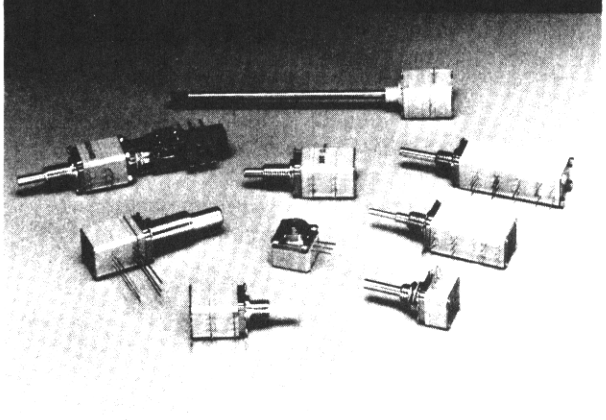
Series 388 Potentiometer
1/2 in. sq., .5 Watt
Series 389 Potentiometer
1/2 in. sq., 1 Watt



Description

The 388 and 389 series are 1/2 in. square, modular, stackable potentiometers. The basic construction suits the series for countless design options; over a billion configurations are available. The 388 and 389 series can be found in a wide range of sophisticated systems in a broad scope of industries.

Features

- ***Small size*** - 1/2 in. square
- ***Stackable*** - up to 8 modules
- ***Switches*** - rotary, push-pull, push-momentary, multi position and schadow.
- ***Versatility*** - various shaft, bushings, terminal styles, resistance values, tapers and tolerances

Special Features

- ***Detents*** - single position or up to 16 positions in mechanical rotation; special detents available
- ***Seals*** - mounting and shaft seals
- ***Medium torque*** - 1 to 6 oz. in.
- ***Center tap*** - extra terminal
- ***Tracking*** - laser trimming to keep two or more sections within a certain relational tolerance.
- ***Phasing modules*** - electrically, mechanically, or both
- ***Multi-turns*** - 3 1/2 and 5-turn styles
- ***Clutch drive*** - independent adjustment of two modules, single shaft
- ***Push drive*** - shaft depressed to actuate pot.
- ***Return to center*** - after shaft rotation (clockwise or counter clockwise), automatic return to center point

	Series 388 Electrical Specifications	Series 389 Electrical Specifications
Resistance Range	Linear: 100Ω to 5 Megohms Tapered: 500Ω to 2 Megohms	Linear: 5Ω to 5 Megohms Tapered: 100Ω to 2 Megohms
Resistance Tolerance	Linear: thru 500KΩ ±10%; above 500KΩ ±20%. Tapered: thru 100KΩ ±10%; above 100KΩ ±20%.	Linear: ±10% standard; ±5% special. Tapered: ±10%. Under 20Ω ±20%.
Taper	*See Charts A and B, page* 9 for standard and special tapers available.	*See Charts A and B, page* 9 for standard and special tapers available.
Taper Tolerance	±20% of nominal resistance at 50% ±3% mechanical rotation	±20% of nominal resistance at ±50% mechanical rotation
Independent Linearity	±5% standard with specials available	±5% standard with specials available
End Resistance	4Ω maximum each end linear and low side of taper. 1% of total R. high side of taper.	2Ω maximum each end 5Ω to 2.5KΩ. 4Ω maximum each end above 2.5K

Electrical Specifications continued, next page

Dynamic Noise (C.R.V.)	1.5% of total R, standard linear; 1.0% of total R, special linear; 2.2% of total R, taper.	3.0% of total R, standard linear; 1.5% of total R, special linear (500Ω and above); 6.0% of total R, tapered.
Static Noise	Up to 30KΩ - 20db; 100KΩ - 12 db; 1 Megohms +3db.	Up to 100Ω - 25db; 10KΩ - 15db; 100KΩ - 10db.
Power Rating	0.5 Watt @ 70°C bushing mounting. 0.25 Watt @ 70°C PC mounting. Derate to 0 watts @ 120°C. Derate 50% for non-linear tapers and derate multiple sections 1/2 wattage of panel unit.	1.0 watt @ 85°C bushing mounting. 0.5 watt @ 85°C PC mounting. Derate to 0 watts @ 150°C. Derate 50% for non-linear tapers and derate multiple sections 1/2 wattage of panel unit.
Working Voltage	350 Vdc across end terminals, but power not to exceed rating.	350 Vdc across end terminals, but power not to exceed rating.
Dielectric Withstanding Voltage	750 Vac @ ATM pressure; 350 Vac @ 3.4 in. (86.36mm) Mercury.	900 Vac single standard module and 750 Vac all non-standard constructions @ ATM pressure; 350 Vac @ 3.4 in. (86.36mm) Mercury.
Insulation Resistance	1000 Megohms minimum for dry, clean conditions @ 25°C	1000 Megohms minimum for dry, clean conditions @ 25°C
Temperature Coefficient	*See Chart C page 10.*	15Ω to 100Ω 250 ppm/°C. 100Ω to 5 Megohms 150 ppm/°C. Temperature range -55°C to 150°C.
Tracking	10% voltage ratio tracking between sections standard. Specials available.	10% voltage ratio tracking between sections standard. Specials available.
Electrical Rotation	295° ±5°	295° ±5°
Effective Rotation	265° ±5° without switch; 240° ±5° with switch.	250° +10° -5° without switch; 225° +10° -5° with switch.

	Series 388 Operational Specifications	Series 389 Operational Specifications
Load Life	10% maximum change in resistance and within end resistance limits with rated power across element, at 70°C ambient temperature. Power applied 1.5 hours "on" 0.5 hours "off" for 1000 hours.	5% maximum change in resistance and within end resistance limits with rated power across element, at 85°C ambient temperature. Power applied 1.5 hours "on" 0.5 hours "off" for 1000 hours.
Rotational Life	10% maximum resistance change up to 50,000 cycles under load. Trimmer version 5000 cycles.	25,000 cycles under load. Trimmer version 5000 cycles.
Low Temperature Operation	Less than 3% change in total R. Operating torque at -40°C is 30 oz. in. -55°C available upon request.	Less than 2% change in total R. Operating torque at -40°C is 30 oz. in. -55°C available upon request.

	Series 388 Environmental Specifications	Series 389 Environmental Specifications
	Series 388 is designed to meet MIL-R-94 performance characteristics where applicable.	Series 389 is designed to meet MIL-R-94 and MIL-R-22097 performance characteristics where applicable.
Low Temperature Storage	Less than 2% change in total resistance	Less than 2% change in total resistance
Thermal Cycling	Less than 4% total R change as a result of 5 cycles @ -55°C to +120°C	Less than 3% total R change as a result of 5 cycles @ -55°C to +150°C
Moisture Resistance	10% maximum total R change when tested per method 103 of MIL-STD-202	5% maximum total R change when tested per method 103 of MIL-STD-202
Shock	The total resistance setting change is 2% maximum between left and right terminals and 5% maximum between CCW terminal and center terminal when tested per method 213 condition I of MIL-STD-202.	The total resistance setting change is 2% maximum between left and right terminals and 5% maximum between CCW terminal and center terminal when tested per method 213 condition I of MIL-STD-202.
Vibration, High Frequency	No intermittent contacts or open circuits when tested per method 204 condition C of MIL-STD-202. Resistance setting change is 5% maximum between left (CCW) terminal and center terminal. The total resistance change is 2% maximum between left and right terminals.	No intermittent contacts or open circuits when tested per method 204 condition C of MIL-STD-202. Resistance setting change is 5% maximum between left (CCW) terminal and center terminal. The total resistance change is 2% maximum between left and right terminals.
Washability	Units may be adversely affected if subjected to conventional after-solder board-wash.	Units may be adversely affected if subjected to conventional after-solder board-wash.

Series 388 and 389 Mechanical Specifications

Body Size
(Single module) .5 in. (12.70mm) square ±.047 in. (1.19mm), except at standoffs

Terminals
Printed circuit style on 0.100 in. (2.54mm) grid in line, 0.250 in. (6.35mm) long. Spacing between terminals in multiple section controls 0.300 in. (7.54mm). Solder lugs formed from PC pins to accept three #22 AWG wires. Maximum PC terminal length .875 in. (22.23mm).

Housing
Molded thermoplastic

Anti-turn Device
Location 1 supplied unless otherwise specified. *(See Chart D).* Anti-turn Device radius is .250 in. (6.35mm). For options, see figure 5, page 10.

Shafts
Brass, nickel-plated, 1/8 in. (3.18mm) diameter standard. 1/4 in. (6.35mm) diameter optional. Concentric shafts 1/8 in. (3.18mm) outer shaft and 0.078 in. (1.98mm) inner shaft and 1/4 in. (6.35mm) outer shaft and 1/8 in. (3.18mm) inner shaft. Other shaft diameters available on special order.

Seals
Mounting seal and shaft seal available for single shafts only.
Caution: These units not designed to meet boardwashing requirements.

Medium Torque
Medium torque option available, single shaft controls. 1 oz. in. minimum to 6.0 oz. in.

Mechanical Rotation
With or without switch, 295° ±5°. With push-pull or momentary switch, 310° (inc. 10° backlash). Rotary switch with push-pull or momentary switch, 42° maximum. (Plus 30° for added detents) Push-pull or momentary switch, 12° maximum. Multi-position rotary switch, 30° per detent, +12° maximum.

Shaft Pull Force
.125 in. (3.18mm) diameter shaft: 18 lbs.
.250 in. (6.35mm) diameter shaft: 10 lbs.
Pot/BJ or BJM: 7.5 lbs.
Clutch: 20 lbs.
Pot/AJ/BJ or BJM: 10 lbs.
Concentric Rear Shaft: 7.5 lbs.

Shaft End Play
.020 in. (0.51mm) maximum

Mechanical Specifications continued, next page

Shaft Radial Play
.028 in. (0.71mm) maximum 1 in. (25.4mm) from mounting surface with 250 in. (6.35mm) diameter bushing.

Actuating Forces
Pot/BJ: 10-22 oz.; Dual Pot/BJ: 10-25 oz.;
Pot/BJM: 25-40 oz.; Pot/Pot/BJM:25-43 oz.;
MTorque Pot/BJM: 25-45 oz.; Reverse BJM: 25-40 oz.;
Clutch Pot: 15 oz. maximum; Disc Clutch/BJM:
45 oz. maximum.

Tap Terminal Strength
18 lbs. maximum pull

Bushing Diameter
1/4 in. (6.35mm) x 32NEF-2A standard 3/8 in. (9.53mm) x 32NEF-2A optional. When using 3/8 in. diameter bushing, distance from mounting surface to PC terminals is .170 in. (4.32mm) See page 12.

Bushing Length
Plain: 1/4 in. (6.35mm) or 3/8 in. (9.53mm)
Split-locking style: 3/8 in. (9.35mm)

Operating Torque
0.2 to 3.0 oz. in. for single and dual concentric controls.
Duals 0.3 to 3.5 oz. in.
Triples 0.5 to 4.5 oz. in.
Quads 0.5 to 5.5 oz. in.
Variation within a control 1 oz. in. maximum.

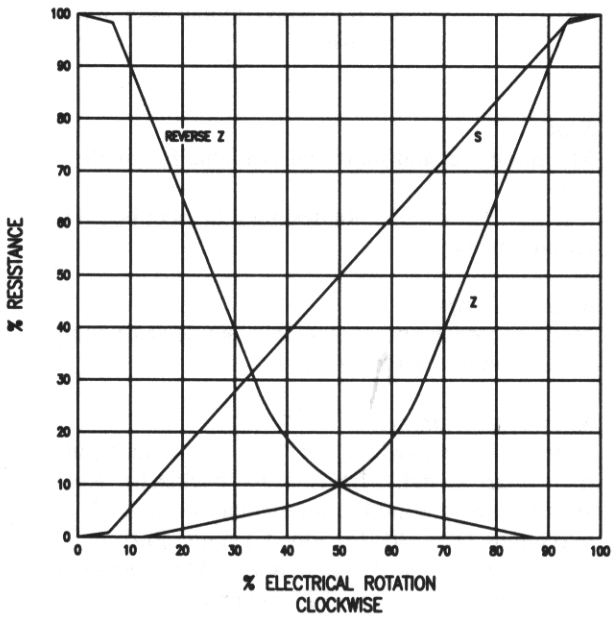
Stop Torque
3 lb. in. single shaft
2 lb. in. dual concentric shaft

Hardware
Mounting hardware available.
a. Hex mounting nut 1/4 in. (6.35mm) x 32 thread, 5/16 in. (7.94mm) across flats, 1/16 in. (1.59mm) thick.
b. Internal tooth lockwasher 13/32 in. (10.32mm) OD x .025 in. (0.64mm) thick.
c. Jam hex nut 5/16 in. (7.94mm) across flats, 5/32 in. (3.97mm) thick supplied with locking type bushings.

Marking
Consisting of customer part number or Clarostat part number, EIA source and date code. Ink stamp meets EIA RS-230 and RS-327.

Figure 1

Chart A



Curves Standard

The "S" taper is linear, the change in resistance value being directly proportional to the degree of rotation. It can be used either as right-hand or left-hand taper.

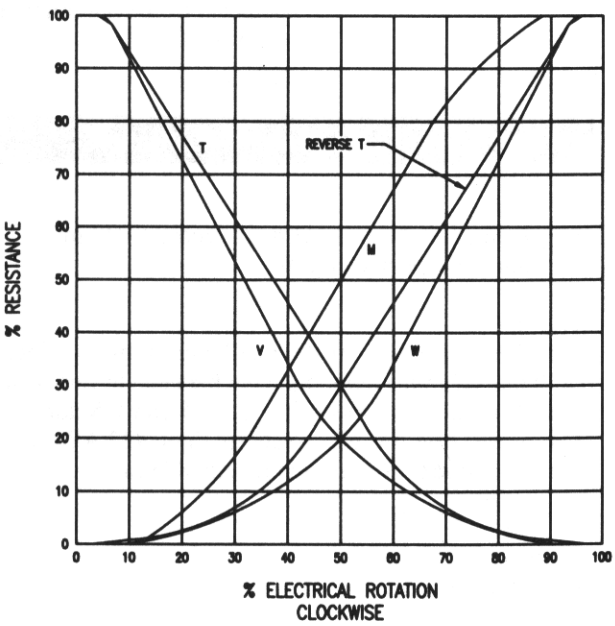
The "Z" taper attains 10% resistance value at 50% of clockwise rotation (left-hand).

The reverse "Z" taper attains 10% resistance value at 50% of counter-clockwise rotation (right-hand).

For conformity and special output curves, consult Factory.

Figure 2

Chart B



Curves Special

The "W" taper attains 20% resistance value at 50% of clockwise rotation (left-hand).

The "V" taper attains 20% resistance value at 50% of couterclockwise rotation (right-handed).

The reverse "T" taper attains 30% resistance value at 50% of couterclockwise rotation (right-hand).

The "M" taper is such that a "W" taper is attained from either the 1 or 3 terminal to the center of the element.

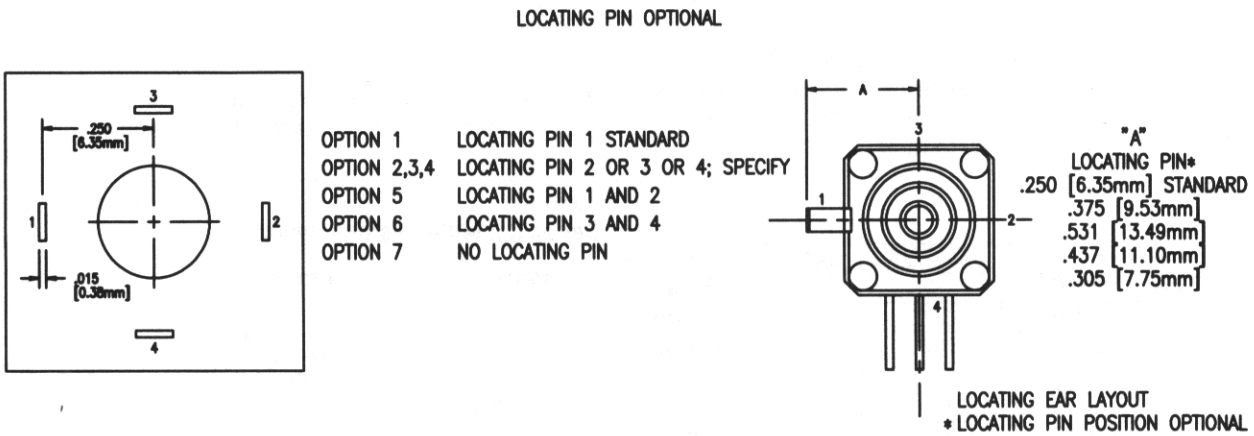
Figure 3

Chart C

Nominal Resistance	Maximum Percent Temporary Resistance Change From 25°						
	-55°C	-40°C	0°C	+25°C	+85°C	+105°C	+120°C
100 Ohms	±5.0	±4.0	±1.5	0	±1.5	±2.0	±3.5
10k Ohms	+7.0	+5.5	+2.0	0	±1.5	±2.5	±5.5
100k Ohms	+8.0	+6.0	+2.5	0	±2.0	±3.5	±6.0
1 Megohm	+10.0	+8.0	+3.0	0	±2.5	±4.0	±7.5

For Non-linear Tapers, Multiply Chart Values By 1.25

Chart D



Switches

Figure 4

Series AJ Switch: Rotary Style

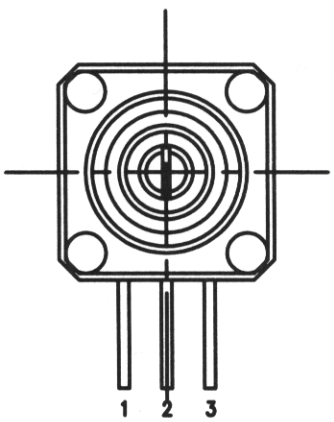


Figure 5

Series BJ Switch: Push-Pull or Push Momentary

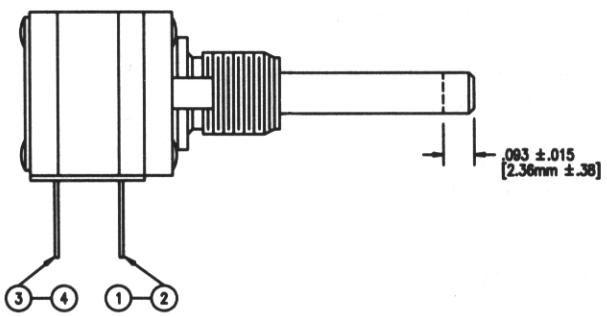


Figure 6

Series CJ Switch: Rotary, Multi-Position Style

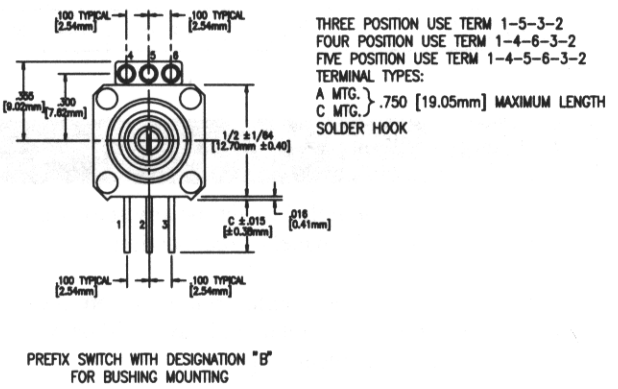
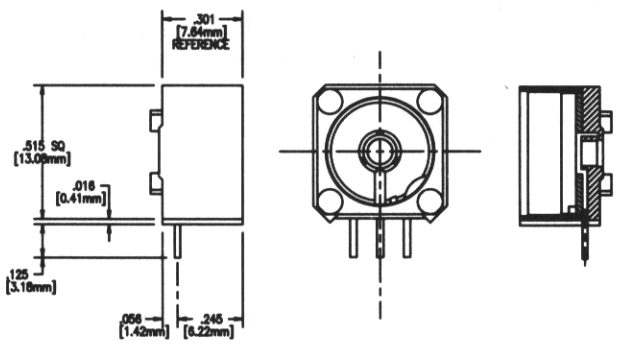


Figure 7

Series DJ Switch: Push Momentary

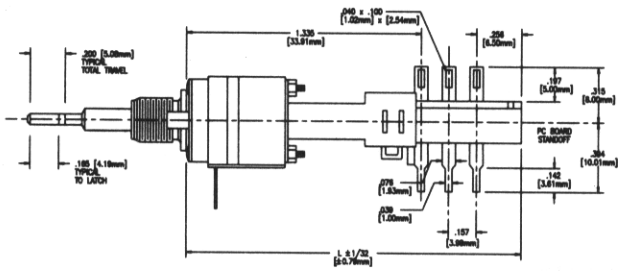


Switches continued, next page

Switches continued

Figure 8

Series Schadow Switch: Momentary



This series of switches may be attached to 388/389 modular assembly and may be operated by a single shaft or by the inner shaft of a concentric shaft assembly. Shaft lengths of assemblies employing the use of the BJ,

Figure 9

Series AJ

CHARACTERISTICS	SWITCHES SHOWN IN DETENT POSITION	TERMINAL ARRANGEMENT	RATING
S.P.S.T. DETENT AT TERMINAL #1 NORMALLY OPEN	3 2	2,3	ROTARY SWITCH 125MA 28VDC
S.P.S.T. DETENT AT TERMINAL #3 NORMALLY OPEN	2 1	1,2	125MA 28VDC
S.P.D.T. DETENT AT TERMINAL #1	1 2 3	1,2,3	125MA 28VDC
S.P.D.T. DETENT AT TERMINAL #3	1 2 3	1,2,3	125MA 28VDC
S.P.D.T. DETENT AT #1 & #3 NORMALLY CLOSED AT BOTH DETENTS	1 2 3	1,2,3	125MA 28VDC

Series BJ

S.P.D.T. PUSH-PULL SWITCH, EXTENDED POSITION	3 4 1 2	1-2 3-4	250MA 30VDC

Series BJM

S.P.D.T. MOMENTARY SWITCH, EXTENDED POSITION	3 4 1 2	1-2 3-4	250MA 30VDC

Series CJ Multi-Position Switch Electrical Specifications

The switch may be assembled to almost any standard control style as either the panel or rear section.

CJ switches are single pole single deck with from 3 to 5 positions plus common terminal, and have a 30 degree throw angle with mechanical stops.

Rating
125ma 28Vdc (dry circuit)

Dielectri c Strength
300 Vac between terminals. 750 Vac at atmospheric pressure, for one minute, terminals to ground.

Insulation Resistance
1000 MegΩ minimum

Operating Temperature
-40°C to +120°C

Rotational Switch Life
25,000 cycles at 3 position derated to 20,000 cycles at 5 position. See figure 10.

Series CJ Multi-Position Switch Mechanical Specifications

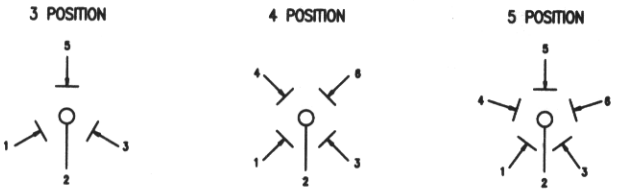
Mechanical Rotation
3 position is 60°
4 position is 90°
5 position is 120°

Detent
Each detent angle is 30° ±3°
Detent torque is 2.5 to 6.5 oz. in. @ S. C.
Detent position is balanced at mid position on the switch.

Terminal
PC style, front or rear and solder hook.
From 3-5 tap position terminals plus a common terminal.

Figure 10

Series CJ: Multi Position Switch



Series DJ Dome Switch Specifications

The dome switch is a push momentary action type modular assemble that will fit most 388/389 modular assemble controls.

Switch Type
S.P.S.T., Term 1 Term 2

Contact Rating
125ma @ 28Vdc

Mechanical Life
25,000 actuations

Contact Resistance
Less than 10Ω

Insulation Resistance
1 x 10^6Ω

Dielectric Strength
750 volts to ground
300 volts across terminals

Operating Temperature
-40°C to +100°C

Operating Force
12 oz nominal

Length of Throw
.015 (0.38mm) nominal

Figure 11

Series Schadow

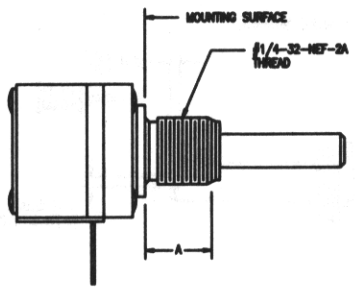
SCHADOW SWITCH – SINGLE OR CONCENTRIC SHAFTS

SWITCH FUNCTION		"L" DIM.
2 POLE	MOMENTARY	1.905 [48.39mm]
	PUSH–PUSH DT	
4 POLE	MOMENTARY	2.337 [59.36mm]
	PUSH–PUSH DT	
6 POLE	MOMENTARY	2.849 [72.36mm]
	PUSH–PUSH DT	
8 POLE	MOMENTARY	3.321 [84.35mm]
	PUSH–PUSH DT	

RATINGS ALL TYPES
RESISTIVE LOAD
500MA @ 100VAC
200MA @ 250VAC
1.0MA @ 25VAC

Figure 12

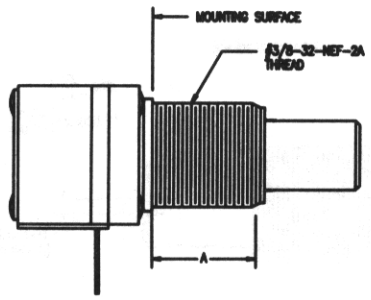
.250 (6.35mm) Diameter Bushing, Plain Shaft



"A" BUSHING LENGTHS:
.187 [4.75mm], .250 [6.35mm] STANDARD,
.375 [9.53mm], .500 [12.70mm]

Figure 13

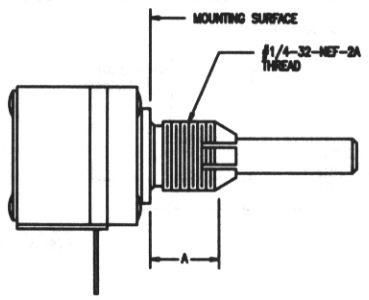
.375 (9.53mm) Diameter Bushing, Plain Shaft



"A" BUSHING LENGTHS:
.250 [6.35mm], .375 [9.53mm], .500 [12.70mm]

Figure 14

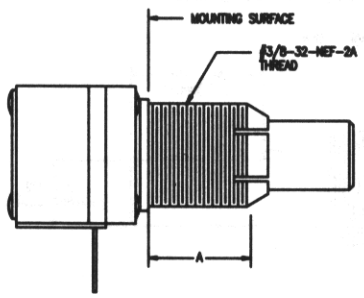
.250 (6.35mm) Diameter, Locking Bushing



"A" BUSHING LENGTHS:
.375 [9.53mm] STANDARD, .500 [12.70mm]

Figure 15

.375 (9.53mm) Diameter, Locking Bushing



"A" BUSHING LENGTH:
.375 [9.53mm] STANDARD

Figure 16

.125 ±.001 (3.18mm ±0.03) Diameter, Slotted Shaft

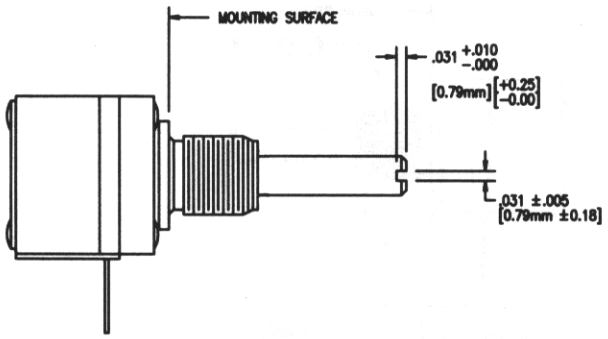


Figure 17

.250 +000/-.002 (6.35mm +0.00/-0.05) Diameter, Slotted Shaft

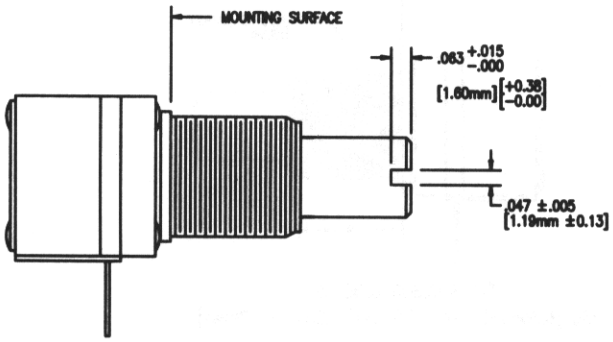
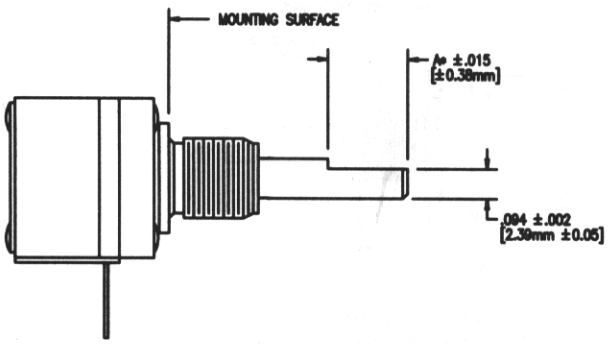


Figure 18

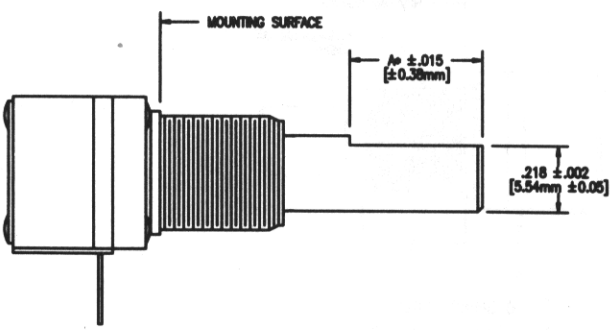
.125 ±.001 (3.18mm ±0.03) Diameter, Flatted Shaft



* FLAT LENGTHS OPTIONAL

Figure 19

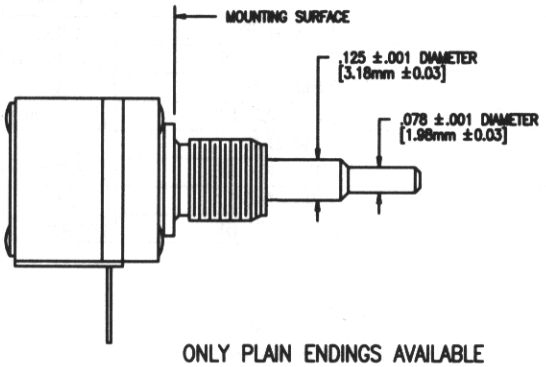
.250 (6.35mm) Diameter, Flatted Shaft



* FLAT LENGTHS OPTIONAL

Figure 20

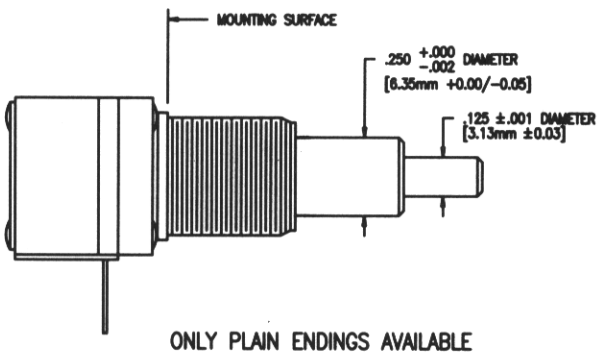
.078/.125 (1.98/3.18 mm) Diameter, Concentric Shafts



ONLY PLAIN ENDINGS AVAILABLE

Figure 21

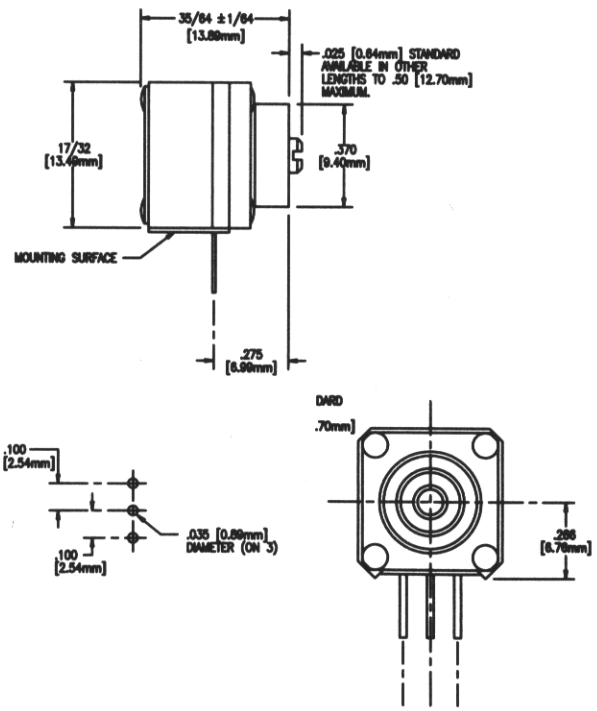
.125/.250 (3.18/6.35 mm) Diameter, Concentric Shafts



ONLY PLAIN ENDINGS AVAILABLE

Figure 22

Trimmer Shaft and Bushing



BUSHINGLESS TRIMMER CONTROL

Fractions: ±1/64 in. (0.14 mm) except as specified
Decimals: ±.005 (0.13mm) except as specified
Grids: ±.010

Figure 23

Series 388/389 B-22 Printed Circuit Terminals

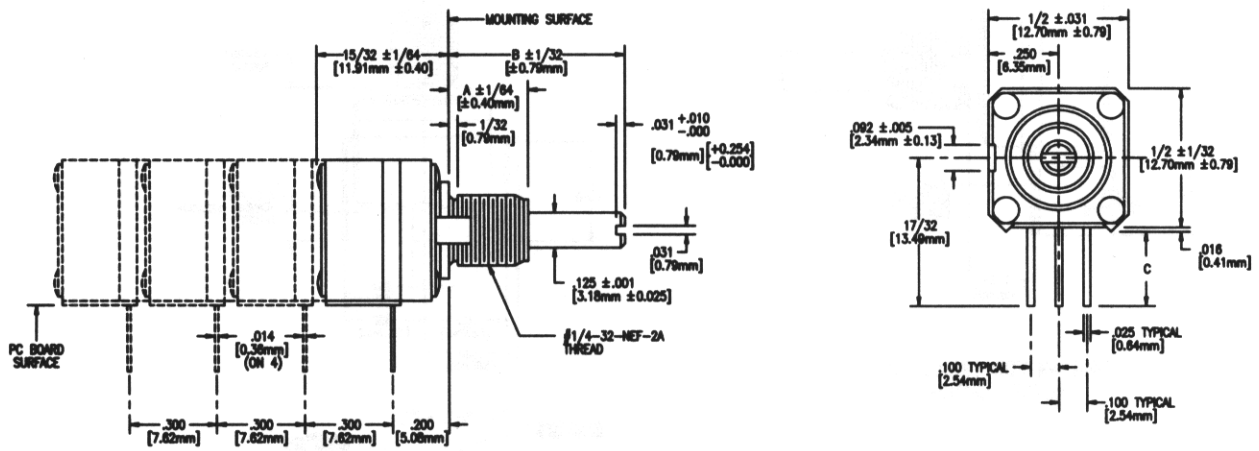


DIAGRAM FOR SINGLE, DUAL, TRIPLE, QUAD OR SWITCH COMBINATIONS

Figure 24

Solder Hook Terminals

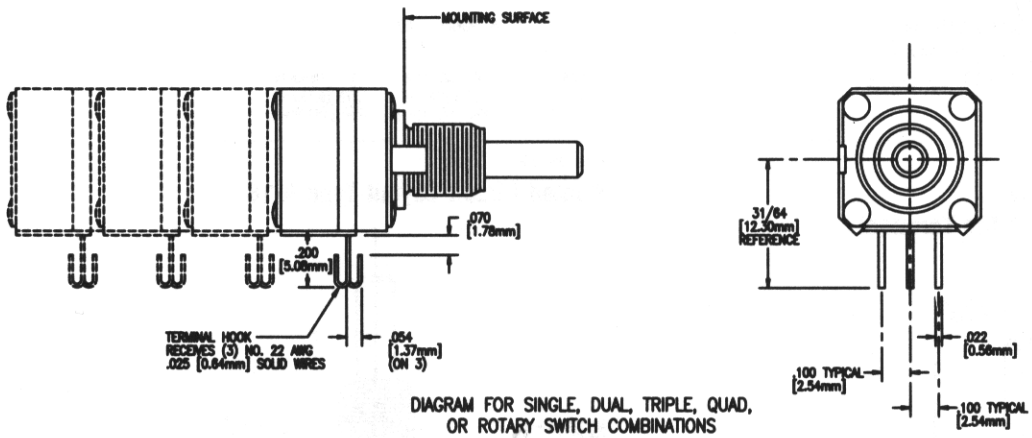
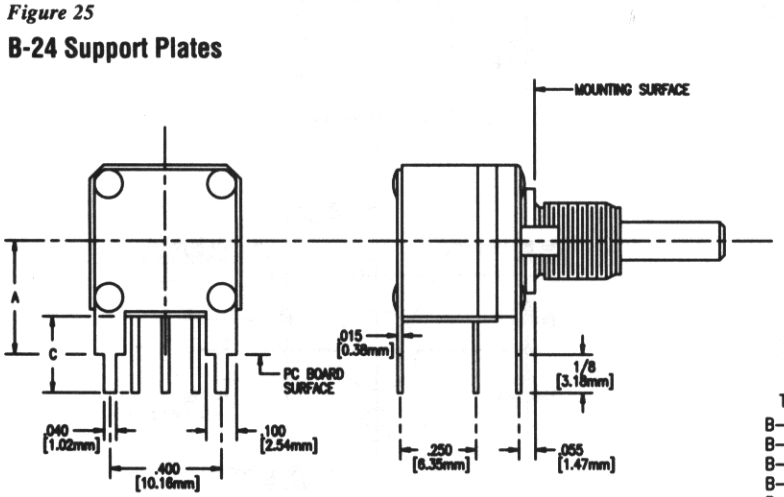
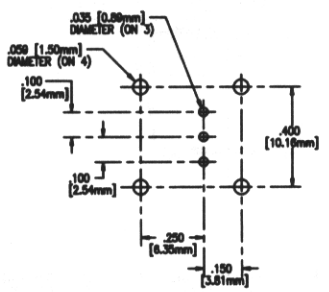


DIAGRAM FOR SINGLE, DUAL, TRIPLE, QUAD, OR ROTARY SWITCH COMBINATIONS

Figure 25

B-24 Support Plates





PC BOARD LAYOUT

TYPE	"A" SUPPORT PLATE	"C" TERMINAL .015
B-24-1	3/8 [9.35mm]	.250 [6.35mm] STANDARD
B-24-2	1/2 [12.70mm]	.375 [9.53mm]
B-24-3	5/8 [15.88mm]	.500 [12.70mm]
B-24-4	3/4 [19.05mm]	.625 [15.88mm]
B-24-5	.275 [6.98mm]	.125 [3.18mm]
B-24-6	19/64 [7.54mm]	.175 [4.45mm]
B-24-7	7/16 [11.11mm]	.315 [8.00mm]
B-24-8	9/16 [14.28mm]	.425 [10.80mm]

Combinations continued, next page

Figure 26

Mini-PV Connector Terminals

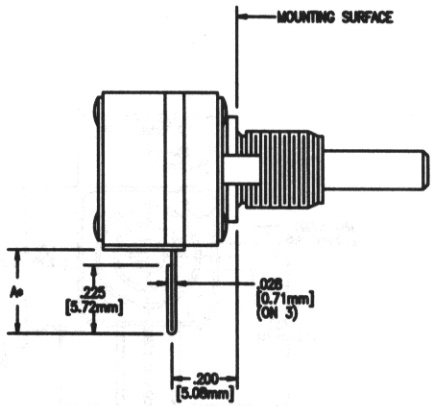
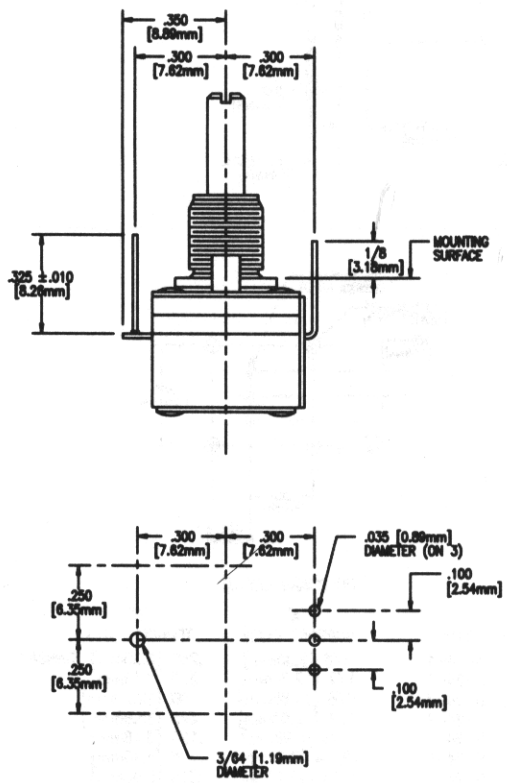


DIAGRAM FOR SINGLE OR ROTARY SWITCH

DIMENSIONAL TOLERANCES
BASIC DIMENSIONS IN INCHES
DIMENSIONS SHOWN IN BRACKETS ARE IN MILLIMETERS
FRACTIONS: ±1/64 [0.14mm] EXCEPT AS SPECIFIED
DECIMALS: ±.005 [0.13mm] EXCEPT AS SPECIFIED
GRIDS: ±.010 [0.25mm]
*A = .275 ±.015 TO .600 MAXIMUM.
[6.99mm ±0.38] TO [15.24mm]
DRAWINGS ARE NOT TO SCALE

Figure 27

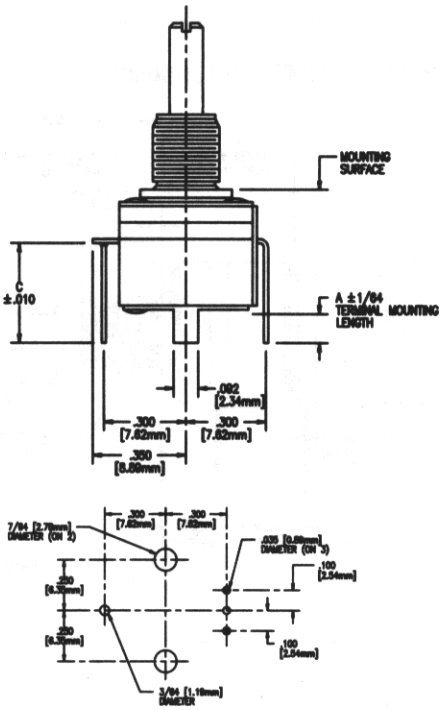
Printed Circuit Layout
Type A-23, with No. 2 Tap Terminal



PC BOARD LAYOUT

Figure 28

Printed Circuit Layout
Type C-17/C-17-1, with No. 2 Tap Terminal

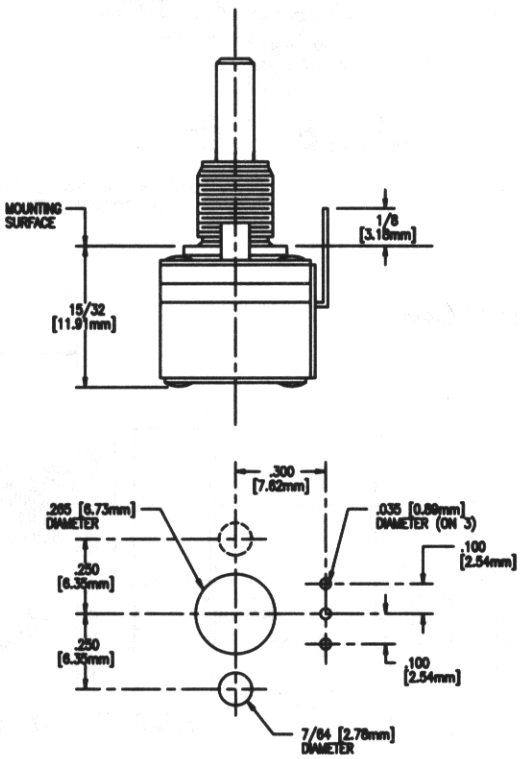


PC BOARD LAYOUT

TYPE	"A" DIMENSION	"C" DIMENSION
C-17	.125 [3.18mm]	.375 [9.53mm]
C-17-1	.500 [12.70mm]	.750 [19.05mm]

Figure 29

Printed Circuit Layout Type A-18

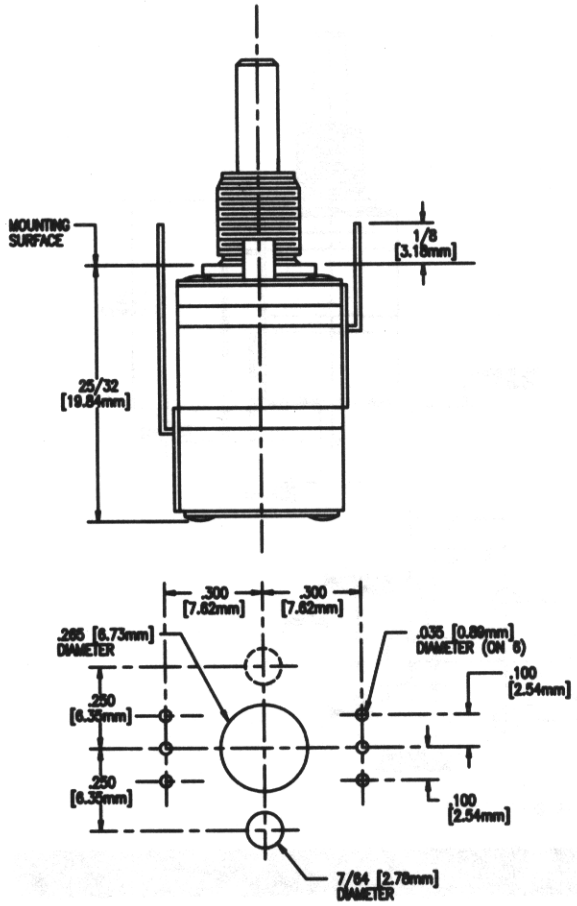


PC BOARD LAYOUT

Combinations continued, next page

Figure 30

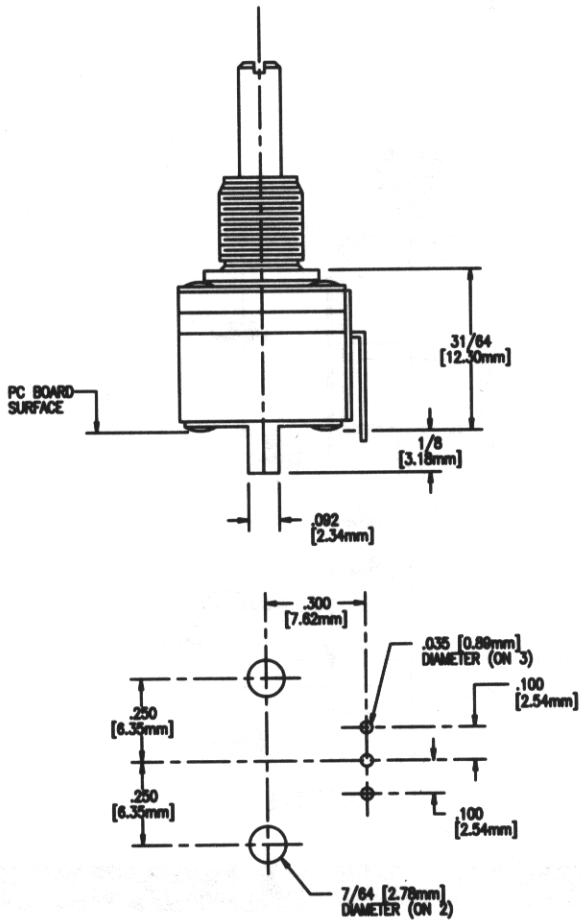
Printed Circuit Layout Type A-19



PC BOARD LAYOUT

Figure 31

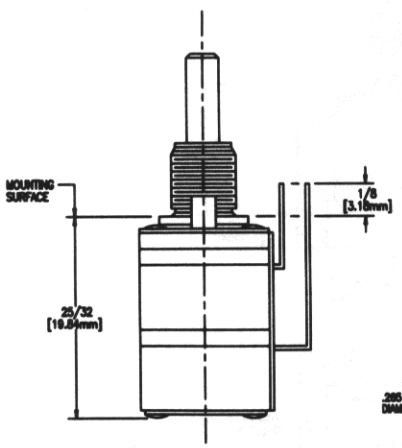
Printed Circuit Layout Type C-8

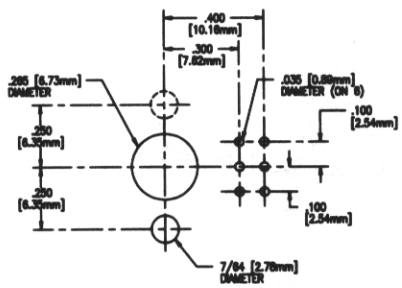


PC BOARD LAYOUT

Figure 32

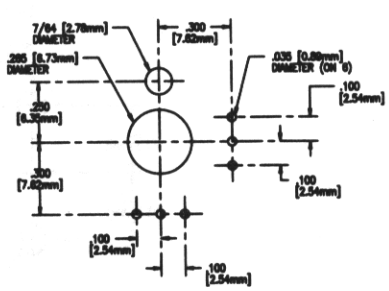
Printed Circuit Layout Type A-20/A-21/C-14



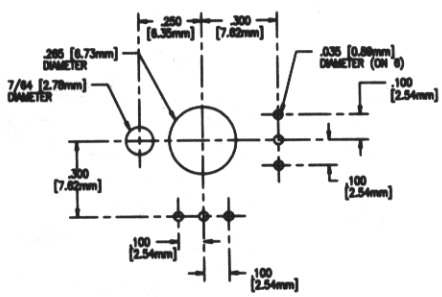


PC BOARD LAYOUT
TYPE A-20

ONLY CONCENTRIC SHAFT ASSEMBLIES MAY HAVE THE REAR MODULE ROTATED 90° CW OR CCW.



PC BOARD LAYOUT
TYPE C-14

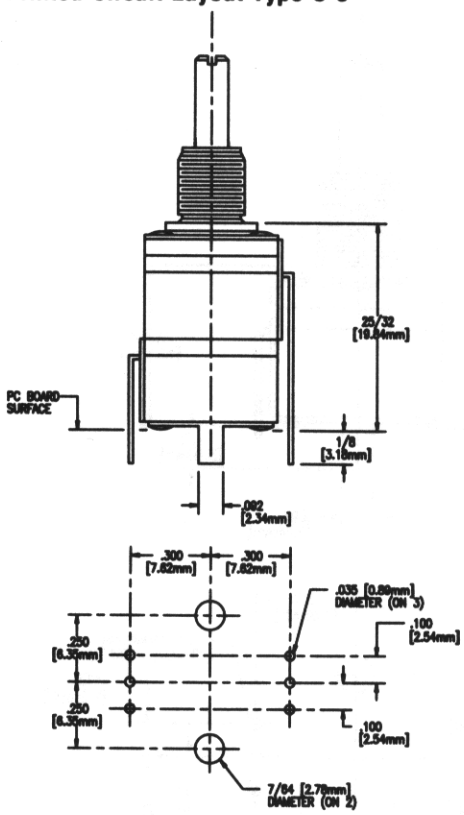


PC BOARD LAYOUT
TYPE A-21

Combinations continued, next page

Figure 33

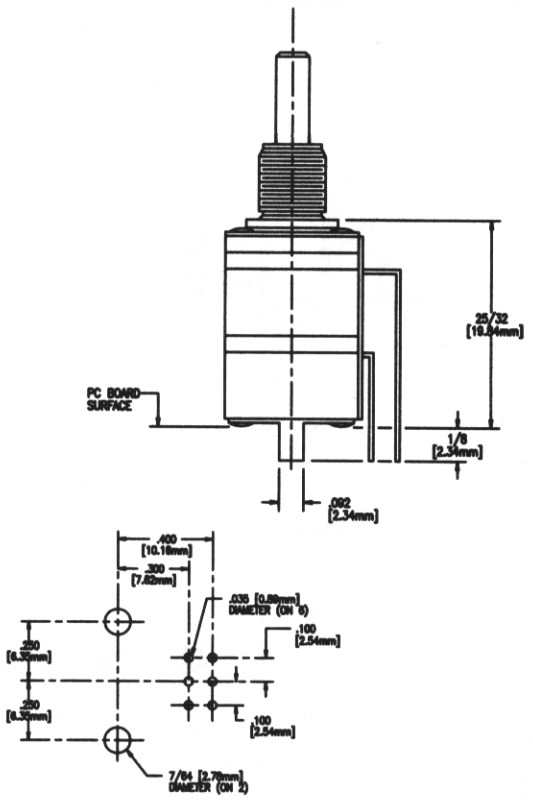
Printed Circuit Layout Type C-9



PC BOARD LAYOUT

Figure 34

Printed Circuit Layout Type C-10

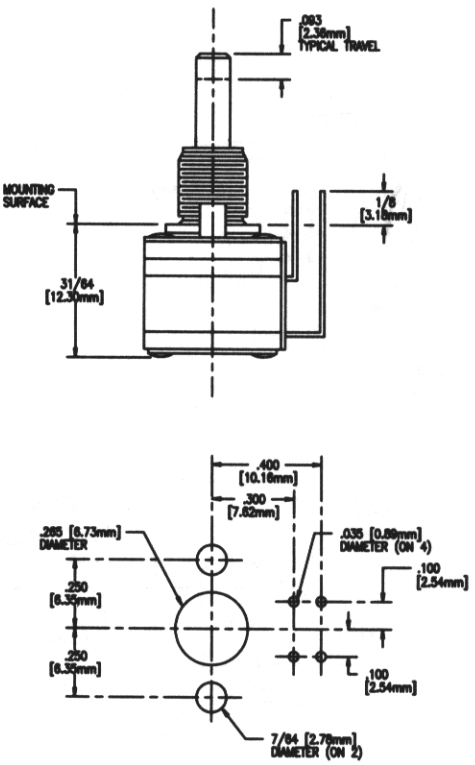


PC BOARD LAYOUT

Series 388/389 Potentiometer, Push-Pull and Momentarty Switch Combinations

Figure 35

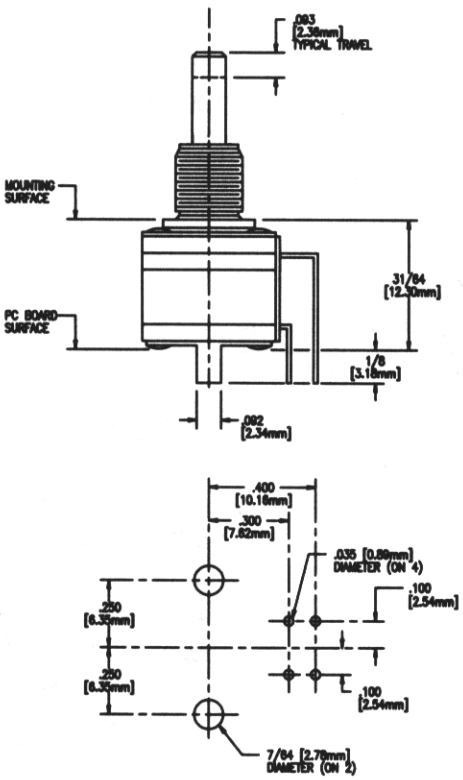
Printed Circuit BBJ (BBJM) Switch Layout Type A-22



PC BOARD LAYOUT

Figure 36

Printed Circuit BBJ (BBJM) Switch Layout Type C-15

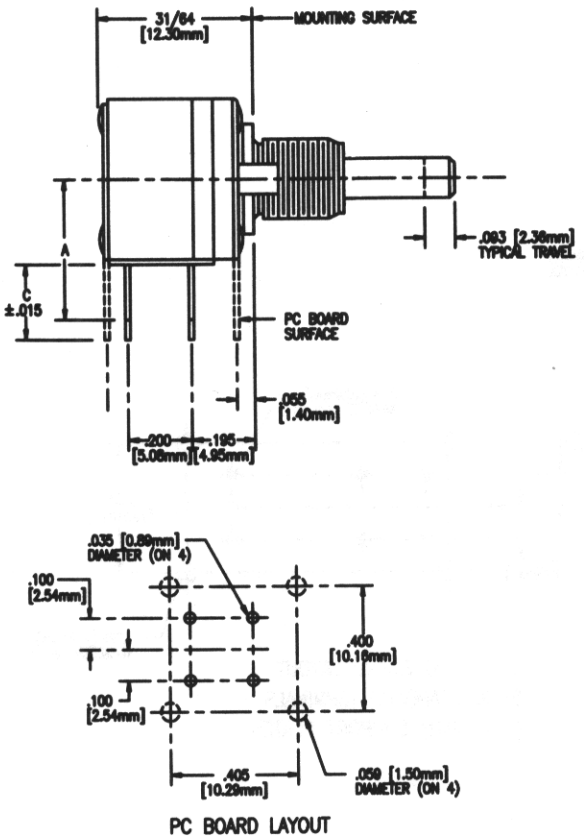


PC BOARD LAYOUT

Combinations continued, next page

Figure 37

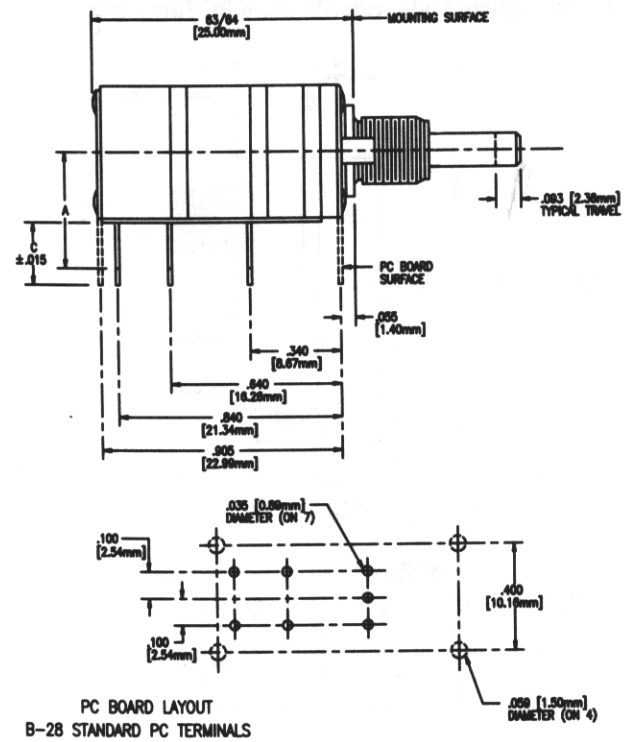
Printed Circuit BBJ (BBJM) Switch Layout with Standard PC Terminals



PC BOARD LAYOUT

Figure 38

Pot or AJ Rotary Switch and BJ Push-Pull or BJM Momentary Switch with Standard PC Terminals

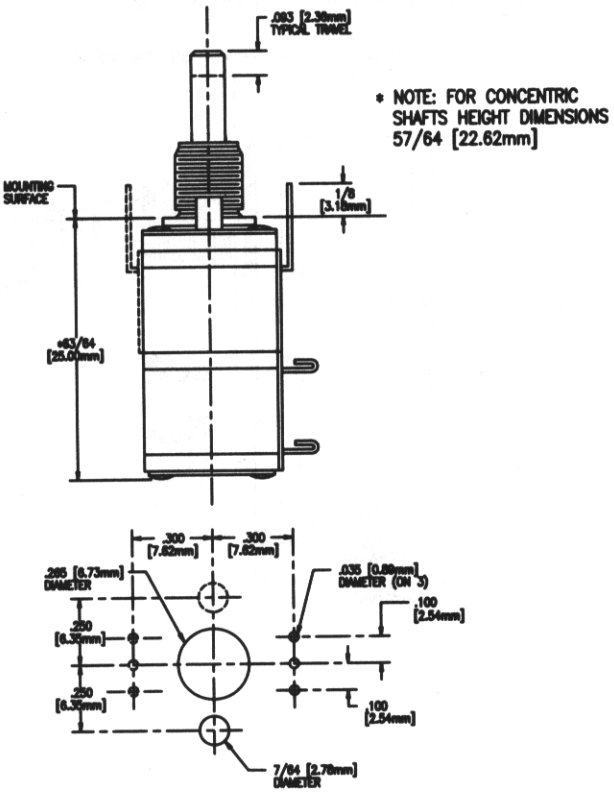


PC BOARD LAYOUT
B-28 STANDARD PC TERMINALS
B-29 WITH SUPPORT PLATES

NOTE: THIS STYLE AVAILABLE WITHOUT FRONT SECTION. OVERALL DIMENSION 51/64 [20.24mm].

Figure 39

Potentiometer and BJ (BJM) Switch Printed Circuit Layout Type A-18

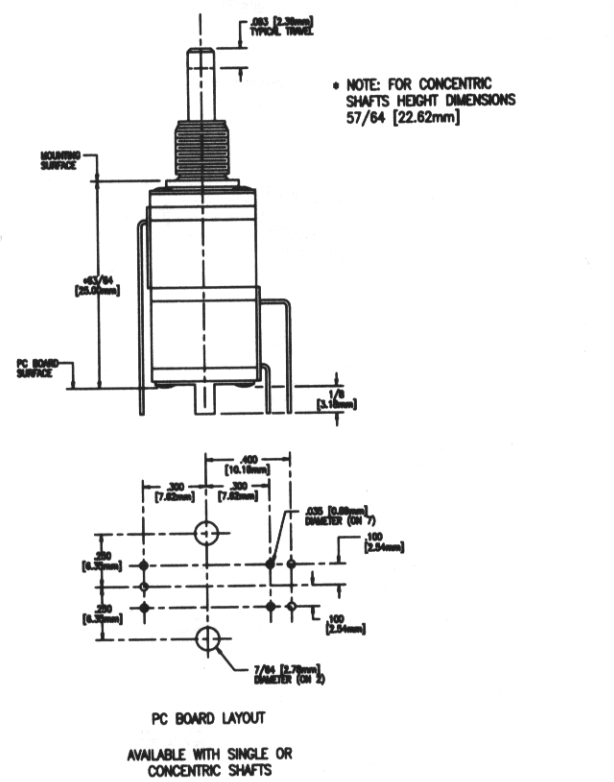


PC BOARD LAYOUT

AVAILABLE WITH SINGLE OR CONCENTRIC SHAFTS

Figure 40

Potentiometer and BJ (BJM) Switch Printed Circuit Layout Type C-11



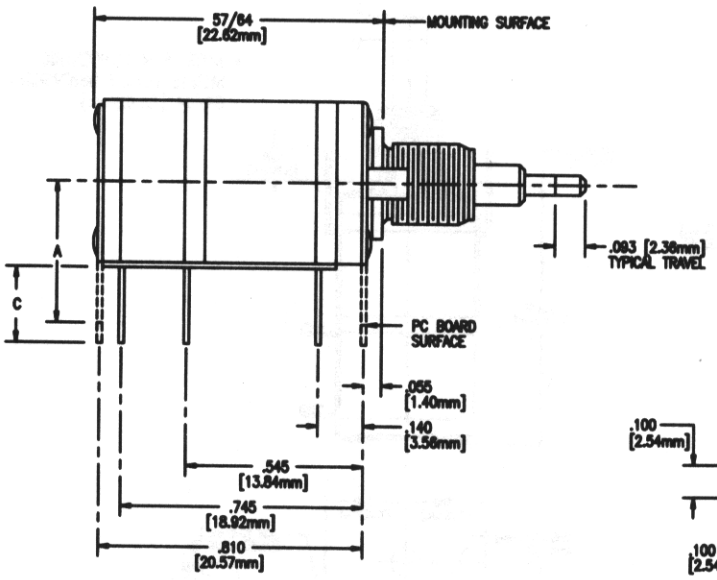
PC BOARD LAYOUT

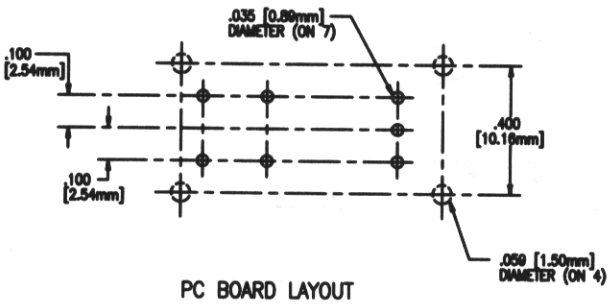
AVAILABLE WITH SINGLE OR CONCENTRIC SHAFTS

Combinations continued, next page

Figure 41

Potentiometer and BJ (BJM) Switch Concentric Shaft Operation Only with Standard PC Terminals



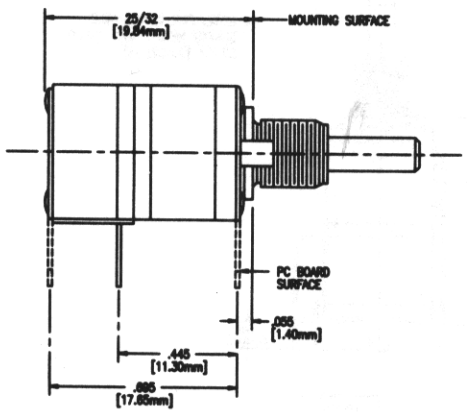


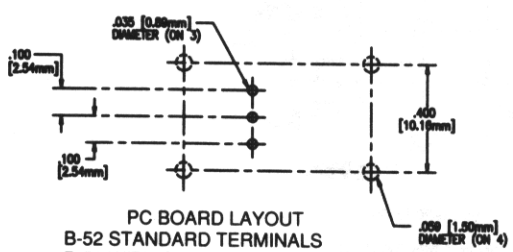
PC BOARD LAYOUT
B–30 STANDARD TERMINALS
B–31 WITH SUPPORT PLATES

Series 388/389 Multi-Turns

Figure 42

Three or Five Turn Vernier Type with Standard PC Terminals



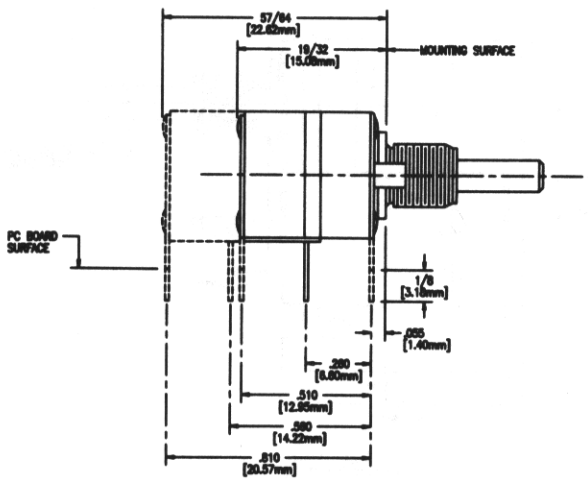


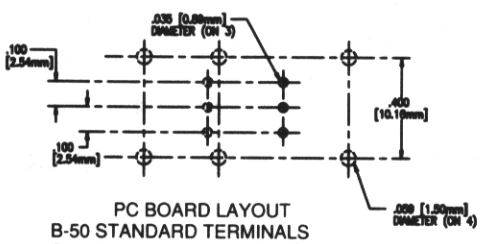
PC BOARD LAYOUT
B-52 STANDARD TERMINALS
B-53 WITH SUPPORT PLATES

Series 388/389 Detents

Figure 43

Detent, Valley Style with Standard PC Terminals

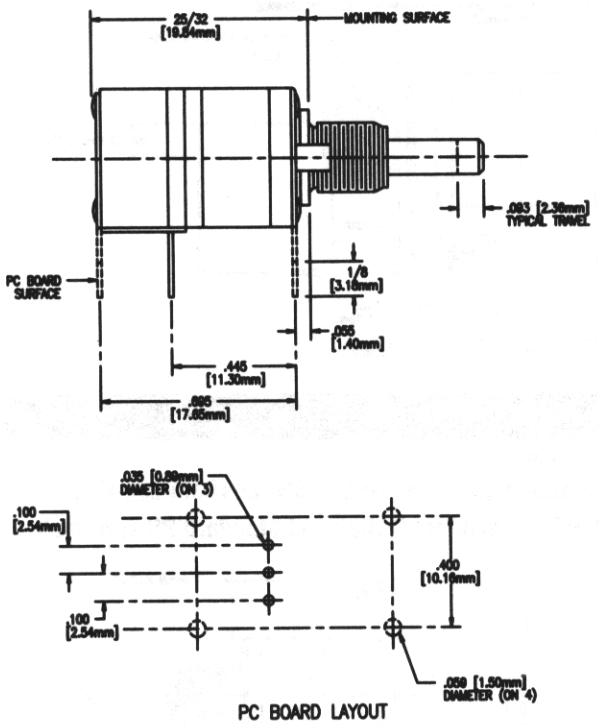




PC BOARD LAYOUT
B-50 STANDARD TERMINALS
B-51 WITH SUPPORT PLATES

Figure 44

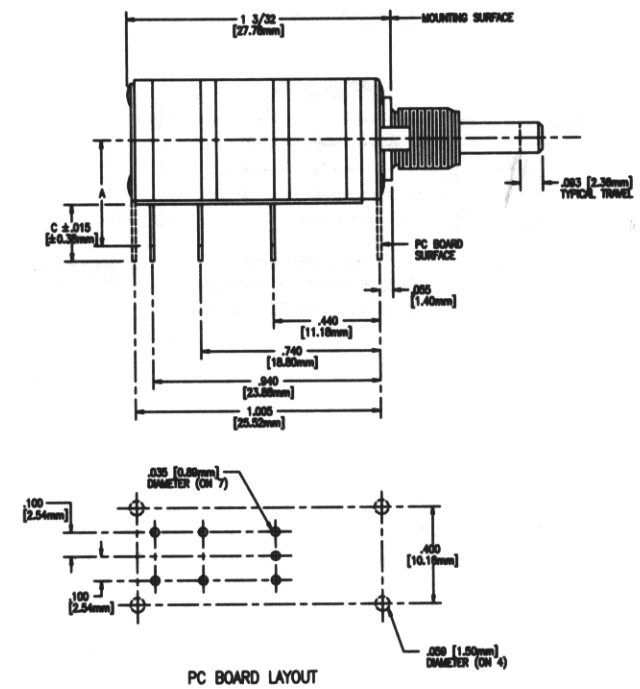
Push Drive with Standard PC Terminals



PC BOARD LAYOUT
B–22 STANDARD TERMINALS
B–34 WITH SUPPORT PLATES

Figure 45

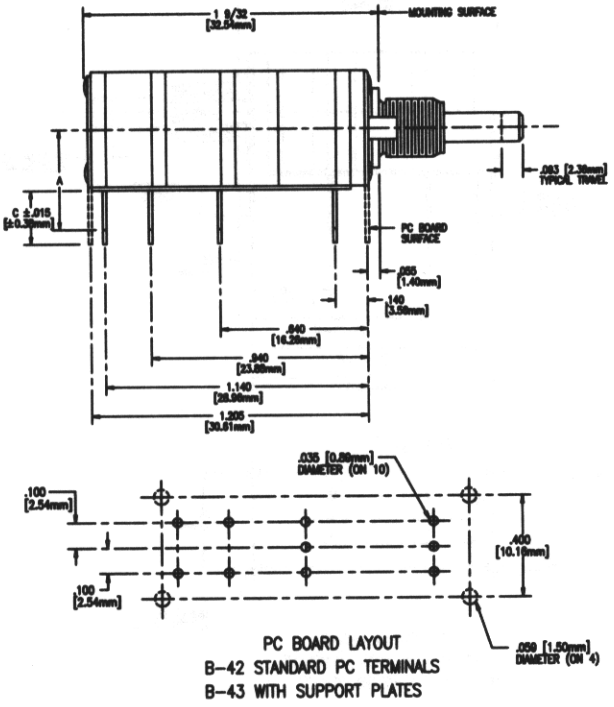
Push Drive Control with BJM Momentary Switch and Standard PC Terminals



PC BOARD LAYOUT
B–35 STANDARD PC TERMINALS
B–36 WITH SUPPORT PLATES

Figure 46

Clutch Drive with BJM and Standard PC Terminals

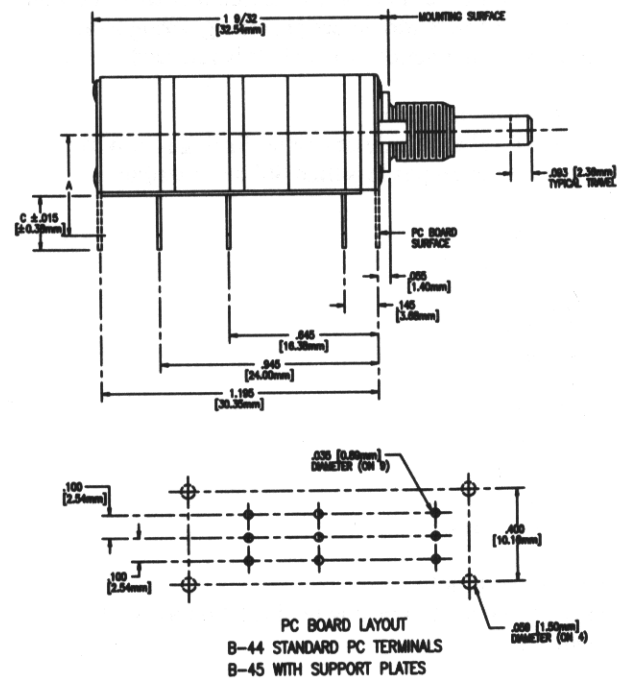


PC BOARD LAYOUT
B–42 STANDARD PC TERMINALS
B–43 WITH SUPPORT PLATES

CLUTCH DRIVE POTENTIOMETER WITH BJM MOMENTARY SWITCH INDEPENDENT ADJUSTMENT OF FINE OR COARSE MODULES UTILIZING A SINGLE SHAFT FUNCTION.

Figure 47

Clutch Drive with AJ and Standard PC Terminals



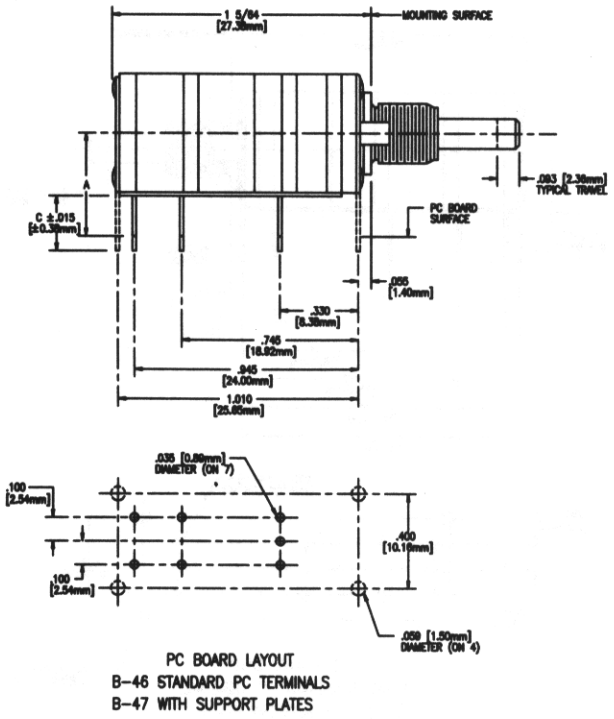
PC BOARD LAYOUT
B–44 STANDARD PC TERMINALS
B–45 WITH SUPPORT PLATES

CLUTCH DRIVE POTENTIOMETER WITH AJ ROTARY SWITCH INDEPENDENT ADJUSTMENT OF FINE OR COARSE MODULES UTILIZING A SINGLE SHAFT FUNCTION.

Clutch Drive continued, next page

Figure 48

Special Clutch Drive with Standard PC Terminals



Series 388/389 Center Return Style Potentiometer Specifications

Center return is a mechanical device that will fit on the rear of most potentiometers providing spring load return to center action when shaft is released.

Mechanical Rotation
80° + 10° -5° each side of center. Spring return to center. Other angles less than 80° are possible.

Operating Torque
.75 to 1.5 oz. in.

Stop Torque
2 lbs. in.

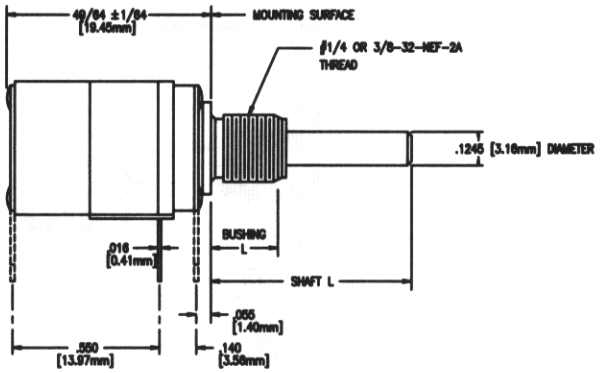
Backlash
2° maximum

Operating Life
200,000 cycles

Resistance Track
May be matched to mechanical rotation angle if required.

Figure 49

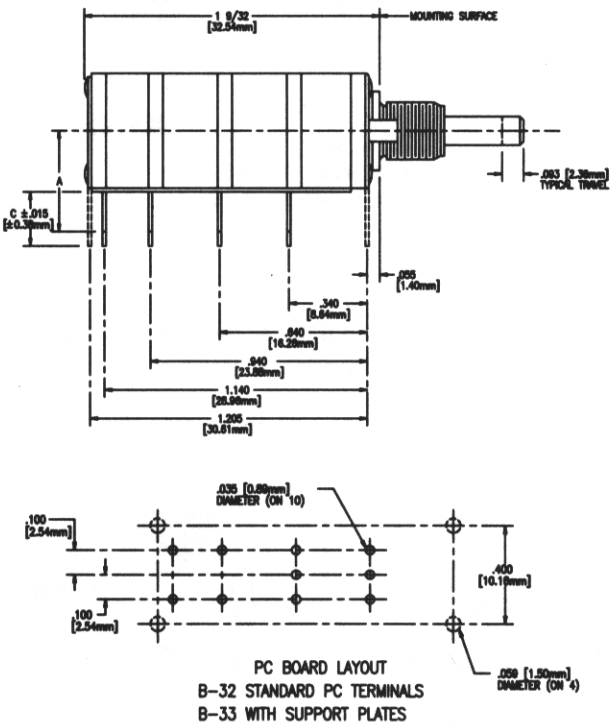
A Single Control, with a Return-to-Center Module Mounted on Rear



Series 388/389 Multi-Sections

Figure 50

Potentiometer or AJ Rotary Switch (BJ) Push-Pull or (BJM) Momentary Swtich and Standard PC Terminals



Multi-Sections continued, next page

Figure 51

Pot/Pot/BJ or Pot/BJ/BJ with Standard PC Terminals

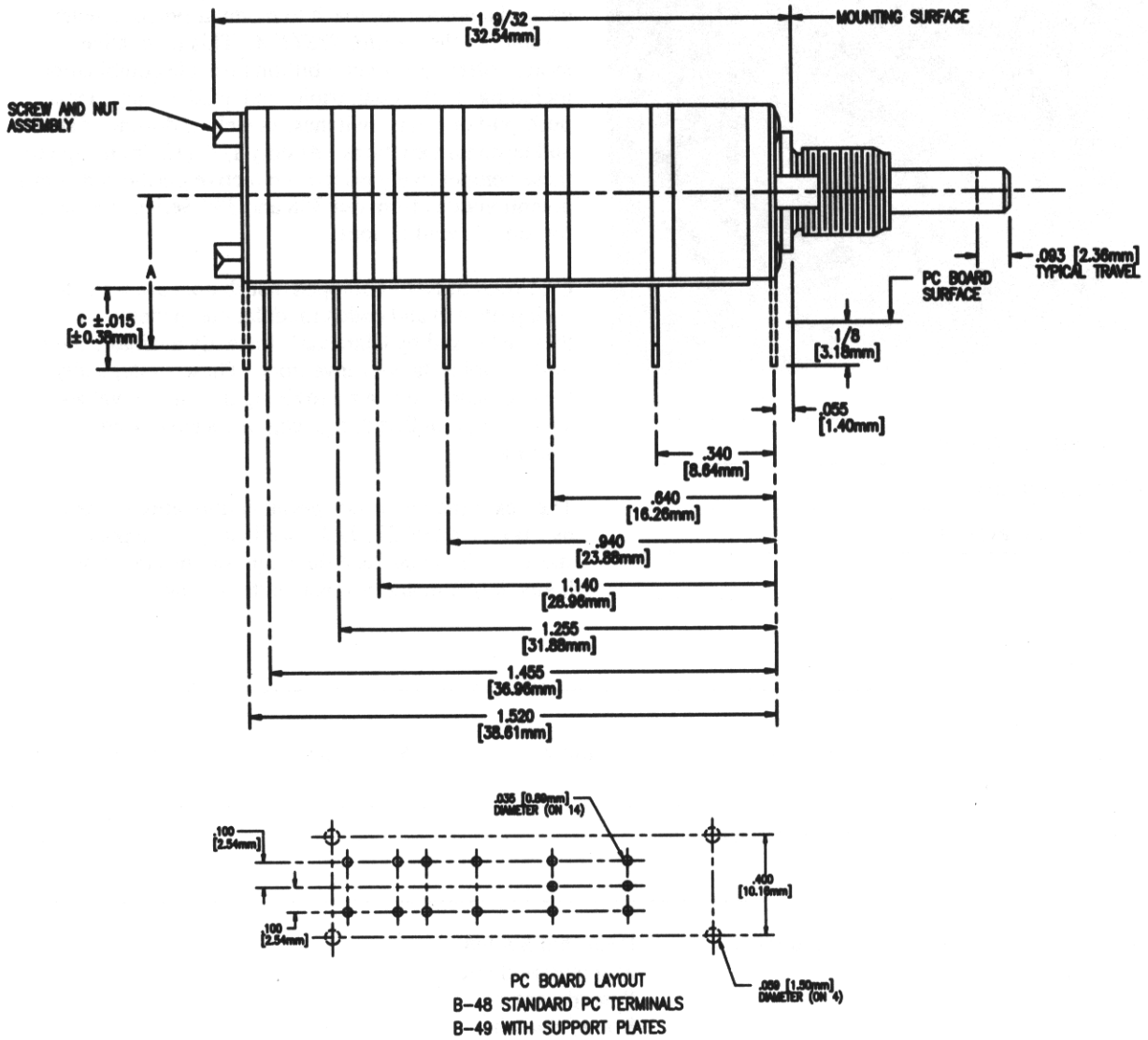
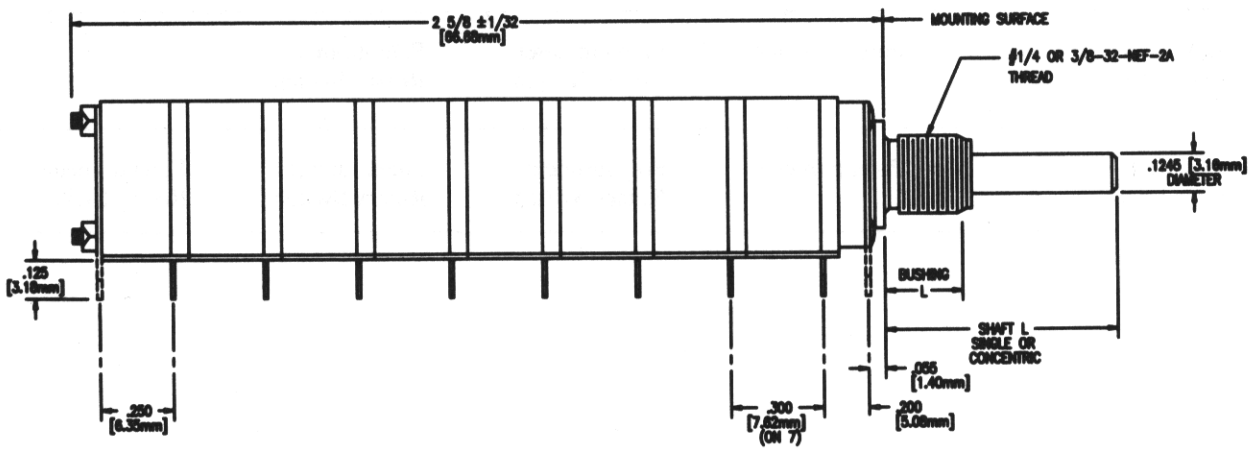


Figure 52

A Single Unit Consisting of 4 to 8 Control Modules Operated by a Single or Concentric Shafts



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