

# DATA SWITCHES-MOMENTARY (HDT, SDK) ACTION



### **BENEFITS**

- High life time with maximum quality materials
- Compact design with SMD assembly (HDT)
- Suitable for state-of-the-art soldering techniques (HDT)
- Extremely good illumination (HDT)
- Various contact materials for every field of application
- Tested to degree of protection IP 40 and IP 65 (HDT)

Switching voltage max.   [V]   So DC/60 AC   So DC/125 AC		HDT	SDK		
Switching voltage max.         IV         50 DC/60 AC         50 DC/125 AC           Switching current max.         200 mA         silver 2A AC /1.2A DC gold 80mA/AC pC gold 80mA/AC g	Flectrical data		1157	OSIC	
Cifetime (at rated breaking capacity)   2 x > 10°   10°   10°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°   11°		[V]	50 DC/60 AC	50 DC/125 AC	
Cifetime (at rated breaking capacity)   2 x > 10°   310°	ÿ ÿ		200 mA	silver 2A AC /1.2A DC	
Initial contact resistance, new   [m:Q]   <30   silver <10 / gold <20	Switching Safrent Hux.			gold 80 mA/AC DC	
Initial contact resistance, after lifetime   [mu]	Lifetime (at rated breaking capacity)		2 x > 10 <sup>5</sup>	> 105	
Insulation resistance   [23]	Initial contact resistance, new	[mΩ]	< 30	silver < 10 / gold < 20	
Contact bounce time         [ms]         typ. 0.5           Mechanical data           Actuating force         IP 40 [N]         1.5 ± 0.3         3 − 5           Contact travel         NO [mm]         1.2 ± 0.2         2.4 ± 0.3           End contact travel         [mm]         2.5 ± 0.1         3.3 ± 0.4           End stop strength         [N]         >100         >100           Lifetime         [operations]         >5 x 10°         >2 x 10°           Other data         **** *** *** *** *** *** *** *** *** *	Initial contact resistance, after lifetime	[m $\Omega$ ]	< 50		
Mechanical data	Insulation resistance	[Ω]	> 1010	> 109	
Actuating force         IP 40 [N] IP 65 [N]         1.5 ± 0.3 (2.5 ± 0.5)         3 - 5 (2.5 ± 0.5)           Contact travel         NO [mm]         1.2 ± 0.2 (2.4 ± 0.3)         2.4 ± 0.3           End contact travel         [mm]         2.5 ± 0.1 (3.3 ± 0.4)         3.3 ± 0.4           End stop strength         [m]         > 100 (3.5 ± 0.1)         > 100 (3.5 ± 0.1)           Lifetime         [operations]         > 5 x 10° (3.5 ± 0.1)         > 2 x 10° (3.5 ± 0.1)           Other data           Degree of protection         IP 40 / IP 65 (3.5 ± 0.1)         IP 40           Soldering heat resistance IEC 68-2-20 test Tb, method 1/P (6/s) (1.5 ± 0.2)         2 260 / 10         2 260 / 5           IEC 68-2-20 test Tb, method 1/P (7/s) (1.5 ± 0.2)         2 260 / 10         2 260 / 5         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10         2 260 / 10 <t< td=""><td>Contact bounce time</td><td>[ms]</td><td colspan="2">typ. 0.5</td><td></td></t<>	Contact bounce time	[ms]	typ. 0.5		
P 65 [N]   2.5 ± 0.5	Mechanical data				
Contact travel         NO [mm]         1.2 ± 0.2         2.4 ± 0.3           End contact travel         [mm]         2.5 ± 0.1         3.3 ± 0.4           End stop strength         [N]         >100         >100           Lifetime         [operations]         >5 x 10°         >2 x 10°           Other data           Degree of protection         IP 40 / IP 65         IP 40           Solderability         (EEC 68-2-20 test Ta, method 1A) [°C/s]         235 / 2           Soldering heat resistance IEC 68-2-20 test Ta, method 1 [°C/s]         260 / 10           IEC 68-2-20 test Tb, method 1A, print-mounting [°C/s]         260 / 10           IEC 68-2-20 test Tb, method 2, print-mounting [°C/s]         350 / 10           CECC 00802 classification B, SMT-mounting [°C/s]         215 / 40           CECC 00802 classification C, SMT-mounting [°C/s]         260 / 10           Ambient temperature         [°C]         -40 - +85         -40 - +85           Storage temperature         [°C]         -40 - +85         -40 - +85           Cleaning agent proof         Zestron           Flux proof         given           Materials           Socket, cover, contact unit, carrier ring         Therm	Actuating force	P 40 [N]	1.5 ± 0.3	3 – 5	
End contact travel (mm) 2.5 ± 0.1 3.3 ± 0.4  End stop strength (N) > 100 > 100  Lifetime (operations) > 5 x 10 <sup>5</sup> > 2 x 10 <sup>5</sup> Other data  Degree of protection   IP 40 / IP 65   IP 40    Solderability (CECC 00802 and IEC 68-2-20) (IEC 68-2-20 test Ta, method 1A) [PC/s]   235 / 2    Soldering heat resistance IEC 68-2-20 test Tb, method 1A, print-mounting [PC/s]   260 / 10    IEC 68-2-20 test Tb, method 1A, print-mounting [PC/s]   350 / 10    CECC 00802 classification B, SMT-mounting [PC/s]   260 / 10    CECC 00802 classification B, SMT-mounting [PC/s]   260 / 10    CECC 00802 classification C, SMT-mounting [PC/s]   260 / 10    Ambient temperature   PC    -40 - +85   -40 - +85    Storage temperature   PC    -40 - +85   -40 - +85    Cleaning agent proof   Zestron    Flux proof   given    Materials  Socket, cover, contact unit, carrier ring   Thermoplast PA 4.6   Thermoplast PC    Button non-illuminated   Thermoplast PA 4.6   Thermoplast PC    Button illuminated   Thermoplast PA 5   Thermoplast PC    Button illuminated   Thermoplast PC    Button	ı	P 65 <b>[N]</b>	2.5 ± 0.5		
End stop strength [N] > 100 > 100    Lifetime [operations] > 5 x 10 <sup>6</sup> > 2 x 10 <sup>6</sup>    Other data  Degree of protection   IP 40 / IP 65   IP 40    Solderability (CECC 00802 and IEC 68-2-20) (IEC 68-2-20 test Ta, method 1A) [°C/s]    Soldering heat resistance IEC 68-2-20 test Tb, method 1 [°C/s]    IEC 68-2-20 test Tb, method 1A, print-mounting [°C/s]    IEC 68-2-20 test Tb, method 2, print-mounting [°C/s]    CECC 00802 classification B, SMT-mounting [°C/s]    CECC 00802 classification C, SMT-mounting [°C/s]    Ambient temperature [°C]   -40 − +85   -40 − +85    Storage temperature [°C]   -40 − +85   -40 − +85    Cleaning agent proof   Zestron    Flux proof   given    Materials  Socket, cover, contact unit, carrier ring   Thermoplast PA 4.6   Thermoplast PC    Button non-illuminated   Thermoplast PA 4.6   Thermoplast PC    Button illuminated   Thermoplast PE    Sealing ring   Silicon tempered    Terminals   CuZn, 3μm Ag, hot tinned	Contact travel	IO [mm]	1.2 ± 0.2	$2.4 \pm 0.3$	
Lifetime   (operations)   S x 10°   S x 10°     Other data	End contact travel	[mm]	2.5 ± 0.1	$3.3 \pm 0.4$	
Other data           Degree of protection         IP 40 / IP 65         IP 40           Solderability         (CECC 00802 and IEC 68-2-20)         235 / 2           (IEC 68-2-20 test Ta, method 1A) [°C/s]         235 / 2           Soldering heat resistance IEC 68-2-20 Test Tb, method 1A, print-mounting [°C/s]         260 / 10           IEC 68-2-20 test Tb, method 2A, print-mounting [°C/s]         260 / 10           IEC 68-2-20 test Tb, method 2. print-mounting [°C/s]         350 / 10           CECC 00802 classification B, SMT-mounting [°C/s]         215 / 40           CECC 00802 classification C, SMT-mounting [°C/s]         260 / 10           Ambient temperature         [°C]         -40 - +85         -40 - +85           Storage temperature         [°C]         -40 - +85         -40 - +85           Cleaning agent proof         Zestron         Testron           Flux proof         given         Thermoplast PA 4.6         Thermoplast PC           Button non-illuminated         Thermoplast PA 4.6         Thermoplast PC           Button illuminated         Thermoplast PES         Sealing ring         Silicon tempered           Terminals         CuZn, 3µm Ag, hot tinned         Terminals         Terminals	End stop strength	[N]	> 100	> 100	
Degree of protection         IP 40 / IP 65         IP 40           Solderability         (CEC 00802 and IEC 68-2-20) (IEC 68-2-20 test Ta, method 1A) [°C/s]         235 / 2           Soldering heat resistance IEC 68-2-20 Test Tb, method 1 [°C/s]         260 / 10           IEC 68-2-20 test Tb, method 1A, print-mounting [°C/s]         260 / 10           IEC 68-2-20 test Tb, method 2, print-mounting [°C/s]         350 / 10           CECC 00802 classification B, SMT-mounting [°C/s]         215 / 40           CECC 00802 classification C, SMT-mounting [°C/s]         260 / 10           Ambient temperature         [°C]         -40 - +85         -40 - +85           Storage temperature         [°C]         -40 - +85         -40 - +85           Cleaning agent proof         Zestron         -40 - +85           Flux proof         given         Thermoplast PA           Materials         -40 - +85         Thermoplast PA           Button non-illuminated         Thermoplast PA 4.6         Thermoplast PC           Button illuminated         Thermoplast PA 4.6         Thermoplast PC           Sealing ring         Silicon tempered           Terminals         CuZn, 3 µm Ag, hot tinned	Lifetime [ope	rations]	>5 x 10 <sup>5</sup>	> 2 x 10 <sup>5</sup>	
Solderability   (CECC 00802 and IEC 68-2-20)	Other data				
CEC 68-2-20 test Ta, method 1A) [°C/s]   235 / 2	Degree of protection		IP 40 / IP 65	IP 40	
Soldering heat resistance   EC 68-2-20 Test Tb, method 1   °C/s    260 / 10					
IEC 68-2-20 test Tb, method 1A, print-mounting [°C/s]   260 / 10     IEC 68-2-20 test Tb, method 2, print-mounting [°C/s]   350 / 10     CECC 00802 classification B, SMT-mounting [°C/s]   215 / 40     CECC 00802 classification C, SMT-mounting [°C/s]   260 / 10     Ambient temperature   [°C					
IEC 68-2-20 test Tb, method 2, print-mounting [°C/s]   350 / 10     CECC 00802 classification B, SMT-mounting [°C/s]   215 / 40     CECC 00802 classification C, SMT-mounting [°C/s]   260 / 10     Ambient temperature   [°C]   -40 - +85   -40 - +85     Storage temperature   [°C]   -40 - +85   -40 - +85     Cleaning agent proof   Zestron     Flux proof   given     Materials   Socket, cover, contact unit, carrier ring   Thermoplast PA 4.6   Thermoplast PC     Button non-illuminated   Thermoplast PA 4.6   Thermoplast PC     Button illuminated   Thermoplast PES     Sealing ring   Silicon tempered     Terminals   CuZn, 3 µm Ag, hot tinned	<u> </u>		2/0/10	260 / 5	
CECC 00802 classification B, SMT-mounting [°C/s] 215 / 40 CECC 00802 classification C, SMT-mounting [°C/s] 260 / 10  Ambient temperature [°C] -40 - +85 -40 - +85  Storage temperature [°C] -40 - +85 -40 - +85  Cleaning agent proof Zestron  Flux proof given  Materials  Socket, cover, contact unit, carrier ring Thermoplast PA 4.6 Thermoplast PC  Button non-illuminated Thermoplast PA 4.6 Thermoplast PC  Button illuminated Thermoplast PES  Sealing ring Silicon tempered  Terminals CuZn, 3 µm Ag, hot tinned	•				
CECC 00802 classification C, SMT-mounting [°C/s] 260 / 10  Ambient temperature [°C] -40 - +85 -40 - +85  Storage temperature [°C] -40 - +85 -40 - +85  Cleaning agent proof Zestron  Flux proof given  Materials  Socket, cover, contact unit, carrier ring Thermoplast PA 4.6 Thermoplast PC  Button non-illuminated Thermoplast PA 4.6 Thermoplast PC  Button illuminated Thermoplast PES  Sealing ring Silicon tempered  Terminals CuZn, 3 µm Ag, hot tinned	,				
Storage temperature [°C] -40 - +85	-				
Cleaning agent proof Zestron Flux proof given  Materials Socket, cover, contact unit, carrier ring Thermoplast PA 4.6 Thermoplast PC Button non-illuminated Thermoplast PA 4.6 Thermoplast PC Button illuminated Thermoplast PES Sealing ring Silicon tempered Terminals CuZn, 3 µm Ag, hot tinned	Ambient temperature	[°C]	-40 – +85	-40 - +85	
Flux proof given  Materials  Socket, cover, contact unit, carrier ring Thermoplast PA 4.6 Thermoplast PC  Button non-illuminated Thermoplast PA 4.6 Thermoplast PC  Button illuminated Thermoplast PES  Sealing ring Silicon tempered Terminals CuZn, 3 µm Ag, hot tinned	Storage temperature	[°C]	-40 – +85	-40 - +85	
Materials  Socket, cover, contact unit, carrier ring Thermoplast PA 4.6 Thermoplast PC  Button non-illuminated Thermoplast PA 4.6 Thermoplast PC  Button illuminated Thermoplast PES  Sealing ring Silicon tempered Terminals CuZn, 3 µm Ag, hot tinned	Cleaning agent proof		Zestron		
Socket, cover, contact unit, carrier ring  Thermoplast PA 4.6  Thermoplast PC  Button illuminated  Thermoplast PS  Sealing ring  Silicon tempered  Terminals  Thermoplast PA 4.6  Thermoplast PC  Thermoplast	Flux proof		given		
Button non-illuminated Thermoplast PA 4.6 Thermoplast PC  Button illuminated Thermoplast PES Sealing ring Silicon tempered Terminals CuZn, 3 µm Ag, hot tinned	Materials				
Button illuminated Thermoplast PES Sealing ring Silicon tempered Terminals CuZn, 3 µm Ag, hot tinned	Socket, cover, contact unit, carrier ring		Thermoplast PA 4.6	Thermoplast PC	
Sealing ring Silicon tempered Terminals CuZn, 3 µm Ag, hot tinned	Button non-illuminated		Thermoplast PA 4.6	Thermoplast PC	
Terminals CuZn, 3 µm Ag, hot tinned	Button illuminated		Thermoplast PES		
	Sealing ring		Silicon tempered		
0.000	Terminals		CuZn, 3 µm Ag, hot tinned		
Contacts CuBe2 HM, 5 µm Ag   gold (2µ Au on hard silver)	Contacts		CuBe2 HM, 5 µm Ag	gold (2µ Au on hard silver)	

LED, see page 29

## DIMENSIONS SWITCHES-MOMENTARY (HDT, SDK) ACTION

# CONSTRUCTION HDT Through hole HDT Gullwing HDT J-Lead SDK DIMENSIONS 7.50 7.50 25,5 98 12.50 Clamp 7.90 7.50 20.50 3.00 20.50 20.50 3.00 DRILLING DIAGRAM/SOLDER PADS 50 ഹ 4.00+0.2 3.20+0.2 6.00 10.00 7.50 Drilling diagram = 1.25 mm Drilling diagram = 1.25 mm Drilling diagram = 1.25 mm Drilling for pin location ⊕= Ø1.2 + 0.1 Drilling for pin location ⊕= Ø1.2+0.1 Drilling for pin location ⊕= Ø1.2 + 0.1 Cut out Ø8mm Cut out Ø8mm Cut out Ø8mm CIRCUIT DIAGRAM fixed contact 1 pole fixed contact 1 pole fixed contact 1 pole NO NO NO



# OVERVIEW HDT SWITCHES-MOMENTARY ACTION WITH SMALL BUTTON AND SDK SWITCHES-MOMENTARY ACTION-NON-ILLUMINATED



<sup>\*</sup> X in the Part No. must be replaced by the desired version

# OVERVIEW HDT SWITCHES-MOMENTARY ACTION WITH SMALL BUTTON-ILLUMINATED



In addition to the versions with the small button, further versions with a large button and switching functions are available on request for HDT.

available on request for HDT.			
FEATURES			
Illumination	illuminated	illuminated	
Degree of protection	IP 40	IP 65	
PART NUMBER *			
Switching functions			
HDT NO 1-pole		1241.1 × 31.9 × 0	
HDT NO 2-pole	1241.1 x 22.9 x 0	1241.1 x 32.9 x 0	
Terminal types  A Through hole	7	7	
B Gullwing		8	
C J-Lead	9	9	
Colour of LED	7	7	
red	1	1	
green	2	2	
blue	4	4	
Colour of small button		-	
with illumination	transparent	transparent	
Torminal human			
Terminal types:			
	<b>A</b> Through hole <b>B</b> Gi	ullwing <b>C</b> J-Lead	
	A milougimore D G	univing 5 3-ccau	
		<u> </u>	

<sup>\*</sup> X in the Part No. must be replaced by the desired version



#### **LETTERING**

**Depending on the application and font,** there are various lettering possibilities. The following standards can be used for key letterings:

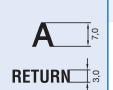
### **ORDER INDEX LETTERING**

A = 001	P = 016	4 = 031	<b>1</b> = 046	EIN = 061
B = 002	Q = 017	5 = 032	<b>→</b> = <b>047</b>	AUS = 062
C = 003	R = 018	6 = <mark>033</mark>	←= 048	AUF = 063
D = 004	S = 019	7 = 034	↓ = <b>049</b>	AB = 064
E = 005	T = 020	8 = <mark>035</mark>	↑ = <b>050</b>	ON = 065
F = 006	U = <mark>021</mark>	9 = 036	% = <b>051</b>	OFF = 066
G = 007	V = 022	+ = 037	√ = <mark>052</mark>	UP = 067
H = 008	W = 023	- = <mark>038</mark>	CTRL = 053	DOWN = 068
I = 009	X = 024	·= <mark>039</mark>	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	<del>*</del> = 042	STOP = 057	<b>START</b> = <b>072</b>
M = 013	1 = 028	== 043	ENTER = 058	
N = 014	2 = 029	# = 044	BACK = 059	
O = <mark>015</mark>	3 = 030	⇔ = 045	LINE = 060	



# MCS 18, LETTER HEIGHTS AND FONTS

- Single characters, Univers 65
- Legends max. 6 characters in line, Univers 65
- Insert label and front foil anthracite, RAL 7016
- Characters and symbols light grey, RAL 7035



# SSM 27, LETTER HEIGHTS AND FONTS

- Single characters, Univers 65
- Legends max. 6 characters in line, Akzident-Grotesk condensed bold type
- Front foil anthracite, RAL 7016
- Characters and symbols light grey, RAL 7035



# LIGHTING TECHNOLOGY

TECHNICAL DATA LEDs				
1. Maximum ratings				
Part number		0925.9730	0925.9731	0925.9732
Light colour		red	green	yellow
Forward current, DC	I <sub>F</sub> max. [mA]	40	40	40
Power dissipation	P tot max. [mW]	130	130	130
2. Characteristics (typ. at T <sub>U</sub> = 25 °C)				
Forward voltage	at $I_F = 10 \text{mA}, U_F \text{ typ. [mA]}$	2.0 (< 2.6)	2.0 (< 2.6)	2.0 (< 2.6)
Luminous intensity	at I <sub>F</sub> =10mA,I <sub>V</sub> typ. [mcd]	11.2 - 28	18 - 45	11.2 - 28
Viewing angle	ftyp. [Dergree]	50	50	50
Peak wave length	ֆոոk typ. [nm]	635	565	586
Reverse voltage	U <sub>R</sub> typ. [V]	5	5	5