Grayhill

INTUITIVE HUMAN INTERFACE SOLUTIONS

Reimagining the User Experience

Touch Encoder

Stylish

Robust

Vivid Display

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
- Reduce the space required for the User Interface
- 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

Preliminary

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: Ik6

Mounting Torque: 4 - 8 in-oz nomical

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

TE-X32XX -XXXX

SIZE:
M = MEDIUM, 2.22IN [56.4MM] DIA KNOB

POSITION:
32 = 32 POSITION, 11.5° ANGLE OF THROW

TORQUE OPTION:
M = MEDIUM TORQUE

KNOB STYLE:
1 = DIAMOND KNURL, 304 SS
2 = BRUSHED FINISH, 304 SS
3 = DIAMOND KNURL, BLACK CHROME, 304SS
4 = BRUSHED FINISH, BLACK CHROME, 304SS
5 = SILICONE GRIP

MEMORY:
A = 32MB

DISPLAY:
1 = 1.32 [33,6] ROUND DISPLAY

CONNECTION STYLE:
1 = M12 5POS MALE CIRCULAR
2 = PC BOARD CONNECTOR, 5POS MALE

OUTPUT:
U = USB 2.0
C = CAN J1939

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 trade mark of Apple Corporation

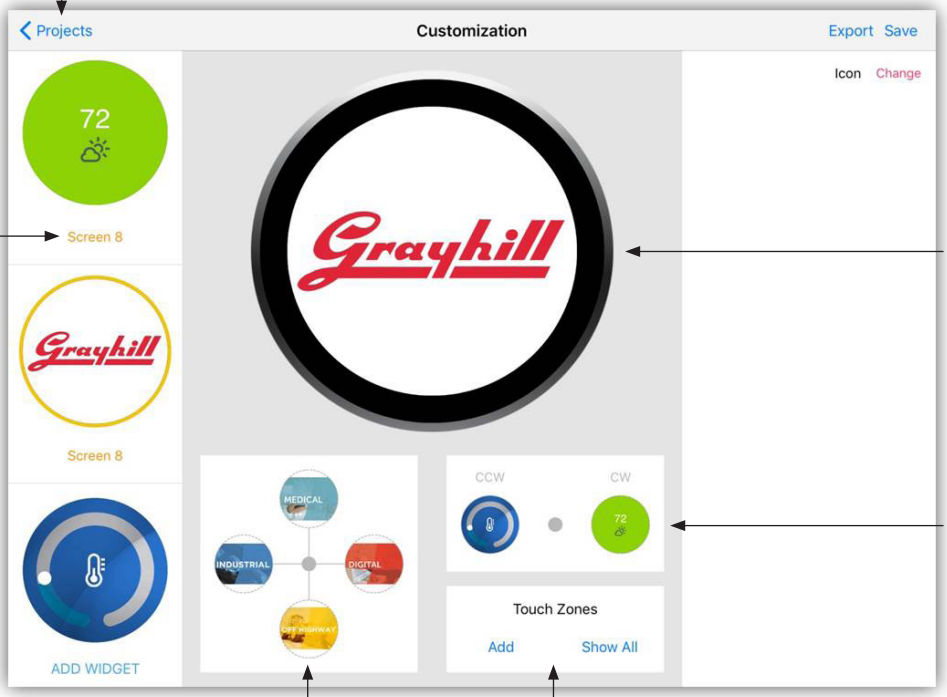
Preliminary

Simple, Intuitive Application Development using Grahill 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



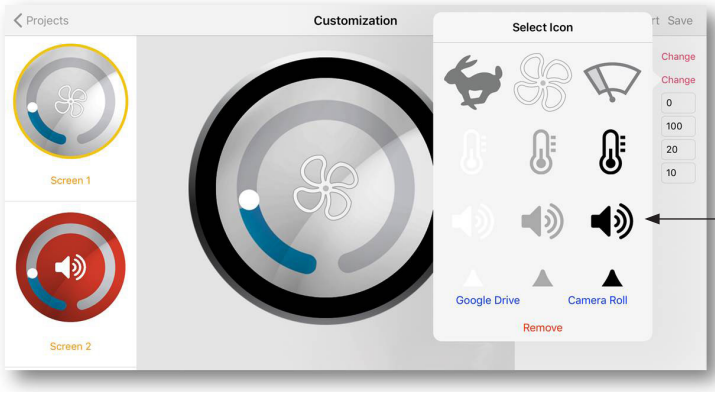
Simulate your program on the iPad before downloading it to the Touch Encoder

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

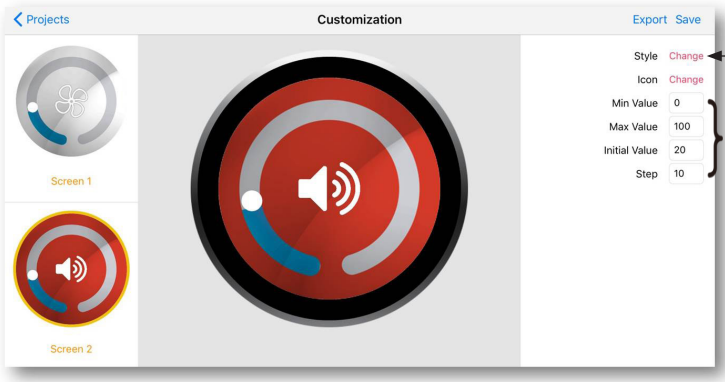
Drag and drop screens from your workspace into N,S,E,W swipe zones

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

Fully Customizable Standard Widgets



Select Icon from Menu



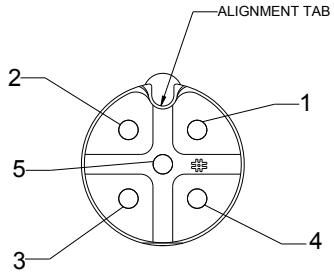
Change Colors

Determine values/increments for rotary movements

Preliminary

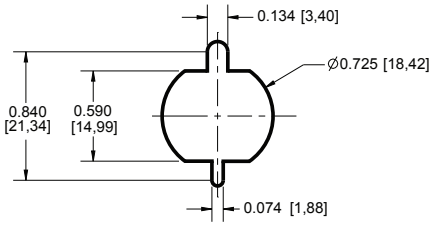
Pin Numbering Detail

CONNECTOR OUTPUT		
PIN #	USB	CAN
1	USB +	CAN +
2	Mode	Mode
3	V_{IN}	V_{IN}
4	USB -	CAN -
5	GND	GND



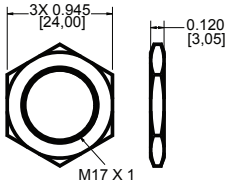
Mounting Information

Suggested Mounting Pattern
IN [MM]



Max Radius = 0.020 [0.5]

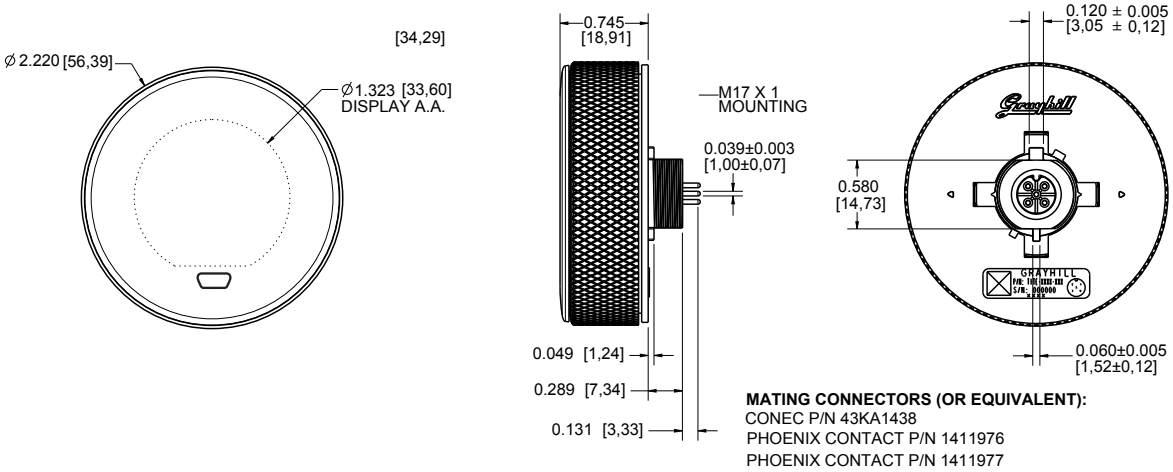
Standard Plastic Mounting Nut
IN [MM]



Dimensions

TE-MXXX1-XX2X (PC Board 5-Position Male)

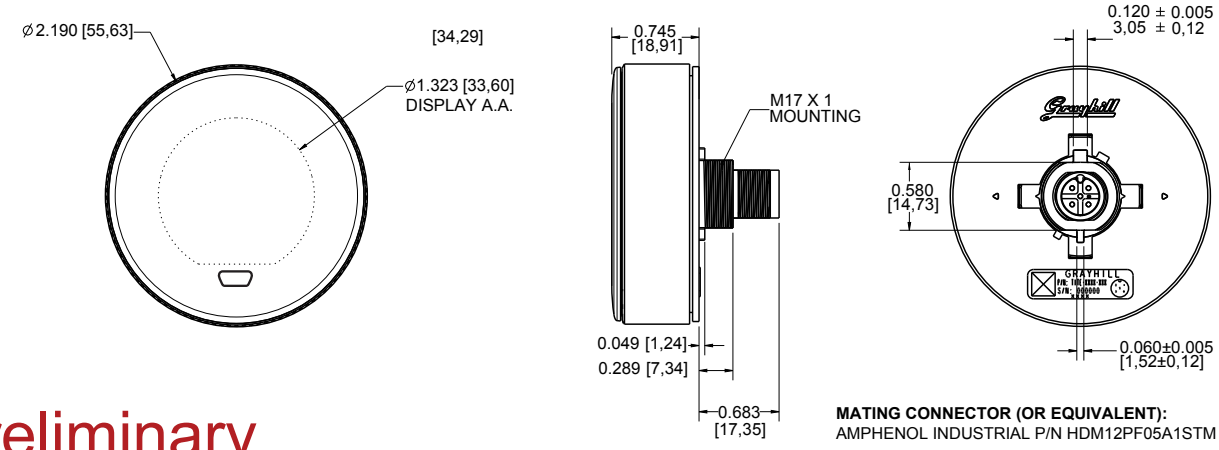
IN [MM]



MATING CONNECTORS (OR EQUIVALENT):
CONEC P/N 43KA1438
PHOENIX CONTACT P/N 1411976
PHOENIX CONTACT P/N 1411977

TE-MXXX2-XX1X (M12 5-Position Male)

IN [MM]



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

Preliminary