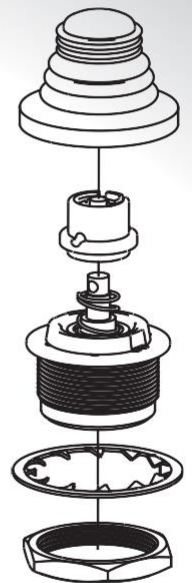
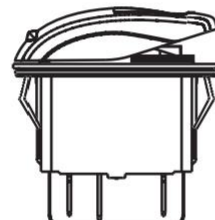
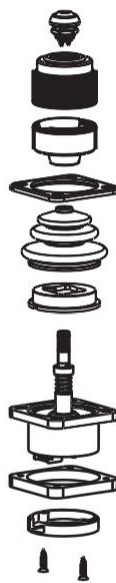
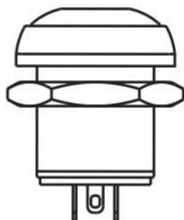


APEM



MATERIAL HANDLING



**A WORLD OF
SWITCHING CAPABILITIES**

APEM FOR MATERIAL HANDLING

DE DIVERSE
ELECTRONICS

1 (800) 381-7308 / (514) 388-7308



sales@diverseelectronics.com
www.diverseelectronics.com





APEM SPECIALIZES IN HIGH QUALITY COMPONENTS & SOLUTIONS FOR EXTREME APPLICATIONS

**The needs of the Material Handling market are unique.
APEM's constant innovation focuses on customer requirements.**

THE BROADEST RANGE OF PRODUCTS

over 150 product families and 30,000 active part numbers, engineered and built by APEM.

INTEGRATED DEVELOPMENT

advanced technologies matched with vertically integrated manufacturing, ensuring process control from raw material to finished product.

QUALITY & RELIABILITY FOR DEMANDING ENVIRONMENTS

a philosophy of top quality and reliability verified through global testing to stringent industry standards.

GLOBAL MANUFACTURING FOOTPRINT

manufacturing facilities on 4 continents, providing local support for customers worldwide.

FROM LIFT TO MOVE

A worldwide presence for over 60 years, offering a broad range of products for multiple material handling applications.

Pallet Jacks

FORK TRUCKS

SCISSOR LIFTS

Hand Held Controls

TAIL LIFTS

REACH STACKERS

Straddle Carriers

TELEHANDLERS

SIDE LOADERS

TERMINAL TRACTORS

Loader Cranes

Boom Lifts

INDUSTRIAL CRANES

Remote Control

CARGO LOADERS



A WORLD OF SWITCHING CAPABILITIES

www.apem.com

APEM FOR MATERIAL HANDLING

SWITCHES & INDICATORS

APEM offers a full portfolio of switch products that are well suited for the demanding requirements of the material handling market. The toggle, rocker and pushbutton switches listed in this brochure are specifically designed for outdoor applications. These switches are sealed to IP67 or greater, are made to be aesthetically appealing to the user and built to withstand the harsh treatment of Material Handling applications.

APEM also manufactures a full line of high specification panel mount LED indicators from 6 to 22mm in diameter, with standard and super bright daylight-readable LEDs.

TOGGLE SWITCHES



3500 SERIES
THE TOUGHEST TOGGLE
IN THE INDUSTRY



CT SERIES
SEALED, ROBUST TOGGLE SWITCH



12000 SERIES
DESIGNED TO PERFORMANCE
STANDARDS



3600 SERIES
SEALED FOR OUTDOOR USE

ROCKER SWITCHES



KL
LOCKING POWER ROCKER SWITCH



KR
SEALED CUSTOMIZABLE ROCKER
SWITCH



SEALING BOOTS
PROTECTS AGAINST DUST,
SAND & WATER

PUSHBUTTON



13000
ROBUST FOR DEMANDING
APPLICATIONS



IA SERIES
LOW PROFILE WITH ELASTOMER
MEMBRANE SEAL



EMERGENCY STOP
DESIGNED FOR EXTREME CONDITIONS



IHS & IHL SERIES
LONG LIFE PUSHBUTTON CONTROL

INDICATORS



Q SERIES
LARGE VARIETY OF LED SIZES & COLORS



QRM SERIES
REAR MOUNTING LED INDICATORS

3500 SERIES

HIGH PERFORMANCE TOGGLE SWITCH



THE TOUGHEST TOGGLE IN THE INDUSTRY

- Superior reliability & longer life
- Completely sealed
- High power rating
- Three types of terminals and many lever styles available

SERIES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS			MOUNTING OPTIONS	SEALING
					Solder lugs	Quick-connect	Screw		
3500	CECC	1, 2	15A 28VDC	11.9 mm dia. (15/32 in)	X	X	X	Panel	IP67, IP69K

TOP APPLICATIONS: TAIL LIFTS, CRANES, WIRELESS REMOTES, CARGO LOADERS, TRANSPORTERS



CT SERIES

SEALED TOGGLE SWITCH



SEALED, ROBUST TOGGLE SWITCH

- Completely sealed switching chamber
- Three types of terminals
- UL approved
- Large volume toggle

SERIES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS			MOUNTING OPTIONS	SEALING
					Solder lugs	Quick-connect	Screw		
CT	UL	1, 2	15A 28VDC	11.9 mm dia. (15/32 in)	X	X	X	Panel	IP67

TOP APPLICATIONS: TAIL LIFTS, CRANES, WIRELESS REMOTES, LIFT PLATFORMS, SCISSOR LIFTS



12000 SERIES

PROFESSIONAL GRADE TOGGLE SWITCH



DESIGNED TO HIGH
PERFORMANCE
STANDARDS

- Robust for high specification environments
- Completely sealed construction
- 1, 2 & 3 locking lever positions

SERIES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS			MOUNTING OPTIONS	SEALING
					Solder lugs	Quick-connect	Screw		
12000	CECC/MIL	2, 3, 4	4A 30VDC	11.92 mm dia. (15/32 in)	X	X	X	Panel, PCB, Through-hole	IP67

TOP APPLICATIONS: CRANES, WIRELESS REMOTES



3600 SERIES

INDUSTRIAL TOGGLE SWITCH



SEALED FOR
OUTDOOR
USE

- General purpose toggle
- Panel mount sealed
- Three types of terminals

SERIES	APPROVALS	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS			MOUNTING OPTIONS	SEALING
					Solder lugs	Quick-connect	Screw		
3600	UL	1, 2	12A 28VDC	12.0 mm dia. (.472 in)	X	X	X	Panel	IP67 front panel

TOP APPLICATIONS: TAIL LIFTS, CRANES, SCISSOR LIFTS, BOOM LIFTS



13000 SERIES

UNIQUE PUSH/PULL PUSHBUTTON



ROBUST FOR DEMANDING APPLICATIONS

- Low, behind panel profile
- Anodized actuator, available in multiple colors
- Quick break contacts
- Double shell - sealed construction

SERIES	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS			MOUNTING OPTIONS	SEALING
				Solder lugs	Quick-connect	Screw		
13000	2, 3	4A 28VDC	15 mm dia. (.590 in)	X			Panel	IP67

TOP APPLICATIONS: WIRELESS REMOTE CONTROLS, HAND-HELD CRANE CONTROLS





LOW PROFILE WITH ELASTOMER MEMBRANE SEAL

- Resistant to frost, sand & hydrocarbons
- Tactile feedback
- Front panel sealed up to IP67
- Low profile, soft membrane actuator

SERIES	ELECTRICAL LIFECYCLES	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS			MOUNTING OPTIONS	SEALING
					Solder lugs	Flying leads	Screw		
IA	1 million	1	2A 24VDC	16.0 mm dia. (.629 in)		X		Panel	IP67

TOP APPLICATIONS: HANDLE CONTROLS, CRANES, WIRELESS REMOTE CONTROLS, SCISSOR LIFTS



KL SERIES

PROTECTED LOCKING ROCKER SWITCH



LOCKING POWER ROCKER SWITCH

- Patented intuitive design
- Illuminated or non-illuminated
- Laser etched symbols

SERIES	MECHANICAL LIFECYCLES	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS			MOUNTING OPTIONS	SEALING
					Solder lugs	Quick-connect	Screw		
KL	150,000	1, 2	10A 24VDC	36.8 x 21.08	X	X	X	Snap-in	IP68

TOP APPLICATIONS: CRANES, SCISSOR LIFTS, BOOM LIFTS



KR SERIES

ILLUMINATED ROCKER SWITCH

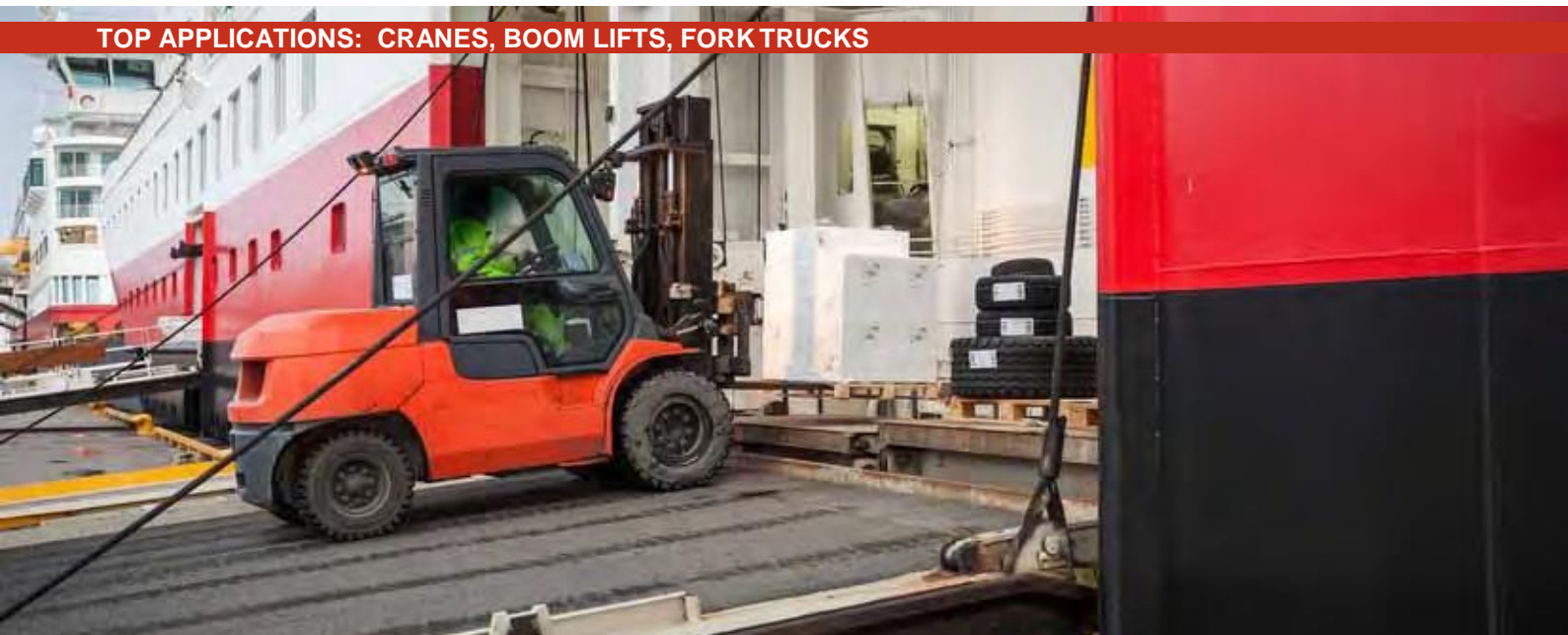


SEALED CUSTOMIZABLE ROCKER SWITCH

- Laser etched legends
- Illuminated or non-illuminated
- Large selection of colors & symbols
- Large variety of terminal options

SERIES	MECHANICAL LIFECYCLES	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS			MOUNTING OPTIONS	SEALING
					Solder lugs	Quick-connect	Screw		
KR	150,000	1, 2	10A 24VDC	36.8 x 21.09	X	X	X	Snap-in	IP68

TOP APPLICATIONS: CRANES, BOOM LIFTS, FORK TRUCKS



EMERGENCY STOP

HEAVY DUTY METAL EMERGENCY STOP



DESIGNED
FOR EXTREME
CONDITIONS

- Anodized metal actuator
- Impact resistant to IK10
- Sealed to IP65, IP67 & IP69K
- Locked / unlocked status indicator

SERIES	MECHANICAL LIFECYCLES	POLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS		MOUNTING OPTIONS	SEALING
					Solder lugs	Straight PC		
ES	100,000	2, 3	1A 24VDC	22, 28mm dia. (.877 in)	X	X	Panel	IP65, IP67 & IP69K

TOP APPLICATIONS: CRANES, SCISSOR LIFTS, BOOM LIFTS, FORK TRUCKS



IHS & IHL SERIES

HALL EFFECT PUSHBUTTON



LONG LIFE PUSHBUTTON CONTROL

- Proportional control
- Five million lifecycles
- Sealed to IP67
- Low and high actuators

SERIES	MECHANICAL LIFECYCLES	MAXIMUM RATINGS	BUSHING DIMENSIONS	TERMINAL OPTIONS		MOUNTING OPTIONS	SEALING
				Flying leads	Solder lugs		
IHS IHL	5 million	5mA 24VDC 1,25mA 4,5VDC	12.0 mm dia. (.472 in)	X		Panel	IP67

TOP APPLICATIONS: REMOTE CONTROLS, PALLET JACKS, FORKLIFTS, CRANE CONTROLS, SCISSOR LIFTS



SEALING BOOTS

TOGGLE & PUSHBUTTON BOOTS



PROTECTS
AGAINST DUST,
SAND & WATER

- Available for toggle and pushbutton switches
- Wide variety of colors, shapes & sizes
- Available in silicone and neoprene

SERIES	BOOT MATERIAL	NUT MATERIAL	OPERATING TEMPERATURE		TEMPERATURE RANGE		ELASTICITY	MECHANICAL RESISTANCE
					LOW	HIGH		
Boots	Neoprene or silicone	Brass, nickel plated, matte black	SILICONE	-40°C to +85°C	Best	Best	Best	Good
			NEOPRENE	-20°C to +50°C	Good	Britter	Good	Best

TOP APPLICATIONS: ALL OUTDOOR OR HARSH ENVIRONMENTS



Q SERIES

PROFESSIONAL GRADE LED INDICATORS



LARGE VARIETY OF LED SIZES AND COLORS

- Available in seven panel cut-out sizes
- Several bezel styles and finishes
- Wide variety of LED colors
- LEDs available as standard & super bright
- Customizable engraving and illumination

Series	Panel Cut-out	Voltage Range	Terminal Options *				Bezel Style	Bezel Finish	Type of Illumination	LED Colors
			Solder lugs	Fastons	Pins	Wires				Standard & Super Bright
Q	6, 8, 12, 14,16,19, 22mm dia.	2VDC-220VAC	X	X	X	X	Prominent, Recessed & Flushed	Bright, Satin & Black Chrome	Fixed light, flashing bi-color, tri-color, night vision	Red Green Yellow Blue White
			*custom wire lengths & connectors available							
QRM	8mm dia.	2VDC-28VAC		X	X		Recessed	Black Chrome	bi-color, tri-color, night vision	

TOP APPLICATIONS: ANY PANEL MOUNT CONFIGURATION



APEM FOR MATERIAL HANDLING

JOYSTICKS & SWITCH PANELS



APEM is a leading manufacturer of industrial joysticks and Hall effect controllers developed for critical material handling applications. APEM leads the way in the development of miniature joysticks, meeting the demands for smaller controls in the material handling market. APEM offers over 100,000 possible combinations of standard joystick products and has full design services to create products for custom requirements.

APEM's membrane and stainless steel switch panels are designed to provide reliable performance for demanding applications. APEM's custom switch panels are waterproof, dustproof and resistant to environmental and mechanical stresses.

THUMB CONTROLS



FR SERIES

LONG LIFE HALL EFFECT
F-N-R CONTROL



TS SERIES

MINIATURE JOYSTICK
FOR INDUSTRIAL APPLICATIONS



HR SERIES

UNIQUE THUMB CONTROL
MECHANISM



TW SERIES

SEALED SINGLE AXIS CONTROLLER



BF SERIES

CUSTOMIZABLE SINGLE AXIS PADDLES

INDUSTRIAL JOYSTICKS



1000 SERIES

COST EFFECTIVE
HIGH CURRENT SWITCHING



HF SERIES

ENVIRONMENTALLY SEALED,
FINGER OPERATED



3000 SERIES

RUGGED FINGERTIP OPERATION



MS SERIES

ERGONOMIC PALM GRIP
CONTROLLERS



CJ SERIES

COMFORTABLE HAND
GRIP CONTROL

SWITCH PANELS



COMPACT SIZES FOR OPTIMUM
EFFICIENCY

CUSTOM SOLUTIONS



CUSTOM PRODUCTS DEVELOPED
EXCLUSIVELY FOR UNIQUE
CUSTOMERS AND APPLICATIONS

FR SERIES

THREE POSITION THUMB CONTROL



LONG LIFE
HALL EFFECT
F-N-R CONTROL

- Three position thumb controller
- Forward/neutral/reverse function
- Several handles options
- Submersible to 1m (3.28ft) per IP68
- Drop-in or rear mounting

SERIES	MECHANICAL LIFECYCLES	AXIS	TECHNOLOGY		TERMINATION		MOUNTING OPTIONS	SEALING
			Hall effect	Switching	Flying leads	Header		
FR	3 million	1	X		X	X	Drop-in or rear mounting	IP68

TOP APPLICATIONS: FORK TRUCKS, GOLF CARTS, CARGO LOADERS



TSSERIES

PROPORTIONAL THUMBSTICK



MINIATURE JOYSTICK FOR INDUSTRIAL APPLICATIONS

- Metal bushing & pushbutton options
- One or two axis
- Large variety of handle options
- Submersible to 1m (3.28ft) per IP68

SERIES	MECHANICAL LIFECYCLES	AXIS	TECHNOLOGY		OUTPUT OPTIONS			MOUNTING OPTIONS	SEALING
			Hall effect	Switching	USB	CANbus	Analog		
TS	1 million	1, 2	X		X		X	Drop-in or rear mounting	IP68

TOP APPLICATIONS: REMOTE CONTROLS, CRANES, SCISSOR LIFTS, BOOM LIFTS



HR SERIES

PROPORTIONAL THUMBWHEEL



UNIQUE THUMB CONTROL MECHANISM

- Backlighting & detent options available
- Self centering spring return mechanism
- Non-contacting Hall effect technology

SERIES	MECHANICAL LIFECYCLES	AXIS	TECHNOLOGY		OUTPUT OPTIONS			MOUNTING OPTIONS	SEALING
			Hall effect	Switching	Single	Dual	Analog		
HR	5 million	1	X		X	X	X	Rear mounting	IP68

TOP APPLICATIONS: REMOTE CONTROLS, CRANES, SCISSOR LIFTS, BOOM LIFTS



TW SERIES

SINGLE AXIS THUMB CONTROL



SEALED SINGLE AXIS CONTROLLER

- Excellent feel
- Hall effect, single axis
- Fully sealed to IP68
- Single & redundant outputs available
- Connectorized housing or wire harness

SERIES	MECHANICAL LIFECYCLES	AXIS	TECHNOLOGY		OUTPUT OPTIONS			MOUNTING OPTIONS	SEALING
			Hall effect	Switching	USB	CANbus	Analog		
TW	5 million	1	X				X	Drop-in	IP68

TOP APPLICATIONS: REMOTE CONTROLS, CRANES, WASTE DISPOSAL, EXCAVATORS



BF SERIES

HALL EFFECT JOYSTICK PADDLES



CUSTOMIZABLE SINGLE AXIS PADDLES

- Analog and switching functions
- Low profile actuator available (BD)
- Several color insert options
- Minimal below panel depth with stackable mounting

SERIES	MECHANICAL LIFECYCLES	AXIS	TECHNOLOGY		SWITCHING POINTS (degrees)				MOUNTING	SEALING
			Hall effect	Switching	NONE	± 5	± 12.5	± 25		
BF	5 million	1	X	X	X	X	X	X	Drop-in	IP67

TOP APPLICATIONS: WIRELESS REMOTE CONTROLS, CRANES, TELEHANDLERS



1000 SERIES

COMPACT SWITCHING JOYSTICK



LOW COST HIGH CURRENT SWITCHING

- Compact size with V3 or V4 switches
- Single or dual axis
- Single or double pole
- Bushing or screw mount available
- Additional switch joysticks available

SERIES	MECHANICAL LIFECYCLES	AXIS	TECHNOLOGY		MOUNTING OPTIONS		POLES	SEALING
			Hall effect	Switching				
1000	5 million	1, 2		X	22mm bushing	4 point screw	1, 2	Up to IP67

TOP APPLICATIONS: TRUCK TAIL LIFTS, PALLET JACKS, LIFT ACCESSORIES



HF SERIES

MULTI-AXIS HALL EFFECT JOYSTICK



ENVIRONMENTALLY
SEALED, FINGER
OPERATED

- Hall effect technology
- Connectorized housing
- Ten handle options
- Up to 3 axis of control

SERIES	MECHANICAL LIFECYCLES	AXIS	TECHNOLOGY		OUTPUT OPTIONS			MOUNTING OPTIONS	SEALING
			Hall effect	Switching	USB	CANbus	Analog		
HF	5 million	1, 2, 3	X		X		X	Drop-in or Rear mounting	IP67

TOP APPLICATIONS: WIRELESS REMOTE CONTROLS



3000 SERIES

LOW PROFILE HALL EFFECT JOYSTICK



RUGGED FINGERTIP OPERATION

- Minimal install depth of <20mm
- One, two or three axis
- Rated for 10 million lifecycles
- Analog or PWM outputs

SERIES	MECHANICAL LIFECYCLES	AXIS	TECHNOLOGY		OUTPUT OPTIONS			MOUNTING OPTIONS	SEALING
			Hall effect	Switching	Analog	Dual Output	PWM		
3000	10 million	1, 2, 3	X		X	X	X	Drop-in or Rear mounting	IP67

TOP APPLICATIONS: WIRELESS REMOTE CONTROLS, PALLET JACKS, BUCKET TRUCKS



MS SERIES

MID-SIZE HALL EFFECT JOYSTICK



ERGONOMIC PALM GRIP CONTROLLERS

- Ergonomic, 3 axis palm grip control
- Low profile, compact size
- Available with CANbus J1939 or CANopen
- Several ergonomic handles available
- Redundant output available

SERIES	MECHANICAL LIFECYCLES	AXIS	TECHNOLOGY		OUTPUT OPTIONS			MOUNTING OPTIONS	SEALING
			Hall effect	Switching	USB	CANbus	Analog		
MS	10 million	1, 2, 3	X		X	X	X	Drop-in or Rear mounting	IP67

TOP APPLICATIONS: BUCKET TRUCKS, SCISSOR LIFTS, BOOM LIFTS



CJ SERIES

VERSATILE, MULTIFUNCTION JOYSTICK



COMFORTABLE HAND GRIP CONTROL

- Hall effect technology
- Ergonomic and versatile design
- Redundant output available
- Available with CANbus, J1939, CANopen and USB outputs

SERIES	MECHANICAL LIFECYCLES	AXIS	TECHNOLOGY		OUTPUT OPTIONS			OPERATOR DEADMAN LEVER	SEALING
			Hall effect	Switching	USB	CANbus	Analog		
CJ	10 million	1, 2	X		X	X	X	X	IP67

TOP APPLICATIONS: CRANES, TELEHANDLERS, SCISSOR LIFTS, BOOM LIFTS



SWITCH PANELS

CUSTOMIZABLE PANEL OPTIONS



COMPACT SIZES FOR OPTIMUM EFFICIENCY

- Quick front assembly
- Market standard panel cut-out (six button version)
- Integration of communication protocol such as CAN & LIN
- Indicators, bargraph integration



ELASTOMER KEYPADS

- Complete APEM joystick integration
- High density buttons
- Quality tactile feel
- Sealed up to IP67
- Backlit
- CAN or wire output

ENHANCED MEMBRANE KEYPADS

- Cable output
- Slim design
- Sealed up to IP67
- Impact resistant to IK10
- High performance at a low cost

BUTTON BOXES

- IP68 sealed buttons
- Standard 22mm dia. long course interface
- Less than 22mm below panel
- CAN, USB or RS output
- ISO 13849 compatible
- Shock protection option available

TOP APPLICATIONS: TAIL LIFTS, CRANES, BOOM LIFTS



CUSTOM CAPABILITIES

EXCLUSIVITY CUSTOM PRODUCTS DEVELOPED FOR UNIQUE CUSTOMERS

★ SWITCHES, MEMBRANE
KEYPADS & CANBUS
CONNECTIVITY

★ APEM'S EXPERTISE WITH
COMPLETE INTERFACE
SOLUTIONS

5 UP TO 5 EASILY
CUSTOMIZABLE SWITCHES

👉 ERGONOMIC DESIGN

APEM EXCLUSIVE

APEM can develop complete interface solutions

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

APEM offers more than 30,000 part numbers consisting of switches, indicators, joysticks and keypads in different colors, markings, finishes, shapes and dimensions creating unlimited dimensions creating unlimited combination of possibilities.



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