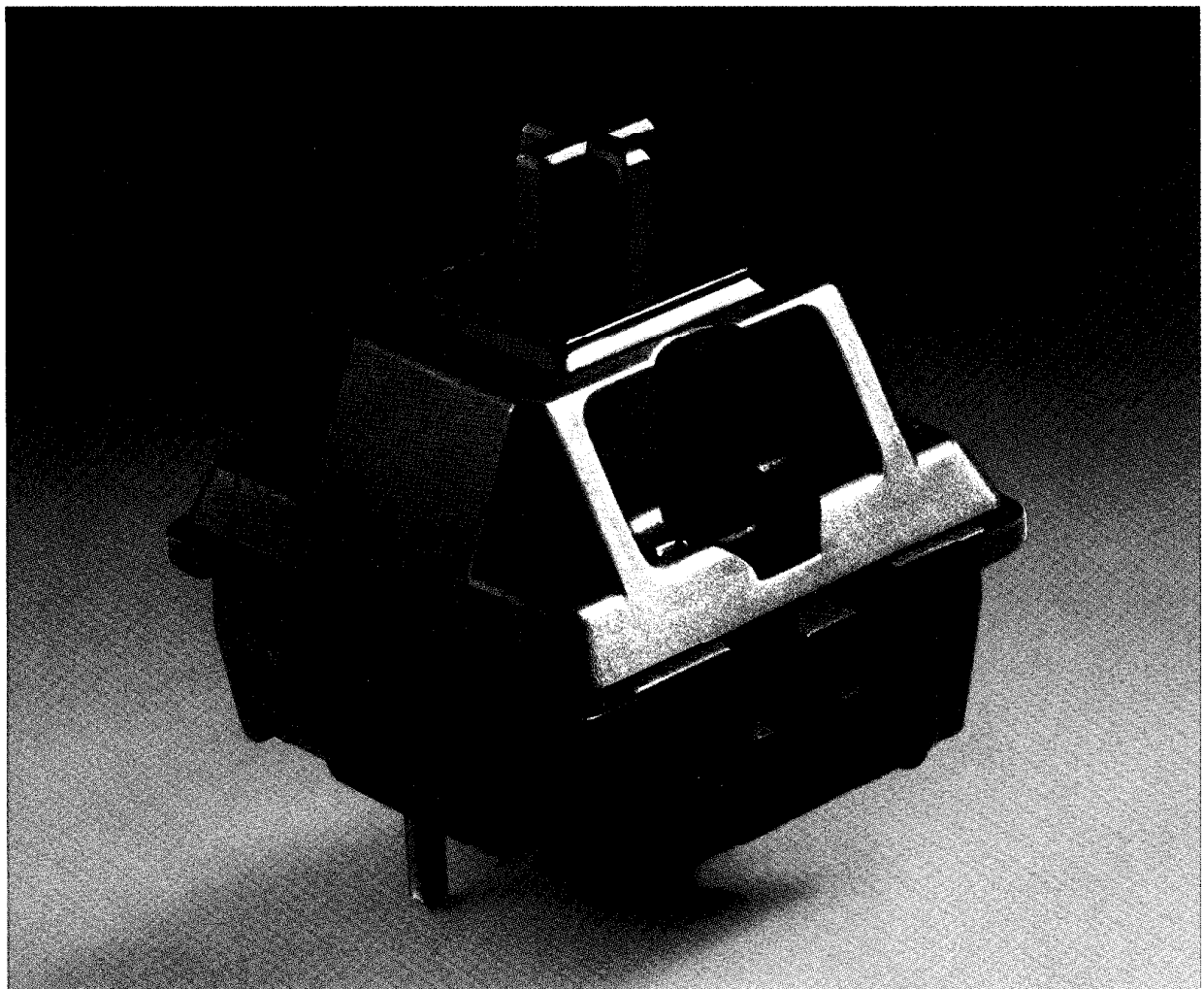
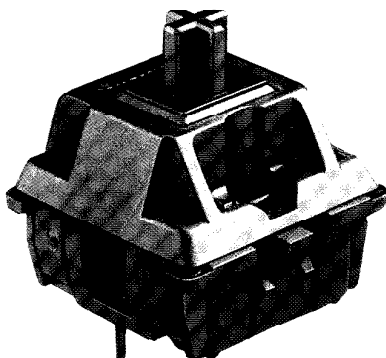




Keymodule MX.

**Modern Technology
for ergonomic Keyboards.**





Main Advantages

- The MX is a modern full-travel low-profile keyswitch.
- »Gold Crosspoint« Contacts ensure highest reliability.
- The keyswitch module is designed to meet all current ergonomic standards demanded for word and data processing applications.
- High reliability also during quick actuation.
- Switch options include integrated color LED, de-coupling diode and wire jumper.
- MCBF = 1×10^9

Important Features

- Switch versions include momentary and alternate action as well as linear or tactile feel.
- 4 mm full travel.
- Circuitry S.P.S.T. – N.O.
- Connector pins constructed for machine soldering.
- Switches can be snapped into a frame or mounted directly onto the printed circuit board.
- Low contact resistance.
- Standard spacing 19.05 mm (upon request ≥ 16 mm).
- Low-profile height from base of keyboard to top of keycaps in homerow using cylindrical keycaps < 30 mm.

Technical Data

Material – plastic parts _____ Thermoplastic UL-recog.-comp.
 – contacts _____ AuAg 10
 – spring _____ Stainless steel.

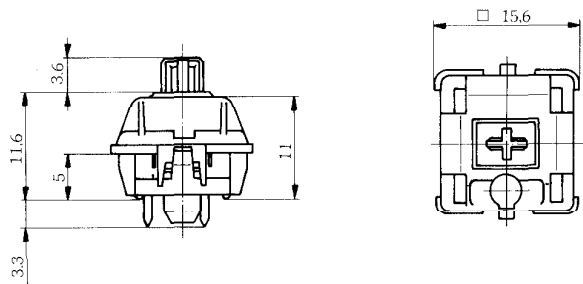
Protection _____ DIN 40050 IP 40.

Storage Temperature _____ -40°C (-40°F) to $+70^\circ\text{C}$ ($+158^\circ\text{F}$).

Operating Temperature _____ -10°C ($+14^\circ\text{F}$) to $+70^\circ\text{C}$ ($+158^\circ\text{F}$).

Humidity _____ 5% – 95% w/o cond.

Solderability _____ applicable for machine soldering 5 sec. at 260°C .



Mechanical Data

	Keyswitch with linear actuation	Keyswitch with soft tactile feel	Keyswitch with click tactile feel	Keyswitch with alternate action	Keyswitch with tactile feel (ergonomic)
Total travel	4 – 0.4 mm	4 – 0.5 mm	4 – 0.5 mm	4.2 ± 0.3 mm	4 – 0.4 mm
Pretravel	2 ± 0.6 mm	2.0 ± 0.6 mm	2.2 ± 0.6 mm	1.4 ± 0.4 mm	2 ± 0.6 mm
Operating force	60 ± 20 cN	55 ± 20	50 ± 15 cN	60 ± 20 cN	45 ± 20 cN
Tactile force	–	65 ± 20	60 ± 15 cN	–	55 ± 20 cN

Electrical Data

Voltage _____ 12 V max. AC/DC; 2 V min. DC

Current _____ 10 mA max. AC/DC; 10 µA min. DC

Insulation resistance _____ new/100 M Ω

Capacity at 1/kHz _____ < 2 pF

Bounce time at actuation speed 0.4 m/s _____ ≤ 5 ms

Life cycle w/o electrical load/at 5 V, 1 mA

– MX linear _____ 50 x 10⁶ operations

– MX soft _____ 20 x 10⁶ operations

– MX click _____ 20 x 10⁶ operations

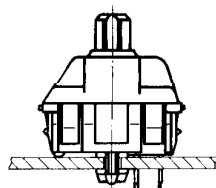
– MX alternate action _____ 500 000 alternate operations

– MX ergonomic _____ 50 x 10⁶ operations

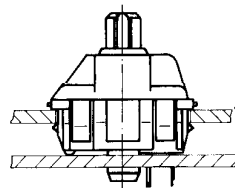
Initial contact resistance _____ 200 m Ω (typ. 25 m Ω)

Keyswitch Assembly

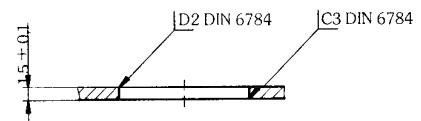
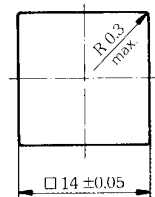
Direct PCB-Mounting onto metal frame



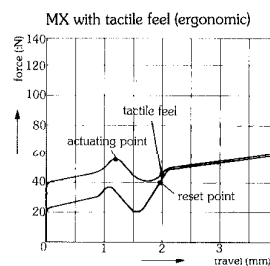
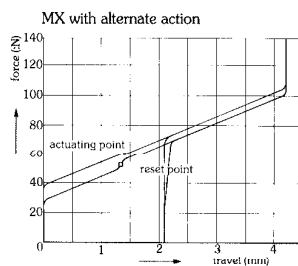
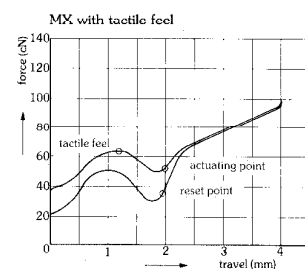
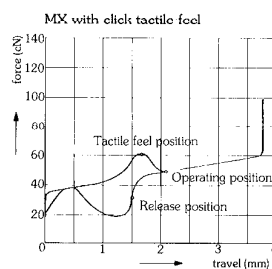
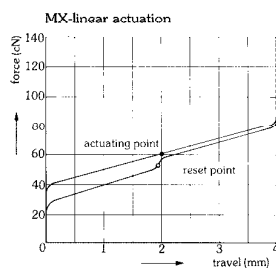
with pins



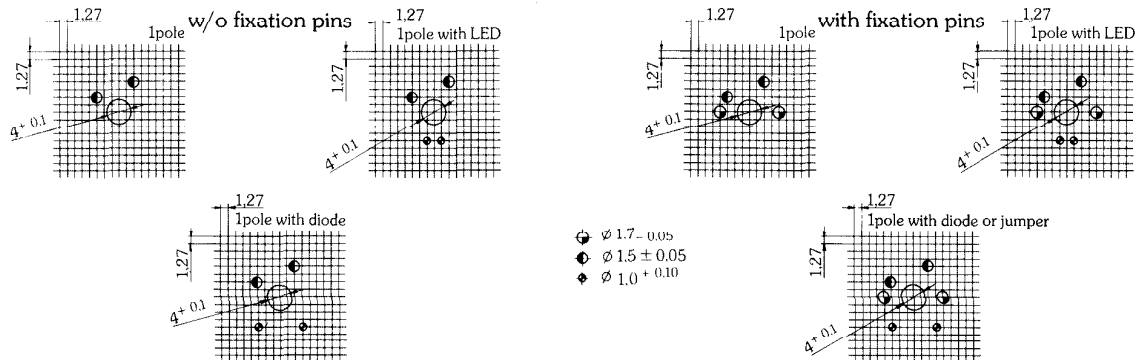
without pins



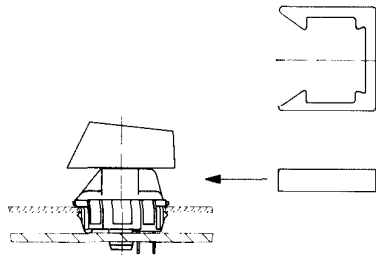
Force/Travel Diagram



Layout of P.C.B.



Locking Unit



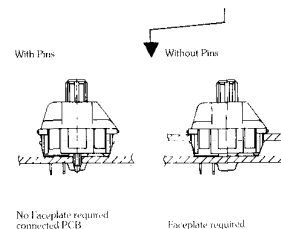
Locking Device
for MX Keyswitches

Locking Device for the following Keycaps

Part. No.	Cyln.	8 mm
604-0323	x	
604-0324		x

Index System

Keymodule						
Type						
Contact	Current Material	Number of Contacts Function	Operating Characteristics Actuating Force	Keystem Configuration	LED/DIODE	Pins
1	10mA max./12V max Au Ag 10	A spst.no.	0 Special	1 Standard straight Cyl. + 8mm Keycap	N = No LED no Diode R = Red LED no Diode G = Green LED no Diode Y = Yellow LED no Diode D = No LED with Diode J = Without LED (Diode) with jumper (wire Connection)	W = with Pins W = without Pins
2		B	Momentary single Pole 60cN Standard black Keystem			
3		C Special	Momentary single Pole 80cN Space Bar 37 Keystem			
4		D	Alt. Action, single Pole 60cN			
5	Special					
			A Momentary single Pole with tactile Feed 80cN Standard Movement Differential, white Keystem			
			B Momentary single Pole with tactile Feed 80cN Space Bar Movement Differential, grey 36 Keystem			
			C Momentary single Pole with tactile Feed 60cN Standard clear Keystem			
			D Momentary single Pole with tactile Feed 80cN Space Bar 37 Keystem			
			E Momentary single Pole with tactile Feed 60cN "Click" Movement Differential, clear Keystem			
			F Momentary single Pole with tactile Feed 80cN "Click" Movement Differential (Space Bar) 37 Keystem			
			G Momentary double Pole with tactile feed (ergonomic), 55 cN Standard brown Keystem			



Errors, omissions and technical modifications excepted. Technical specifications provided herein constitute specifications only; they do not guarantee that actual products do possess these characteristics. Exact figures can only be taken from drawings in connection with product specifications.

