

## JHM Hall Effect Joystick



JHM with  
Hall Effect Rocker



JHM with  
Ball Handle Stylr



JHM with G3-D  
Handle Style

The JHM is a full-function, medium, Hall effect joystick for off-highway and industrial applications. Its shorter-behind-panel depth fits armrests and other tight spaces, and it can be mounted from the top or bottom.

The joystick comes with one of 18 handle styles, such as a ball or handles with pushbuttons, rockers, keypads or Operator Presence. The JHM is also compatible with most of OTTO's G3 Universal grips.

### Product Features

- Designed for tight spaces in armrests and panels
- Electronics sealed to IP68S
- Up to 10 million operational cycles in all directions
- 18 handle styles
- Compatible with G3 Universal commercial grips (top mount only)
- Output options: CANopen, CAN J1939, USB, PWM, serial and analog
- Redundant sensors available
- Nine gating options
- RoHS compliant

Standard Characteristics/Ratings:				
Sensor Type:	Hall effect analog, factory programmed with temperature compensation, ground and supply line break detection, and over voltage and reverse voltage protection options.			
Design:	Contactless sensing using dual bar permanent magnet			
ELECTRICAL RATINGS: Joystick Rated at 5V @ 20°C, Load = 1ma (4.7kΩ)				
Electrical	Units	Min	Typ	Max
Supply Voltage, Vcc	VDC	4.5	5.0	5.5
Output Voltage Tolerance at Center AA, BB, CC, DD, EE, FF, GG & HH	5V Vcc	-0.25	N/A	+0.25
Output Voltage Tolerance at Center AT, BT, CT, DT, ET & FT	5V Vcc	-0.15	N/A	+0.15
Output Voltage Tolerance Full Travel	5V Vcc	-0.25	N/A	+0.25
Supply Current Per Sensor	mA	N/A	N/A	10.00
Output Source Current Limit	mA	-1.00	N/A	1.00
ELECTRICAL RATINGS: U2 Rated at Vcc = 5V @ 25°C, Load = 1ma (4.7kΩ)				
Electrical	Units	Min	Typ	Max
Supply Voltage, Vcc	VDC	4.5	5.0	5.5
Output Voltage ±, ± 0° Deflection	5V Vcc	2.25	2.50	2.75
Output at Full Travel Direction -Z	5V Vcc	0.45	0.50	0.75
Output at Full Travel Direction +Z	5V Vcc	4.25	4.50	4.55
Supply Current B-D, Vcc=5V, 1a=0	mA	N/A	N/A	10.00
ELECTRICAL RATINGS: P9 Switches Rated at 10mA Resistive Load at 5VDC				
Electrical Life:	1,000,000 cycles			
MECHANICAL (JOYSTICK):				
Mechanical Life:	5 Million Cycles, High Force 10 Million Cycles, Low Force 2.5 Million Cycles, Outputs JJ, KK,MM, Rear Mount 250,000 Cycles, Friction Held, High Force Boot Life up to 1 Million Cycles			
Mechanical (Operating Force w/Boot)	Units	Min	Typ	Max
Travel Angle	Degrees	18°	20°	22°
High Force @ 2" GRP (Return to Center)	Lbs.	0.5	1.25	2.0
Low Force @ 2" GRP (Return to Center)	Lbs.	0.5	1.0	1.5
High Force @ 3" GRP (Return to Center)	Lbs.	0.5	1.0	1.5
Low Force @ 3" GRP (Return to Center)	Lbs.	0.4	0.7	1.0
High Force @ 4" GRP (Return to Center)	Lbs.	1.2	2.5	3.8
Handle Styles 51, 52, 53				
Low Force @ 4" GRP (Return to Center)	Lbs.	0.4	0.8	1.2
Handle Styles 51, 52, 53				
High Force (w/Boot) Y Direction @ 2" GRP (Friction)	Lbs.	1.5	4.5	7.5
High Force (w/Boot) Friction @ 3" GRP, Y Direction	Lbs.	1.0	3.5	6.0
High Force (w/Boot) Friction @ 4" GRP (Handle Styles 51, 52, 53), Y Direction	Lbs.	0.8	2.4	4.0
MECHANICAL (U2 SWITCH): 2,500,000 Cycle Mechanical Life				
Mechanical	Units	Min	Typ	Max
Operating Force	Or.	3.5	6.5	9.5
MECHANICAL (P9 SWITCH): 1,250,000 Cycle Mechanical Life				
Mechanical	Units	Min	Typ	Max
Operating Force	Or.	8	12	16
MECHANICAL (KEYPAD PUSHBUTTONS): 3,000,000 Cycle Mechanical Life				
Mechanical	Units	Min	Typ	Max
Operating Force	Or.	2	8	10
ENVIRONMENTAL				
Electronics (Handles 11, 12, 21, 35, 41, 53, 71, 72)	IP68S			
Seal	Handle styles 34 and 35 panel sealed to IP68S			
RFI / EMI	Withstand per SAE J1113			

## JHM HANDLE STYLES

### JHM Handle Styles



**HANDLE 11**  
(NO HANDLE)



**HANDLE 12**  
(STANDARD BLANK)



**HANDLE 21**  
(W / HALL EFFECT ROCKER)



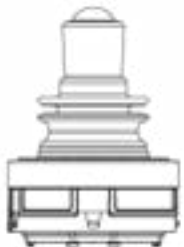
**HANDLE 31**  
(W / PUSHBUTTON,  
TOP HANDLE, HALF BOOT)



**HANDLE 32**  
(W / 2X PUSHBUTTONS)



**HANDLE 33**  
(W / 3X PUSHBUTTONS)



**HANDLE 34**  
(W / PUSHBUTTON,  
TOP HANDLE, FULL BOOT)



**HANDLE 35**  
(NO PUSHBUTTON,  
TOP HANDLE, FULL BOOT)



**HANDLE 41**  
(LOCKOUT)



**HANDLE 51**  
(O3-D WITH ROCKER AND  
OPERATOR PRESENCE)



**HANDLE 52**  
(O3-D WITH ROCKER)



**HANDLE 53**  
(O3-D)



**HANDLE 54**  
(O3-D WITH  
OPERATOR PRESENCE)



**HANDLE 61**  
(5-BUTTON KEYPAD &  
HALL ROCKER RIGHT)



**HANDLE 62**  
(5-BUTTON KEYPAD &  
HALL ROCKER LEFT)



**HANDLE 63**  
(7-BUTTON KEYPAD &  
HALL ROCKER RIGHT)



**HANDLE 64**  
(7-BUTTON KEYPAD &  
HALL ROCKER LEFT)



**HANDLE 71**  
(LARGE BALL)



**HANDLE 72**  
(SMALL BALL)