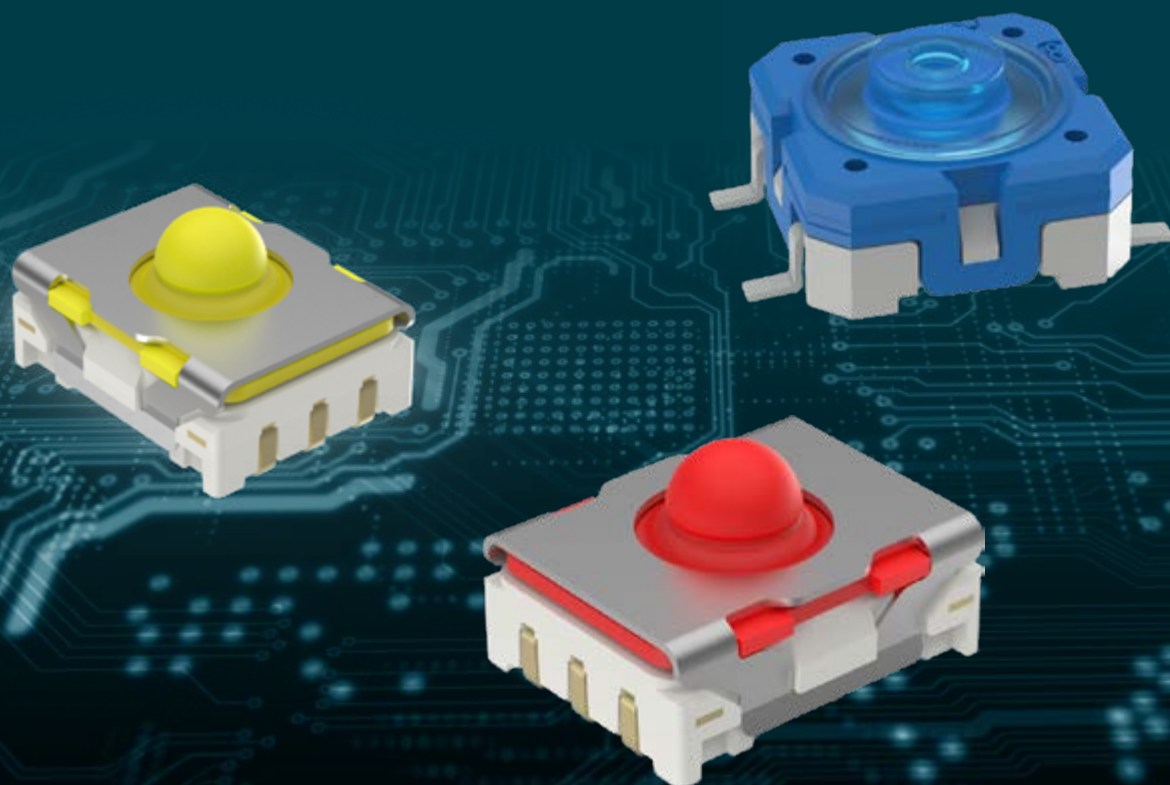


# TACTILE SWITCHES

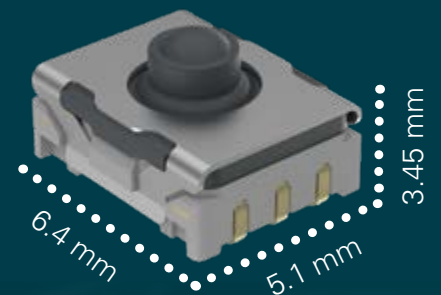
THE NEXT GENERATION



# 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**

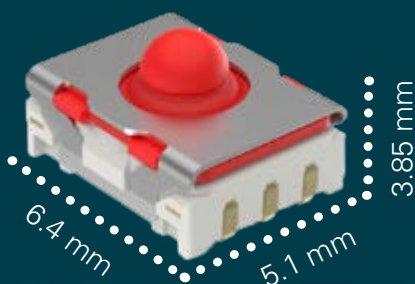




**Compact dimensions**



**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	1.000.000
	1.14.005.006/0000	3,6 N	250.000
	1.14.005.116/0000	5,0 N	1.000.000
	1.14.005.016/0000	7,0 N	250.000

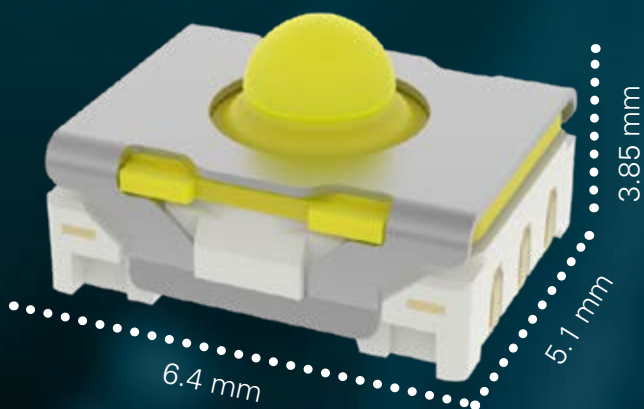
# MICON 5 SAFETY

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**  
**IEC 62061**  
**IEC 60601**  
**ISO 26262**  
**DIN EN 50128**  
**DIN EN ISO 13849**  
**DIN EN ISO 25119**

Functional safety  
 Safety of machinery  
 Medical equipment  
 Road vehicles  
 Railway  
 Industrial automation  
 Agriculture and forestry



## CIRCUIT DIAGRAM





1 NC + 1 NO



Operating temperature  
-40°C to +125°C




Unique worldwide



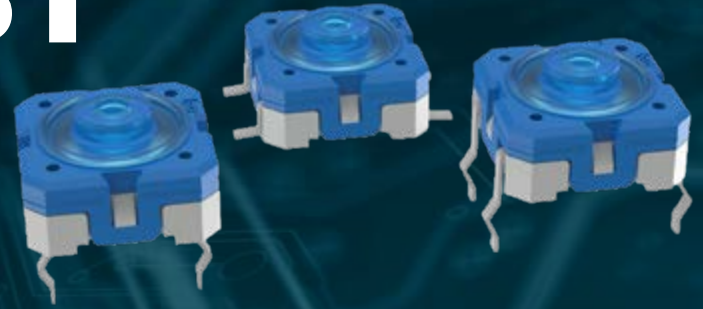
Compact  
dimensions

# 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.

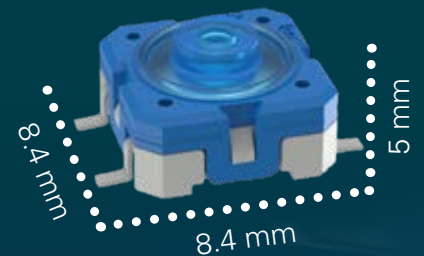
### RACON ST - particularly robust

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  $-40^{\circ}\text{C}$  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



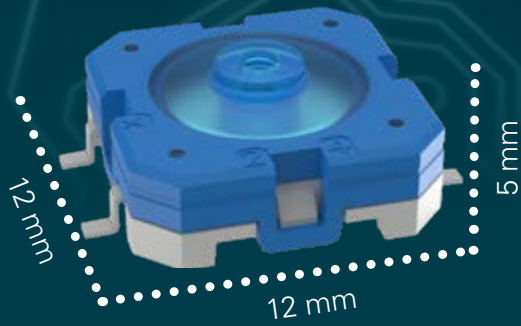
Wide range of  
operating forces



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

# 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.

