

# MEC switches PRODUCT GUIDE

# SWITCHING TECHNOLOGIES, OUR CORE BUSINESS

ORGANIZED IN 3 BUSINESSES, APEM'S HMI SOLUTIONS ARE DESIGNED, FULLY TESTED AND QUALIFIED FOR DEMANDING APPLICATIONS. THEY GUARANTEE THE HIGHEST LEVEL OF ROBUSTNESS AND RELIABILITY TO MEET INTERNATIONAL STANDARDS.

## COMPONENTS

Toggle, pushbutton, rocker, slide, tact and rotary switches, industrial controls, LED indicators, for panel or PCB: APEM offers the broadest range in these switch markets.



## JOYSTICKS

Easy to operate and highly reliable, APEM joysticks are suitable for all size and shape requirements from thumb and finger operation to full hand grip products.



## PANEL SOLUTIONS

Relying on APEM's already qualified product ranges and mastery of the main panel technologies, the teams are able to design complete and fully customized HMI solutions for customers.



# MORE THAN JUST A SWITCH

IF YOU ARE LOOKING FOR PCB SWITCHES THAT CAN MEET YOUR HIGH DEMANDING NEEDS FOR FINE DESIGN AND RELIABILITY, THEN YOU HAVE ARRIVED IN THE RIGHT PLACE.

MEC SWITCHES, APEM'S HIGH PERFORMANCE TACTILE SWITCHES ARE SO MUCH MORE THAN JUST TACT SWITCHES.



## > MODULAR

ONE FOOTPRINT, ABUNDANT DESIGN OPTIONS.

## > VERSATILE

OVER 2000 STANDARD OPTIONS WITHIN THE CAP AND ACCESSORY RANGE.

## > RELIABLE

NOT JUST LONG LIFETIME OR ROBUST OR SEALED - THE SWITCHES ARE THE WHOLE PACKAGE.

## > NORDIC

WE ADD A TOUCH OF DANISH DESIGN TO THE COMPONENT INDUSTRY.



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# STANDARD CAP SELECTION

## ROUND

NON-ILLUMINATED								
1SS	Varimec R	10G	10U	10S	10AQS+AQW	1JS	1GAS	1GCS
Ø6.5mm h=8.0-22.5mm 5E	Ø5.2; 7.8; 11.6mm h=10.4-22.5mm 3E	Ø11.5mm h=4.9mm 6C	Ø11.5mm h=7.5mm 6C	Ø8.0mm h=7.5mm 6C	Ø14.3mm h=12.0-23.0mm sealed to IP67 5G	Ø9.6mm h=10.4mm 5G	Ø11.0mm h=12.5mm 5G	Ø15.0mm h=12.5mm 5G
NON-ILLUMINATED AND ILLUMINATED								
1Z	Aquamec	10C	10ZC	10X	1DS	1US	1ZCS	1ZW
Ø29.5mm h=12.0 5E/5G	Ø10.6mm h=24.2-27.2mm sealed to IP67 5G	Ø19.2mm h=13.7mm 5G	Ø9.58mm h=7.6mm sealed to IP67 6C	Ø22.0mm h=13.9-15.4mm 5G	Ø9.6mm h=14.9mm 5G	Ø10.6mm h=14.9mm sealable to IP67 5G	Ø14.3mm h=11.7mm 5G	Ø29.5mm h=12.3 sealed to IP67 5E/5G
10R/10RF	Navimec	10D	Ultranavimec	1IS	1LS	1ES	1FS	10RM
Ø30.0mm h=12.6/11.0 mm sealable to IP67 5G	Ø34.25mm h=12.2mm 5G	Ø16.0mm h=12.0mm sealable to IP67 5G	Ø22.14mm h=7.15mm sealed to IP67 6C	Ø6.5mm h=10.4-22.5mm 5G	Ø6.5mm h=12.0-22.5mm 5G	Ø9.6mm h=14.9mm 5G	Ø9.6mm h=14.9mm 5G	Ø30.0mm h=11.0mm sealed to IP67 5G
ILLUMINATED								

## SQUARE/RECTANGULAR

NON-ILLUMINATED					
					
<b>1ZA</b>	<b>1M</b>	<b>Varimec S</b>	<b>16300</b>	<b>16700</b>	<b>10T</b>
18.65 x 10.1mm h=12.2mm 5G	25.0 x 10.1mm h=12.2mm 5G	5.2; 7.8; 11.6mm h=10.4-22.5mm 3E	6.0 x 12.3mm h=16.9mm 15XXX	14.9 x 14.9mm h=14.6mm 15XXX	11.5 x 11.5mm h=7.5mm 6C

NON-ILLUMINATED AND ILLUMINATED						
						
<b>1PS</b>	<b>1A</b>	<b>1TS</b>	<b>1KS</b>	<b>1XS</b>	<b>1B+ 2C/2D</b>	<b>10Q</b>
12.5 x 6.5mm h=15.7mm 5E/5G	12.5 x 10.1mm h=12.2mm 5G	10.6 x 10.6mm h=14.9mm sealable to IP65 5G	14.3 x 14.3mm h=19.1mm 5G	7.4 x 9.4mm h=18.5mm 5G	15.1 x 15.1mm h=12.2mm 5G	22.0 x 22.0mm h=11.0mm sealable to IP65 5G

ILLUMINATED					
					
<b>1QS/1RS</b>	<b>1H</b>	<b>10QM</b>	<b>1KBS</b>	<b>1KCS</b>	<b>1YS/1YAS</b>
12.5 x 6.5mm h=15.7mm 5G	12.5 x 10.1mm h=12.2mm 5G	22.0 x 22.0mm h=11.0mm sealable to IP65 5G	14.3 x 14.3mm h=20.2mm 5G	14.3 x 14.3mm h=20.2mm 5G	15.0 x 15.0 mm h=12.5mm 5E

## OTHER SHAPES

NON-ILLUMINATED	NON-ILLUMINATED AND ILLUMINATED					
						
<b>10V</b>	<b>1NS</b>	<b>10A</b>	<b>1WDS</b>	<b>1VS</b>	<b>1WAS</b>	<b>1WPS</b>
11.5mm h=7.5mm 6C	Ø9.6/ 13.3 x 11.0mm h=14.9mm 5G	28.0 x 10.6mm h=12.15mm sealed to IP67 5E	8.0 x 15.2mm h=14.9mm	10.4 x 13.25mm h=14.9mm sealable to IP65 5G	6.5 x 12.5mm h=14.9mm 5G	6.5 x 12.5mm h=15.7mm 5G

## ACCESSORIES

NON-ILLUMINATED	NON-ILLUMINATED AND ILLUMINATED	
		
<b>2SS</b>	<b>16310-16315</b>	<b>16324-16327</b>
extender 5.0 - 10 mm	bezel up to 4 LEDs 15.1 x 15.1mm	bezel up to 2 lenses 15.1 x 15.1mm

## MODULES

			
<b>Single switch module</b>	<b>Navimec</b>	<b>Controlmec</b>	<b>Rockermec</b>

## NAVIGATE A UNIT OR A DISPLAY WITH A NAVIGATIONAL SOLUTION

When navigating a machine or display, your eyes are focused on the object and not on the control panel, which means the controls themselves have to be easy and intuitive to use.

It can be a traditional unit - 2 directional (Rockermec) or 4 directional with a confirmation in the middle (Navimec and Controlmec).

However, it can also be something unique. With the help of our round, square and triangular caps, you can design a panel that fits your exact needs.

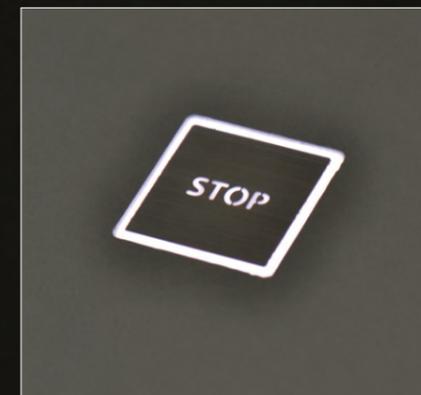


## QUICK STATUS FEEDBACK WITH ILLUMINATION

In a dark environment, safety critical or any other application, illumination is an excellent way to make your control panel more intuitive to use. It can be used to guide the user, give status feedback, point out the safety functionalities or just add a fine touch to the control panel.

There are many options to consider and choose from when it comes to illumination.

Choose from a single, bicolor or RGB; color and intensity; consistent or blinking; spot, full or legend illumination; status light in the bezel or perimeter light to guide the finger. There is even an NVIS option for the military market.



## DO NOT COMPROMISE FINE DESIGN IN A DEMANDING ENVIRONMENT



For years, high technical requirements have meant rough looking components, but no more. The MEC range allows for panel sealed robust solutions with a fine look and feel.

The solutions we offer are compact and customizable by color, illumination and markings.

The modular system of the product range provides the opportunity for designing the same control panel with or without the sealing, allowing you to be flexible in your production.



## EXTRA RELIABILITY FOR SOLUTIONS UNDER AN OVERLAY

The benefit of using a MEC switch under an overlay is that when the overlay wears down and breaks, the switch is sealed and therefore still operational.

Furthermore, it allows for more interesting design by making it possible to add various versions of illumination.



Controlmec 12W



Rockermec 10A



Ultravimec



10Q/10QM



10R/10RF/10RM



1TS



1US



1VS



10ZC



10D



1JS



1YS/1YAS



3C



1SS



1GAS



### MAKE IT INTUITIVE WITH COLOR



Color of the keycaps is an excellent way to differentiate your control panel. It can be a way to indicate safety critical functions, make operating easier or bring out your corporate colors.

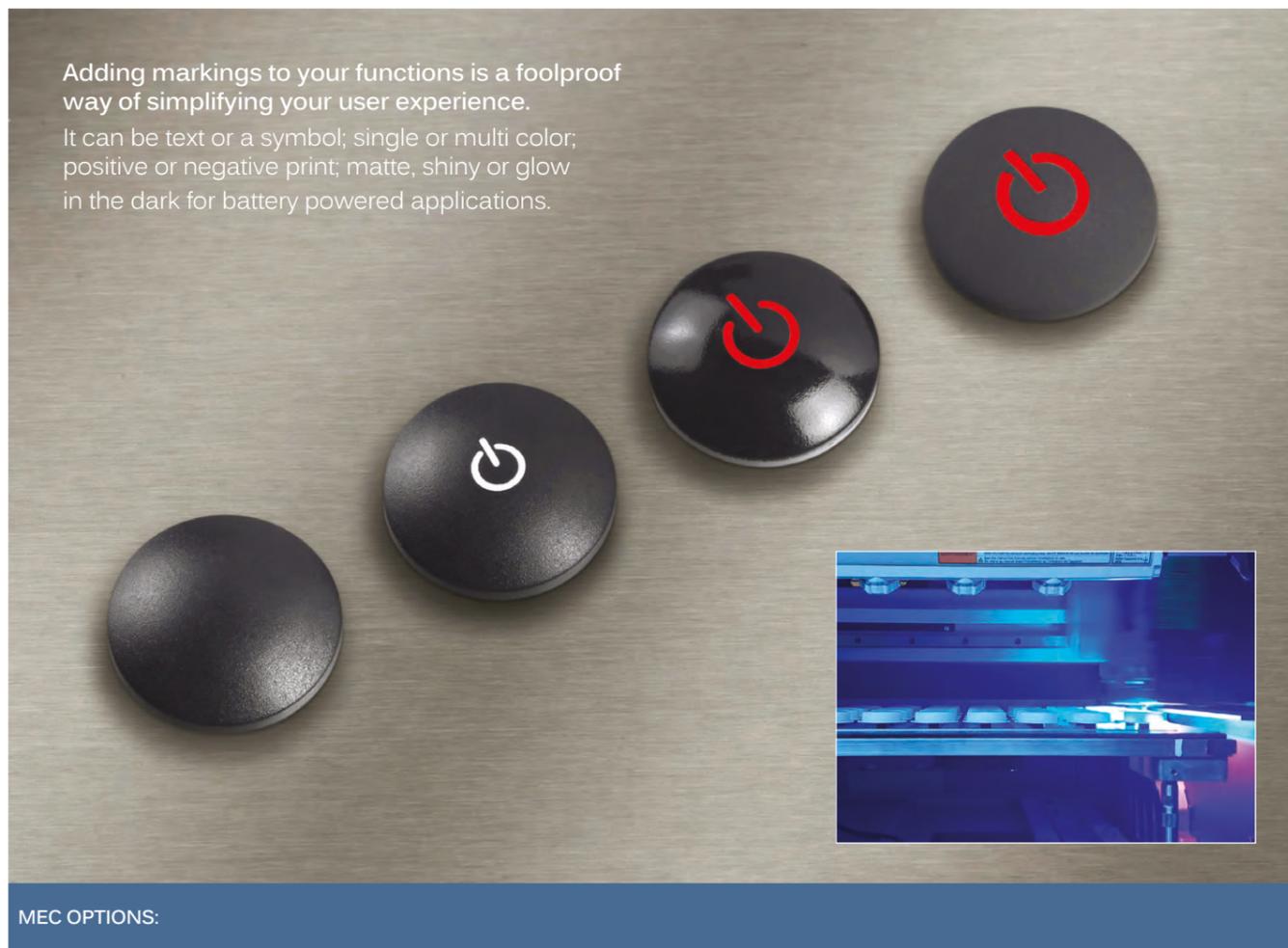
Colors can help give character to your application - they can make it playful, warm, they can make it exclusive and high-end.

It isn't just the color of the cap or illumination one can choose but also the color of the lenses, hard paint and legends.

**BE CREATIVE AND MAKE YOUR PANEL STAND OUT**

### SIMPLIFY THE USER EXPERIENCE WITH MARKINGS

Adding markings to your functions is a foolproof way of simplifying your user experience. It can be text or a symbol; single or multi color; positive or negative print; matte, shiny or glow in the dark for battery powered applications.

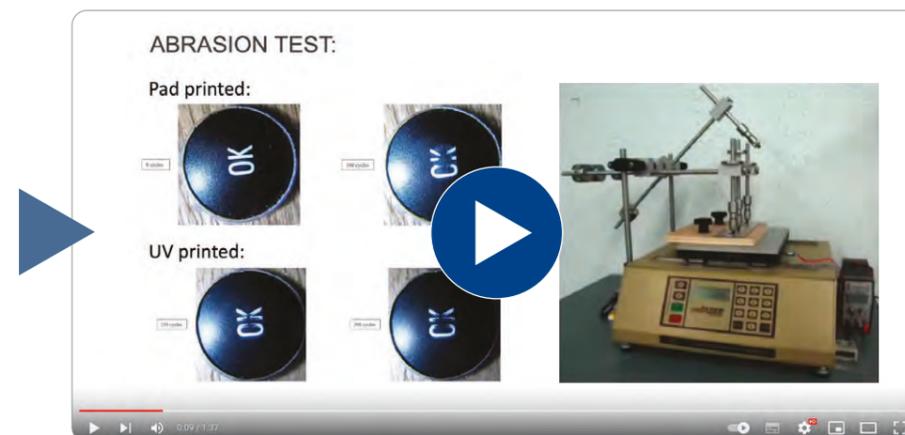


MEC OPTIONS:

	PAD PRINT	UV PRINT	LASER EDGED
ABRASION	★☆☆	★★★	★★★★
COLORS	Single	Multi	Single or bicolor
COST	★★★	★☆☆	★★★★

**CONFUSED BY THE PLENTIFUL OF OPTIONS?**

See our webinar on how to make your pick



## GIVE A PERSONAL TOUCH WITH DIFFERENT MATERIALS

You want to stand out, give a unique and exclusive user experience.

You want to match the control panel with the front panel material or it can be for safety reasons, so the control panel can handle the environment it is placed in.

Whatever the reason, it is worth considering other options besides the standard ABS and polycarbonate.



## PARTNER UP FOR A NEW CAP



**Sometimes standard options will not do.**

It can be that your application has an odd shape or height, or you are looking for something unique. Whatever your reason, we can help you with a tailor-made solution.

All the production processes for MEC switches are in-house, which means that we can be very flexible and quick when providing prototypes and arranging production of the final product.

Furthermore, we have the largest standard accessory range for tactile switches on the market - we know how to build new solutions.

### WHAT CAN I DO?

Here are some options for your inspiration

#### DESIGNMEC

Pick your own deco piece material

**Soft paint** - give the cap a soft rubber feeling

**Metal look** - add a Chrome coating for a cool modern feel

**Different type of plastic**



**Want to know what it feels like to partner up with MEC for a custom project?**

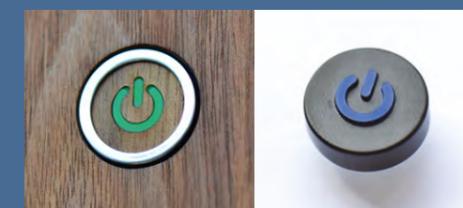
See our video with Jeremy from APEM UK Sales, who has a wealth of custom projects under his belt.



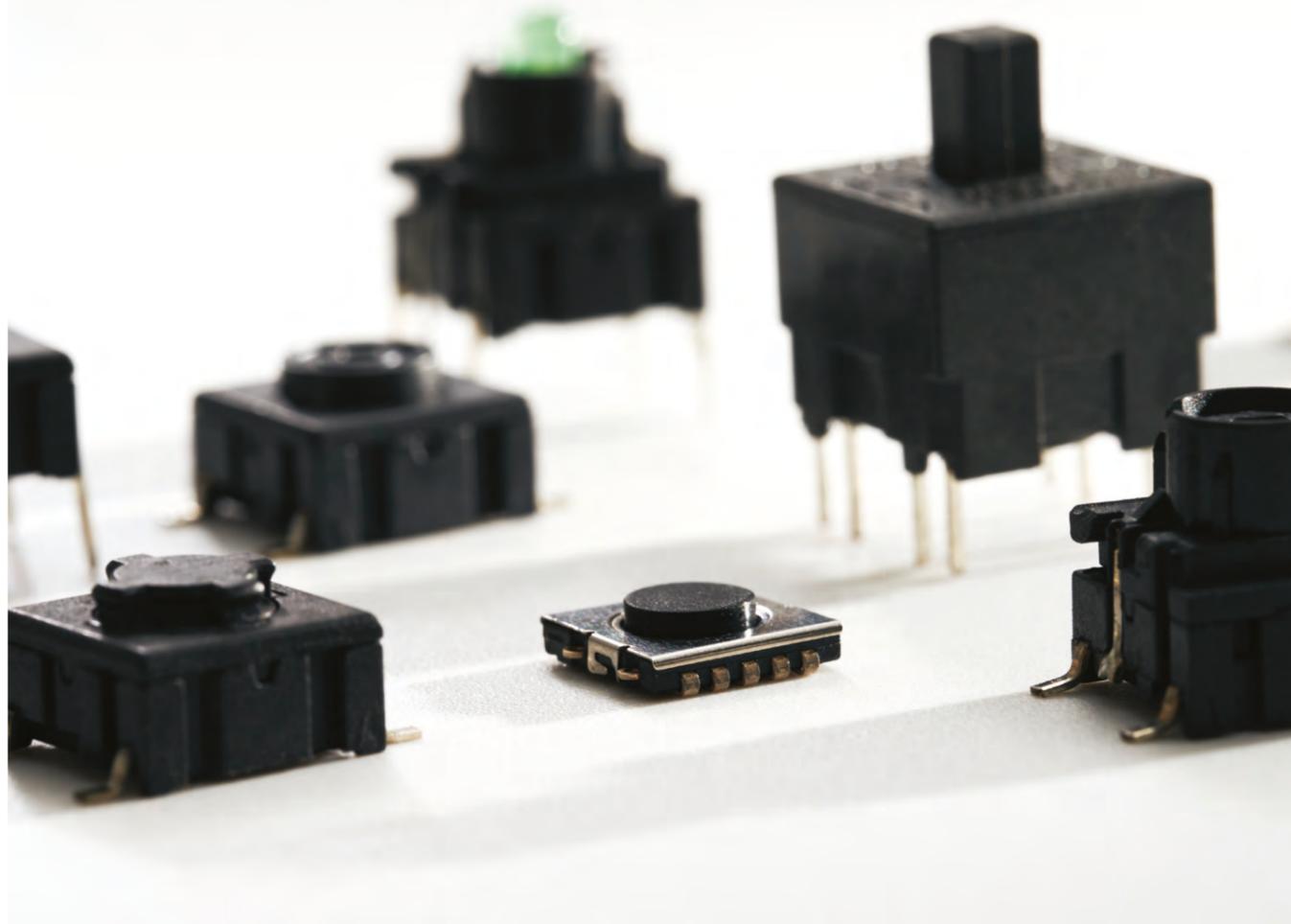
## NEED HELP COMING UP WITH QUICK PROTOTYPES?



See our webinar for some useful tips and tricks.



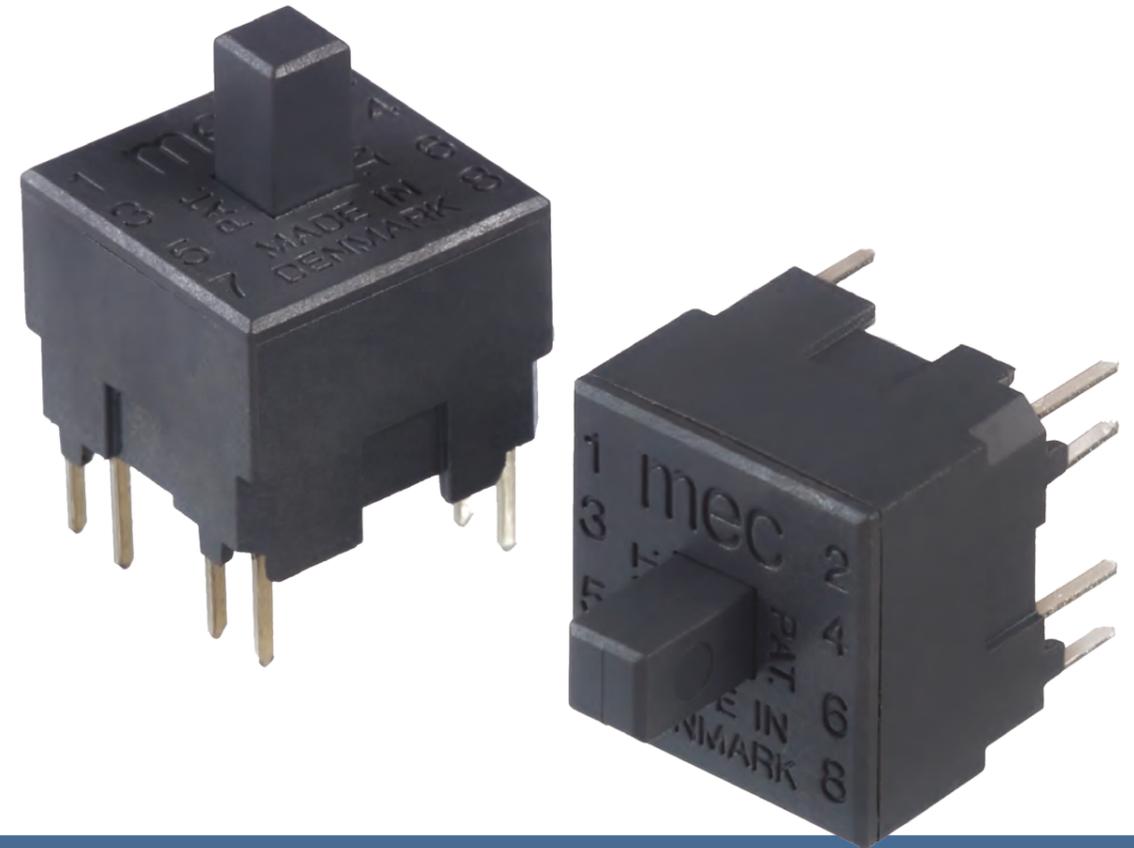
# SWITCH SELECTION



## OLDIE BUT GOODIE UNIMEC

Do you need redundancy?

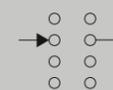
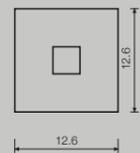
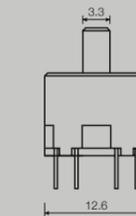
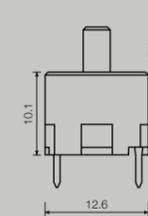
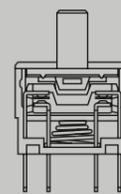
This switch comes packed with 8 contact function possibilities. It has a long lifetime and can be either momentary or latching.



	Unimec 154xx	Multimec 3C	Multimec 3E	Multimec 3F	Illumec 4F	Multimec 5G	Multimec 5E	Ultramec 6C
Measurements	12.6 x 12.6 mm h=15.7mm	10 x 10 mm h=6.4mm	10 x 10 mm h=6.4mm	10 x 10 mm h=10.4mm	10 x 10 mm h=10.4mm	10 x 10 mm h=6.4mm (illuminated 8.5mm)	10 x 10 mm h=6.4mm	8 x 8 mm h=2.5/ 3.5 mm
Specifications	TH 8 contact functions (NO & NC) Momentary or latching 5 million cycles IP54 sealing Travel 1.8mm	TH, SMD or TH RAS Single pole momentary switch NO 10 million cycles IP67 sealing Travel 1.0mm	TH, SMD or TH RAS Single pole momentary switch NO 10 million cycles IP67 sealing Travel 1.0mm	TH, SMD or TH RAS Single pole momentary switch NO 10 million cycles IP67 sealing Travel 1.0mm	TH or SMD Single pole momentary switch NO 10 million cycles IP67 sealing Travel 1.0mm	TH, SMD or non-ill. TH RAS Single pole momentary switch NO or NC/NO 10 million cycles IP67 sealing Travel 1.0mm	TH, SMD or TH RAS Single pole momentary switch NO or NC/NO 10 million cycles IP67 sealing Travel 1.0mm	SMD Single or double pole momentary switch NO up to 3 million cycles IP67 sealing Travel 0,3 mm

### TECHNICAL FEATURES

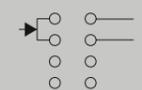
- 10 x 10
- h=15.7 mm
- IP54
- 1,000,000 cycle-lifetime
- 8 functions
- through-hole terminals
- single pole or 2-pole



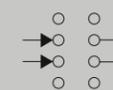
1 make contact



1 break contact



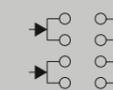
1 change over contact



2 make contact



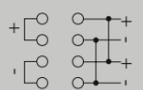
2 break contact



2 change over contact

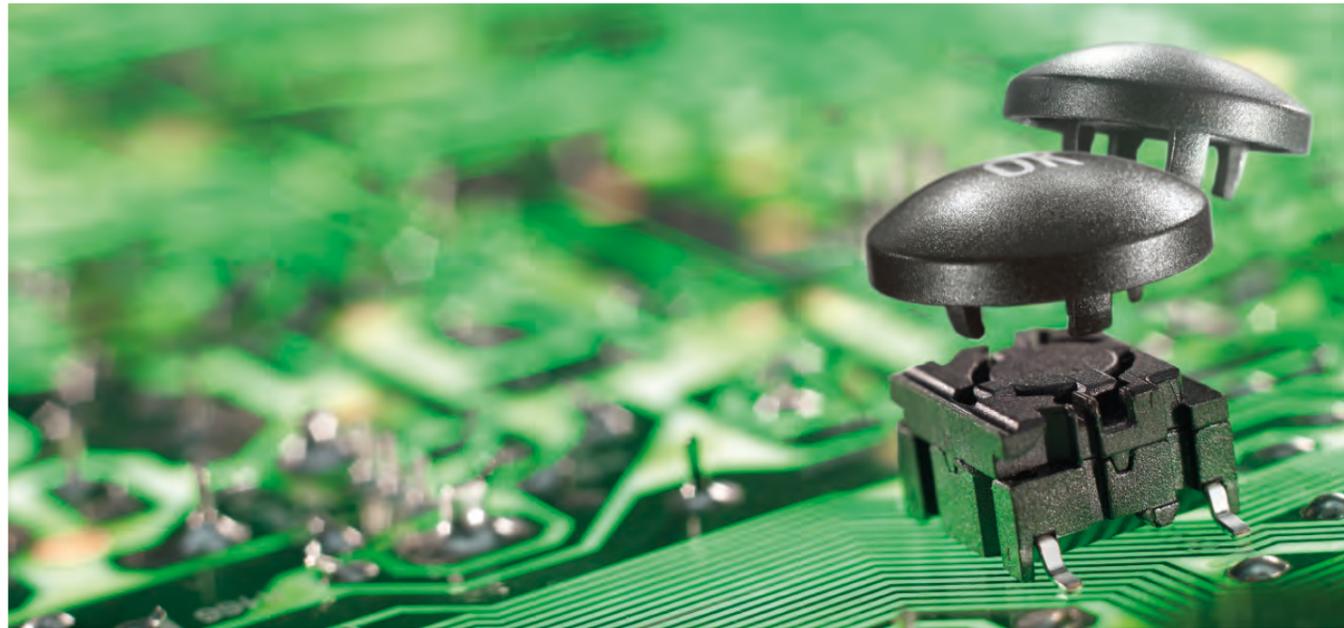


2 make and 2 break



reverse polarity

# THE GO-TO SWITCH MULTIMEC



Did you know that a grown man can stand on a Multimec switch and it will still function normally afterwards?

Multimec switch series is the whole package - in one footprint and size, you get sealing to IP67, lifetime of more than 10 mil activations, NC/NO function option, and possibility for integrated LEDs.

All of that with a large selection of standard keycaps and accesories making this modular series one of the most versatile tactile switch series on the market.

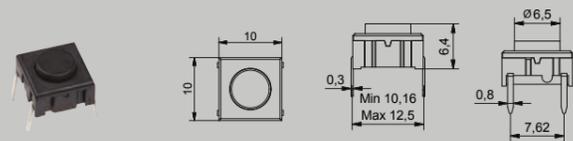
## MULTIMEC 3 SERIES

### TECHNICAL FEATURES

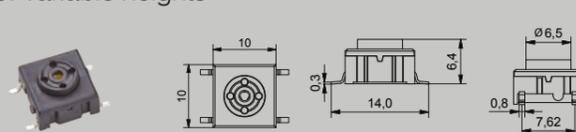
- 10 x 10 mm
- h=6.4 mm
- IP67
- 10,000,000 cycle-lifetime
- NO
- TH, SMD or TH RAS
- single pole
- integrated 3 mm LED option



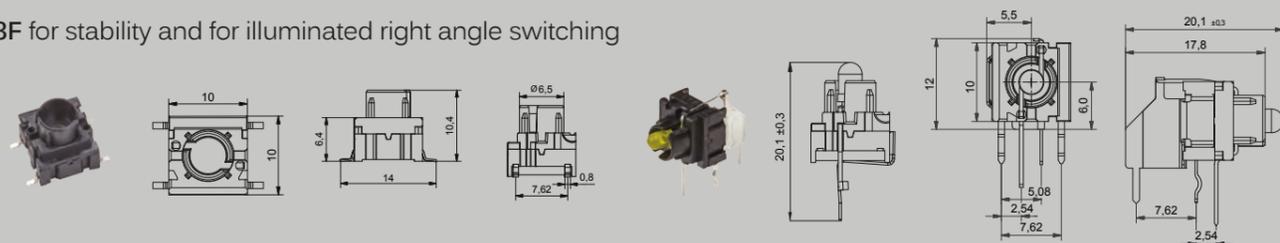
**3C** for under overlay or over-molded solutions



**3E** for under overlay or with extenders for variable heights



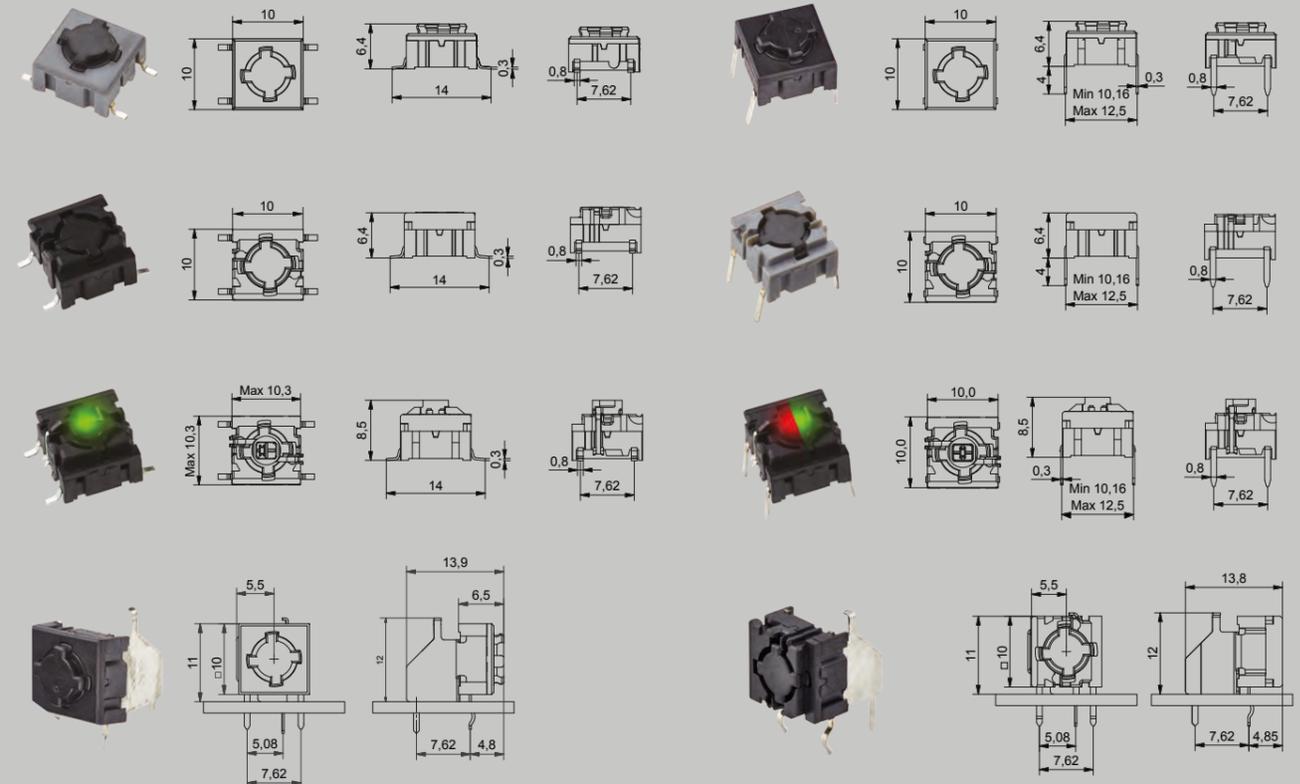
**3F** for stability and for illuminated right angle switching



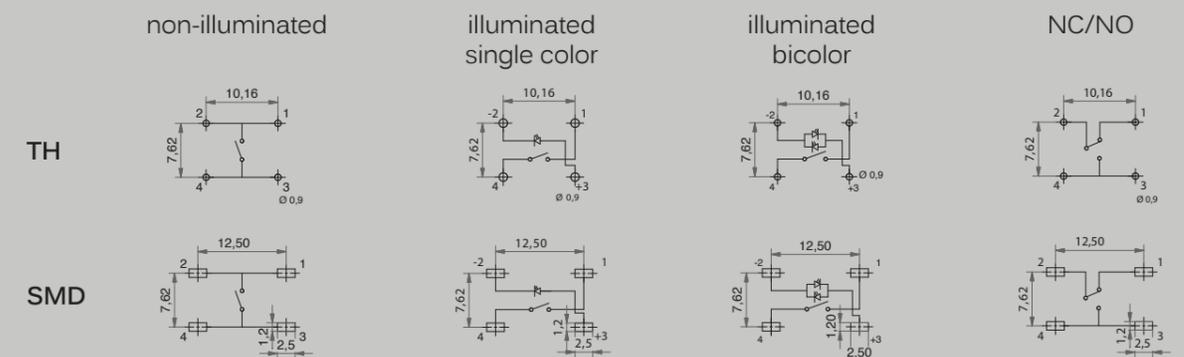
## MULTIMEC 5 SERIES

### TECHNICAL FEATURES

- 10 x 10 mm
- h=6.4 mm
- IP67
- 10,000,000 cycle-lifetime
- NO or NC/NO
- TH, SMD or non-illuminated TH RAS
- single pole
- integrated chip-LED option



### ONE FOOTPRINT - MANY OPTIONS



## WHEN GOOD IS NOT ENOUGH THE STORY OF MULTIMEC



### MEC takes on a challenge

We do not back away from a challenge: The story behind creating the NC/NO function in the Multimec switch.



### How is the quality guaranteed?

Multimec switches are produced on automatic production lines with 100% in-line testing.

Be assured in the quality assurance process for Multimec switches by seeing how we provide consistent quality for these high performance switches.

## NEW KID ON THE BLOCK ULTRAMEC

Ultramec is the smallest switch series with the brightest future in the MEC range.

Ultramec series includes two versions of the 6C switch a single pole version and a 2-pole version we call Dualmec.

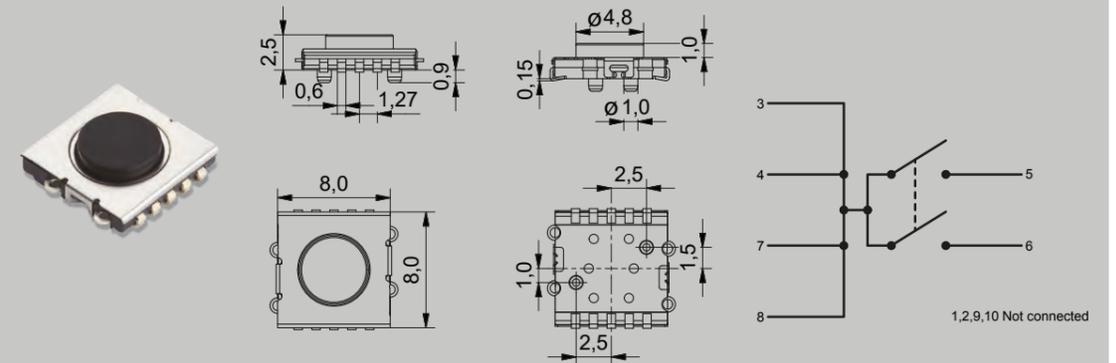
However, the base is built to allow for new functionalities to come in the future to make Ultramec most versatile tactile switch on the market.



### ULTRAMEC 6C

#### TECHNICAL FEATURES

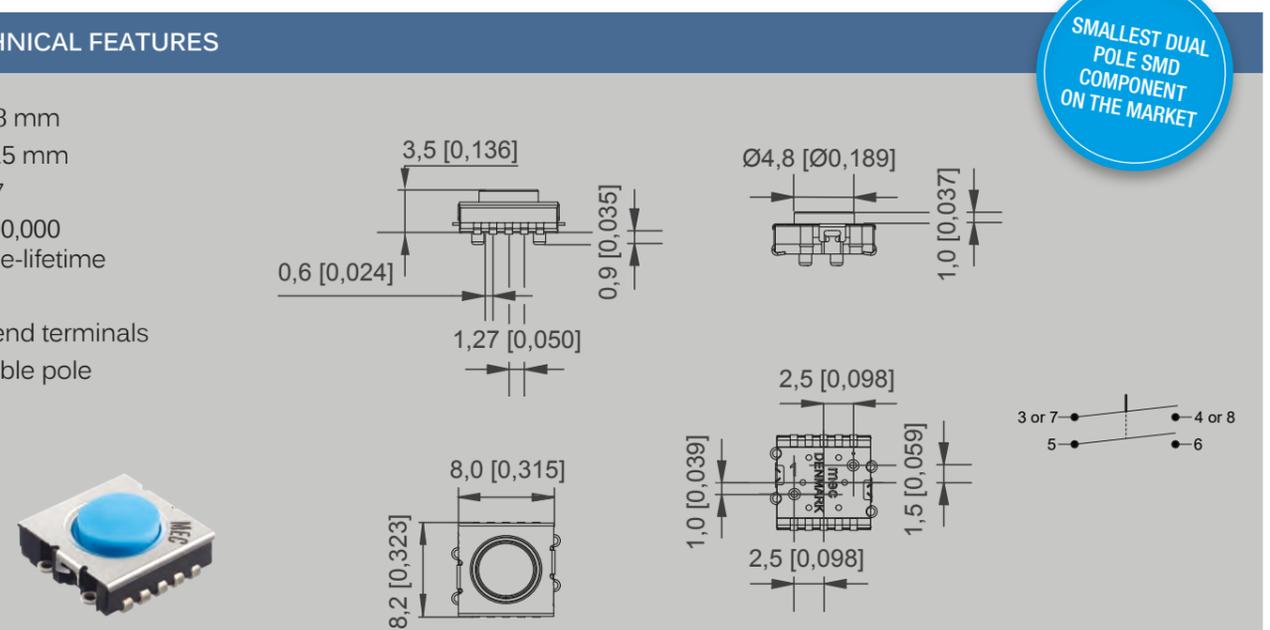
- 8 x 8 mm
- h=2.5 mm
- IP67
- 3,000,000 cycle-lifetime
- NO
- J-bend terminals
- single pole



### DUALMEC 6C

#### TECHNICAL FEATURES

- 8 x 8 mm
- h=3.5 mm
- IP67
- 1,000,000 cycle-lifetime
- NO
- J-bend terminals
- double pole



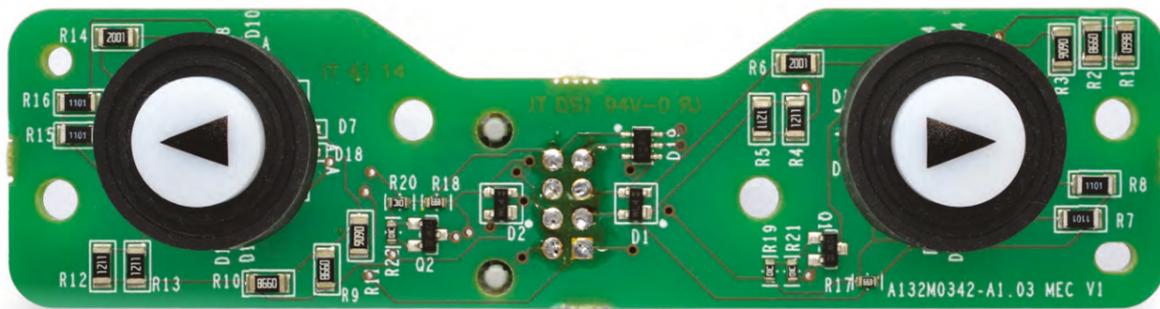
SMALLEST DUAL  
POLE SMD  
COMPONENT  
ON THE MARKET



# FIND A PARTNER IN MEC

We can also deliver complete PCB switch panels ready to be built into your control system.

APEM has many decades of experience building panel solutions for various markets. Partnering up for a MEC-based complete HMI means that you get a high quality and elegant solution that you can just plug and play.



**WHY BUILD YOUR COMPLETE HMI WITH MEC SWITCHES?**  
Let our Project Manager for Panel Solutions give you the reasons.



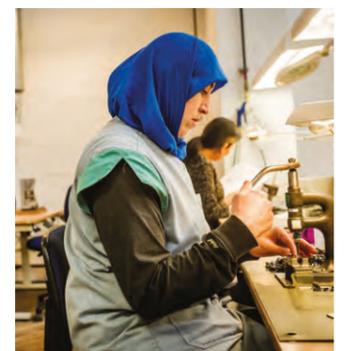
## BEHIND THE SCENES

MEC brand goes back all the way to 1938 when the radio industry was strong in Denmark. In 1975 the factory dropped all old products and instead set its engineers to work on new types of products - smaller switches for the printed circuit board.



Today the Danish factory produces over 10 million tactile switches a year. The assembly lines for the switches are fully automated and have a built-in quality check. This means that each and every switch leaving the factory has been tested.

The team responsible for producing MEC switches are all located in the suburbs of Copenhagen, Denmark. Product marketing, R&D, toolshop, stamping, molding, assembly, printing and quality departments are all next to each other making it easy to communicate about maintenance challenges, develop new products and work on custom projects.





## NOT FINDING YOUR HMI ? LET'S DEVELOP IT TOGETHER !

With robust development processes, and with the support of experts in ergonomics and design, APEM offers a unique expertise in HMI customization. APEM engineers will recommend the best ergonomics, shape, marking, backlighting, material, waterproofing, connectors... in line with your expectations and environment.

Depending on your needs, APEM can recommend fully customized products ("customer exclusive") or a custom design with already qualified HMI components, joystick handles and joystick bases.

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