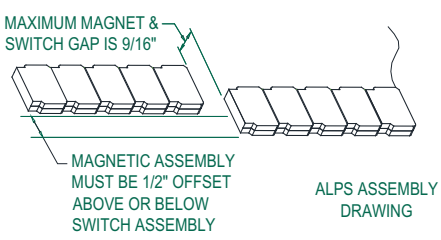
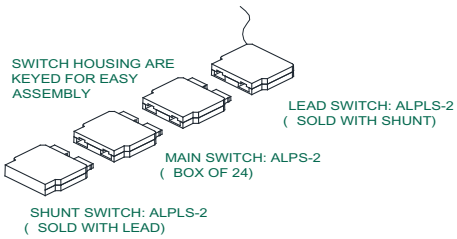
Adjustable Length Position Sensors

For Horizontal Sash Position Measurement



ALPS ASSEMBLY DRAWING

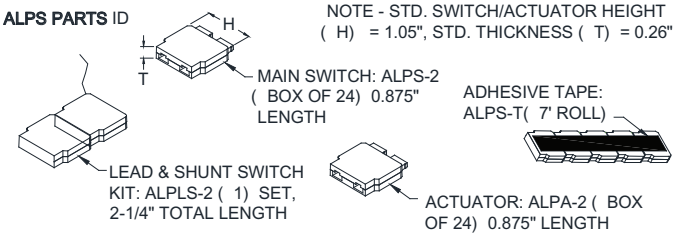


The Best Horizontal Sash Sensing System Available!

- Keyed for simple snap together creating infinite length
- Indicates relative position of sashes and sliding elements
- Universal 10 Ohm per switch section resistive output
- LEED and Green Globe energy point applicable
- Easily applied to existing hoods
- Optimize ventilation energy
- Patent pending technology
- Made in the U.S.A.
- UL Listed Components

ALPS™
POSITION SENSORS

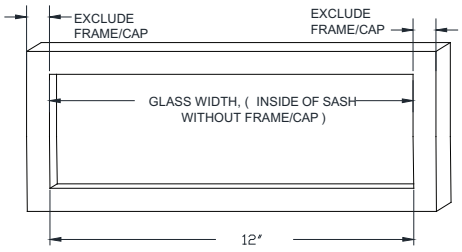
ALPS PARTS ID



NOTE - STD. SWITCH/ACTUATOR HEIGHT (H) = 1.05", STD. THICKNESS (T) = 0.26"

STEP 1: DETERMINE ACTUATOR AND SWITCH ARRAY SIZES.

- FOR EXAMPLE, A 5 FOOT HORIZONTAL FUME HOOD HOOD WITH A TOTAL 52" TOTAL OPENING HAS 4 EQUAL SIZED 13" SASHES WITH $\frac{1}{2}$" EDGE CAP FRAME
- A FREE GLASS AREA WIDTH OF 12" PER SASH IS MEASURED. MEASURE WIDTH OF EACH SASH. EXCLUDE FRAME OR EDGE CAP ON GLASS.



STEP 2: ASSEMBLE ACTUATORS

A. DETERMINE THE NUMBER OF ACTUATORS REQUIRED, DIVIDE THE GLASS WIDTH BY THE ACTUATOR LENGTH OF 0.875".

ACTUATOR QUANTITY FORMULA: 12" / 0.875" = 13.7 => 13

12" GLASS WIDTH - 0.875" ACTUATOR LENGTH = 13.7" REMAINDER ROUNDED DOWN => 13 ACTUATORS

B. ASSEMBLE ACTUATOR ARRAYS FOR EACH SASH.

- ACTUATOR SEGMENTS ARE KEYED SO THAT THEY ONLY FIT TOGETHER WITH THE PROPER POLARITY.

13 SECTION ARRAY

STEP 3: ASSEMBLE SWITCH ARRAYS FOR EACH SASH.

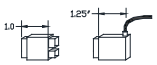
A. DETERMINE THE SASHES FOR THE LEADS TO BEST TRAVEL UP TO CONTROLLER,(WHERE WIRELESS OPTION IS NOT USED)

B. DETERMINE THE QUANTITY OF SWITCHES IN EACH ARRAY.

FOR 12" SASH EXAMPLE

SWITCH QUANTITY FORMULA:(12" - 2.25") / 0.875" = 11.1 => 11

C. SUBTRACT 2.25" (1.25 LEAD AND 1" SHUNT LENGTH) FROM THE GLASS SASH WIDTH.



12" GLASS WIDTH - 2.25" END SHUNT & LEAD COMBINED LENGTH = 9.75" REMAINDER

D. DIVIDE REMAINDER BY 0.875" SWITCH SECTION LENGTH AND ROUND DOWN.

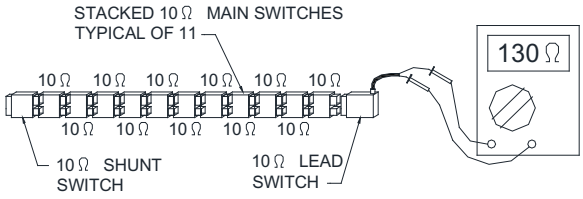
9.75" REMAINDER /  0.875" Single Switch Section = 11.14" ROUNDED DOWN TO NEXT FULL LENGTH => 11 SWITCHES

STEP 3: ASSEMBLE SWITCH ARRAYS FOR EACH SASH - CONTINUED

E. ASSEMBLE POLARIZED SWITCH SECTIONS TOGETHER WITH LEAD SWITCH AND SHUNT SWITCH INSTALLED AT ENDS.

F. AFTER THE SWITCH SEGMENTS ARE ASSEMBLED TOGETHER MAKE SURE THEY ARE ALL FULLY PRESSED IN TO EACH OTHER BEFORE TESTING.

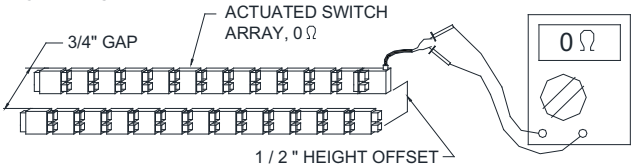
G. VERIFY 10 OHM PER SWITCH SECTION FOR A TOTAL OF 130 OHM IN THE CURRENT EXAMPLE



STEP 4: TEST ASSEMBLY ARRAYS

A. HOLD THE ACTUATOR ARRAY 3/4" OR LESS ABOVE THE SWITCH ARRAY (FLAT TO FLAT) AND CONFIRM THE METER READS 0 OHMS, (ACTUATORS ENGAGING THE SWITCHES)

G. THE ACTUATOR ARRAYS DO NOT REQUIRE TESTING ALTHOUGH THEY MUST BE FULLY PRESSED IN TO EACH OTHER PRIOR TO APPLICATION OF ADHESIVE TAPE.



STEP 5: FINAL STEP PRIOR TO INSTALLING ON HOOD

A. CLEAN THE MATING SURFACES OF THE ARRAYS AND THE GLASS WITH THE ALCOHOL WIPE PROVIDED.

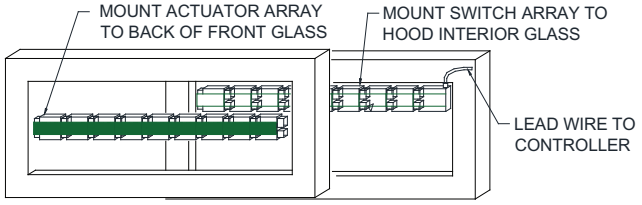
B. APPLY ADHESIVE TAPE TO ACTUATOR AND SWITCH ARRAYS AS DEMONSTRATED BELOW.

C. DO NOT REMOVE THE PROTECTIVE PAPER FROM THE TAPE UNTIL YOU ARE READY TO APPLY THE ARRAY TO THE GLASS.

WARNING: TEST ARRAY BEFORE APPLYING ADHESIVE IN THIS STEP!

STEP 7: ADHERE ASSEMBLED SWITCH AND ACTUATOR ARRAYS TO GLASS SURFACE.

- IN MOST CASES THE SWITCHES ARE INSTALLED ON THE FACE OF THE GLASS INSIDE THE HOOD AND THE ACTUATORS ARE INSTALLED IN BETWEEN SASHES ON THE FRONT TRACK SASH.
- AS LONG AS THE GAP BETWEEN THE ACTUATORS AND SWITCHES IS **3/4"** OR LESS THEY CAN BE INSTALLED IN ANY POSITION.
- THE ACTUATOR AND SWITCH ARRAYS MUST BE MOUNTED **1/2"** OFFSET ABOVE OR BELOW EACH OTHER FOR PROPER OPERATION



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