



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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SERIES 67B

Hall Effect Joystick

FEATURES

- Proportional output joystick, pushbutton, & momentary rotary select in one device
- Shaft and panel seal to IP67
- Rugged and compact: 1.25 inch diameter
- Long operational life
- RoHS compliant
- i²c output (see www.grayhill.com for User Manual)

APPLICATIONS

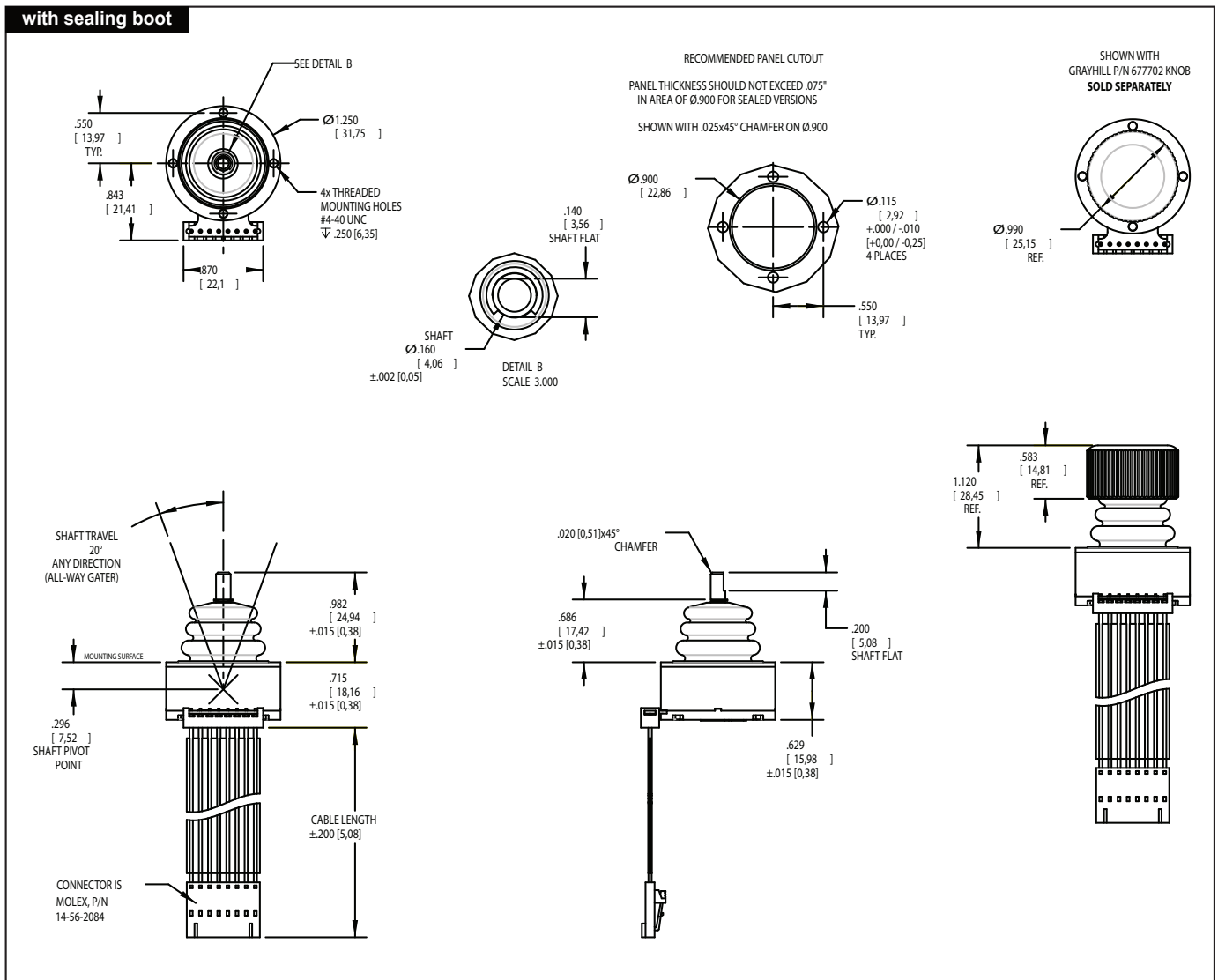
- Medical imaging - X-ray, CT scanner, MRI patient tables
- Military vehicles - display navigation
- Handheld remote control devices
- Material handling equipment and crane operations



Actual Size

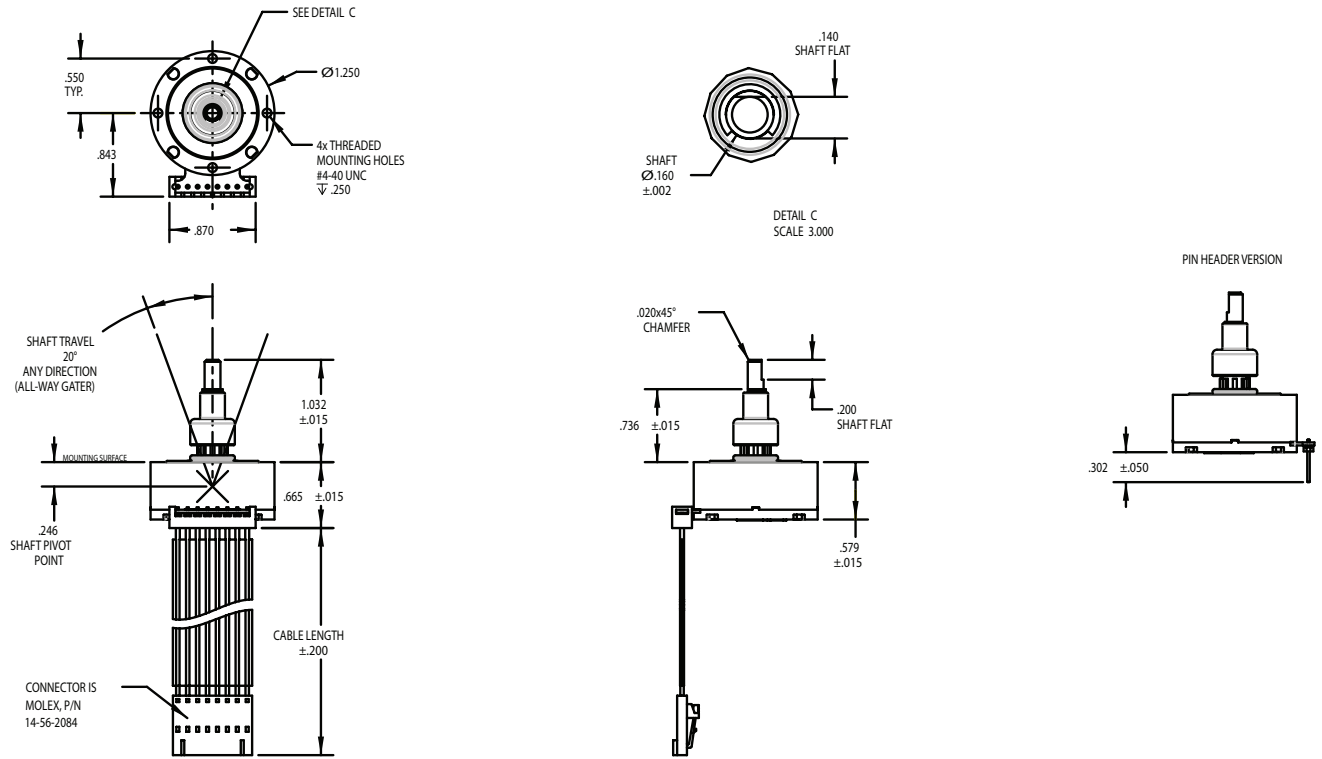
DIMENSIONS in inches [millimeters]

with sealing boot



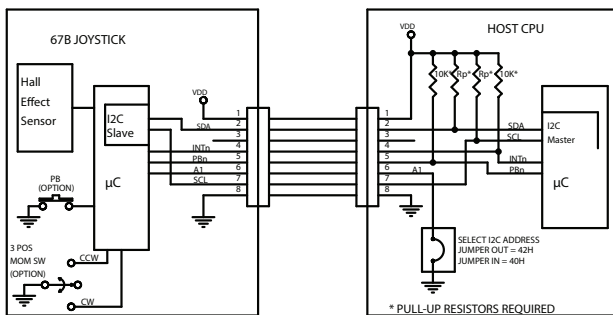
DIMENSIONS in inches [millimeters]

without sealing boot

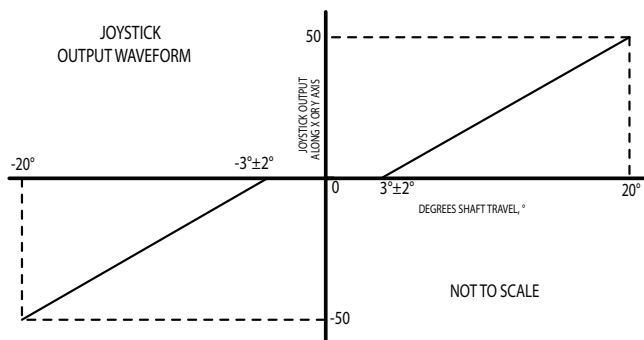


BLOCK DIAGRAM & JOYSTICK OUTPUT WAVEFORM

BLOCK DIAGRAM

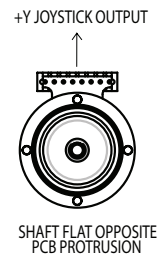
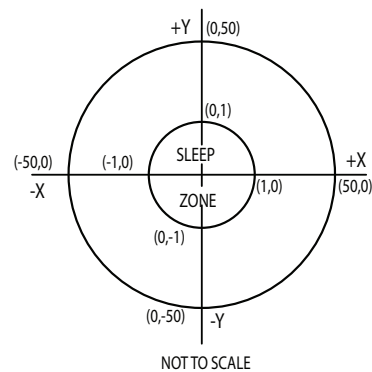


JOYSTICK OUTPUT WAVEFORM



JOYSTICK OPERATIONAL LIMITS

SIDE OF PRINTED CIRCUIT BOARD PROTRUSION INDICATES +Y DIRECTION FOR JOYSTICK OUTPUT



SPECIFICATIONS

Electrical Ratings

Supply Voltage (VVD): 3.3V \pm 0.3V
High Level Input Voltage (VIH, Min): 0.7*VDD on SCL & SDA / 0.25*VDD+0.8 on AI
Low Level Input Voltage (VIL, Max): 0.3*VDD on SCL & SDA / 0.15*VDD on AI
Current Draw In Active Mode (IDD1): 3mA Maximum @ VDD = 3.3V (J & P options only)
Current Draw In Sleep Mode (IDD2): 100uA Maximum @ VDD = 3.3V (J & P options only)
Current Draw in Active Mode (IDD3): 4mA Maximum @ VDD = 3.3V (R option has active mode only)
Typical Operating Current: 4.0 mA at Vcc = 3.3V, T = 25°C
Maximum Operating Current: 7.0 mA over 3.0 \leq Vcc \leq 3.6V, -40°C \leq T \leq 85°C
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): 50 Units
Output With Joystick Shaft Released (Center Position): (0,0)
Nominal Startup Time (TP, W): 300ms

Physical & Mechanical Ratings

Vibration: Random, Meets MIL-STD-810G, Method 514.6, Procedure I
Mechanical Shock: Meets per MIL-STD 202, Method 213B Test Condition A
Transit Drop: Meets 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 lb. 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**
Pushbutton Life: 1 million actuations, minimum
Rotational Life: 1 million turns, minimum in each direction

Materials and Finishes

Housing: Thermoplastic
Backplate: Thermoplastic
Lockwashers: 304 Stainless Steel
Hex Nuts: 303 Stainless Steel
Shim Washers: 304 Stainless Steel
Shaft: 303 Stainless Steel
Cable Assembly: 26 AWG Stranded Copper Conductors
Connector Body: Thermoplastic
Terminals: Phosphor Bronze
O-Rings: Fluorosilicone
Sealing Boot: Silicone Rubber Molded over Thermoplastic Insert

Environmental Ratings

Seal: IP67, Meets IEC 60529 (sealed version only)
Altitude: Tested per MIL-STD 202, Method 105C
Thermal Shock: Meets 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: Meets MIL-STD 202, Method 103B
Humidity, 85/85: 500 hours tested per MIL-STD 202, Method 103B
Solar Radiation: Tested per MIL-STD 810G, Method 505.5, Procedure II
Chemical Resistance: Meets ISO 16750-5
Dielectric: Meets MIL-STD 202G, Method 301
Insulation Resistance: Tested per MIL-STD 202G, Method 302

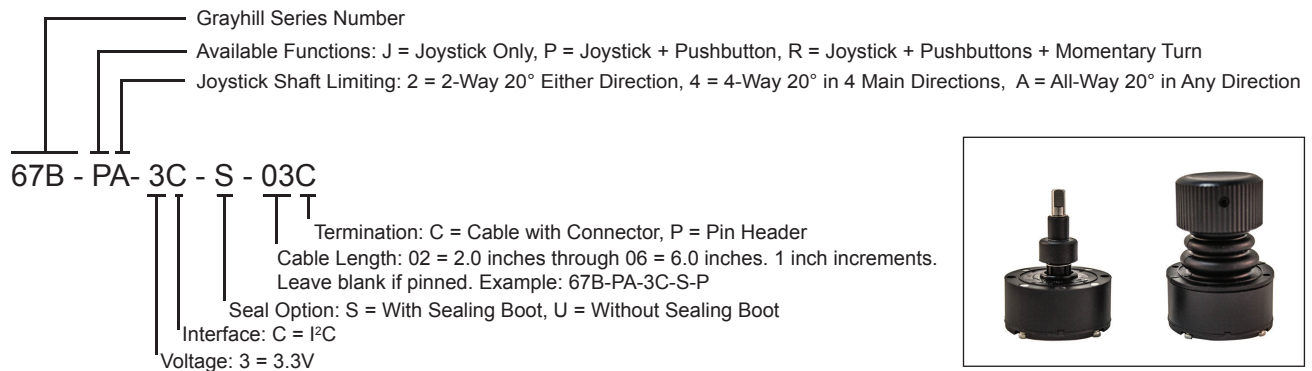
EMC Ratings

Radiated Immunity: Meets IEC 61000-4-3, 10 V/m, 80 MHz-1000 MHz
Conducted Immunity: Meets IEC 61000-4-6, 10 V RMS, 150 KHz to 80 MHz
Radiated Emissions: Meets ANSI C63.4, Class B
Conducted Emissions: Meets EN 55022, Class B
Electrostatic Discharge: Meets IEC 61000-4-2, 8 kV contact/15 kV air discharge
Power Frequency Magnetic Field: Meets IEC 61000-4-8, 30 A/m

*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



Pictured with knob, p/n: 677702

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



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