General specification membrane switches.

The specifications in this document are valid for membrane switches.
All our membraneswitches are ROHS compliant.

1. Electrical properties

Operating switched voltage:	Min 0.5 V - max. 30 V
Operating switched current:	Max 50 µA
Operating switched power:	Max 0,5 Wt
Insulation resistance:	
without crossover	> 10MΩ
with crossover	> 0.1 MΩ
Closed contact loop resistance	< 100 Ω
with all silver tracks	

2. Mechanical

Dimensional tolerance	general tooling +/- 0.2 mm
Bounce time key with metal dome:	< 10 msec
Bounce time key with embossed dome:	< 20 msec
Live expectancy dome:	1 Million
Emboss height	< 0.5 mm
Emboss spacing	> 3.0 mm
Minimum bend radius tail	> 4.0 mm

3. Material

Overlay:	Polyester, protection layer on windows
Adhesive:	Open source
Domes retrain:	Polyester 100µ with holes
Shielding for EMC:	Polyester screenprinted with silver grid
PET for circuitry:	Polyester 125/175 µ
Back plate:	3M
Metal dome:	with dimple, gold or nickel plated
LED:	SMD LED
	(Vf=2.4V – 3.5V;Vr=5.0V; If 20 mA)
	glued on substrate and locked with silver
	to get a better mechanical quality,
	on special request low current.
EL Light:	Used for a backlight and can also be
	integrated in a membrane switch.
	Colors: Blue, green and white.
	U=100 Vac, f=400,
	I=0.20mA/cm²,
	Brightness 15cd /cm²,
	expectancy time > 10.000 hours

4. Temperature range

With metal dome as tactile feedback
Operating temperature: -20°C … +70°C
Storage temperature: -40°C … +80°C

With dome embossing as tactile feedback
Operating temperature: 0°C … + 60°C
Storage temperature: -30°C … + 70°C

With EL integrated
Operating temperature: -20°C … +50°C
Storage temperature: -30°C … +60°C

5. Humidity

Operating humidity   < 90% RH
Storage humidity   < 90% RH

6. Protection

Environmental: sealing to IP67 can be achieved; subject for design considerations.

7. Ultra Violet exposure

Normal polyester not resistant, UV resistant velvety texture material available on request.

8. Screenprinted circuitry

Insulation ink: Screenprinted on the whole circuitry including the tail.
Circuitry with crossover: Insulation between the crossover is always screenprinted for 3 times.
Tail end is screenprinted with graphite.
Silvercontacts for metaldomes are always screenprinted with graphite.

9. Screenprinted overlayer

The color is printed on the backside of the overlayer. The structure or varnish for windows is screenprinted on the topside. The visual appearance is according FT-standard.
Screenprinting mistakes, dust or scratch should not be fond when you look on the overlayer for 10 seconds with a distance of 50 cm. Tolerance of colors *DE* 0.75

10. Tail

There is a PET protection on the tail, tail band rounding min R=4 mm.
Cable with female connector pitch 2,54 mm.
Identification on Tail. (Barcode by Metafas)
On customer specification:
1. Tail end suitable for FFC connector minimum pitch 1 mm
2. Tail output with closed border due to water resistance cable area

11. Embossing or dome embossing

At 45°C the embossing should not show any "flattening" or deformation.

12. Chemical resistance

Alcohols, Dilute, acids, Dilute alkalis, Esters, Hydrocarbons, Ketones,
Household cleaning agents.

13. Testing

Standard: electrical test 100 % of the batch.

Handling Remarks.

Before you assemble the membrane switch please read the handle
remarks to take care for an optimum functioning of the membrane switch.

Unpack

Do not hold the tail to take out the membrane switches out of the package

Handling

Don't push any key when the membrane switch is not glued on a carrier or
housing. Please pay attention not to harm the membrane switches with
tools that may be used to assemble. Plastic tools are recommended, do not
put heavy objects on the membrane switch.

Assembly

Please take care that the carrier or the housing (where the membrane
switch must be glued up) is non-fat and free from dust or other particles.
Before you glue the membrane switch, please release the window protection
film first and afterwards pull off the adhesion liner.
Don't touch the windows or adhesive on the back side with your fingers.
It is not possible to pull off the membrane switch and to glue up for the
second time. The membrane switch can be irreparable damaged.
Please pay the highly attention not to create any stress to the tails.
Heavy stress may cause disconnection.