Joysticks

## 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)



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## SPECIFICATIONS

## Electrical Ratings

Supply Voltage (VVD): $3.3 \mathrm{~V} \pm .0 .3 \mathrm{~V}$
High Level Input Voltage (VIH, Min):
0.7*VDD on SCL \& SDA / 0.25*VDD+0.8 on Aln
Low Level Input Voltage (VIL, Max):
$0.3^{*}$ VDD on SCL \& SDA / 0.15*VDD on Aln Current Draw In Active Mode (IDDI): 3mA Maximum @ VDD = 3.3V
Current Draw In Sleep Mode (IDD2): 100uA Maximum @ VDD = 3.3V
Maximum Current Sunk By Any I/O Pin: 25 mA
Leakage Current: $\pm 5 \mathrm{nA}$ Typ., $\pm 125 \mathrm{nA}$ 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): $80 \mathrm{~ms}^{*}$
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-ST-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 1 m
Shaft Side-Load: 45 Ibs . 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: $+85^{\circ} \mathrm{C}$,
Tested per IEC 68-2-14, Test Na
Operating Low Temperature: $-40^{\circ} \mathrm{C}$,
Tested per IEC 68-2-14, Test Na

Storage High Temperature: $+100^{\circ} \mathrm{C}$,
Tested per IEC 68-2-2, Method Ba Storage Low Temperature: $-55^{\circ} \mathrm{C}$,
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

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

Block Diagram

${ }^{* *}$ 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.

