SERIES 67C

Hall Effect Joystick with Integrated Pushbutton & Optical Encoder

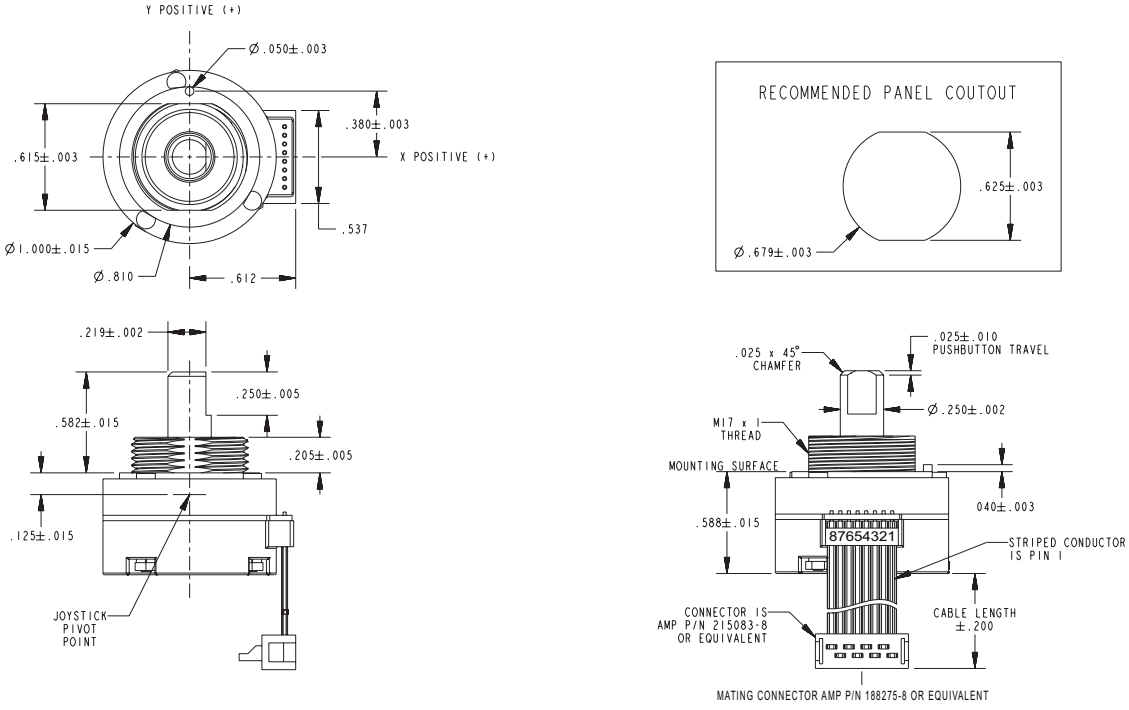
FEATURES

- Proportional joystick, pushbutton & optical encoder functions from a single shaft
- Analog joystick outputs are proportional to angle of shaft deflection
- Long life, high reliability
- Choices of cable length and termination
- Customized solutions available

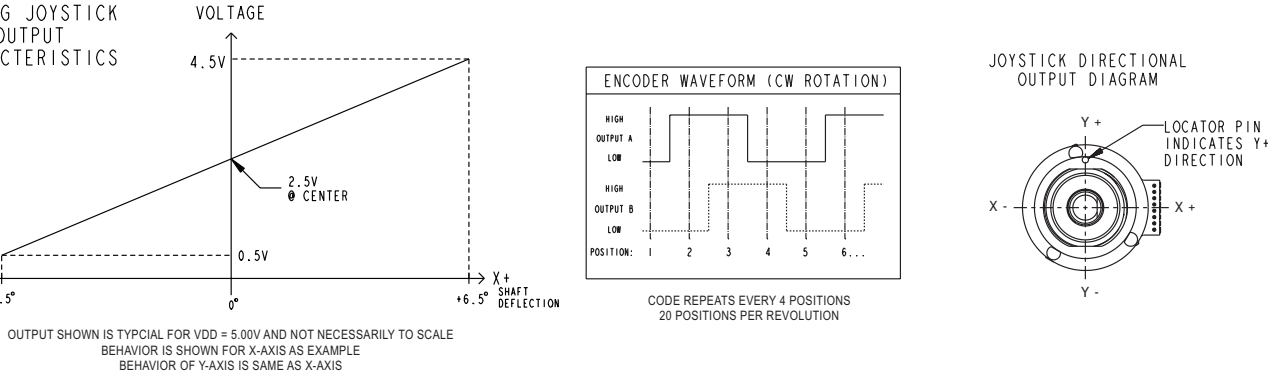
APPLICATIONS

- Global positioning / Driver information systems
- Entertainment equipment
- Medical equipment controls
- Radio control belly boxes
- Robotics
- Aerospace
- Avionics
- Security camera controls

DIMENSIONS in inches



JOYSTICK OUTPUT WAVEFORM



SPECIFICATIONS

General Electrical Specifications

Operating Voltage on Pin 6 (VDD): 5.0 ± 0.25V
Absolute Maximum Voltage* on Pin 6 (VDD): -0.3 V min, 6.5 V max.
Operating Current: 8 mA typ., 12 mA, max.

Joystick Electrical and Mechanical Ratings

Sensing Method: Hall effect, proportional to angle of deflection
Output Voltage (Pins 7 & 8): Analog (Ratiometric to Operating Voltage)
Output at Center Position: 50% VDD
Output at Full Travel:
10% VDD (for X-, Y- directions)
90% VDD (for X+, Y+ directions)
Output Tolerance: ± 2% VDD (at Center and at Full Travel)
Output Current: 200 µA, max.
Angle of Throw: 6.5° + 2° / -1° in main directions; 9.0° ± 0.1° in diagonals
Life: 500,000 actuations in each of the four main directions

Pushbutton Electrical and Mechanical Ratings

Rating: 10 mA at 5 Vdc resistive
Absolute Maximum Voltage* on Pins 2 & 3: 6.0 V
Contact Resistance: less than 10 ohms
Life: 1 million actuations minimum
Contact Bounce: < 4 mS make, <10 mS break
Actuation Force: 960 ± 150 grams (700 grams Dome)
Pushbutton Travel: 0.025 ± 0.010 inches

Rotary Electrical and Mechanical Ratings

Output Code (Pins 4 & 5): 2-Bit quadrature: Channel "A" leads channel "B" by 90° electrically during clockwise rotation of the shaft
Output Type: Push/Pull
Output Low Voltage: 0.6V maximum for IOL = 2 mA.
Output High Voltage: 4.3V minimum for IOH = -1.5 mA, (VDD = 5.0V)
Mechanical Life: 1 million rotational cycles of operation (1 cycle is a rotation through all positions and a full return)
Mounting Torque: 15 in-oz maximum
Shaft Push-Out Force: 45 lbs minimum
Shaft Pull-Out Force: 45 lbs minimum
Solderability: 95% free of pin holes and voids
Detents: 20 Position
Torque: Initially 3.5 ± 1.5 in-oz average of all positions, with a 1.5 in-oz maximum range (Max position - Min position) = Range
After 1 million cycles, average torque shall not change by more than 50% of the initial value

Soldering Recommendation

Hand solder only per IPC J-STD-001

Environmental Ratings

Operating Temperature Range: -40°C to 85°C
Storage Temperature Range: -55°C to 100°C
Relative Humidity: 96 hours at 90-95% humidity at 40°C
Vibration: Harmonic motion with amplitude of 15g, within a varied 10 to 2000 Hz frequency for 12 hours
Mechanical Shock:
Test 1: 100g for 6ms half-sine wave with a velocity change of 12.3 ft/s
Test 2: 100g for 6ms sawtooth wave with a velocity change of 9.7 ft/s

Materials and Finishes

Pin Header: Terminals: Phosphor bronze; Insulator: Nylon 4/6; Plated with tin
Cable: Copper stranded with silver plating in PVC insulation, 28 AWG
Connector: Nylon 4/6; 30% Glass-filled ; Tin-plated phosphor bronze terminals
Mounting Nut: Polyurethane
Shaft: Thermoplastic
ROHS Compliant.

EMC Ratings

Radiated Immunity: Passed 10 V/m: 80-2700 MHz per IEC 61000-4-3
Conducted Immunity: Passed 10 V/m: 0.15 80 MHz per IEC 61000-4-6
Radiated Emissions: Passed EN 55022 Class B
Conducted Emissions: Passed EN 55022 Class B
Electrostatic Discharge: Passed 15kV contact/25kV air discharge per IEC 61000-4-2
Power Frequency Magnetic Field: Passed 30 A/m per IEC 61000-4-8

* 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.

ORDERING INFORMATION

CABLE LENGTH
020 = 2"
040 = 4"
060 = 6"
2" Increments
Leave blank if choosing pin header
Examples:
67C18-8-M-020 = 2.0" cable with connector
67C18-8-M-P = Pin header

JOYSTICK DIRECTIONS
8 = 4 Sensors, 8 Directions (No Gating)

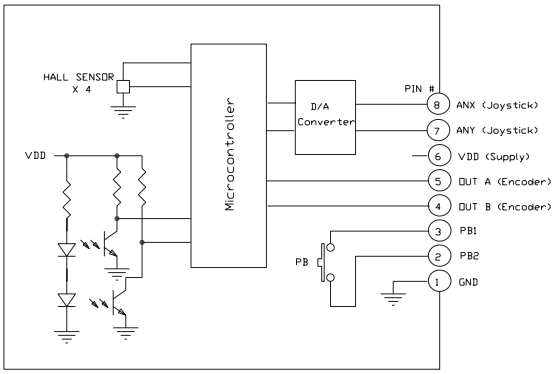
67CXX-X-X-XXXX

FORCE OPTION
M = Medium Forces

ROTATIONAL ENCODER RESOLUTION
18 = 18°, 20 positions
08 = Non-detent, 20 positions
00 = Non-turn

TERMINATION
S = Stripped Cable
C = Cable with Connector
P = Pin Header

BLOCK DIAGRAM



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

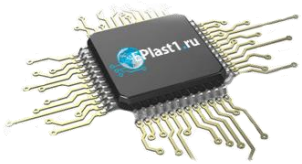
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

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

Телефон: 8 (812) 309 58 32 (многоканальный)
Факс: 8 (812) 320-02-42
Электронная почта: org@eplast1.ru
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.