



AJ3

JOYSTICK

Introduction

The AJ3 Joystick provides the reliability required in demanding environmental conditions such as heavy duty industrial applications. The high mechanical strength of the shaft and the unique sensing design make the joystick ideal for rigorous use in rugged, harsh environments.

The AJ3 Joystick is designed to accommodate standard and custom designed multifunction grips. The AJ3 Joystick is available separately or combined with various multifunction grips.



Main Features

- Contactless sensing – Hall effect
- Life greater than 5 million cycles
- 2 sensors per axis
- Integrated temperature compensation
- Standard or customized multifunction grips

Custom Modifications

- Output characteristics
- Operating force
- Lever deflection angle
- Gate pattern
- Over travel function
- Multifunction grips



SPECIFICATIONS

Electrical

Variant

Supply Ratings - System Voltage - Voltage Range - Maximum Current - Max. Output Voltage		12V or 24V dc 8V ... 16V or 8V ... 30V 180 mA at 24V dc Vsupply – 2.5V dc
Voltage Output (maximum output current 5 mA) PWM Output	V01 V02 V08 V09 PW2	0V ... (Vsupply - 2.5V dc) 0 ... 5V dc 0.5 ... 4.5V dc 25% Vsupply ... 75% Vsupply 500 Hz ± 80 Hz
CAN Bus Output	CA1 ... CA2 ... J19	CAN 2.0A (11 bit identifier) CAN 2.0B (29 bit identifier) SAE J1939
Output Center Position (signal)	C2 C3	Inactive 0V / active 5V ^(B) Inactive 0V / active Vsupply ^(B)
Other electrical Characteristics	EMI	100 V/m

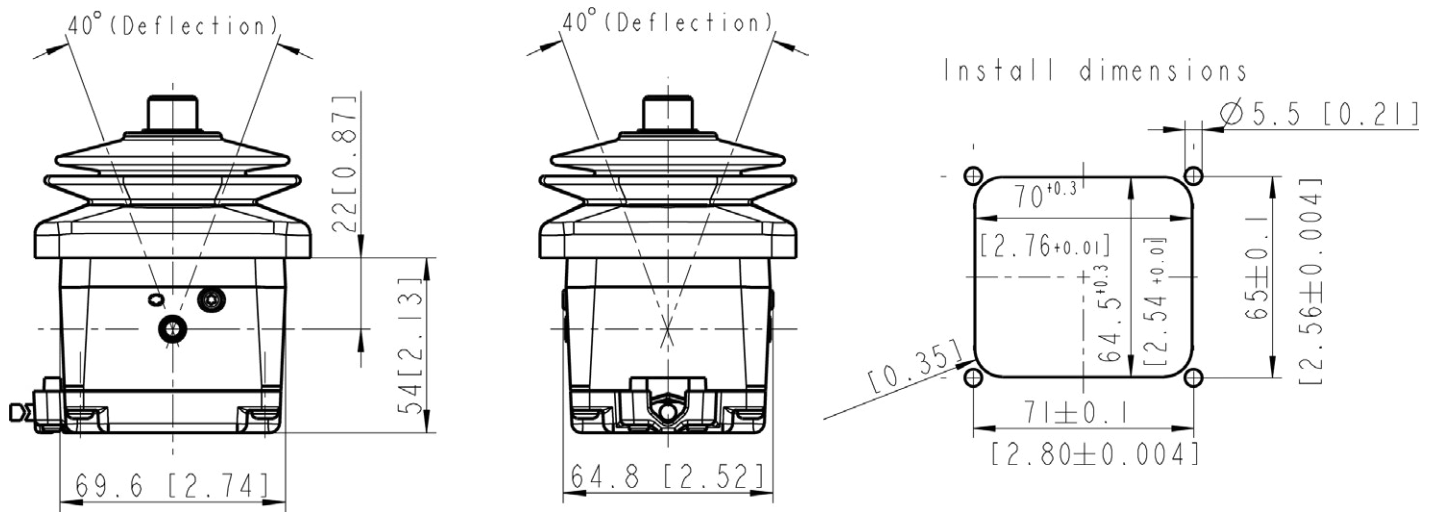
Mechanical

Life	> 5 million cycles
Operating temperature	- 40°C to 85°C
Operating torque (measured 140 mm from pivot point)	0.56 Nm, 1.2 Nm, 1.7 Nm, 2.2 Nm
Horizontal load maximum	100 Nm
Vertical load maximum	1000 N
max. Torque (Z-axis)	20 Nm
Protection Level	IP 65 ^(C)
Gate options	square, cross, single axis ^(A)
Lever deflection X/Y	± 20° ^(A)
Center position tolerance	± 2° + 0.5°
Weight	450g
Housing	Aluminum
Boot	EPDM (black)
Cable	Pigtail 600 mm without connector (24 AWG, 0,25 mm ²)

GENERAL NOTES

- ^(A) **Others available on request**
- ^(B) **Active, if the lever is in the center position inactive, if the lever is outside of the center position**
- ^(C) **Above gate with boot**

DIMENSIONS

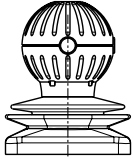




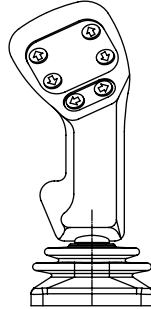
MULTIFUNCTION GRIPS

for details see MFG datasheet

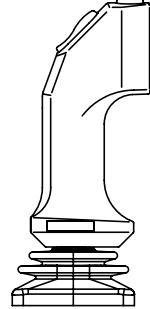
MFG Ball



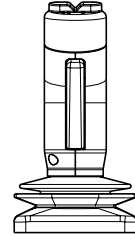
MFG SK



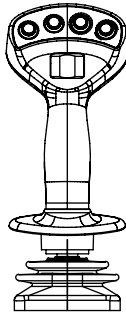
MFG S1



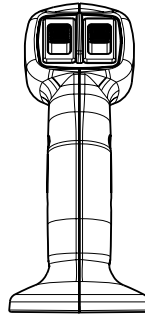
MFG S2



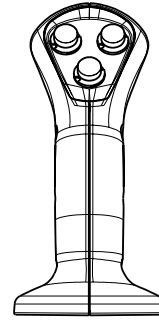
MFG S3

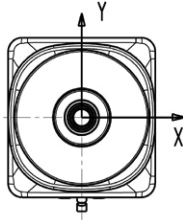


MFG S4



MFG S7

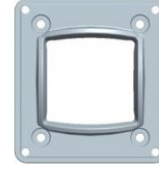




Y-single axis



Cross



Square

Family AJ3 - S - X1.7 - Y1.7 - - - V08 - C2 - ...

AJ3

Gate

S: Square
C: Cross
X: X-axis single
Y: Y-axis single

X-Axis Operation Torque

X0.56: 0.56 Nm
X1.2: 1.2 Nm
X1.7: 1.7 Nm
X2.2: 2.2 Nm

Y-Axis Operation Torque

Y0.56: 0.56 Nm
Y1.2: 1.2 Nm
Y1.7: 1.7 Nm
Y2.2: 2.2 Nm

Overtravel (float)

- : none (available on request)

Output Signals

V01: 0 ... (Vsupply - 2.5V)
V02: 0 ... 5V
V08: 0.5 ... 4.5V
V09: 25% Vsupply ... 75% Vsupply
PW2: PWM 500 Hz ± 80Hz
CA1: CAN 2.0A
CA2: CAN 2.0B
J19: SAE J1939 based

Output Center Position (signal) only for Voltage Output

C2: inactive 0V / active 5V
C3: inactive 0V / active Vsupply

Grip

- : no grip
... : see MFG datasheet for grip order code

Recommended MFG operating torque combination:

MFG	Operating torque
Ball	0.56 Nm, 1.2 Nm
S2	1.2 Nm, 1.7 Nm
S1, S3, SK, S4, S7	1.7 Nm, 2.2 Nm

Conversion table N in NM for AJ3 (measured 140mm from pivot point)

Newton	Newtonmeter
4N	0.56 Nm
8N	1.2 Nm
12N	1.7 Nm
16N	2.2 Nm

Vsupply = voltage supply (Ubat)

MFG = multifunction grip

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Mailing Address: Sensata Technologies, Inc., 529 Pleasant Street, Attleboro, MA 02703, USA.

CONTACT US

Regional head offices:
United States of America

Sensata Technologies
Attleboro, MA
Phone: 508-236-3800
E-mail: support@sensata.com

Netherlands
Sensata Technologies Holland B.V.
Hengelo

Phone: +31 74 357 8000
E-mail: support@sensata.com

China
Sensata Technologies China Co., Ltd.
Shanghai

Phone: +8621 2306 1500
E-mail: support@sensata.com