

Data Sheet

# Joystick

## JS120 Single Axis Fingertip



### Mobile Machine Management

Danfoss joysticks are elements of the flexible, powerful, expandable, and affordable family of mobile machine management products.

Danfoss joysticks have been specially designed to provide proportional control in a compact package that meets the harsh operating requirements of today's mobile machine market.

### Ergonomic and Precise Operation

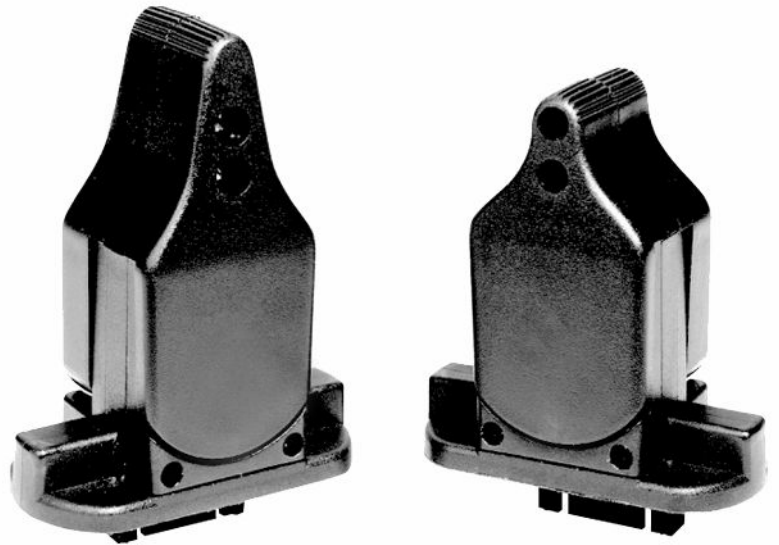
The JS120 was developed for applications where ergonomics and precise proportional control are required. The compact design provides smooth fingertip control with low operating forces that minimize repetitive stresses and operator fatigue.

### Compact Design

The compact design of the JS120 is ideal for improving operator panel layouts, and installs easily into chest packs and seating arm rests.

### Multi-function

The long life conductive plastic potentiometer technology used in the JS120 to provide the ratiometric sensor output, also incorporates direction switch outputs for independent forward and reverse signals.

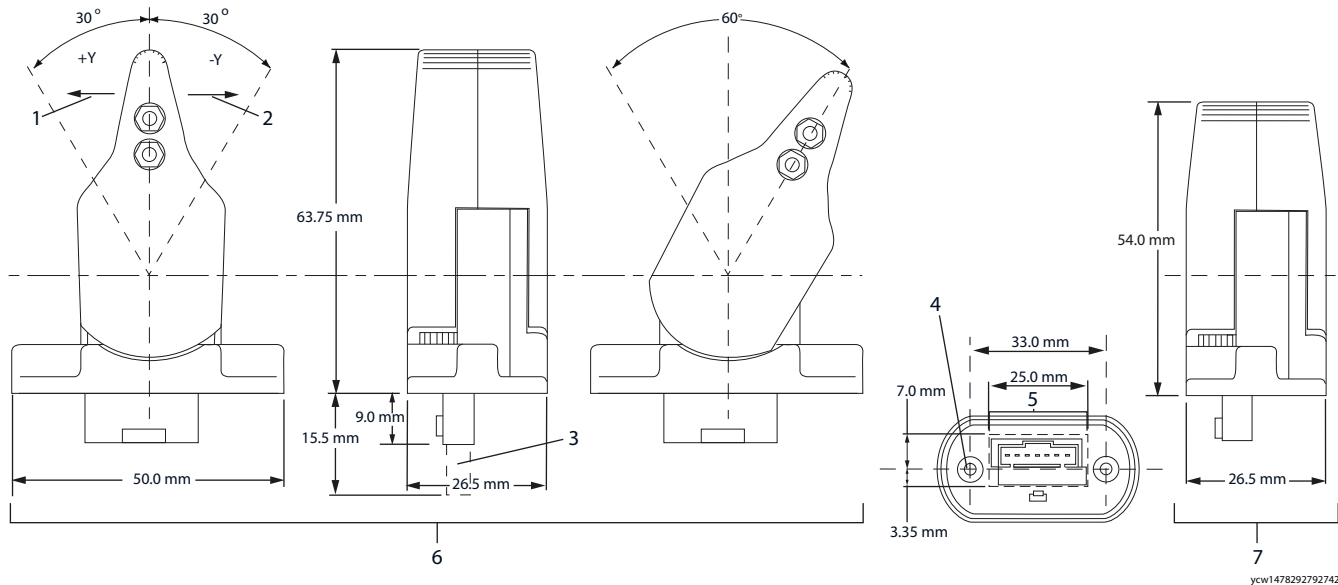


### Features

- Long life potentiometric sensing
  - 10 to 90 % Vs
  - 25 to 75 % Vs
- Single axis
- Spring center return and end return options
- Slim profile with low operating forces
- Easy installation
- Operating life > 5 million cycles
- Output options
  - IP 66 environmental sealing above panel
  - Independent direction switch signals

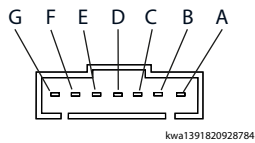
Comprehensive technical literature is online at [www.danfoss.com](http://www.danfoss.com)

*Dimensions*



- 1. Forward
- 2. Backward
- 3. Connector
- 4. Panel clearance holes 3.10 mm
- 5. Panel cut out
- 6. Long lever
- 7. Short lever

*Pin assignments (connector end view)*



*Connector*



*Pinout and wiring information*

Pin	JS120-0002, 0003, 0005, 0006	JS120-0008, 0009, 0010, 0011
A	Center tap	Not used
B	(+) supply (power)	(+) supply (power)
C	Output voltage	Output voltage
D	(-) supply (ground)	(-) supply (ground)
E	Direction switch -Y (N/O)	Not used
F	Direction switch +Y (N/O)	Direction switch (N/O)
G	Direction switch common	Direction switch common

*Mating connector – AMPMODU MTE series*

Connector	AMP ordering number
7 pin latching male	103957-6

*Mating connector assembly*

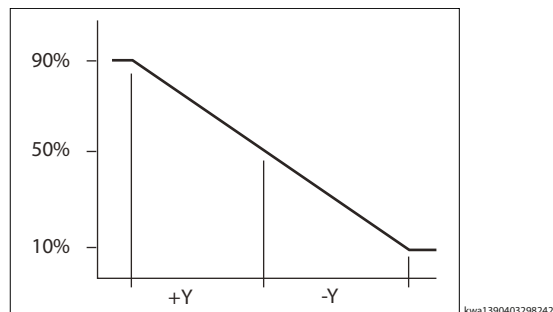
Type	Danfoss ordering number
7 pin with 610 mm [24.02 in] leads	162U1010

Marker on underside of mating connector indicates pin G

*Electrical characteristics*

<b>Sensor type</b>	Potentiometric
<b>Electrical angle of movement center return</b>	28° ± 1°
<b>Electrical angle of movement end return</b>	Start 2° ± 1°, end return full angle 56° ± 1°
<b>Total track resistance</b>	5 kΩ (± 20%)
<b>Maximum supply voltage (Vs)</b>	35 Vdc
<b>Maximum wiper current</b>	5 mA (non-destructive)
<b>Maximum power dissipation</b>	0.25 W at 20°C [68°F]
<b>Wiper circuit impedance</b>	200 kΩ minimum
<b>Output voltage</b>	10 to 90% Vs 25 to 75% Vs
<b>Resolution</b>	Infinite
<b>Center tap voltage (no load)</b>	50% Vs ± 2%
<b>Center tap angle (center return)</b>	± 2.5° either side of center (± 1° tolerance)
<b>Insulation resistance</b>	> 50 MΩ at 500 Vdc
<b>Load resistance minimum</b>	10 kΩ
<b>Load current maximum</b>	2 mA resistive

*Output voltage curve*



*Mechanical characteristics*

<b>Description</b>	<b>Short lever</b>	<b>Long lever</b>
Breakout force (at lever tip)	3.1 N [0.70 lbf]	2.3 N [0.52 lbf]
Operating force (at tip, full deflection)	5.1 N [1.15 lbf]	3.4 N [0.76 lbf]
Maximum allowable force	50 N [11.24 lbf]	35 N [7.87 lbf]
Lever operating angle	30° ± 1° center return 60° ± 1° end return	
Lever action	Self centering or end return	
Expected life	> 5 million cycles	
Weight	0.045 kg [0.099 lb]	

*Environmental parameters*

<b>Operating temperature</b>	-25°C to 70°C [-13°F to 158°F]
<b>Storage temperature</b>	-40°C to 85°C [-40°F to 185°F]
<b>Environmental sealing above the flange</b>	IP 66 above panel, IP 40 below panel

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