

BG Systems JF_x Joystick

JF_x

Overview

The JF_x series joysticks are robust high precision joysticks. Typical applications for the JF_x range from computer labs, to interactive museum exhibits, to industrial equipment, to remotely piloted vehicles, and military equipment such as computer based training systems. The rugged design means that they will provide reliable service for extended periods, backed by a two year warranty.

The JF3 model has roll, pitch and twist displacements and the JF2 just has roll and pitch. Additional analog channels

Key Features

Mechanical

The motion mechanism is based on two gimbals machined from solid aluminum alloy blocks. The gimbals rotate about hardened stainless steel shafts and shielded ball bearings. Internal mechanical parts are anodized aluminum and stainless steel. Three spring stiffnesses are available in the lateral and longitudinal axes, and two in the rotational axis. Light springs are standard.

Electrical

In every axis the position of the stick is measured by a magnetic Hall Effect sensor, which provides output voltage through a signal conditioning amplifier. The sensing system is contactless, which improves performance and reliability over extended periods. The centering repeatability error is less than 0.5%. Switches provide a closed contact to a common input.

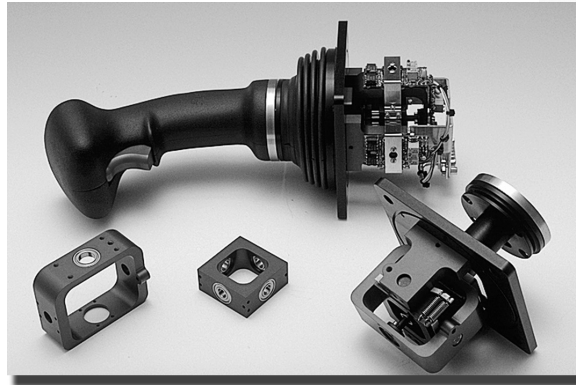
Mounting & Connectors

The joystick is mounted with four 1/4" bolts in a 3.8" cutout. Under panel depth requirement is 3.5", including the connector. The connector is either a DB-15 or a high density DB-26, which carries power to the stick and the output signals.

Reliability

The mechanical and electrical assembly has been subjected to 5,000,000 cycle test at 20 Hz with no impact on performance.

are available when either the proportional rocker or force joystick options are chosen. The joysticks come standard with a single position trigger. Various configurations of switches can be mounted in the head of the grip and on the side. Custom configurations can be accommodated.



Warranty

The JF_x joysticks carry a 2 year warranty from the date of installation in customer equipment.

Grip

The standard grip is cast aluminum and is ambidextrous in most configurations. The standard configuration has a single position trigger with a two position trigger available as an option. Various thumb actuated switches can be mounted at the top of the grip. Examples include: momentary pushbuttons, latching pushbuttons, two and 4 position switches, proportional rockers, and miniature force joysticks.

The grip can also be ordered with buttons mounted on the side in two locations. The side switch is a thumb operated switch and the "pinkie switch" is operated by the little



finger. These are mounted on the left side of the joystick for right hand operation. If left hand operation is required please contact BG Systems for availability.



The joystick above shows a JF3-1-MP-CA-MP-SMP-PMP configuration.

JF_x Options

Part Number	Description	Position
JF _x -2-xx-xx-xx	2 position trigger	
JF _x -x-xx-MP-xx	Momentary pushbutton	Any
JF _x -x-xx-CH-xx	4 position "coolie hat" switch	Any
JF _x -x-xx-CA-xx	4 position "castle" switch	Any
JF _x -x-xx-2P-xx	2 position switch	Any
JF _x -x-00-PRh-00	Horizontal proportional thumb rocker	Center
JF _x -x-xx-PRv-xx	Vertical proportional thumb rocker	Center
JF _x -x-xx-PRxs-xx	Proportional rocker with spring centering	
JF _x -x-xx-FJ2-xx	2-axis miniature force joystick	Any
-Sxx	Side switch option	
-Pxx	Pinkie switch option	

Ordering Information

Part Number	Description
JF3-1-00-00-00	3 axis
JF2-1-00-00-00	2 axis
Switch options replace any -00-	
Telephone	650-858-2628
Fax	650-858-2685
URL	www.bgsystems.com

Technical Specifications

Electrical

Input Voltage	5 vDC
Output Voltage	0.0 to 5.0 vDC
Center Voltage	2.5 vDC
Output Current	10 mA max
Supply Current (JF2)	14 mA
Supply Current (JF3)	20 mA
Switch Operation	contact closing

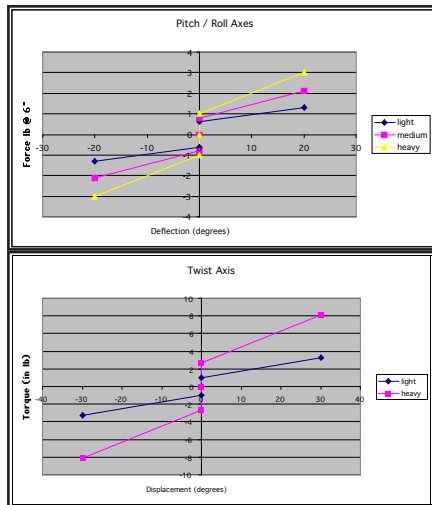
Physical

Lateral Travel	22°
Longitudinal Travel	22°
Twist Travel (JF3)	28°
Weight	2.5 lbs
Breakout Force	See graphs below

Environmental

Operating Temperature	-20°C to 40°C
Storage Temperature	-20°C to 40°C
Humidity	Less than 95%

Breakout forces for the joysticks are shown in the two graphs below. Forces are shown with light, medium and heavy spring stiffnesses for the pitch and roll axes, and with light and heavy for the twist axis.



Joystick Options

The JFx joysticks can be ordered with options listed in the table below. The switch or button options for the top of the grip have three locations: left, center and right. The proportional rockers use friction hold, but spring loading is available by adding an 's' to the part number. The vertical proportional rocker option is only available in the center position. With the horizontal proportional rocker it is not possible to mount any other switches. To specify options on the joystick, note that the xx in the part number are:

JFx	2 or 3 axis
JF3-x	1 or 2 position trigger
JF3-1-xx	Left Switch option
JF3-1-00-xx	Center switch option
JF3-1-00-00-xx	Right switch option
-Sxx	Side switch option
-SxxL	Side switch for left hand
-Pxx	Pinkie switch option
-PxxL	Pinkie switch for left hand



JF3-x-MP-CH-MP



JF3-x-2P-CA-MP



JF3-x-MP-CA-CH



JF3-x-MP-MP-MP



JF3-x-CA-FJ1-2P



JF3-x-CA-PRv-2P

Installation Drawing

