MODEL 212
MULTI AXIS JOYSTICK

- **Different handle Designs Avaliable**
- **Optional Push buttons**
- **Optional Roller Rockers**

- **Contactless Hall Effect Technology**
- **Corrosion & Weather Resistant materials**
- **EMI & RFI resistant**

The Model 212 series provides a robust, weather resistant joystick for usage in many different environments. This model uses Hall effect sensing, which eliminates wearing contacts between moving electrical parts, while improving overall precision and resolution. The 212 comes with many other hand grip styles to fit your operating needs.

SHOWN WITH PALM GRIP 131

Electrical Data	
Sensor	Hall Effect
Supply Voltage	5-60 VDC (determined by electrical option)
Current Consumption Max	Varies with Board, Call us for help
Protection	Reverse Polarity, Over-Voltage, Open/Shorted
	Signal leads, EMI/RFI Hardened, Transient
	Voltage. Sealed in Epoxy potting.
Output impedance	Varies with Board, Call us for help
Return to Center Voltage (No load)	See Electrical Options for details (Page 2)
Output Voltages	See Electrical Options for details (Page 2)
Mechanical Data	
Expected Life	Tested to 10 million cycles
Mechanical Angle of Movement	On Axis ± 20°, between axes + 27°
	also avaliable are singe axis, no diagonals(“+“)
Operating Force	Varies on grip style
Maximum Applied Force	Varies on grip style
Sealing	Up to IP67
Operating Temperature	-40° to 85°C (-40° to 185° F)
EMC Immunity Level /V/M)	100 V/M
Weather and Hazardous Environment Resistance:	Sun/UV Exposure, Water/Rain, Humidity,
	Engine Oil, Engine Coolant, Salt water/De-Icer
	Fluid, Phosphate Washdown Cleaner

MODEL 212
MULTI AXIS JOYSTICK

MODEL 112/212 and 125/225 PART NUMBERING *(Half effect only)*
For special configurations, please call for assistance

212	S	15	S	56	56	F

MODEL
- **212** Multi-Axis
- **212+** Gated "+" *(no diagonals)*
- **112** Single Axis
- **125** Single Axis
- **225** Multi Axis Joystick

BEZEL TYPE
- **S** Small (for below-panel mounting)
- **L** Large (for above-panel mounting)

See installation drawings (datasheet) cut-out dimensions. Model 225 must use Small Bezel.

FRICTION MODULE
- **F** Friction *(Y-Axis only)*

Available on Model 125/225 only.

ELECTRICAL OPTION *(Y-Axis)*

ELECTRICAL OPTION *(X-Axis)*

SPRING
- **L** Light
- **S** Standard (for most applications)
- **H** Heavy

Ordering non-standard spring may increase lead time

GRIP STYLE

05 = 2-AXIS, NO HANDGRIP
10 = 2-AXIS, PALM GRIP with SLIDELOCK
15 = 2-AXIS, PALM GRIP
PALM GRIP (Styles 10 & 15) Available in: BLACK (Standard)
ORANGE (Add –OR at the end of the Part Number)
YELLOW (Add –YL at the end of the Part Number)
28 = 2-AXIS, RSG GRIP (ROCKER: LEFT, RIGHT)
29 = 2-AXIS, RSG GRIP (ROCKER: PUSH-BUTTON)
30 = 2-AXIS, RSTG ROCKER GRIP
31 = 2-AXIS, RSTG ROCKER GRIP WITH SIDE PUSH-BUTTON
32 = 2-AXIS, RSTG NO ROCKER, TRIGGER ONLY
33 = 2-AXIS, RSTG NO ROCKER, TRIGGER & SIDE PUSH-BUTTON
35 = 2-AXIS, RSTG NO ROCKER, TRIGGER & TOP PUSH-BUTTON
38 = 2-AXIS, TRS GRIP
39 = 2-AXIS, RSTG, NO RCKR, TRIGGER, TOP&SIDE BTTN TOGGLE
41 = 2-AXIS, RSTG, ROCKER, TRIGGER & MAINTAINED LEFT SIDE PB
43 = 2-AXIS, MSG, 3 TOGGLE SWITCHES
44 = 2-AXIS, MSG, 4 TOGGLE SWITCHES
46 = 2-AXIS, MSG, 6 PUSH-BUTTONS
48 = 2-AXIS, MSG, 3 PUSH-BUTTONS
49 = 2-AXIS, MSG, 4 PUSH-BUTTONS
50 = 2-AXIS, TRS, NO ROCKER SWITCHES (PLASTIC CAP)
51 = 3-AXIS, MSG, 6 TOGGLE SWITCHES
52 = 2-AXIS, MSG, 4 TOGGLE & 2 PUSH BUTTON SWITCHES
53 = 2-AXIS, PISTOL, TRIGGER, PUSH-BUTTON ON TOP
54 = 3-AXIS, PISTOL, TWIST, TRIGGER WITH PUSH BUTTON ON TOP
55 = 5&1/2-AXIS, MFHG, TWIST, MINI-JOYSTICK, PRPRTNL TRGR.
56 = 5&1/2-AXIS, MFHG, PUSH-PULL, MINI-JYSTCK, PRPRTNL TRGR
57 = 3-AXIS, PISTOL, TRIGGER, SWTCH ROCKER & PRPRTNL TWIST
58 = 2-AXIS, MFHG, HALL TRIGGER
59 = 3-AXIS, PISTOL, TRIGGER, PROPORTIONAL TWIST
60 = 4-AXIS, PISTOL, TRIGGER, PRPRTNL ROCKER & TWIST
61 = 3-AXIS, PISTOL, TRIGGER, PROPORTIONAL ROCKER
62 = 2-AXIS, PISTOL, TRIGGER & SWITCHED ROCKER
63 = 2-AXIS, PISTOL, TRIGGER, NO PUSH-BUTTON ON CAP
64 = 3-AXIS, ERGO, TRIGGER & PROPORTIONAL ROCKER
65 = 2-AXIS, PISTOL, TRIGGER & SWTCH RCKR, 2 PSH-BTTNS (L)
66 = 3-AXIS, PISTOL, TRIGGER & PRPRTNL RCKR, 2 PSH-BTTNS (L/R)
67 = 2-AXIS, PISTOL, TRIGGER & SWTCH SEP COMMONS, RCKR, 2 PSH-BTTNS (L)
68 = 2-AXIS, MULTI-SWITCH GRIP WITH 2 TOGGLE AND 4 PUSH-BUTTONS

GRIP STYLE CONTINUED

69 = 3-AXIS, PLASTIC PISTOL GRIP TRIGGER & PROPORTIONAL ROCKER W/TWO SIDE PUSH-BUTTONS, BOTH PUSH-BUTTONS ON LEFT SIDE OF GRIP
70 = 4-AXIS, PLASTIC PISTOL GRIP, TRIGGER , PROPORTIONAL ROCKER & PROPORTIONAL TWIST W/TWO SIDE PUSH-BUTTONS,
BOTH PUSH-BUTTONS ON LEFT SIDE OF GRIP
71 = 2 AXIS, RSG WITH YELLOW P9 PUSH BUTTON SWITCH
72 = 2 AXIS, RSG NO ROCKER
73 = 2 AXIS, MULTI-SWITCH GRIP WITH 5 PUSH-BUTTONS AND 1 TOGGLE
74 = 2 AXIS, LEFT HANDED ERGO GRIP WITH SWITCHED ROCKER
75 = 2-AXIS, ERGO GRIP WITH SWITCHED ROCKER
76 = 2-AXIS, ERGO GRIP TRIGGER & SWITCHED ROCKER W/TWO SIDE PUSH-BUTTONS, BOTH PUSH-BUTTONS ON LEFT SIDE OF GRIP
77 = 2-AXIS, TRS GRIP with P9 OTTO PUSH BUTTON SWITCH
78= 3-AXIS, PLASTIC PISTOL GRIP, TRIGGER, SWITCHED ROCKER & PROPORTIONAL TWIST W/TWO SIDE PUSH-BUTTONS, BOTH
PUSH-BUTTONS ON LEFT SIDE OF GRIP
79 = 3-AXIS, LEFT HANDED ERGO GRIP, PROPORTIONAL ROCKER
81 = 3-AXIS, PLASTIC PISTOL GRIP, TRIGGER, PROPORTIONAL PUSH PULL
82 = 3-AXIS, PLASTIC PISTOL GRIP, TRIGGER, PROPORTIONAL PUSH PULL WITH PUSH-BUTTON ON TOP COVER
83 = 3-AXIS, PLASTIC PISTOL GRIP, TRIGGER, PROPORTIONAL PUSH PULL WITH SWITCHED ROCKER
84 = 4-AXIS, PLASTIC PISTOL GRIP, TRIGGER, PROPORTIONAL PUSH PULL WITH PROPORTIONAL ROCKER
85 = 3-AXIS, ERGO GRIP, TRIGGER & PROPORTIONAL ROCKER W/TWO SIDE PUSH-BUTTONS, BOTH PUSH-BUTTONS ON LEFT SIDE
OF GRIP
86 = 2-AXIS, PLASTIC PISTOL GRIP TRIGGER & SWITCHED ROCKER W/TWO SIDE PUSH-BUTTONS, ONE ON LEFT AND ONE ON RIGHT
87 = 3-AXIS, TWIST KNOB GRIP, PROPORTIONAL TWIST
88 = 2-AXIS, MULTI-SWITCH GRIP WITH 3 TOGGLE & 2 PUSH BUTTON SWITCHES
89 = 4-AXIS, PLASTIC PISTOL GRIP, TRIGGER, PROP. ROCKER & PROP. TWIST, W/ 2 SIDE PUSH-BUTTONS ONE ON LEFT AND ONE ON
RIGHT
90 = 2-AXIS, MULTI-SWITCH GRIP WITH 1 PUSH BUTTON

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GRIP STYLES CONTINUED

91 = 3-AXIS, LEFT HANDED ERGO GRIP, PROPORTIONAL ROCKER w/2 Side Push-Buttons one on left and one on right
92 = 2-AXIS, MULTI-SWITCH GRIP WITH 6 TOGGLE SWITCHES
93 = 2-AXIS, RSTG NO ROCKER TRIGGER & MAINTAINED SIDE PUSH-BUTTON
94 = 2-AXIS, LEFT HANDED ERGO GRIP, SWITCHED ROCKER, w/2 Side Push-Buttons one on left and one on right
95 = 2-AXIS, MULTI-SWITCH GRIP WITH 3 TOGGLE & 3 PUSH BUTTON SWITCHES
98 = 2-AXIS, MULTI-SWITCH GRIP WITH 1 TOGGLE & 2 PUSH BUTTON SWITCHES
99 =N/A (already used)
100 = 2-AXIS, MULTI-SWITCH GRIP WITH 2 TOGGLE & 1 PUSH BUTTON SWITCHES
101 = 2-AXIS, MSG 2.0 WITH 5 PUSH BUTTON SWITCHES & Capacitive SENSOR (No Trigger)
102 = 3-AXIS, PLASTIC PISTOL GRIP, TRIGGER, PROP. TWIST, SWITCHED ROCKER, W/ 2 SIDE PB's 1 LEFT & 1 RIGHT (C-14934)
103 = 2-AXIS, METAL PISTOL GRIP TRIGGER & SWITCHED ROCKER W/TWO SIDE PUSH-BUTTONS, BOTH PUSH-BUTTONS ON LEFT SIDE OF GRIP
106 = 5-AXIS, MSG 2.0 WITH 3 PROPORTIONAL ROLLER ROCKERS & Capacitive SENSOR (No Trigger)
107 = 3-AXIS, MSG 2.0 WITH 1 PROPORTIONAL ROLLER ROCKER ON LEFT SIDE, 2 PUSH BUTTONS & TRIGGER
108 = 2-AXIS, RSTG NO ROCKER, TRIGGER with MAINTAINED TOP & LEFT SIDE PUSH-BUTTONS
109 = 2-AXIS, MULTI-SWITCH GRIP WITH 4 MAINTAINED PUSH-BUTTONS
110 = 4-AXIS, MSG 2.0 WITH 1 DUAL AXIS MINI-JOYSTICK ON LEFT SIDE, 2 PUSH BUTTONS & TRIGGER
111 = 3-AXIS, MSG 2.0 WITH 1 PROPORTIONAL ROLLER ROCKER IN CENTER, 2 PUSH BUTTONS (1 LEFT & 1 RIGHT) & TRIGGER
112 = 2-AXIS, MSG 2.0 WITH 2 TOGGLES, 3 PUSH BUTTONS
113 = 2-AXIS, MSG 2.0 WITH 1 TOGGLE, 5 PUSH BUTTONS
114 = 2-AXIS, MSG 2.0 WITH 2 TOGGLE 5 PUSH BUTTONS
115 = 2-AXIS, MSG 2.0 WITH 6 PUSH BUTTON SWITCHES
116 = 2-AXIS, MSG 2.0 WITH 2 ROLLER ROCKERS
117 = 2-AXIS, MSG 2.0 WITH 4 TOGGLES, 2 PUSH BUTTONS
118 = 2-AXIS, MSG 2.0 WITH TRIGGER & 4 PUSH BUTTON SWITCHES
119 = 2-AXIS, MSG 2.0 WITH TRIGGER, 2 PUSH BUTTONS & 2 TOGGLES
120 = 3-AXIS, TWIST KNOB GRIP, PROPORTIONAL TWIST with PUSH BUTTON
121 = 2-AXIS, MSG 2.0 WITH TRIGGER, Prop. Mini-Joystick, 3 PUSH BUTTONS & 1 TOGGLES
123 = 2-AXIS, MSG 2.0 3 Maintained TOGGLES
124 = 3-AXIS, MSG 2.0 WITH 1 PROPORTIONAL ROLLER ROCKER IN CENTER, 4 PUSH BUTTONS (2 LEFT & 2 RIGHT) & TRIGGER
125 = 2-AXIS, RSTG NO ROCKER, TRIGGER with 5 SIDE PUSH-BUTTONS
126 = 2-AXIS, MSG 2.0 WITH 4 Switched Rockers(Toggles)
127 = 2-AXIS, MSG 2.0 WITH 5 Switched Rockers(Toggles)
128 = 2-AXIS, RSTG NO ROCKER TRIGGER & TOP MAINTAINED PUSH-BUTTON
129 = 2-AXIS, MSG 2.0 WITH 1 TOGGLE, 3 PUSH BUTTONS, AND TRIGGER
131 = 3-AXIS, Palm grip 2.0 PROPORTIONAL TWIST, Push Button on Left
134 = 3-AXIS, Palm grip 2.0 PROPORTIONAL TWIST, 2 Push Buttons on Left

ELECTRICAL OPTIONS

56 = 10-30VDC, 2.5V NTRL ± 1.5V, 1.5 AMP DIR. AUX OUT
57 = 10-30VDC, 2.5V NTRL ± 1.25V, 1.5 AMP DIR. AUX OUT
58 = 5VDC, ± 30%, NO DIRECTIONAL AUX OUT
59 = 5VDC, ± 40%, NO DIRECTIONAL AUX OUT
60 = 18-60VDC, SEVCON, 1.5 AMP DIR. AUX OUT
61 = 10-30VDC, 2.5V NTRL ± 2.0V, 1.5 AMP DIR AUX OUT
62 = 10-30VDC, DANFOSS
63 = 10-30VDC, 0.0V NTRL + 10.0V, 1.5 AMP DIR AUX OUT
64 = 10-30VDC, 2.5V NTRL ± 1.5V, 1.5 AMP 50% DIR. AUX OUT
65 = 18-60VDC, PWR PAK SVCN, 0.2 AMP SINK DIR. AUX OUT
67 = 10-30VDC, 0.0V NTRL + 5.0V, 1.5 AMP DIR AUX OUT
68 = 10-30VDC, 2.5V NTRL ± 2.0V, 1.5 AMP 50% DIR. AUX OUT
69 = 5VDC, ± 10%, NO DIRECTIONAL AUX OUT
70 = 5VDC, ± 25%, NO DIRECTIONAL AUX OUT
71 = 10-30VDC, 4-20mADC (4mADC NTRL, 20mADC ends) 1.5 AMP DIR. AUX OUT
72 = 10-30VDC, 4-20mADC (12mADC NEUT, 4 and 20mADC ends) 1.5 AMP DIR. AUX OUT
73 = SPLIT SUPPLY INPUT (0vdc NEUT, POS. VS & NEG. VS @ ENDS) 15mAMP DIR. AUX OUT
74 = 10-30VDC, 5.0V NEUTRAL ± 5.0V SWING, 1.5 AMP DIR AUX OUT
75 = 18-60VDC, 0.0V NEUTRAL ± 5.0V SWING, 1.5 AMP DIR AUX OUT
76 = 5VDC, 40% SIGNAL SWIING, 1.5 AMP DIR AUX OUT
77 = 5VDC, 25% SIGNAL SWING, NO DIRECTIONAL AUX OUT
78 = 10-30VDC, 0-20mADC (0 mADC NEUT, 20mADC ends) 1.5 AMP DIR. AUX OUT
79 = 10-30VDC, PWM out sig 50%duty cycle NEUTRAL 10% and 90% ends, no DIR. AUX OUT
80 = 10-30VDC, 4-20mADC (4mADC±1mA NEUT, 20mADC±1mA ends) 1.5 AMP DIR. AUX OUT
82 = 10-30VDC, 5V NEUTRAL ± 4.5V SWING
83 = 5VDC, USB board
84 = 10-30VDC, CANbus (J1939) board
85 = SPLIT SUPPLY INPUT (0vdc NEUT, POS. VS & NEG. VS @ ENDS) 15mAMP 5% DIR. AUX OUT
86 = 5VDC ± 40% WITH INVERTED OUT, 1.5 AMP SINKING DIR AUX OUT
87 = 10-30VDC, 2.5V NEUTRAL ± 2.5V SWING, 1.5 AMP DIR AUX OUT
88 = 5VDC, DUAL DIE SENSOR, INVERTED OUTPUT, 40% SWING, NO AUX
89 = 10-30VDC, DUAL DIE SENSOR, INVERTED OUTPUT, 40% SWING, NO AUX
90 = 12-30VDC, 0.0 V NEUTRAL +10V/-10V ENDS, 1.5AMP DIR. AUX OUTPUT
91 = 10-30VDC, 0.0V NEUTRAL ± 10.0V SWING, 1.5 AMP DIR. AUX AT +/-0.5V
92 = 12-30VDC, 0.0 V NEUTRAL +5V/-5V ENDS, 1.5AMP DIR. AUX OUTPUT
93 = 12-30VDC, 0.0 V NEUTRAL +10V/-10V ENDS, 1.5AMP DIR. AUX OUTPUT AT +/-0.5V
94 = 10-30VDC, 40% SWING, SINKING DIR. AUX OUTPUTS

If you do not see your option listed, please call for assistance. Valve Drive Board may be required to control most hydraulic valves (sold separately)

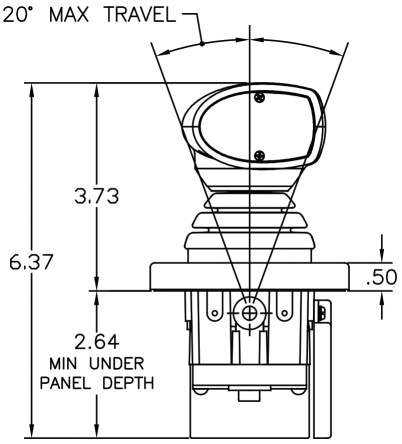
For more details of electrical options, please see pages 4-5.

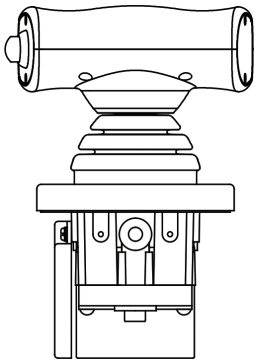
Note:
1. If you would like a costum made grip, please call for specifications.
2. Not all grips are listed, please call for further assistance.
3. Grips and Electrical Options get added all the time, please call for assistance.

MODEL 212
MULTI AXIS JOYSTICK

Technical Drawing Example

Palm Grip





Technical Data Switches (P3-7 example)

Electrical Load	10A Resistive and 5A Inductive
DWV	1050 vrms
Low Level	10mA @ 30mV max DC or peak AC
Electrical Life	25,000 or 100,000 cycles
Mechanical Life	1 million cycles
Sealing	IP67
Action	Momentary, Snap-action
Operating Force	2.5 lbs or 4.0 lbs
Total Travel	0.085 +/- 0.015 inches

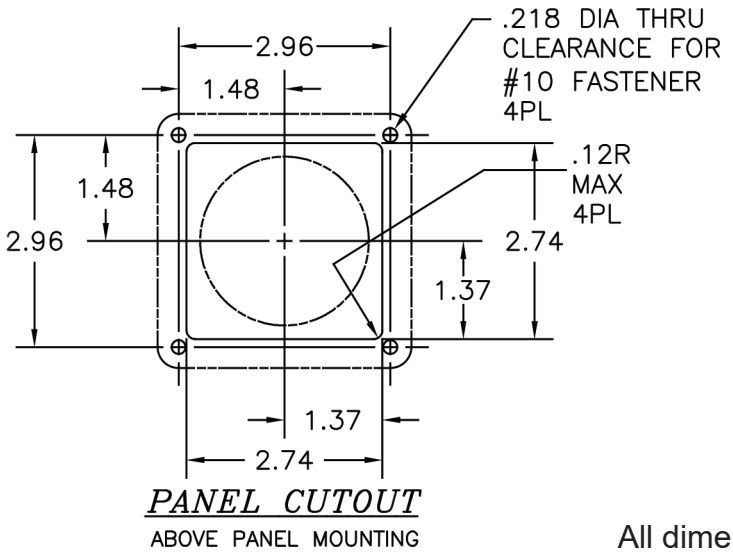
Avaliable Button Colors:

Note:
1.The above table is an example of one possible push button, please call for inquiry on other switch options
2. If switch is unspecified, the pushbuttons will have snap action momentary switches („normally open") and red button caps
3. Type of grip determines how many switches can be installed

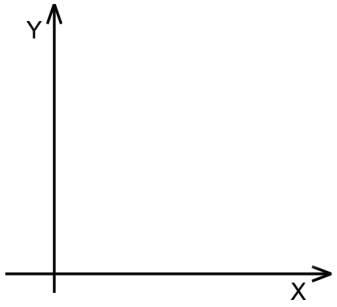
MODEL 212
MULTI AXIS JOYSTICK

Mounting Cutout Dimensions

Drop-in mounting only



PANEL CUTOUT
ABOVE PANEL MOUNTING



All dimensions in inch

Wiring (212L 107 mo)

Color	Function	Color	Function
Brown	Y axis	Green	Rocker Signal
Red	VS	Yellow	Top PB
Orange	X axis	Grey	Bottom PB
Black	Ground	Violet	Trigger
		Blue	Common
		Blue/White	Rocker VS
		Black/White	Rocker Ground

Note:
1. Wiring can deviate with special output options(CAN-bus, Center Detect, LED's, Etc.), detailed information will be provided with your product.
2. Standard cable length ca. 400 mm; wires AWG 22 for joystick, switches, LEDs, etc.
3. For joysticks with Deutsch connectors a cable is included (Deutsch male type A connector)