

NOTES:

- DRAWING TO BE INTERPRETED IN ACCORDANCE WITH THE CURRENT REVISION OF ASME Y14.5.
- 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).
- OUTPUTS ARE FROM THE CENTER TO THE FULL TRAVEL POSITION.
 OPTIONS "AA", "BB", "CC", "DD", "EE", "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.
- 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.
- SEE PAGE 3 FOR ALTERNATE BUTTON DESIGN. ONLY BUTTON STYLE "2", "5", AND "6" ARE OFFERED WITH A WATERTIGHT PANEL SEAL.
- MARKING TO INCLUDE: "OTTO" P/N & DATE CODE "YYWW".

HTL2-

HTL2-

| REV | OCN # | DATE | APR |
|-----|--------|-----------|-----|
| A | 044213 | 17 JUL 08 | LBG |
| B | 046891 | 19 JAN 09 | LBG |
| C | 063013 | 19 SEP 11 | DCF |
| D | 063582 | 28 OCT 11 | KLW |
| E | 066712 | 27 JUL 12 | DCF |
| F | 070736 | 31 MAY 13 | DCF |
| G | 071505 | 08 AUG 13 | DCF |

- 5** BUTTON STYLE
 1 = CASTLE
 2 = EXTERNAL CASTLE BOOT
 3 = SHORT DOUBLE STADIUM
 4 = TALL CONCAVE STADIUM
 5 = EXTERNAL BAT HANDLE BOOT
 6 = EXTERNAL SMOOTH BOOT
 7 = LONG CONCAVE Y AXIS BUTTON
- CASE STYLE**
 1 = .970 SQ.
- 5** SEAL
 1 = DUSTTIGHT
 2 = WATERTIGHT
- TRAVEL**
 1 = 25 DEGREES
- GATING**
 1. SINGLE AXIS
- OPERATE FORCE**
 1 = 16 OZ
- OUTPUT 1** **3**
 AA = 2.5+/-2.0 VDC
 BB = 2.5+/-2.0 VDC
 CC = 2.5+/-2.0 VDC
 DD = 2.5+/-1.5 VDC
 EE = 2.5+/-1.5 VDC
 FF = 2.5+/-1.5 VDC
 GG = 0.5-4.5 VDC
 HH = 1-4 VDC
- OUTPUT 2** **4**
 NONE
 2.5+/-2.0 VDC
 2.5+/-2.0 VDC
 NONE
 2.5+/-1.5 VDC
 2.5+/-1.5 VDC
 0.5-4.5 VDC
 1-4 VDC
- TERMINATION**
 1 = WIRE LEADS, 22 AWG, UL1569
 2 = PINS
 3 = WIRE LEADS, 24 AWG, SAE AS22759
- BUTTON COLOR**
 2 = BLACK

PRODUCT SPECIFICATIONS

ELECTRICAL:

| RATED AT V _{cc} = 5V @ 20°C LOAD = 1ma (4.7KΩ) | UNITS | MIN | TYP | MAX |
|--|-------------------------|-------|------|-------|
| SUPPLY VOLTAGE, V _{cc} | VDC | 4.50 | 5.00 | 5.50 |
| OUTPUT VOLTAGE TOLERANCE AT CENTER (SEE APPROPRIATE GRAPH FOR OUTPUT VALUES) | VDC @5V V _{cc} | -.25 | NA | +.25 |
| OUTPUT VOLTAGE TOLERANCE FULL TRAVEL (SEE APPROPRIATE GRAPH FOR OUTPUT VALUES) | VDC @5V V _{cc} | -.25 | NA | +.25 |
| SUPPLY CURRENT PER SENSOR B=0, V _{cc} =5V, I _{out} =0 | mA | NA | NA | 10.0 |
| OUTPUT SOURCE CURRENT LIMIT B=X*, V _o =0 | mA | -1.00 | NA | 1.00 |
| OUTPUT RESISTANCE I _o < -2 mA | Ω | NA | 1.00 | 10.00 |

MECHANICAL:

| MECHANICAL LIFE ALL DIRECTIONS | 1,000,000 CYCLES | | | |
|---|------------------|----|----|-----|
| TRAVEL ANGLE | DEGREES | 23 | 25 | 27 |
| OPERATING FORCE (W/BOOT) AT TOP OF BUTTON, @ 20°C | OZ | NA | 16 | 20 |
| MAX. ALLOWABLE VERTICAL FORCE ON BUTTON | LBS | NA | NA | 25 |
| MAX. ALLOWABLE RADIAL FORCE ON BUTTON | LBS | NA | NA | 25 |
| MAX. ALLOWABLE TORQUE ON BUTTON ABOUT SHAFT AXIS | IN-LBS | NA | NA | 5.5 |

ENVIRONMENTAL:

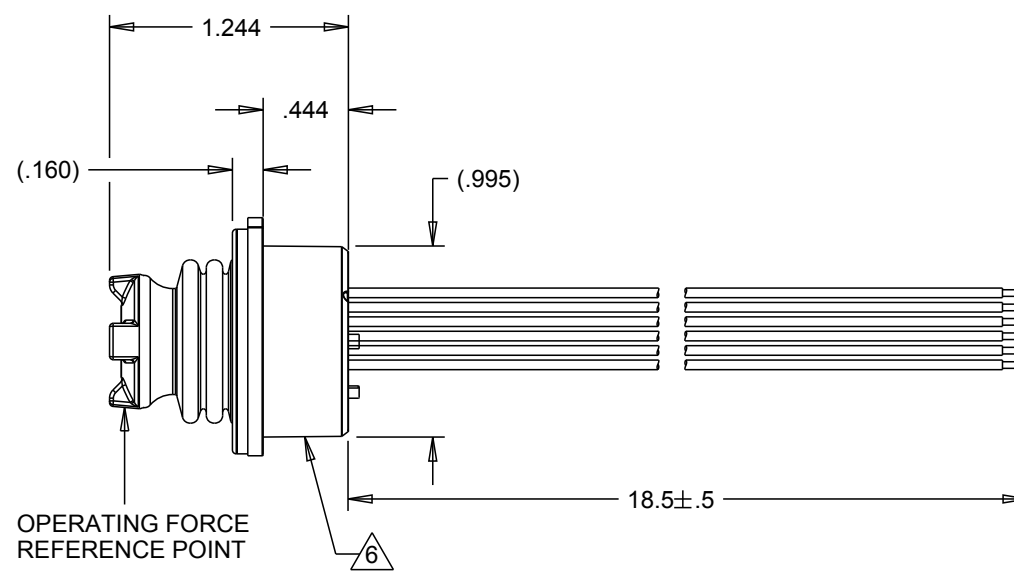
| | | | | |
|----------------------------|---|-----|----|----|
| OPERATING TEMPERATURE | °C | -40 | 20 | 85 |
| ELECTRONICS SEAL INTEGRITY | WATERTIGHT PER IP68S, 1 METER | | | |
| EMI/RFI WITHSTAND | PER SAE J1113 CONTACT FACTORY FOR DETAILS | | | |

MATERIAL:

| | |
|----------|--|
| BOOT | ELASTOMER, BLACK |
| BUTTON | THERMOPLASTIC, BLACK |
| CASE | THERMOPLASTIC, BLACK |
| FLANGE | THERMOPLASTIC, BLACK |
| HARDWARE | 4X ITW FASTEX PANEL FASTENER P/N 36030002, OR EQUIVALENT |

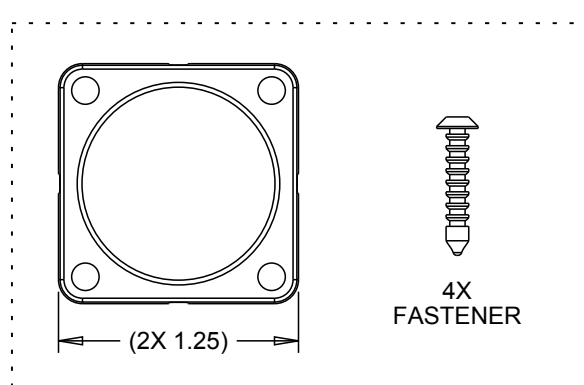


PINS NOT PRESENT IN ALL CONFIGURATIONS



DETAIL A

SCALE 4:1
ALL PINS NOT PRESENT IN ALL CONFIGURATIONS



SHIPPED UNASSEMBLED

ALL WIRES NOT PRESENT IN ALL CONFIGURATIONS

OUTPUT2 NOT PRESENT IN ALL CONFIGURATIONS

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

KEY CHARACTERISTICS
SPECIAL REQUIREMENT

OTTO
CARPENTERSVILLE, ILLINOIS USA

DESCRIPTION
HTL2, LINEAR HALL EFFECT
2-WAY TOGGLE

| | | | | |
|-----------|--------|---------------|-------------------|--------|
| DRWN. JLW | SIZE C | FSCM NO 21649 | DRAWING NO. HTL2- | REV. G |
| CHKD. MRM | | | | |
| APPD. AH | | | | |

OPTION AA



OPTION BB



OPTION CC



OPTION DD



OPTION EE



OPTION FF



OPTION GG



OPTION HH



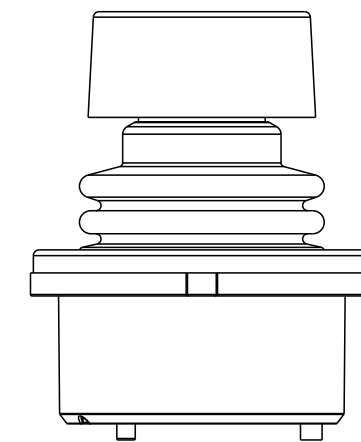
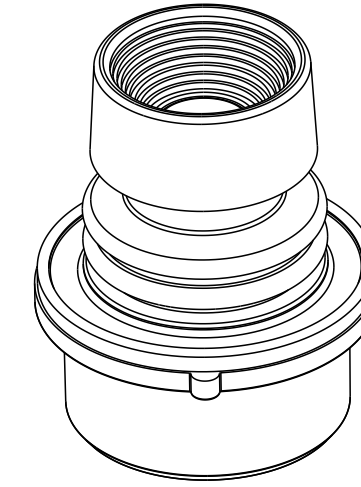
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
TOLERANCES ARE AS LISTED.
MUST BE FREE FROM BURRS
AND SHARP EDGES

TOLERANCES
.XX ±.03
.XXX ±.010
ANGLES ±2°
DO NOT SCALE DRAWING

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| | | | |
|-----------|---------------------------|--------------|--------------|
| DRWN. JLW | SIZE | FSCM NO | DRAWING NO. |
| CHKD. MRM | C | 21649 | HTL2-_____ |
| APPD. AH | | | |
| WT. | THIRD ANGLE PROJECTION | Scale 1:1 | Sheet 2 OF 4 |

REV.
G



BUTTON STYLE 1
(CASTLE)

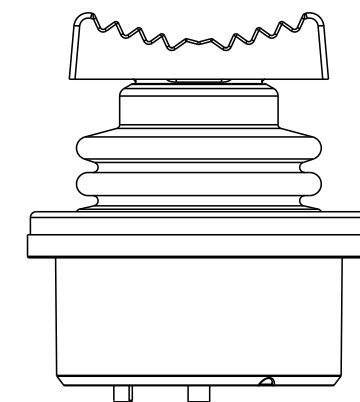
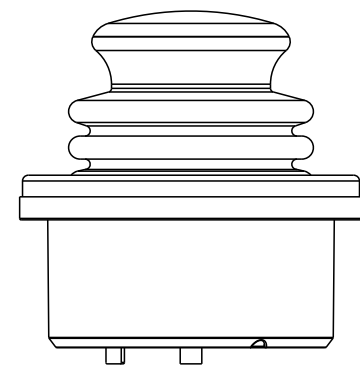
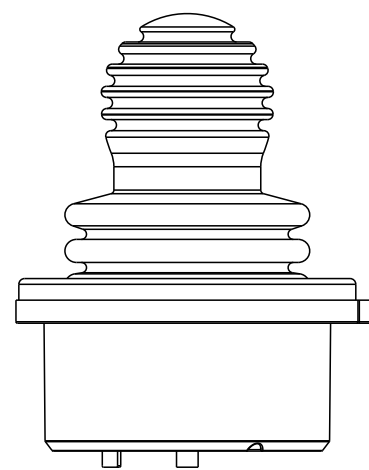
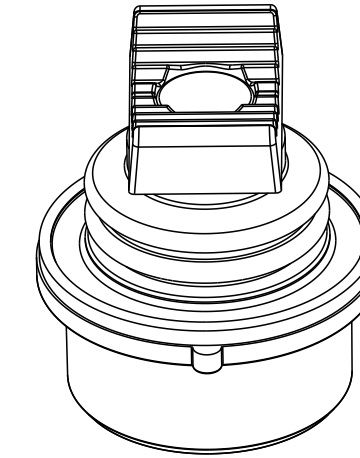
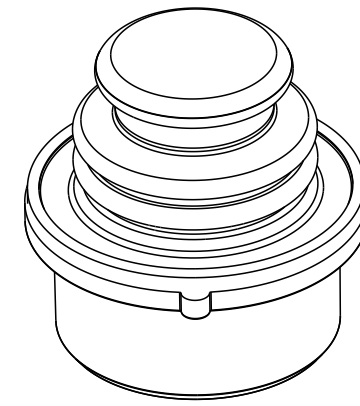
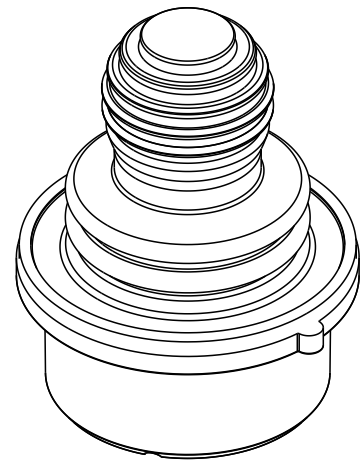
BUTTON STYLE 2
(EXTERNAL CASTLE BOOT)

BUTTON STYLE 3
(SHORT DOUBLE STADIUM)

BUTTON STYLE 4
(TALL CONCAVE STADIUM)

BUTTON STYLE CONFIGURATION

| | | | | | | | | |
|--|------------|-------|--|---------------------------|-----------|--------------|-------------|------|
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE AS LISTED. MUST BE FREE FROM BURRS AND SHARP EDGES | TOLERANCES | | 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. JLW | SIZE | FSCM NO | DRAWING NO. | REV. |
| | .XX | ±.03 | | CHKD. DCF | C | 21649 | HTL2-_____ | G |
| | .XXX | ±.010 | | APPD. AH | | | | |
| ANGLES ±2° DO NOT SCALE DRAWING | | | WT. | THIRD ANGLE PROJECTION | Scale 1:1 | Sheet 3 OF 4 | | |



**BUTTON STYLE 5
(EXTERNAL BAT
HANDLE BOOT)**

**BUTTON STYLE 6
(EXTERNAL SMOOTH BOOT)**

**BUTTON STYLE 7
(LONG CONCAVE Y AXIS BUTTON)**

BUTTON STYLE CONFIGURATION

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

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DRWN. JLW
CHKD. DCF
APPD. AH
WT.

SIZE
C

FSCM NO
21649

DRAWING NO.
HTL2-_____

REV.
G

THIRD ANGLE
PROJECTION

Scale 1:1

Sheet 4 OF 4