APEM

Creating global HMI solutions



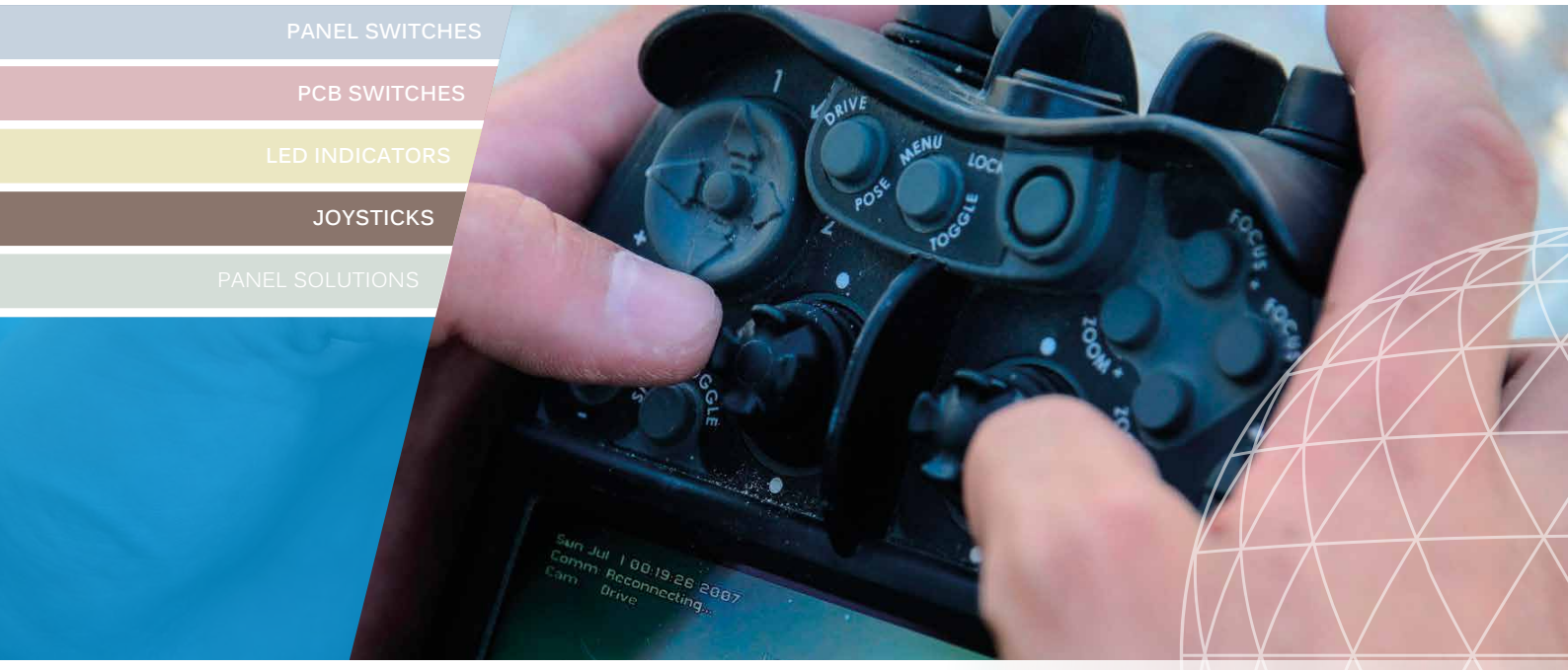

PANEL SWITCHES

PCB SWITCHES

LED INDICATORS

JOYSTICKS

PANEL SOLUTIONS



YOUR PROJECTS, OUR JOYSTICKS

APEM
an IDEC company

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A LEADING WORLDWIDE MANUFACTURER OF HUMAN-MACHINE INTERFACE PRODUCTS AND SOLUTIONS SINCE 1952

SWITCHING TECHNOLOGIES, OUR CORE BUSINESS

Organized into three business units, 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.

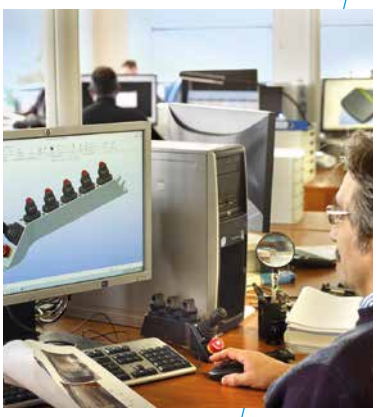
Panel solutions

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.

TECHNICAL AND INDUSTRIAL EXCELLENCE

APEM controls all phases of product development and manufacturing with vertically integrated production and advanced technologies.

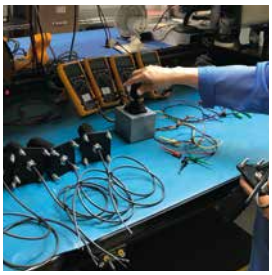
APEM's dedication and experience facilitates a quick and effective response to the most complex requirements. This technical expertise ensures the continuity of APEM's vast portfolio of products and the strength of our valued partnerships.

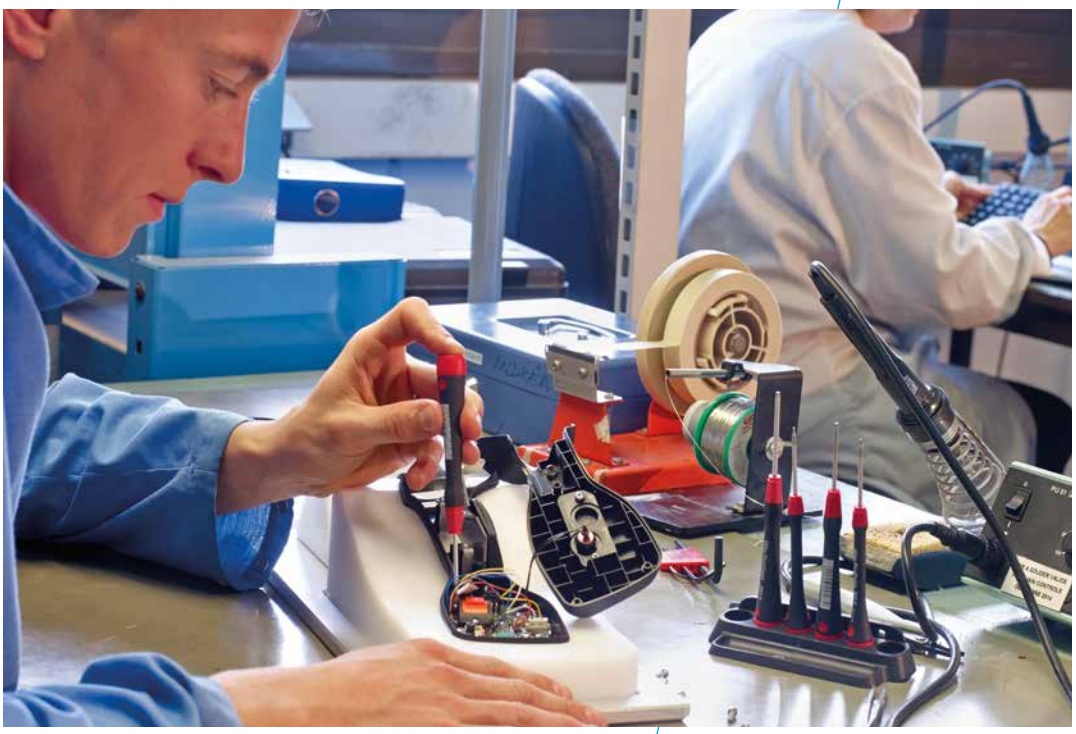


YOUR EXPERT PARTNER

APEM's expansive product range is comprised of more than 50,000 part numbers. Colors, markings, finishes, shapes and dimensions offer an unlimited number of options, creating complete custom solutions for unique customer requirements.

For over 65 years, top manufacturers worldwide have placed their trust in APEM to develop and manufacture reliable high performance HMI components & solutions for their most demanding applications. APEM continues to meet and exceed these demands with innovation, quality and service.





OUR JOYSTICK PROJECTS BEGIN WITH OUR ADVANCED PRODUCT DESIGN PROCESS

APEM'S LEADERSHIP POSITION IN THE JOYSTICK INDUSTRY IS BUILT ON A FOUNDATION OF SOUND DESIGN PRINCIPALS AND ROBUST MANUFACTURING PROCESSES.

PHASES	PRE-STUDY	PHASE 0: PRODUCT DEFINITION	PHASE 1: PRODUCT & PROCESS DESIGN STUDY
GOAL	Understand the application and project scope	Define the product specification and program expectations	Confirm the proposal meets the specification
DELIVERABLE	Product & Project Scope	Budgetary Proposal and Compliance Matrix	Confirm design, prices, schedule and Compliance matrix
SAMPLES	Standard Examples	Design Concepts	Design Confirmation (3D print)
DOCUMENTATION	Design Concept	Proposed Design	Approved Design Drawings
STAGE OWNER	Product Manager / Application Engineer	Product Manager / Application Engineer	Engineering
SUPPORT TEAM	Engineering	Engineering	Manufacturing / Application Engineer / Product Manager / Purchasing
KEY QUESTIONS	Are customer needs understood?	Are customer expectations understood?	Does design meet the specification?

APEM's structured APQP process collaboratively includes customers in the product development process. Utilizing a phase gate approach ensures a clear understanding of product requirements to design, develop and deliver new products that meet customer's expectations.

	PHASE 2: PRODUCT & PROCESS DEVELOPMENT	PHASE 3: INDUSTRIALIZATION & QUALIFICATION	PHASE 4: START PRODUCTION
	Development and preparation for production tooling	Product validation	Manufacturing Ramp Up
	Approve production tooling	Validation sign off Internal & Customer	Full production
	Off tool samples	First Articles	PPAP
	Component approval	Test Plan and Qualification Test Results	Production release package, FAR report
	Engineering	Engineering	Manufacturing
	Application Engineer / Product Manager / Manufacturing / Purchasing	Manufacturing / Quality Control / Purchasing Application Engineer / Product Manager	Purchasing / Quality / Engineering
	Do parts meet design specification?	Is the design ready for production?	Have customer expectations been met?

A BROAD AND HIGHLY CUSTOMIZABLE PORTFOLIO

APEM OFFERS THE INDUSTRY'S LARGEST JOYSTICK PORTFOLIO. AVAILABLE OPTIONS INCLUDE PANEL MOUNT PUSHBUTTONS, LED INDICATORS, MINIATURE PROPORTIONAL DEVICES, PCB MOUNTED TACT SWITCHES AS WELL AS MEMBRANE ASSEMBLIES.

User specified options include markings, finishes and shapes, creating a nearly unlimited combination of possibilities.

PANEL MOUNT COMPONENTS

FNR series

MT series

IX series

IM series

IA series

ADAPTING A STANDARD PRODUCT CREATES A UNIQUE JOYSTICK CAPABLE OF MEETING A CUSTOMER'S SPECIFIC REQUIREMENTS.

Such a diversified portfolio allows APEM to propose simplified, yet specific product customization **without excessive development costs.**

MINIATURE PROPORTIONAL COMPONENTS

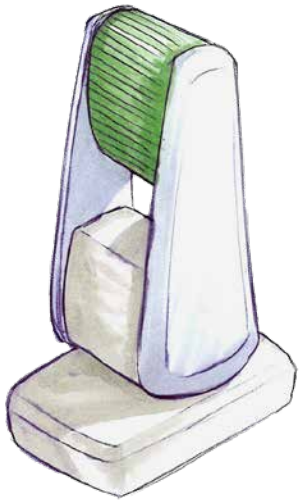
HR series

CW series

TS series

ELASTOMER KEYPAD WITH LED ILLUMINATION

POLYCARBONATE MEMBRANE KEYPADS



FROM CONCEPT TO PROTOTYPE, YOUR JOYSTICK IS UNIQUE

WITH OUR CUSTOM ENGINEERING SOLUTIONS, WE OFFER OVER 100,00 POSSIBLE COMBINATIONS OF JOYSTICK PRODUCTS SUITABLE FOR MANY APPLICATIONS.

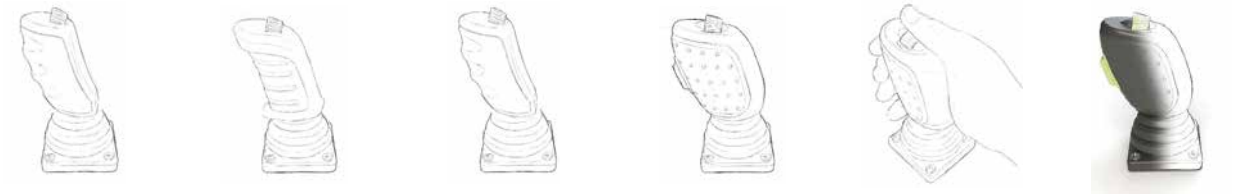
Full design services are available to help create a custom joystick for your unique application.

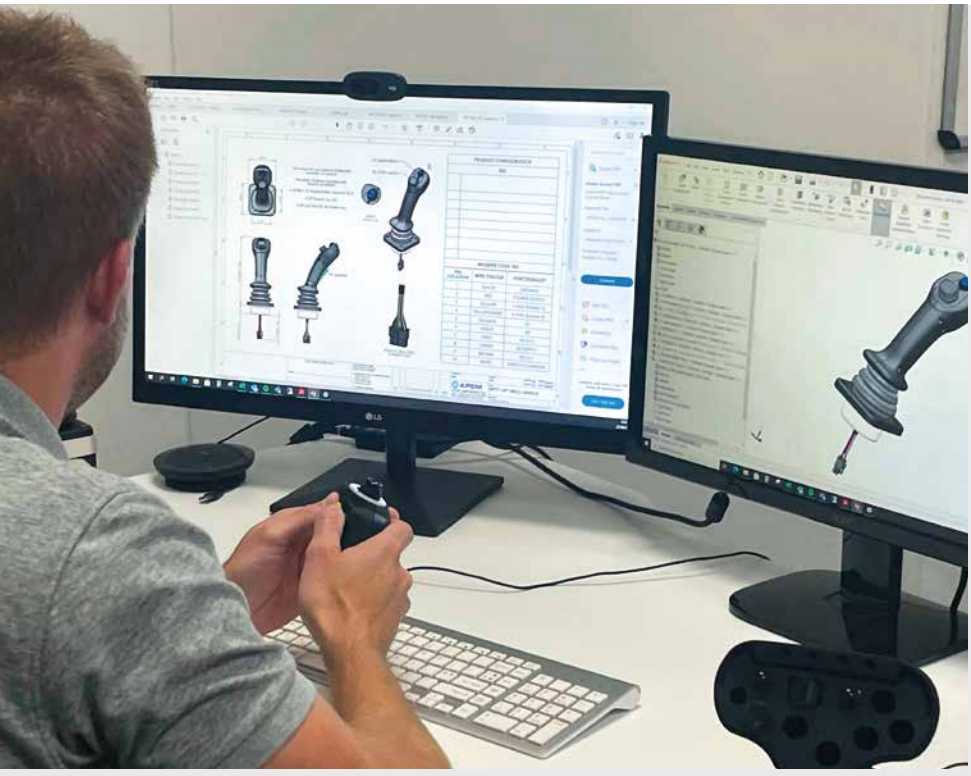
Whether your requirements call for a custom design or a modified catalog joystick, our technical staff will collaborate with you to deliver a solution that fits the application's particular needs.

Available customization includes cables, connectors, unique packaging, pushbutton switches, proportional thumbwheels, rocker switches, proximity sensors, custom colors, special marking, and custom handles.

APEM can offer early-stage concept designs that will help you understand your needs and help to expose pit falls or concept limitations.
Working with cutting edge design software, APEM can offer expert feedback to help inspire and shape a final solution.

COMPUTER MODELING IS A GREAT TOOL TO HELP VISUALIZE YOUR JOYSTICK PROJECT.





APEM can provide resources to help conceptualize your vision. With the help of 3D modeling, ideas and concepts can be presented to colleagues and customers.

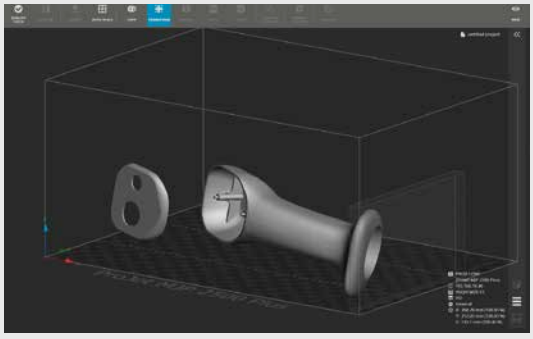
Save time and money down the line. When considering a custom development, early consideration must be given to assembly, ergonomics and tooling.

PROTOTYPE DEVELOPMENT.

APEM can turn your ideas into reality.
From the work done early in the design stages APEM can turn the concept into physical prototypes using either internal or external resources such as machining centers and 3D printed components.

APEM focuses on ergonomic solutions to improve the overall user experience.

With global engineering capabilities, APEM is well placed to bring your ideas to fruition. Utilizing our expertise in HMI, careful consideration is given to ergonomics and the selection of integrated pushbuttons and components.



FROM SIMPLE TO COMPLEX, SELECT THE LEVEL OF CUSTOMIZATION YOU NEED

CUSTOMIZATION COMES IN SEVERAL FORMS.
APEM IS ABLE TO OFFER THE LEVEL OF CUSTOMIZATION THAT FITS YOUR REQUIREMENTS.

CONNECTORS AND HARNESSES

Light touch customization such as specific connectors or mounting options are a great benefit when the joystick is assembled into your application.

The plug-and-play nature of a mating connector delivered as part of the primary build ensures that the assembly is fully tested before it is delivered. This removes the need for secondary adaptation to occur at the customer or at the subcontractor.

Custom mounting plates also offer convenience and reduces the amount of time needed to integrate the joystick into your application.

CUSTOM HANDLES AND MARKINGS

Moderate customization allows customers to add their own concepts and brand identity to the joystick. APEM offers a wide range of standard switches to provide customers with the unique ability to make a product their own.

In addition to standard black switches, APEM can offer color variations and printings with both standard ISO 4000 and custom markings.

These modifications come with little or no additional charge.

CUSTOM SOLUTIONS

Investing in a fully custom solution provides the opportunity for a customer to have a dedicated product that meets their specific technical, ergonomic and corporate branding needs.

These solutions are ideal for larger volume opportunities where the cost of tooling can be spread over the life of the project.

Resources include design, development and industrialization, which makes APEM the perfect partner to bring your ideas and concepts to fruition.

From early concept interpretation through 3D proto modeling and ergonomic considerations, APEM is able to support the entire development process.

COOPERATIVE PRODUCT DEVELOPMENT AND PROPRIETARY DESIGNS

HARMONIOUSLY DESIGNED WITH THE CUSTOMER, FOR THE CUSTOMER. TRUST APEM AS YOUR RELIABLE PARTNER IN DEVELOPING EXCLUSIVE DESIGNS AND FUNCTIONS TO FIT YOUR NEEDS.

HR360 SERIES

The HR360 series Infinite wheel features Hall effect technology and a continuous scrolling mechanism to provide a robust and intuitive solution for browsing vehicle navigation systems. When integrated into APEM's XD series joystick, the user gains an instinctual control tool that is reliable and ergonomic.

The HR360 features a service life of over one million cycles, flush panel mount design with infinite scrolling (24 detents per rotation) and a soft-touch elastomer membrane. The wheel is backlit to maintain maximum visibility even when working in dusty or poorly lit environments.

CUSTOMER EXCLUSIVE

APEM FULLY CUSTOM

ROBUST ERGONOMIC DESIGN

CUSTOM
CAN BUS
PROTOCOL
INTEGRATED
INTO HANDLE

APEM EXCLUSIVE

MULTIPLE SWITCH TECHNOLOGIES
ELASTOMERIC MEMBRANE
PROPORTIONAL ROLLER & ROCKER
PROPORTIONAL THUMBSTICK
ELECTRO-MECHANICAL SWITCHES

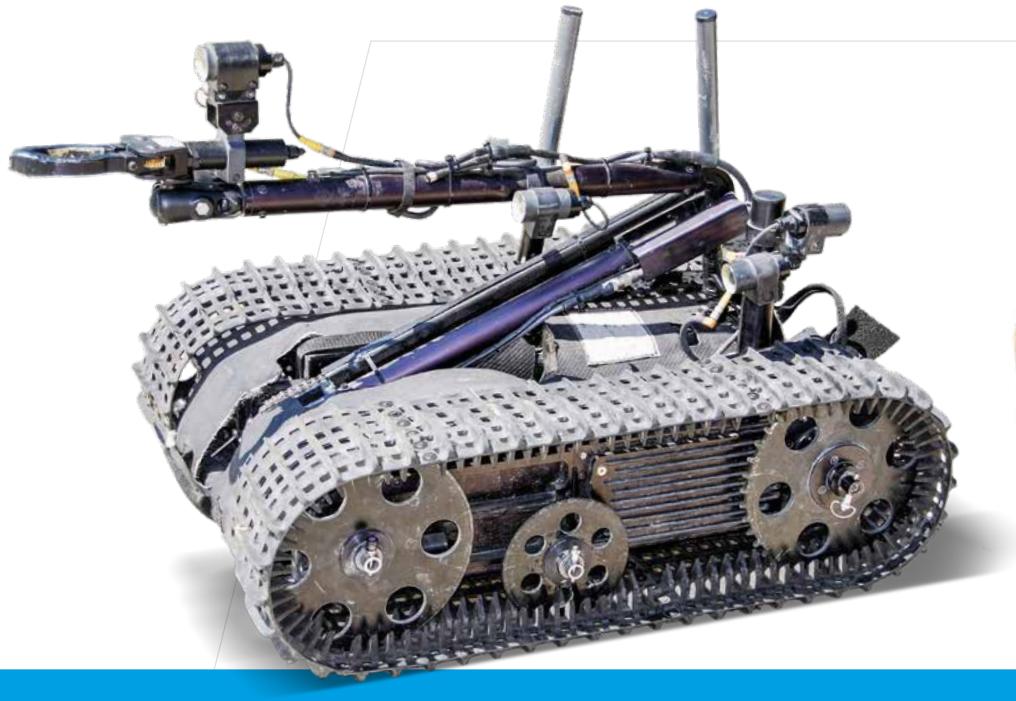
APEM develops complete interface solutions

Combining components (pushbuttons, keypads, indicators, joysticks), embedded electronics and firmware, an APEM team member is available to assist in the development of a unique turnkey solution.

OUR JOYSTICKS MEET THE SPECIFICATIONS OF THE MOST DEMANDING MARKETS

APEM'S HIGH PERFORMANCE TS SERIES THUMBSTICKS ARE HEAVILY USED ACROSS ALL UNMANNED ROBOTICS PLATFORMS.

Providing long life Hall effect technology and panels sealed to IP67, the TS series is an industrialized alternative to the miniature joysticks found in console gaming controllers. Delivering an intuitive approach to machine control, this multi-axis miniature joystick is a field proven solution for unmanned aerial, unmanned ground and unmanned submersibles.



KEY FEATURES

- Rated for over 1M lifecycles
- Panel sealed to IP67
- One or two axis
- Pushbutton and LED backlighting options
- Available with redundant analog signals
- Optional USB interface

WITH ADVANCEMENTS IN ELECTRONICS, IT'S NOW COMMONPLACE FOR WATERCRAFT TO USE A JOYSTICK FOR PILOTING AND PROPULSION SYSTEMS.

Combining a robust mechanical design with long life Hall effect technology and IP67 panel sealing; APEM's XF series provides unfaltering precision and control. Featuring three proportional axes including a rotational Z axis handle; vessels are intuitively maneuvered for easy docking and positioning control. Designed in adherence to ISO 25197:2020, the XF series is an ideal solution for vessels utilizing joystick piloting.

KEY FEATURES

- Rated for over 5M lifecycles
- Panel sealed to IP67
- Up to three axis with rotational handle
- Available with redundant analog signals
- Optional CAN bus J1939 and CANopen interfaces
- In accordance to ISO 25197:2020

A KEY COMPONENT FOR ANY REMOTE CONTROL ARE THE HMI PRODUCTS INCORPORATED INTO THE DEVICE. APEM IS WELL PLACED TO SUPPORT SEMI-AUTONOMOUS APPLICATIONS WITH THE INDUSTRY'S WIDEST RANGE OF HMI COMPONENTS.

APEM's finger operated joysticks offer an exceptionally precise method for device manipulation. Long life redundant Hall effect sensors help validate customer SIL2 credentials.

WITH ELECTRONIC CONTROLS REPLACING LEGACY HYDRAULIC SYSTEMS, APEM'S WIDE RANGE OF JOYSTICKS ARE IDEALLY SUITED FOR THE EVOLVING VEHICLE MARKET.

Increasing vehicle complexity including aftermarket ancillary equipment is pushing APEM's development of next generation multifunction grips. Considering that every application has unique requirements, both adaptability and ergonomics are heavily considered when developing a new user interface.

APEM has a proven track record of supporting secondary control applications. Markets include front loader controls, hedge cutting equipment and utility vehicles.

ARE YOU LOOKING FOR A QUICK TURNAROUND?

THUMB CONTROLS

HR 360 INFINITE WHEEL

Hall effect 360° roller with infinite scrolling (24 detents per rotation), and a soft-touch elastomer membrane

TS SERIES

Hall effect proportional two axis joystick

FINGERTIP

XF SERIES

Ruggedized fingertip joystick with CAN and USB options for vehicle applications

JC SERIES

Compact fingertip joystick for keyboard integration

HANDGRIP

XD SERIES

Multi-axis Hand Grip controller specifically engineered for demanding vehicle applications

FG SERIES

Fixed Grip handgrip designed for rugged vehicle applications

USB DESKTOP

IP DESKTOP SERIES

Three axis, 12 button joystick with USB interface

IPD LAUNCH SERIES

Three axis, ten button joystick with USB interface

CHECK OUT OUR BROAD RANGE OF STANDARD CATALOG PRODUCTS

Find full product details and specifications online at www.apem.com

FR SERIES

Single axis 3-position thumb controller

HS SERIES

Single pole, micro switching miniature joystick

NV SERIES

Switch based joystick with 4 directions + pushbutton

TW SERIES

Minimum width, low profile Hall effect thumbwheel with spring return

CW SERIES

Miniature proportional thumbwheel with spring return

HR SERIES

IP68 Sealed thumbwheel with detents and backlighting options

HR SERIES FRICTION HOLD

Sealed proportional thumbwheel with friction hold and detents

HF SERIES

Contactless, low profile multi-axis fingertip controller

3000 SERIES

High precision, mult-axis Hall effect joystick

BHN SERIES

Compact Hall effect paddle controller with detent and spring return

BL SERIES

Compact Hall effect paddle controller

BF / BD SERIES

Ergonomic Hall effect paddle with two different height options

PC SERIES

USB or analog handheld pendant controller

MS SERIES

Hall effect multi-axis handgrip joystick designed for vehicle cab applications

TH SERIES

Single axis throttle with heavy duty friction clutch

HJ SERIES

Rugged multi-axis handgrip controller designed for in-cab vehicle applications

CJ SERIES

Ergonomic multifunction handle designed for safety critical hand operated applications

IPD ULTIMA SERIES

Three axis, 12 button joystick with LED backlighting and USB interface

RS DESKTOP SERIES

Three axis, six button joystick with USB interface

VM DESKTOP SERIES

Advanced Desktop controller with three axis joystick, jog/shuttle dial and 27 programmable pushbuttons

APEM
an IDEC company

AT A GLANCE

70 YEARS OF TRUST BUILT ON QUALITY

1,400 EMPLOYEES WORLDWIDE

50,000 + PART NUMBERS

WORLDWIDE SALES & CUSTOMER SUPPORT

USA
970 Park Center Drive
VISTA, CA 92081
Tel: (+1) 760 598 2518
info@apem.com

USA
63 Neck Road
HAVERHILL, MA 01835
Tel: (+1) 978 372 1602
info@apem.com

CHINA
IDEC Shanghai
8th Floor, Tower 2,
Enterprise Centre,
No.209 Gong He Road,
Shanghai, 200040, P.R.C
Tel: +86 21 6076 1355
apem@apem.com.cn

JAPAN
IDEC Corporation
2-6-64 Nishimiyahara,
Yodogawa-ku, Osaka,
Japan 532-0004
apem-sales@jp.idec.com

SINGAPORE
IDEC Izumi Asia Pte Ltd
31 Tannery Lane
Singapore 347788
Tel: +65 6746 1155
apem.apec@idec.com

BENELUX
Belgicastraat 7/1
1930 ZAVENTEM
Belgium
Tel B: (+32) 27 25 05 00
Tel NL: (+31) (70) 799 91 51
be.sales@apem.com

FRANCE
55, avenue Edouard Herriot
BP1
82303 CAUSSADE Cedex
Tel: (+33) 5 63 93 14 98
fr.commercial@apem.com

GERMANY
Gewerbehof Giesing
Paulsdorfferstr. 34, 2. OG
D-81549 MUNICH
Tel: (+49) 89 45 99 11 0
de.info@apem.com

ITALY
Via Marconi 147G
12030 MARENE (CN)
Tel: (+39) 0172 74 31 70
apem.italia@apem.com

SWEDEN
Torshamnsgatan 39
S-16440 KISTA
Tel: (+46) 8 626 38 00
se.info@apem.com

UNITED KINGDOM
Drakes Drive
LONG CRENDON,
Bucks HP18 9BA
England
Tel: (+44) 1 844 202400
uk.sales@apem.com

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