
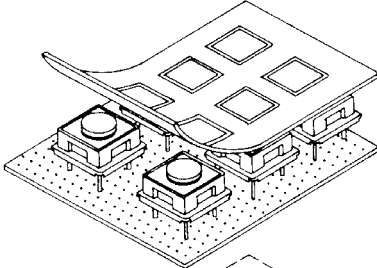
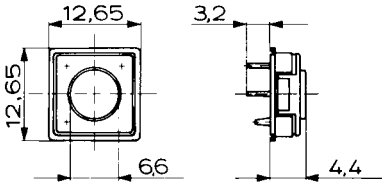
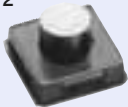
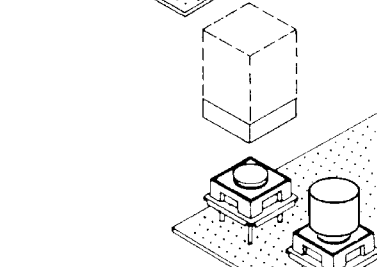
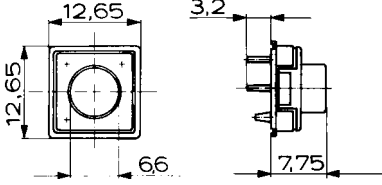

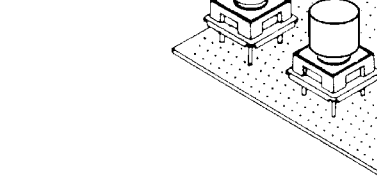
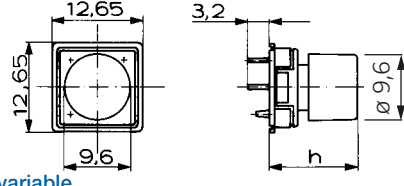
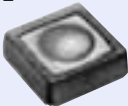
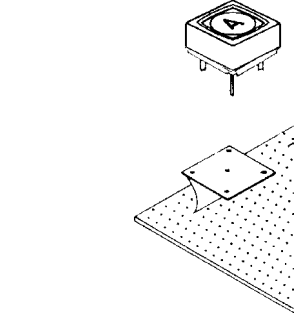
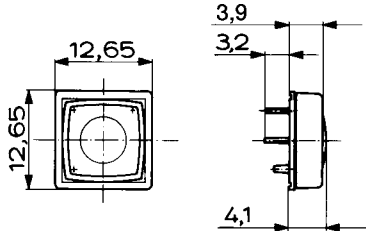

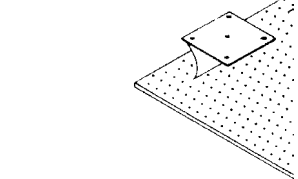
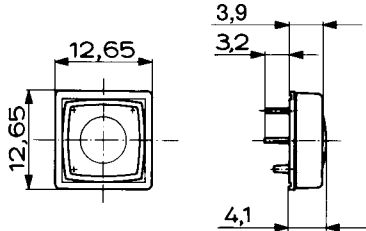

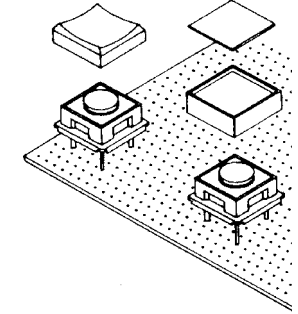
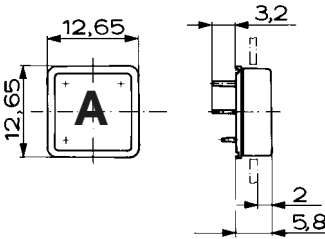

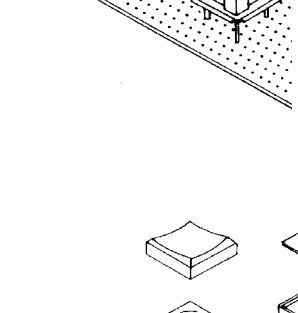
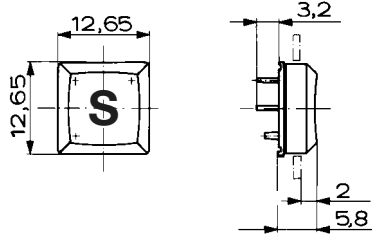

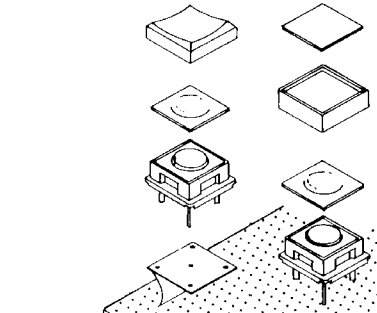
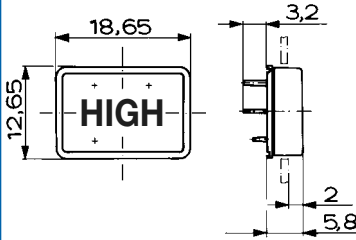

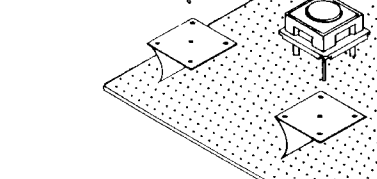
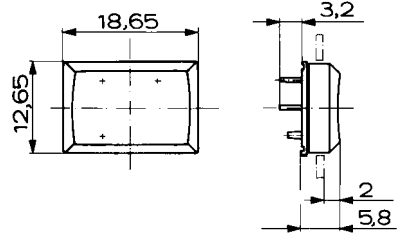


# Switches in momentary action MTG, MCS, MTP 1/2"

Models	Construction	Dimensions
<p>MTG 1/2"</p> 		
<p>MTG 1/2"</p> 		
<p>MTG 1/2"</p> 		 <p>Overall height h variable</p>
<p>MCS 1/2"</p> 		
<p>MCS 1/2"</p> 		
<p>MTP 1/2"</p> 		
<p>MTP 1/2"</p> 		
<p>MTP 1/2"</p> 		
<p>MTP 1/2"</p> 		

# Technical Data MTG, MCS, MTP 1/2"

1. Mechanical data	MTG	MCS	MTP
Actuating force	2,5 N ±0,5 N	3 N ±0,5 N	IP40: 2,3 N ±0,5 N IP65: 2,0 N ±0,4 N
Contact travel	0,45 mm ±0,1 mm	0,45 mm ±0,1 mm	IP40: 0,45 mm ±0,05 IP54: 0,25 mm ±0,05
End stop strength (IEC 512-5 Test 9a, actuating force 5 N) / Lifetime	> 50 N > 10 <sup>6</sup> Operations		

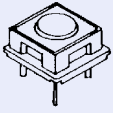
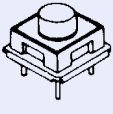
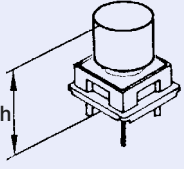
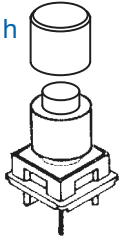
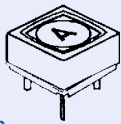
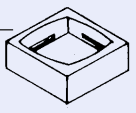

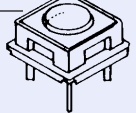
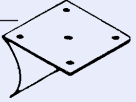
2. Electrical data	MTG	MCS	MTP
Contact material	Gold / Gold	Silber / Silver	
Switching voltage max.	max. 24 V DC	max. 48 V DC	
Switching current max.	max. 50 mA	max. 125 mA	
Rated breaking capacity	0,48 W	2,40 W	
Lifetime (at rated breaking capacity) (IEC 512-2, mV-Methode) Initial contact resistance, new		> 10 <sup>6</sup> Cycles < 50 mΩ	
Initial contact resistance, after 10 <sup>6</sup> cycles (IEC 512-2) / Insulation resistance		< 50 mΩ > 10 <sup>8</sup> Ω	
Contact bounce time		typ. 0,1 ms	

3. Other data	MTG	MCS	MTP
Degree of protection	IP 40	IP 65	IP 40 / IP 65
Solderability (IEC 68-2-20 Test Ta, Methode 1) (IEC 68-2-20 Test Tb, Methode 1A) Soldering heat resistance		235 °C / 2 s 260 °C / 5 s	
Ambient temperature		-25 °C...+85 °C	
Storage temperature		-25 °C...+85 °C	

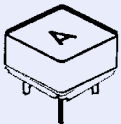
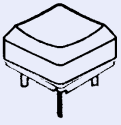
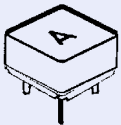
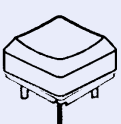
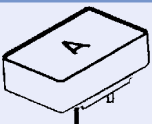
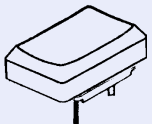
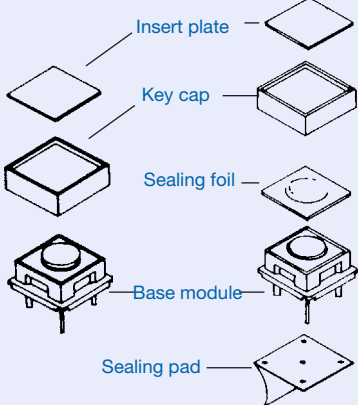
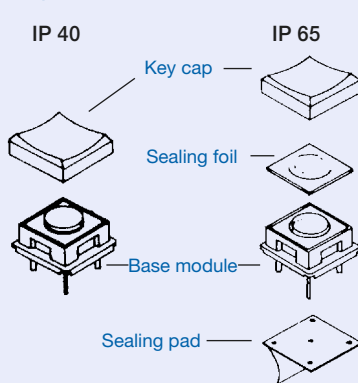
4. Werkstoffe / Materials	MTG	MCS	MTP
Contact material gold		CuZn -3 μm Ni +2 μm Au	
Contact material silver		CuZn - 2,5 μm Ag passivated	
Socket		Thermoplast PES	
Actuator		Thermoplast PC	

Drilling diagram	Circuit diagram
<p> <math>\phi = 1 \pm 0,1</math>  <math>\phi = 1,3 \pm 0,1</math> </p>	

# Switches in momentary action MTG, MCS 1/2"

Models MTG 1/2"	Variations	Part Number																																																																											
short actuator   long actuator   height variable 	Contact material Ag Au Ag Au	1241.1052 1241.1002 1241.1072 1241.1022																																																																											
	Contact material Ag Au	1241.1082.XX 1241.1032.XX																																																																											
	Overall height h 	<table border="1"> <tr> <td>(yellow)</td> <td>8,50 mm =</td> <td>1</td> <td>14,50 mm =</td> <td>11</td> </tr> <tr> <td>(orange)</td> <td>9,25 mm =</td> <td>2</td> <td>15,25 mm =</td> <td>21</td> </tr> <tr> <td>(red)</td> <td>10,00 mm =</td> <td>3</td> <td>16,00 mm =</td> <td>31</td> </tr> <tr> <td>(blue)</td> <td>10,75 mm =</td> <td>4</td> <td>16,75 mm =</td> <td>41</td> </tr> <tr> <td>(green)</td> <td>11,50 mm =</td> <td>5</td> <td>17,50 mm =</td> <td>51</td> </tr> <tr> <td>(grey)</td> <td>12,25 mm =</td> <td>6</td> <td>18,25 mm =</td> <td>61</td> </tr> <tr> <td>(black)</td> <td>13,00 mm =</td> <td>7</td> <td>19,00 mm =</td> <td>71</td> </tr> <tr> <td>(white)</td> <td>13,75 mm =</td> <td>8</td> <td>19,75 mm =</td> <td>81</td> </tr> </table>	(yellow)	8,50 mm =	1	14,50 mm =	11	(orange)	9,25 mm =	2	15,25 mm =	21	(red)	10,00 mm =	3	16,00 mm =	31	(blue)	10,75 mm =	4	16,75 mm =	41	(green)	11,50 mm =	5	17,50 mm =	51	(grey)	12,25 mm =	6	18,25 mm =	61	(black)	13,00 mm =	7	19,00 mm =	71	(white)	13,75 mm =	8	19,75 mm =	81																																			
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(grey)	12,25 mm =	6	18,25 mm =	61																																																																									
(black)	13,00 mm =	7	19,00 mm =	71																																																																									
(white)	13,75 mm =	8	19,75 mm =	81																																																																									
<sup>1</sup> Starting with 14,50 mm, the heights were realized with an additional (second) keycap.																																																																													
Models MCS 1/2"	Contact material Ag Au	1241.1053.X.XXX 1241.1003.X.XXX																																																																											
Without sealing pad on reverse side 	Color of bezel red green grey black white	3 5 6 7 8																																																																											
Bezel   Face foil   Base module   Sealing pad (on request) 	Legend of face foil (Type height/ type face see page 39)	<table border="1"> <tr> <td>A = 001</td> <td>P = 016</td> <td>4 = 031</td> <td>⇕ = 046</td> <td>EIN = 061</td> </tr> <tr> <td>B = 002</td> <td>Q = 017</td> <td>5 = 032</td> <td>→ = 047</td> <td>AUS = 062</td> </tr> <tr> <td>C = 003</td> <td>R = 018</td> <td>6 = 033</td> <td>← = 048</td> <td>AUF = 063</td> </tr> <tr> <td>D = 004</td> <td>S = 019</td> <td>7 = 034</td> <td>↓ = 049</td> <td>AB = 064</td> </tr> <tr> <td>E = 005</td> <td>T = 020</td> <td>8 = 035</td> <td>↑ = 050</td> <td>ON = 065</td> </tr> <tr> <td>F = 006</td> <td>U = 021</td> <td>9 = 036</td> <td>% = 051</td> <td>OFF = 066</td> </tr> <tr> <td>G = 007</td> <td>V = 022</td> <td>+ = 037</td> <td>√ = 052</td> <td>UP = 067</td> </tr> <tr> <td>H = 008</td> <td>W = 023</td> <td>- = 038</td> <td>CTRL = 053</td> <td>DOWN = 068</td> </tr> <tr> <td>I = 009</td> <td>X = 024</td> <td>. = 039</td> <td>RETURN = 054</td> <td>HIGH = 069</td> </tr> <tr> <td>J = 010</td> <td>Y = 025</td> <td>x = 040</td> <td>SHIFT = 055</td> <td>LOW = 070</td> </tr> <tr> <td>K = 011</td> <td>Z = 026</td> <td>÷ = 041</td> <td>LOCK = 056</td> <td>ON/OFF = 071</td> </tr> <tr> <td>L = 012</td> <td>0 = 027</td> <td>* = 042</td> <td>STOP = 057</td> <td>START = 072</td> </tr> <tr> <td>M = 013</td> <td>1 = 028</td> <td>= = 043</td> <td>ENTER = 058</td> <td></td> </tr> <tr> <td>N = 014</td> <td>2 = 029</td> <td># = 044</td> <td>BACK = 059</td> <td></td> </tr> <tr> <td>O = 015</td> <td>3 = 030</td> <td>↔ = 045</td> <td>LINE = 060</td> <td></td> </tr> </table>	A = 001	P = 016	4 = 031	⇕ = 046	EIN = 061	B = 002	Q = 017	5 = 032	→ = 047	AUS = 062	C = 003	R = 018	6 = 033	← = 048	AUF = 063	D = 004	S = 019	7 = 034	↓ = 049	AB = 064	E = 005	T = 020	8 = 035	↑ = 050	ON = 065	F = 006	U = 021	9 = 036	% = 051	OFF = 066	G = 007	V = 022	+ = 037	√ = 052	UP = 067	H = 008	W = 023	- = 038	CTRL = 053	DOWN = 068	I = 009	X = 024	. = 039	RETURN = 054	HIGH = 069	J = 010	Y = 025	x = 040	SHIFT = 055	LOW = 070	K = 011	Z = 026	÷ = 041	LOCK = 056	ON/OFF = 071	L = 012	0 = 027	* = 042	STOP = 057	START = 072	M = 013	1 = 028	= = 043	ENTER = 058		N = 014	2 = 029	# = 044	BACK = 059		O = 015	3 = 030	↔ = 045	LINE = 060	
A = 001	P = 016	4 = 031	⇕ = 046	EIN = 061																																																																									
B = 002	Q = 017	5 = 032	→ = 047	AUS = 062																																																																									
C = 003	R = 018	6 = 033	← = 048	AUF = 063																																																																									
D = 004	S = 019	7 = 034	↓ = 049	AB = 064																																																																									
E = 005	T = 020	8 = 035	↑ = 050	ON = 065																																																																									
F = 006	U = 021	9 = 036	% = 051	OFF = 066																																																																									
G = 007	V = 022	+ = 037	√ = 052	UP = 067																																																																									
H = 008	W = 023	- = 038	CTRL = 053	DOWN = 068																																																																									
I = 009	X = 024	. = 039	RETURN = 054	HIGH = 069																																																																									
J = 010	Y = 025	x = 040	SHIFT = 055	LOW = 070																																																																									
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L = 012	0 = 027	* = 042	STOP = 057	START = 072																																																																									
M = 013	1 = 028	= = 043	ENTER = 058																																																																										
N = 014	2 = 029	# = 044	BACK = 059																																																																										
O = 015	3 = 030	↔ = 045	LINE = 060																																																																										
Color of face foil without legend yellow = 091 orange = 092 red = 093 blue = 094 green = 095	grey = 096 black = 097 white = 098 anthracite = 099																																																																												

# Switches in momentary action MTP 1/2"

Models		Variations	Part Number
<b>MTP 1/2" IP 40</b>			
Shape 1 	Contact material	Ag	1241.1057.X.XXX
		Au	1241.1007.X.XXX
Shape 2 	Contact material	Ag	1241.1055.X.XXX
		Au	1241.1005.X.XXX
<b>MTP 1/2" IP 65</b>			
Shape 1 without sealing pad 	Contact material	Ag	1241.1091.X.XXX
		Au	1241.1041.X.XXX
Shape 2 without sealing pad 	Contact material	Ag	1241.1090.X.XXX
		Au	1241.1040.X.XXX
<b>MTP 1/2" IP 65</b>			
Shape 1 	Contact material	Ag	1241.1088.X.XXX
		Ag	1241.1086.X.XXX
Shape 2 	Contact material	Ag	1241.1088.X.XXX
		Ag	1241.1086.X.XXX
<b>Shape 1</b> IP 40                      IP 65 		<b>Color of key cap</b> red = 3 green = 5 grey = 6 black = 7 white = 8	
<b>Shape 2</b> IP 40                      IP 65 		<b>Legend of key cap/insert plate</b> (Type height/type face see page 39)	
		A= 001      P= 016      4= 031      ⇕= 046      EIN= 061 B= 002      Q= 017      5= 032      →= 047      AUS= 062 C= 003      R= 018      6= 033      ←= 048      AUF= 063 D= 004      S= 019      7= 034      ↓= 049      AB= 064 E= 005      T= 020      8= 035      ↑= 050      ON= 065 F= 006      U= 021      9= 036      %= 051      OFF= 066 G= 007      V= 022      += 037      √= 052      UP= 067 H= 008      W= 023      -= 038      CTRL= 053      DOWN= 068 I= 009      X= 024      ·= 039      RETURN= 054      HIGH= 069 J= 010      Y= 025      x= 040      SHIFT= 055      LOW= 070 K= 011      Z= 026      ÷= 041      LOCK= 056      ON/OFF= 071 L= 012      0= 027      *= 042      STOP= 057      START= 072 M= 013      1= 028      == 043      ENTER= 058 N= 014      2= 029      #= 044      BACK= 059 O= 015      3= 030      ↔= 045      LINE= 060	
		yellow = 091      grey = 096 orange = 092      black = 097 red = 093      white = 098 blue = 094      anthracite = 099 green = 095	
		<b>Color of insert plate without legend shape 1</b> yellow = 091 orange = 092 red = 093 blue = 094 green = 095	