

THE MULTI-TOUCH RING ENCODER WITH GRAYHILL INSTINCT TECHNOLOGY



A naturally human evolution  
of the interface.

*Grayhill*



## Instinct™ technology. Intuitively functional.

Grayhill Instinct is a set of multi-touch gesture recognition software tools that, when integrated with Grayhill physical components, creates more intuitive human interface solutions.



The Multi-Touch Ring Encoder combines a touchpad with multi-touch tracking, an optical encoder and pushbutton into one easy-to-use device. By combining gesture recognition technology with a ring encoder, we provide the ultimate in input flexibility. Menu search, selection, navigation and much more are all in one user interface that can be easily integrated into future devices.

## A shorter distance from mind to machine.

An intuitive, easy to use interface improves operator productivity. Our Instinct technology enables an operator's thoughts to be seamlessly communicated to the device. This allows faster interaction without needing to take eyes off of the screen. For the operator it makes controlling a machine easier to manage. And unlike touch screens, the display is left clean and unblocked. Plus, ergonomics are improved by consolidating all controls within easy reach.

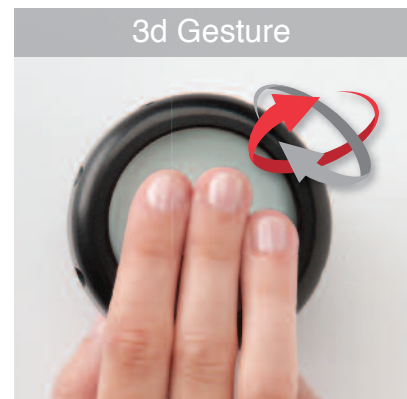
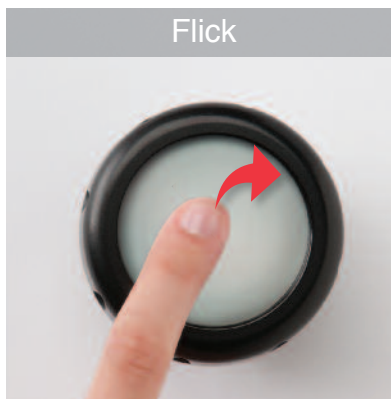
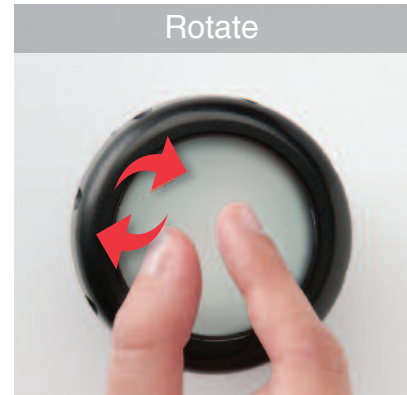
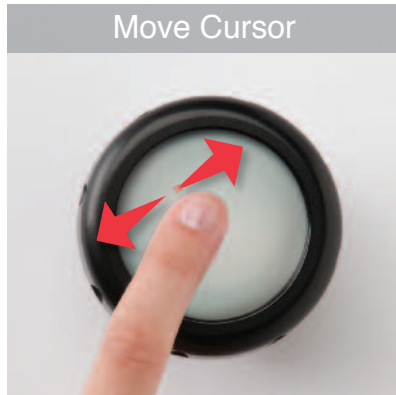


Design uncluttered, easy-to-clean instruments using Grayhill's Multi-Touch Ring Encoder.



## Let your fingers do the directing.

Finger gestures are a popular means of controlling contemporary electronic devices. Instinctive, memorable movements provide a variety of commands...all without the fingers leaving the touchpad. Grayhill's Instinct technology tracks up to five finger touches at a time. The Multi-Touch Ring Encoder combines the multi-touch touchpad with an optical encoder and a push button to offer even more functionality. Several gestures are shown below.



## An elegant engineering solution for controlling electronic equipment.

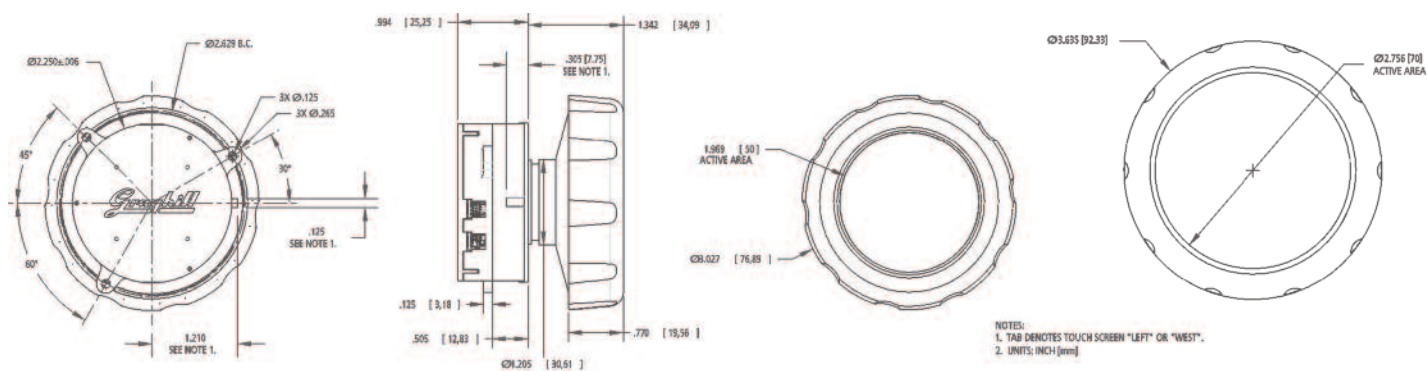
Simplicity in use and device design. The Multi-Touch Encoder can replace keypads, knobs, trackballs and switches. This makes for clean design and cuts costs of manufacturing. Combined with the Instinct gesture recognition library, the multi-touch encoder increases the engineer's flexibility in building functionality into any product.

Possible applications include:

- Medical devices
- Off-highway vehicles
- Commercial aviation
- Gaming



## DIMENSIONS in inches (and millimeters)



## FEATURES

- Grayhill Instinct™ Gesture Recognition Technology
- Three devices in one:
  - + Multi-Touch Touchpad
  - + Optical Encoder
  - + Pushbutton
- Impervious to cleaning solutions and disinfectants
- Easy to integrate into any device
- Rugged, scratch-resistant surfaces
- Backlit illumination and colored highlighting ring
- Redundant quadrature and push button output
- Patent pending

## SOFTWARE DEVELOPMENT KIT

Part Number T101-DEV1

Grayhill offers an Instinct Software Development Kit that provides the user with a common development platform for prototyping and evaluating different solutions. The Software Development Kit is comprised of a mounted Multi-Touch Ring Encoder, a standard USB cable and demo software.

## ENVIRONMENTAL SPECIFICATIONS

|                                                                            |                                                                                                                          |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Operating temperature                                                      | -10°C to +60°C                                                                                                           |
| Seal                                                                       | IP65 knob with labyrinth seal through panel                                                                              |
| Humidity                                                                   | 95% Humidity at 60°C for 240 hours                                                                                       |
| Chemical resistance<br>(Resistance to accidental spills and disinfectants) | 24 Hr exposure to betadine, Coffee, Water, Cola, NACL, Isopropyl Alcohol Betadine, Hydrogen Peroxide, "Quats," and Cidex |

## ELECTRICAL PERFORMANCE SPECIFICATIONS

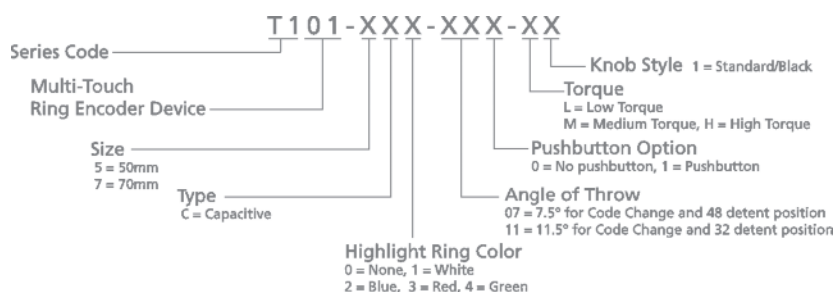
|                   |                                                                                    |
|-------------------|------------------------------------------------------------------------------------|
| USB               | 2.0, 3.0 Compatible, Full speed HID Compliant                                      |
| Operating Voltage | 2.5 to 5.5 Vdc                                                                     |
| Input Current     | 250mA max (at full backlight) @5V                                                  |
| Rotational Life   | 500,000 cycles minimum                                                             |
| Pushbutton Life   | 3,000,000 actuations minimum                                                       |
| Encoder Output    | 2-Bit Quadrature, Channel A leads Channel B by 90° electrically during CW rotation |

## ELECTROMAGNETIC COMPATIBILITY SPECIFICATIONS

Designed and tested for use in systems requiring IEC 60601-1

|                                           |                                                    |
|-------------------------------------------|----------------------------------------------------|
| RF Emissions                              | CISPR 11 Group 1 Class B                           |
| Electrostatic Discharge                   | IEC 61000-4-2 $\pm 6$ kV Contact $\pm 8$ kV Air    |
| Electrical Fast Transient/Burst           | IEC 61000-4-4 $\pm 1$ kV Coupling Clamp            |
| Power Frequency (50/60 Hz) Magnetic Field | IEC 61000-4-8 3 A/m                                |
| Conducted RF                              | IEC 61000-4-6 Level 1 - 120dBuV, 150 kHz to 80 MHz |
| Radiated RF                               | IEC 61000-4-3 3 V/M 80 MHz to 2.5 GHz              |

## ORDERING INFORMATION



| PIN OUT | ENCODER    |
|---------|------------|
| 1       | Output A   |
| 2       | Output B   |
| 3       | Pushbutton |

| PIN OUT | USB               |
|---------|-------------------|
| 1       | +Vcc              |
| 2       | USB Negative (D-) |
| 3       | USB Positive (D+) |
| 4       | Gnd               |

## MATING CONNECTOR

Molex 501939-0400 and 501939-0300

**Grayhill**

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