

## SERIES 67A Hall Effect Joystick

### FEATURES

- Proportional output
- Shaft and panel seal to IP67
- Compact: 1-inch square flange
- Long operational life
- RoHS compliant

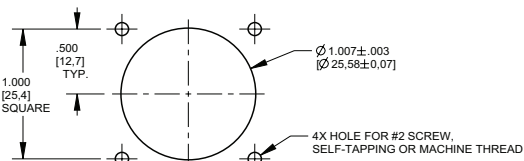
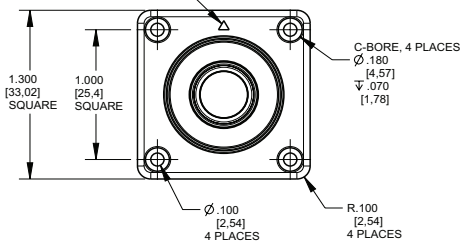
### APPLICATIONS

- Medical
- Military vehicles and devices
- Mobile electronics for outdoor use

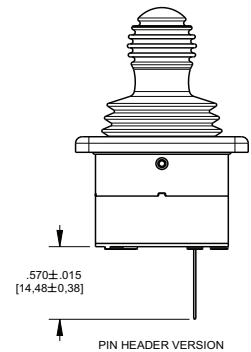
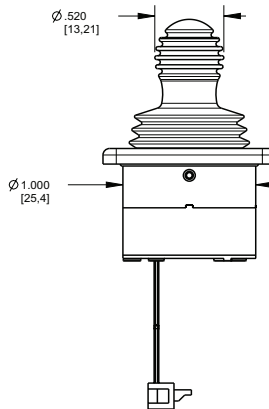
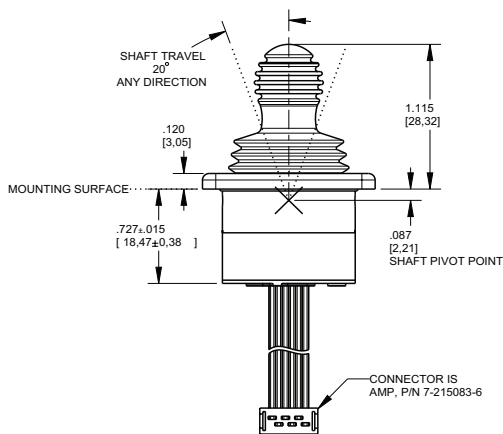


### DIMENSIONS in inches (and millimeters)

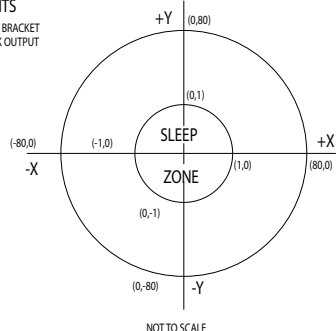
TRIANGLE INDICATES +Y DIRECTION  
FOR JOYSTICK OUTPUT



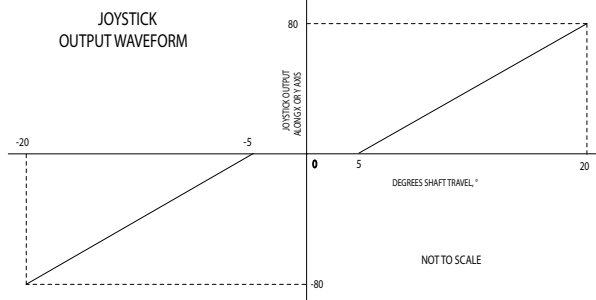
RECOMMENDED PANEL CUTOUT



JOYSTICK  
OPERATIONAL LIMITS  
TRIANGLE MARKING ON MOUNTING BRACKET  
INDICATES +Y DIRECTION FOR JOYSTICK OUTPUT



JOYSTICK  
OUTPUT WAVEFORM



## SPECIFICATIONS

### Electrical Ratings

**Supply Voltage (VDD):** 3.3V  $\pm$  0.3V  
**High Level Input Voltage (VIH, Min):** 0.7\*VDD on SCL & SDA / 0.25\*VDD+0.8 on AIn  
**Low Level Input Voltage (VIL, Max):** 0.3\*VDD on SCL & SDA / 0.15\*VDD on AIn  
**Current Draw In Active Mode (IDD1):** 3mA Maximum @ VDD = 3.3V  
**Current Draw In Sleep Mode (IDD2):** 100uA Maximum @ VDD = 3.3V  
**Maximum Current Sunk By Any I/O Pin:** 25mA  
**Leakage Current:**  $\pm$ 5 nA Typ.,  $\pm$ 125 nA Max  
**Low Level Output Voltage (VOL):** 0.6V On INTn & SDA @ IOL = 6mA, @ VDD = 3.3V  
**Measurement Frequency (Active Mode):** 50 Samples/Sec  
**Response Time, Active Mode (T1):** 20ms\*  
**Response Time, Sleep Mode (T2):** 80ms\*  
**Output @ Maximum Joystick Deflection (XMax, YMax):** 80 Units  
**Output With Joystick Shaft Released (Center Position):** (0,0)  
**Nominal Startup Time (TP, W):** 300ms, Max

### Physical & Mechanical Ratings

**Vibration:** Random, Tested per MIL-STD-810G, Method 514.6, Procedure I  
**Mechanical Shock:** Tested per MIL-STD 202, Method 213B Test Condition A  
**Transit Drop:** Tested per MIL-STD-810G, Method 516.6, Procedure II

**Terminal Strength:** 10 lbs. Minimum, Tested per MIL-STD-202, Method 211A  
**Push-Out Force:** 60 lbs. Minimum  
**Pull-Out Force:** 60 lbs. Minimum  
**Shaft Impact:** 0.5 lbs. Weight dropped 20x from height of 1m  
**Shaft Side-Load:** 45 lbs. Minimum  
**Mounting Torque:** 3-5 in-lbs recommended, 8 in-lbs. Maximum  
**Joystick Life:** 1 million cycles minimum\*\*

### Environmental Ratings

**Seal:** IP67, Tested per IEC 60529  
**Altitude:** Tested per MIL-STD 202, Method 105C  
**Thermal Shock:** Tested per MIL-STD 202, Method 107G  
**Operating High Temperature:** +85°C, Tested per IEC 68-2-14, Test Na  
**Operating Low Temperature:** -40°C, Tested per IEC 68-2-14, Test Na

**Storage High Temperature:** +100°C,

Tested per IEC 68-2-2, Method Ba

**Storage Low Temperature:** -55°C,

Tested per IEC 68-2-1, Method Aa

**Humidity:** Tested per MIL-STD 202, Method 103B

**Humidity, 85/85:** Tested per MIL-STD 202, Method 103B, 500 hours

**Solar Radiation:** Tested per MIL-STD 810G, Method 505.5, Procedure II

**Chemical Resistance:** Tested per ISO 16750-5

**Dielectric:** Tested per MIL-STD 202G, Method 301

**Insulation Resistance:** Tested per MIL-STD 202G, Method 302

### EMC Ratings

**Radiated Immunity:**

Tested per IEC 61000-4-3

**Conducted Immunity:**

Tested per IEC 61000-4-6

**Radiated Emissions:** Tested per ANSI C63.4

**Conducted Emissions:**

Tested per EN 55022

**Electrostatic Discharge:**

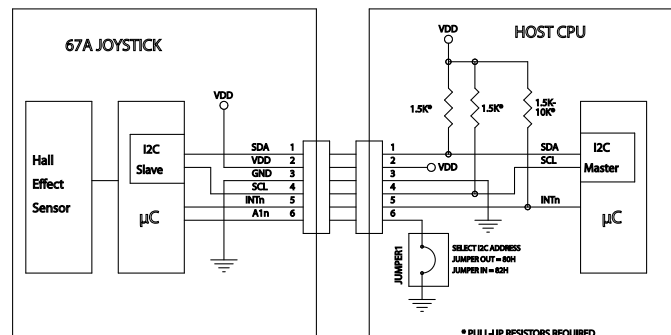
Tested per IEC 61000-4-2

**Power Frequency Magnetic Field:**

Tested per IEC 61000-4-8



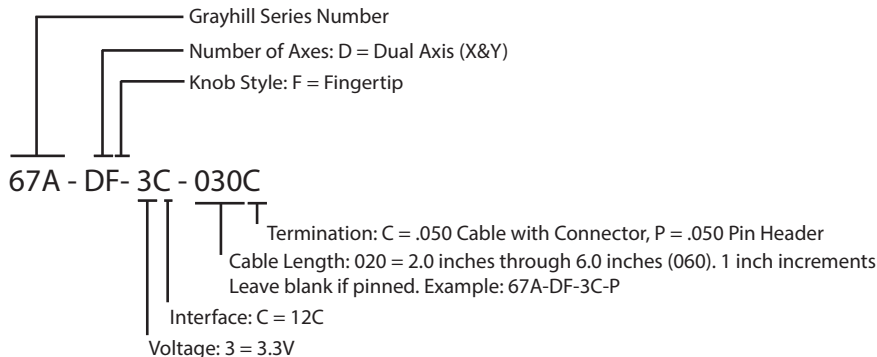
### Block Diagram



\*Response time is the time from joystick movement to when new X,Y position data is available.

\*\*One cycle is defined as a complete revolution of the shaft around the fixed perimeter, or one actuation in each of the 4 main directions, with return to center between each actuation.

## ORDERING INFORMATION



For prices and custom configurations, contact a local sales office, an authorized distributor, or Grayhill's sales department.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Grayhill:

[67A-DF-3C-P](#) [67A-DF-3C-060C](#) [67A-DF-3C-020C](#)