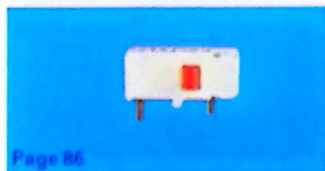


F Series Ultra Miniature Moulded-Cased Micro Switches

Amongst the world's smallest switches with power capabilities, these switches have surprisingly high current ratings and are engineered with precision for long and reliable life. Use them with confidence in instruments, test gear, hand tools, communication equipment and indeed in all applications demanding light and accurate control, especially – but not exclusively – where space is limited.

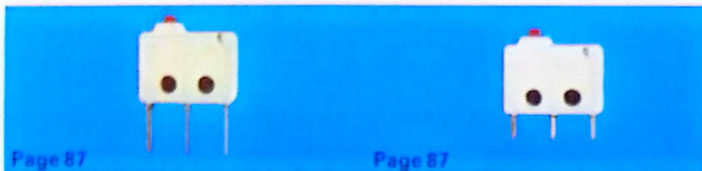
F1



Page 86

Plunger actuator. Side-protruding PC board tab terminals. Standard and low force models

F4



Page 87

Plunger actuator. 2 mm tab terminals

Page 87

Plunger actuator. Solder tag terminals

F5



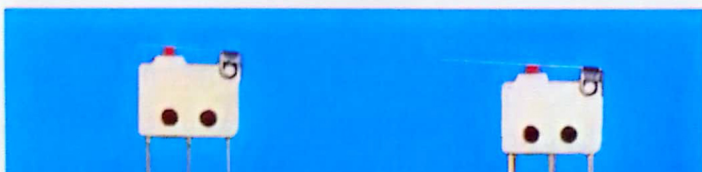
Page 88

Plunger actuator. PC board tab terminals



Page 86

Lever actuator. Side protruding PC board tab terminals. Standard and low force models

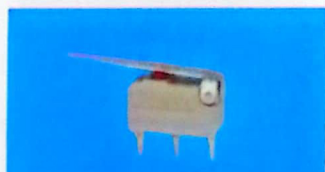


Page 88

Lever actuator. 2 mm tab terminals

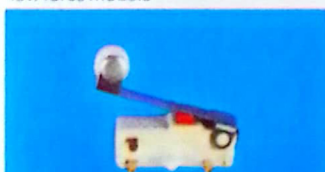
Page 88

Lever actuator. Solder tag terminals



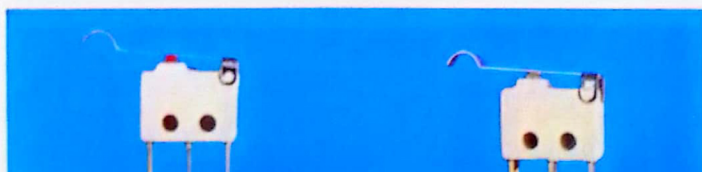
Page 89

Lever actuator PC board tab terminals



Page 87

Roller-lever actuator. Side-protruding PC board tab terminals. Standard and low force models

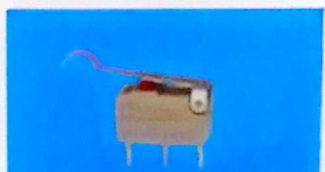


Page 89

Cam-following lever actuator. 2 mm tab terminals

Page 89

Cam-following lever actuator. Solder tag terminals



Page 90

Cam-following lever actuator. PC board tab terminals

Low profile switches designed primarily for printed circuit boards, with side protruding terminals. A moulded spigot, also side protruding, is provided to assist mounting. Changeover switching mechanisms of two ratings are offered to cater for either standard or low actuating force requirements. Plunger, integral plain lever and lever with roller actuators are available.

Conventionally styled switches with two side mounting holes and down pointing terminals suitable either for quick-connect receptacles (T6), solder connections (T7) or printed circuit board (T8). The changeover coil spring switching mechanism incorporates a double pivot which imparts a sliding and racking motion to the contacts as they make and break, a complex action which contributes to the switch's ability to control 7 amperes at 125 or 250 volts AC. As well as plunger and plain lever actuators, a lever formed to facilitate cam following is available. Mounting Frame MF4, page 90, offers lug mounting as an alternative to side mounting.

Similar to, but even smaller than F5 models, these switches have no side mounting holes and are fitted with printed circuit board tab terminals, down pointing and equi spaced at 5.08 mm, 0.2 inch, intervals to suit the international standard pitch. Mounting is normally by the terminals or by side adhesion. Mounting Frame MFA may be used for lug mounting, but, having no side holes, the switch will require some additional restraint.

All models available with silver or gold contacts. The series consists of 30 models which are described individually on the pages shown above. A mounting frame for base-protruding terminal models and an insulating sheet are listed on page 90.

Construction

Mechanism

Single-pole, snap-action, changeover with three terminals. Normally open only or normally closed only working is obtained by selecting the appropriate two terminals. Changeover time is sensibly independent of plunger speed. Contacts are either silver or gold as specified.

Enclosure

Moulded in flame-retardant reinforced plastic.

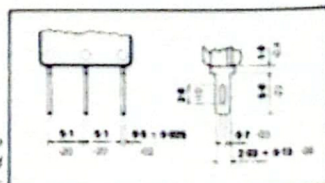
Actuators

Plungers are moulded in nylon. Levers are produced in stainless steel.

Terminals

Copper, gold flashed.

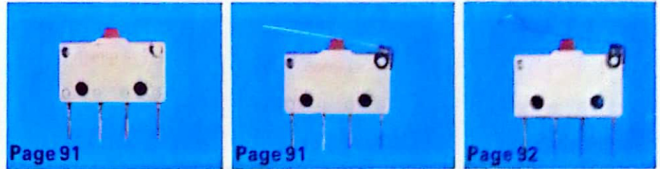
Quick connect T6 tab terminals 2.0 mm type as used on F4T6 models



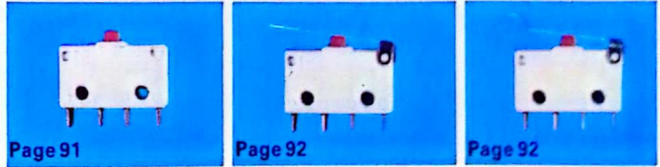
Burgess

FK Series Sub-Miniature Double-Break Micro Switches

Moulded-cased, single-pole, changeover, snap-action switches which open or close the conductors at two points, thereby increasing the available contact separation. Size-wise, they fall between F4 series switches and V4 series switches although mounting positions interchange with the latter.



Page 91 Plunger actuator 2 mm tab terminals
Page 91 Lever actuator 2 mm tab terminals
Page 92 Cam-following lever actuator 2 mm tab terminals



Page 91 Plunger actuator solder tag terminals
Page 92 Lever actuator solder tag terminals
Page 92 Cam-following lever actuator solder tag terminals

All models available with silver or gold contacts. The switches are described individually on the pages shown above. An insulating sheet is listed on page 106.

Electrical Ratings

Ratings are in amperes and in all cases are recommended maxima. The abbreviations NC and NO mean Normally Closed and Normally Open contacts.

Switches with References beginning F1
Right – Low Force Models, F12T1 etc.
Below – Standard Force Models, F1T1 etc.

Voltage	Resistive Load	Inductive Load
AC		
125	2	1
250	2	1
DC		
Up to 30	2	2
50	0.5	0.5
75	0.25	0.25
125	0.25	0.03
250	0.25	0.03

Voltage	Resistive Load	Tungsten Lamp Load		Inductive Load
		NC	NO	
AC				
125	5	0.5	0.5	5
250	5	0.5	0.5	5
DC				
Up to 15	10	3	1.5	10
30	5	3	1.5	3
50	1	0.7	0.7	1
75	0.75	0.5	0.5	0.25
125	0.5	0.4	0.4	0.06
250	0.25	0.2	0.2	0.03

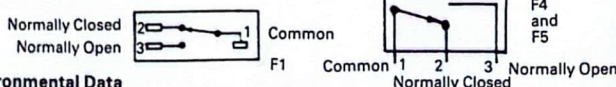
Switches with References beginning F4, F5 and FK4

Voltage	Resistive Load	Tungsten Lamp Load		Inductive Load
		NC	NO	
AC				
125	7	0.5	0.5	5
250	7	0.5	0.5	5
DC				
Up to 15	7	2	1	7
30	7	2	1	5
50	2	1	0.5	2
75	1	0.5	0.4	1
125	0.5	0.4	0.2	0.06
250	0.25	0.2	0.2	0.03

Installation and Service

F1 and F5 type switches are intended primarily for printed circuit board usage, F4 types should be side-mounted to a flat surface using M2 or #2 unified thread screws, or should be accommodated in Mounting Frame MF4. If side-mounted, the insertion of an insulating sheet or non-conducting spacers between switch and metal accessible to the operator is advocated. A suitable insulating sheet and Mounting Frame MF4 are listed on page 90.

Diagram of Connections



Environmental Data

See individual switch descriptions. Note that terminals are exposed and should be protected after connections are made if they are accessible to the operator. Use Burgess warning labels supplied with each consignment to emphasise the danger of exposed live terminals.

Service

The forces and movements associated with the operation of these switches are so small any appreciable wear or derangement of the actuating medium is unlikely, nevertheless a surveillance routine is common-sense assurance of long, efficient service. Cleanliness, especially around the actuator, is important. The switches are not user-maintainable.

Approvals

All the switches listed are approved by CSA and UL. Other approvals have been applied for and the latest information should be sought from Burgess.

Cross References

Other models only slightly larger than ultra miniature switches include: FK4 series of double-break models – next column and pages 91-92. V4 sub-miniature switches – pages 36-37 and 97-106. Multi-pole switches using F5 mechanisms are featured on pages 43 and 132-133.

Construction

Mechanism

Double-break, two-circuit, snap-action with four terminals. Changeover time is sensibly independent of plunger speed. The contacts are either silver or gold as specified.

Enclosure

Moulded in flame-retardant reinforced plastic.

Actuators

Nylon plunger, stainless steel levers.

Terminals

Copper, gold flashed.

Electrical Ratings

See Table in left hand column.

Installation and Service

Mounting

Side-mounting holes suitable for M2 or #2 unified thread screws are provided. A suitable insulating sheet is listed on page 106.

Associated Circuitry

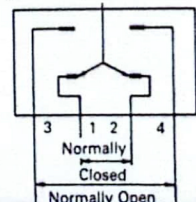
FK4 switches may be used to control a single circuit (either normally open or normally closed), to changeover from one circuit to another having a common input or, within sensible limitations, to changeover from one circuit to another independent circuit. In the latter case both circuits should have the same applied voltage and polarity. Check with Burgess if any doubt exists.

Environmental Data

As for F series, left-hand column.

Service

As for F series, left-hand column.



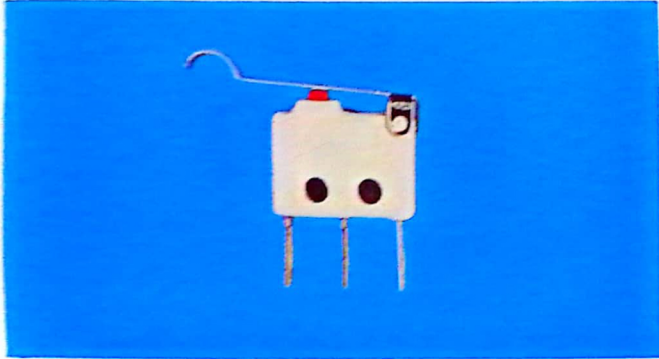
Approvals

All the silver contact switches listed are UL approved. Other approvals are expected; obtain the latest news from Burgess.

Cross References

Other miniature double-break switches – the K3 and M1 types – are featured on pages 44 and 134.

F4T6YC Silver contacts
F4T6YC-GP Gold contacts



Actuator Integral lever formed for cam actuation
Mechanism Changeover
Terminals Three 2.03 +0.13 mm (0.08 in) gold flashed tabs for soldering or quick-connect receptacles

Mounting Mount by two screws or use mounting frame MF4, see page 90
Electrical Rating Recommended maximum 7A on 125 or 250 Vac.
 Full ratings on page 33

Free Position (max) 11.7 mm 0.46 in
Operating Position 10.4 0.41 in
 +0.75 -0.5 mm
Movement Differential (max) 0.33 mm 0.013 in
Available Overtravel Depress to case
Actuating Force (max) 0.6 N 2.1 ozf
Release Force (min) 0.09 N 0.32 ozf
Mechanical Life In excess of 10 million operations

Enclosure Mechanism only: IP40
 Exposed terminals

Temperature -40° to +85°C
Weight 1.5 g max
Approvals* CSA, UL

These models and similar models in the F Series are described in detail on pages 32-33

