

# AUTOMATION

PRODUCTS  
GROUP, INC.

## Operator's Manual

# LFE Series

## Industrial OEM Low Cost Liquid Level Switches

Rev. A1, 4/07



Automation Products Group, Inc.  
*APG...Providing tailored solutions for measurement applications*



Table of Contents

Warranty .....3

Introduction .....4

Specification.....4

Installation Location.....6

Wiring .....7



## • **Warranty and Warranty Restrictions**

APG warrants its products to be free from defects of material and workmanship and will, without charge, replace or repair any equipment found defective upon inspection at its factory, provided the equipment has been returned, transportation prepaid, within 24 months from date of shipment from factory.

THE FOREGOING WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES NOT EXPRESSLY SET FORTH HEREIN, WHETHER EXPRESSED OR IMPLIED BY OPERATION OF LAW OR OTHERWISE INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

No representation or warranty, express or implied, made by any sales representative, distributor, or other agent or representative of APG which is not specifically set forth herein shall be binding upon APG. APG shall not be liable for any incidental or consequential damages, losses or expenses directly or indirectly arising from the sale, handling, improper application or use of the goods or from any other cause relating thereto and APG's liability hereunder, in any case, is expressly limited to the repair or replacement (at APG's option) of goods.

Warranty is specifically at the factory. Any on site service will be provided at the sole expense of the Purchaser at standard field service rates.

All associated equipment must be protected by properly rated electronic/electrical protection devices. APG shall not be liable for any damage due to improper engineering or installation by the purchaser or third parties. Proper installation, operation and maintenance of the product becomes the responsibility of the user upon receipt of the product.

Returns and allowances must be authorized by APG in advance. APG will assign a Return Material Authorization (RMA) number which must appear on all related papers and the outside of the shipping carton. All returns are subject to the final review by APG. Returns are subject to restocking charges as determined by APG's "Credit Return Policy".

## • Introduction

The miniature magnetic level sensors are used for liquid level detection. They have been designed for reliable operation in small tanks and containers. Their rugged design and careful engineering make them the optimum solution for OEM and large volume applications.

## • Specifications

### Operational Versions

LFE-11P-0A .....	for water - PP, 10 VA, NC
LFE-11P-0B .....	for water - PP, 10 VA, NO
LFE-11P-1A .....	for water - PP, 50 VA, NC
LFE-11P-1B .....	for water - PP, 50 VA, NO
LFE-11R-0A .....	for oil - Buna, 10 VA, NC
LFE-11R-0B .....	for oil - Buna, 10 VA, NO
LFE-11R-1A .....	for oil - Buna, 50 VA, NC
LFE-11R-1B .....	for oil - Buna, 50 VA, NO
LFE-12P-0A .....	for water - PP, 10 VA, NC
LFE-12P-0B.....	for water - PP, 10 VA, NO
LFE-12P-1A .....	for water - PP, 50 VA, NC
LFE-12P-1B.....	for water - PP, 50 VA, NO
LFE-12R-0A .....	for oil - Buna, 10 VA, NC
LFE-12R-0B.....	for oil - Buna, 10 VA, NO
LFE-12R-1A .....	for oil - Buna, 50 VA, NC
LFE-12R-1B.....	for oil, Buna, 50 VA, NO

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- **Specifications (continued)**

**Characteristics**

Switch Rating (resistive load) (50 VA):

Max contact rating ..... 50 VA AC; 50 W DC

Max current ..... 0.5 A AC; 0.5 A DC

Max voltage ..... 300 V AC; 300 V DC

Life expectancy .....  $10^7$  operations (at 12 VDC, 5 mA)

Switch Rating (resistive load) (10 VA):

Max contact rating ..... 10 VA AC; 100 W DC

Max current ..... 0.2 A AC; 0.3 A DC

Max voltage ..... 100 V AC; 100 V DC

Life expectancy .....  $10^7$  operations (at 12 VDC, 5 mA)

Max temperature range ..... -14 to 194°F (-10 to 90°C)

Max pressure ..... Polypropylene float: 7 psi (0.5 bar)

Buna float: 145 psi (10 bar)

Min SG ..... Polypropylene float: 0.9

Buna float: 0.7

Max viscosity ..... 0.5 Pa s

Max humidity ..... 95% RH

Max impact ..... 10 G

## • Installation Location

Locate the LFE at the position where the liquid level variation will actually make contact with it. DO NOT locate near liquid inlets/outlets. If there is turbulence, use a time delay relay to dampen the switch action.

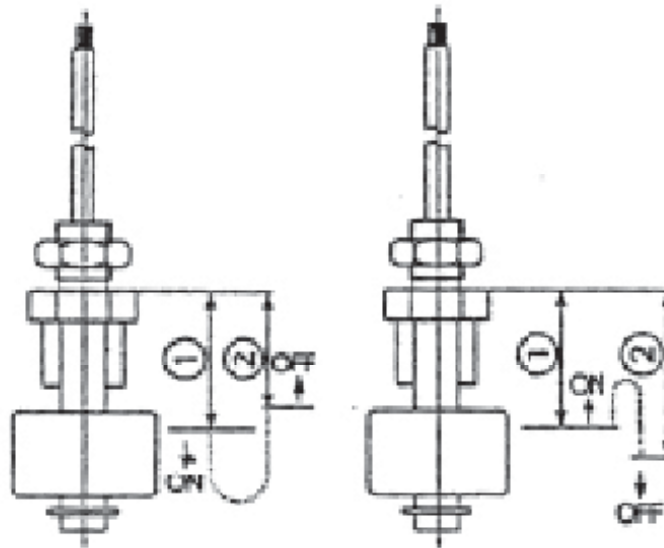


Figure A

Figure B

LFE-XXX-XA (Switch closes as level falls), see Figure A

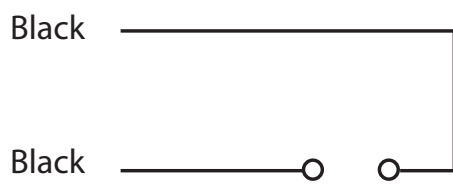
	LFE-11R	LFE-12R	LFE-11P	LFE-12P
Close as level falls	18	28	15	23
Open as level rises	16.5	26.5	13.5	21.5

LFE-XXX-XB (Switch closes as level rises), see Figure B

	LFE-11R	LFE-12R	LFE-11P	LFE-12P
Close as level rises	17	26	14	25
Open as level falls	18.5	27.5	15.5	26.5

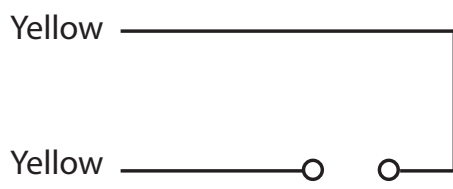
## • Wiring

Wiring shall be in accordance with all local codes. Lead wires are #22 AWG, UL listed (UL1430). APG recommends the use of solderless lugs for



### Switch Rating (Resistive)

- Max capacity 50 VA, 50 W
- Max current 0.5 A AC, 50 A DC
- Max voltage 300 VAC, 300 VDC



### Switch Rating (Resistive)

- Max capacity 10 VA, 10 W
- Max current 0.2 A AC, 0.3 A DC
- Max voltage 3100 VAC, 100 VDC

Note: Max pull load of the lead wire is 19.6 N. Excessive pulling or kinking of the lead wire may break the switch.

### Caution!

Protection for electrical surges:

#### • Overvoltage

Reed switches are not designed for the direct starting of inductive loads such as motors, contactors, solenoid valves, and so on. They are susceptible to damage from overvoltages. DO NOT EXCEED THE CONTACT RATINGS. Contact should be wired to miniature relays, suppressors or similar devices. We recommend the use of our relay unit model RCU-7000.

#### • Overcurrent

Momentary surge current may be produced by switching lamps or stray capacity from long cable length. Consequently reed switch is welded. Contact should be wired to our relay unit model RCU-7000, coils in series or suppressors.