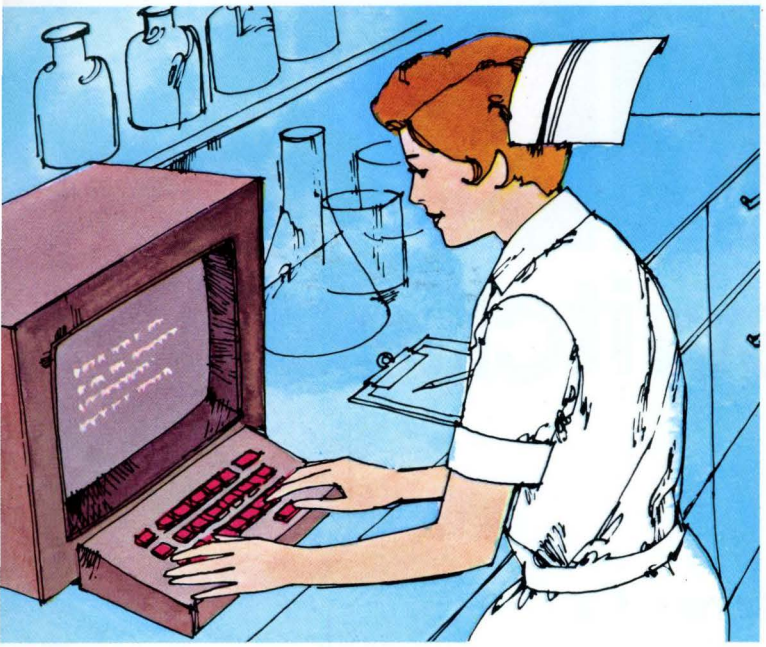
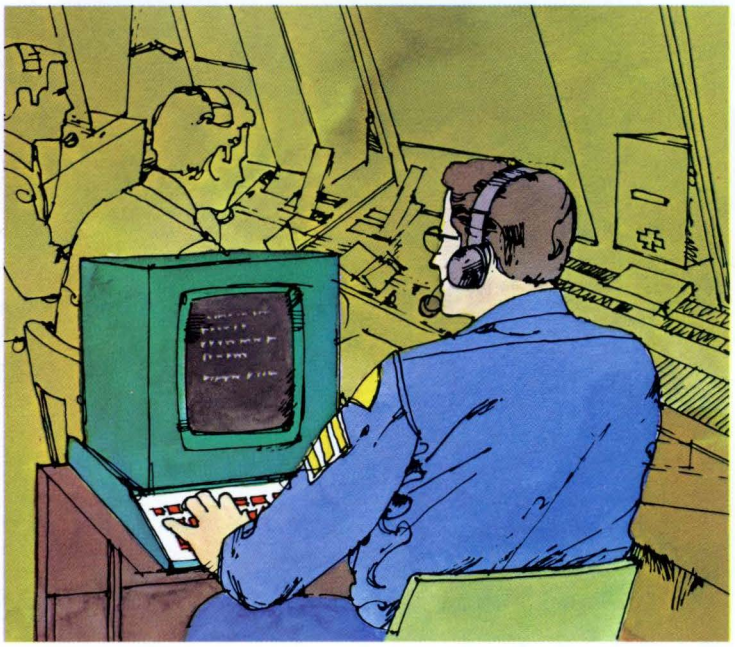
OAK

keyboard switches

low-cost, high-reliability switches for
■ data terminals ■ calculators ■
business machines ■ security devices ■
and a host of other applications ■

Oak Series 400 Keyboard Switc





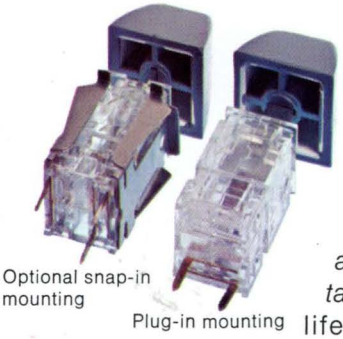
Applications include:

Data-input terminals. Bank terminals. Business machines. Typewriter and

Less than 30¢ each* in production quantities.

Even with all of the Series 400's superior features, you can still save as much as 50% over comparable keyboard switches. (Price comparisons made between SPST types.) And you'll enjoy even greater savings in multiple-pole configurations.

*Less button and mounting clip.



Optional snap-in mounting

Plug-in mounting

Reliability and versatility are the keynotes.

The Series 400 has the *inherent reliability of gold-alloy, crossbar-wiping contacts*—self-cleaning, long-life, tarnish-resistant. And they're *tested for more than 20-million operations.*

Choose either plug-in or optional snap-in mounting.

Patented

Performance Data

Operating Life:
Tested for more than 20-million operations per key at rated load.

Operating Force:
3 oz. ± ½ oz. (85 gm. ± 15 gm.).

Key Travel:
0.125 ± 0.010 in. total

Pre-Travel:
0.070 in. nominal.

Temperature Range:
0 - 85°C.

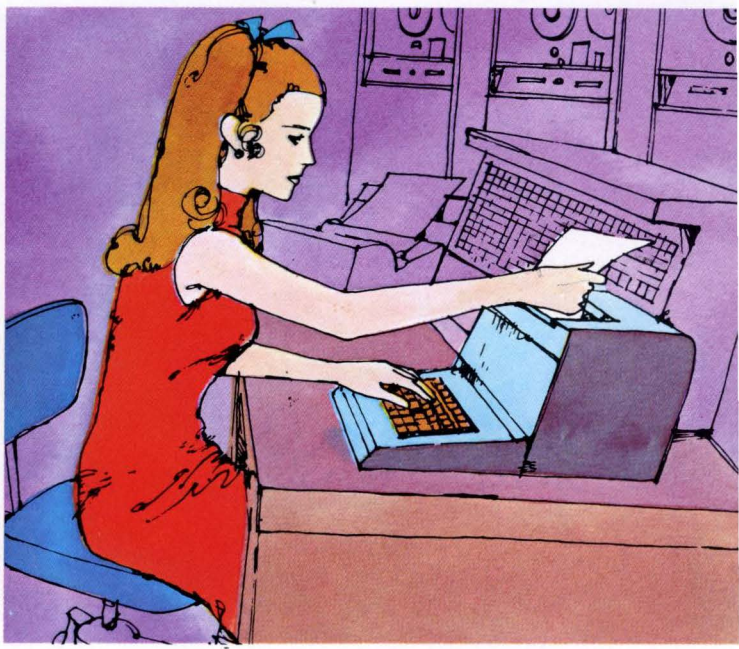
Contact Bounce:
Less than 3 milliseconds, N.O. only.

Contact Resistance:
Less than 100 milliohms throughout switch life.

Breakdown Voltage:
Over 500 V.A.C.

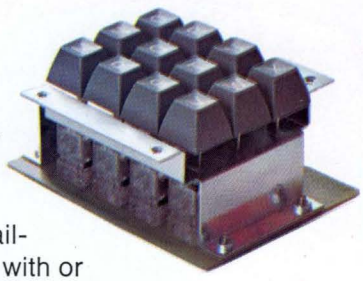
Contact Rating:
5 V.D.C., resistive load. 100 ma. (Higher ratings can be applied with corresponding decrease in life expectancy.)

hes. Low cost. Versatile. Long life.



calculator keyboards. Reservation systems. Credit-verification systems.

Configurations to order.



SPST, DPST N/O & N/C; SPDT & SPST with dummy lug (momentary.) Positive non-shorting available in SPDT. Alternate action available as SPST N/O & N/C, with or without dummy lug in both straight and 11° plunger version. Also, 10, 12 or 16 position keypads. Plungers mate with industry standard keytops.

Plus operator convenience.

These keyboard switches are human-engineered for comfortable, fatigue-free operation. And they're also available with 11° offset for inclined keyboard applications.

Materials

Contacts:
Gold-alloy crown on nickel base. Crossbar wiping.

Contact Leaves:
Copper alloy.

Housing:
Polycarbonate (Lexan), U.L. SE-1 listing. (See page 4 on recommended cleaning solvents.)

Actuator:
Polycarbonate (Lexan), U.L. SE-1 listing. (See page 4 on recommended cleaning solvents.)

Plunger:
Stainless steel.

Dimensions

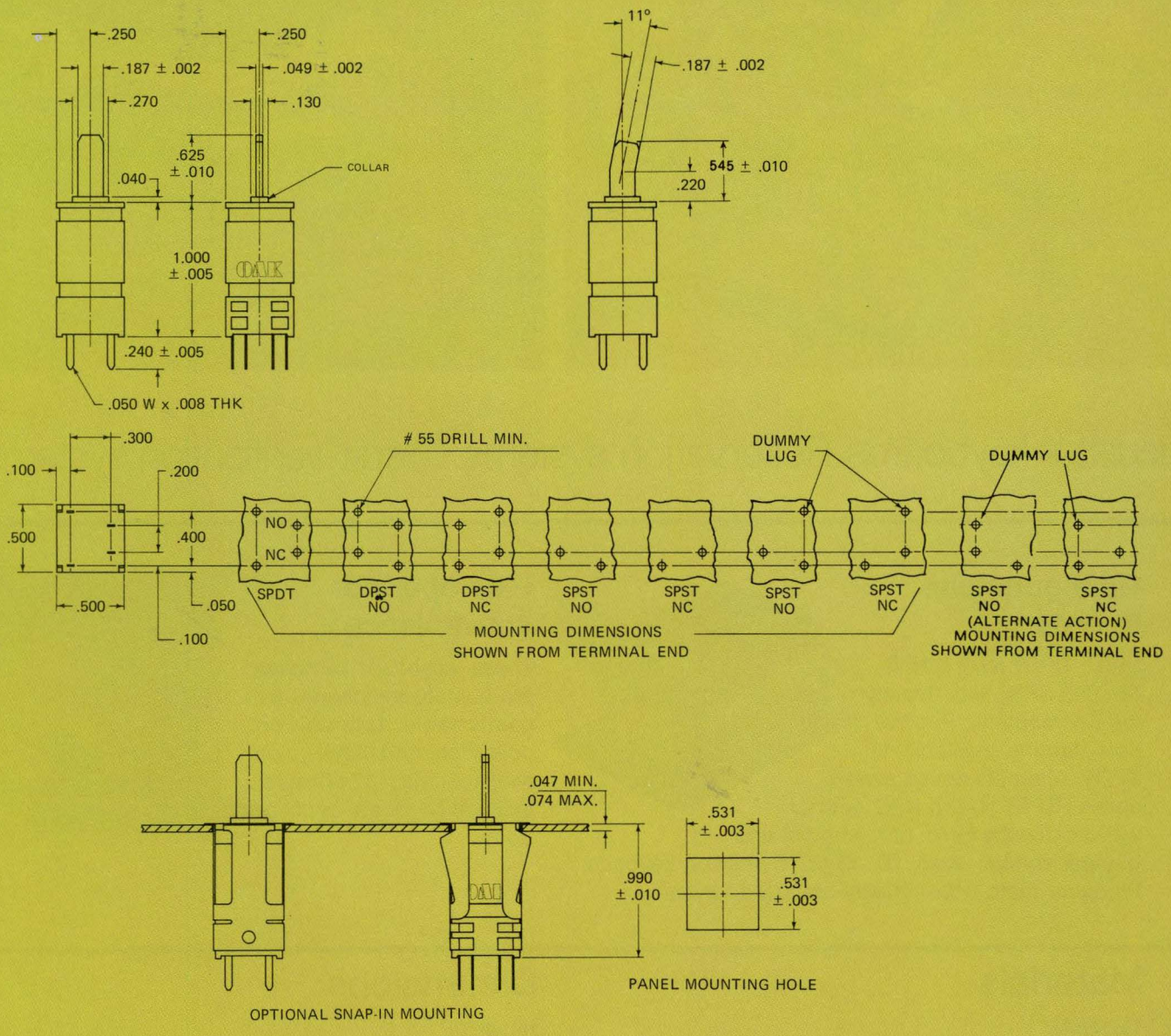
Housing:
0.50 x 0.50 x 1.00 in. high

Plunger:
0.187 (± 0.002) x 0.049 (± 0.002) in. at button end. Length: 0.625 in. standard. 11° offset plunger also available.

Mounting:
Plug-in for printed-circuit boards. Snap-in clip for panel mounting also available.

Terminals:
0.050 ± 0.002 x 0.008 x 0.240 in. long (below standoffs on housing). Terminal ends are tinned to facilitate soldering. Also available cut to 0.125 in. long.

OAK SERIES 400 KEYBOARD SWITCHES. Dimensions and Mounting Requirements.



Note on cleaning solvents

Recommended Cleaning Solvents

When cleaning PC boards after soldering, we recommend the use of:

Denatured Alcohol No. 1430
Ethanol (grain alcohol)
Methanol (wood alcohol)
Isopropyl Alcohol
Detergent Solution (1% Joy in water)
Freon TF
Heptane
Petroleum Ether
V.M. & P. Naphtha
White Kerosene

Cleaning Solvents Detrimental to Polycarbonate (Lexan) and Modified PPO (Noryl)

Do NOT use:
Acetone
Benzol
Carbon Tetrachloride
Methyl Ethyl Ketone
Methyl Isobutyl Ketone
Toluol
Trichlorethylene
Triclene
Any halogenated or aromatic hydrocarbon

IMPORTANT

Oak Series 400 or Series 475 switches should NOT be immersed in the cleaning solution. Such practices will coat the internal surfaces with foreign matter (flux, etc.) and also remove lubrication from necessary areas. This can result in "sticky" plunger action, affecting electrical characteristics of the switch.

OAK Series 475

Compact Keyboard Switches

with lower profile than most other keyboard switches

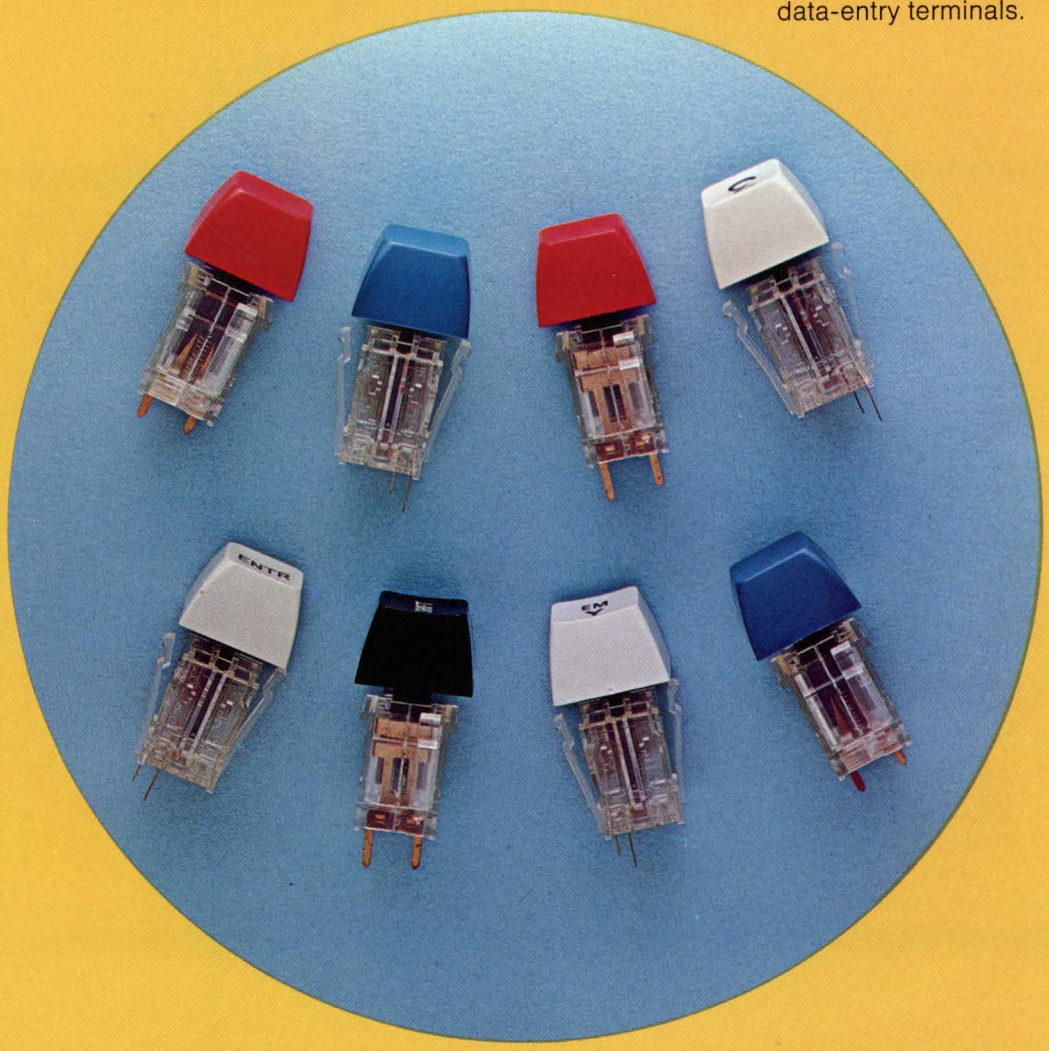
Patented

High reliability. The gold-alloy, crossbar-wiping contacts used in the Series 475 mean long life and high reliability. In fact, they've been tested for more than 20 million operations.

Your choice of switching action. The Series 475 is available in momentary SPST and DPST, N.O. or N.C.; SPDT non-shorting and SPST with dummy lug. Alternate action is available in SPST. Also available in 11° offset plungers for sloped keyboards. Plungers mate with industry standard keytops.

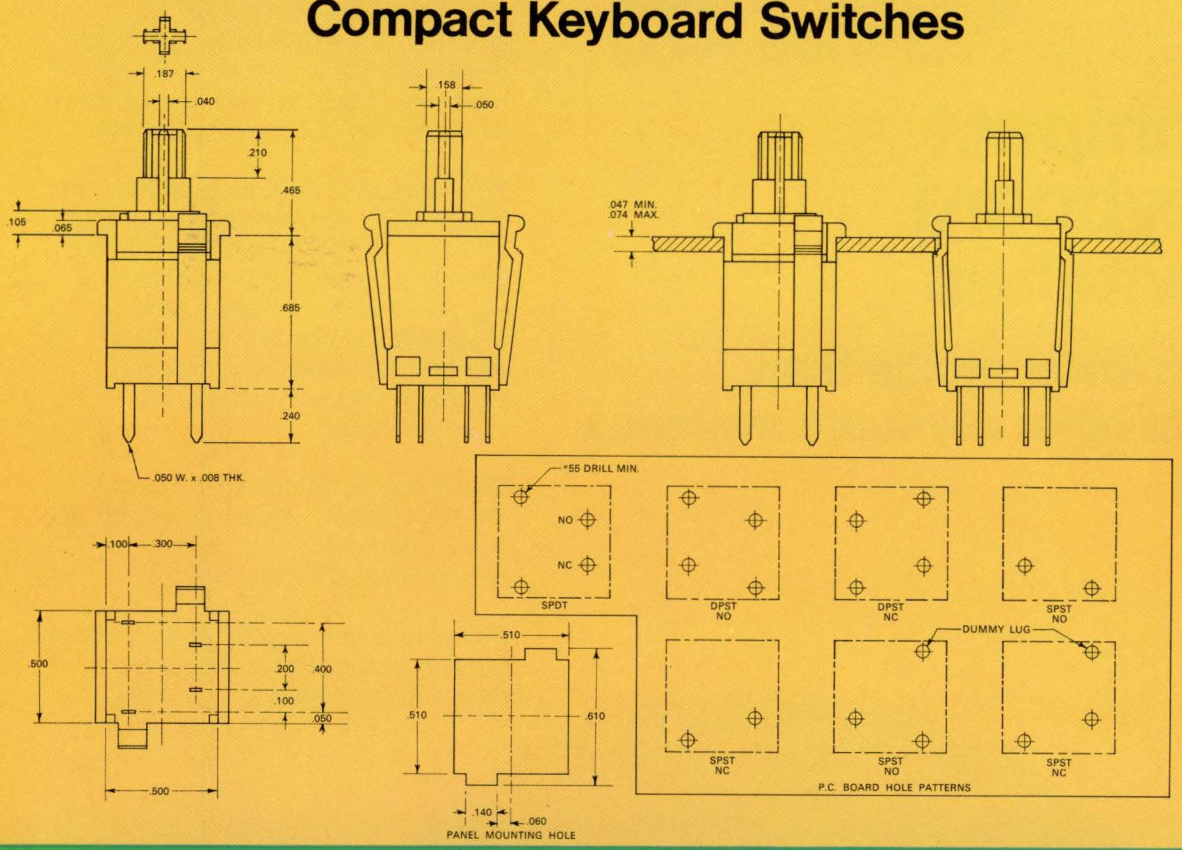
Comfortable, fatigue-free operation. These compact, keyboard switches are human-engineered for operator convenience and comfort.

Suited to a wide variety of applications ranging from business machines to data-entry terminals.



Specifications for OAK Series 475

Compact Keyboard Switches



PERFORMANCE CHARACTERISTICS:

Operating Life ..... Tested for more than 20-million operations per key at rated load.

Operating Force ..... 3 oz. ± ½ oz. (85 gm ± 15 gm).

Key Travel ..... 0.125 ± 0.010 in. total.

Pre-Travel ..... Normally open, 0.090 in. (nominal). Normally closed, 0.055 in. (nominal).

Temperature Range ... 0—85°C.

Contact Bounce ..... Less than 3 milliseconds, N.O. only.

Contact Resistance ... Less than 100 milliohms throughout switch life.

Breakdown Voltage ... 500 V.A.C.

Contact Rating ..... 5 V.D.C., resistive load. 100 ma. (Higher ratings can be applied with corresponding decrease in life expectancy.)

PHYSICAL CHARACTERISTICS:

Contacts ..... Gold-alloy crown on nickel base. Crossbar wiping.

Contact Leaves ..... Copper alloy.

Housing ..... Polycarbonate (Lexan) U.L. SE-1 listing. (See page 4 for recommended cleaning solvents.)

Actuator Plunger ..... Modified PPO (Noryl) U.L. SE-1 listing. (See page 4 for recommended cleaning solvents.)

OAK Series 415

Low-Profile Key Switches

for modern keyboard design

Patent Pending

Human engineered keytops that add to the compact efficiency of hand-held and desk-top calculators. Ideal, too, for data entry, communications, security and educational equipment.

Low cost—Low-Profile
Keytop sizes and styles to fit your application for any data entry device.

High reliability that adds to product quality. Tested for long life.

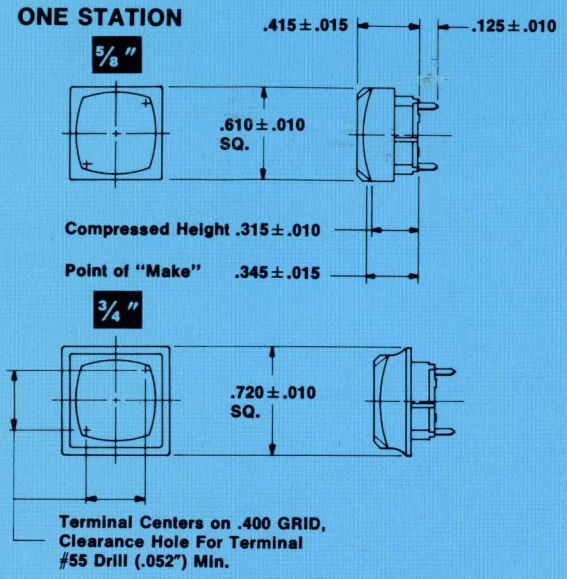
Colors that complement, with a variety of legends.

Individual switches allow the designer flexibility in his keyboard design.

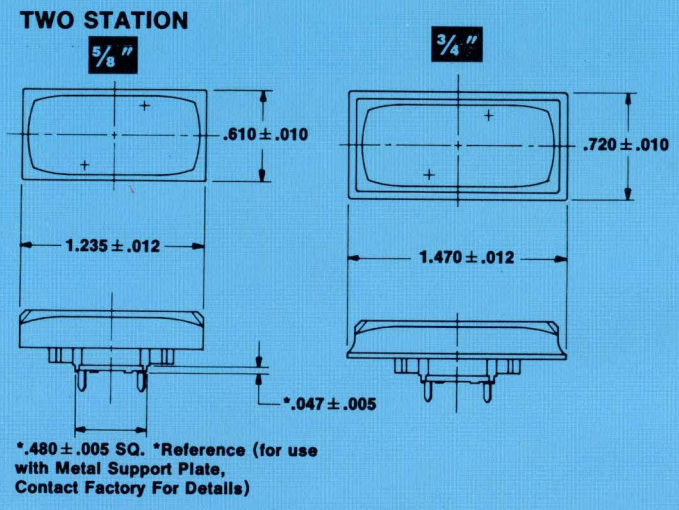
Specifications for OAK Series 415

Low-Profile Key Switches

ONE STATION



TWO STATION



PERFORMANCE CHARACTERISTICS:

Operating Life . . . . . Tested 10-million operations.
Switching . . . . . SPST N/O.
Travel . . . . . 0.100″ (approximate).
Pre-Travel . . . . . 0.070″ (nominal).
Operating Force . . . 70 gm. (+20 gm, −15 gm).
Contact Bounce . . . . 3 milliseconds (max.).
Contact Material . . . W.E. #1 gold alloy inlay.
Contact Resistance . . . 100 milliohms (max.).
Temperature Range . . . −20°C to +75°C.

PHYSICAL CHARACTERISTICS:

Key Material . . . . . Base: High-temperature thermoplastic.
Top: A.B.S. or similar.
Terminals . . . . . 0.125″ long on 0.400 grid.
Mounting . . . . . Printed circuit board.
Standard Colors . . . White, black, red, blue, gray. (Specials available on request.)
Legends . . . . . Hot-stamped.

Chemical Resistance: The bottom housing is not affected by most chemicals. However, the top housing resists only alkalies, mineral acids (except strongly oxidizing, such as concentrated nitric & sulfuric), animal, vegetable and mineral oils, alcohols and many organic chemicals.

Cleaning solvents should be selected carefully with above chemicals in mind. The switch should never be immersed in the cleaning solution or brought too close to detrimental vapors which tend to eliminate lubricity on mechanical guide surfaces.

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