SERIES 68B

Hall Effect Rocker Switch

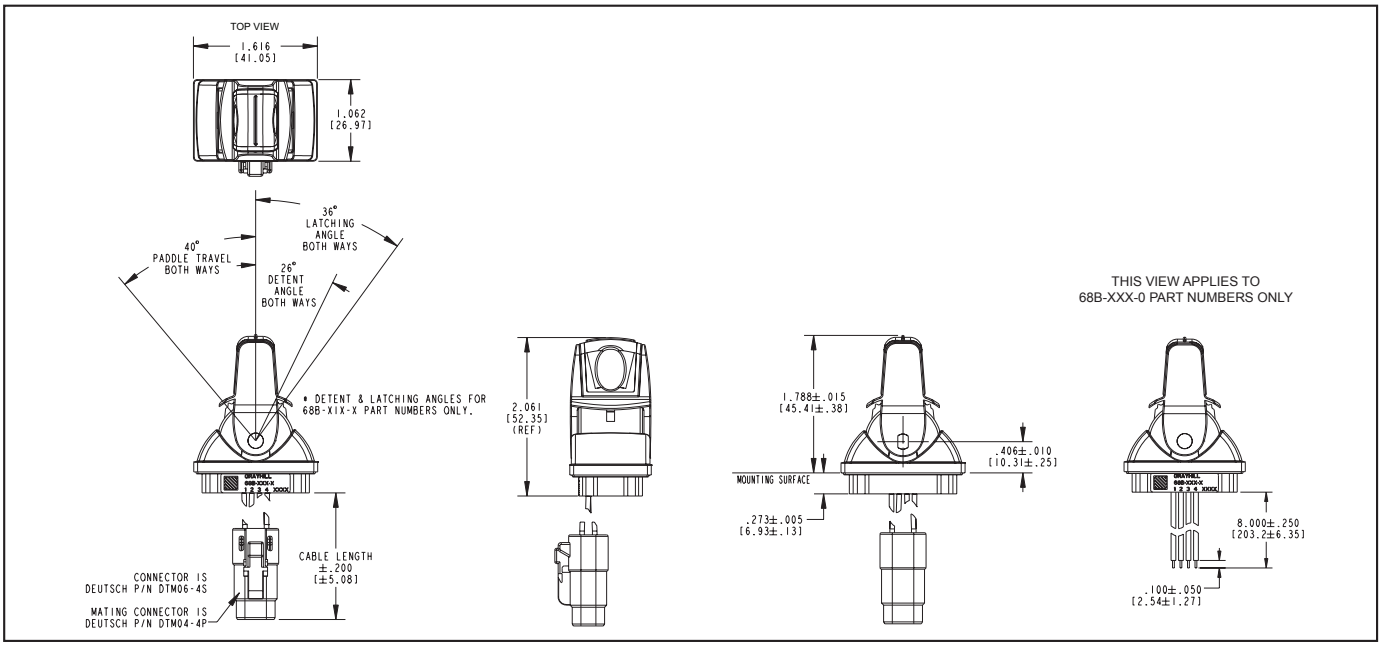
FEATURES

- Choice of ratiometric analog or PWM outputs
- 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

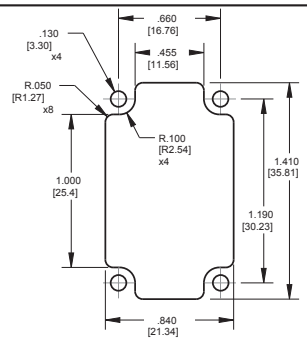
APPLICATIONS

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

DIMENSIONS in inches, [mm]



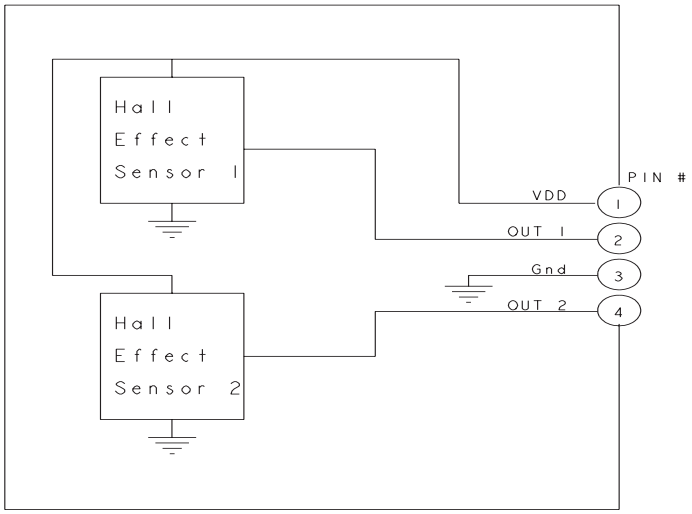
MOUNTING PANEL OPTIONS



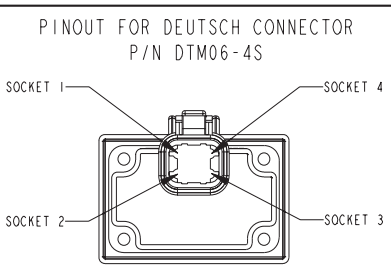
MOUNTING PANEL RECOMMENDATIONS:

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 0.130" [3.30mm]. 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" [27.43 mm] FROM CENTERLINE TO CENTERLINE.

BLOCK DIAGRAM

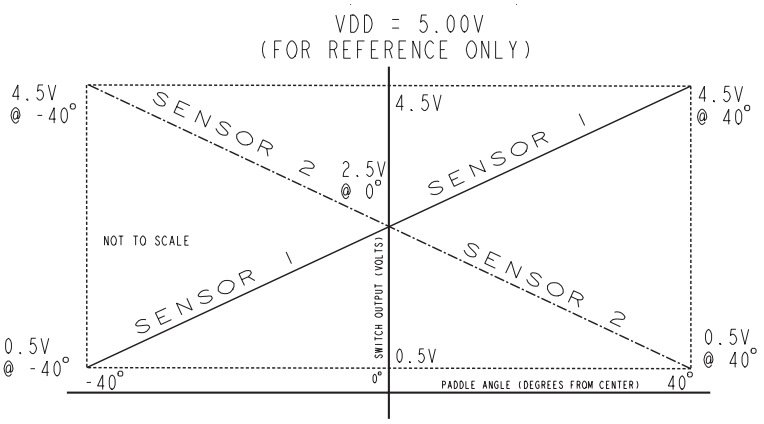


PINOUT AND WIRE COLOR CHART

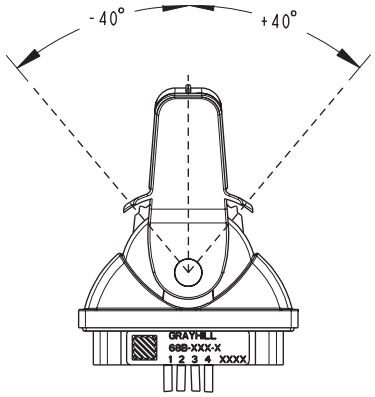


PINOUT		
TERMINAL #	FUNCTION	WIRE COLOR
1	VDD, +5V NOMINAL	RED
2	OUTPUT, SENSOR 1	WHITE
3	GROUND	BLACK
4	OUTPUT, SENSOR 2	GREEN

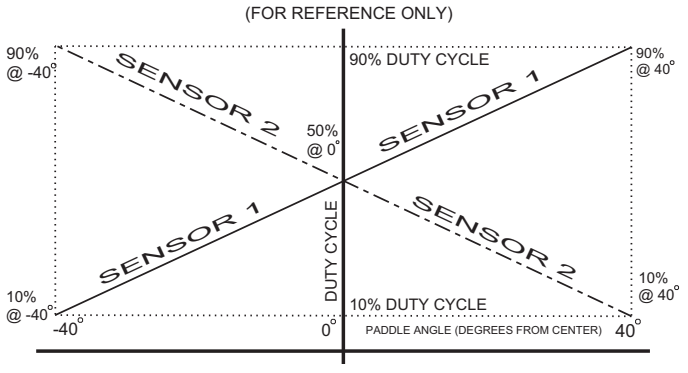
ANALOG OUTPUT WAVEFORM

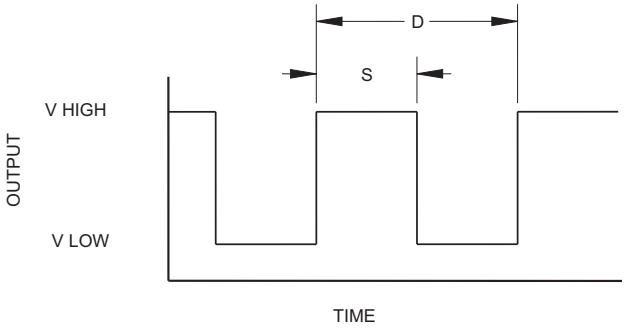


POSITIVE/NEGATIVE DIRECTION REFERENCE



PWM OUTPUT WAVEFORM





DUTY CYCLE DEFINED AS THE RATIO BETWEEN THE HIGH TIME (S) AND THE PERIOD (D) OF THE PWM SIGNAL AS SHOWN IN FIGURE ABOVE.

FAILURE INDICATIONS*		
FAILURE MODE	PWM FREQUENCY	DUTY CYCLE
SENSOR ERROR	50% ± 37.5 Hz	85% OR 95%
OVERVOLTAGE	50% ± 37.5 Hz	75%
UNDERVOLTAGE	50% ± 37.5 Hz	100%

* IN CASE OF ERROR THE SENSOR CHANGES THE PWM FREQUENCY TO 50% OF THE NORMAL OPERATING FREQUENCY

SPECIFICATIONS

Electrical Specifications

Operating Voltage on Pin 1 (V_{DD}): 5.0V ± 0.5V
Absolute Maximum Voltage* on Pin 1 (V_{DD}): -18 V min, +18 V max (t < 1 h)
Operating Current: 15 mA typ., 20 mA, max.

Analog

Output Voltage is Analog (Ratiometric to Operating Voltage)
Output at Center Position: 50% V_{DD}
Output at Full Travel: 10% V_{DD} or 90% V_{DD} depending on configuration
Output Voltage Tolerance:
± 3% V_{DD} at full travel
± 5% V_{DD} 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 (V_{DD})

*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.

PWM

Time from Power-up to Signal Out: 8mS Max
PWM Frequency Tolerance: ± 15%
Center Position Duty Cycle: 50 ± 5%
End Position 1 Duty Cycle: 10 ± 3%
End Position 2 Duty Cycle: 90 ± 3%
VOL: 0.5V typ. @ I < 5mA; V_{DD}= 5.00V
VOH: 4.9V typ. @ I < -1.2mA; V_{DD}= 5.00V
Rocommended Load: 1.0 K Ohm pull-up resistor.

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
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, Method301
Insulation Resistance: Meets MIL-STD-202G, Method 302

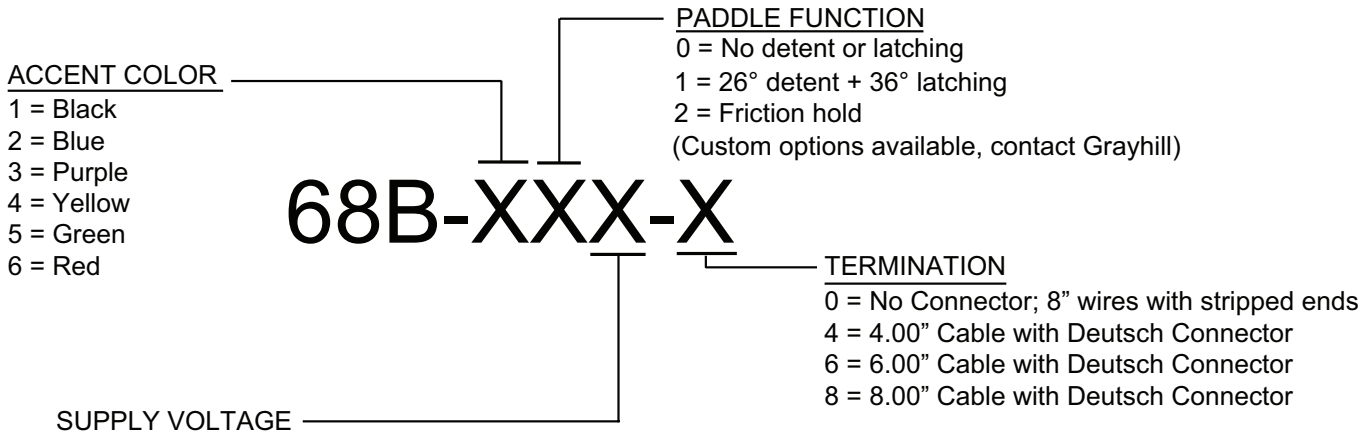
Materials and Finishes

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: At 3 orientations, meets ISO11452-5 (140 V/M, 10KHz-2MHz), ANSI/ASAE EP455 5.16 (100 V/M, 2-200MHz), ISO 11452-2 (140 V/M, 200MHz-1GHz), and ISO 11452-2 (50 V/M, 1GHz-2.7GHz).
Conducted Immunity: Bulk Current Injection Meets ISO11452-4, SAE J1113-4 (120 mA, 1MHz-400MHz)
Radiated Emissions: Meets CISPR25, Class 3 (150kHz - 54MHz), CISPR 16.2.3, Class B (30-1000 MHz) and ISO13766, level 6db (30MHz - 1GHz)
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



*OUTPUT VOLTAGE IS PROPORTIONAL TO VDD

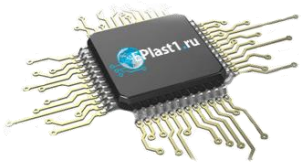
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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