



LVK-50 SERIES

Level Switch



INSTRUCTION
SHEET

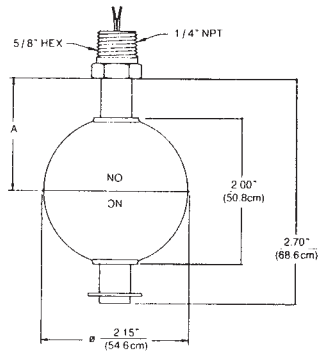
M2599/0415

Shop online at omega.comSM e-mail: info@omega.com
For latest product manuals: omegamanual.info

LVK-50, LVK-51 Stainless Steel Detector for High Pressure, Corrosive and High Temperature Applications

Features:

- All stainless steel wetted surfaces
 - High resistance to corrosive chemicals
 - Operates in high temperatures
 - Operates in high pressure environments
-
- Switch Rating LVK-50 is 20VA
 - Switch Rating LVK-51 is 100VA



A = Actuation point is approximately midway of float travel in liquid with a specific gravity of 1.0

Specifications:

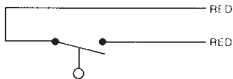
Maximum Pressure	750 PSI (51.7 bar)
Temp. Operating Range	-40° to 300°F (-40° to 149°C)
Mounting	1/4" NPT
Leads	18 AWG, 24" long
Recommended Minimum Liquid SP GR	.73

Electrical Data

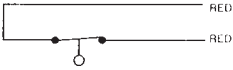
Standard Reed switches are SPST
The diagram below show the typical wiring

Single Pole / Single Throw

Normally Open Dry



Normally Closed Dry



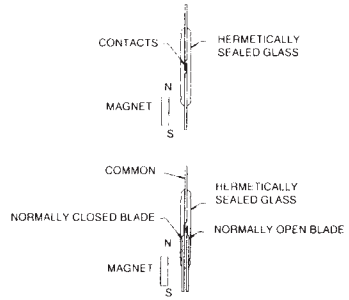
Each individual level switch varies in rating depending on the unit.
See the chart below for electrical ratings.

Switch Ratings Max - Resistive Loads

Contact Rating	Volts	Amps AC	Amps DC
10VA	0-50	.20	.13
	120	.08	.05
	240	.04	NA
20VA	0-50	.40	.30
	120	.17	.13
	240	.08	.06
50VA	0-50	.50	.50
	120	.41	.41
	240	.20	.20
100VA	120	.83	NA
	240	.41	NA

NOTE: Above ratings are for resistive loads only

The reed switch is designed for reliability to millions of cycles. To ensure long life and repeatability, see the contact protection information below.



Contact Protection

In order to take advantage of the long life, highly reliable characteristics of a reed switch, it is essential to provide protection when switching inductive loads.

When current is interrupted, the inductance of the load generates a high frequency voltage, which appears across the switch contacts. If the voltage is large enough, it can cause arcing. Arcing can cause contacts to weld to each other, resulting in unreliable switching performance. It is essential to protect the circuit, by suppressing the voltage to prevent arcing.

This can be accomplished through the use of a diode for DC circuits (figure 1) and a resistor - capacitor network for AC circuits (figure 2).

Figure 1
DC Contact Protection

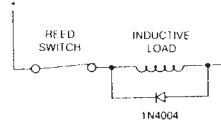
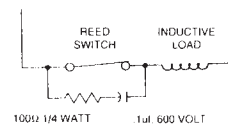


Figure 2
AC Contact Protection

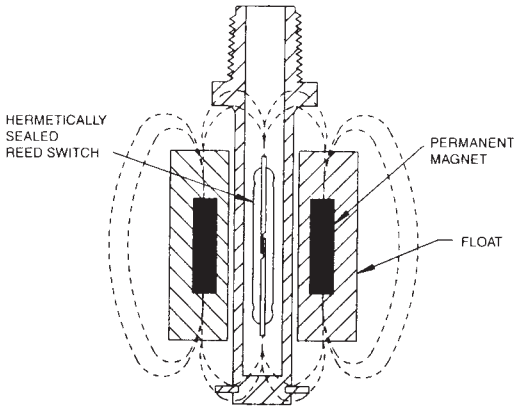


Often there is a requirement to control significant loads such as pumps and motors, or to perform a control function as simple as the automatic refilling of a tank. These operations can be performed reliably with the selection of one of the following supplemental relays.

PART NUMBER	DESCRIPTION	FUNCTION	TIME DELAY
LVCN -130	PUMP UP PUMP DOWN CONTROLLER	LATCHED 12 AMP SPDT RELAY	.15 TO 60 SECONDS
LVCN -140	SINGLE SENSOR CONTROLLER	12 AMP SPDT RELAY	.15 TO 60 SECONDS
LVCN -120	THREE SENSOR CONTROLLER	TWO 12 AMP SPDT OUTPUT RELAY	.15 TO 60 SECONDS
SSR24OAC10	SOLID STATE RELAY	10 AMP, AC CONTROL SIGNAL RELAY	NO

Design Considerations

- **Pressure**
- **Temperature**
- **Mounting**
- **Termination**
- **Media Characteristics, such as**
 - Specific gravity
 - Corrosive characteristics
 - Viscosity
- **Actuation Point(s)**
- **Materials of Construction**
- **Switch life / Switch load**



General Information

- Please refer to the current carrying limitations of the reed switches and provide protection when needed.
- Do not exceed pressure and temperature limitations listed at any time.
- Please take into consideration material of construction and chemical / media compatibility when selecting a level switch.
- Temperature changes that affect specific gravity of media may vary actuation points.
- Media that contains debris may cause float to hang up and require more frequent maintenance.
- Care should be taken to provide moisture protection and media isolation at threaded mounting areas and wire termination points.

Principle of Operation

The hermetically sealed reed switch located inside the stem is actuated by a magnetic field created by a magnet equipped float. As the float rises and falls with the liquid level, the magnetic field passing the switch causes the switch to either open or close.

Omega switches can be mounted from tank top, tank bottom or can be easily adapted for side mounting. Switches will operate normally with up to a 30 degree tilt from vertical.

Switch Configuration

Most single point switches with a SPST (single pole, single throw) switch operate in either a Normally Open (NO) or Normally Closed (NC) mode in the dry condition. All switches are shipped in the Normally Open dry mode. To change from the Normally Open to the Normally Closed mode, carefully remove the clip at the end of the stem, remove the float, reverse the float, then reinstall the float. After replacing the float and end clip, the operation will be Normally Closed. All Teflon switches are non-reversible and must be ordered in either the NC or NO mode.

Single Pole switches offer both NO and NC mode. Selection is made simply by choosing the black and red wire for NO operation or the black and white/red wire for NC operation.

Maintenance

Maintenance of the OMEGA level switches is minimal. Floats and stems should be inspected periodically for buildup on the stem which could cause float hangup and or significant buildup on the float that could change specific gravity of the float.



omega.com info@omega.com

Serviceing North America:

U.S.A.:

Omega Engineering, Inc., One Omega Drive, P.O. Box 4047
Stamford, CT 06907-0047 USA
Toll-Free: 1-800-826-6342 (USA & Canada only)
Customer Service: 1-800-622-2378 (USA & Canada only)
Engineering Service: 1-800-872-9436 (USA & Canada only)
Tel: (203) 359-1660 Fax: (203) 359-7700
e-mail: info@omega.com

For Other Locations Visit omega.com/worldwide

The information contained in this document is believed to be correct, but OMEGA accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS / INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. **BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS).** The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY RETURNS**, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY REPAIRS**, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering. OMEGA is a registered trademark of OMEGA ENGINEERING, INC.

© Copyright 2015 OMEGA ENGINEERING, INC. All rights reserved. This document may not be copied, photocopied, reproduced, translated, or reduced to any electronic medium or machine-readable form, in whole or in part, without the prior written consent of OMEGA ENGINEERING, INC.