



# GRAYHILL

GRAYHILL DESIGNS AND MANUFACTURES INTUITIVE INTERFACES WITH FINELY TUNED HAPTICS THAT ARE EXPERIENCED AS A CLICK ABOVE THE REST.

## EVERYTHING CLICKS

Grayhill's standard products include the Touch Encoder™, optical and mechanical encoders, joysticks, keypads, and pushbuttons. We can customize our products to meet your needs.

Our exacting engineers specialize in integrating human machine interface technologies, including displays, motion sensing, and touch technology, into ergonomic panels and product shells that create a whole solution.

→ For more information, please visit [grayhill.com](http://grayhill.com).



### TOUCH ENCODER™ FEATURES

- Stores hundreds of screens (32MB memory)
- High resolution display: 330 PPI (320 × 300)
- Easy panel installation: either mounting nut or adhesive install for minimal behind panel thickness
- Optically bonded display and touchscreen for excellent sunlight readability
- Sealed to IP67

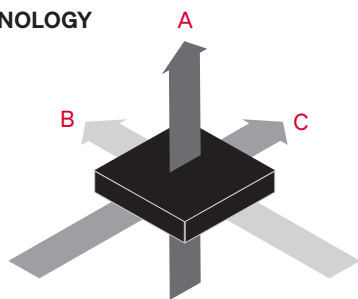
## TOUCH ENCODER™

Our Touch Encoder™ combines the functionality of conventional touch displays, keypads, and rotary switches that can support multiple languages and end-product configurations. An intuitive app allows users to create projects easily.



### HALL-EFFECT TECHNOLOGY

- A MAGNETIC FLUX
- B CURRENT
- C HALL VOLTAGE



### TYPICAL HALL-EFFECT SWITCH APPLICATIONS

- Robotic and industrial automation controllers
- Material handling equipment
- Medical electronics, including bed and table positioning
- Off-highway vehicles
- Security camera positioning
- Marine GPS and controls
- Remote control belly box

## HALL-EFFECT CONTROLS

The Hall-effect sensor magnetically detects the position of another moving part, such as the shaft in a joystick or encoder. This relational position can be output from the device in various formats, including I2C, open collector, or push-pull output.

Hall-effect technology has the advantage of working in low-voltage applications and often features a sleep mode to conserve power. Grayhill implements this technology across several switch types, including joysticks, paddle/rockers, and rotaries.





#### TYPICAL ROTARY SWITCH APPLICATIONS

- Two-way radio frequency selection
- Industrial controls, test and measurement tools
- Security systems with keylock controls
- Military radios, transmitters and receivers
- Ground and airborne vehicle controls
- Handheld medical devices
- Night vision products



#### OPTICAL ENCODER FEATURES

- 1 million+ rotational cycles
- 2-bit gray code output
- Quadrature coding
- Available in 16, 20, 24 and 32 detent positions
- Cost competitive with mechanical encoders at higher volumes
- Choices of cable length and terminations
- Available for 5Vdc and 3.3Vdc
- Optional integrated pushbutton
- Patented light pipe technology

#### DISCRETE JOYSTICK FEATURES

- Rugged and sealed, four directions with center pushbutton
- IP67 sealed against contamination when properly mounted
- Behind-panel mount or front-panel mount available
- RoHS compliant
- Short behind panel

## ROTARY SWITCHES

Grayhill is the leading manufacturer of single and multi-deck rotary switches with rugged construction and virtually limitless configurations. Many are MIL qualified to exacting electrical, mechanical and environmental standards. We offer several options including isolated positions, spring returns, adjustable stops, concentric shaft switches, and configurable keylock switches.

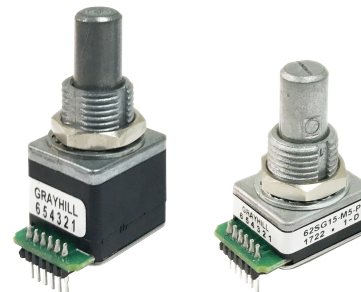
#### ROTARY SWITCH FEATURES

- Minimal depth behind panel
- Small size: minimal space required behind panel
- Available with continuous rotation or a fixed stop
- High stop strength
- Shaft and panel seal
- Process seal available
- Single deck with 1 or 2 poles



## OPTICAL ENCODERS

Grayhill specializes in human interface optical encoders (with optional joysticks and pushbuttons) that provide excellent tactile feedback to the user. The greatest advantage of optical encoders is their non-contact switching technology which results in an exceptionally high operational life. Although the end-product may vary, typical applications measure speed, distance and/or rotational angle.



## DISCRETE JOYSTICKS

Grayhill's pushbutton and joystick switches have been proven as a rugged solution for countless applications. They employ a wide variety of contact mechanisms, circuitry, mounting, and termination options. We can also offer custom actuation force and travel distance, or custom termination and cabling options.

