

Burgess

Standard Size, Metal Case, Enclosed Terminal Micro Switches

Complementary to, and generally dimensionally interchangeable with, the plunger actuated moulded case micro switches described on the previous two pages, these metal cased models offer increased resistance to physical damage as well as a greater variety of styles. All are single-pole, changeover, snap-action switches with trident spring mechanisms exhibiting repeat accuracy of a very high order.



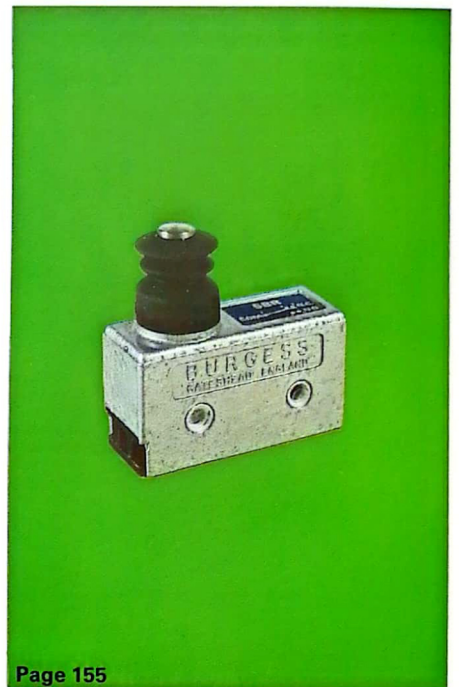
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Cowl protected spring plunger actuator models for normal or moist environments



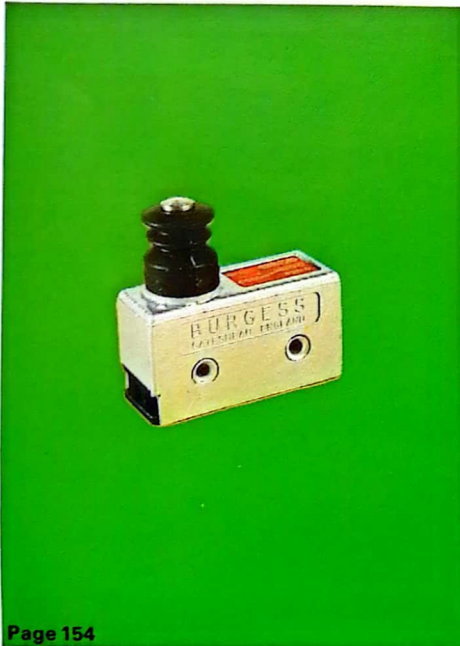
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Spring plunger actuator with screwed sleeve for optional single-hole mounting



Page 155

"Split contact" model with two top and two bottom fixed contacts and five terminals



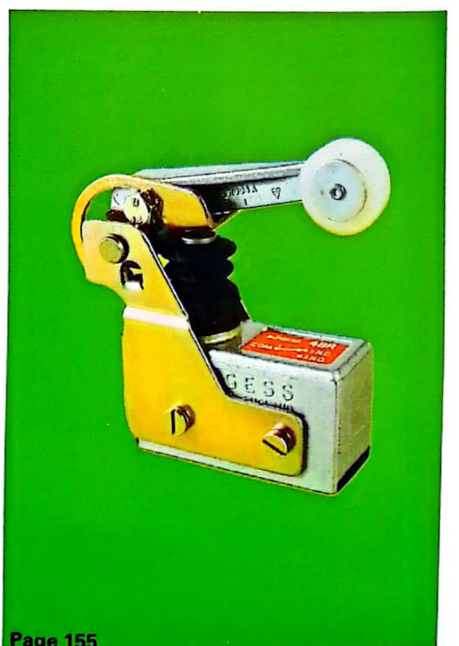
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Models with alternate operating characteristics



Page 155

Spring plunger actuator with in-line roller. Single-hole mounting facilities



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Adjustable roller-lever auxiliary actuator for optional use with switches having protected plungers

Individual descriptions of all these models appear on the pages shown.

Construction

Mechanism

Switches with reference prefixed '4': single-pole, changeover, snap-action micro switches using beryllium copper trident spring with silver contacts. Normally closed only or normally open only works obtained by using just two of the three terminals provided. Switches with references beginning '4CR' have slightly off-set plunger actuators, a feature which affects operating characteristics. All '4B' and '4C' models except 4CR7 have electrical ratings shown in table 1. Switch reference 4CR7 features wide contact separation which improves its DC performance and increases its actuating force; its electrical ratings are shown in table 2.

Switch reference 5BR: this is a 'split contact' model with five silver contacts and five terminals. In the free position the moving contact mates with two top contacts and, after changeover, it mates with the bottom two contacts. This arrangement meets the needs of some industrial applications but a discussion with Burgess Engineers is recommended before use. Frequently it is advantageous to use a double-break switch to provide the same facilities.

Enclosure

Metal case with plastic insulation and base plate. The cowl fitted to protected plungers is synthetic rubber.

Integral Actuators

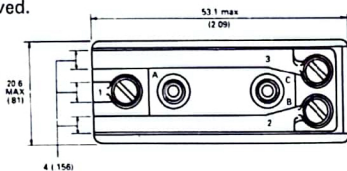
Protected plungers: heavy duty steel type with cowl. The return to free position after operation is spring assisted.

Plungers with screwed sleeves: spring assisted, plain or with in-line plastic roller.

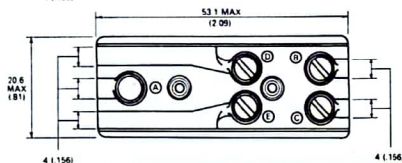
Terminals

6BA screws and captive washers set in wiring channels and accessible when the insulated base plate is removed.

4BR and 4CR types – switch base with cover removed.



5BR – switch base with cover removed.



Electrical Ratings

Ratings, in amperes, are recommended maxima. The abbreviations NC and NO mean normally closed and normally open terminals.

Table 1 – Standard Ratings

Voltage	Resistive Load	Tungsten Lamp Load		Inductive Load
		NC	NO	
AC				
125	15	1.5	1.0	5
250	15	0.7	0.5	5
DC				
Upto 15	15	3	1.5	8
30	2	3	1.5	1
50	0.7	0.7	0.7	0.5
75	0.6	0.5	0.5	0.2
125	0.5	0.4	0.4	0.03
250	0.25	0.2	0.2	0.02

Table 2 – Switch Reference 4CR7

Voltage	Resistive Load	Tungsten Lamp Load		Inductive Load
		NC	NO	
AC				
125	15	3	1.5	15
250	15	3	1.5	15
DC				
Upto 15	15	5	4	15
30	15	3.5	2	15
50	5	2	1.5	5
75	2.5	1	0.75	2
125	0.75	0.5	0.5	0.5
250	0.5	0.25	0.25	0.25

Table 3 – Switch Reference 5BR

Voltage	Resistive Load	Tungsten Lamp Load		Inductive Load
		NC	NO	
AC				
125	10	1.5	1.0	5
250	5	0.7	0.5	5
DC				
Upto 15	15	3	1.5	8
30	2	3	1.5	1
50	0.7	0.7	0.7	0.5
75	0.6	0.5	0.5	0.2
125	0.5	0.4	0.4	0.03
250	0.25	0.2	0.2	0.02

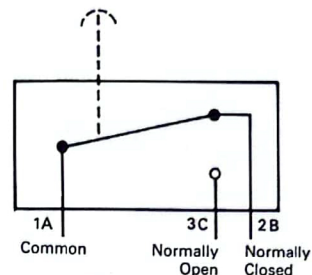
Installation and Service

Mounting

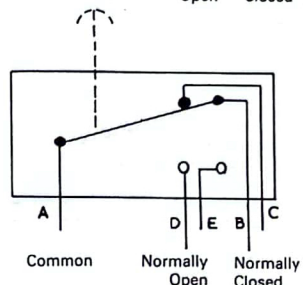
All models are suitable for side-mounting to a flat surface. Use M3.5 or #6 unified thread screws, preferably with lockwashers. Models with screwed sleeves may be single-hole mounted. The recommended clearance hole is 12.7 mm (0.5 in) diameter, or use a tapped hole of 11.9 mm (0.47 in) diameter, 32 TPI Whitworth form. Full installation instructions are provided with each consignment of switches.

Diagram of Connections

Switches with prefix '4' references

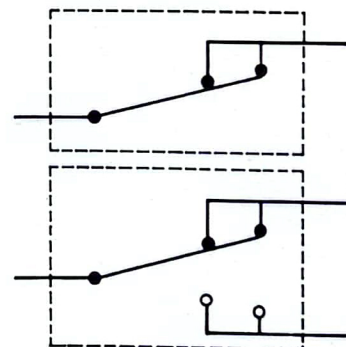


Switch reference 5BR

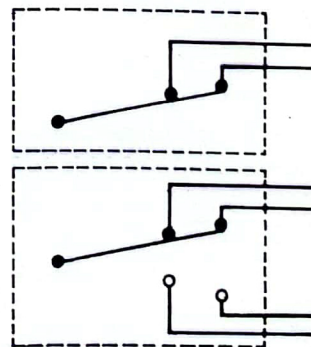


5BR Switch Connections

Split contact switches should be installed with care. If for any reason they are used as normal on-off or changeover switches they should be connected in the following manner:-



Connections made in the manner shown below should be avoided:



Environmental Data

Note one model, reference 4BR/510, page 154, is sealed and pressure tested.

Service Recommendations

Keep switches reasonably clean, especially around the actuator area. Check periodically for secure mounting and for wear on the actuating medium.

Cross References

Moulded cased models – pages 50-51 and 151-153.

Double-break models – pages 55 and 157-158.

4CRQR



Actuator Spring plunger with in-line roller.
Screwed sleeve

Mechanism Single-pole, changeover

Mounting	Single hole or side mounting	
Terminals	Three 6BA screws with captive washers behind removable cover	
Electrical Rating	Recommended maximum 15A on 125 or 250 Vac. Full ratings on page 53 (table 1)	
Free Position (max)	30.1	1.19 in
Operating Position	29.3	1.16 in
	±0.7 mm	
Movement Differential (max)	0.05 mm	0.002 in
Available Overtravel	3.56 mm	0.14 in
Actuating Force (max)	2.8 N	10 ozf
Release Force (min)	1.1 N	4 ozf
Mechanical Life	Between 10,000 and 100,000 operations	
Enclosure	Mechanism only: IP40	
Temperature	-10° to +85°C	
Weight	95 g max	

This model and similar models are described in detail on pages 52-53

