castings at 350°F +- 10°F (177°C + 6°C) for a period of ten hours.

3.0 CHEMICAL COMPOSITION OF MODIFIED SAE 310 SECONDARY ALUMINUM INGOT & FINISHED CASTINGS

3.1 Element values are maximum percentages except where indicated as a range.

Elements	Ingot		Finished Castings	
	Minimum	Maximum	Minimum	Maximum
Zinc (Zn)	5.00	6.50	5.00	6.50
Magnesium (Mg)	.65	.75	.60	.
Chromium (Cr)	.40	.60	.40	.60
Manganese (Mn)		.10		.10
Copper (Cu)		.25		.25
Silicon (Si)				.30
Iron (Fe)		. 0		.50
Nickel (Ni)		.		.05
Titanium (Ti)	. 5	.25	.	.25
Tin (Sn)		.05		.05
Lead (Pb)		.05		.05
Aluminum (Al)	Remainder		Remainder	

3.2 During the casting process the percentage of magnesium must be maintained to meet the finished casting element requirements. If the magnesium burns out of the alloy during the process, magnesium must be added to ensure the strength factor of the casting.

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4.0 Certification

4.1 With each shipment of ingots, vendor to supply Larson Electronics' Quality Assurance Department certification that ingots meet requirements for modified SAE 310 alloy. Ingots to be issued lot and date code identification for traceability.

4.2 Foundries to provide with each shipment of castings, ingot lot number and date code information. Larson Electronics' Quality Assurance incoming inspection department to periodically send samples to an independent laboratory for chemical analysis and Brinell Hardness check. Chemical analysis to be made for the elements which are listed under 3.1. If, however, the presence of other elements in to be in excess of the specified limits, further analysis is made to determine that those elements are not in excess of the amount specified.

5.0 TYPICAL MECHANICAL AND PHYSICAL PROPERTIES OF MODIFIED SEA 310 ALUMINUM SAND CASTING ALLOYS (Note: Design strength should be less)

5.1 Mechanical Properties Specified Limits
Tensile strength minimum - 35000 P.S.I. (241316 kPa)
Yield strength (0.2% offset) minimum - 25000 P.S.I. (172369 kPa) Elongation in 2 inches (50.8 mm) minimum % - 4.0
Temper -T 5

5.2 Typical Physical Properties (Aged)
Hardness - Brinell scale
10 mm standard ball
500 kg load
Reading 75

Density - .102 lbs/in3 (2823 kg/m3)

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6.0 COMMERCIAL PACKAGING

6.1 Each shipment shall be marked with the Larson Electronics' Purchase Order number, type material, specification number, alloy and temper, gross and net weight, and the manufacturer's name or trademark.

7.0 REJECTION AND DISPOSAL

7.1 If the material upon delivery to the purchaser does not comply with these specifications, the supplier shall be so advised so that suitable arrangements for the disposal of material can be made. Purchaser shall be allowed full credit for all material returned at purchase price, including freight and handling charge. If the material is to be replaced, a new order will be entered at terms acceptable to the purchaser.

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Certification

Manufacturer: Larson Electronics LLC
Address: 9419 US-HWY 175
Kemp, Texas 75143

Declare the following equipment conforms to the standard(s) as listed:

Model: EPL-AEB Series
Description: Explosion Proof Enclosure

Evaluated Listings:

CE: DIRECTIVE 2014/35/EU - LOW VOLTAGE DIRECTIVE
CE: DIRECTIVE 2014/30/EU - EMC DIRECTIVE
CE: Regulation (EC) No 1907/2006 - REACH REGULATION
CE: DIRECTIVE 2015/863/EU - ROHS DIRECTIVE

The EPL-AEB series complies with the essential protection requirements of the European Parliament of the Council Directive for Low Voltage Directive, EMC Directive, REACH Regulation, and RoHS Directive. This certification applies to all specimens manufactured in accordance to the manufacture's drawings.

Signed for and on behalf of: Larson Electronics, LLC
Place of issue: Kemp, TX

Signature: James Thomas

Name: James Thomas
Position: Operations Manager

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Certification

Manufacturer: Larson Electronics LLC
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Kemp, Texas 75143

Declare the following equipment conforms to the standard(s) as listed:

Model: EPL-AEB Series
Description: Explosion Proof Enclosure

Evaluated Listings:

CE: DIRECTIVE 2015/863/EU - ROHS DIRECTIVE

This is to certify that products offered by Larson Electronics LLC comply with the Reduction of Hazardous Substances (RoHS) directives. Directive 2002/95/EC became effective on 1 July 2006. It restricts the use of six substances in the manufacture of electrical and electronic equipment. This directive was revised in June 2011 and is now referred to as directive 2011/65/EU. Directive 2015/863/EU amending Annex II to Directive 2011/65/EU announced plans to add four substances from 22 July 2019.

We hereby certify that the equipment specified above conforms to the Directive(s) by containing less of the restricted substances than the stated limits.

Signed for and on behalf of: Larson Electronics, LLC
Place of issue: Kemp, TX

Signature: James Thomas

Name: James Thomas
Position: Operations Manager

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Certification

Manufacturer: Larson Electronics LLC
Address: 9419 US-HWY 175
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Declare the following equipment conforms to the standard(s) as listed:

Model: EPL-AEB Series
Description: Explosion Proof Enclosure

Evaluated Listings:

CE: Regulation (EC) No 1907/2006 - REACH REGULATION

This letter establishes the opinion of Larson Electronics LLC regarding the status, under the current European Union (“EU”) Regulations on Registration, Evaluation, Authorization, and Restriction of Chemical Substances (“REACH”).

REACH does not apply to manufactured products which are referred to as “completed articles”. Substances (chemicals) are subject to REACH registration, NOT products.

In addition, Articles are exempt from the REACH requirements if (a) the Article does not contain a substance of very high concern or candidate substance in an amount exceeding 0.1% weight by weight, and (b) if substances present in the Article in excess of 1 ton per year per importer are not expected nor intended to be released.

Based on communication with our raw material suppliers, we conclude that to the best of our knowledge our products requiring REACH compliance do not contain any of the currently listed SVHC in concentrations of 0.1% or above.

Accordingly, we foresee no registration or pre-registration requirement for the products we supply.

Signed for and on behalf of: Larson Electronics, LLC
Place of issue: Kemp, TX

Signature: James Thomas

Name: James Thomas
Position: Operations Manager

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Frequently Asked Questions (FAQ)