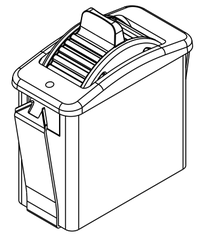
NOTES: (D)

1. DRAWING TO BE INTERPRETED IN ACCORDANCE WITH THE CURRENT REVISION OF ASME Y14.5
2. THIS PART/PRODUCT IS TO BE MANUFACTURED WITH THE LATEST APPLICABLE REGULATIONS OF EC DIRECTIVES FOR THE RESTRICTION OF THE USE OF HAZARDOUS SUBSTANCES IN ELECTRICAL AND ELECTRONIC EQUIPMENT (ROHS), WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE) AND REGISTRATION, EVALUATION, AUTHORIZATION AND RESTRICTION OF CHEMICALS (REACH).
3. MARKING TO INCLUDE: "OTTO" P/N & DATE CODE "YYWW"
4. 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 SEPERATE OUTPUTS.
5. 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
6. DETENTED SWITCH FULL TRAVEL IS ±30° MAX. DETENTED SWITCHES REACH FULL OUTPUT BEFORE ENGAGING DETENTS.

HTW- 2

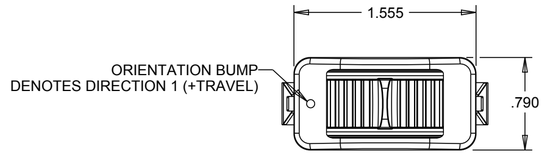
TRAVEL	4 OUTPUT(S) OUTPUT 1	OUTPUT 2 5	OPERATE FORCE	BUTTON STYLE	TERMINATION	BEZEL COLOR	BUTTON COLOR	DETENT 6
1 = +/-40 DEG 2 = +/-30 DEG	A = 2.5+/-2.0Vdc B = 2.5+/-2.0Vdc C = 2.5+/-2.0Vdc D = 2.5+/-1.5Vdc E = 2.5+/-1.5Vdc F = 2.5+/-1.5Vdc G = 1.0-4.0Vdc H = 0.5-4.5Vdc	NONE 2.5+/-2.0Vdc 2.5-/+2.0Vdc NONE 2.5+/-1.5Vdc 2.5-/+1.5Vdc 1.0-4.0Vdc 0.5-4.5Vdc	1 = 5.0 OZ		A = 18AWG WIRES 18.3" LONG, STRIPPED ENDS B = 0.025" SQ. PINS	1 = RED 2 = BLACK 3 = ORANGE 4 = YELLOW 5 = GREEN 6 = BLUE 7 = VIOLET 8 = GRAY 9 = WHITE	1 = RED 2 = BLACK 3 = ORANGE 4 = YELLOW 5 = GREEN 6 = BLUE 7 = VIOLET 8 = GRAY 9 = WHITE	NONE = NO DETENT A = SPRING RETURN CENTER ±21 DEGREES, 12 OZ DETENT AT END OF TRAVEL, BOTH DIRECTIONS

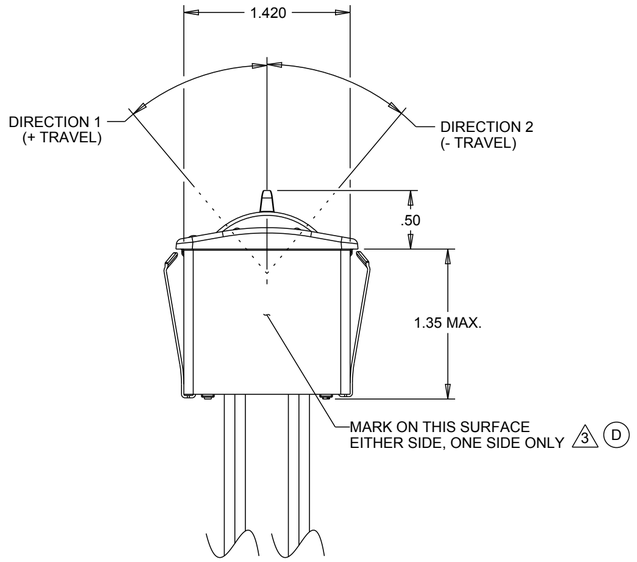


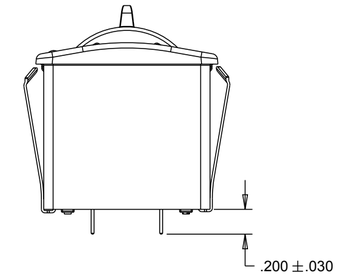
SCALE 1:1

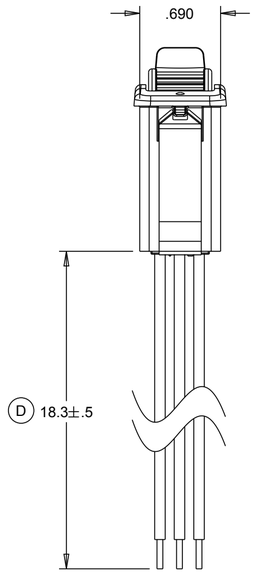
HTW-___2___			
REV	OCN #	DATE	APR
A	047995	24 MAR 09	LBG
B	061319	08 JUN 11	DCF
C	066712	27 JUL 12	DCF
D	070633	24 MAY 13	DCF

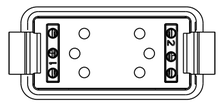
SWITCH CHARACTERISTICS				
ELECTRICAL				
RATED AT Vcc = 5V @ 25°C LOAD = 1ma (4.7KΩ)	UNITS	MIN	TYP	MAX
SUPPLY VOLTAGE	VDC	4.50	5.00	5.50
OUTPUT VOLTAGE, TOLERANCE AT CENTER (SEE APPROPRIATE GRAPH FOR OUTPUT VALUES)	VDC AT 5V Vcc	-.15	NA	+.15
OUTPUT VOLTAGE, TOLERANCE AT CENTER (FOR DETENT VERSION A ONLY)	VDC AT 5V Vcc	-.25	NA	+.25
OUTPUT VOLTAGE, TOLERANCE FULL TRAVEL (SEE APPROPRIATE GRAPH FOR OUTPUT VALUES)	VDC AT 5V Vcc	-.25	NA	+.25
SUPPLY CURRENT OPTIONS A & D B=0, Vcc=5V, Iout=0	mA	NA	NA	10
SUPPLY CURRENT FOR ALL OTHER OPTIONS B=0, Vcc=5V, Iout=0	mA	NA	NA	20
MECHANICAL				
MECHANICAL LIFE FULL FORWARD TO FULL BACK	3,000,000			
MECHANICAL DETENT CYCLE LIFE PER DETENT 6	100,000			
MAXIMUM ALLOWABLE RADIAL LOAD	LBS	NA	NA	30
ENVIRONMENTAL				
OPERATING TEMPERATURE	°C	-40	20	85
HUMIDITY	96% RH, 70°C, 96 HRS			(D)
VIBRATION	PER MIL-810F MINIMUM INTEGRITY			
ELECTRONICS SEAL INTEGRITY	WATERTIGHT PER IP68S, 1 METER			
MECHANICAL SEAL INTEGRITY	UNSEALED			(D)
EMI/RFI WITHSTAND	PER SAE J1113 CONTACT FACTORY FOR DETAILS			(D)
MATERIAL				
BUTTON TOP	THERMOPLASTIC			
BEZEL	THERMOPLASTIC			
SNAP ARMS	STAINLESS STEEL			



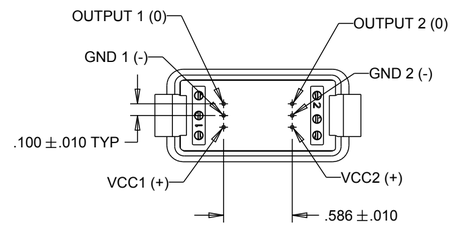






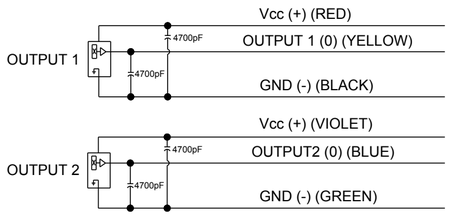


NOT ALL WIRES ARE PRESENT IN ALL OUTPUT CONFIGURATIONS



PINNED TERMINATION

NOT ALL PINS ARE PRESENT IN ALL OUTPUT CONFIGURATIONS

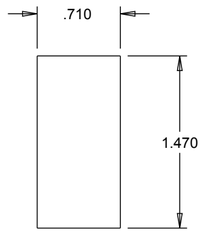


OUTPUT 2 IS NOT PRESENT IN ALL CONFIGURATIONS

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}



MANUFACTURING
SPC
SR SPECIAL REQUIREMENT

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES.
TOLERANCES:
.XX ±.03
.XXX ±.010
ANGLES ±2°
DO NOT SCALE

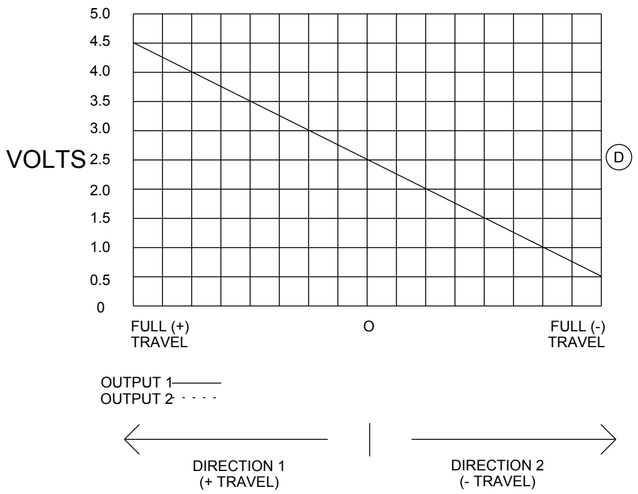
OTTO
CARPENTERSVILLE, ILLINOIS USA

DESCRIPTION
HTW, PROPORTIONAL THUMBWHEEL, PADDLE WHEEL, SPRING RETURN

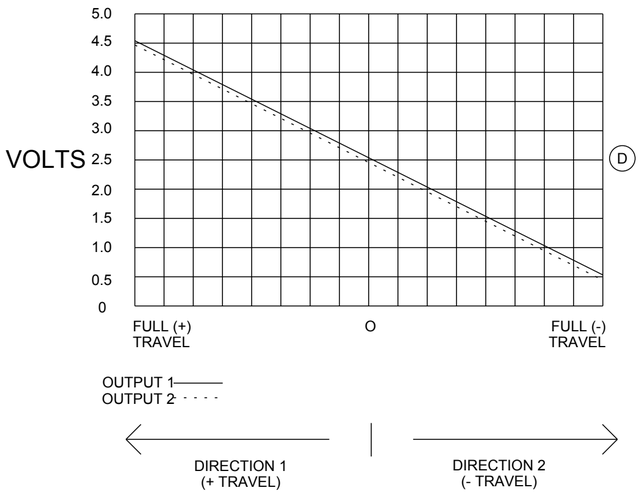
DRWN. TH	SIZE	FSCM NO	DRAWING NO.	REV.
CHKD. DCF	C	21649	HTW-___2___	D
APPD. AH				

THIRD ANGLE PROJECTION | Scale 1:1 | Sheet 1 OF 2

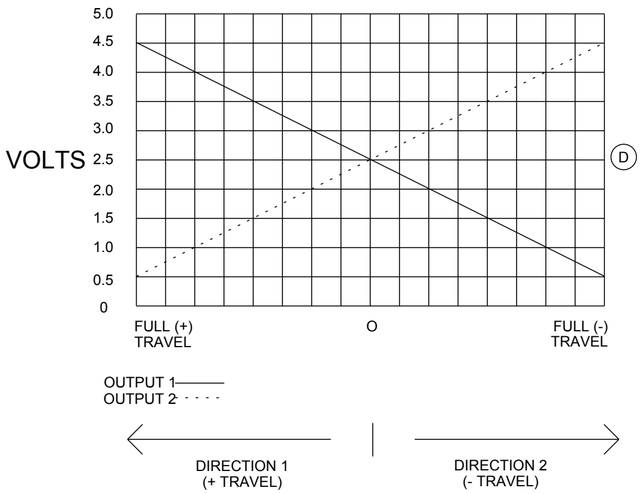
OPTION A



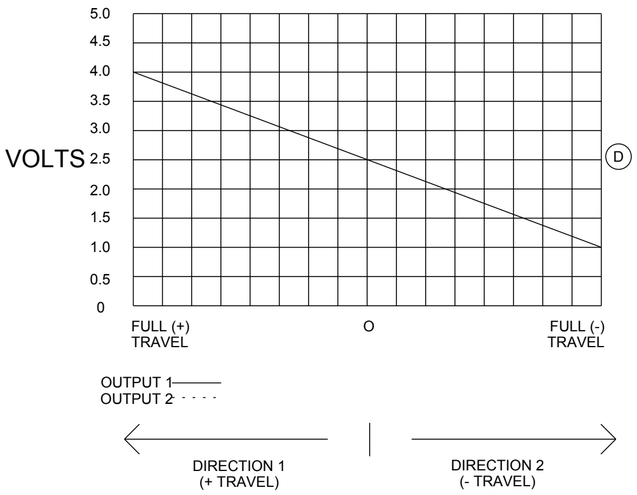
OPTION B



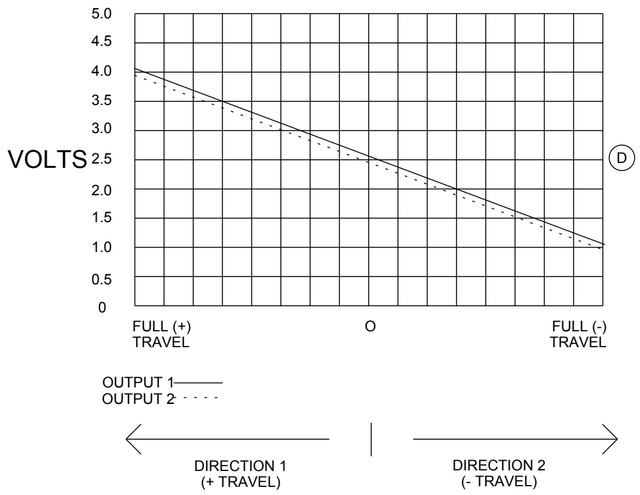
OPTION C



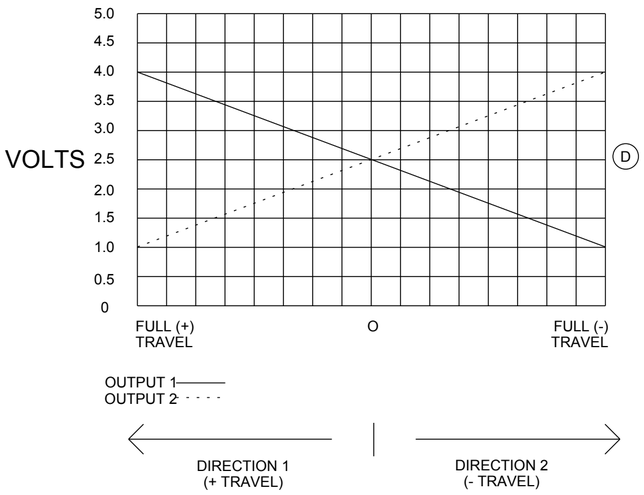
OPTION D



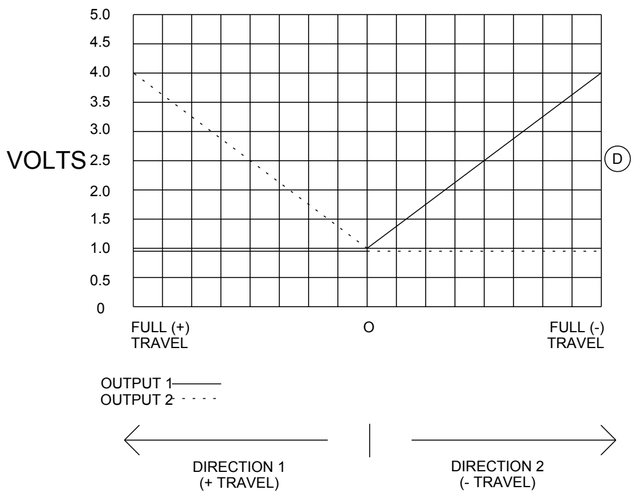
OPTION E



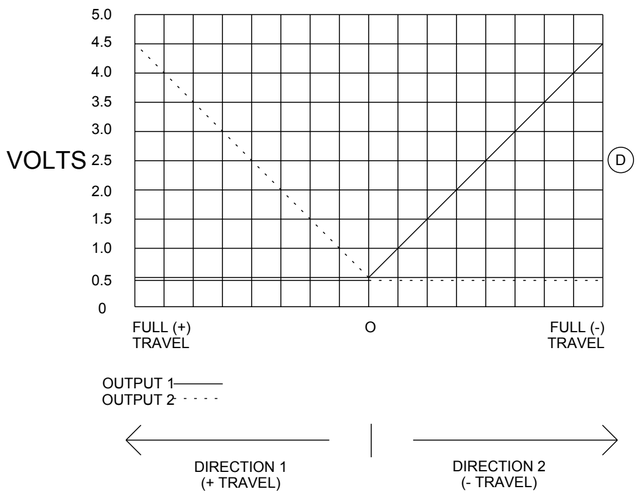
OPTION F



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
.XXX ±.010
ANGLES ±2°
DO NOT SCALE DRAWING

DRWN. TH	SIZE	FSCM NO	DRAWING NO.	REV.
CHKD. DCF	C	21649	HTW-___2___	D
APPD. AH				
WT.	THIRD ANGLE PROJECTION		Scale 1:1	Sheet 2 OF 2