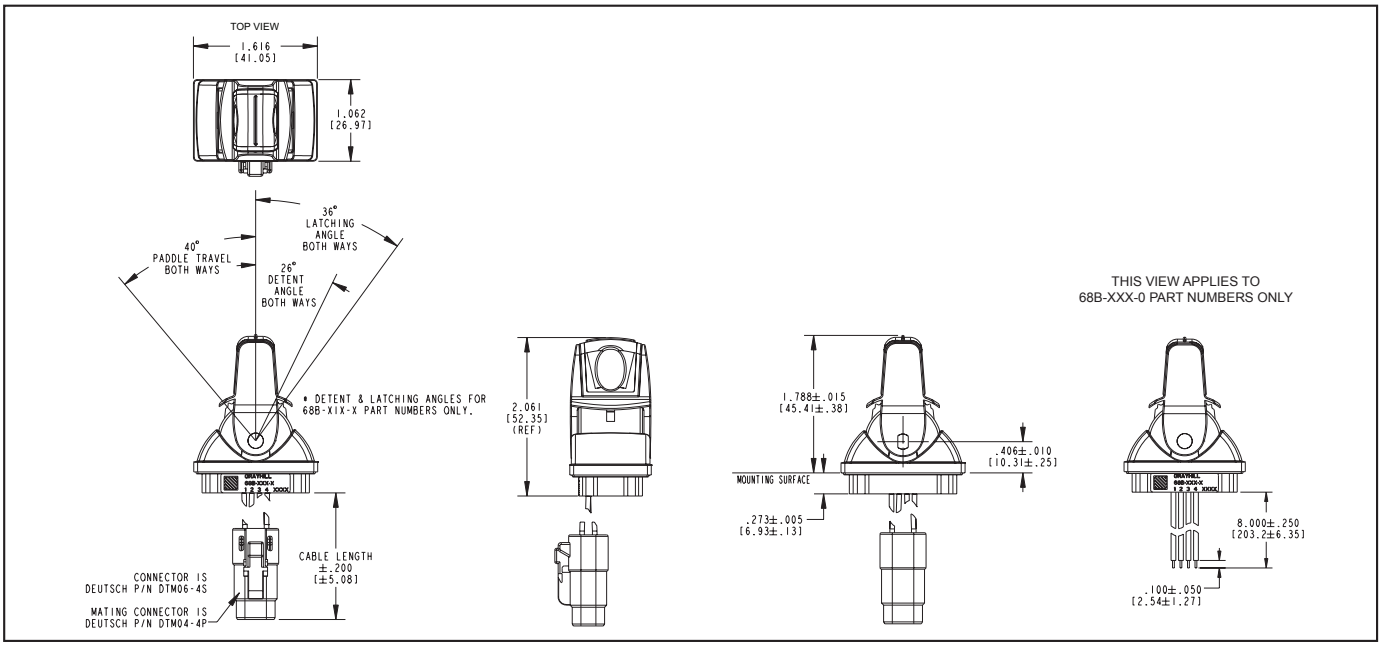
SERIES 68B
Hall Effect Rocker Switch

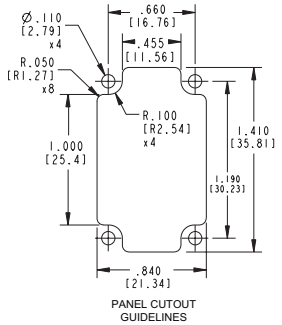
FEATURES
- Ratiometric analog output
- Sealed to IP67 dynamic - even during actuation
- Rugged industrial design suited for outdoor use
- Provides positive tactile feedback in any environment
- Long operational life
- Redundant output for safety
- Available with 26°detent and 36° latching, friction hold, or spring return (no detent)
- Choices of cable length
- Choices of accent color

APPLICATIONS
- Dash-panel and armrest controls
- Hydraulic fluid flow control
- Engine speed control
- Heavy duty industrial equipment
- Remote control belly boxes

DIMENSIONS in inches, [mm]

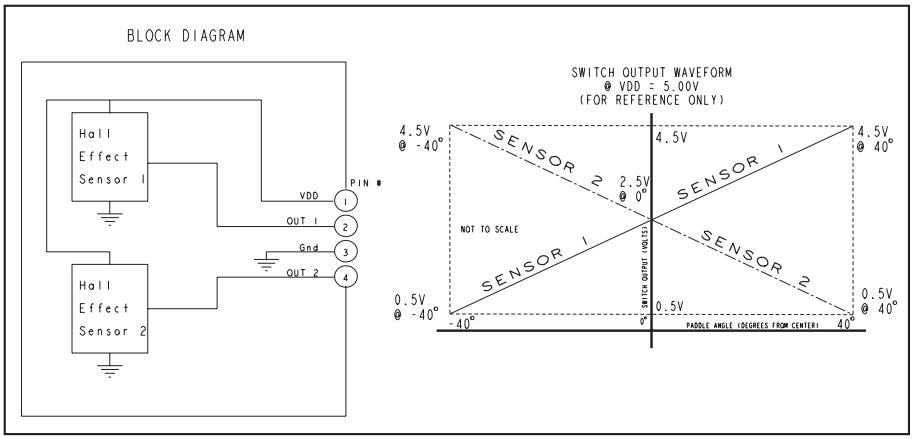


MOUNTING PANEL OPTIONS

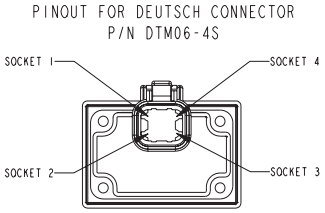


Mounting Panel Recommendations
1. Fasteners should be #4 thread forming screws for plastic.
2. Mounting torque to be 3-5 in-lbs, 8 in-lbs maximum.
3. Diameter of mounting holes in customer panel to be 0.110" [2.8mm]. Diameter of mounting holes in switch are 0.100" [2.54mm].
4. Length of mounting screws to be: (panel thickness) + 0.140" [3.56mm] or less
5. Minimum spacing between two units is 1.080" [27.43mm] from centerline to centerline

BLOCK DIAGRAM & JOYSTICK OUTPUT WAVEFORM



PINOUT AND WIRE COLOR CHART



PINOUT		
TERMINAL #	FUNCTION	WIRE COLOR
1	VDD, +5V NOMINAL	RED
2	OUTPUT, SENSOR 1	WHITE
3	GROUND	BLACK
4	OUTPUT, SENSOR 2	GREEN

SPECIFICATIONS

Electrical Specifications

Operating Voltage on Pin 1 (VDD): 5.0V ± 0.5V
Absolute Maximum Voltage* on Pin 1 (VDD): -18 V min, +18 V max (t < 1 h)
Operating Current: 15 mA typ., 20 mA, max.
Output Voltage is Analog (Ratiometric to Operating Voltage)
Output at Center Position: 50% VDD
Output at Full Travel: 10% VDD or 90% VDD depending on configuration
Output Voltage Tolerance:
± 3% VDD at full travel
± 5% VDD at center position
Output Current: 1 mA, max.
Recommended Load: 10 K Ohm pull-down resistor.
Sensor Error: When a sensor error occurs, the output goes to < 4% of operating voltage (VDD)

*Exceeding the Absolute Maximum Voltage may result in permanent damage to the device. This is a stress rating only and functional operation of the device at those or any other conditions above those indicated in the operation listings of this specification is not implied.

Physical & Mechanical Ratings

Vibration: Random, meets MIL-STD-810G, Method 514.6, Procedure I
Mechanical Shock: Meets MIL-STD 202, Method 213B Test Condition A
Transit Drop: Meets MIL-STD-810G, Method 516.6, Procedure II
Terminal Strength: 10 lbs. minimum, tested per MIL-STD-202, Method 211A
Push-Out Force: 45 lbs. minimum
Pull-Out Force: 45 lbs. minimum
Paddle Impact: 0.5 lbs. weight dropped 3x from height of 0.3m
Paddle Side-Load: 45 lbs. minimum
Mounting Torque: 3-5 in-lbs recommended, 8 in-lbs maximum
Latching Actuation Force: 1300g PEAK ± 300g
Detent Actuation Force: 800g PEAK ± 200g
Return to Center Life: 2 million cycles minimum**
Detent Life: 200,000 cycles minimum
Latching Life: 200,000 cycles minimum
Friction Hold Life: 200,000 cycles minimum

** One cycle is defined as full travel from the center to the +40° direction, then full travel to the -40° direction, then return to the center

Environmental Ratings

Seal: IP67 as mounted
Altitude: Meets MIL-STD-810G, Method 500.4, Procedure I
Thermal Shock: Meets MIL-STD-810G, Method 503.4, Procedure I
Operating High Temperature: +85°C, Meets IEC 68-2-2, Test Aa
Operating Low Temperature: -40°C, Meets IEC 68-2-1, Test Aa
Storage High Temperature: +100°C, Meets IEC 68-2-2, Method Aa
Storage Low Temperature: -55°C, Meets IEC 68-2-1, Method Aa
Damp Heat Cycle: Meets IEC/EN 60068-2-38 Z/AD
Humidity, 85/85: Meets MIL-STD 202, Method 103B, 500 hours
Solar Radiation: Meets ISO 4892-2, Method A, Cycle 1, 1000 hours
Chemical Resistance: Meets IEC 60068-2-74
Salt Fog: Meets MIL STD 810G
Dielectric: Meets MIL-STD-202G, Method 301
Insulation Resistance: Meets MIL-STD-202G, Method 302

Materials and Finishes

Paddle: Thermoplastic with elastomer finger grip
Cable Assembly: 22AWG stranded, tin-coated copper wires in PVC insulation
Connector Body: Thermoplastic
Terminals: Nickel
RoHS Compliant

EMC Ratings

Radiated Immunity: Meets ANSI/ASAE EP455 5.16 (100 V/M, 0.014-1000 MHz, 3 orientations)
Radiated Emissions: Meets ISO 14982, Sec 6.4 (Broadband), Sec 6.5 (Narrowband) limits
Conducted Emissions: Meets CISPR 25, Class 5
Electrostatic Discharge: Meets ANSI/ASAE EP455 5.12, Level 1
Power Frequency Magnetic Field: Meets IEC 61000-4-8, 30 A/m

ORDERING INFORMATION

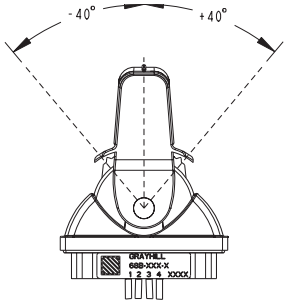
ACCENT COLOR
1 = Black
2 = Blue
3 = Purple
4 = Yellow
5 = Green
6 = Red

PADDLE FUNCTION
0 = No detent or latching
1 = 26° detent + 36° latching
2 = Friction hold
(Custom options available, contact Grayhill)

68B-XXX-X

SUPPLY VOLTAGE*
5 = 5.0V
*Output is proportional to VDD

TERMINATION
0 = No Connector; 8" wires with stripped ends
4 = 4.00" Cable with Deutsch Connector
6 = 6.00" Cable with Deutsch Connector
8 = 8.00" Cable with Deutsch Connector



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