

Burgess

Snap-Action Limit Switches L3 and L6 Series

Single-pole, double-break, changeover, snap-action switch bodies and associated plunger and rotary action actuator heads co-assemble to form industrial limit switches of special appeal. Features include rapid wiring facilities, excellent environmental protection, full actuator adjustment and conformity to the major international specifications. Now available with plunger cowled, non-removable, factory-sealed heads.



Pages 170-171

Assembly of plunger actuator head and L3 switch body



Pages 170-171

Assembly of plunger actuator head and L6 switch body



Pages 170-171

Assembly of roller-plunger actuator head and L3 switch body. The head may also be used with an L6 switch body.



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The range of rotary action actuator heads, each of which may be used with either L3 or L6 switch bodies.



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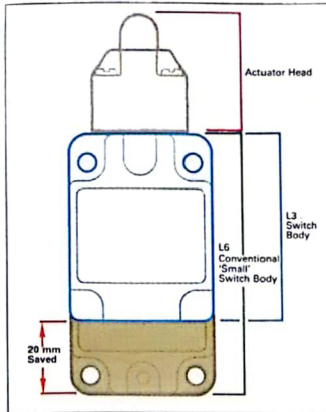


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The L3 and L6 series limit switches (sealed with plunger cowl). The L6 version is based on DIN 43694 while the L3 version is of more compact size. Cowled, factory-sealed heads (suffix 'C') are non-removable. Other switch bodies and actuator heads are offered as separate items and are described thus on the pages shown.

The Two Series

L3 and L6 limit switches are generally similar except in one particular-size. They meet international creepage and clearance requirements with equal ease, they share the same mechanical and electrical performance characteristics and their wiring facilities are comparable. But, whereas the switch body of the L6 limit switch is 73 mm, 2.87 in, high in conformity with the standard for small units, that of the L3 limit switch is only 53 mm, 2.08 in, high and saves over 800 mm², 1.23 in², of valuable installation area.



Because of their small size, the L3 switches need, and are provided with, only two mounting holes. These are set in a horizontal line at 30 mm centres. The L6 switches are provisioned conventionally with four mounting holes on a 30 x 60 mm matrix. Both types of switch bodies will accept any of the listed actuator heads and, as the mounting hole datum line is the same in both cases, direct interchangeability with all limit switches built to DIN 43694 is assured provided, when using the L3 assembly, that facilities exist on the application for two-hole, horizontally aligned mounting.

The Switch Bodies

Enclosure

Metal diecasting with sealing gasket and a removable thermoplastic front cover secured by captive screws. The conduit entry at the base of the casting is tapped 20 mm ISO, 1/2 in NPS, PG11 or PG 13.5 (other styles available on special order). An internal earth (ground) screw is situated conveniently close to the conduit entry and a tapped hole is provided externally for an alternative earth. The top of the casting is recessed to provide a strong seating for the actuator head.

Insert Module

One-piece moulding accommodating both the switching element and the terminals. It is secured to the casting by one screw accessible from the front. The switch is a single-pole, double-break, changeover, snap-action micro switch and both it and the wires which connect it to the terminals are potted in epoxy resin for protection. Four terminals, which are immediately accessible when the front cover is removed, consist of 6-32 screws with non-rotating washers. Replacement inserts are available – see page 171.

Electrical Ratings

The ratings in the following table are in amperes and are recommended maxima.

Voltage	Resistive Load	Tungsten Lamp Load	Inductive Load
AC			
125	7	0.5	5
250	7	0.5	5
DC			
Up to 15	7	2	7
30	7	2	5
50	2	1	2
75	1	0.5	2
125	0.5	0.4	0.06
250	0.25	0.2	0.03

Ratings to IEC recommendations 337-1 for control gear:

Insulation voltage U_i 250 v
Operational voltage U_e 250 v AC and DC
Thermal current I_{th} 10A
Rated current I_e 0.5A AC
0.1A DC

Utilization categories AC11, DC11

Wiring

The terminals are readily accessible to the installer when he removes the front cover. They are directly in line with the conduit entry and a ramp literally guides the wires to their destination. #14 gauge wire, usually so troublesome in small units, can be accommodated with ease. For added convenience there is a diagram of connections on the inside front cover.

Mounting

L3 units have two mounting holes, L6 units have four. Use M5 or #10 screws with shakeproof washers and mount to a firm, flat surface. The mounting holes do not give access to the switch interior so need not be sealed.

Approvals and Specifications

All assemblies carry UL and CSA approvals. Clearances and creepage distances conform to VDE0110 and VDE0660. DIN specification 43694 is relevant except for the following minor deviations:–

- Mounting holes are round to facilitate accurate positioning.
- The L3 limit switch has only two mounting holes.
- Alternative conduit entries are offered in addition to the DIN specified PG13.5



In order to offer maximum variety and flexibility, L3 and L6 series switch bodies and actuator heads are sold as separate items. Any switch body will accept any actuator head in these series.

The Actuator Heads

Two versions of the L3 and L6 are available. The sealed cowlled version has factory-fitted heads which are not removable by the user. The other offers the option of fitting head and body units which are supplied separately. The L632 head may be mounted on the switching unit to present the roller either parallel with or at right angles to the mounting plane.

The rotary action heads can be fitted in one of four positions depending on the application. A choice of operational direction is also available; the switch can operate when the lever is turned clockwise, anti-clockwise or in both directions. To achieve switch operation in both directions with rotary action heads, position the slot in the plunger at right-angles to the spindle; for one-way operation, position the off-centre slot parallel with the spindle and away from the desired direction of operation.

To adjust the angle of the actuator lever, loosen the self-locking unit at the end of the actuating spindle, manipulate the vernier components and lever until they mesh in the desired lever position and then tighten the nut to lock the lever. To change the effective length of rod or slotted lever actuators, loosen the self-locking nut, slide actuator to desired position and re-tighten nut.

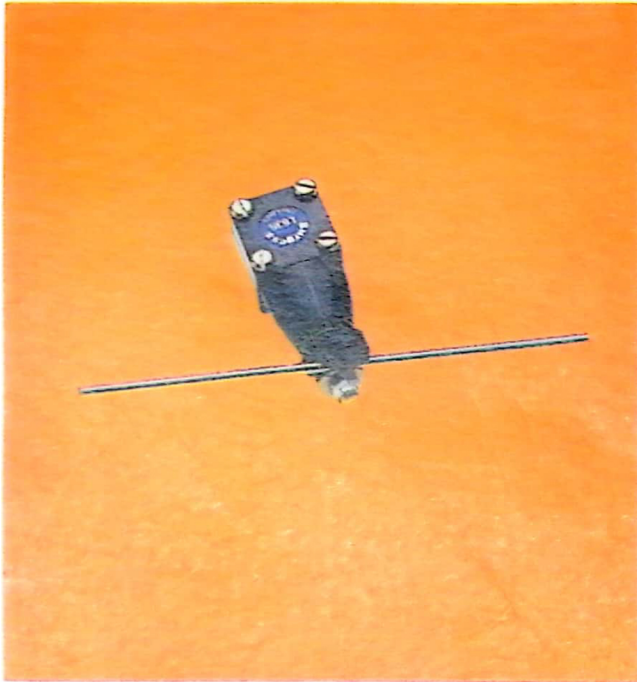
Environmental Data

It is recommended that PTFE tape or an approved compound should be applied to conduit or cable gland before screwing it into the conduit entry. Check for earth continuity and ensure that moisture which may be present in the conduit or cable cannot drain into the switch interior. When this is done, when the actuator head is mounted on the switch body correctly and when the front cover is secured to the switch body with its gasket in place, then the complete assembly is sealed against the ingress of dust and liquid splashing to the degree indicated by IP65 and NEMA Type 13.

Cross References

L3 Positive Action Limit Switches – pages 81 and 208-210.
L25 Snap-Action Limit Switches – next page and pages 175-176.
Metal Housed Micro Switches – pages 56-61.

Actuator Head L635



Rotary action actuator head providing 90° total travel in both directions. For use with any L3 or L6 Series Limit Switch body listed on page 170. The switch body should be ordered separately.

Actuator	Stainless steel rod, 153 mm (6 in) long, clamped to an actuating spindle by means of vernier components and a self-locking nut. Overtravel and spring return mechanisms, sealing and mechanical linkage provided
Positions and Adjustments	The rod may be pointed towards any of four cardinal points and is adjustable through 360° in vernier controlled steps of 1.5°. It may be clamped anywhere along its length, thus offering 140 mm (5.5 in) radius adjustment
Housing	Plastic mounting designed to be held by four screws in a recess at the top of the switch body diecasting
Direction of Operation	Single way, either clockwise or counter-clockwise, or both ways
Operating Characteristics of body and head assembly:	
Pretravel (max)	26°
Movement Differential (max)	11°
Total Travel (max)	90°
Actuating Torque (max)	0.3 Nm 42 ozf-in
Mechanical Life	Between 1 and 10 million operations
Weight (head alone)	85 g max

L3 and L6 Series Limit Switches are described on pages 62-63.

