Thank you for giving UL the opportunity to partner with you.
Please note, Follow-Up Procedure Revisions or Report Revisions do not include Authorization Pages, Indices, Section General, and/or Appendices unless revisions were required or requested.

Should you have any questions, after reviewing the material, or need to report any inaccuracies, please reach out to your UL representative or find UL contact details for your local Customer Service Department at https://www.ul.com/about/locations.

Please find attached the related material

For your convenience, the below describes the related updates:

| |
|---|
| E540290-Vol1-AuthorizationPage |
| E540290-vol1-ListingMarkData |
| E540290-vol1-Index |
| E540290-20240815-CertificateofCompliance |
| E540290-20240815-Description |
| Figure-1-Total |
| Illustration-4-Total |
| E540290-20240815-TestRecord |

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Times change, Trust Remains™

FOLLOW-UP SERVICE PROCEDURE
(TYPE R)

TANK-MONITORING EQUIPMENT FOR USE IN HAZARDOUS LOCATIONS
(WWQS, WWQS7)

| | |
|---|---|
| Manufacturer: | SEE ADDENDUM FOR MANUFACTURER LOCATIONS |
| Applicant: | 3452302 (Party Site)<br>TIMCO INDUSTRIES INC<br>1910 Unruh Ct<br>New Albany IN 47150-6948 US |
| Listee/Classified Company: | 3452302 (Party Site)<br>SAME AS APPLICANT |

**Use of the Mark**

This Follow-Up Service Procedure authorizes the above Manufacturer(s) to use the marking specified by UL LLC, or any authorized licensee of UL LLC, including the UL Contracting Party, only on products when constructed, tested and found to be in compliance with the requirements of this Follow-Up Service Procedure and in accordance with the terms of the applicable service agreement with UL Contracting Party. The UL Contracting Party for Follow-Up Services is listed in the addendum to this Follow-Up Service Procedure ("UL Contracting Party"). UL Contracting Party and UL LLC are referred to jointly herein as "UL."

It is the responsibility of the Applicant, Manufacturer(s), and Listee/Classified Company to make sure that only the products meeting the aforementioned requirements bear the authorized Marks of UL LLC, or any authorized licensee of UL LLC.

**Additional Responsibilities**

Additional responsibilities, duties and requirements for the Applicant and Manufacturers are defined under Additional Resources at the following website: https://www.ul.com/fus. Manufacturers without Internet access may obtain the current version of these documents from their local UL customer service representative or UL field representative. For assistance, or to obtain a paper copy of these documents or the Follow-Up Service Terms referenced below, please contact UL's Customer Service at https://www.ul.com/aboutul/locations/, select a location and enter your request, or call the number listed for that location.

**Acceptance of Follow-Up Services**

The Applicant and the specified Manufacturer(s) and any Listee/Classified Company in this Follow-Up Service Procedure must agree to receive Follow-Up Services from UL Contracting Party. If your applicable service agreement is a Global Services Agreement ("GSA"), the Applicant, the specified Manufacturer(s), and any Listee/Classified Company will be bound to a Service Agreement for Follow-Up Services upon the earliest by any Subscriber of a) use of the prescribed UL Mark, b) acceptance of the factory inspection, or c) payment of the Follow-Up Service fees. The Service Agreement incorporates such GSA, this Follow-Up Service Procedure and the Follow-Up Service Terms which can be accessed by clicking the following link: https://www.ul.com/resources/contracts/follow-up-service-terms. In all other events, Follow-Up Services will be governed by and incorporate the terms of your applicable service agreement and this Follow-Up Service Procedure.

**Use and Ownership of the Follow-Up Service Procedure**

This Follow-Up Service Procedure, and any subsequent revisions, is the property of UL and is not transferable. This Follow-Up Service Procedure contains confidential information for use only by the Applicant, the specified Manufacturer(s), and representatives of UL and is not to be used for any other purpose. It is provided to the Subscribers with the understanding

that it is not to be copied, either wholly or in part unless specifically allowed, and that it will be returned to UL, upon request.

**Definition of Terms**

Capitalized terms used but not defined herein have the meanings set forth in the GSA and the applicable Service Terms or any other applicable UL service agreement.

**No Third Party Liability**

UL shall not incur any obligation or liability for any loss, expense or damages, including incidental, consequential or punitive damages arising out of or in connection with the use or reliance upon this Follow-Up Service Procedure to anyone other than the above Manufacturer(s) as provided in the agreement between UL LLC or an authorized licensee of UL LLC, including UL Contracting Party, and the Manufacturer(s).

**Certification Body**

UL LLC has signed below solely in its capacity as the certification body to indicate that this Follow-Up Service Procedure fulfills the requirements for certification documentation issued by the certification body. The certification body's accreditation status for the applicable certification scheme and identification of the accreditation body can be found at https://www.ul.com/resources/accreditation.

Deborah Jennings-Conner
VP Regulatory Services
UL LLC

LOCATION

3452302 (Party Site)
TIMCO INDUSTRIES INC
1910 Unruh Ct
New Albany IN 47150-6948 US

Factory ID: None

UL Contracting Party for above site is: UL LLC

Listing Mark Data Page (LMDP)

(FILE IMMEDIATELY AFTER AUTHORIZATION PAGE)

LISTING MARK

The Listing Mark consists of four elements placed in close proximity and shall appear on Listed products only. Minimum size is not specified, as long as the Listing Mark is legible. The following is suggested.




XXXX = The control number assigned by UL, E540290.

The minimum height of the registered trademark symbol ® shall be 3/64 of an inch. When the overall diameter of the UL Mark is less than 3/8 of an inch, the trademark symbol may be omitted if it is not legible to the naked eye.

The product identity is: "TANK MONITORING EQUIPMENT FOR USE IN HAZARDOUS LOCATIONS", "TANK MONITORING EQUIPMENT (ASSOCIATED APPARATUS)" or appropriate product identities, as shown in the individual Listing.

The product identity may be omitted if the Mark is directly and permanently applied to the product by stamping, molding, ink-stamping, silk screening or similar process. The product identity may appear elsewhere on the product if the other three elements are part of the nameplate which includes the rating or the catalog or model designation.

Separable Listing Mark (not part of a nameplate and in the form of decals, stickers or labels) will always include the four elements.

The manufacturer may reproduce the Mark or obtain it from a UL authorized supplier.

Canadian Listing Mark Data Page (CLMDP)

(FILE IMMEDIATELY AFTER AUTHORIZATION PAGE)

LISTING MARK

The Listing Mark consists of four elements placed in close proximity and shall appear on Listed products only. Minimum size is not specified, as long as the Listing Mark is legible. The following is suggested. (If only Canadian coverage is authorized, use only the C-UL Symbol).

UL Symbol to the left and the C-UL Symbol to the right.




Alternatively the Canadian/US Mark may be used. The UL Symbol with "C" to the left and "US" to the right.




XXXX = The control number assigned by UL, E540290.

The minimum height of the registered trademark symbol ® shall be 3/64 of an inch. When the overall diameter of the UL Mark is less than 3/8 of an inch, the trademark symbol may be omitted if it is not legible to the naked eye.

The product identity is: "TANK MONITORING EQUIPMENT FOR USE IN HAZARDOUS LOCATIONS" or "TANK MONITORING EQUIPMENT (ASSOCIATED APPARATUS)," or appropriate product identities, as shown in the individual Listing.

The product identity may be omitted if the Mark is directly and permanently applied to the product by stamping, molding, ink-stamping, silk screening or similar process. The product identity may appear elsewhere on the product if the other three elements are part of the nameplate which includes the rating or the catalog or model designation.

Separable Listing Mark (not part of a nameplate and in the form of decals, stickers or labels) will always include the four elements.

The manufacturer may reproduce the Mark or obtain it from a UL authorized supplier. The list of UL authorized label suppliers can be found on UL's online directory at www.ul.com.

THIS PAGE IS TO BE REVISED BY FUS DEPARTMENT ONLY

| Models | Section | Report Date |
|---|---|---|
| Model LFA-S #7 | 1 | 2024-08-15 |
| | | |

# Certificate of Compliance

**Certificate Number:**

UL-US-2435095-0

**Report Reference:**

E540290-20240815

**Issue Date:**

2024-09-11

Issued to:

**TIMCO INDUSTRIES INC**
**1910 Unruh Ct New Albany, IN 47150-6948**
**United States**

This certificate confirms that representative samples of:

**WWQS - Tank-monitoring Equipment for Use in Hazardous Locations**

**See Addendum Page for Product Designation(s).**

Have been evaluated by UL in accordance with the Standard(s) indicated on this Certificate.

**UL 913, Edition 8, Issue Date 2013-12-06, Revision Date 2022-05-10**

Additional Information:
See UL Product iQ® at https://iq.ulprospector.com for additional information.

This Certificate of Compliance indicates that representative samples of the product described in the certification report have met the requirements for UL certification. It does not provide authorization to apply the UL Mark. Only the Authorization Page that references the Follow-Up Services Procedure for ongoing surveillance provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.



David Piecuch
UL Mark Certification Program Owner

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Form-ULID-019496 – ver 1.0

# CERTIFICATE OF COMPLIANCE

**Certificate number** UL-US-2435095-0
**Report reference** E540290-20240815
**Date** 2024-09-11

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

| Model | Product Description |
|---|---|
| LFA-S #7 | Magnetic Switch |

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# Certificate of Compliance

**Certificate Number:**
UL-CA-2427114-0

**Report Reference:**
E540290-20240815

**Issue Date:**
2024-09-11

Issued to:

**TIMCO INDUSTRIES INC**
**1910 Unruh Ct New Albany, IN 47150-6948**
**United States**

This certificate confirms that representative samples of:
**WWQS7 - Tank-monitoring Equipment for Use in Hazardous Locations Certified for Canada**

**See Addendum Page for Product Designation(s).**

Have been evaluated by UL in accordance with the Standard(s) indicated on this Certificate.

**CSA C22.2 No. 60079-0, Edition 4, Issued 2019-02-01**, **CSA C22.2 NO. 60079-11:14, 2nd Ed., Issue Date: 2014-02-01**

Additional Information:
See UL Product iQ® at https://iq.ulprospector.com for additional information.

This Certificate of Compliance indicates that representative samples of the product described in the certification report have met the requirements for UL certification. It does not provide authorization to apply the UL Mark. Only the Authorization Page that references the Follow-Up Services Procedure for ongoing surveillance provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.

David Piecuch
UL Mark Certification Program Owner

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# CERTIFICATE OF COMPLIANCE

**Certificate number** UL-CA-2427114-0
**Report reference** E540290-20240815
**Date** 2024-09-11

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

| Model | Product Description |
|---|---|
| LFA-S #7 | Magnetic Switch |

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Form-ULID-019496 – ver 1.0

File E540290
Project 4791204071

August 15, 2024

REPORT

on

# TANK-MONITORING EQUIPMENT FOR USE IN HAZARDOUS LOCATIONS

TIMCO INDUSTRIES INC
New Albany, IN

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DESCRIPTION

PRODUCT COVERED:

USL, CNL – Class I, Groups A, B, C, D; Class II, Groups E, F, G; and Class III

Model LFA-S #7, intrinsically safe when installed per Control Drawing No. 20240111.

GENERAL:

The Model LFA-S #7 is a magnetically operated switch intended for use with liquid level or tank overfill alarms. The switch is intrinsically safe when powered by a suitable associated apparatus.

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

The device is intended for use in an ambient temperature range of -20°C to 100°C and has a temperature code of T4A.

Intrinsically Safe Device Entity Parameters:

Vmax = 60V
Imax = 250mA
Pmax = 1.3W
Ci = 0µF
Li = 0µH

MARKING:

The device is provided with the markings as shown in ILL. 1. Markings are on the product by an adhesive label:

Control Drawing:

Model LFA-S #7, must be accompanied by a copy of installation control drawing No. 20240111, as shown in ILL. 2.

CONSTRUCTION DETAILS:

General – The device is constructed in accordance with the following figures, illustrations and descriptive pages. Dimensions are approximate unless specifically indicated otherwise.

DOCUMENTATION:

The device is constructed in accordance with the following drawings:

| FIG. No. | ILL. No. | Description | Drawing No. | Revision |
|---|---|---|---|---|
| 1 | | Overall View | - | - |
| | 1 | Label | 240723-09.5RK | B |
| | 2 | IS Control Drawing LFA-S#7 HL/of Switch | 20240111 | C |
| | 3 | HL/OF Magnetic Switch LFA-S Item#7 | 231229-10.9RK | |
| | 4 | LFA-S Switch Installation | - | - |

MODEL LFA-S #7

General – Shown are side views of completed samples of the Model LFA-S #7 switch. The device consists of a switch and magnet that are inserted into a plastic housing and encapsulated.

1. Housing – R/C (QMFZ2) designated KT-820 or KT820P Manufactured by Solvay (E140728). Overall approx. dimensions are 3.625in long by 0.75in in diameter, 0.4in thick minimum.

2. Reed switch – R/C (NRNT2) Model HSR-190R Manufactured by Hermetic Switch Inc. (E131842).

3. Wiring - R/C (AVLV2/8) rated 300 V, 105°C minimum and 18 AWG.

4. Encapsulation – Epoxy, 0.71mm thick minimum.

5. Shrink Tubing – R/C (YDPU2/8) rated 300V minimum, 105°C minimum.

The following Page(s) are related to Figure-1. The next supplement, if applicable, will be identified with a new Supplement Page Heading.


TIMCO MODEL LFA – S#7 SWITCH FOR HAZ LOC
CL I, Div 1 Gr ABCD, CL II Div 1 Gr EFG, CL III INTRINSICALLY
SAFE PER CONTROL DWG. 20240111 REV C.
TA = –20C TO 100C Vmax = 60 VDC, Imax = 250mA,
Pmax = 1.3 W, Exia SÉCURITÉ INTRINSEQUE
UL File Number E540290
LISTED
CL I, Div 1 Gr ABCD, CL II Div 1 Gr EFG, CL III INTRINSICALLY
SAFE PER CONTROL DWG. 20240111 REV C.
TA = –20C TO 100C Vmax = 60 VDC, Imax = 250mA,
Pmax = 1.3 W, Exia SÉCURITÉ INTRINSEQUE

The following Page(s) are related to Illustration-1. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

For Questions, Parts or Service Please Call TIMCO: 800-896-2337 www.timcoindustriesinc.com

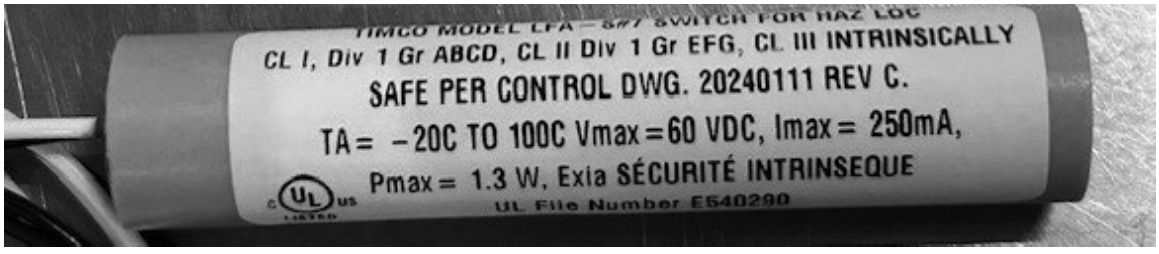
Timco Industries, Inc.
1910 Unruh Court
New Albany, IN 47150
812-945-8988

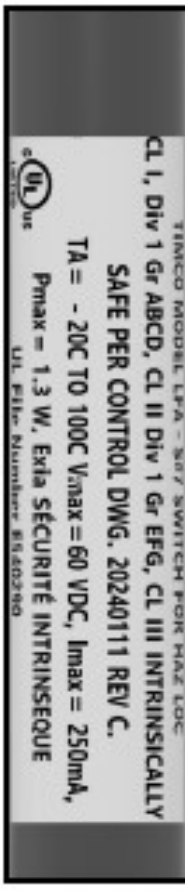
Timco Industries, Inc.
Louisiana
504-628-3003

Timco Industries, Inc.
13705 Gainesville Street
Houston, TX 77015
713-330-8200
832-814-3657

# TIMCO MODEL LFA - S#7 SWITCH FOR HAZ LOC
# CL I, Div 1 Gr ABCD, CL II Div 1 Gr EFG, CL III INTRINSICALLY SAFE PER CONTROL DWG. 20240111 REV C.
# TA = - 20C TO 100C Vmax = 60 VDC, Imax = 250mA, Pmax = 1.3 W, Exia SÉCURITÉ INTRINSEQUE
# UL File Number E540290

c UL us LISTED



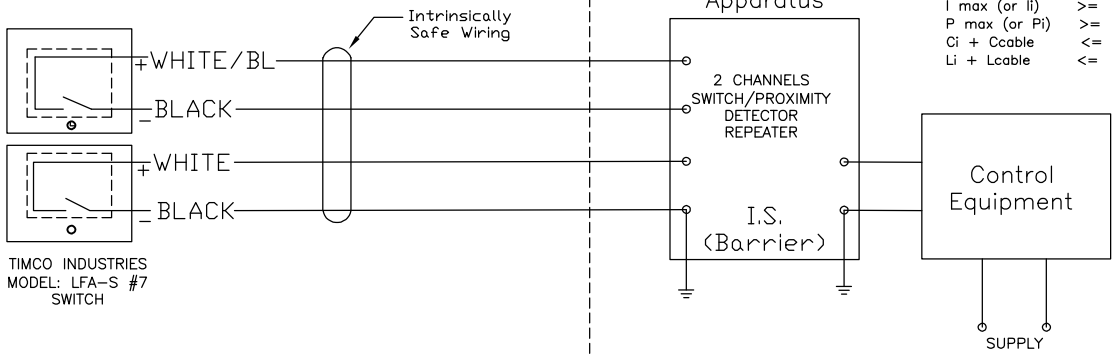

| | | | |
|---|---|---|---|
| TIMCO Marine Equipment<br>TIMCO INDUSTRIES<br>812.945.8988<br>PO BOX 689<br>NEW ALBANY, IN<br>47150<br>sales@timcomarine.com | PROJECT<br>LFA-S Assembly | ITEM ID<br>LFA-S #7 | |
| | TITLE<br>SWITCH LABEL | | MATERIAL<br>PEEK |
| DRAWN: Rob Keeton 9/10/2024 | DWG NO 240723-09.5RK | REV B | WEIGHT |

The following Page(s) are related to Illustration-2. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

## HAZARDOUS LOCATION

Intrinsically Safe Device Entity Parameters:
Vmax = 60 VDC, Imax = 250mA,
Pmax = 1.3watts W, Ci = 0 µF, Li = 0 µH
Vmax ≥ Uo; Imax ≥ Io;
Co ≥ Ci + Ccable;
Lo ≥ Li + Lcable
Ci and Li values above do not include wiring coming out of device.

UL FILE NUMBER: E540290




Class I, Division 1
Groups A,B,C,D
Class II Groups E,F,G
Class III
Exia, UL, cUL

Temperature: T4a
Amb: -20C to +100C

Note: The dot near the switch denotes a latching device. Actuation by the North pole of a sufficiently strong magnet will latch the switch in either the open or closed state.The switch will transfer to the other state and the latch there upon actuation by the South pole of a sufficiently strong magnet.

## NON-HAZARDOUS LOCATION

Associated apparatus output current must be limited by a resistor such that the output voltage-current plot is a straight line drawn between open-circuit voltage and short-circuit current.

Associated apparatus may be in a Division 2 or Zone 2 location if so approved.

Selected associated apparatus must be third party listed as providing intrinsically safe circuits for the application, and have Voc or Vt not exceeding Vmax (or Uo not exceeding Ui), Isc or It not exceeding Imax (or Io not exceeding Ii), and the Po of the associated apparatus must be less than or equal to the Pmax or Pi of the intrinsically safe equipment, as shown in Table 1.

Capacitance and inductance of the field wiring from the intrinsically safe equipment to the associated apparatus shall be calculated and must be included in the system calculations as shown in Table 1. Cable capacitance, Ccable, plus intrinsically safe equipment capacitance, Ci, must be less than the marked capacitance, Ca (or Co), shown on any associated apparatus used. The same applies for inductance (Lcable, Li and La or Lo, respectively). Where the cable capacitance and inductance per foot are not known, the following values shall be used for two or three core cables: Ccable = 60 pF/ft., Lcable = 0.2 µH/ft.

TABLE 1:

| I.S Equipment | | Associated Apparatus |
|---|---|---|
| V max (or Ui) | >= | Voc or Vt (or Uo) |
| I max (or Ii) | >= | Isc or It (or Io) |
| P max (or Pi) | >= | Po |
| Ci + Ccable | <= | Ca (or Co) |
| Li + Lcable | <= | La (or Lo) |

If Po of the associated apparatus is not known, it may be calculated using the formula
(Voc * Isc)/4 = (Uo * Io)/4

Associated apparatus must be installed in accordance with its manufacturer's control drawing and Article 504 of the National Electrical Code (ANSI/NFPA 70) for installation in the United States, or Section 18 of the Canadian Electrical Code for installations in Canada.

Associated apparatus must not be used in combination unless permitted by the associated apparatus certification.

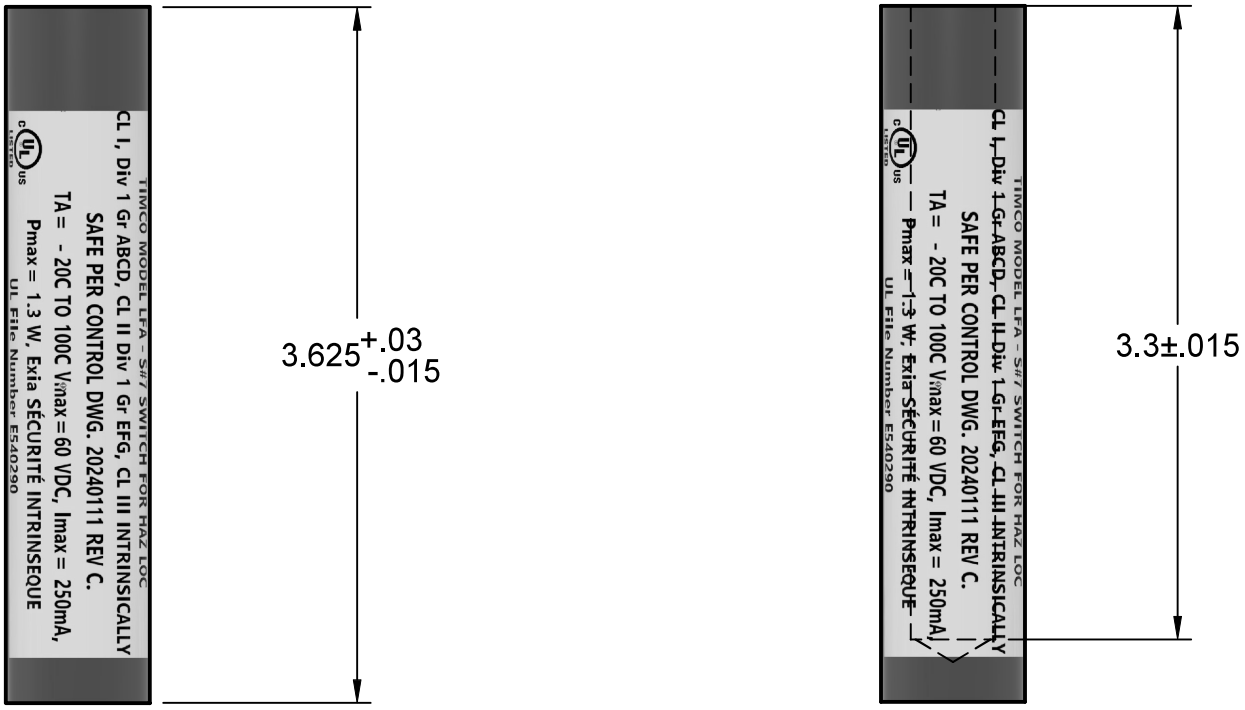
Control equipment must not use or generate more than 250 V rms or dc with respect to earth.

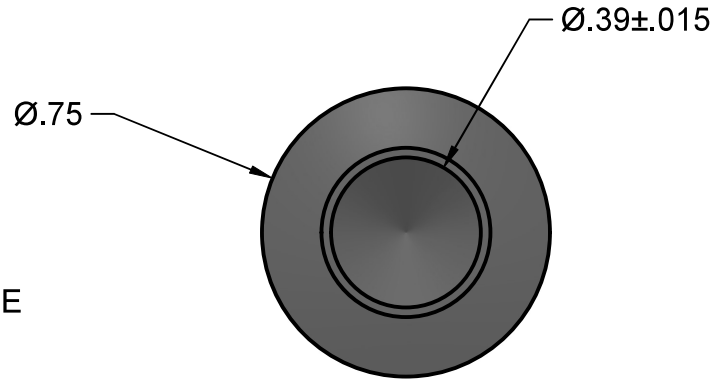
Suitability for installation in particular applications is at the discretion of the Authority Having Jurisdiction (AHJ).

| | | | |
|---|---|---|---|
| Unless otherwise specified: Dimensions are in Inches Tolerances: Fractional: +/- Angular: +/- Two Place Decimal: +/-.020 Three Place Decimal: +/-.010 | TIMCO INDUSTRIES, INC | | |
| | IS CONTROL DRAWING | | |
| | LFA-S #7 HL/OF SWITCH | | |
| Material: N/A | SIZE: A | FSCM NO | DRAWING NUMBER: 20240111 / REV: C |
| Date: 08/22/2024 | SCALE | UL: E540290 | SHEET: 1 of 1 |

TIMCO INDUSTRIES, INC 1910 UNRUH CT, NEW ALBANY, IN 47150 - 812-945-8988

The following Page(s) are related to Illustration-3. The next supplement, if applicable, will be identified with a new Supplement Page Heading.




LFAS-S #7
SWITCH UL FILE
NO. E540290

TIMCO INDUSTRIES
812.945.8988
PO BOX 689
NEW ALBANY, IN
47150
sales@timcomarine.com

PROJECT

# HSR-190R SWITCH HOUSING

TITLE

# HL/OF MAGNETIC SWITCH LFA-S ITEM# 7

PEEK

| APPROVED | SIZE | CODE | DWG NO | REV |
|---|---|---|---|---|
| CHECKED | A | LFA-S | 231229-10.9RK | |
| DRAWN Rob Keeton 12/29/23 | SCALE 1:.5 | WEIGHT | SHEET 1/1 | |

The following Page(s) are related to Illustration-4. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

TIMCO

Marine Equipment



TANK BARGE PRODUCTS

MADE IN AMERICA

# FOR QUESTION, PARTS, OR SERVICE PLEASE CALL

## 800-896-3227

**HOUSTON, TX 713-330-8200 • LOUISIANA 504-628-3003 • NEW ALBANY, IN 812-945-8988**


TIMCO INDUSTRIES, INC
13705 GAINESVILLE STREET
HOUSTON, TX 77015
www.timcoindustriesinc.com
832-814-3657

TIMCO INDUSTRIES, INC
1910 UNRUH COURT
NEW ALABNY, IN 47150
www.timcoindustriesinc.com

For Questions, Parts or Service Please Call TIMCO: 800-896-2337 www.timcoindustriesinc.com

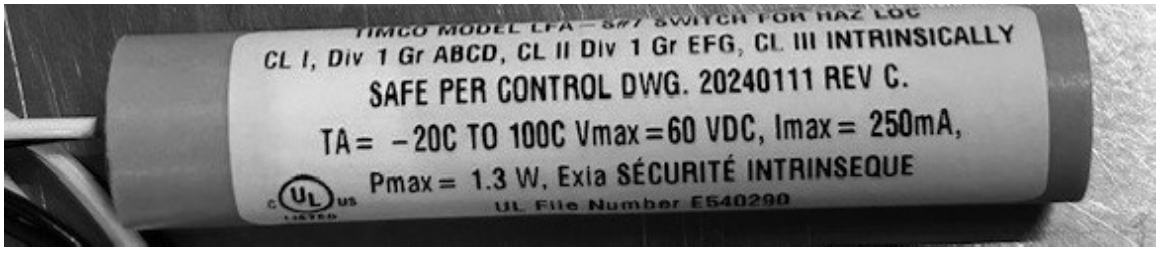
Timco Industries, Inc.
1910 Unruh Court
New Albany, IN 47150
812-945-8988

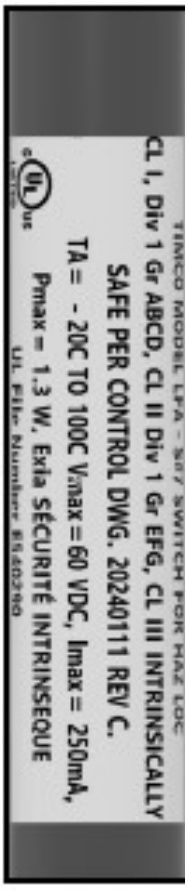
Timco Industries, Inc.
Louisiana
504-628-3003

Timco Industries, Inc.
13705 Gainesville Street
Houston, TX 77015
713-330-8200
832-814-3657

# TIMCO MODEL LFA - S#7 SWITCH FOR HAZ LOC
# CL I, Div 1 Gr ABCD, CL II Div 1 Gr EFG, CL III INTRINSICALLY SAFE PER CONTROL DWG. 20240111 REV C.
# TA = - 20C TO 100C Vmax = 60 VDC, Imax = 250mA, Pmax = 1.3 W, Exia SÉCURITÉ INTRINSEQUE
# UL File Number E540290

c UL us LISTED



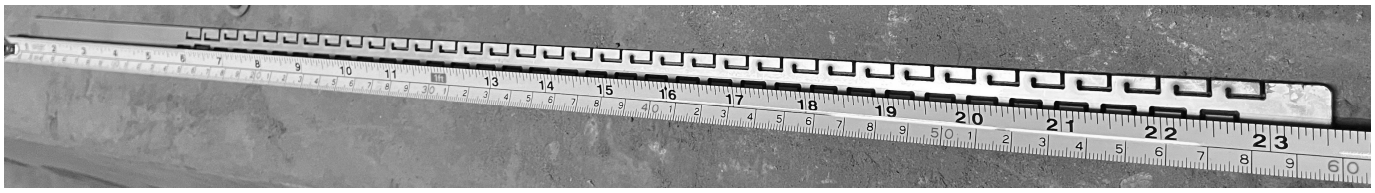

| | | | |
|---|---|---|---|
| TIMCO Marine Equipment<br>TIMCO INDUSTRIES<br>812.945.8988<br>PO BOX 689<br>NEW ALBANY, IN<br>47150<br>sales@timcomarine.com | PROJECT<br>LFA-S Assembly | ITEM ID<br>LFA-S #7 | |
| | TITLE<br>SWITCH LABEL | | MATERIAL<br>PEEK |
| DRAWN: Rob Keeton 9/10/2024 | DWG NO 240723-09.5RK | REV B | WEIGHT |

STEP 1- VERIFY TUBE LENGTH BY
PLACING A TAPE MEASURE INTO TUBE AND MEASURE
TO TOP OF FLANGE ie 24"

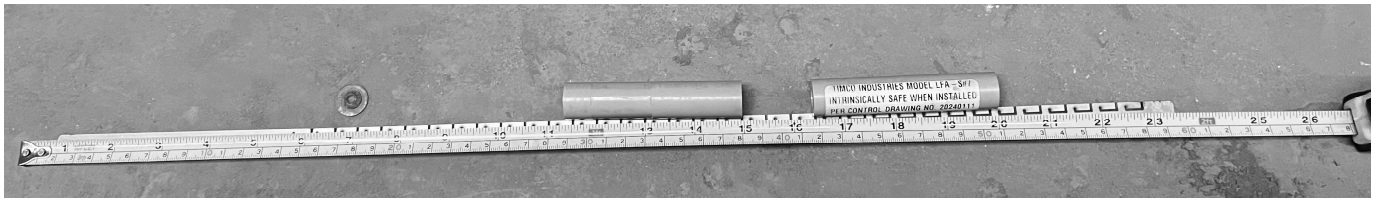




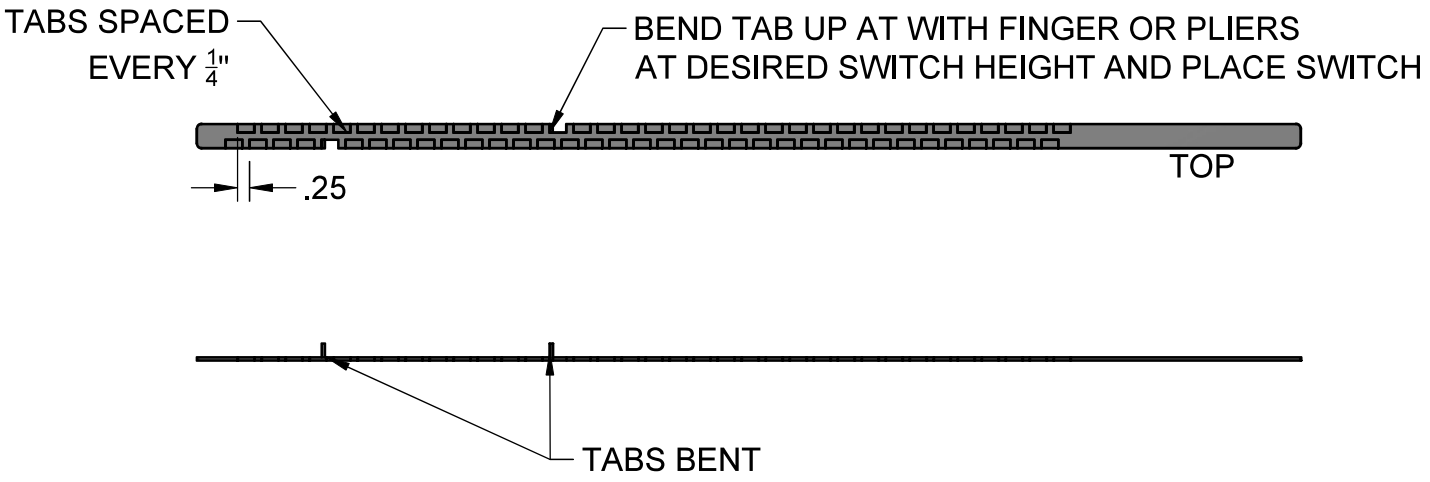
STEP 2- TAKE MEASUREMENT FROM STEP 1(24"),
SUBRTRACT FLANGE THICKNESS(.5"), AND PLACE
SPACER ON TAPE MEASURE AT 23.5".

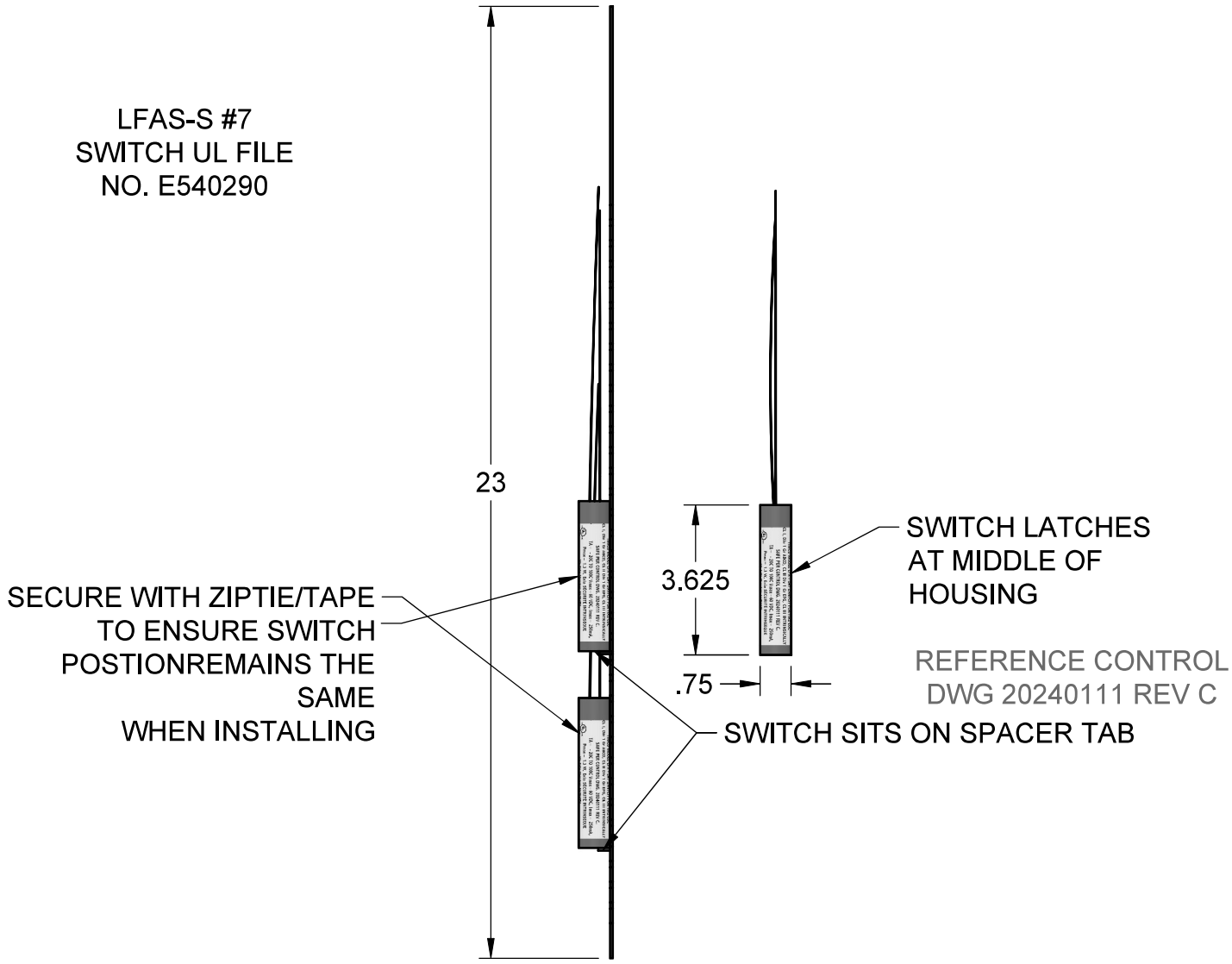


STEP 3- REFERENCE HL/OF SETTINGS AND PLACE
MIDDLE OF SWITCH ONTO THE CORRESPONDING
MEASUREMENT FROM TAPE MEASURE AND BEND TAB
AT 90 DEGREES TO CREATE RESTING PLACE

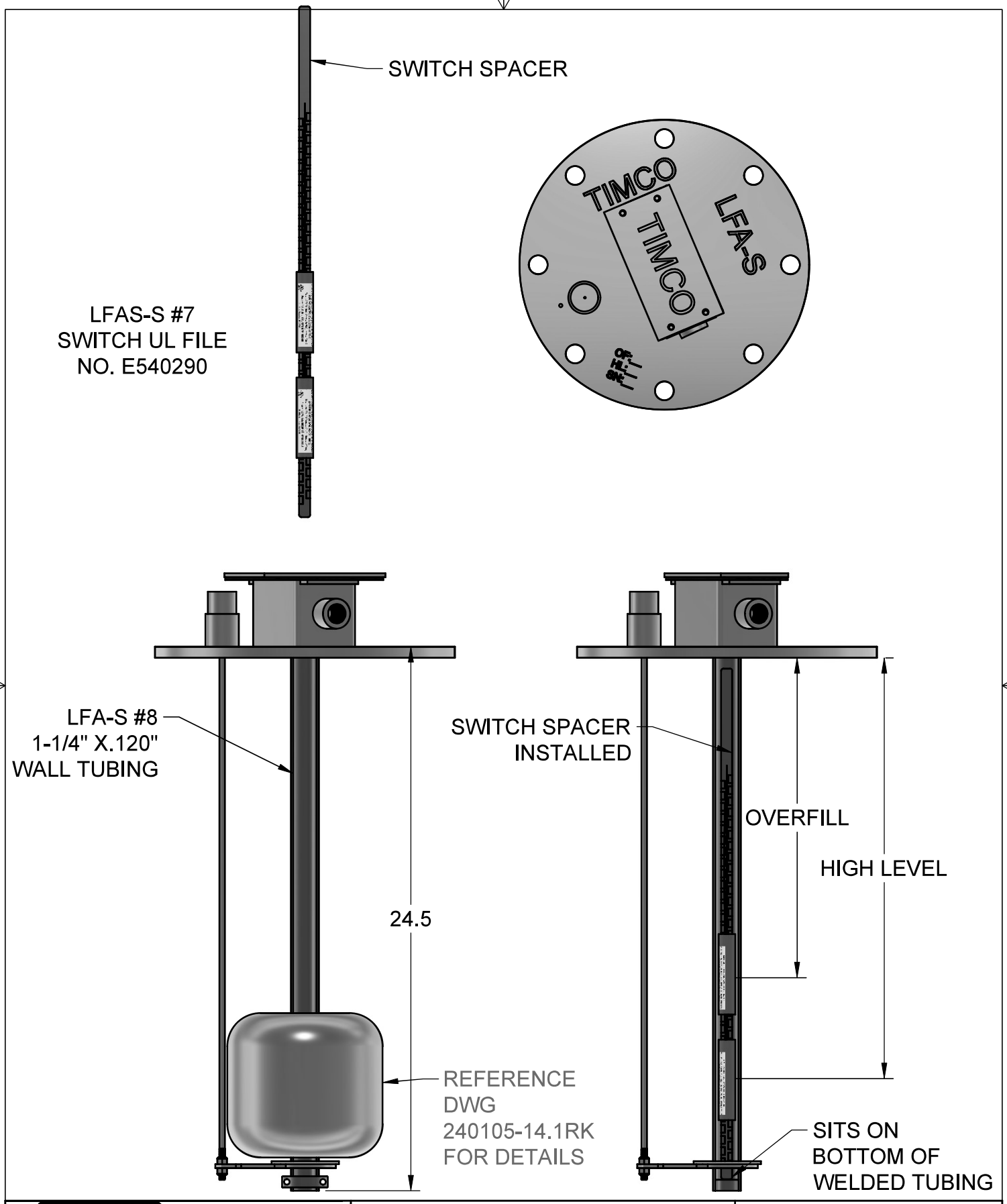



| | | | |
|---|---|---|---|
| TIMCO INDUSTRIES<br>812.945.8988<br>PO BOX 689<br>NEW ALBANY, IN<br>47150<br>sales@timcomarine.com | PROJECT<br>LFA-S Assembly | ITEM ID<br>LFA-S-SPACER-23 | |
| | TITLE<br>SWITCH SPACER ASSEMBLY | | MATERIAL<br>SS |
| DRAWN: Rob Keeton 6/24/2024 | DWG NO 240624-08.9RK | SCALE | WEIGHT |




| | | |
|---|---|---|
| TIMCO INDUSTRIES<br>812.945.8988<br>PO BOX 689<br>NEW ALBANY, IN<br>47150<br>sales@timcomarine.com | PROJECT<br>LFA-S Assembly | ITEM ID<br>LFA-S-SPACER-23 |
| | TITLE<br>SWITCH SPACER ASSEMBLY | MATERIAL<br>SS |
| DRAWN: Rob Keeton 9/10/2024 | DWG NO 240624-08.9RK | SCALE 1:8 / WEIGHT |

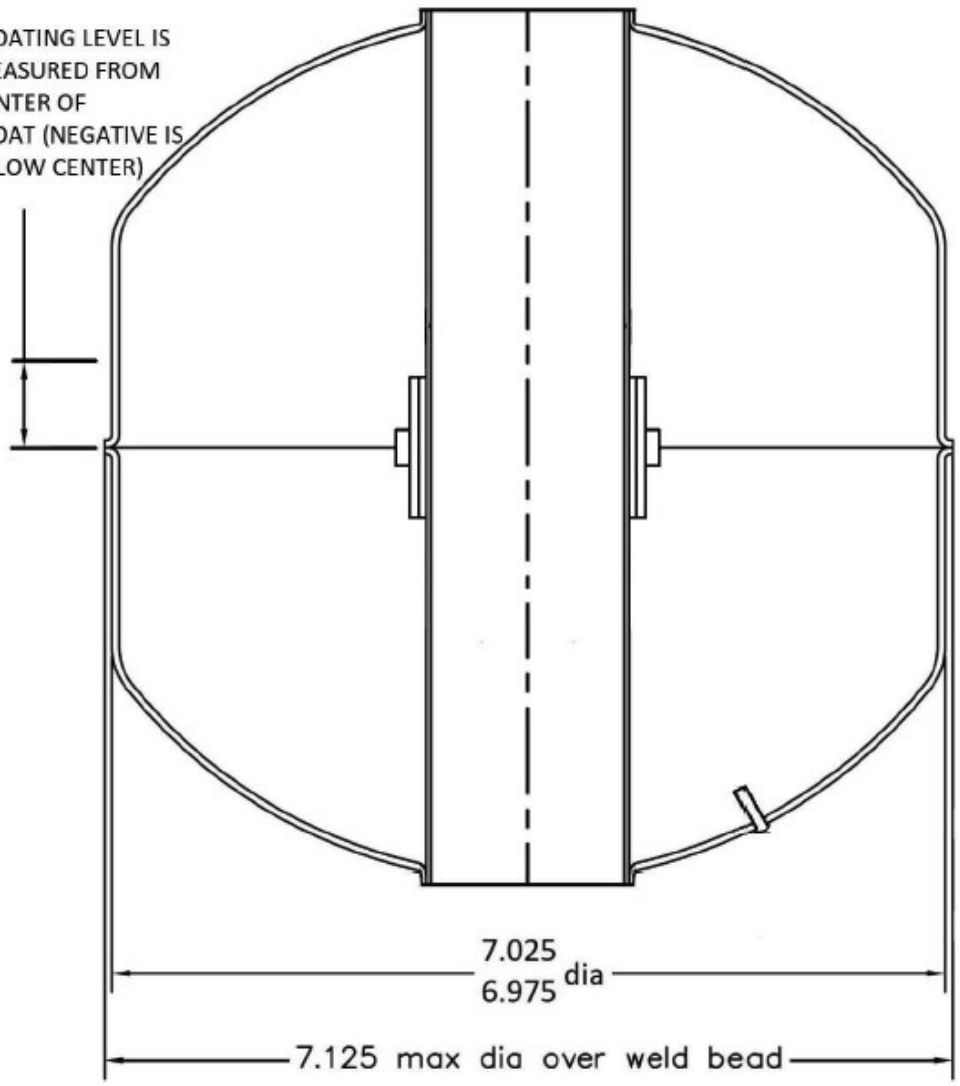



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| | | |
|---|---|---|
| PROJECT: LFA-S Assembly | | ITEM ID: |
| TITLE: LFA-S Switch Location INSTRUCTIONS | | MATERIAL: |
| DRAWN: Rob Keeton 9/10/2024 | DWG NO | SCALE: 1:6 / WEIGHT: |

**THIS IS THE FLOATING LEVEL FOR A NOMINAL VOLUME FLOAT OF 180.3 CU IN WITH 23.7 OZ THE LIGHTEST THE FLOAT WILL BE AND 28.5 OZ THE HEAVIEST AND WITH NO LOAD ON THE FLOAT**

| SP GR LIQUID | FLOATING LEVEL 23.7 OZ | FLOATING LEVEL 26.1 OZ | FLOATING LEVEL 28.5 OZ |
|---|---|---|---|
| 0.400 | 0.334 | 0.616 | 0.897 |
| 0.500 | -0.222 | 0.004 | 0.229 |
| 0.600 | -0.592 | -0.405 | -0.217 |
| 0.700 | -0.857 | -0.696 | -0.535 |
| 0.800 | -1.056 | -0.915 | -0.774 |
| 0.900 | -1.210 | -1.085 | -0.960 |
| 1.000 | -1.334 | -1.221 | -1.108 |




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PROJECT
# LFAS Assembly

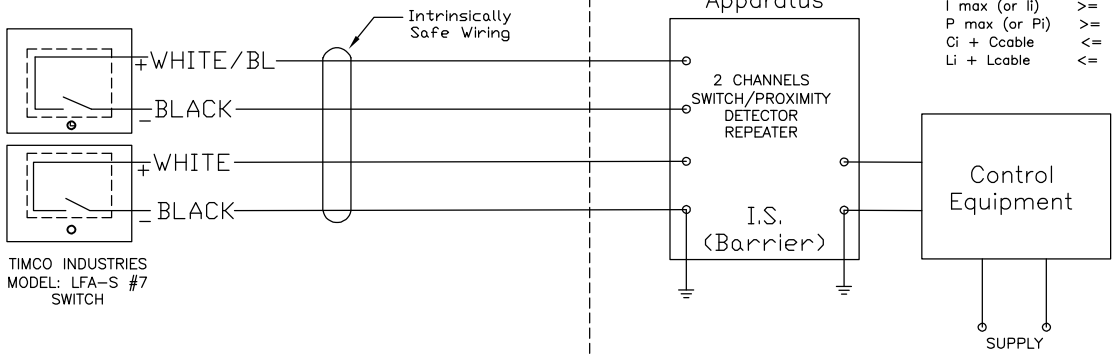
TITLE
# HL/OF FLOAT
# LFA-S ITEM #9
316 SS

| APPROVED | SIZE | CODE | DWG NO | REV |
|---|---|---|---|---|
| CHECKED | A | LFA-S | 240105-14.1RK | |
| DRAWN Rob Keeton 1/5/24 | SCALE 1:2 | WEIGHT | SHEET 1/1 | |

## HAZARDOUS LOCATION

Intrinsically Safe Device Entity Parameters:
Vmax = 60 VDC, Imax = 250mA,
Pmax = 1.3watts W, Ci = 0 µF, Li = 0 µH
Vmax ≥ Uo; Imax ≥ Io;
Co ≥ Ci + Ccable;
Lo ≥ Li + Lcable
Ci and Li values above do not include wiring coming out of device.

UL FILE NUMBER: E540290




Class I, Division 1
Groups A,B,C,D
Class II Groups E,F,G
Class III
Exia, UL, cUL

Temperature: T4a
Amb: -20C to +100C

Note: The dot near the switch denotes a latching device. Actuation by the North pole of a sufficiently strong magnet will latch the switch in either the open or closed state.The switch will transfer to the other state and the latch there upon actuation by the South pole of a sufficiently strong magnet.

## NON-HAZARDOUS LOCATION

Associated apparatus output current must be limited by a resistor such that the output voltage-current plot is a straight line drawn between open-circuit voltage and short-circuit current.

Associated apparatus may be in a Division 2 or Zone 2 location if so approved.

Selected associated apparatus must be third party listed as providing intrinsically safe circuits for the application, and have Voc or Vt not exceeding Vmax (or Uo not exceeding Ui), Isc or It not exceeding Imax (or Io not exceeding Ii), and the Po of the associated apparatus must be less than or equal to the Pmax or Pi of the intrinsically safe equipment, as shown in Table 1.

Capacitance and inductance of the field wiring from the intrinsically safe equipment to the associated apparatus shall be calculated and must be included in the system calculations as shown in Table 1. Cable capacitance, Ccable, plus intrinsically safe equipment capacitance, Ci, must be less than the marked capacitance, Ca (or Co), shown on any associated apparatus used. The same applies for inductance (Lcable, Li and La or Lo, respectively). Where the cable capacitance and inductance per foot are not known, the following values shall be used for two or three core cables: Ccable = 60 pF/ft., Lcable = 0.2 µH/ft.

TABLE 1:

| I.S Equipment | | Associated Apparatus |
|---|---|---|
| V max (or Ui) | >= | Voc or Vt (or Uo) |
| I max (or Ii) | >= | Isc or It (or Io) |
| P max (or Pi) | >= | Po |
| Ci + Ccable | <= | Ca (or Co) |
| Li + Lcable | <= | La (or Lo) |

If Po of the associated apparatus is not known, it may be calculated using the formula
(Voc * Isc)/4 = (Uo * Io)/4

Associated apparatus must be installed in accordance with its manufacturer's control drawing and Article 504 of the National Electrical Code (ANSI/NFPA 70) for installation in the United States, or Section 18 of the Canadian Electrical Code for installations in Canada.

Associated apparatus must not be used in combination unless permitted by the associated apparatus certification.

Control equipment must not use or generate more than 250 V rms or dc with respect to earth.

Suitability for installation in particular applications is at the discretion of the Authority Having Jurisdiction (AHJ).

| | | | |
|---|---|---|---|
| Unless otherwise specified: Dimensions are in Inches Tolerances: Fractional: +/- Angular: +/- Two Place Decimal: +/-.020 Three Place Decimal: +/-.010 | TIMCO INDUSTRIES, INC | | |
| | IS CONTROL DRAWING | | |
| | LFA-S #7 HL/OF SWITCH | | |
| Material: N/A | SIZE: A | FSCM NO | DRAWING NUMBER: 20240111 / REV: C |
| Date: 08/22/2024 | SCALE | UL: E540290 | SHEET: 1 of 1 |

TIMCO INDUSTRIES, INC 1910 UNRUH CT, NEW ALBANY, IN 47150 - 812-945-8988

TEST RECORD NO. 1

SAMPLES:

Samples and information on model LFA-S#7 as indicated below and constructed as described herein, was submitted by the manufacturer for examination and test for use in Class I Division 1 Groups A, B, C, D, Class II Division 1 Groups E, F, G, and Class III hazardous locations.

GENERAL:

Test results relate only to the items tested. The following tests were conducted:

| | |
|---|---|
| Standard No. UL 913,<br>CSA C22.2 No 60079-0 | DIELECTRIC STRENGTH TEST;<br>CLAUSES 5.5, 5.6 and 5.7<br><br>SURFACE RESISTANCE TEST OF PARTS OF ENCLOSURES OF NON-METALLIC MATERIALS; CLAUSES 5.5, 5.6 and 5.7 |
| Standard No. UL 508,<br>CSA C22.2 No. 14-18 | TEMPERATURE TEST; CLAUSE 45<br><br>DIELECTRIC VOLTAGE WITHSTAND TEST; CLAUSE 51 |

Spark ignition testing was not considered necessary since the device is powered by an associated apparatus, and the device contains no capacitance or inductance.

The device is deemed suitable for T4A temperature code due to results of ordinary locations temperature testing and a 25K safety margin by UL 60079-0.

Test Record Summary:
The results of this investigation, including construction review and testing, indicate that the products evaluated comply with the applicable requirements in the standards noted below and, therefore, such products are judged eligible to bear UL's Mark as described on the Conclusion Page of this Report.

| |
|---|
| UL 913, 8th Ed., Rev. 2022-05-10, Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations |
| CSA C22.2 No. 60079-0, Electrical Apparatus for Explosive Gas Atmospheres - Part 0: General Requirements, Edition 4, Issue Date 02/2019 |
| CSA C22.2 No. 60079-11, Explosive Atmospheres - Part 11: Equipment Protection by Intrinsic Safety "i", Edition 2, Issue Date 02/2014 |
| UL 508, Industrial Control Equipment, Edition 18, Revision Date 07/08/2021 |
| CSA C22.2 No. 14, Industrial Control Equipment, Edition 13, Revision Date 03/2018 |

CONCLUSION

Samples of the product covered by this Report has been found to comply with the requirements covering the category and the product is found to comply with UL's applicable requirements. The description and test result in this Report are only applicable to the sample(s) investigated by UL and does not signify UL certification or that the product(s) described are covered under UL's Follow-Up Service Program. When covered under UL's Follow-Up Service Program, the manufacturer is authorized to use the Certification Mark of UL on such products which comply with UL's Follow-Up Service Procedure and any other applicable requirements of UL LLC. The Certification Mark of UL on the product, or the UL symbol on the product and the Certification Mark of UL on the smallest unit container in which the product is packaged, is the only method to identify products investigated by UL to published requirements and manufactured under UL's Listing and Follow-Up Service.

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| Report by: | Reviewed by: |
| --- | --- |
| Jennifer Walton | Lucy Frieders |
| Project Engineer | Staff Engineer |