

EXP-VFD-1P-208.240-2HP-9.6A-DCM

2HP Explosion Proof Variable Frequency Device - 208-240V AC 1PH Input/Output - 9.6 Amps - 1.5kW

Product ID: 224381



Image: EXP-VFD-1P-208.240-2HP-9.6A-DCM

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.

EXP-VFD-1P-208.240-2HP-9.6A-DCM Explosion Proof Variable Frequency Device

Unit Type: 1 Phase Input/1 Phase Output Variable Frequency Device

Dimensions: 12.00" x 12.00" x 10.00"

Weight: -

Input/Output Voltage: 208-240V AC 1PH

Output Current: 9.6 Amps

Operating Frequency: 0 to 3000 Hz

Kilowatts: 1.5 kw

HP: 2

Starting Torque: 1 Hz/150%

Carrier Frequency: 1.0-16kHz, auto adjusted according to temperature and load

Frequency Accuracy: Digital setting: 0.01Hz, Analog Setting: Max frequency X 0.05%

Torque boost: Automatic torque boost; manual torque boost: 0.1%~30.0%

V/f curve: Linear, multiple point and square type (1.2 power, 1.4 power, 1.6 power, 1.8 power, square)

Inputs: 7 on-off programmable digital, 1 high-speed pulse, 2 programmable analog

Outputs: 1 programmable open collector, 1 analog (open collector or high-speed pulse), 2 relay, 2 analog

Analog Input/Output: 2 Input (0~10V or 0/4~20mA), 2 Output (0/4~20mA or 0~10V)

Communication Terminal: RS485 communication interface, support MODBUS-RTU communication protocol

Overload: 150% @ 60s, 180% @ 10s, 200% @ 3s

Operating Temp: -10°C to +40°C

Max Operating Humidity: 90% (Non-condensing)

Materials: -

Features/Ratings

Class I, Divisions 1 & 2

Class II, Divisions 1 & 2

Automatic Voltage Regulation

LED Display

Special Orders - Special Requirements

Contact us for special requirements

Toll Free: 1-800-369-6671

Intl: 1-903-270-1187

Mounting: Surface
Color: Gray

Fax: 1-903-765-7664
E-mail: sales@larsonelectronics.com

The EXP-VFD-1P-208.240-2HP-9.6A-DCM from Larson Electronics is an Explosion Proof Single-Phase Input, Single-Phase Output Variable Frequency Drive that is suitable for improving AC motor performance in industrial operations. This fan-cooled unit features single-phase 208-240V AC input/output voltage comparability. Designed for steady speed error, fast torque rise and protection from resonance vibrations, the device provides an output current of 9.6 amps and an operating frequency range of 0 to 3000 Hz with 2 horsepower.

The EXP-VFD-1P-208.240-2HP-9.6A-DCM offers accurate AC motor control in hazardous locations and industrial facilities. This 2-HP unit is compatible with single-phase 208-240V AC input/output voltage. Designed for steady speed error, fast torque rise and protection from resonance vibrations, the device provides an output current of 9.6 amps and an operating frequency range of 0 to 3000 Hz.

This device supports seven on-off programmable digital inputs, one high-speed pulse input and two programmable analog inputs, as well as one programmable open collector output, one analog output (open collector or high-speed pulse), two relay outputs and two analog outputs. The explosion proof VFD also features a total of four operating modes: Keypad control, Terminal control, Serial communication control, and Operation Command Mode for digital setting, analog setting, pulse frequency setting, serial communication setting, multi-step speed setting & simple PLC, PID setting, etc.

The EXP-VFD-1P-208.240-2HP-9.6A-DCM is designed for flammable environments with operating temperatures ranging between -10°C to $+40^{\circ}\text{C}$. This device measures 12.00" x 12.00" x 10.00". The explosion proof unit is rated for use in Class I, Divisions 1 & 2 and Class II, Divisions 1 & 2 hazardous locations, making it ideal for indoor or outdoor applications where flammable vapors, gases or dust exist or stand the potential to exist.

Mounting: Operators may mount the explosion proof VFD phase converter on compatible surfaces.

Applications: Speed control of AC motors, industrial machines, large compressors, energy savings and more within Class I & II, Divisions 1 & 2 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.



LARSON
ELECTRONICS™

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

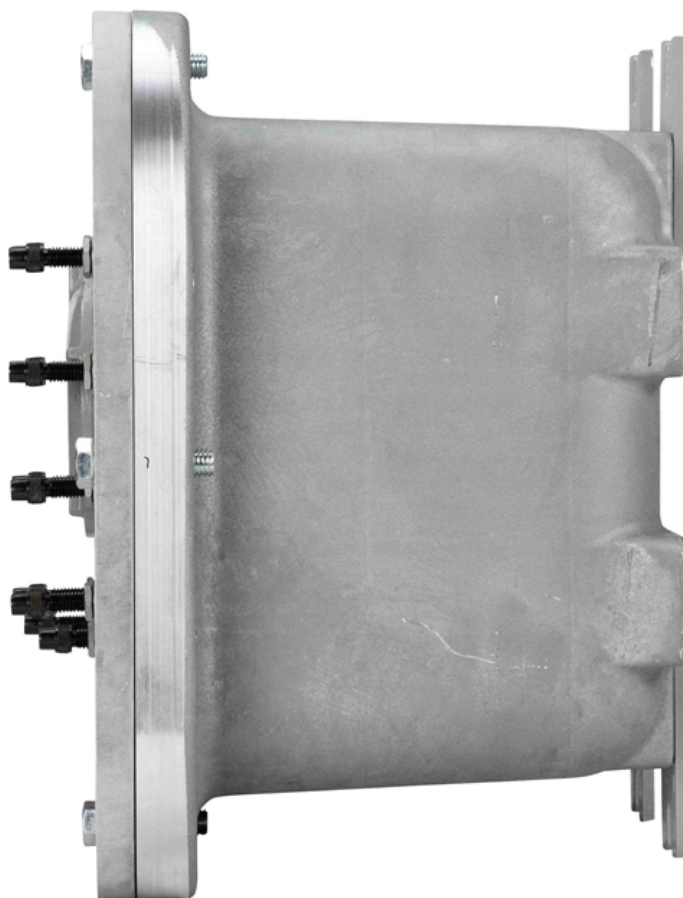




Larson Electronics LLC
9419 E US HWY 175, Kemp, TX 75143
Phone: 800.369.6671



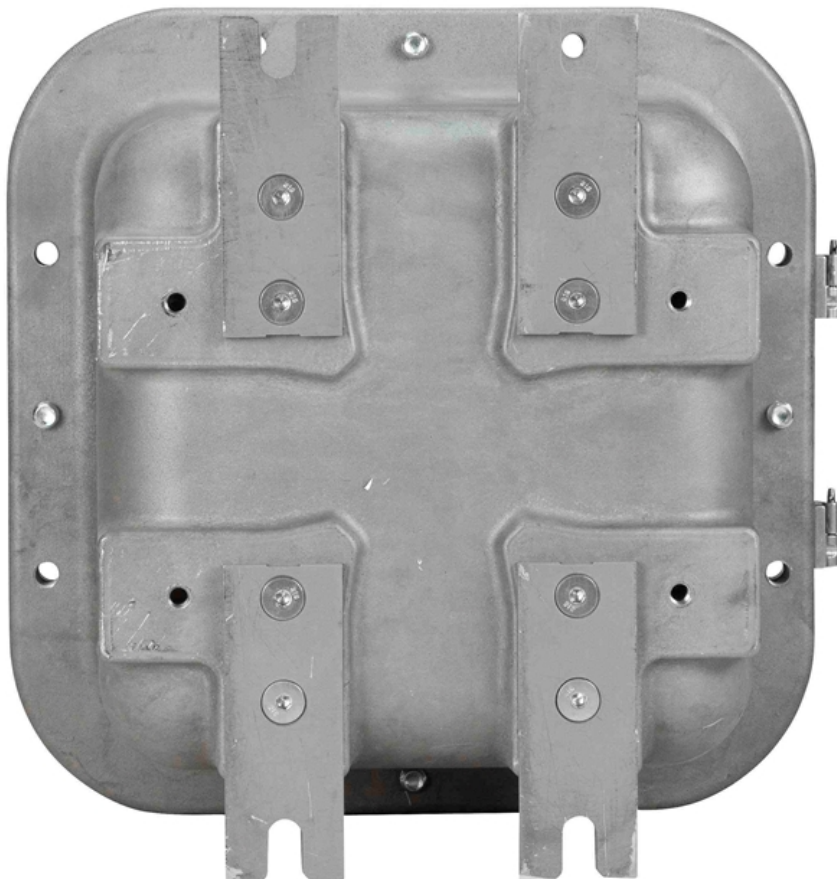
www.LarsonElectronics.com
Email: sales@LarsonElectronics.com
Fax: 903.498.3364



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Fax: 903.498.3364





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-VFD Series
Description: Explosion Proof VFDs

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-VFD 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
- IEC EX / ATEX Ex d IIB + H2 T5, Ex tD A21 IP66, Tamb ≤ + 60°C

The EXP-VFD Series is comprised of a Killark EXB or EXPLT series device enclosure. This device enclosure contains a variable frequency drive, custom mounting of the drive, wire connections, listed external controls, and visual display. 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:

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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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 EXP-VFD industrial line of variable frequency drives 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.

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.



Certificate: 1723354

Project: 80001569

Master Contract: 151933

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 submitter'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



Certificate: 1723354
Project: 80001569

Master Contract: 151933
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.



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 CL.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



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-VFD Series
Description: Explosion Proof Variable Frequency Drive

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 EXP-VFD 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



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-VFD Series
Description: Explosion Proof Variable Frequency Drive

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



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-VFD Series
Description: Explosion Proof Variable Frequency Drive

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



Frequently Asked Questions (FAQ)

There are no Faqs