TECHNOLOGY LEADERS FOR INDUSTRIAL CONTROL, SENSING AND ACTUATION

Joysticks+Sensors+Solenoids

A Curtiss-Wright Company
Penny + Giles: A history of Innovation In Motion

With a proud legacy spanning more than half a century, Penny+Giles is a recognised leader in position sensing, actuation and manual control for industrial applications.

Penny+Giles joysticks, sensors and solenoids are key components throughout the industrialised world, where our tradition of innovative technology, creative design, manufacturing excellence and interactive customer support have delivered cost effective solutions every time.

Our industrial solenoid capability was acquired in 2008 with the acquisition of Mechtronics Ltd – a company that has its origin from 1918. With a primary service in custom solenoid solutions for high volume OEMs, we are able to offer UK design, engineering and qualification, with solenoid manufacture in Europe or Asia.

Penny+Giles is wholly owned by the Curtiss-Wright Corporation of Parsippany, New Jersey, USA. Curtiss-Wright is a diversified, global enterprise delivering highly engineered, technologically advanced, value-added products and services to a broad range of industries in the motion control, flow control and metal treatment market segments.

Penny+Giles was acquired by Curtiss-Wright in 2002, and is a business unit within the Avionics and Industrial product organization of the Motion Control division operating with a group of companies focused on the development and supply of avionics, electronics, sensors, solenoids and manual controllers for aerospace, defense and industrial markets.

Quality Assured

Penny+Giles quality systems are accredited to BS EN ISO 9001:2008. Our commitment to quality is the foundation of our business, ensuring the reliability of our products from initial design to final despatch.

Standard Product or Custom Designed?

Our customers have a choice of solutions to consider.

Standard products - specify straight from the catalogue from the wide range of joysticks, sensors and solenoid products available, with many items available from stock and every one industry proven.

Custom design - using the Penny+Giles partnership approach integrates our product design expertise with your design team, enabling a free flow of ideas to provide the most reliable and cost effective product solution to suit your unique application.
JOYSTICK CONTROLLERS

A comprehensive range of joysticks that utilise non-contacting and contacting technologies for fingertip and hand or palm control. With protection to IP69K, and a choice of models, handles and mounting configurations to suit a wide range of hostile industrial applications.

**Fingertip operated rockers**

Our range of single axis fingertip rockers allows system designers to provide control of movement and speed in a single low-profile unit.

- Low profile with contacting potentiometer technology
- Analog and switched outputs
- Center return spring mechanism

**Fingertip operated joystick controllers**

Our range of finger operated joystick controllers have been developed for the smooth, precise control of critical functions in a variety of industrial applications where a Human-Machine Interface (HMI) is required.

- Non-contacting and contacting technologies
- Single and multi-axis control with low profile handles
- Most models protected to IP65 minimum above the panel

**Rugged single-axis joystick controllers**

Our rugged single-axis joystick controllers are designed for demanding operator control applications in off-highway vehicles and other man-machine interfaces.

- Non-contacting and contacting technologies
- High strength lever with superb proportional control
- Sealed above the panel to IP69K (handle dependent)

**Rugged multi-axis joystick controllers**

Our rugged multi-axis joystick controllers are designed for demanding operator control applications in off-highway vehicles and other man-machine interfaces, where lever strength, signal reliability, and handle functionality are important.

- Non-contacting and contacting technologies
- Single and dual-axis control with ergonomic handles
- Sealed above the panel to IP66 (handle dependent)

**Typical joystick applications**

- Off-Highway Specialist Vehicles in Construction and Agriculture
- Radio Remote Controls • Aerial Work Platforms • Powered Wheelchairs
- Material Handling Vehicles • CCTV Controls
SOLENOIDS and SOLENOID VALVES

Our wide product range (formerly branded MECHETRONICS) includes standard configurable designs in a range of solenoid styles, but we can also supply modified standard designs to suit specific applications, or unique custom designs for large scale OEMs.

**AC laminated solenoids**
Our range of AC solenoids are designed for AC applications and they provide a relatively high operating force from a small package. Commonly used in light duty applications for automated machinery, packaging and office machines, coin handling mechanisms and textile machinery.

**Open frame solenoids (C and D frame)**
Our range of open frame solenoids includes C and D frame styles. These are more cost effective than other solenoid types, and are typically selected for applications in which extremely long life precise positioning are not so critical.

**Tubular (or cylindrical) solenoids**
Our tubular solenoids are a popular choice for applications that require a compact size with performance that matches or exceeds the larger open frame solenoid designs for a given size, since they are more magnetically efficient due to the enclosed coil configuration.

**Latching solenoids (permanent magnets)**
Our latching solenoids utilize a permanent magnet in conjunction with the solenoid coil to maintain the position of the plunger with no current applied. The latching solenoid can perform push, pull, hold and release operations with only an instantaneous pulse of current, thus offering a significant power-saving efficiency and maximum life.

**Flapper solenoids**
Our flapper solenoids include integral springs which release the flapper plate after the coil is de-energised. They provide high performance over a short stroke in a compact, low profile design, and various custom options can be incorporated to suit OEM requirements.

**Holding magnets**
Our range of holding magnets have a high holding force capability from a small package, with low power requirements. Standard versions normally operate from 12 or 24Vdc and are available in a range of diameters to suit various holding forces. Our coils can be encapsulated for maximum protection against environmental conditions.

**Special solenoids**
Our capability extends to the design and manufacture of custom solenoid solutions. This includes interlocks and shot-bolts for security applications, or special frames and mountings for multi-solenoid installations.

We can also supply 2 or 3 way solenoid valves for air applications, in a range of configurations – please contact us for more details on these devices.

**Typical solenoid applications**
- Medium Voltage Switchgear
- Safety & Security
- Automotive Braking
- Cash Handling
- Business Machines
- Gaming Machines
- Off-Highway Specialist Vehicles

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SENSORS

A comprehensive range of position sensors that utilise non-contacting and contacting technologies for linear, rotary and tilt measurement sensing. With protection to IP69K, and a choice of models and mounting configurations to suit a wide range of hostile industrial applications.

**Linear position sensors**

Our range of linear position sensors, displacement transducers and potentiometers offer stroke length measurements from 5mm (0.2") to 1600mm (63").

- Non-contacting technologies – inductive and Hall-effect
- Long-life hybrid potentiometers
- Rugged housings, flexible mounting options

**In-cylinder linear transducers**

Our specialist range of non-contacting linear displacement transducers and linear potentiometers offer stroke length measurements from 25mm (1") to 2000mm (79").

- Can be fully integrated into a range of hydraulic or pneumatic actuators
- Withstand system pressures to 670 Bar (10,000psi)
- Analog voltage, current and digital PWM output signals

**Valve position transducers**

Our specialist VPT linear sensors are suited to valve spool position feedback applications and offer stroke length measurements up to 90mm (3.5").

- A fully integrated transducer package, including electronics
- Non-contact Hall-effect sensor in a pressure sealed enclosure
- Custom design service for high volume valve and mobile hydraulics manufacturers

**Rotary position sensors**

Our extensive range of rotary position sensors offer angle measurements from 10° to 360° and are designed for demanding control system applications in a wide range of industrial and specialist vehicle applications.

- Non-contacting technologies - Hall-effect and inductive
- Long-life hybrid potentiometers
- Compact, rugged housings, protected to IP68 and IP69K

**Tilt sensors**

Our tilt sensor range use 3D-MEMS (Micro-Electro-Mechanical Systems) technology to measure the sensor’s inclination relative to earth’s gravity.

- Solid-state system-on-chip technology
- Measurement range from ±10° to ±60°
- Compact, rugged housings, protected to IP68 and IP69K

**Typical position sensor applications**

- Motorsport
- Military Ground Vehicles
- Power Generation
- Factory Automation
- Hydraulics and Pneumatics
- Off-Highway Specialist Vehicles in Construction and Agriculture
- Aerial Work Platforms
- Material Handling Vehicles

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APPLICATIONS

For more than 50 years, we have supplied products to thousands of customers around the world and each customer has a unique application. By using this diverse applications knowledge, we can confidently recommend solutions by offering standard products with rapid availability, or develop custom designs by working with your engineers. The information shown below indicates just some of the many applications where our products are used.
Applications Experience

Our experience in providing manual control, position sensing and solenoid actuation solutions across a wide applications spectrum allows our customers to specify Penny+Giles equipment knowing that it is industry proven in thousands of applications throughout the world.

- Automotive
- Broadcasting & recording
- Business machines
- Cash handling
- Construction
- Defense
- Leisure
- Marine
- Material handling
- Medium voltage switchgear
- Mining
- Motorsport
- Off-highway vehicles
- Petrochemical
- Plastics and rubber
- Power generation
- Process control
- Robotics
- Safety and security
- Timber and forestry
- Transportation

Partnership

Our objective is to achieve operational excellence and offer our customers a wide range of expertise from a strong technology base - which we can use to develop solutions to solve problems or help our customers seize new opportunities.

Penny + Giles is an engineering focused company with a suite of skills which allows us to support customers in a wide number of fields, from motorsport to specialist off-highway vehicles and from factory automation to safety and security.

We believe in developing technology-based solutions in partnership with our customers – many of our products are custom built for specific applications.

We strive for the best solutions, from design and manufacturing to prompt, on-time supply – with operational excellence and a world-class service.

Why companies partner with Penny+Giles…

- Stability - an established supplier, founded in aerospace in 1956
- Pedigree - a proven track record of design and manufacture for critical applications
- Quality - a reputation for product quality and reliability
- Experience - an extensive applications knowledge in all industries
- Innovation - ability to package technologies for customer-specific needs
- Partnership - a customer focused organisation
- Global - a sales and distribution network in 44 countries
- Financial strength - supported by a billion$ NYSE listed corporation

We hope this brochure will give you a clear picture of the company, our wide range of skills in a number of fields and some of our leading products.
Innovation In Motion

The information contained in this brochure on product applications should be used by customers for guidance only. Penny + Giles Controls Ltd makes no warranty or representation in respect of product fitness or suitability for any particular design application, environment, or otherwise, except as may subsequently be agreed in a contract for the sale and purchase of products. Customers should therefore satisfy themselves of the actual performance requirements and subsequently the products suitability for any particular design application and the environment in which the product is to be used. Continual research and development may require change to products and specification without prior notification. All trademarks acknowledged.

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