

# APEM

[www.apem.com](http://www.apem.com)

APEM HMIs ENSURE EFFECTIVE AND SECURE CONTROL  
FOR UAVs (UNMANNED AERIAL VEHICLES) AND UGVs (UNMANNED GROUND VEHICLES).

## DEFENSE UAV + UGV

In the military sector, HMI solutions require reliability, resistance to harsh conditions, adaptability for easy integration and durability for extended missions. The aim is to ensure the safety of the operator and guarantee optimum performance even in the most demanding conditions of complex missions.



- 1 THUMBSTICKS:**  
TS and NV series



- 2 ROLLERS:** CW and HR series  
(now with visual feedback)



- 3 PUSHBUTTONS:**  
IA, AV, IP, IX, IV, IG ...



- 4 12000X778 TOGGLE SWITCH:**  
CECC and MIL approved



- 5 LED INDICATORS:**  
Q series



- 6 FINGER-OPERATED HALL-EFFECT  
JOYSTICKS:** 3000 and HF series



# COMBAT-PROVEN MIL-GRADE HMIs FOR UAVs AND UGVs

APEM's quality system ensures that number of our switches comply with multiple certifications as MIL-STD-3950, -83731 and CECC quality standard (96401-001, 96201-005, 96201-008) taking into account critical factors such as external design, rigorous testing and expected performance. Our solutions are designed to be robust and reliable to withstand harsh environments, maintaining optimal functionality in dust, humidity and temperature variations during military operations ensuring security of operators.

Flexibility and customization are also the cornerstone of our defense solutions, which adapt to changing international requirements and evolving standards. This enables their durability through integration into new commands and improves operational efficiency, ensuring a long service life for extended missions.




For these military vehicles, APEM provides HMI solutions making remote control commands more intuitive knowing stressful situations of operators managing complex air and/or ground missions.

These interfaces are specifically designed to facilitate natural and effective interaction between the operator and the vehicle, enabling rapid and accurate decision-making in demanding operational contexts.

From joysticks to pushbuttons and toggles, you will find in this selection, APEM certified products customizable to suit your specific military needs.

## Our selection

Custom options available. Please contact APEM for further details.

2-axis joysticks		1-axis rollers		Navigators	LED indicators	Switches		
								
TS	3000	HR	CW	NV	Q8	IP	IM	12000X778
IP67	IP66	IP68	IP68	IP69K	IP67	IP67	IP67	IP67
1M lifecycle	10M lifecycle	5M lifecycle	3M lifecycle	1M lifecycle	100,000 hours lifecycle	1M lifecycle	1M lifecycle	up to 150 000 lifecycle*
One or two axis	1,2, or 3 axis	Single axis	Single axis	4 or 5-direction switch-based joystick	-	-	-	-
Main features								
Analog, PWM or USB outputs Pushbutton option	Analog PWM CAN J1939 & CANopen outputs Class leading installed depth <20mm	Single or dual analog outputs Backlighting option	Analog, PWM or USB outputs Snap-in mounting	Shock, vibration & salt spray resistant Compact and low profile behind panel	2VDC - 220VAC Ø8 and Ø14 mm rear panel mount Supplied with fixing nut and spring washer	Variety of terminal options Wide variety of configurations Flat round actuator for optional marking	NC+NO function Snap-action mechanism	4 A 30 VDC Pinned lever Double shell case

\* • At 4A 28VDC: 20.000 cycles (10.000 for functions 5, 4-1R, 4-2R)

• At low level (50mV 10mA): 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)

Searching for toggles and pushbuttons with MIL-DTL-3950, MIL-DTL-83731 QPL, CECC 96400 and/or CECC 96200 certification?  
Please reach your regular APEM sales contact or visit [apem.com](http://apem.com).



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