APEM

Creating global HMI solutions



DEFENSE

Ground vehicles, Communication & Remote Controls

APEM
an IDEC company

APEM IN DEFENSE GROUND EQUIPMENT

For more than 70 years, APEM has been collaborating with leading defense companies. We have an unparalleled understanding that military applications require field proven and foolproof HMIs capable of operating under extreme conditions with consistent reliability.

APEM provides one of the widest ranges of customizable MIL-grade and CECC certified HMI solutions, including control panels, joysticks, pushbuttons and toggle switches & LED indicators. Temperature, dust, water, heavy shock, vibration... No condition is too extreme.



COMBAT-PROVEN HMIs

FOR UNCOMPROMISED RELIABILITY

A BROAD RANGE OF PRODUCTS AND SOLUTIONS

APEM OFFERS

1 FROM STAND-ALONE MIL-GRADE COMPONENTS TO CUSTOM ASSEMBLIES

PANEL SWITCHES | PCB SWITCHES | LED INDICATORS | JOYSTICKS | PANEL SOLUTIONS







2 MIL AND CECC CERTIFIED PRODUCTS

Defense equipment and vehicles must withstand dust, water, heavy shock and vibrations as well as extreme temperatures while guaranteeing 100% RELIABILITY.

APEM offers 70 years experience as an HMI specialist in the Defense industry, delivering robust and field proven HMI components and integrated control solutions to its customers.




CERTIFIED MIL QPL

3 CAPABILITY TO BUILD CUSTOM CONTROL PANEL SOLUTIONS



APEM has developed a unique expertise in the creation of integrated custom-made ruggedized control panels with MIL-grade electronics and software.
Our design, qualification and testing processes are compliant with military standards such as MIL-STD-810, MIL-STD-1472 and MIL-STD-461.

YOU HAVE SPECIFIC NEEDS, WE HAVE INNOVATIVE AND ROBUST SOLUTIONS





ROBUSTNESS
is essential in building trust with the machine

12000 & 13000 SERIES

The 12000 & 13000 series are designed to withstand the harshest environments. These compact and robust pushbutton switches are the perfect solution to trust your military equipment.



CONTROL
driven by innovation.

JOYSTICKS

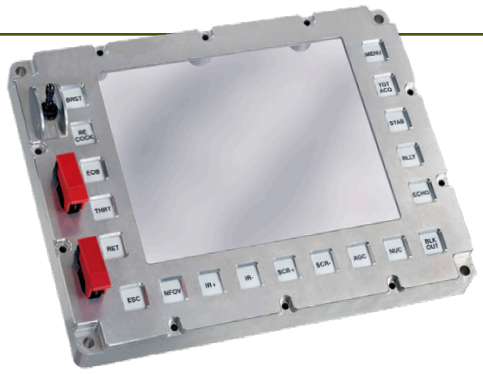
Discover how our range of joysticks helps military professionals easily control a growing number of vehicle functions.



PRECISION
to perfectly interact with complex machines

THUMBSTICKS

In the military context, errors are not an option. Our thumbsticks enable you to reach a high level of precision while interacting with your application.



CUSTOMIZATION
For a simplified & unique experience

CONTROL PANELS

We understand that HMIs must simplify the way operators interact with a vehicle. By leveraging our experience, you can build a unique, robust and reliable control panel.

HOW OUR PRODUCTS ARE USED





FG SERIES CONTROLLERS
Ideal for military applications subject to high vibration



12000X778 & 13000X778
Small and robust pushbuttons, CECC and MIL approved



TS SERIES
Proportional thumbsticks



WP SERIES
High-performance switch for interface solutions



ES AND 13000 SERIES
Metal emergency stop switches



QRM AND Q SERIES
LED indicators



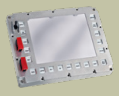
KR AND KL SERIES
Robust rocker switches



MSG, CSG SERIES
Switch Guards



12000 & 13000 SERIES
Highly reliable toggle switch and pushbutton



MILITARY GRADE KEYBOARDS



HS AND NV SERIES
Switch based thumbsticks





IX SERIES
Reliable pushbutton for harsh environments



IA SERIES
Low profile pushbutton



MEC PRODUCTS
Microswitch



IP, IZ, IA, IC, IM, IB-IS, AV
Small and robust pushbuttons



12000 & 13000 SERIES
Boots, guards



QRM AND Q SERIES
LED indicators





TW, CW AND HR SERIES
Thumbwheels



QRM AND Q SERIES
Indicators



12000X778 & 13000X778
Small and robust pushbuttons, CECC and MIL approved



13000 SERIES
Metal emergency stop for extreme conditions



TS SERIES
Proportional thumbsticks



HS AND NV SERIES
Switch based thumbsticks



MEC PRODUCTS
Microswitches



3000 AND HF SERIES
Finger control joysticks

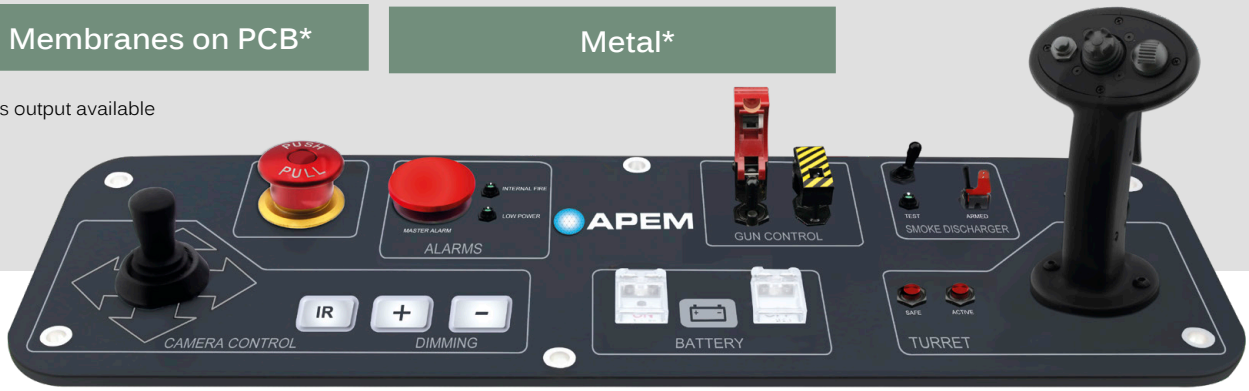
MORE THAN JUST MIL-GRADE COMPONENTS...

Our unique expertise enables us to go beyond only supplying HMI components. We see ourselves as partners whose goal is to help you build the perfect and reliable HMI solution based on your unique specifications. Over the years, we have built many custom solutions that integrate some of the latest HMI-related technologies. For instance, custom control panels for ground vehicles, remote controllers for UAVs, etc.

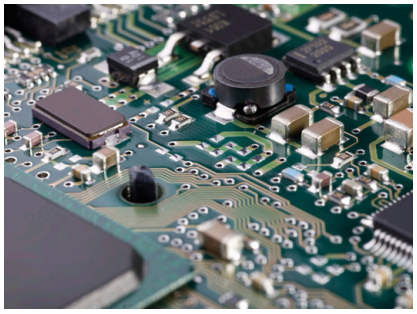
TECHNOLOGIES MASTERED BY APEM FOR MILITARY APPLICATIONS

- Membranes
- Elastomeric*
- MEC PCB switch panel*
- Membranes on PCB*
- Metal*

*CAN Bus output available



CAPABILITY TO ADD ELECTRONICS AND SOFTWARE FUNCTIONS*



COMMUNICATION PROTOCOLS
CAN, RS485, RS422, USB...

INTEGRATED BOOT LOADER
Diagnostic and software upgrade capability

MIL-GRADE ELECTRONICS AND SOFTWARE DESIGN

LOW POWER

BIT SOFTWARE
Real time Built-In-Test

FILTERING & PROTECTION
ESD, EMI, filter and protection of network...

INTEGRATED DIMMING

* APEM assesses each project in light of export control regulations

APEM RELIABILITY

- 70 YEARS EXPERIENCE IN MILITARY HMI PRODUCTS
- VERTICALLY INTEGRATED
- PRODUCT DESIGNS AND QUALIFICATIONS BASED ON MIL STD 810, 1472 AND 461
- MILITARY PRODUCTS ARE 100% TESTED
- QPL PRODUCTS (MIL-DTL-3950 AND MIL-DTL-83731)
- CECC QUALIFIED PRODUCTS (CECC 96201 & 96401)
- NATO MANUFACTURER CODE F7507

SOME OF OUR LATEST PROJECTS INCLUDE:

MILITARY TRUCKS USED BY SEVERAL EUROPEAN ARMY

We designed a keyboard with new functions and backlighting feature with electronic communication. Product supplied: 12000, TS, switch guards.



ARMORED VEHICLE USED BY NATO ARMY

We built the control panel used to interact with some of the vehicle functions and the HMI related to the remote weapon station. Products supplied: 12000X778, Q8, Q6.





HIGH-CAPACITY RADIO RELAYS (HCRR) USED BY SEVERAL ARMIES

We created the ON-OFF function switch, cable and connector assembly needed. We also worked on the membrane keyboard used for cryptography features. Products supplied: 12000, 13000, membrane keyboard.

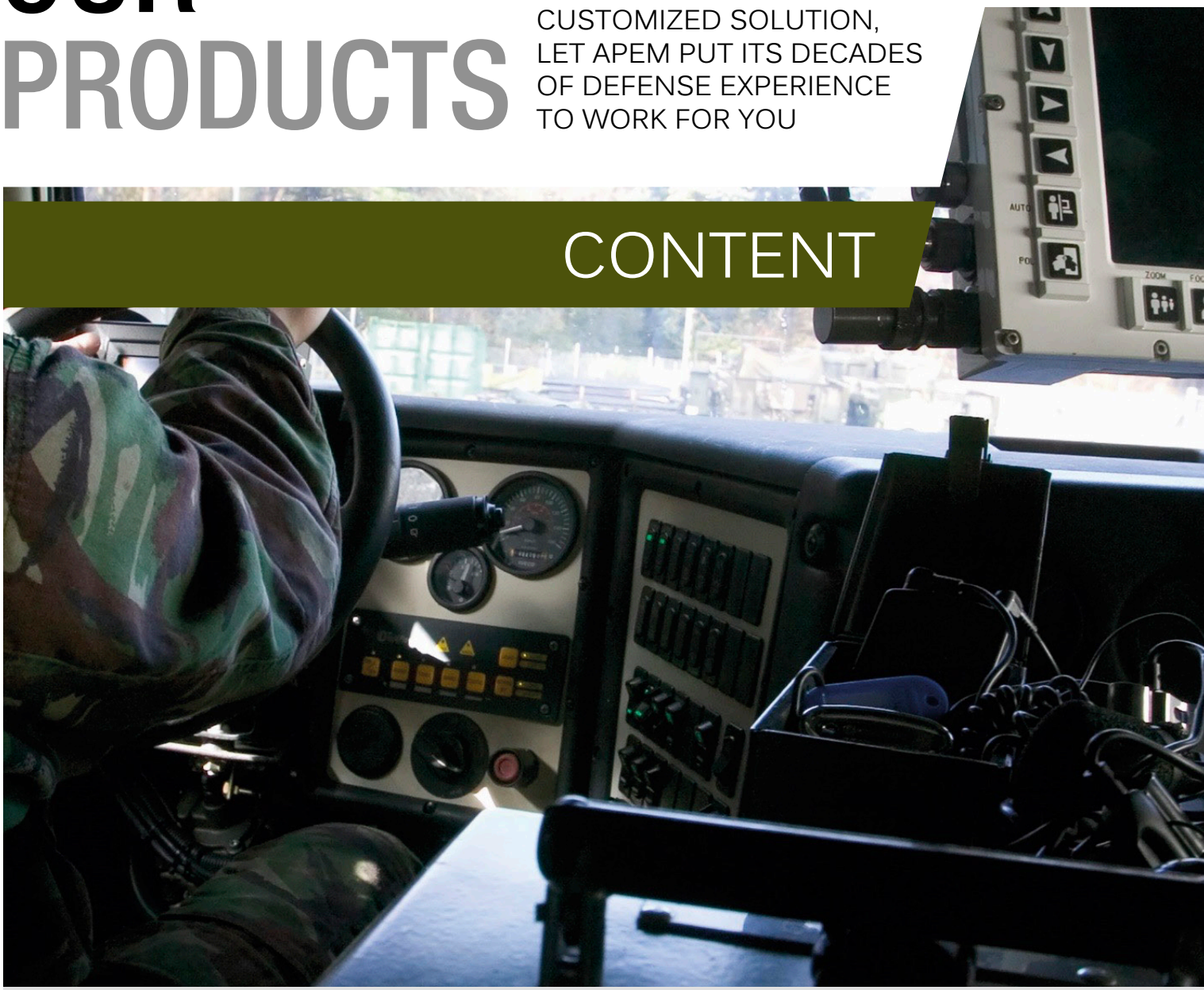


TACTICAL HEADSET FOR A NORTH-EUROPEAN ARMY

We developed the pressel switch for soldier worn comm's unit. Product supplied: 12000X778 & IA series.

OUR PRODUCTS

WHETHER IT'S A STANDARD PRODUCT OFFERING OR A CUSTOMIZED SOLUTION, LET APEM PUT ITS DECADES OF DEFENSE EXPERIENCE TO WORK FOR YOU



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12000X778 SERIES

MIL SPEC TOGGLE SWITCH

TOP APPLICATIONS:
MILITARY VEHICLES, TACTICAL HEADSETS, UNMANNED VEHICLE CONTROLS





THE BEST TOGGLE FOR MILITARY APPLICATIONS

- CECC 96201-005 & 008 approvals
- MIL 3950 & 83731 QPL
- Compact behind panel (50% more compact (width/depth) than MS2452 products)
- Easy to customise : finish, levers with or without locking
- Suitable for immersion (IP68)

SERIES	MECHANICAL LIFECYCLES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS	MOUNTING OPTIONS	SEALING	ILLUMINATION
12000X778	150.000 cycles (switches with 2 maintained positions) 100.000 cycles (switches with 3 maintained positions) 50.000 cycles (momentary functions 7, 8, 4-1R, 4-2R, 5)	CECC MIL-DTL-3950 MIL-DTL-83731	2,3,4	4 A 30 VDC	Ø11,9 mm (15/32)	Solder lugs, PCB	Panel - Vertical - Through hole	IP68	No

12000 SERIES

PROFESSIONAL TOGGLE SWITCH

TOP APPLICATIONS:
REMOTE CONTROLS





RELIABLE PRODUCT

- CECC 96201-005 & 008 approvals
- Compact behind panel
- Easy to customise : finish, levers with orwithout locking
- Optionnal sealing

SERIES	MECHANICAL LIFECYCLES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS	MOUNTING OPTIONS	SEALING	ILLUMINATION
12000	150.000 cycles (switches with 2 maintained positions) 100.000 cycles (switches with 3 maintained positions)	CECC	2,3,4	4 A 30 VDC	Ø11,9 mm (15/32)	Solder lugs, PCB	Panel - Vertical - Through hole	Optionnal	No

13000X778 SERIES

MILITARY GRADE QUICK-BREAK MOMENTARY PUSHBUTTON SWITCH

TOP APPLICATIONS:
WEAPON FUNCTIONS, MILITARY VEHICLES, MILITARY GRIPS



HIGH RELIABILITY PUSHBUTTON

- Up to three poles
- Suitable for immersion up to 10 m
- Large actuator version is compliant with MIL-STD-1472F
- CECC 96401-001 approval

SERIES	MECHANICAL LIFECYCLES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS	MOUNTING OPTIONS	SEALING	ILLUMINATION
13000X778	150.000 cycles	CECC	2,3	4 A 30 VDC	Ø11,9 mm (15/32)	Solder lugs, PCB	Panel - Vertical - Through hole	Up to IP68	No

13000 SERIES

MILITARY GRADE PUSH-PULL SWITCH

TOP APPLICATIONS:
MILITARY CONTROL PANELS



RUGGED PUSH SWITCH

- Sealed up to IP65, IP67 & IP69K
- Large actuator for ease of operation
- Compact body for space saving (13000)

SERIES	MECHANICAL LIFECYCLES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS	MOUNTING OPTIONS	SEALING	ILLUMINATION
13000	10.000 cycles	N/A	2,3	4 A 28 VDC	Ø15 mm (.59)	Solder lugs, PCB	Panel	IP65	No

WP SERIES

MILITARY GRADE MOMENTARY PUSHBUTTON SWITCH

TOP APPLICATIONS:
MILITARY CONTROL PANELS



LARGE ACTIVATION SURFACE, SUITABLE FOR GLOVES

- Sealed up to IP67 & IP69K
- Large actuator for ease of operation
- Compact behind the panel

SERIES	MECHANICAL LIFECYCLES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS	MOUNTING OPTIONS	SEALING	ILLUMINATION
WP	50.000 cycles	N/A	2	4 A 30 VDC	Ø22 mm (.87)	Solder lugs, PCB	Panel	IP67; IP69K	No

WPG SERIES

SWITCH GUARD

TOP APPLICATIONS:
MILITARY CONTROL PANELS





RESTRICTION OF CRITICAL FUNCTION

- Prevent accidental operation
- Latching

SERIES	MECHANICAL LIFECYCLES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS	MOUNTING OPTIONS	SEALING	ILLUMINATION
WPG	N/A	N/A	N/A	N/A	Ø22 mm (.87)	N/A	Panel	Yes	No

MSG AND 90 SERIES

SWITCH GUARD

TOP APPLICATIONS:
MILITARY CONTROL PANELS, MILITARY VEHICLES







TO SECURE CRITICAL FUNCTIONS

- Many switch guard types available
- Compatible with MIL3950 and MIL83731 toggles

SERIES	MECHANICAL LIFECYCLES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS	MOUNTING OPTIONS	SEALING	ILLUMINATION
MSG 90	20,000 cycles	N/A	N/A	N/A	Ø11,9 mm (15/32) Ø12 mm (.472)	N/A	Panel	N/A	No

SEALING BOOTS

TOGGLE & PUSHBUTTON BOOT

TOP APPLICATIONS:
ALL OUTDOOR AND HARSH ENVIRONMENTS





ADDITIONAL SEALING BARRIER

- Available for toggle and pushbutton switches
- Wide variety of shapes & colors
- Fast customization to accommodate any actuator length
- Available in silicone and neophrene

SERIES	BOOT MATERIAL	NUT MATERIAL	OPERATING TEMPERATURE		TEMPERATURE RANGE		ELASTICITY	MECHANICAL RESISTANCE
					Low	High		
Boots	Neoprene or silicone	Brass, nickel plated, matt black	Silicone	-40 °C to +85 °C	Best	Best	Best	Good
			Neoprene	-20 °C to +50 °C	Good	Better	Good	Best

IA, IX SERIES

DUSTPROOF PUSHBUTTON SWITCH

TOP APPLICATIONS:
REMOTE CONTROLS, GRIPS



IA: EXCELLENT TACTILE FEEDBACK
IX: COMPACT PUSHBUTTON WITH BACKLIGHTED LOGOS

IA
- Dustproof: Membrane on top with no gap between actuator and panel
- Frost, sand and hydrocarbon resistant
- Flush on panel
- Sealed up to IP67
- SIL2/Pld capable

IX
- Available with backlit marking
- Dustproof: Membrane on top with no gap between actuator and panel
- Frost, sand and hydrocarbon resistant
- Flush on panel
- Sealed up to IP67/IP69K
- SIL2/Pld capable

SERIES	MECHANICAL LIFECYCLES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS	MOUNTING OPTIONS	SEALING	ILLUMINATION
IA	1.000.000 cycles	N/A	NO+NC	2A 24VDC	Ø16 mm (.629)	Flying leads	Panel	IP65, IP67	No
IX	1.000.000 cycles	N/A	NO+NC	2A 28VDC	Ø12 mm (.472)	Solder lugs, wires	Panel	IP67; IP69K	Yes

IP, IZ SERIES

PUSHBUTTON SWITCHES FOR HARSH ENVIRONMENTS

TOP APPLICATIONS:
GRIPS, MILITARY VEHICLES, TACTICAL HEADSETS





ONE PUSHBUTTON: MANY OPTIONS

- Available with illumination
- Marking in option
- Sealed up to IP67
- Momentary or latching
- Up to SIL2/PId capable

SERIES	MECHANICAL LIFECYCLES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS	MOUNTING OPTIONS	SEALING	ILLUMINATION
IP	1.000.000 cycles	UL	1	5A 28VDC	Ø12 mm (.472)	Solder lugs, Quick connect, PCB, flying leads	Panel	IP67	Yes
IZ	1.000.000 cycles	N/A	1	5A 28VDC	Ø16 mm (.629)	Solder lugs, Quick connect, PCB, flying leads	Panel, Vertical-Through hole	IP67	Yes

KH SERIES

PROTECTED ROCKER SWITCHES

TOP APPLICATIONS:
DASHBOARDS ON MILITARY VEHICLES



PROTECT AGAINST INADVERTANT ACTIVATION

- Protected against accidental actuation
- Customized laser etched legends
- Illuminated versions
- Up to IP68/IP69K

SERIES	MECHANICAL LIFECYCLES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS	MOUNTING OPTIONS	SEALING	ILLUMINATION
KH	150.000 cycles	N/A	1, 2	10A 24VDC	36.8 x 21.08 mm	Solder lugs, quick-connect	Panel	IP68	Yes

KL SERIES

LOCKING ROCKER SWITCH

TOP APPLICATIONS:
DASHBOARDS ON MILITARY VEHICLES





INTUITIVE UNLOCKING

- Patented locking system for safety application
- Customised laser etched legends
- Illuminated versions

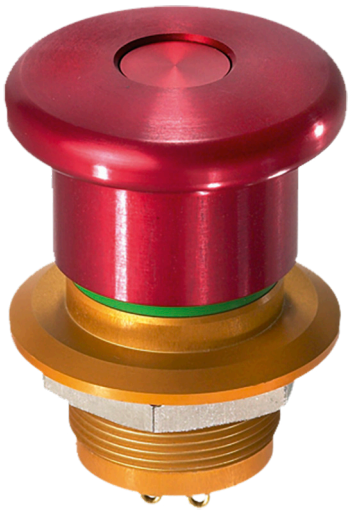
SERIES	MECHANICAL LIFECYCLES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS	MOUNTING OPTIONS	SEALING	ILLUMINATION
KL	150.000 cycles	N/A	1, 2	10A 24VDC	36.8 x 21.08 mm	Solder lugs, quick-connect, screw	Panel	IP68, IP69K	Yes

ES SERIES

HEAVY DUTY METAL SAFETY SWITCH

TOP APPLICATIONS:
MILITARY CONTROL PANELS





INDESTRUCTIBLE

- Sealed up to IP65, IP67 & IP69K
- Compact body
- Complies with EN60947-5-1
- Impact resistant to IK10

SERIES	MECHANICAL LIFECYCLES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS	MOUNTING OPTIONS	SEALING	ILLUMINATION
ES	100.000 cycles	EN60947-5-1	2,3	1 A 24 VDC DC-14	Ø22 mm Ø28 mm	Solder lugs, PCB	Panel, Vertical-Through hole	IP65 IP67 IP69K	No



APEM'S INDUSTRIAL EMERGENCY STOP PRODUCT OFFERING

APEM IS A WORLD LEADER IN INDUSTRIAL E-STOPS

A01ES-D
Emergency stop ergonomically designed for the users





EC
Compact emergency stop

EC COMPACT
Ultra compact emergency stop





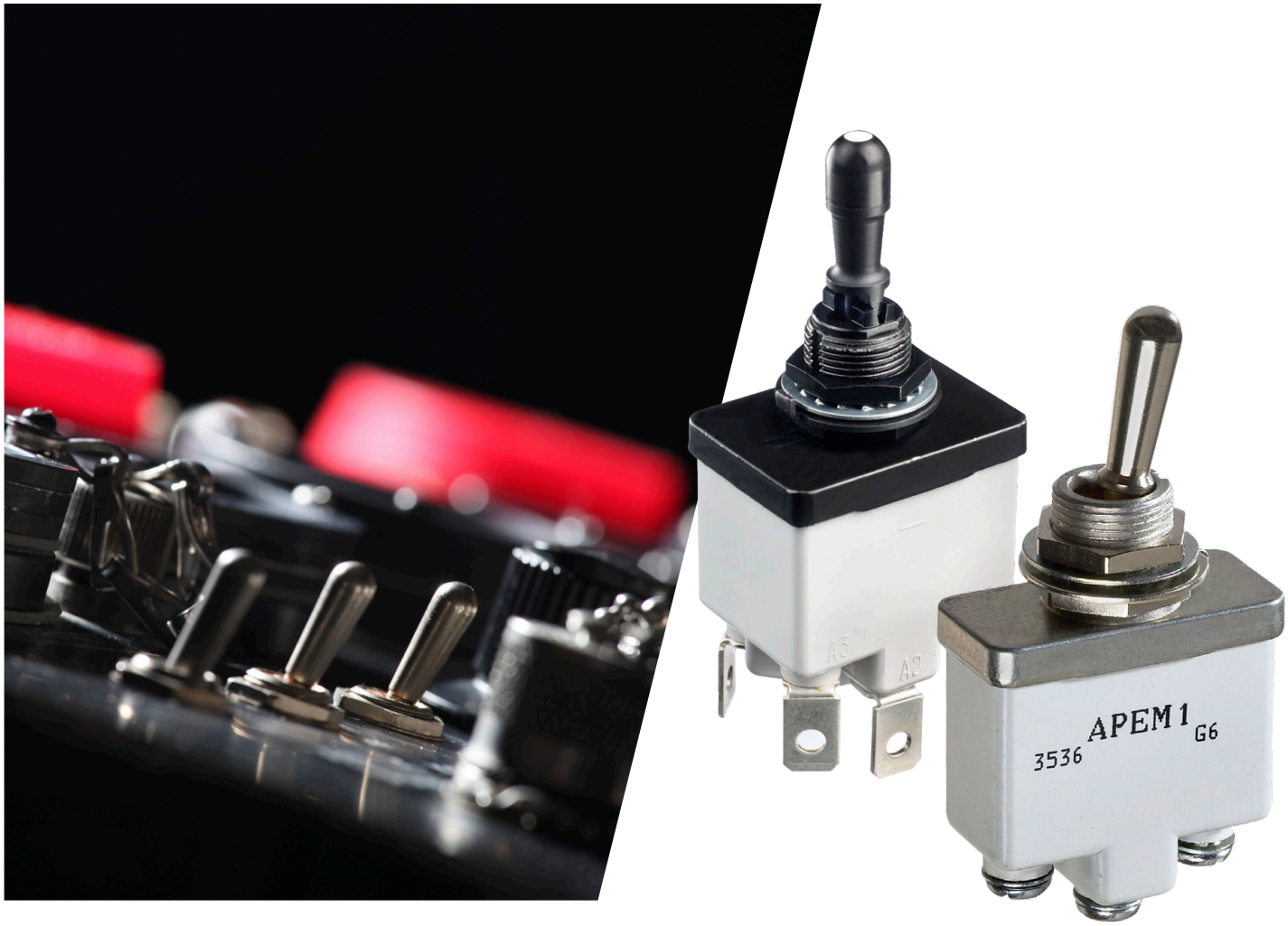
EC FOR PCB

Compact emergency stop switch with a panel cut-out of 22 mm

3500 SERIES

HIGH PERFORMANCE TOGGLE SWITCH

TOP APPLICATIONS:
MILITARY CONTROL PANELS



TOGGLE FOR DEMANDING APPLICATIONS

- High current rating
- CECC 96201-004 approval
- Easy to customise : finish, levers with or without locking

SERIES	MECHANICAL LIFECYCLES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS	MOUNTING OPTIONS	SEALING	ILLUMINATION
3500	40.000 cycles	CECC	1,2	15 A 28 VDC	Ø11,9 mm (15/32)	Solder lugs, Quick-connect, Screw	Panel	IP67 IP69K	No

MT SERIES

SEALED ROCKER SWITCH

TOP APPLICATIONS:
SEALED ERGONOMIC ELECTRICAL INTERFACE





ERGONOMIC SELECTOR

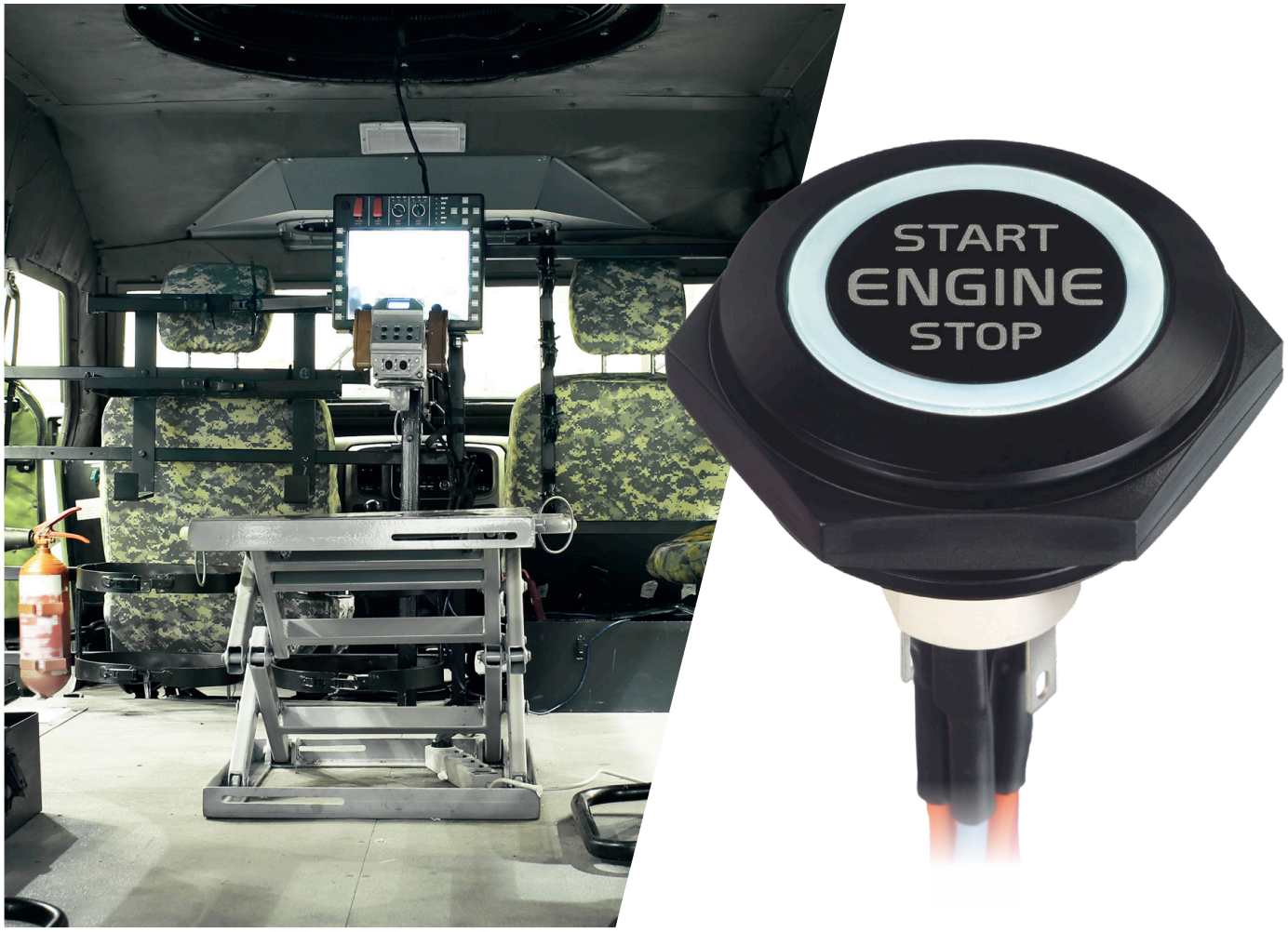
- Environmentally sealed (IP68)
- Multiple functions available

SERIES	MECHANICAL LIFECYCLES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS	MOUNTING OPTIONS	SEALING	ILLUMINATION
MT	100.000 cycles	N/A	1	4 A 30 VDC	Ø17,46 mm (11/16)	Solder lugs, PCB	Panel, Vertical-Through hole	IP68	No

AV SERIES

RUGGED METALLIC PUSHBUTTON

TOP APPLICATIONS:
MILITARY CONTROL PANELS



LARGE ACTIVATION SURFACE, SUITABLE FOR GLOVES

- Robust pushbutton
- Stainless steel actuator and bushing
- Appealing aesthetics
- Easily customizable: marking, illumination

SERIES	MECHANICAL LIFECYCLES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS	MOUNTING OPTIONS	SEALING	ILLUMINATION
AV	1.000.000 cycles	N/A	1	1A 30 VDC	Ø30 mm (1.18)	Solder lugs, wires, cable	Panel	IP67	Yes

MULTIMEC 5 SERIES

TACTILE PCB SWITCH

TOP APPLICATIONS:
DISPLAY PANEL FOR WEAPONS SYSTEMS





ABSOLUTE RELIABILITY AND FUNCTIONALITY

- Front panel sealing to IP67 with different cap solutions
- Reliable : 10 million activations, strength of actuating tested at twice MIL-PRF-22885H requirements
- Different haptic options (including quiet option)

SERIES	POLES	FUNCTION	MAXIMUM RATING	MOUNTING OPTIONS	SEALING	MECHANICAL LIFE
Multimec 5	Single pole / momentary	NO & NC/NO	50 mA - 24 VDC	Through hole or SMT mounting	IP67	10 million

QRM SERIES

REAR MOUNT LED INDICATOR

TOP APPLICATIONS:
MILITARY VEHICLES, AVIONICS AND NIGHT VISION APPLICATIONS



REAR MOUNT NVIS LED INDICATOR

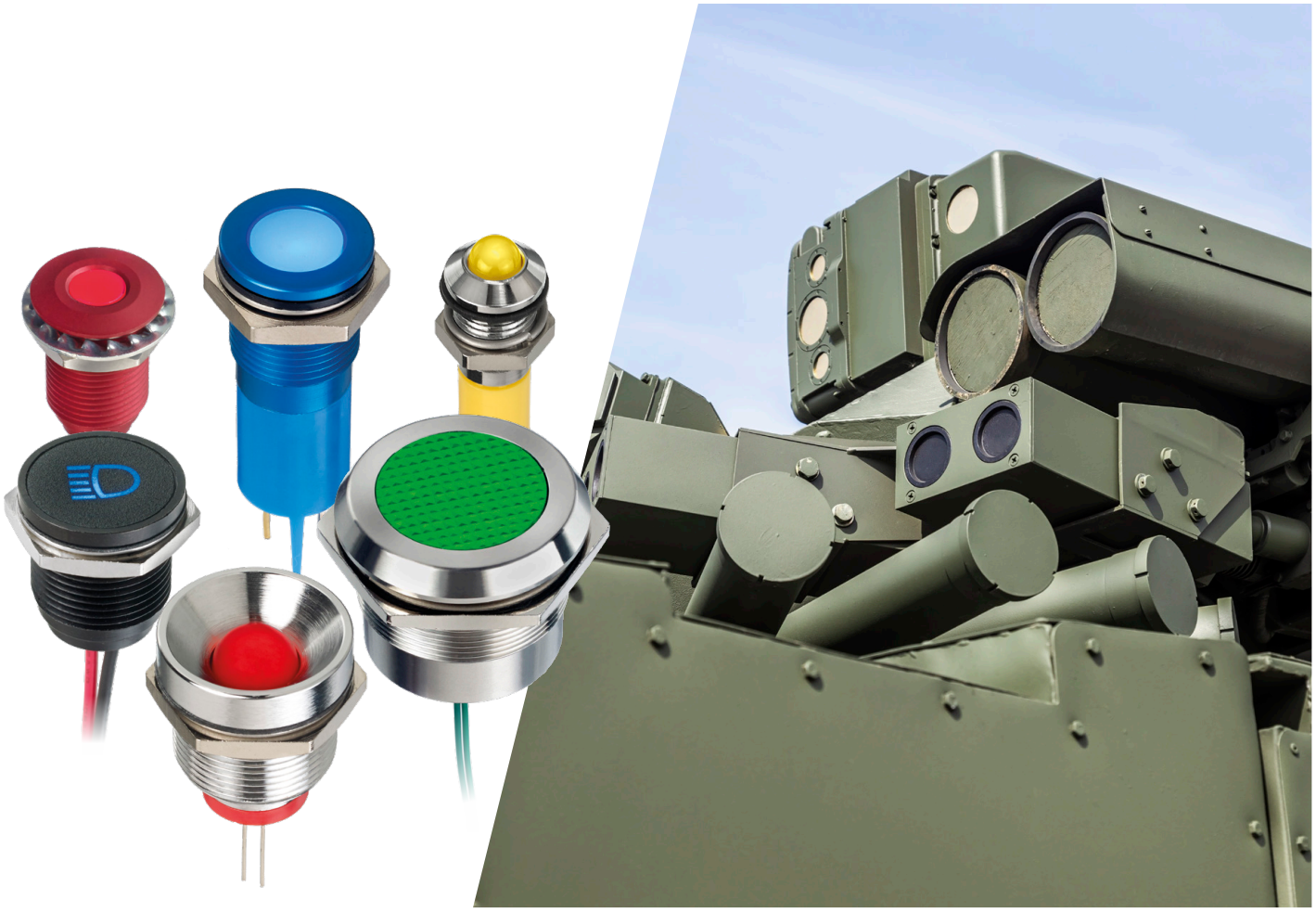
- NVIS compliant to MIL standard 3009
- Low profile body
- Able to mimic 12000X778 series toggle behind panel depth
- IP67 sealing
- Black finish

SERIES	PANEL CUT	MAXIMUM RATINGS	BEZEL FINISH	TERMINAL OPTION	TYPE OF ILLUMINATION	LED COLOUR
QRM	6 mm 8 mm 14 mm	2 VDC – 28 VAC/DC	Black or Anodized	Pins, Wires	Fixed light, Bi-colour, Tri-colour (8 & 14 mm)	5 standard colours, 3 hyper bright colours, 6 super bright colours, 3 bi-colours 1 tri-colour
QRM NV	8 mm 14 mm	2 VDC – 28 VAC/DC	Black or Anodized	Pins (8 mm only), Wires	Night vision	6 NVIS colours

Q SERIES

PANEL MOUNT LED INDOCATOR

TOP APPLICATIONS:
CONTROL TOWER, DASHBOARD, BELLY BOX CONTROLS
& COMMUNICATION TOWERS AND RIGS



LARGE VARIETY OF SIZES AND COLORS

- Reverse diode protection available
- Wide variety of LED colors
- Wire customization available
- Optional sealing up to IP67
- Many different panel cut-out sizes
- Available with custom and secret until lit legends

SERIES	PANEL CUT-OUT	MAXIMUM RATINGS	BEZEL STYLES	BEZEL FINISHES	TERMINAL OPTION	TYPE OF ILLUMINATION	LED COLORS
Q	Ø6, 8, 10, 12, 14, 16, 19, 22, 25, 30	2VDC -220VAC	Prominent, recessed & flushed	Bright Chrome, Black, satin Grey & anodized colors	Solder lugs, Fastons, Pins, Wire	Fixed light, bi-color, RGB, night vision	6 standard colors, 6 superbright colors, 4 hyperbright colors

NV SERIES

NAVIGATOR SWITCH

TOP APPLICATIONS:
SCREEN NAVIGATION, UNMANNED AIRCRAFT SYSTEMS / DASHBOARD





NAVIGATOR SWITCH FOR EASY AND ACCURATE MENU SELECTION

- 16 mm cut-out
- 4 directions and validation in center
- Excellent tactile feedback

SERIES	MECHANICAL LIFECYCLES	ERGONOMICS	AXIS	TECHNOLOGY	OUTPUT OPTIONS	MOUNTING OPTIONS	SEALING
NV	1 million		1, 2	Switching	Single	Drop-in	IP69K

TS SERIES

PROPORTIONAL HALL EFFECT THUMBSTICK

TOP APPLICATIONS:
ROBOTICS CONTROL, UNMANNED AIRCRAFT SYSTEMS, DRONES





INTUITIVE METHOD OF CONTROL

- Illuminated version available
- Ergonomically designed for repetitive operation over extended periods
- Highly reliable: up to IP67 and IP69K sealing
- Easy integration with rear or drop-in mounting & compact size
- Available with multiple handle options and material

SERIES	MECHANICAL LIFECYCLES	ERGONOMICS	AXIS	TECHNOLOGY	OUTPUT OPTIONS	MOUNTING OPTIONS	SEALING
TS	1 million		1, 2	Hall effect	Single, Dual, Analog	Drop-in or rear mounting	IP67

CW SERIES

PROPORTIONAL THUMBWHEEL

TOP APPLICATIONS:
GRIPS & REMOTE CONTROL FOR DRONES



SMALL ENVELOPPE FOR ERGONOMIC CONTROLLER

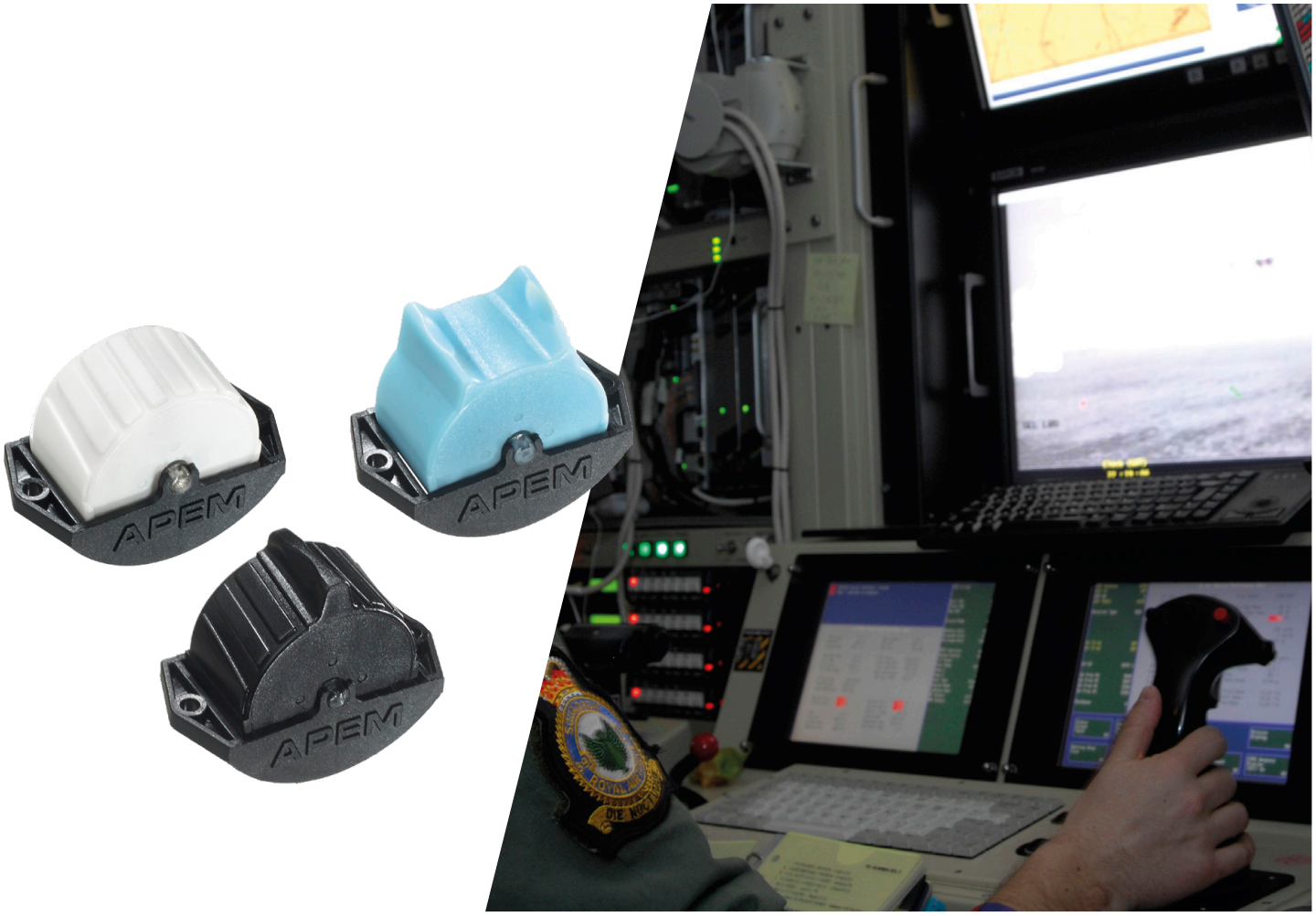
- Up to 3 million lifecycles
- Snap-in mounting
- Custom actuator on request
- Spring to center

SERIES	MECHANICAL LIFECYCLES	ERGONOMICS	AXIS	TECHNOLOGY	OUTPUT OPTIONS	MOUNTING OPTIONS	SEALING
CW	3 million	Spring to center	Single	Hall effect	Single, Dual, Analog, PWM	Snap-in	Sealed electronics

HR / TW SERIES

PROPORTIONAL THUMBWHEEL

TOP APPLICATIONS:
GRIPS



ROBUST THUMBWHELL

- Hall effect technology for long life performance
- Electronics sealed up to IP67
- Friction, detents & backlit options available
- Different types of actuators

SERIES	MECHANICAL LIFECYCLES	ERGONOMICS	AXIS	TECHNOLOGY	OUTPUT OPTIONS	MOUNTING OPTIONS	SEALING
HR	5 million	Friction hold Spring to center	1	Hall effect	Single, Dual, Analog	Rear mounting	IP68
TW		Spring to center				Drop-in	IP67

IP DESKTOP SERIES

USB DESKTOP CONTROLLER

TOP APPLICATIONS:
UAV, SECURITY, CCTV, SURVEILLANCE



DESKTOP CONTROLLER FOR VIDEO SURVEILLANCE

- 3 axis joysticks for P/T/Z control
- Programmable pushbuttons
- USB 1.1 HID compliant
- For indoor environment

SERIES	MECHANICAL LIFECYCLES	ERGONOMICS	AXIS	TECHNOLOGY	OUTPUT OPTIONS	MOUNTING OPTIONS	SEALING
IP Desktop	3 million	3 axis joystick & 12 pushbuttons	3	Hall effect	USB	NA	NA

3000 SERIES

FINGERTIP HALL EFFECT JOYSTICK

TOP APPLICATIONS:
FORWARD LOOKING INFRARED RADARS, THERMAL IMAGING





ROBUST FOR MILITARY APPLICATIONS

- All metal mechanism
- IP66 sealing
- Rated for 10 million lifecycles

SERIES	MECHANICAL LIFECYCLES	ERGONOMICS	AXIS	TECHNOLOGY	OUTPUT OPTIONS	MOUNTING OPTIONS	SEALING
3000	10 million	Spring to center	1, 2, 3	Hall effect	Single, Dual, Analog, PWM, CAN bus	Drop-in or rear mounting	IP66

FG SERIES

FIXED GRIP HAND CONTROLLER

TOP APPLICATIONS:
TURRET CONTOL





RUGGED OPERATION FOR HIGH VIBRATION APPLICATIONS

- Rugged hand operation
- Custom configurable
- USB output options
- Protected index trigger

SERIES	MECHANICAL LIFECYCLES	ERGONOMICS	AXIS	TECHNOLOGY	OUTPUT OPTIONS	MOUNTING OPTIONS	SEALING
FG	Depend on component configuration	NA	NA	Depends on customization	USB, Analog, CAN bus	Panel	IP65*



XD GT/RT, XP & XF SERIES

DISCOVER OUR WIDE RANGE OF JOYSTICKS

XP SERIES
Robust Mid-sized Joystick



XD GT SERIES
Multi-axis hand grip joystick





XF SERIES
Small Hall Effect Joystick



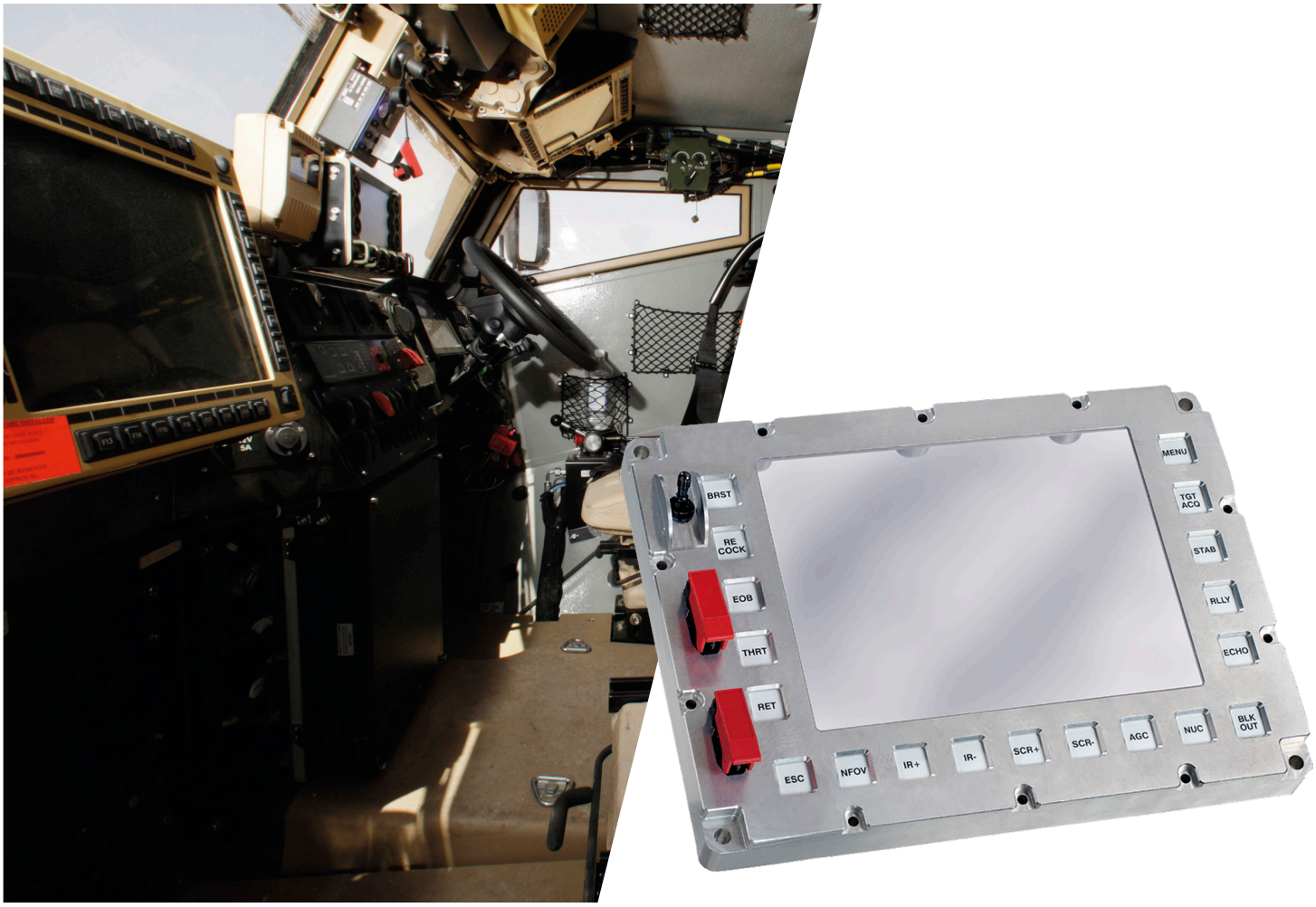
XD SERIES

Shallow mounting depth < 60 mm
Extremely robust, resists high axial load (1780 N - 400 lbf)

RUGGEDIZED MILITARY KEYBOARD

CONTROL SYSTEMS FOR HARSH ENVIRONMENTS

TOP APPLICATIONS:
VEHICLE KEYBOARDS



PRODUCT FOR A TOUGHEST ENVIRONMENT

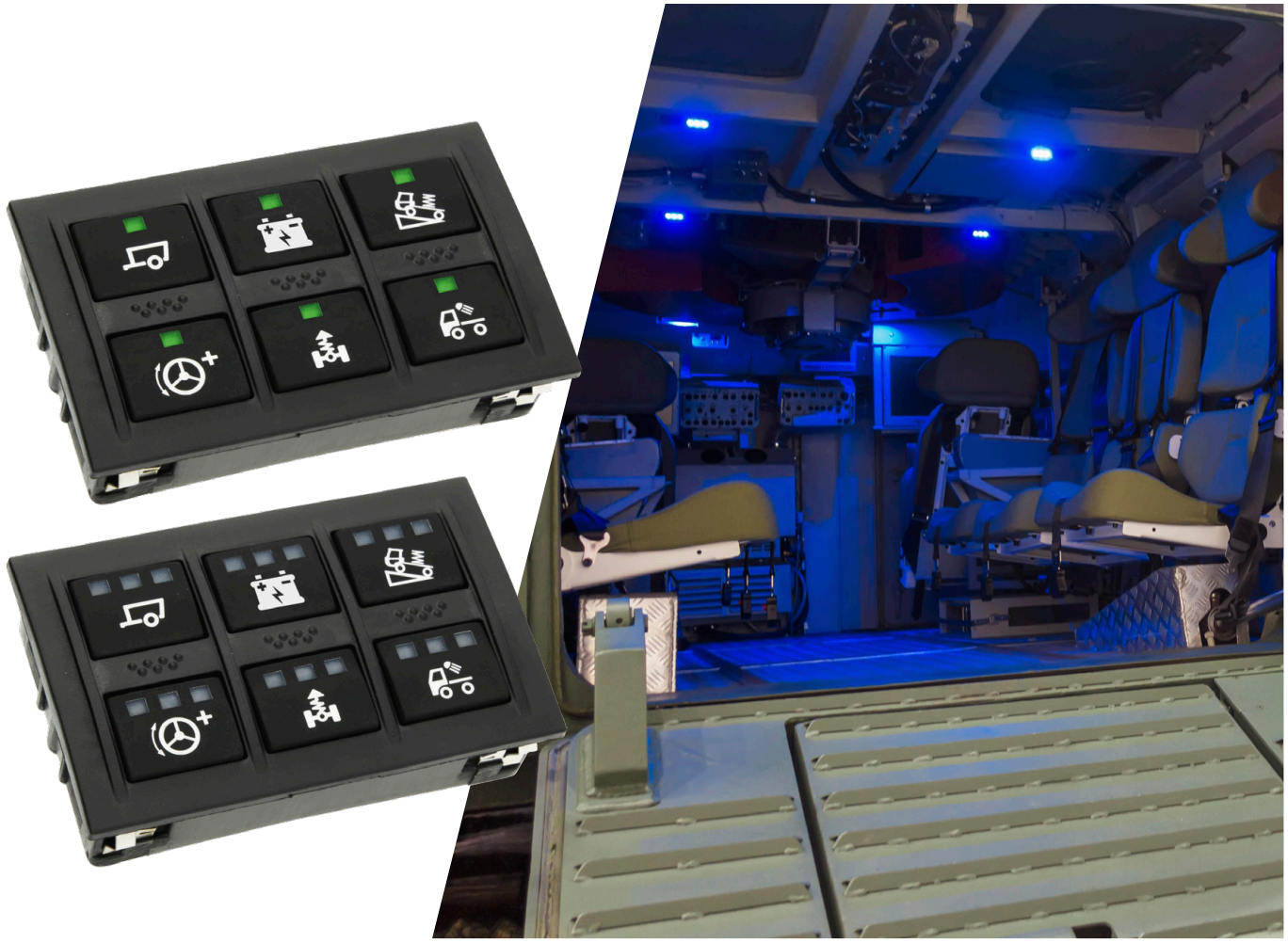
- Military qualification to MIL Std 810 G including impact resistance and finger guide to be used with gloves
- Possibility of embedded communication, built in tests or power electronics
- Short development phase
- Integration of multiple components

MULTI FUNCTION CONTROL PANEL
Critical electronic and software design expertise
Meets critical military specifications such as MIL, STANAG, GAM...
Answers to sealing demands : IP65, IP68, IP69K
Standard communication protocols including CAN, USB, RS422, RS485...
Uniform backlighting option

KP6 CANBUS SERIES

RUBBER KEYPADS

TOP APPLICATIONS:
DASHBOARD



STANDARD SOLUTION FOR MULTIPLE BUTTON APPLICATIONS

- Customisable keys
- Backlit pictograms
- CANbus output or standard output version
- 1 Million cycles
- EMC shielded/ESD – Passed «E» marking (ECE R10 approved)

SERIES	SEALING	OPERATING VOLTAGE	COMMUNICATION PROTOCOL	MOUNTING	EXTRA FEATURES	STANDARD 6 BUTTON KEYBOARD
KP6 CANBUS	up to IP67	12 to 24 VDC	Can J1939 or discrete	Snap-in front mounting	Special illumination/ phantom marking/ special key colors	IP65 sealing - option for IP67 and IP69K
						Can J1939 and option for CAN Open
						9 V to 36 V operating voltage
						Easy front mounting, with snap-in / flush design



CONFIGURE YOUR PANEL SOLUTION WITH QUALIFIED & RELIABLE HMI COMPONENTS

APEM develops complete interface solutions combining components (switches, keypads, indicators, joysticks), standard electronic boards and programming. An APEM team professional is happy to assist you in the development of these complete turnkey solutions, meeting your specific requirements, with responsiveness and flexibility.



CUSTOM CONTROL PANEL SOLUTIONS

APEM

CUSTOM BEZEL KEYBOARD MEMBRANE SWITCH PANELS WITH PCB

APEM has developed a unique expertise in the creation of integrated custom-made ruggedized control panels with MIL-grade electronics and software. Our design, qualification and testing processes are compliant with military standards such as MIL-STD-810, MIL-STD-1472 and MIL-STD-461.



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