

## Reimagining the User Experience

### Touch Encoder



#### KEY FEATURES

- Replace many traditional user input devices (such as switches, keypads, pushbuttons, displays, etc.) with a simple, easy to use device
- Supported Gestures: Tap + Swipe + Turn
- High Resolution Display: 320 X 300
- Intuitive Tablet Based Development Platform
- Library of Configurable Standard Widgets
- Functionally optimizes front panel footprint
- Stores hundreds of screens (32MB memory)
- Incorporate 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

## 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

## Electrical Function

Operating Voltage: 4.75 to 18 Vdc; 8 to 32 Vdc is available with interface cable.
Max Operating Current: 300 mA @ 5V Full Bright
Electrical Fast Transient/Burst: IEC 61000-4-4 ±1kV Coupling Clamp
Memory: 32MB
Sleep Mode Power Use: < 1mA
Sleep Mode Wakeup Time: 500 mSec
Boot Time: 10 Seconds Max
USB Interface: 2.0 Full Speed Composite Device
CANBUS Interface: J1939 Compliant

## Encoder Function

Initial Rotational Torque: 3.50 ± 1.50 in-oz (Medium Torque Option)
Rotational Life: 1,000,000 Cycles
Detent Type: Ball Spring
Encoder Coding Technology: Hall Effect

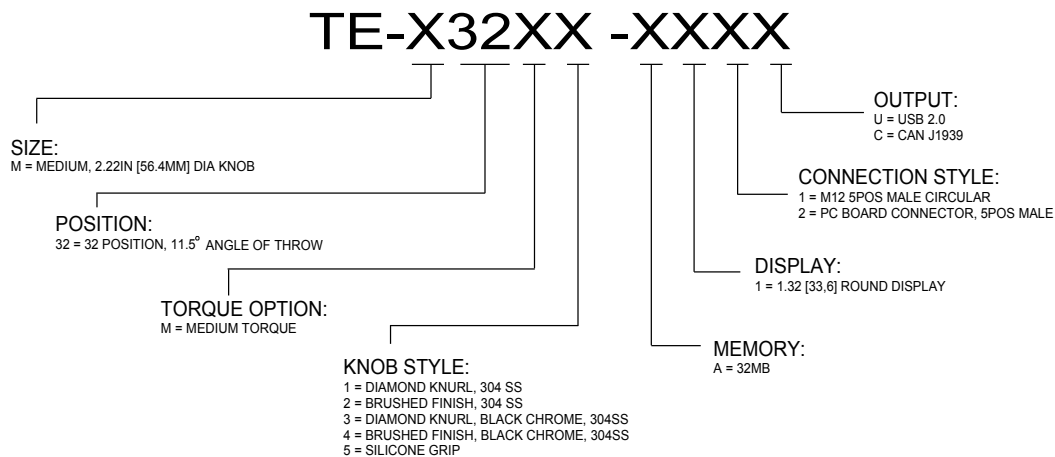
## Mechanical

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: 1k6
Mounting Torque: 4 - 8 in-oz nominal
Mounting Torque (Max): 10 in-oz
M12 Connector Torque (Max): 10 in-oz
M12 Connector Pull-Out: 15 lbs (66.7 N)
Mounting Alignment (Maximum): < 1Deg

## Environmental

Operating Temp. Range: -20 to 65 °C
Storage Temperature: -30 to 70 °C
Humidity: 95% @ 65 °C
Mechanical Shock: ANSI EP455 5.14
Seal (Electronics & Behind Panel): IP67
Radiated Immunity: IEC 6100-4-3 10V/M 80 MHz to 2.5 GHz
Conducted Immunity: IEC 6100-4-6 LEVEL 1 - 120 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
Vibration (Sinusoidal): 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 V/m"

## Part Numbers



## Software Development Kit P/N: TE-M321-SDK (without iPad) & TE-M321-SDKT (with iPad)

### Inside the Kit:

Touch Encoder (32 Positions, Medium Torque)

GIIB App

Wall Outlet Power Supply

CAN Adapter Cable

iPad®

Bluetooth Connectivity

iPad is a registered trademark of Apple Corporation



**Preliminary**

Bulletin 1297  
Rev0418

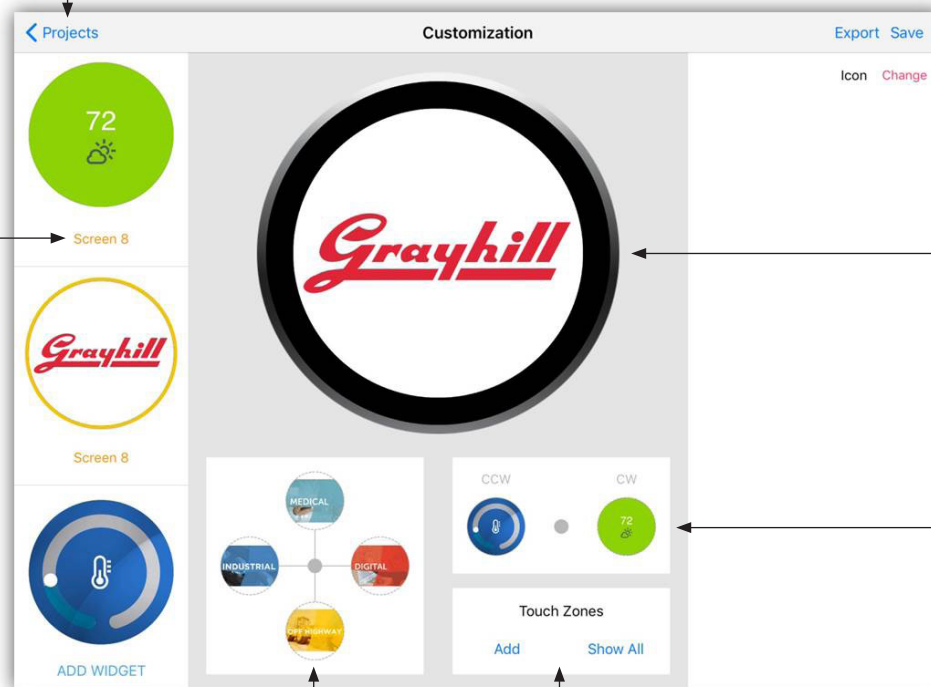
# Simple, Intuitive Application Development using Grayhill GIIB App

Create & store multiple projects

Create individual screens using any combination of widgets (from the widget library), pictures and graphics

Scroll up and down to see all of the screens on your workspace

Drag and drop screens from your workspace into N,S,E,W swipe zones

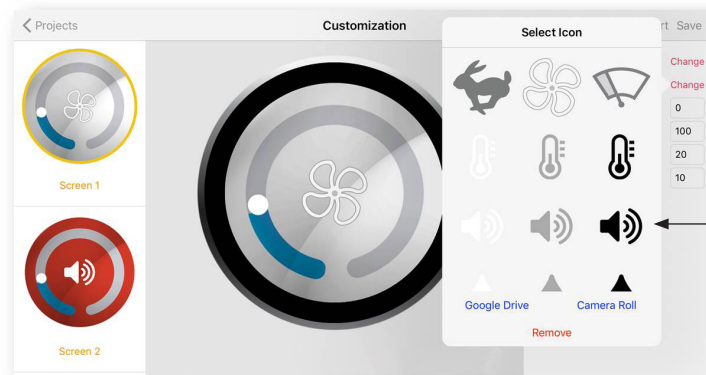


Simulate your program on the iPad before downloading it to the Touch Encoder

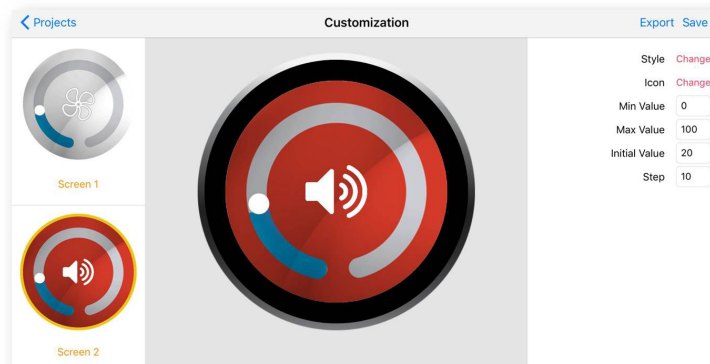
Drag and drop screens from your workspace to define what happens when the knob is rotated

Add touch zones to any screen. Define size and location on the screen

## Fully Customizable Standard Widgets



Select Icon from Menu

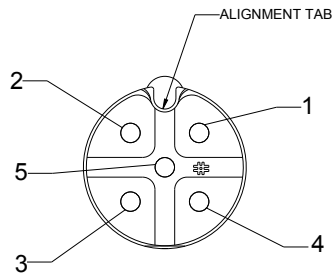


Change Colors

Determine values/increments for rotary movements

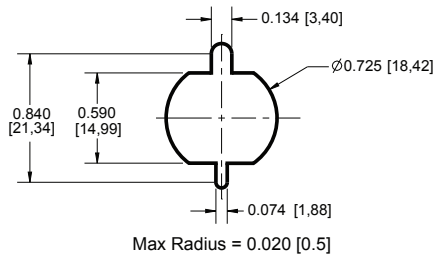
## Pin Numbering Detail

CONNECTOR OUTPUT		
PIN #	USB	CAN
1	USB +	CAN +
2	Mode	Mode
3	V <sub>IN</sub>	V <sub>IN</sub>
4	USB -	CAN -
5	GND	GND

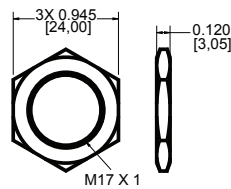


## Mounting Information

Suggested Mounting Pattern  
IN [MM]

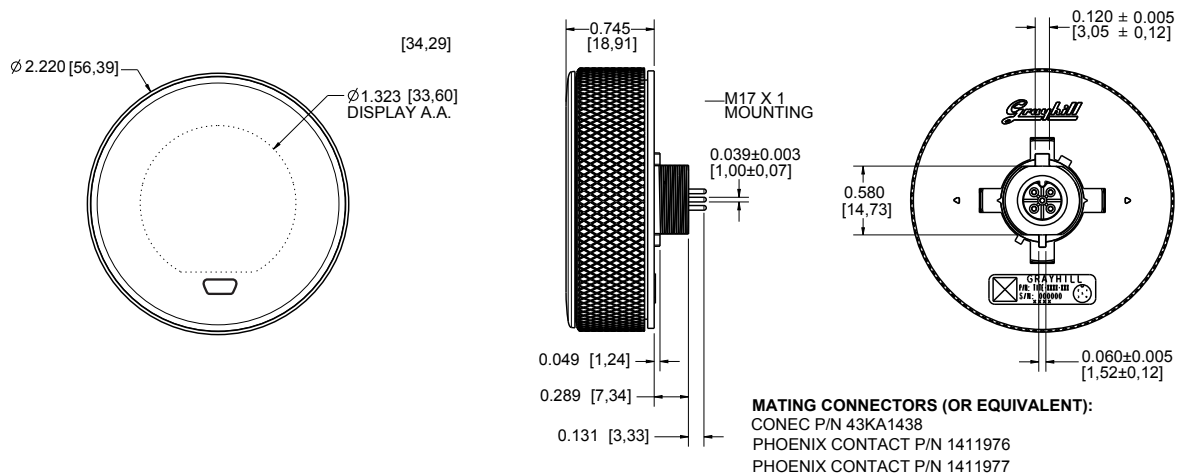


Standard Plastic Mounting Nut  
IN [MM]

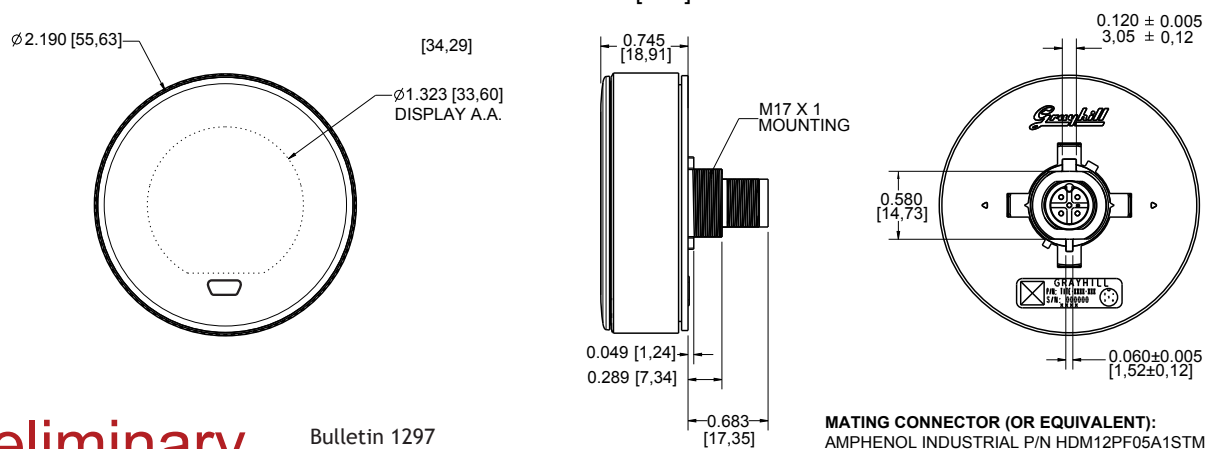


## Dimensions

TE-MXXX1-XX2X (PC Board 5-Position Male)  
IN [MM]



TE-MXXX2-XX1X (M12 5-Position Male)  
IN [MM]



**Preliminary**

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Rev0418