

# FINGER JOYSTICK WITH PUSHBUTTON OPTION

HTLT  
HALL EFFECT  
FINGER JOYSTICK

3 MILLION CYCLE MECHANICAL LIFE, PUSHBUTTON OPTION



HTLT4 with  
Center Pushbutton

OTTO's HTLT Series miniature Hall effect joystick is a proportional linear output finger joystick with a pushbutton option. With a lower base price than the HTL, the HTLT features 8 different button styles, multiple output configurations and 3 mounting options including top mount with threaded housing.

Gating options include omnidirectional square on axis guided feel, gated single axis return to center, gated dual axis return to center and omnidirectional round smooth feel. The HTLT offers excellent tactile feedback and is available with a mechanical seal of either dusttight or watertight per IP68S. All electronics are sealed to IP68S.

Featuring contactless Hall effect technology, the HTLT is designed to withstand harsh environments and works well in the industrial, medical, unmanned vehicle and off-highway industries for applications such as remote controls, armrest integration, control panels and belly boxes.

## Features:

- One/two axis gated or 360°
- Pushbutton option
- Electronics sealed to IP68S
- Dusttight or Watertight per IP68S option
- 3.3V SPI output option
- Single or redundant analog output options
- PWM output option
- 3 million cycle mechanical life
- Tested for harsh environments
- Great for industrial, medical, unmanned vehicle and off-highway industries

Votre distributeur officiel



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[catherine.sturm@alders.fr](mailto:catherine.sturm@alders.fr) / [www.alders.fr](http://www.alders.fr)

Standard Characteristics/Ratings:								
<b>ELECTRICAL RATINGS:</b>								
<b>Analog Joystick: Rated at Vcc = 5V @ 20°C Load = 1mA (4.7kΩ)</b>								
<b>Electrical</b>	<b>Units</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>				
Supply Voltage	VDC	4.50	5.00	5.50				
Output Voltage Tolerance at Center	VDC @ 5V Vcc	-.25	N/A	+.25				
Output Voltage Tolerance at Full Travel	VDC @ 5V Vcc	-.25	N/A	+.25				
Supply Current Outputs "AA" & "DD" B=0, Vcc=5V, Io=0	mA	N/A	10.00	12.00				
Supply Current Outputs "BB", "CC", "EE", "FF", "GG" & "HH" B=0, Vcc=5V, Io=0	mA	N/A	20.00	24.00				
<b>SPI Joystick</b>								
<b>Electrical</b>	<b>Units</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>				
Supply Voltage - Output JJ	VDC	3.15	3.3	3.45				
Supply Voltage - Output KK	VDC	4.50	5.00	5.50				
<b>Pushbutton Circuit:</b> Normally Open Tact Switch								
<b>MECHANICAL RATINGS</b>								
Joystick: Mechanical Life All Directions 3,000,000 Cycles								
Joystick: Mechanical Life All Directions (Friction Held) 1,000,000 Cycles								
<b>Mechanical</b>	<b>Units</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>				
Travel Angle	Degrees	19.0	20.0	21.0				
Over Travel Angle	Degrees	0.5	1.0	1.5				
Operating Force (w/ Boot) at 0.8° from Flange, @ 20° C*	OZ	5.0	8.0	16.0				
Max Allowable Vertical Force on Button	LBS	N/A	N/A	25.0				
Max Allowable Radial Force on Top of Knob*	LBS	N/A	N/A	25.0				
Max Allowable Torque on Button About Shaft Axis*	IN-LBS	N/A	N/A	5.5				
* Button style "A" has a max allowable radial force of 10 lbs and max allowable torque of 3 in-lbs								
<b>Pushbutton:</b>								
Mechanical Life	3,000,000 Cycles							
Button Style 8	OZ	6.0	8.0	10.0				
Operating Force @ 20° C	OZ	8.0	14.0	16.0				
<b>ENVIRONMENTAL:</b>								
<b>Operating Temperature:</b>	°C	-40	20	85				
<b>Joystick:</b>								
Mechanical Seal	ISO 20653, Dusttight or watertight per IP68S (Button styles 2,5,6,8 and 9)							
Drop	1 meter max to concrete							
<b>EMI/RFI Withstand</b>								
Per SAE J1113, Contact Factory for Details								
<b>Pushbutton:</b>								
Mechanical Seal	ISO 20653, Watertight per IP68S Panel Seal (Button styles 8 and 9)							
<b>ELECTRONICS</b>								
<b>Seal Integrity:</b>	Electronics IP68S							
<b>MATERIALS:</b>								
<b>Housing + Flange:</b>	Thermoplastic							
<b>Button:</b>	Thermoplastic							
<b>Bellows:</b>	Silicone, black							
<b>Pushbutton Wires:</b>	24 AWG							
<b>Mounting Hardware:</b>	1-27 Hex nut (.09 Thick) included (with threaded base) Recommended max torque = 7 IN-LBS. or 4x #4-40 x .38 screws with square mounting flange							

3 MILLION CYCLE MECHANICAL LIFE, PUSHBUTTON OPTION

## HTLT2 PART NUMBER CODE

HTLT2	X	X	X	X	X	X	XX	X	X
Button Style	Case Style	Seal*	Travel	Gating	Operating Force	Output 1 ①	Output 2 ②	Termination	Button Color
1. Castle	1. 1-27 Thread	1. Dusttight	1. 20°	1. Single Axis Return to Center	1. 16 oz	AA. 2.5 +/- 2.0VDC	NONE	1. Wire Leads 22 AWG	2. Black
2. External Castle Boot	2. 1" Smooth	2. Watertight Panel Seal**		2. Single Axis - Friction Held		BB. 2.5 +/- 2.0VDC	2.5 +/- 2.0VDC	UL 1569***	
3. Short Double Stadium						CC. 2.5 +/- 2.0VDC	2.5 +/- 2.0VDC	2. Wire Leads 24 AWG	
4. Tall Concave Stadium						DD. 2.5 +/- 1.5VDC	NONE	SAE	
5. External Bat Handle Boot						EE. 2.5 +/- 1.5VDC	2.5 +/- 1.5VDC	AS22759***	
6. External Smooth Boot						FF. 2.5 +/- 1.5VDC	2.5 +/- 1.5VDC		
8. External Castle Boot with Pushbutton						GG. 0.5 - 4.5VDC	0.5 - 4.5VDC		
9. External Castle Boot with High Force Pushbutton						HH. 1.0 - 4.0VDC	1.0 - 4.0VDC		
A. Tall Metal Bat Handle****						JJ. SPI, 3.3V Supply	NONE		
						KK. SPI, 5V Supply	NONE		

\* Electronics sealed to IP68S.

\*\* Watertight panel sealed option available with button styles 2, 5, 6, 8 and 9.

\*\*\* Pushbutton wire leads are 24 AWG, SAE AS22759.

\*\*\*\* Button style "A" has a max. allowable radial force of 10 lbs and max allowable torque of 3 in-lbs.

① Outputs are from the center to the full travel position in each direction. Options "AA", "BB", "CC", "DD", "EE" and "FF" provide increased voltage in +Y and decreasing voltage in -Y. Direction from one output per axis. Options "GG" and "HH" provide increasing voltages in all directions (+Y -Y) from 2 outputs per axis.

② Options "BB" and "EE" provide redundant output 2 which duplicates output 1. Options "CC" and "FF" provide redundant output 2 which is inverse of output 1.

## HTLT4 PART NUMBER CODE

HTLT4	X	X	X	X	X	X	XX	X	X
Button Style	Case Style	Seal*	Travel	Gating	Operating Force	Output 1 ①	Output 2 ②	Termination	Button Color
1. Castle	1. 1-27 thread	1. Dusttight	1. 20°	1. Omnidirectional; Square; on Axis Guided Feel	1. 8 oz	AA. 2.5 +/- 2.0VDC	NONE	1. Wire Leads 22 AWG	2. Black
2. External Castle Boot	2. 1" smooth	2. Watertight Panel Seal**		2. Gated; Two Axis - Return to Center		BB. 2.5 +/- 2.0VDC	2.5 +/- 2.0VDC	UL 1569***	
3. Short Double Stadium				3. Omnidirectional; Square; Smooth Feel		CC. 2.5 +/- 2.0VDC	2.5 +/- 2.0VDC	2. Wire Leads 24 AWG	
4. Tall Concave Stadium				4. Gated; Two Axis - Friction Held		DD. 2.5 +/- 1.5VDC	NONE	SAE AS22759***	
5. External Bat Handle Boot						EE. 2.5 +/- 1.5VDC	2.5 +/- 1.5VDC		
6. External Smooth Boot						FF. 2.5 +/- 1.5VDC	2.5 +/- 1.5VDC		
8. External Castle Boot with Pushbutton						GG. 0.5 - 4.5VDC	0.5 - 4.5VDC		
9. External Castle Boot with High Force Pushbutton						HH. 1.0 - 4.0VDC	1.0 - 4.0VDC		
A. Tall Metal Bat Handle****						JJ. SPI, 3.3V Supply	NONE		
						KK. SPI, 5V Supply	NONE		

\* Electronics sealed to IP68S.

\*\* Watertight panel sealed option available with button styles 2, 5, 6, 8 and 9.

\*\*\* Pushbutton wire leads are 24 AWG, SAE AS22759.

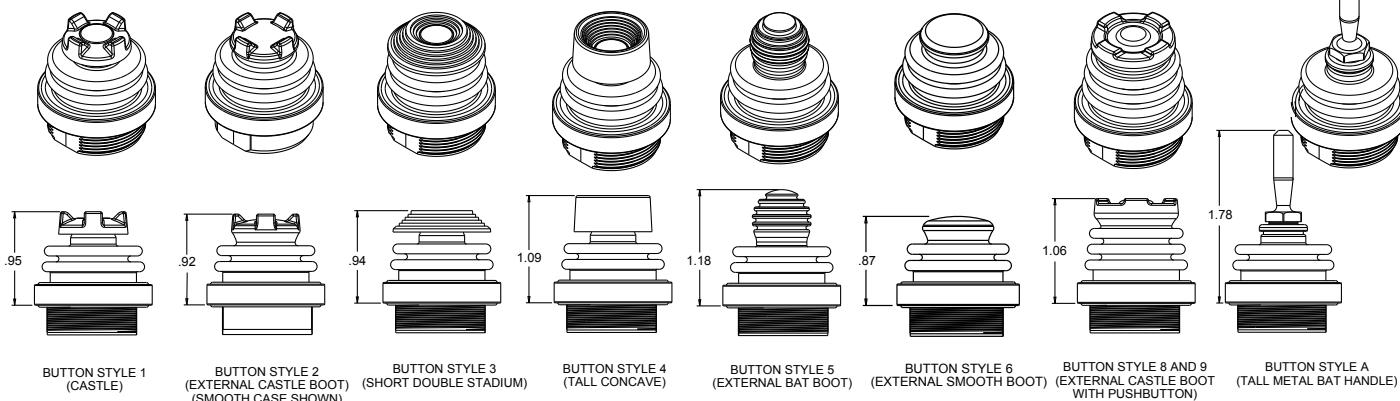
\*\*\*\* Button style "A" has a max. allowable radial force of 10 lbs and max allowable torque of 3 in-lbs.

① Outputs are from the center to the full travel position in each direction. Options "AA", "BB", "CC", "DD", "EE" and "FF" provide increased voltage in +X, +Y and decreasing voltage in -X, -Y. Direction from one output per axis. Options "GG" and "HH" provide increasing voltages in all directions (+X, +Y, -X, -Y) from 2 outputs per axis.

② Options "BB" and "EE" provide redundant output 2 which duplicates output 1.

Options "CC" and "FF" provide redundant output 2 which is inverse of output 1.

## Button Style Configurations

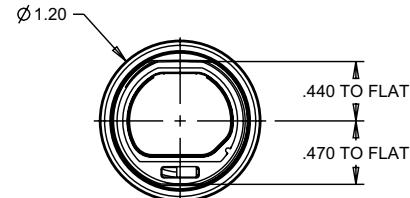
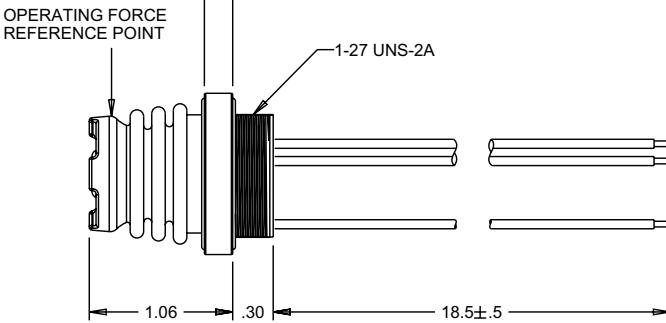
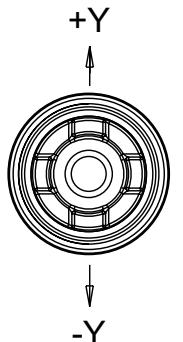


# FINGER JOYSTICK WITH PUSHBUTTON OPTION

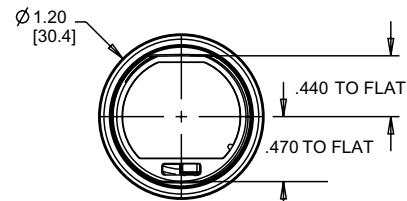
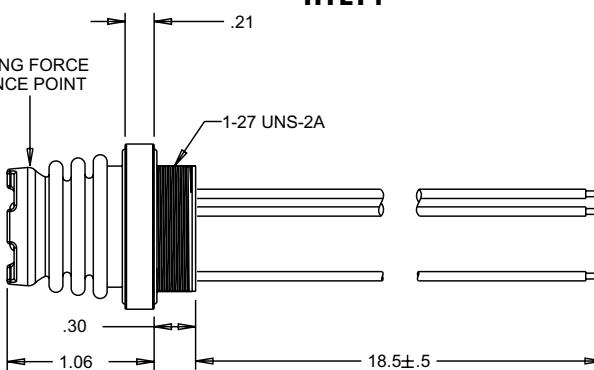
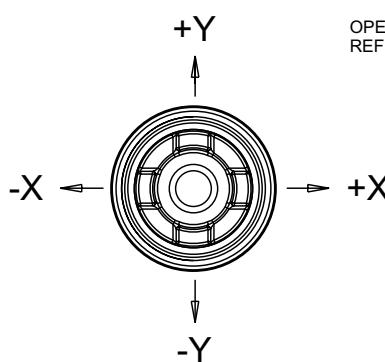
HTLT  
HALL EFFECT  
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3 MILLION CYCLE MECHANICAL LIFE, PUSHBUTTON OPTION

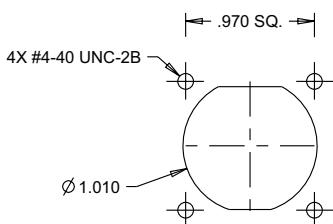
HTLT2



HTLT4



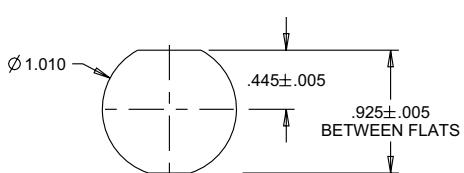
HTLT2 and HTLT4 Panel Footprint



SUGGESTED PANEL OPENING  
WHEN USING FLANGE AND SCREWS.

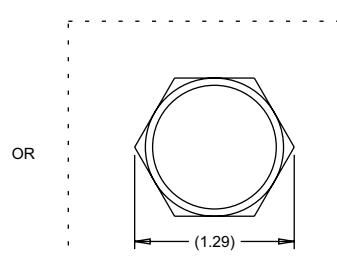
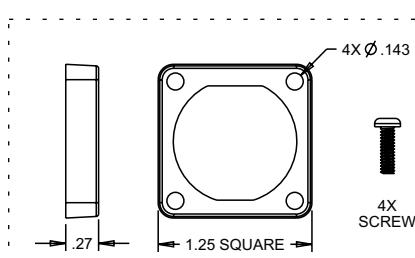
MAX. PANEL THICKNESS OF 0.125  
FOR BOTTOM MOUNT

MIN. PANEL THICKNESS OF .100  
FOR TOP MOUNT



SUGGESTED PANEL OPENING  
WHEN USING 1-27 NUT.

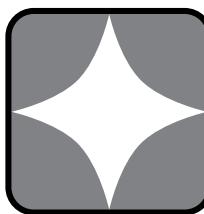
MAX. PANEL THICKNESS OF 0.125



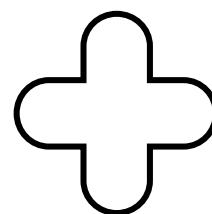
1" SMOOTH CASE STYLE HARDWARE  
SHIPPED UNASSEMBLED

1-27 THREAD CASE STYLE HARDWARE  
SHIPPED UNASSEMBLED

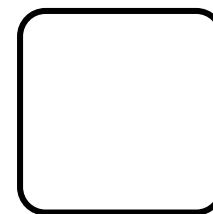
HTLT4 Gating Icons



Omnidirectional;  
Square On-Axis  
Guided Feel  
(defined by shading)



Gated;  
Two Axis  
Return to Center

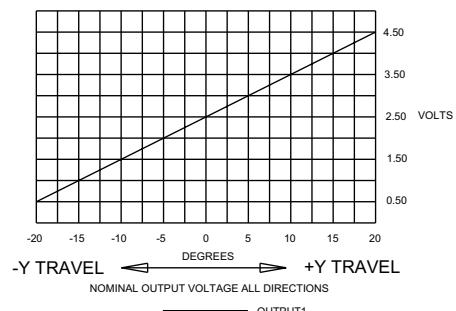


Omnidirectional;  
Square;  
Smooth Feel

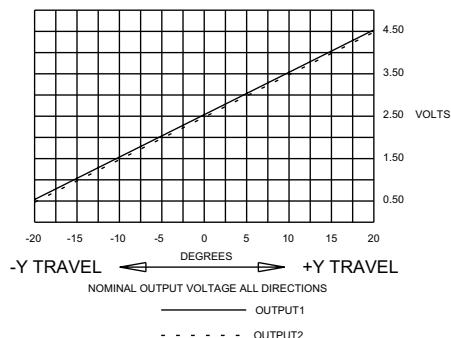
3 MILLION CYCLE MECHANICAL LIFE, PUSHBUTTON OPTION

HTLT2

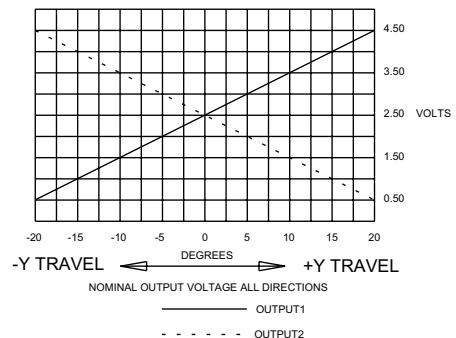
## OPTION AA



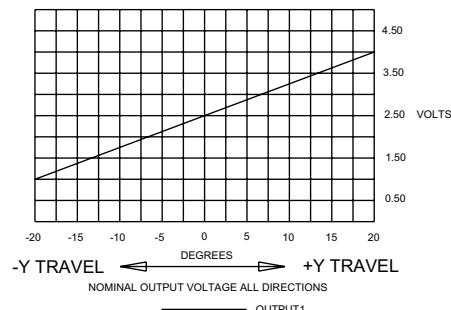
## OPTION BB



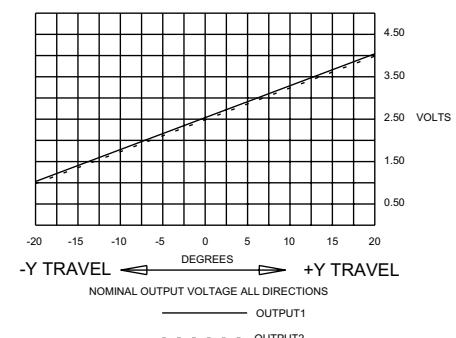
## OPTION CC



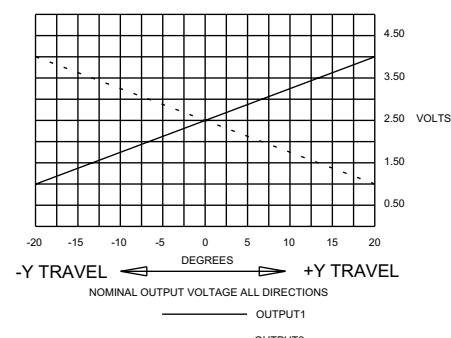
## OPTION DD



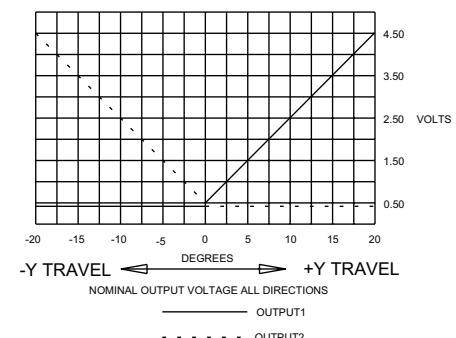
## OPTION EE



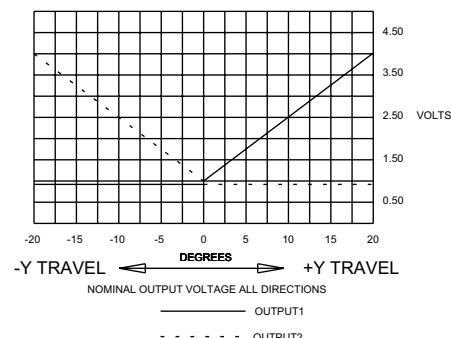
## OPTION FF



## OPTION GG



## OPTION HH

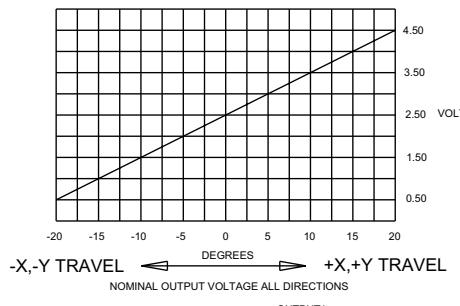


## FINGER JOYSTICK WITH PUSHBUTTON OPTION

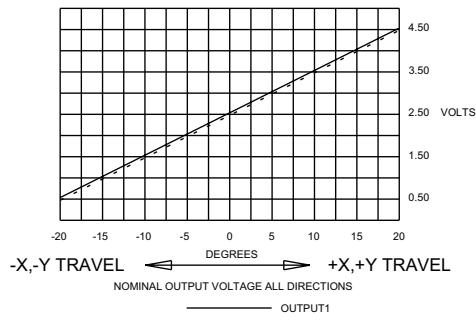
3 MILLION CYCLE MECHANICAL LIFE, PUSHBUTTON OPTION

## HTLT4

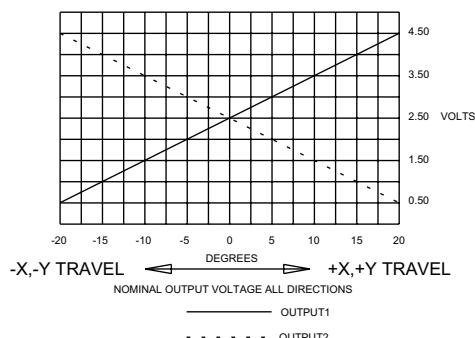
## OPTION AA



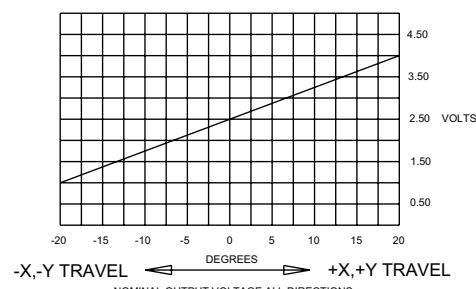
## OPTION BB



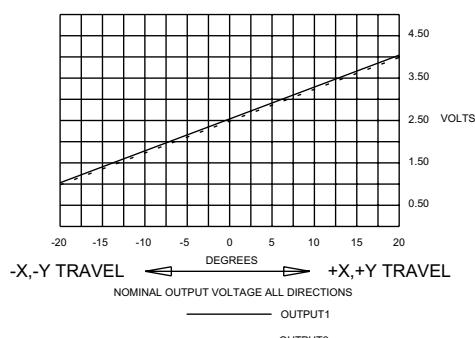
## OPTION CC



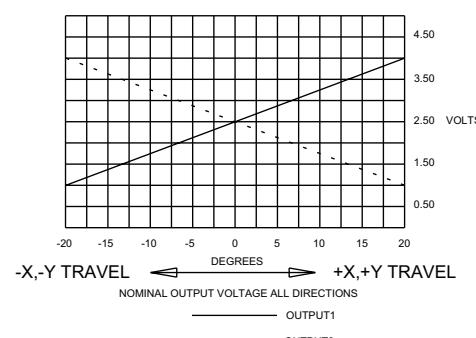
## OPTION DD



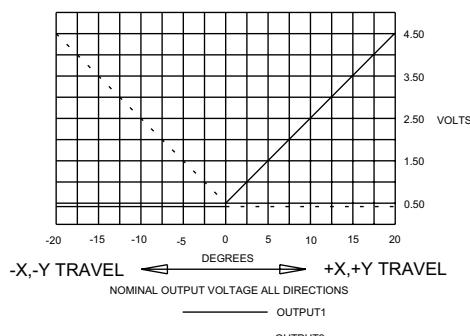
## OPTION EE



## OPTION FF



## OPTION GG



## OPTION HH

