Grayhill

Intuitive Human Interface Solutions

Reimagining the User Experience

Touch Encoder





KEY FEATURES

- Replaces many traditional user input devices (such as switches, keypads, pushbuttons, displays, etc.) with a simple, easy to use device
- Optimal front panel footprint
- Supported gestures: Tap + Swipe + Turn
- High resolution display: 330 PPI (320 X 300)
- Quick user interface development
  - Intuitive tablet based development platform
  - Library of configurable standard widgets
- Stores hundreds of screens (32MB memory)
- Incorporates pictures: PNG, JPEG, etc.
- Field upgradable application and firmware
- Robust: sealed to IP67, high impact strength, chemical resistant
- 1,000,000 encoder cycles
- USB 2.0 or CAN J1939 communications with host device

MATERIALS

- Cover lens: polyester
- Knob: 304 stainless steel with optional black chrome finish or silicone grip
- Rear housing: nylon
- Mounting nut: nylon
- RoHS 2018/863 compliant

TOUCHSCREEN/DISPLAY

- Optically bonded display and touchscreen for excellent sunlight readability
- Touchscreen construction: high resolution PCAP ITO

Patents Applied and Pending

General

Device Diameter (O.D.): 2.200 in (55.88 mm) Nominal

Display Diameter (V.A.): 1.320in (33.50 mm) Nominal

Touchscreen: Projected Capacitive

Display - Type: Round Color TFT LCD, 320 X 300

Display - Brightness: 200 Cd/m2

Positions/Revolution: 32

Connector Style: M12 5-Pin Connector or PC Board Connector

Environmental

Operating Temp. Range: -20 to 65 °C

Storage Temperature: -30 to 70 °C

Humidity: 95% @ 65 °C

Mechanical Shock: ANSI EP455 5.14.1

Seal (Electronics): IP67

Radiated Immunity: IEC 61000-4-3 80 - 2700 MHz 10 V/M

Conducted Immunity: IEC 61000-4-6 LEVEL 2 - 130 dBµV, 150 KHz to 80 MHz

ESD: IEC 61000-4-2: 8 kV Contact; 15 kV Air

Vibration (Random): 50 - 2000 Hz, 2hr Each Axis ANSI EP455 5.15.2

Chemical Resistance: Designed to survive repeated exposure to most chemicals found in Medical, Off-Highway, and Industrial applications

Solar Radiation: ISO 4892.2 Method B

Power Frequency Magnetic Field: Meets IEC 61000-4-8, 100 A/m

Electrical Fast Transient/Burst: IEC 61000-4-4 ±1kV Coupling Clamp

Conducted Emissions: EN 55011, EN55032 Class B

Radiated Emissions: EN 55011, EN55032 FCC Part 15 Class B

For more information, contact us at TE@grayhill.com

Mechanical

Pushout Force (Max): 45 lbs (200 N)

Pullout Force (Max): 45 lbs (200 N)

Side Load Force: 45 lbs (200 N)

Lens Hardness: 2H

Lens Impact: IK5

Mounting Torque (Nominal): 4 - 10 in-lbs

Mounting Torque (Max): 14 in-lbs

M12 Connector Torque (Max): 14 in-lbs

M12 Connector Pull-Out: 15 lbs (66.7 N)

Mounting Alignment (Maximum): < 1Deg

Weight (Production Unit): 4.25 oz (120.6 g)

Electrical Function

Operating Voltage: SDK: 4.75 to 5.25 Vdc; Component: 4.75 to 18 Vdc;

Max Operating Power: 1.5 W @ Max Brightness

Memory: 32MB

Standby Power Mode: < 100 mW

Sleep Mode Wakeup Time: 500 mSec

Boot Time: 5 Seconds to O.S.

USB Interface: 2.0 Full Speed Composite Device

CANbus Interface: J1939 Compliant

Encoder Function

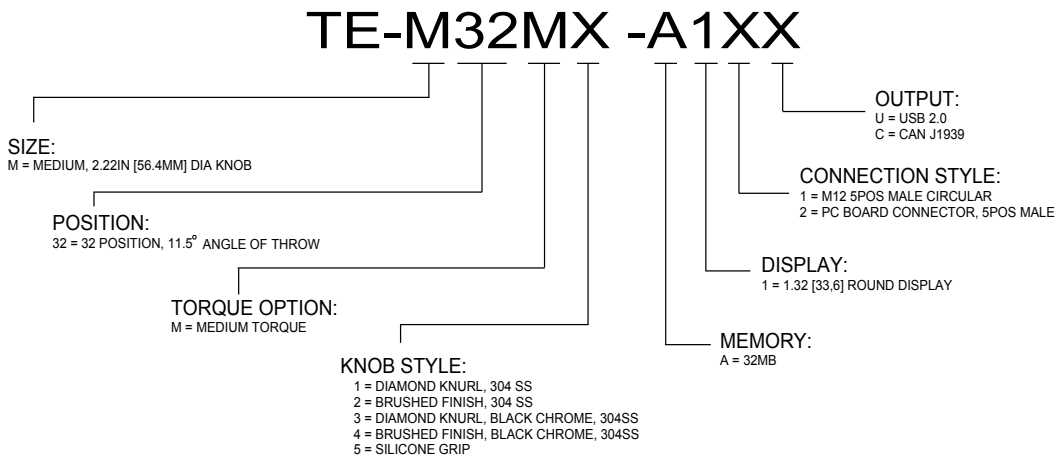
Initial Rotational Torque: 3.50 ± 2.00 in-oz (Medium Torque Option)

Rotational Life: 1,000,000 Cycles

Detent Type: Ball Spring

Encoder Sensing Technology: Hall Effect

Part Numbers



Software Development Kit P/N: TE-M321-SDK (without iPad) & TE-M321-SDKT (with iPad) * iPad is a registered trade mark of Apple Corporation

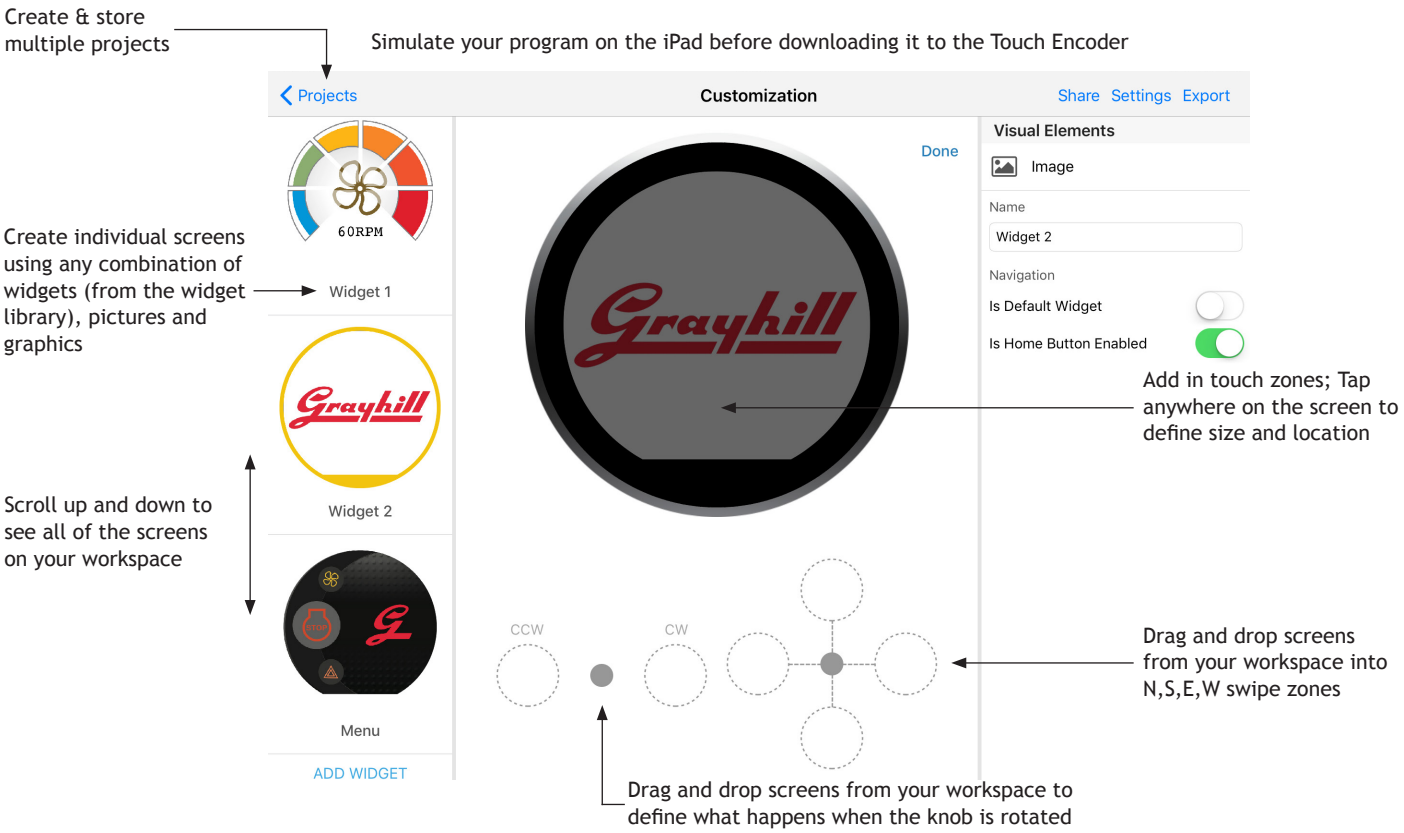
Inside the Kit:

- Touch Encoder Development Module
- CANbus Interface Cable
- Red Programming Cable
- Power to USB Cable
- Power Supply Wall Mount
- Thumb drive
- White USB Micro B to USB Type A Adapter Cable

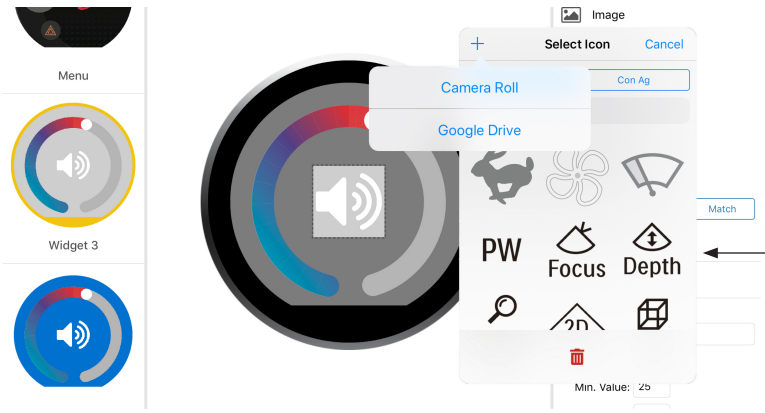


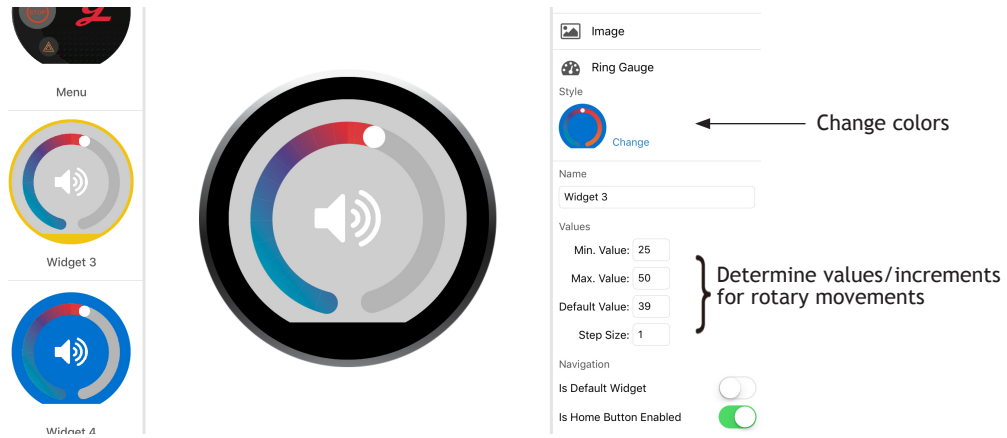
Patents Applied and Pending

Simple, Intuitive Application Development using Grayhill GIIB App



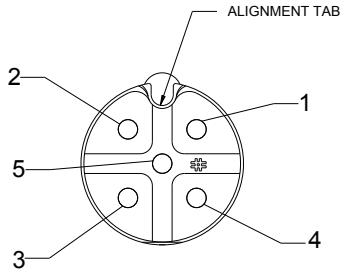
Fully Customizable Standard Widgets





Patents Applied and Pending

Pin Numbering Detail



CONNECTOR OUTPUT		
PIN #	USB	CAN
1	MODE	MODE
2	VIN	VIN
3	GND	GND
4	USB_D+	CAN_H
5	USB_D-	CAN_L

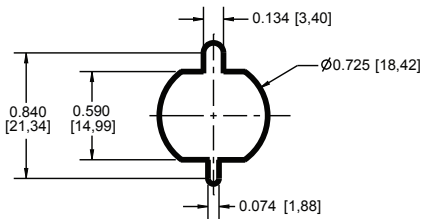
To put device in programming mode:
Connect mode pin #1 to GND at power up.
Leave mode pin #1 open for run mode (normal operation)

Mode Pin Truth Table @ Power up

Program Mode	GND
Run Mode	Open

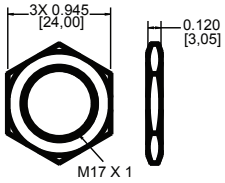
Mounting Information

Suggested Mounting Pattern
IN [MM]

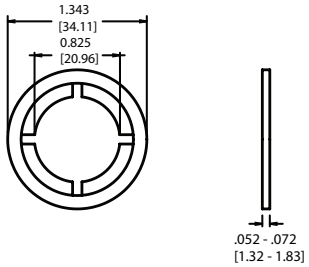


Max Radius = 0.020 [0.5]

Standard Plastic Mounting Nut
IN [MM]



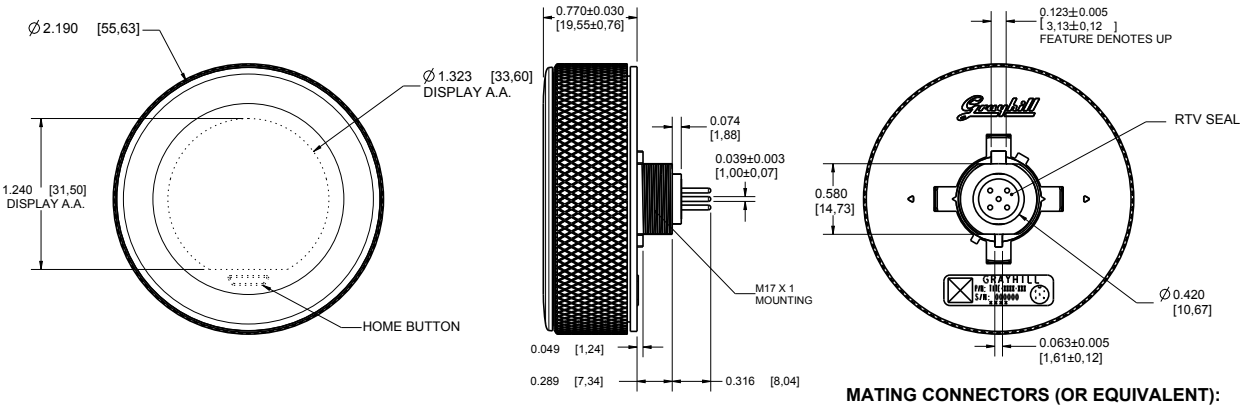
Packaging Retainer (remove before use)
IN [MM]



Dimensions

TE-M32MX-A12X (PC Board 5-Position Male)

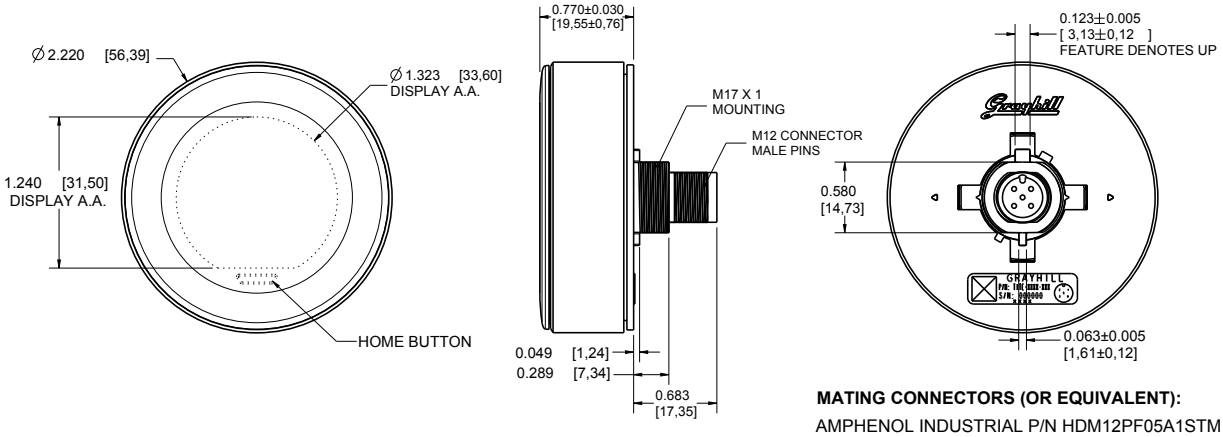
IN [MM]



MATING CONNECTORS (OR EQUIVALENT):
PHOENIX CONTACT P/N 1411976
PHOENIX CONTACT P/N 1411977

TE-M32MX-A11X (M12 5-Position Male)

IN [MM]



MATING CONNECTORS (OR EQUIVALENT):
AMPHENOL INDUSTRIAL P/N HDM12PF05A1STM

Patents Applied and Pending