KAYCEE



LIMIT SWITCHES

DESCRIPTION :

Kaycee Limit Switches type KLS have been specially designed to convert a mechanical motion into an electrical control signal. The mechanical motion is usually in the form of a cam, a machine component or an object moving towards a predetermined position. The cam engages the limit switch roller lever or plunger and in turn makes or breaks an electrical contact inside the switch. This electrical control signal is then used to limit, position or reverse motion travel or to initiate another operating sequence It can also be used for counting, sorting or as a safety device. Typical applications of the Kaycee Limit Switch are in the control circuit of solenoids control relays and motor starters (which control the motion of the machine tools), presses, conveyors, hoists, elevators and practically every type of motor driven machines.

APPLICATIONS :

Kaycee Limit Switches are available in four basic types. They are normally used where actuation is relatively fast or for snap action where action is relatively slow. The extended NO contact closes considerably after the NC contact opens and the overlapping NO contact closes before the NC contact opens.

The basic limit switches are also available in standard die cast aluminium housing with or without oil tight enclosure and with three types of actuators, namely, push rod, normal roller lever and angular roller lever.

CIRCUITRY :

Type KLS is available having 1 NO and 1 NC contact arrangement.

SPECIFICATION :

Switches conform to AC II duty as per IS 6875 (Part 1)—1973 and IS 2147/1962 for degree of protection of enclosure.

CAUTION FOR APPLICATION :

The following general rules should be followed when installing a limit switch.

1. Make sure the electrical load is within the limit switch contact rating.
2. Do not connect the double pole contacts to opposite polar rating.
3. Adjust the lever arm parallel to the leading guage of the cam. 45° is recommended.
4. Over travel of the limit switch should not be exceeded. 5° to 15° is recommended.
5. Do not allow the lever arm to snap back. A gradual controlling guage should be used on cams which travel beyond the roller.
6. When possible, avoid mounting limit switches where they will be constantly exposed to coolant, chips etc. Although designed for such applications the switches will last longer when not exposed to these contaminants.
7. When possible avoid use of fire resistance coolants of the phosphate ester type.
8. See that leakage through conduit system into a standard limit switch is avoided by proper conduit entry and sealing.

Execution		Design	Code	Contacts		Enclosure according to IS : 2147/1962
				Arrangement	No. of Contacts	
Open		With push rod	KLS 000X-OA KLS 000X-OB KLS 000X-OC KLS 000X-OD	Normal Snap Action Ext. Stroke Overlapping	1 NO + 1 NC	IP 00
		With Push rod & Plastic Protective Cover	KLS 001X-OA KLS 001X-OB KLS 001X-OC KLS 001X-OD	Normal Snap Action Ext. Stroke Overlapping	1 NO + 1 NC	IP 40
In standard die-cast aluminium housing		With Push rod	KLS 002X-OA KLS 002X-OB KLS 002X-OD	Normal Snap Action Overlapping	1 NO + 1 NC	IP 43
		With normal roller lever	KLS 003X-OA KLS 003X-OB KLS 003X-OD	Normal Snap Action Overlapping	1 NO + 1 NC	IP 43
		With angular roller lever	KLS 004X-OA KLS 004X-OB KLS 004X-OD	Normal Snap Action Overlapping	1 NO + 1 NC	IP 43
In oil-tight die-cast aluminium housing		With push rod	KLS 005X-OA KLS 005X-OB KLS 005X-OC KLS 005X-OD	Normal Snap Action Ext. Stroke Overlapping	1 NO + 1 NC	IP 65
		With normal roller lever	KLS 006X-OA KLS 006X-OB KLS 006X-OC KLS 006X-OD	Normal Snap Action Ext. Stroke Overlapping	1 NO + 1 NC	IP 65
		With angular roller lever	KLS 007X-OA KLS 007X-OB KLS 007X-OC KLS 007X-OD	Normal Snap Action Ext. Stroke Overlapping	1 NO + 1 NC	IP 65

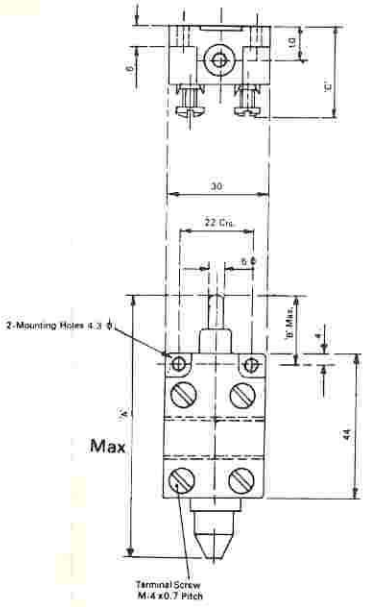
Technical Data :

Limit Swiches For Rating upto 500 VAC 600 VDC 10 A

Insulation Rating	500 V A.C. 600 V D.C.				
Continuous Current	10 A				
Making & Breaking Capacity	40—60 Hz. A.C. 11 duty as per IS 6875 (Part I) of 1973.				
Rated Operational Current and making breaking capacity	Voltage V	Rated Operational Current Ie A	Rated Making Capacity A	Rated Breaking Capacity A	
	24	6(3)	66(33)	66(33)	
	125	6(3)	66(33)	66(33)	
	220	6(3)	66(33)	66(33)	
	380	6(3)	66(33)	66(33)	
	415	4(3)	44(33)	44(33)	
	500	4(3)	44(33)	44(33)	
Short Circuit Protection	20A HRC/DZ (16A)				
Mechanical Life	15 Millions				
Contact Life—A.C.	Breaking Current Amps.	1	3	6	10
	Contact life (million cycles)	15 (10)	5 (3)	2.5 (2)	1 (0.8)
Heavy Duty Making & Breaking Capacity	Max. Rating Per Pole Voltage V A.C. — Switching Capacity: Making — Breaking 120 — 60 A — 6 A 240 — 30 A — 3 A				
Breaking Capacity D.C.	Voltage V	Resistive* Load (DC11) A	Inductive* Load (DC 11) A		
	24	10 (7)	10 (7)		
	110	2.2 (1.50)	1.3 (0.91)		
	220	0.9 (0.62)	0.4 (0.28)		
	440	0.4 (0.28)	0.2 (0.14)		
	600	0.3 (0.21)	0.14 (0.1)		
Switching Frequency At temp. below-20°C only 500 make/break ops/hour are possible	Breaking Current A	Switching Frequency Max. Opn./h			
	0.1	6000			
	1.0	3000			
Mechanical Switching Accuracy	The repeat accuracy of two successive making or breaking operations is 0.01 mm.				
Ambient Temp.	—40°C to + 85°C				
Degree of Protection As per IS 2147 (1962)	Open Type Cast-metal Clad Electrical Connectors For Limit Switches	IP 00 IP 43 For Normal IP 65 For oil-tight			
Conductor Sizes (M-4 Screw Terminals)	2 x 1.5 mm² finely stranded with end sleeves 2 x 2.5 mm² solid (do not use cable lugs)				
Cable Entry For Cast-metal Housing	3/4" I.S. Conduit Pipe				
Protective Earth. Conductor Connection Inside Housing Outside Housing	M-4 Tapped hole M-4 terminal screw				
Housing	Cast Aluminium				
Mounting Position	Any				

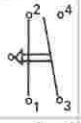
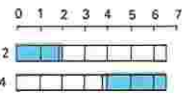
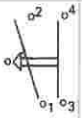
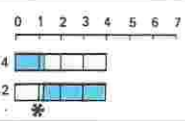
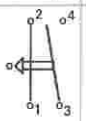
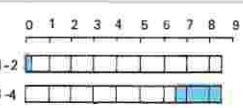
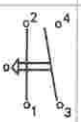
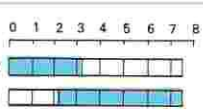
* The figures in brackets apply to snap action switches.

DIMENSIONS (All in m.m.)



DRG. NO. LS.C 19020/2

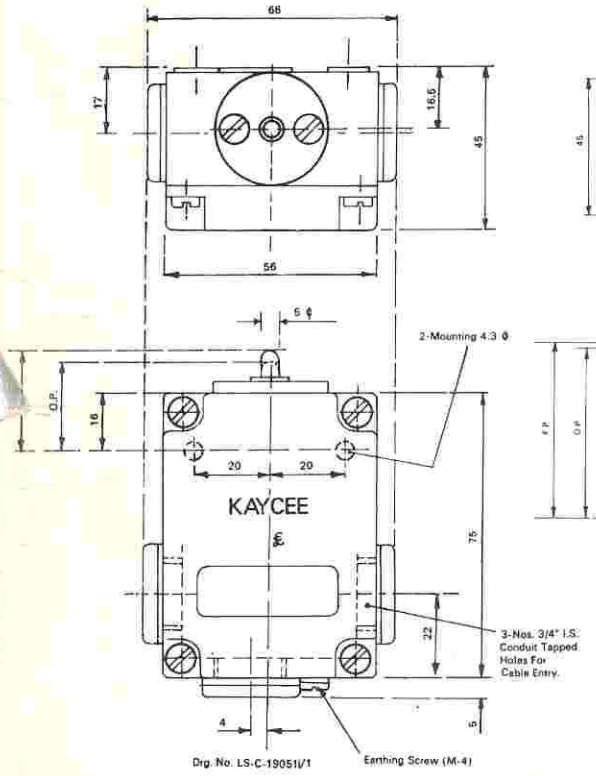
BASIC SWITCH

Code	Dimensions A	B	C	Contact Arrangement	Terminal Markings	Travel (mm.) Zero line = Initiation of Push-rod.movement — Contact closed / Contact open	Force required at end stop when actuated: in direction of stroke approx. kg.	in lateral direction at permiss angle of actuation approx. kg.
KLS 000X-OA	81	21	25				1.5	0.7
KLS 001X-OA	81	21	30					
KLS 000X-OB	79	19	25				1.5	0.9
KLS 001X-OB	79	19	30					
KLS 000X-OC	81	21	25				1.2	0.7
KLS 001X-OC	81	21	30					
KLS 000X-OD	81	21	25				1.2	0.7
KLS 001X-OD	81	21	30					

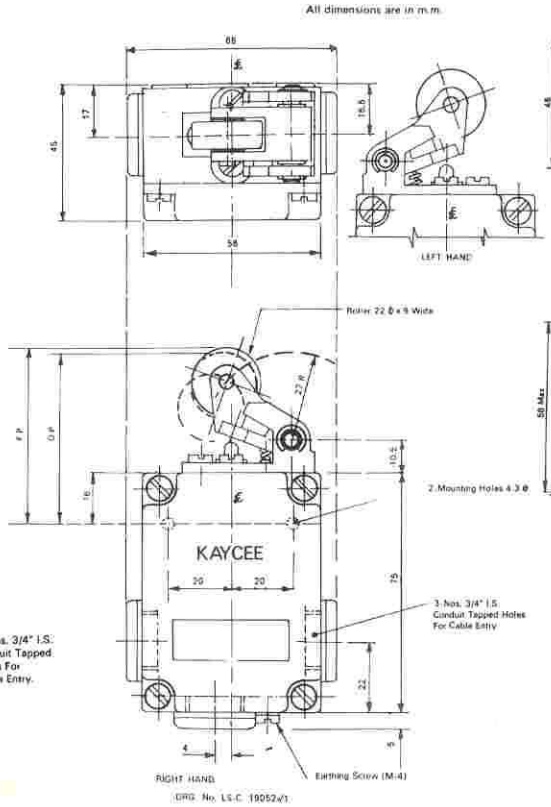
✱ Operating point during return travel.

IN STANDARD DIE CAST ALUMINIUM HOUSING

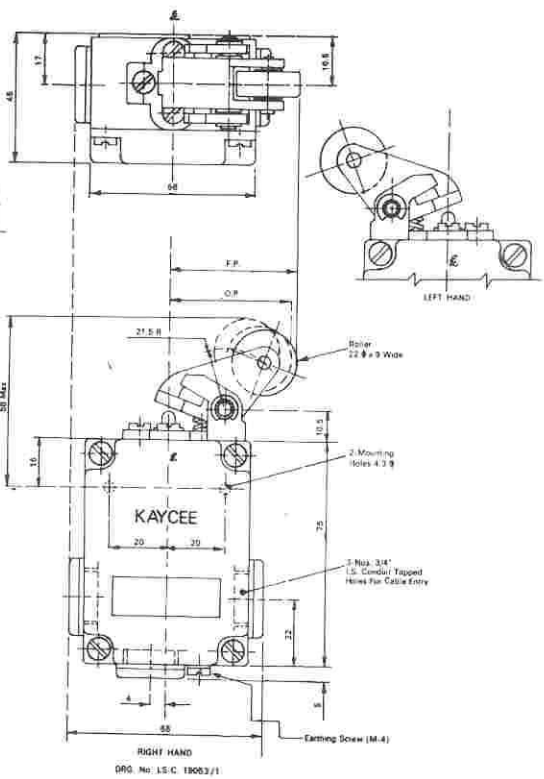
All dimensions are in m.m.



Drg. No. LS-C-19051/1



DRG. No. LS-C. 19052/1



DRG. No. LS-C. 19053/1

Note: For basic switch details refer to our drawing no. LS-C 19020/1

Characteristics —

CODE	F.P. (Max.)	O.P.	O.T. (Max.)
KLS 002X-OA	28	24.5	3.2
KLS 002X-OB	—	—	—
KLS 002X-OD	28	25.5	5.0

PUSH ROD

Characteristics :—

CODE	F.P. (Max.)	O.P.	O.T. (Max.)
KLS 003X-OA	56	51-2	5.0
KLS 003X-OB	—	—	—
KLS 003X-OD	56	52.0	6.0

NORMAL ROLLER LEVER

Characteristics :—

CODE	F.P. (Max.)	O.P.	O.T. (Max.)
KLS 004X-OA	44.5	40-5	3.2
KLS 004X-OB	—	—	—
KLS 004X-OD	44.5	41.5	5.0

ANGULAR ROLLER LEVER

GENERAL TOLERANCES.	
Full Figure	± 1
Upto 1st Decimal	± 0.5
Upto 2nd Decimal	± 0.25

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