VARIOUS TECHNOLOGIES INCORPORATED

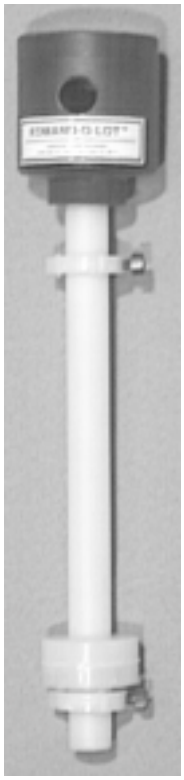
Komand-O-Lot™
Series LS-40 & 50

Publication PL-010-1993

VERTICAL PULSING AND LATCHING MULTI-LIQUID LEVEL SWITCHES

The LS-40 and LS-50 are designed for use with low power panel mounted control relays, panel lights, and micro processor based panels. The main difference between the LS-40 and LS-50, is that the LS-40 switches momentarily turn on or off (depending on your selection of the normally closed or open contacts provided with each set point) as the singular float rises and falls, up and down the column. The LS-50 switches stays on or off as the level raises the floats up the column and releases the signal as the level falls causing the floats to drop down the column. Hence, the LS-40 is selected when momentary make or break signals are required by a latching control relay or microprocessor and the LS-50 is ideally suited for use with panel lights and non-latching control relays.

LS-40



The switch makes and breaks as the float rises and falls with the liquid.

SPECIAL PRODUCT FEATURES

CORROSION RESISTANT PLASTIC CONSTRUCTION

WATER TIGHT DESIGN

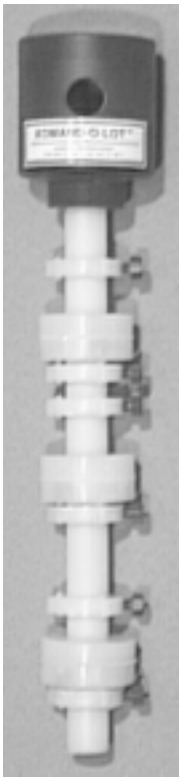
SWITCHING POWER TO 10WATTS/12VA

SWITCH VOLTAGES FROM 0 TO 200 VDC AND 230 VAC

UNIQUE STAND-OFF STOP RING PREVENTS FLOAT STICKING DUE TO SURFACE TENSION

IDEAL RETROFIT FOR EXISTING TROUBLESOME LEVEL SWITCHES

LS-50



The switches activate and stay on due to the floats hitting the stop rings as the level rises and breaks as the liquid level falls.

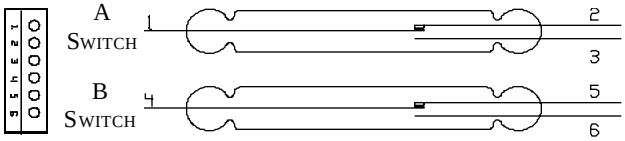
Safe and Reliable Switch Selection - In selecting a level switch, the total system design must be considered to assure safe, trouble-free performance. Switch function, material compatibility, adequate power ratings, proper installation, operation and maintenance are the responsibility of the system designer and user. Please feel free to ask for a copy of our Product Warranty.

Operation

At the heart of this unit is a magnetically sensitive switch containing two magnetically polarized surfaces. The normally open contact and common contact reed, are attracted to each other when exposed to a magnetic field. When the contacts come together an electric current can flow. When the magnetic field is removed from the switch, the common contact reed breaks contact with the normally open contact and electrical current flow is interrupted. The common contact reed rests on the normally closed contact and is now conducting electricity.

Typical LS-40 and LS-50 Signal Switches

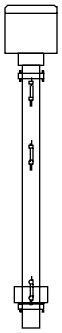
The terminal bar is located within the control head and will accept 22 to 16 AWG wire



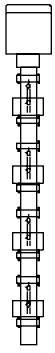
Simple Make or Break Single Pole Double Throw Switch

Pin Number	
1 & 4	
2 & 5	
3 & 6	

The major components of the LS-40 and LS-50 are the specially oriented magnets within the float, and the double throw single pole form "C" switch within the float shaft. As the float travels up and down the shaft due to the rising and lowering of the liquid level, the magnetic field in the float actuates the switch making or breaking the circuit.



The LS-40 has one float (as shown to the right) that travels up and down the column. The column switches actuate momentarily as the float passes the switch by. The stop rings located just above the upper most switch and lower most switch serve to maintain these switches in the actuated state.



The LS-50 has multiple floats, 1 for each set point (as shown to the left). Stop rings, applied to each set point, pin the float right on the switch keeping it actuated as the liquid level continues to rise. As the liquid level lowers, the floats lower releasing the signal switches.

Sample Product Specifications

Shall provide _____(quantity) Various Technologies Incorporated **LS-40**__-0___0 Komand-O-Lot™ multiple point pulsing liquid level switches with set points of __A, __B, ect. with an (overall column length) __OVL. The wet end column material shall be _____. The liquid level switch shall contain 1 heat fused float containing magnets that travel vertically up and down the heat fused column momentarily activating the switch. Float stop rings shall contain no stick surface tension float stand offs. The switches shall be double pole single throw configuration capable of switching 10 Watts or 12 VA. The entire switch head shall be of water tight design and manufactured out of corrosion resistant plastic.

Shall provide _____(quantity) Various Technologies Incorporated **LS-50**__-0__ __0 Komand-O-Lot™ multiple point latching liquid level switches with set points of __A, __B, ect. with an (overall column length) __ OVL. The wet end column material shall be _____. The liquid level switch shall contain one heat fused float containing magnets for each switch point specified. Float stop rings shall contain no stick surface tension float stand offs. Each switch point must be activated and maintained "on", as long as the liquid is at or above the switch point. The switches shall be double pole single throw configuration capable of switching 10 Watts or 12 VA. The entire switch shall be of water tight design and manufactured out of corrosion resistant plastic.

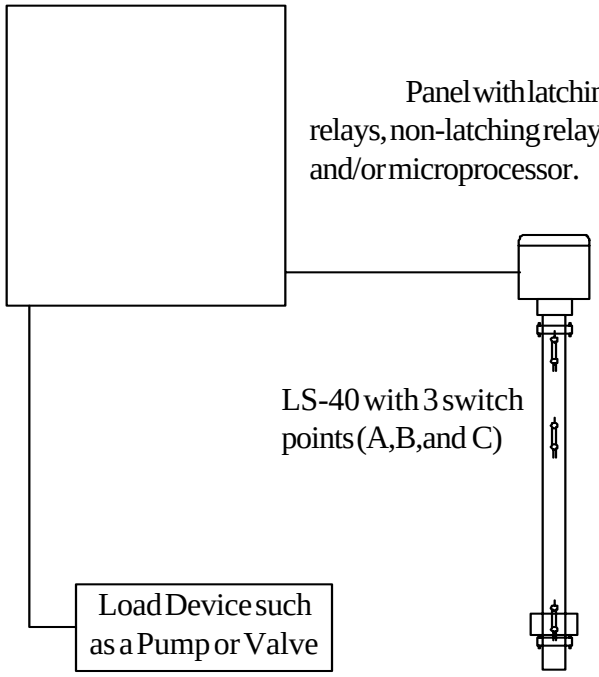
Switching Capacity Chart

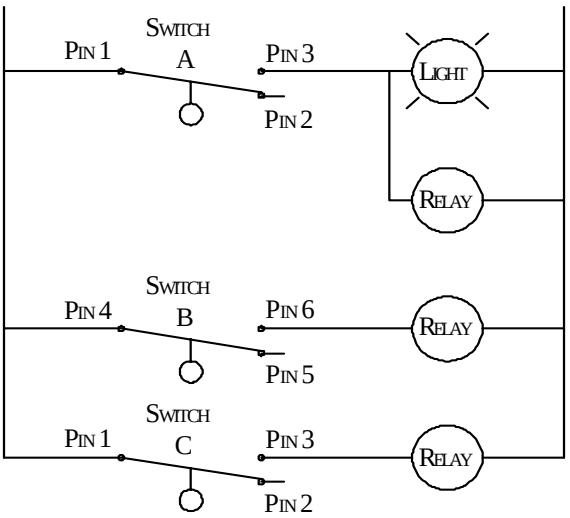
Voltage	Maximum Recommended Load Current (amperes)	
	DC	AC
5	.50	.50
12	.50	.50
24	.41	.50
48	.20	.25
120	.08	.10
200	.05	.06
230	NR	.05

The above table was calculated using P=IV where P= power was 10 Watts or 12 VA. I = amperes, V = Voltage.

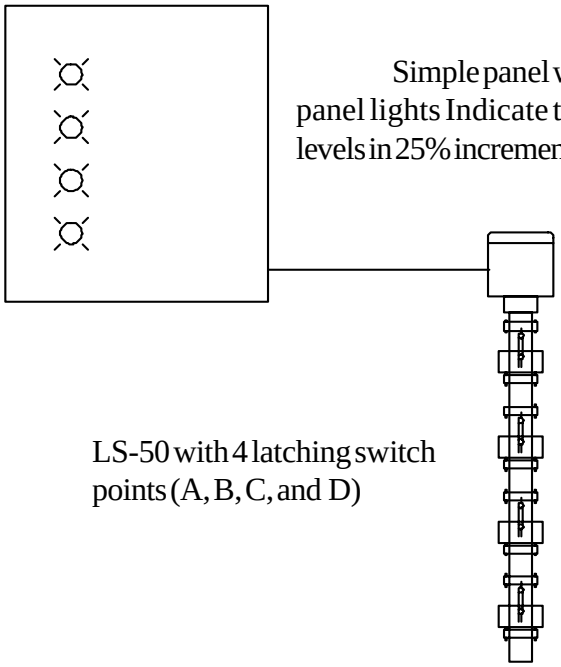
Note: Derate the current at least 50% for Solenoid Valves. Do not try to directly operate coils larger than 5 Watts or 6VA. For inductive loads use the inrush current when using the chart.

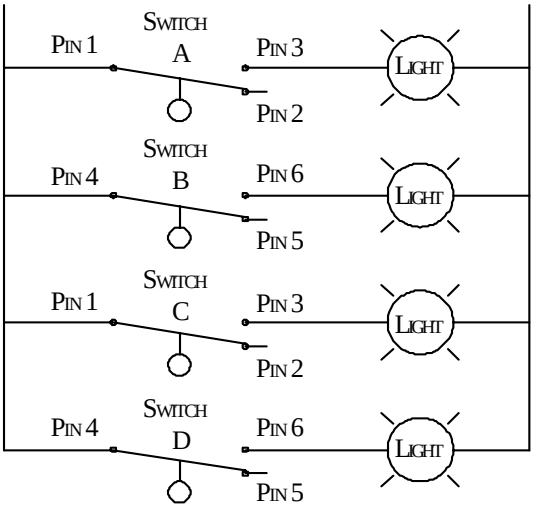
TYPICAL LS-40 APPLICATION





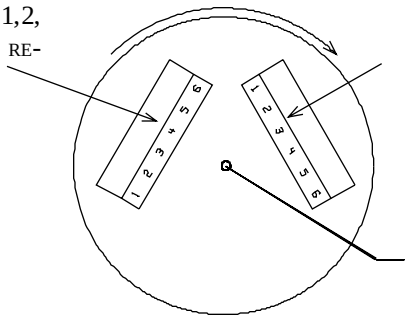
TYPICAL LS-50 APPLICATION





HOW TO WIRE

SWITCHES A AND B USE TERMINALS 1, 2, 3 AND 4, 5, 6 RESPECTIVELY



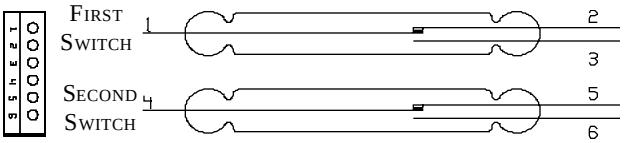
SWITCHES C AND D USE TERMINALS 1, 2, 3 AND 4, 5, 6 RESPECTIVELY

GREEN 14AWG WIRE IS FOR GROUNDING. IN CASE OF LIQUID PENETRATION

NOTE: SWITCH TERMINAL BARS ALWAYS START FROM "A" AND GO CLOCKWISE AS YOU LOOK DOWN ON THE SWITCH HEAD. WHEN MORE THAN 4 SWITCH POINTS ARE SELECTED, THE "A" SWITCH IS PUNCHED ON THE PLATFORM IN FRONT OF THE TERMINAL BAR

TYPICAL LS-40 AND LS-50 SIGNAL SWITCHES

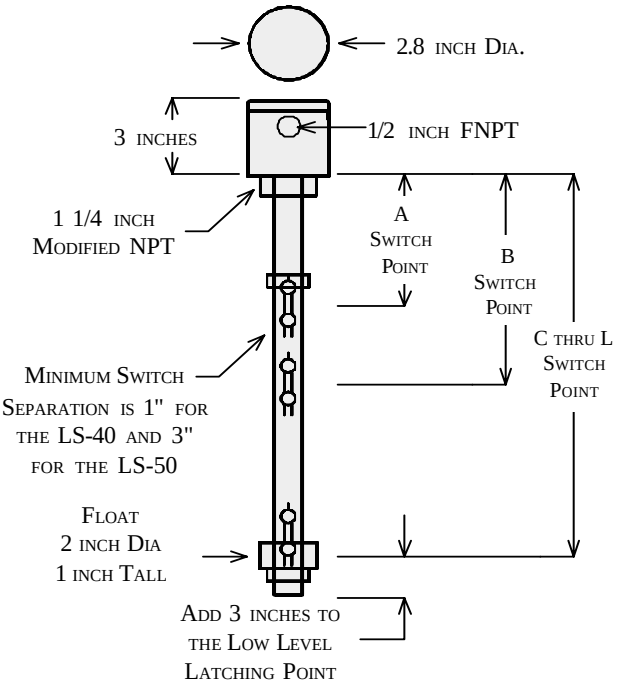
THE TERMINAL BAR IS LOCATED WITHIN THE CONTROL HEAD AND WILL ACCEPT 22 TO 16 AWG WIRE



SIMPLE MAKE OR BREAK SINGLE POLE DOUBLE THROW SWITCH

Pin Number	Function
1 & 4	Common Leg (Power In)
2 & 5	Normally Closed Contact Out To Load
3 & 6	Normally Open Contact Out To Load

LS-40 AND LS-50 DIMENSIONS



LS-40 AND LS-50 SPECIFICATIONS

MATERIAL: POLYPROPYLENE (PP)
Polyvinylidene Fluoride (PVDF)
WIRE: Switch Terminal Bar 22-16 AWG
BUOYANCY: 50% for Polypropylene in H_2O
30% for Polyvinylidene Fluoride in H_2O
MOUNTING ATTITUDE: +/- 20 degrees in clean liquid
COLUMN / TANK CLEARANCE: Flush in clean liquid.
3 inches from the bottom of the tank in precipitate or sediment bearing liquids.
HOUSING: Water Tight. For outdoor installations a vent must be installed into the cap to prevent condensation due to tempera ture fluctuations.
TEMPERATURE RANGE: Control Head: 40^{O}F-120^{O}F
WET END TEMPERATURE RANGE:
PP: 32^{O}F-180^{O}F
PVDF: 32^{O}F-210^{O}F
ANTI - TURBULENCE SHROUD: Optional
Mounting: See Mounting Bracket Literature

HOW TO ORDER

LIQUID LEVEL SWITCH
SERIES LS-40 OR LS-50

L S - **4** **0** **P** - 0 **1** **B** 0

OVERALL COLUMN LENGTH
2 = UP TO 6 FEET
3 = UP TO 9 FEET
4 = UP TO 15 FEET
5 = UP TO 20 FEET

FLOAT AND COLUMN WET END MATERIAL
P = PP
F = PVDF

NUMBER OF SWITCHES

A = 1	E = 5	I = 9
B = 2	F = 6	J = 10
C = 3	G = 7	K = 11
D = 4	H = 8	L = 12

+

THE ACTUAL SET POINTS REQUIRED FOR YOUR SPECIFIC APPLICATION. DIMENSIONS ARE MEASURED FROM THE MEASURING LINE TO THE SWITCH TRIGGERING POINTS.

X"AX"BX"C UP TO X"L-X"OVL
(SEE FIGURE ABOVE)

PLEASE INCLUDE THIS INFORMATION IMMEDIATELY AFTER THE PART NUMBER

EXAMPLE

A multi-point liquid level switch with set points of 6 inches 8 inches, and 18 inches from the top of the tank is need to hook up to a control panel. The panel has a latching relay for the 8 and 18 inch set point and a relay for the high point. Polypropylene is required for the wet end material.

From the above we know the overall column length is 21 inches (18"+3"). The column Length Code is "2" (under 6 feet). The Material Code is "P" for Polypropylene. The switch code is "C" for 3 switches.

The part number is simply LS-40P-01C0 with set points 6A, 8B, 18C - 21OVL

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