

德国 RAFI 耐高温 125 度可灌封浸涂或保形涂层 IP67 防水轻触开关

一致性强，高强度，长寿命

为了对冷凝或污染等环境影响具有鲁棒性，有各种方法可以保护印刷电路板。经常用整个电路板组件的灌封、浸涂或保形涂层。以前的触觉开关不是为这种电路板保护方法而设计的。新产品提供了新一代适合此类应用的 MICON 和 RACON。

适合 PC 加工保形涂层；保形的涂层，敷形涂覆 Conformal coating

在保形涂层中，用喷头对浸涂和选择性涂层进行区分。通过选择性涂层，只对关键部件和触点涂漆，从而使用更少材料节省成本。涂漆可防止冷凝或污染，并提供 ESD 保护。对于 MICON 和 RACON，在涂层过程中应避免柔性压力件，否则启动按钮时，油漆颗粒可能会剥落。

灌封 POTTING

在灌封过程中，印刷电路板部分(或完全)填充介质，提供出色的对持续湿度保护，在振动和的情况下提供机械保护，并改善散热。可显著延长电子设备寿命。新一代 MICON 和 RACON（密封型）可以完全封闭到规定的灌封高度，并继续可靠工作。

浸涂 DIP COATING

浸涂通常是将组装好的电路板浸入槽池中浸没进行的。涂层材料渗透到组件的每个角落，为电路板提供尽可能好的保护。仅 400 纳米的薄层就足以可靠地保护电子设备免受故障和潮湿气影响。对于开关来说，抵抗涂层影响是巨大挑战，新轻触开关非常适合这一应用。

MICON 5S 德国 RAFI 轻触开关型号:

- 1.14.005.201/0000, 1.5N SMT standard, 红色标准高 3.85mm, 100 万次,
- 1.14.005.101/0000, 2.9N SMT standard, 100 万次, 红色标准高 3.85
- 1.14.005.001/0000, 3.5N SMT standard, 25 万次; IP67 (IP6K7); 红色标准高 3.85
- 1.14.005.111/0000, 5.5 N SMT 标准型, 红色标准高 3.85
- 1.14.005.011/0000, 8N SMT standard, 25 万次; 红色标准高 3.85
- 1.14.005.103/0000, 3N; SMT 低尺寸 100 万次 黑色低 3.45 mm
- 1.14.005.003/0000, 3.6N SMT low, 25 万次 黑色低尺寸 3.45 mm
- 1.14.005.113/0000, 5.5N SMT low, 100 万次 低尺寸 3.45
- 1.14.005.106/0000, 3N THT standard, 100 万次 红色标准高 3.85mm
- 1.14.005.006/0000, 3.6 N THT standard, 25 万次 红色标准高 3.85
- 1.14.005.116/0000, 5.5N THT standard, ;100 万次 红色标准高 3.85
- 1.14.005.016/0000, 7 ± 1.4 N THT standard, 红色标准高 3.85;

MICON 5SL 长寿命型号:

- 1.14.105.101/0000, 2.9N SMT standard, 1000 万次, 红色标准高 3.85
- 1.14.105.111/0000, 5.5 N SMT 标准型, 1000 万次, 红色标准高 3.85

1NO+1NC Safety tactile switch 双路轻触开关安全开关型号:

- 1.14.205.101/0000, 2.9N SMT standard, 100 万次, 红色标准高 3.85
- 1.14.205.111/0000, 5.6 N SMT 标准型, 100 万次, 高 3.85 毫米
- 1.14.108.501/0000, 3.3N 100 万次 THT external, 管装 Tube
- 1.14.108.601/0000, 4.8N 100 万次 THT external

1.14.108.801/0000 , 6.0N 5 万次 THT external
1.14.108.502/0000 , 3.3N 100 万次 THT internal 管装 Tube
1.14.108.602/0000 , 4.8N 100 万次 THT internal
1.14.108.802/0000 , 6.0 N 5 万次 THT internal
1.14.108.503/0000 , 3.3N 100 万次 SMT 表面安装 分隔盘装 Blister
1.14.108.603/0000 , 4.8N 100 万次 SMT 贴片安装
1.14.108.803/0000 , 6.0N 5 万次 SMT
1.14.108.903/0000 , 6.8 N 100 万次 SMT
1.14.108.920/0000 , 9.4 N 25 万次 SMT
1.14.108.506/0000 , 3.3N vertical 侧面安装式 100 万次
1.14.108.606/0000 , 4.8N 100 万次

THT external , THT outside , THT 在外:

1.14.112.601/0000 , 2.5N
1.14.112.501/0000 , 3.6N
1.14.112.801/0000 , 4.7 N

THT 在内 THT internal ,THT inside :

1.14.112.602/0000 , 2.5N
1.14.112.502/0000 , 3.6N
1.14.112.802/0000 , 4.7 N
1.14.112.918/0000 , 6.8 N
1.14.112.926/0000 , 9.7N 65,000 次 ,

SMT 表面安装 , 贴片安装 :

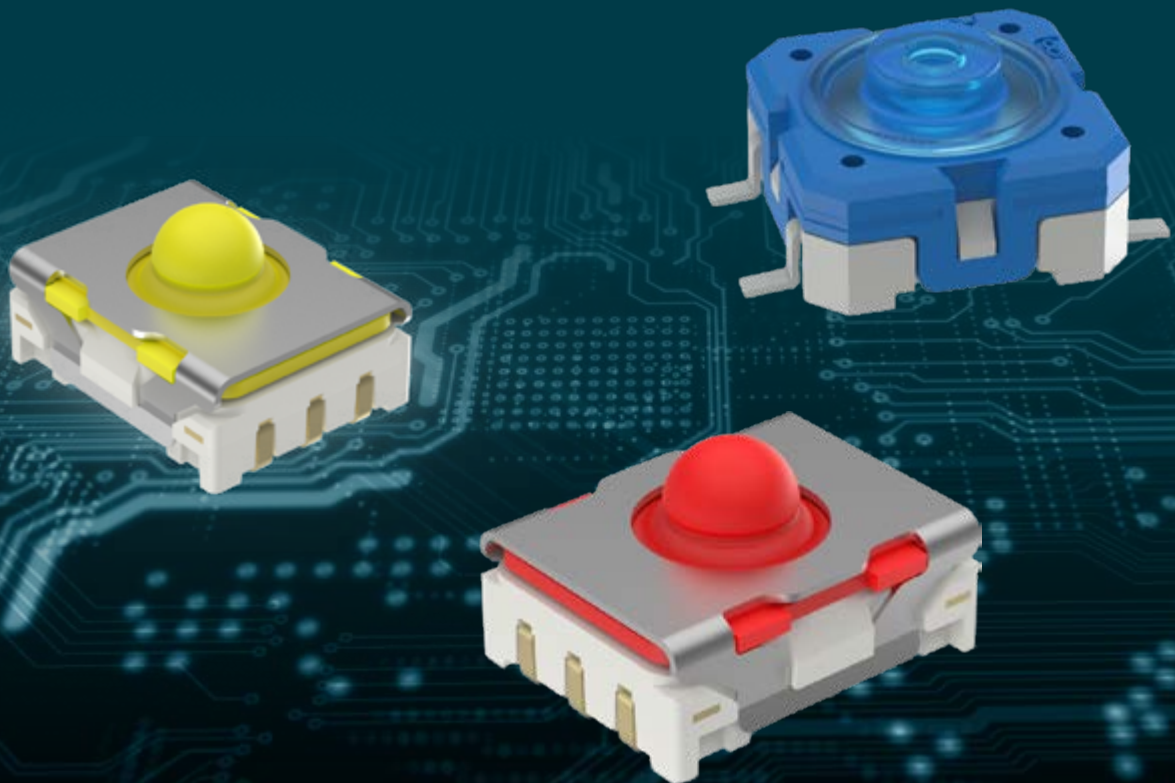
1.14.112.603/0000 , 2.5N
1.14.112.503/0000 , 3.6N
1.14.112.803/0000 , 4.7 N
1.14.112.916/0000 , 6.8N
1.14.112.920/0000 , 9.7N 65,000 次

vertical 纵向 侧装 :

1.14.112.506/0000 , 3.6N 1,000,000 次
1.14.112.927/0000 , 9.7N 200,000 次

TACTILE SWITCHES

THE NEXT GENERATION



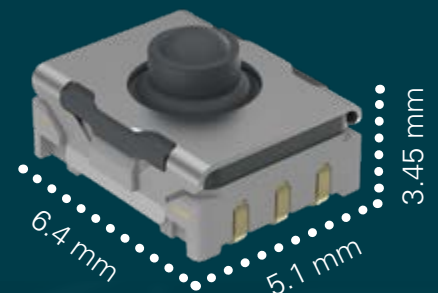
MICON 5


VERSATILE. DURABLE.

Small switch with large impact: The tactile switches of the **MICON 5** family convince with an extraordinary tactile feedback. The integrated gold contacts guarantee reliable key operation. Thanks to the increased IP protection class, **MICON 5 S** (Sealed) tactile switches can be used on printed circuit boards that are made robust against environmental influences or contamination by using potting, dip coating or conformal coating. In combination with the extensive range of accessories, the MICON 5 becomes a universal solution for almost all applications. Various lengths, designs and variants with illumination options are available.

MICON 5 SL

The new **MICON 5 SL** series is the answer to applications in which the tactile switches are actuated frequently. With a operating life of up to ten million actuation cycles, the MICON 5 SL (Sealed & extended Lifetime) is ideal for use in joysticks or other operating devices that are subject to particularly high stresses. The SL variants are available in SMT and with two different actuation forces.



Variant	Article number	Operating force	Operating life
 SMT	1.14.105.101/0000	2.5 N	10,000,000
	1.14.105.111/0000	5.0 N	



Gold contacts



Unique tactile feedback

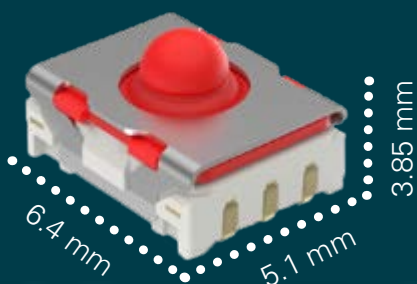


Compact dimensions



Up to 10 million switching cycles

MICON 5



Variant	Article number	Operating force	Operating life
SMT	1.14.005.201/0000	1,5 N	1.000.000
	1.14.005.101/0000	2,5 N	
	1.14.005.001/0000	3,6 N	250.000
	1.14.005.111/0000	5,0 N	1.000.000
	1.14.005.011/0000	7,0 N	250.000
SMT	1.14.005.103/0000	2,5 N	1.000.000
	1.14.005.003/0000	3,6 N	250.000
	1.14.005.113/0000	5,0 N	1.000.000
THT	1.14.005.106/0000	2,5 N	250.000
	1.14.005.006/0000	3,6 N	
	1.14.005.116/0000	5,0 N	1.000.000
	1.14.005.016/0000	7,0 N	250.000



SMT



SMT



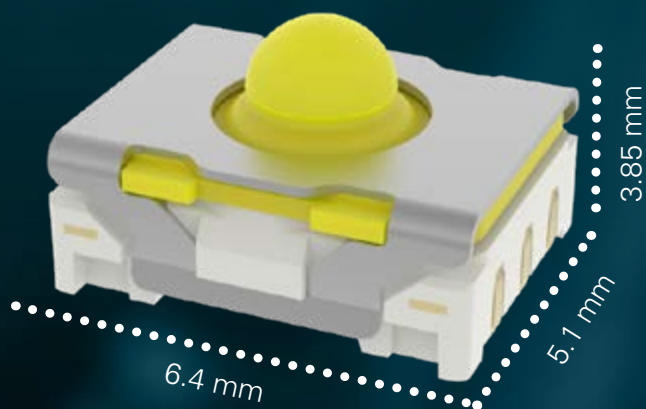
THT

MICON 5 SAFETY

COMPACT. DUAL-CHANNEL. SAFE.

The **MICON 5 SAFETY** not only integrates the outstanding features of the MICON 5 S, such as the extended temperature range and the possibility of potting, dip coating or conformal coating, in the smallest possible space, it also has two isolated normally closed and normally open contacts. With these features it is unique worldwide in this size, because the dimensions and also the compatibility to the MICON accessories program remain unchanged. These features enable a particularly economical and space-saving design for applications that are developed according to industry-specific functional safety standards – such as:

IEC 61508	Functional safety
IEC 62061	Safety of machinery
IEC 60601	Medical equipment
ISO 26262	Road vehicles
DIN EN 50128	Railway
DIN EN ISO 13849	Industrial automation
DIN EN ISO 25119	Agriculture and forestry



CIRCUIT DIAGRAM





1 NC + 1 NO



Operating temperature
-40°C to +125°C




Unique worldwide



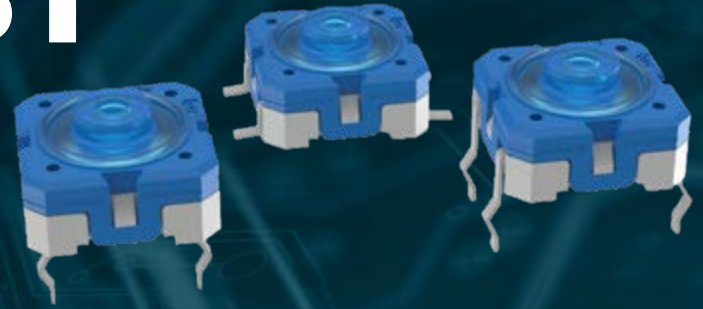
Compact
dimensions

MICON 5 SAFETY

Variant	Article number	Operating force	Operating life
 SMT	1.14.205.101/0000	2.9 N	1,000,000
	1.14.205.111/0000	5.6 N	

RACON ST

VARIABLE. ROBUST.



The **RACON ST** fits into your operating system as if it were tailor-made. The product family offers the right tactile switch for every project: The RACON 8 ST and RACON 12 ST series differ in their dimensions and operating forces. SMT as well as THT versions are available for both.

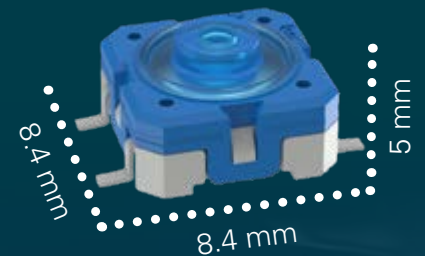
RACON ST - particularly robust

Like the MICON 5 S, the RACON ST (sealed & extended temperature) is also sealed and can be used on

printed circuit boards, protected from environmental influences or contamination by potting, dip coating or conformal coating. Thanks to its extreme temperature resistance from -40°C to $+125^{\circ}\text{C}$, the RACON ST is ideal for automotive or similar outdoor applications. A sealed, robust and gold-based contact system makes it additionally resistant and switch-safe. The result: operation is absolutely reliable for at least one million operating cycles.

RACON 8 ST

Variant	Article number	Operating force	Operating life
 THT external	1.14.108.501/0000	3.3 N	1,000,000
	1.14.108.601/0000	4.8 N	
	1.14.108.801/0000	6.0 N	50,000
 THT internal	1.14.108.502/0000	3.3 N	1,000,000
	1.14.108.602/0000	4.8 N	
	1.14.108.802/0000	6.0 N	50,000
 SMT	1.14.108.503/0000	3.3 N	1,000,000
	1.14.108.603/0000	4.8 N	
	1.14.108.803/0000	6.0 N	50,000
	1.14.108.903/0000	6.8 N	1,000,000
 vertical	1.14.108.920/0000	9.4 N	250,000
	1.14.108.506/0000	3.3 N	1,000,000
	1.14.108.606/0000	4.8 N	





IP67



Operating temperature
-40°C to +125°C



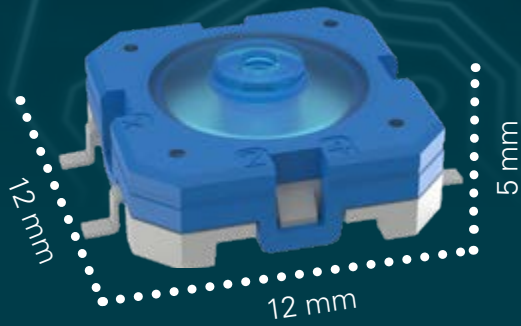
Wide range of
operating forces



Robust
contact system

RACON 12

ST



Variant	Article number	Operating force	Operating life	
 THT external	1.14.112.601/0000	2.5 N	1,000,000	
	1.14.112.501/0000	3.6 N		
	1.14.112.801/0000	4.7 N		
 THT internal	1.14.112.602/0000	2.5 N		
	1.14.112.502/0000	3.6 N		
	1.14.112.802/0000	4.7 N		
	1.14.112.918/0000	6.8 N		
 SMT	1.14.112.926/0000	9.7 N		65,000
	1.14.112.603/0000	2.5 N		1,000,000
	1.14.112.503/0000	3.6 N		
	1.14.112.803/0000	4.7 N		
	1.14.112.916/0000	6.8 N		
 vertical	1.14.112.920/0000	9.7 N	65,000	
	1.14.112.506/0000	3.6 N	1,000,000	
	1.14.112.927/0000	9.7 N	200,000	

MEDIA ROBUST ELECTRONICS

RESISTENT. ROBUST. DURABLE.

There are various ways to protect PCBs from environmental influences such as condensation or contamination. In this context, our customers and also we at RAFI often rely on potting, dip coating or conformal coating of entire circuit board assemblies.

In the past this was a challenge for previous tactile switches which were not designed for these PCB protection methods. We have optimized this and offer a new generation of MICONs and RACONs that are equipped for such applications.

CONFORMAL COATING

In conformal coating, a distinction is made between dip coating and selective coating with a spray head. With selective coating, only critical components and contacts can be coated, thus saving costs by using less material. Coating protects against condensation or contamination and also provides ESD protection. In the case of MICON and RACON, the flexible pressure piece should be left out during coating, as otherwise coating particles can flake off when the button is subsequently actuated.



POTTING




In potting, the printed circuit board is partially or completely filled with a medium which offers not only excellent protection in constant humidity but also mechanical protection in case of vibration and improved heat dissipation. This can significantly extend the lifetime of the electronics. The new generation MICONs and RACONs (sealed) can now be effectively enclosed up to the defined potting height and continue to function reliably thereafter.



DIP COATING

Dip coating is usually applied in an immersion process in which the assembled circuit board is immersed in a basin. The coating material penetrates into every corner of the assembly in order to provide the best possible protection for the circuit board. A thin layer of just 400 nm is sufficient to reliably protect the electronics from malfunctions and moisture. However, using this type of coating on tactile switches is a challenge – but MICON as well as RACON are ideally suited for exactly this purpose.



	Conformal coating	Potting	Dip coating
Features	<ul style="list-style-type: none"> • 20-50 µm • transparent • ESD protection • protection against condensation 	<ul style="list-style-type: none"> • from 1 mm • protection against constant humidity • mechanical protection during vibration and improved heat dissipation 	<ul style="list-style-type: none"> • 400 nm • transparent • protection against condensation
Protection level			
Process	selective and dip coating	mold filling	dipping
Costs	€	€€€	€
Flexibility to change	flexible	inflexible	flexible
Repairability	✗	✗	✓

QUALITY AND APPLICATION

RELIABLE. TRACEABLE. UNIVERSAL.



CONTINUOUS MONITORING

Quality assurance is paramount in the production of our tactile switches. MICON and RACON are manufactured in high-performance automated machines at our location in Germany. Continuous monitoring of the process steps via camera systems guarantees compliance with our quality standards.



100% INSPECTION

Our tactile switches are characterized by their tactility. Here we leave nothing to chance. The force-travel characteristic is tested for each tactile switch, thus ensuring consistent tactility and quality.



TRACEABILITY

For traceability purposes, each tactile switch is laser-marked after passing complete testing. This ensures we can trace when each tactile switch was produced and which individual parts were used.



PACKAGING

Depending on the variant (THT or SMT), we pack our tactile switches in rails or blisters. This ensures fast, safe feeding into automated electronic assembly machines for further processing.

IN USE WORLDWIDE

Hardly visible, highly noticeable. Our tactile switches have already been in reliable use for many years. Numerous applications demonstrate their versatility – and the success story continues. Every day, new projects are added in which MICON and RACON impress customers and users.

