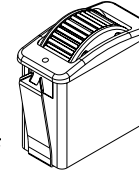
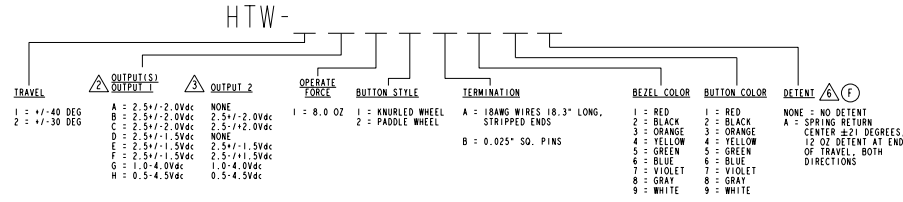


NOTES:

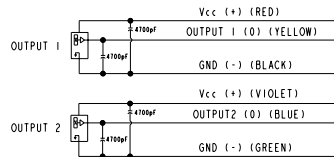
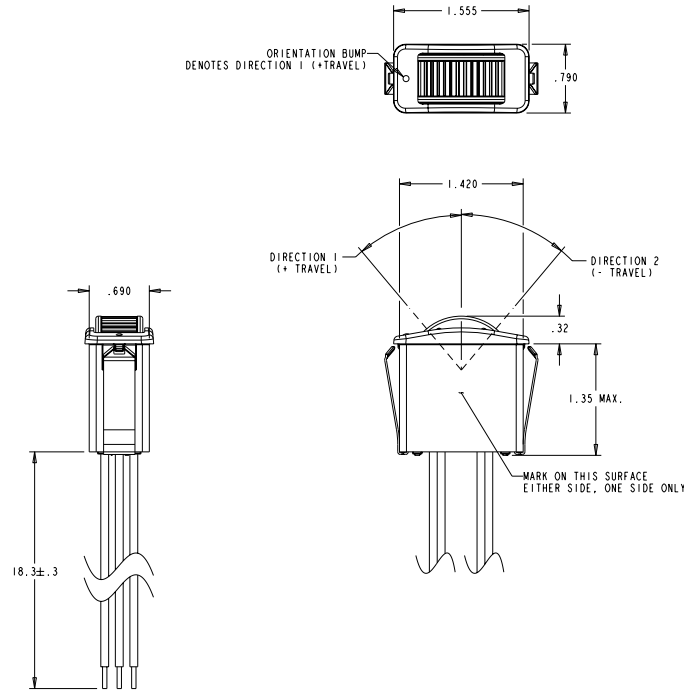
1. MARKING TO INCLUDE:
"OTTO CONTROLS" P/N & DATE CODE "YYWW"
2. OUTPUTS ARE FROM THE CENTER POSITION TO THE FULL TRAVEL POSITION IN EACH DIRECTION.
OPTIONS "A" "B" "C" "D" "E" "F" PROVIDE INCREASING VOLTAGE IN DIRECTION 1 AND DECREASING VOLTAGE IN DIRECTION 2 FROM A SINGLE OUTPUT.
OPTION "G" AND "H" PROVIDE INCREASING VOLTAGES IN BOTH DIRECTIONS FROM TWO SEPARATE OUTPUTS.
3. OPTION "B" AND "E" PROVIDE REDUNDANT OUTPUT 2 WHICH DUPLICATES OUTPUT 1.
OPTION "C" AND "F" PROVIDE REDUNDANT OUTPUT 2 WHICH IS INVERSE OF OUTPUT 1.
4. THIS PART/PRODUCT IS TO BE MANUFACTURED WITH THE APPLICABLE REGULATIONS OF EC DIRECTIVES 2002/95/EC AND 2002/96/EC, RESTRICTION OF THE USE OF HAZARDOUS SUBSTANCES IN ELECTRICAL AND ELECTRONIC EQUIPMENT (RoHS) AND WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE).
5. ALL OPTIONS REACH FULL OUTPUT APPROX. 1" FROM TRAVEL.
6. DETENTED SWITCH FULL TRAVEL IS $\pm 30^\circ$ MAX.
DETENTED SWITCHES REACH FULL OUTPUT BEFORE ENGAGING DETENTS. (F)



SCALE 1:1

REV	OCN	DATE	APR
A	028699	30 AUG 05	LBG
B	031585	10 MAY 06	LBG
C	036485	14 MAR 07	LBG
D	036758	04 APR 07	LBG
E	036978	20 APR 07	LBG
F	037937	22 JUN 07	LBG

SWITCH CHARACTERISTICS				
ELECTRICAL				
RATED AT $V_{CC} = 5V \pm 25^\circ C$ LOAD = $I_{ma} (4-7K\Omega)$	UNITS	MIN	TYP	MAX
SUPPLY VOLTAGE	VDC	4.50	5.00	5.50
OUTPUT VOLTAGE, TOLERANCE AT CENTER (SEE APPROPRIATE GRAPH FOR OUTPUT VALUES)	VDC AT $5V V_{CC}$	$\pm .15$		$\pm .15$
OUTPUT VOLTAGE, TOLERANCE FULL TRAVEL (SEE APPROPRIATE GRAPH FOR OUTPUT VALUES)	VDC AT $5V V_{CC}$	$\pm .25$		$\pm .25$
SUPPLY CURRENT OPTIONS A & D B=0, $V_{CC}=5V$, $I_o=0$	mA			25
SUPPLY CURRENT FOR ALL OTHER OPTIONS B=0, $V_{CC}=5V$, $I_o=0$	mA			50
MECHANICAL				
MECHANICAL LIFE FULL FORWARD TO FULL BACK		3,000,000		
MAXIMUM ALLOWABLE RADIAL LOAD	LBS			30
ENVIRONMENTAL				
OPERATING TEMPERATURE	$^\circ C$	-40	20	85
HUMIDITY		96% RH, $70^\circ C$, 96 HRS		
DROP		3 FT. MAXIMUM TO CONCRETE		
VIBRATION		PER MIL-810F MINIMUM INTEGRITY		
SEAL INTEGRITY		IP68S		
SAND AND DUST		PER SAE J1455 (PORTLAND CEMENT)		
RFI WITHSTAND		100V/m 14Hz TO 1GHz		
EMI WITHSTAND		PER MIL-STD-461D/SAE J1113-22		
MATERIAL				
BUTTON TOP		THERMOPLASTIC		
BEZEL		THERMOPLASTIC		
SNAP ARMS		STAINLESS STEEL		

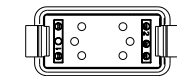
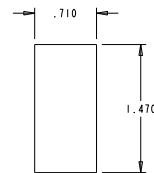


OUTPUT 2 IS NOT PRESENT IN ALL CONFIGURATIONS

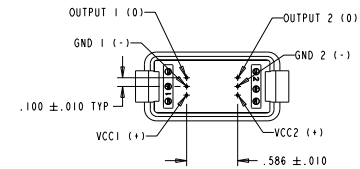
MOUNTING:

RECOMMENDED PANEL THICKNESS: 0.100 OPTIMUM THICKNESS (0.050 MIN. - 0.120 MAX.)

RECOMMENDED PANEL OPENING: 0.710 X 1.470 OPTIMUM (0.710/0.720 - 1.460/1.480)



NOT ALL WIRES ARE PRESENT
IN ALL OUTPUT CONFIGURATIONS



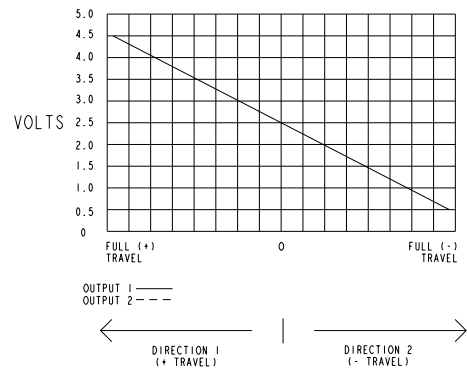
PINNED
TERMINATION
NOT ALL PINS ARE PRESENT
IN ALL OUTPUT CONFIGURATIONS

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. TOLERANCES: .XX $\pm$.03 .XXX $\pm$.010 ANGLES $\pm$ 2° DO NOT SCALE	OTTO CARPENTERSVILLE, ILLINOIS USA	DESCRIPTION HTW, PROPORTIONAL THUMBWHEEL, SPRING RETURN		DRWN. BKC CHKD. LBG APPD. AH WT.	SIZE C	FSCM NO 21649	DRAWING NO. HTW- - - - -	REV. F

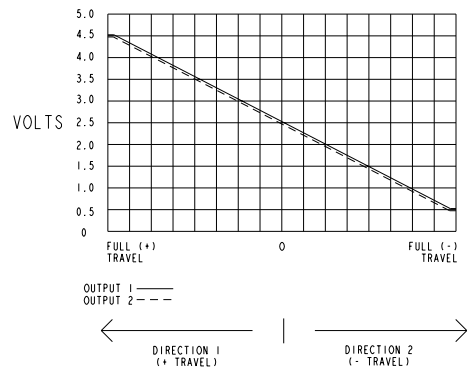
Scale 1:1 Sheet 1 OF 2

REV	OCN.	DATE	APR
A	028699	30 AUG 05	LBG
B	031585	10 MAY 06	LBG
C	036485	14 MAR 07	LBG
D	036758	04 APR 07	LBG
E	036978	20 APR 07	LBG
F	037937	22 JUN 07	LBG

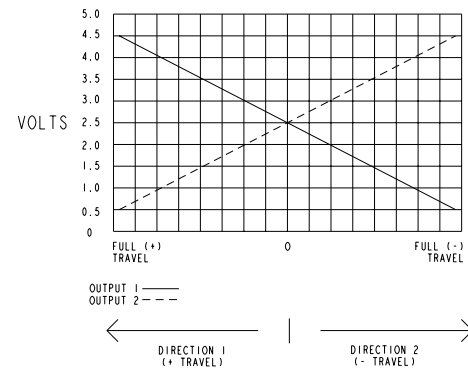
OPTION A



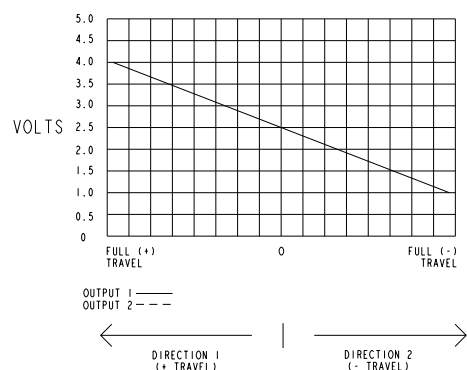
OPTION B



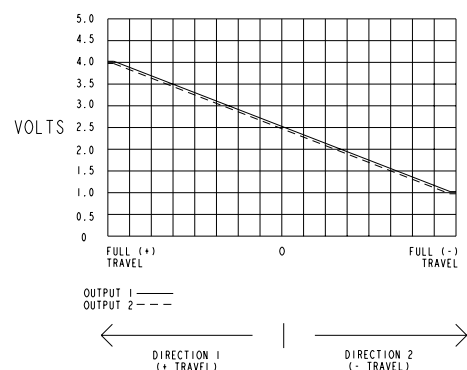
OPTION C



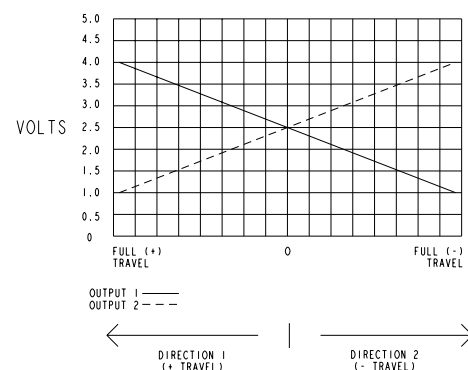
OPTION D



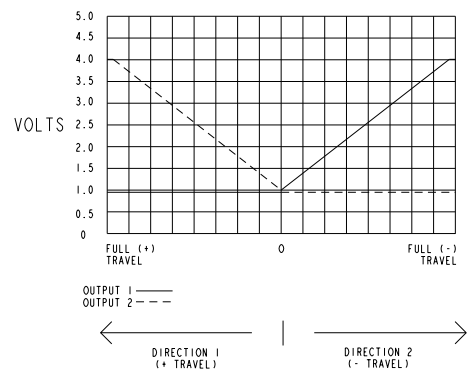
OPTION E



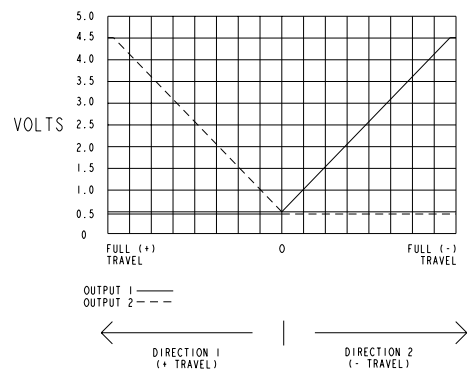
OPTION F



OPTION G



OPTION H



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE AS LISTED. MUST BE FREE FROM BURRS AND SHARP EDGES	TOLERANCES XX ±.03 .XX ±.010 ANGLES ±2° DO NOT SCALE DRAWING	THIS DOCUMENT IS THE CONFIDENTIAL PROPERTY OF OTTO ENGINEERING, INC.. IT IS NOT TO BE USED IN ANY WAY DETRIMENTAL TO THE INTERESTS OF OTTO ENGINEERING, INC..	DRWN. BKC CHKD. LBG APPD. AH	SIZE C	FSCM NO 21649	DRAWING NO. HTW- - - - -	REV. F
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