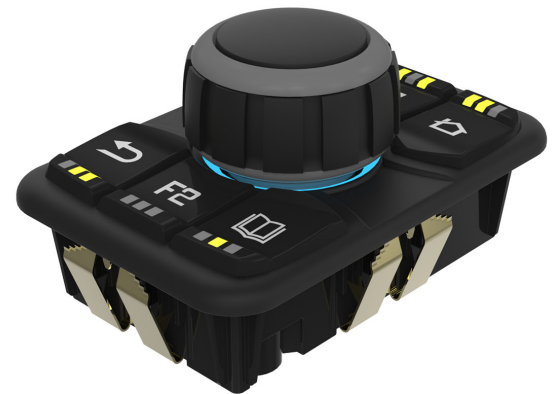


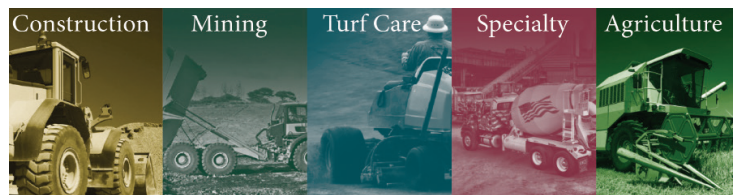
Jog Dial Controllers

Multi-Functional Control for Intuitive Operation

- Three Mechanical Form Factors:
 - Encoder with Pushbutton
 - Joystick Encoder with Pushbutton
 - Proportional Joystick with Pushbutton
- Modern flush styling
- Front no-tool mounting
- Designed for ISO 13849 safety rated vehicles
- Self-Diagnostics Include:
 - Supply Voltage Monitoring
 - Indicator “LED ON” Verification
 - Button Short Circuit Detection
- J1939 and CANopen versions
- Operating Temp: -40°C to +85°C
- Designed for 12/24 volt systems
- Custom legends and configurations
- Dimmable LED indicators and legends
- Sealed to IP67
- Vibration and impact resistant
- Sleep mode for +Vbat applications (>1mA)

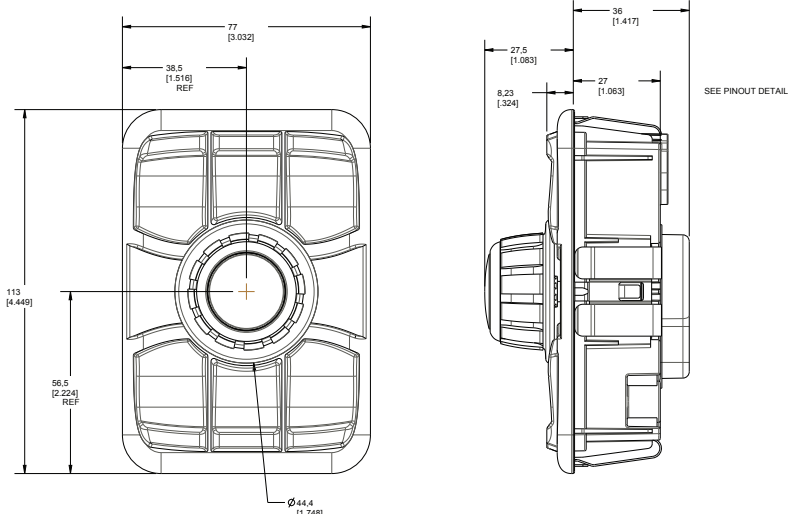


PRELIMINARY

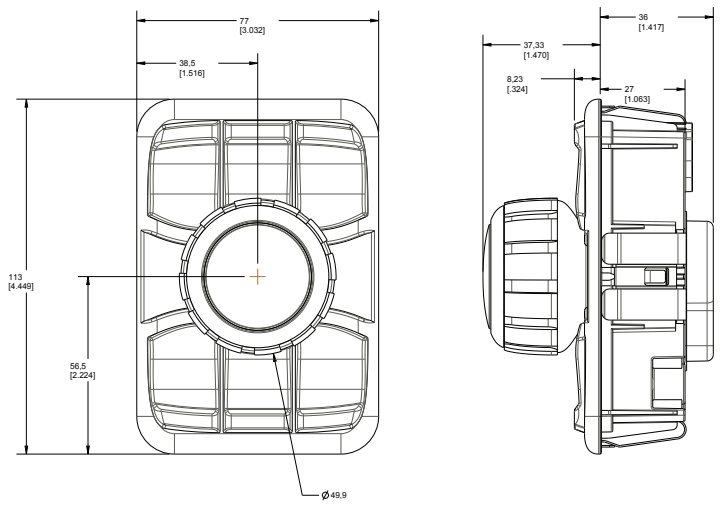


DIMENSIONS in mm [inch]

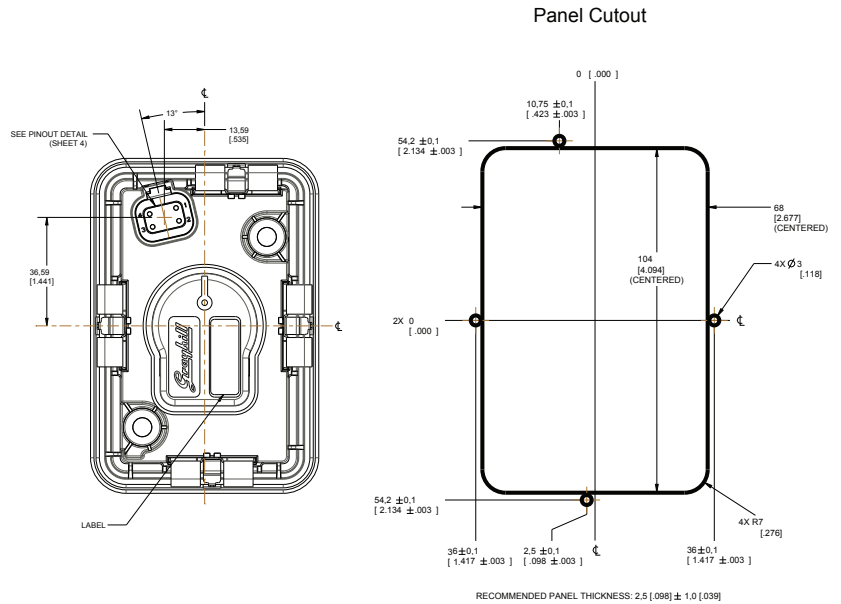
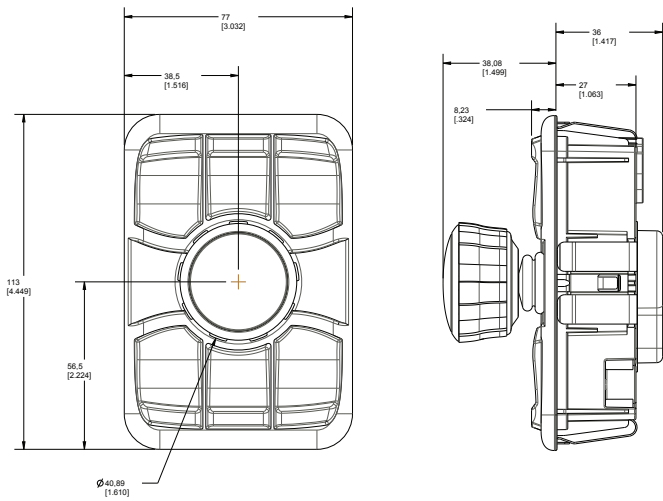
3JX0X5-G2-100X
ROTARY ENCODER VERSION



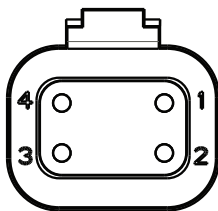
3JX115-G2-100X
DIGITAL JOYSTICK VERSION



3JX2X5-G2-100X / 3JX305-G2-100X
PROPORTIONAL JOYSTICK / DUAL PROPORTIONAL OUTPUT VERSION



CONNECTOR: MATES WITH DEUTSCH #DT04 - 4S WITH W4S WEDGE LOCK.

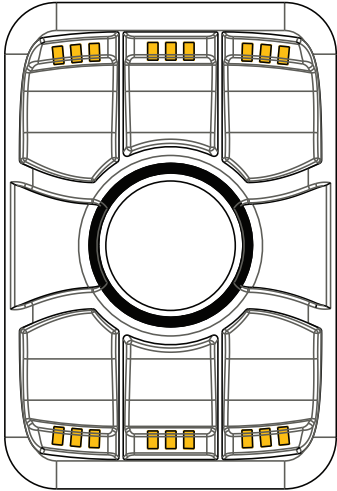


PIN	SIGNAL
1	POWER
2	GROUND
3	CAN_H
4	CAN_L

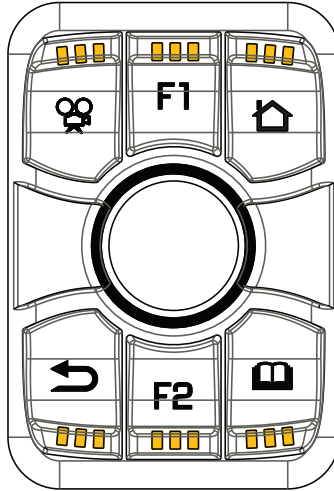
PRELIMINARY

STANDARD KEYPAD SYMBOL OPTIONS

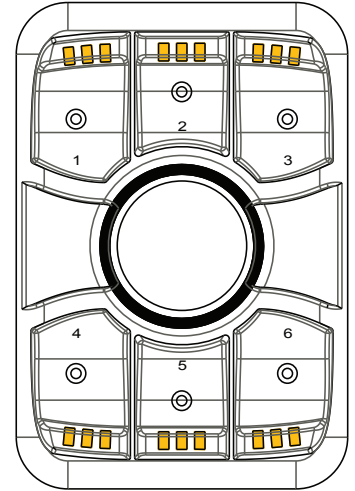
-0: BLANK



-1: ISO SYMBOLS



-2: GENERIC TARGETS

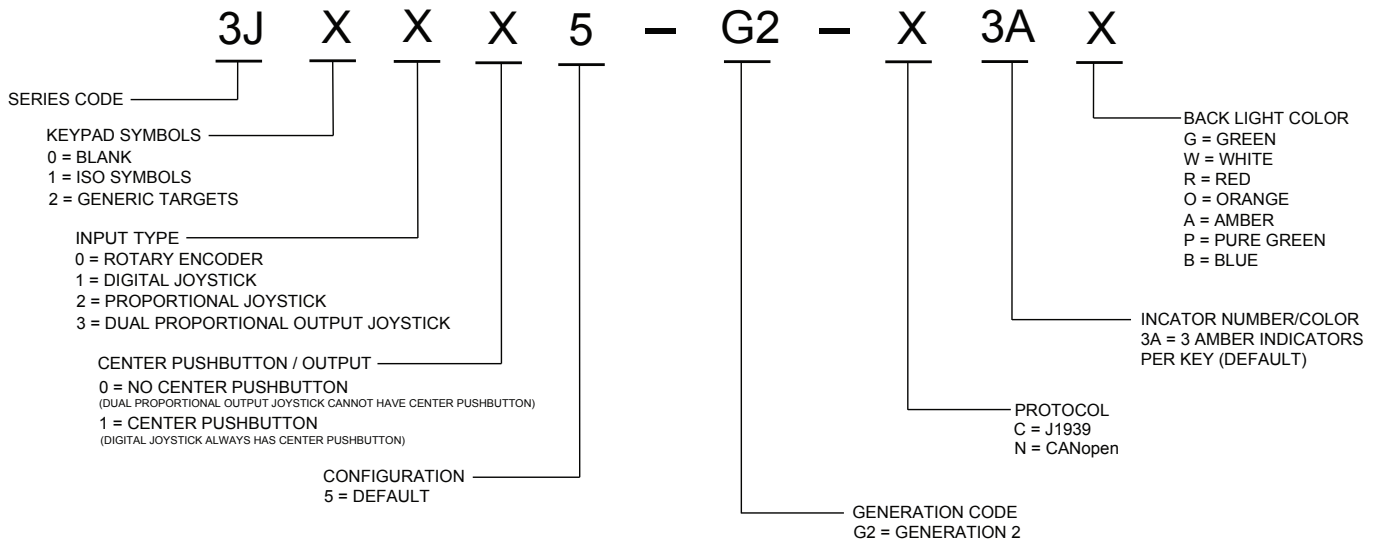


Contact us about custom knob colors!

NEW CAN FEATURES!

Compatible to ISO 11898-2 (2016) as follows:

- Advanced Bus Biasing - Low Power During Sleep Mode
- CAN FD Tolerant
- CAN Partial Networking - Activate on specific CAN ID and for low power modes)



PRELIMINARY



ENVIRONMENTAL SPECIFICATIONS

Operating temperature	ISO 16750-4 5.1.1.2 ISO 16750-4 5.1.2.2	Low temperature -40°C for 24hrs High temperature +85°C for 96hrs
Storage Temperature	ISO 16750-4 5.1.1.1 ISO 16750-4 5.1.2.1	Low temperature -40°C High temperature +85°C
Thermal Shock (Ice Water Shock Test)	ISO 16750-4 5.4.3	High temperature +85 °C
Altitude (Barometric Pressure)	MIL-STD-202G Method 105C Test Condition B	Sea level to 15240m (101.3 kPa to 11.6 kPa), Exposure Time: 1 hour
Sand and Dust	ISO16750-4 5.10	
Shipping Integrity	ISTA procedure 3A	
Solar Radiation	ISO 4892-2 Method A Cycle 1	Duration: 300 hours
Ingress Protection	IEC 60529 / ISO20653 - IP67/IP69K	Dust - Talcum powder Liquid - 1m submersion for 30 minutes Wash down - 14L/min @ 8kPa 80C (apply to keypads, VDC knob will not survive temp)
Wash Down	SAE J1211 Section 4.4 >>ISO 60529 / ISO20653	375 kPa and 8.3 L/min for 10 minutes @ 15°C
Humidity	ISO 16750-4 5.7	96% Humidity at +35°C, Duration: 240 hours
Salt Fog	ISO 16750-4 5.5.1	5% aqueous solution of NaCl @ 35°C and a pH between 6.5 and 7.2 for 48 hours
Thermal Cycling (Change of Temperature)	ISO 16750-4 5.3.1	Low temperature: -40° High Temperature: +85° C, Profile per Table 2
Extended Duration temperature and humidity cycling	SAE J1211, Section 4.2, Fig. 3A Voltage per ISO16750-1 24V system	12 Hour Combined Environmental Cycle Profile Duration: 1200 Hours High Temperature: +85° C Low Temperature: -40° C Relative Humidity at Max Temp = 70% Units to be powered during test.

MECHANICAL PERFORMANCE

Vibration, Random	ANSI/ASAE EP455 5.15.1	2 hours each axis @ 52.4 m/s ² rms overall acceleration and spectral power density of 2m ² /s ³ from 50Hz to 2000Hz
Vibration, Sinusoidal	ANSI/ASAE EP455 5.15.2	A logarithmic sweep from 10 Hz to 2000Hz to 10Hz over a period of 20 minutes for 4 hours in each of 3 orthogonal axes with amplitude of 1.5mm from 10Hz to 40Hz and a constant acceleration of 35 m/s ² RMS from 40Hz to 2000Hz
Shock/Crash Safety	ANSI/ASAE EP455 5.14	A single 11ms half sine pulse of 490 m/s ² in 3 perpendicular axes
Drop	ANSI/ASAE EP455 5.14.2 Level 1	Drop Component 400mm onto a hardwood benchtop on all practical edges
Shipping Integrity	International Safe Transit Agency Procedure 3A	
Operational Life	Internal Testing Procedure	6-Button Keypad Center Pushbutton Rotary Encoder Optical Joystick Proportional Joystick Momentary-turn Encoder

ELECTRICAL PERFORMANCE SPECIFICATIONS

Maximum Load	ANSI/ASAE EP455 5.1.1	-40° C for 4 hours to +85° C for 11 hours. Max Load Applied
Jump Start Forward Voltage	ISO 16750-2	36V for 60 Minutes
Jump Start Reverse Voltage	ISO 16750-2	-36V for 60 Minutes
Short Circuit Protection	ISO 16750-2	All outputs to ground for 60 seconds
Reverse Polarity Protection	ISO 16750-2	28 V for 60 seconds
Starting Profile	ISO 16750-2	Class A
Battery-less operation	ANSI/ASAE EP455 5.11.3 Level 2	Apply 6+12.6Sin(2*pi*f*t) is swept from 500Hz to 1.5kHz, 5 minutes
Load Dump	ISO 7637-2 Test Pulse 5b	Class A
Switching Spikes - negative	ISO 7637-2 Test Pulse 3a	Class A
Switching Spike - positive	ISO 7637-2 Test Pulse 3b	Class A
Wire Harness Inductance	ISO 7637-2 Test Pulse 2a and 2b	Class A
+/- Inductive Load Pulse	ANSI/ASAE EP455 5.11.4	14-300 e ^(-t/0.001) V 1Hz for 300 cycles
+/- Mutual Coupling	ANSI/ASAE EP455 5.11.6 Level 2	14+200 e ^(-t/14*10⁻⁶) V 1Hz for 300 cycles
Alternator Field Decay	ANSI/ASAE EP455 5.11.2	Class A

ELECTROMAGNETIC COMPATIBILITY SPECIFICATIONS

ESD	ANSI/ASAE EP455 5.12	+/- 254kV for 10 pulses, 5 of each polarity
Radiated Immunity	ISO 14982 6.6	10MHz -1000MHz Range 48mA Bulk Current Injection 100 V/m
Conducted emissions	SAE J1113-41	Class 3
Broadband Radiated emissions	ISO 14982 6.4	64dB to 54dB, 30 MHz-75MHz (linearly decreased) 54dB to 65dB, 75MHz-400MHz (linearly increased) 65 dB, 400MHz-1000MHz

CE COMPLIANCE

Agriculture and Forestry Machinery EMC	ISO 14982	ESA
Construction Machinery EMC	EN 13309:2000	ESA

PRELIMINARY