BOURNS

3/4 INCH DIAMETER/CERMET OR CONDUCTIVE PLASTIC

- Single-turn (3851 and 3852)
- 3-3/4-turn (3856)
- Minimal depth package
- Good resolution
- Linear and audio tapers
- Wide resistance range

FOR ORDERING INFORMATION SEE PAGE 73.

Models 3851/3852/3856

Bourns® Panel Controls

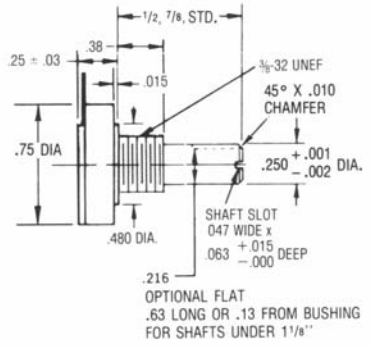
	3851 Conductive Plastic Element	3852/3856 Cermet Element
Initial Electrical Characteristics[1]		
Standard Resistance Range		
Linear Tapers (A, B, E, and H)	1K to 2.5 megohms	50 ohms to 5 megohms
Audio Tapers (C, D, F, and G)	750 ohms to 2.5 megohms	1K ohms to 2.5 megohms
Resistance Tolerance	(B, D, & G tapers) ±20%	(A, C, & F tapers) ±10%
	(E taper) ±10%	(H taper) ±5%
Independent Linearity	±10%	(A & H tapers) ±5%
Absolute Minimum Resistance	2 ohms maximum	2 ohms maximum
Continuity	Maintained for full mechanical angle	Maintained for full mechanical angle
Effective Electrical Angle	250° ±5°	250° ±5°
Contact Resistance Variation	±1%	±3% of total resistance or 3 ohms (whichever is greater)
Theoretical Resolution	Essentially infinite	Essentially infinite
Dielectric Withstanding Voltage	MIL-STD-202, Method 301	MIL-STD-202, Method 301
Sea Level	900 VAC minimum	900 VAC minimum
70,000 Feet	350 VAC minimum	350 VAC minimum
Insulation Resistance (500 VDC)	1,000 megohms minimum	1,000 megohms minimum
Power Rating (Voltage Limited by Power Dissipation or 350 VAC, Whichever is Less)		
+70°C	(B & E tapers) 1 watt	(A & H tapers) 2 watts
	(D & G tapers) 0.5 watt	(C & F tapers) 1 watt
+125°C	0 watt	
+150°C		0 watt
Environmental Characteristics[1]		
Storage Temperature Range	−65°C to +125°C	−65°C to +150°C
Temperature Coefficient		
Over Temperature Range	±1,000PPM/°C	±150PPM/°C
Vibration	20G	20G
Voltage Ratio Shift	±5% maximum	±6% maximum
Total Resistance Shift	±2% maximum	±2% maximum
Shock	100G	100G
Voltage Ratio Shift	±5% maximum	±6% maximum
Total Resistance Shift	±2% maximum	±2% maximum
Load Life	1,000 hours	1,000 hours
Total Resistance Shift	±10% maximum	±3% maximum
Rotational Life (No Load)	100,000 cycles	50,000 cycles
Total Resistance Shift	±15% maximum	±5% or 5 ohms (whichever is greater)
Moisture Resistance	MIL-STD-202, Method 103, Condition B	MIL-STD-202, Method 103, Condition B
Total Resistance Shift	±10% maximum	±2% maximum
Insulation Resistance (500 VDC)	100 megohms minimum	100 megohms minimum
Mechanical Characteristics[1]		
Shaft Torque	(A & B bushings) 0.5 to 6.0 oz-in. (C & E bushings) 0.3 to 6.0 oz-in.	3852 (A & B bushings) 0.5 to 6.0 oz-in. (C & E bushings) 0.3 to 6.0 oz-in. 3856 — 0.15 to 3.0 oz-in.
Stop Strength	5 in-lb.	5 in-lb.
Mechanical Angle	280° ±5°	3852 — 280° ±5° 3856 — 1350° ±50°
Weight	30 grams maximum	30 grams maximum
Terminals	Printed circuit terminals or solder lugs.	Printed circuit terminals or solder lugs.
Markings	Manufacturer's trademark, wiring diagram, date code, resistance, manufacturer's part number	Manufacturer's symbol, wiring diagram, date code, resistance, manufacturer's part number.

[1]At room ambient: +25°C nominal and 50% relative humidity nominal, except as noted.
Specifications are subject to change without notice.

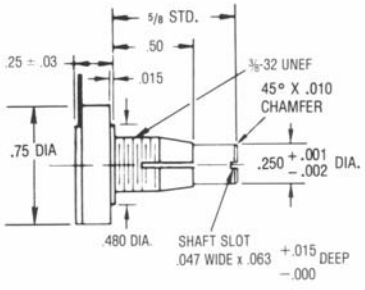
Models 3851/3852/3856

Bourns® Panel Controls

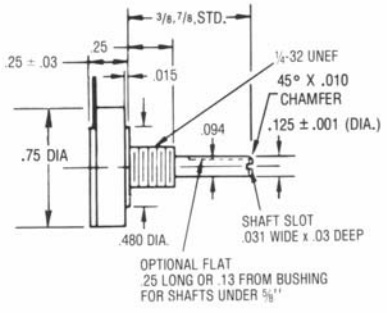
3851A/3852A



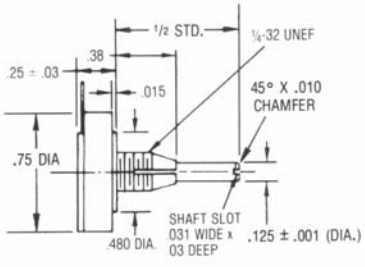
3851B/3852B



3851C/3852C

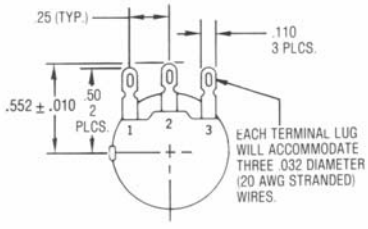


3851E/3852E

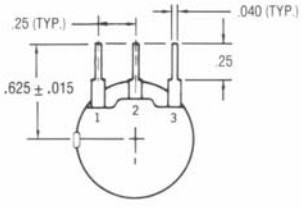


Terminal Configuration

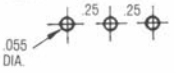
SOLDER LUG TERMINAL



STANDARD PRINTED CIRCUIT TERMINAL

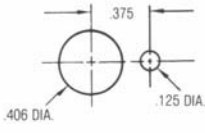


SUGGESTED BOARD LAYOUT

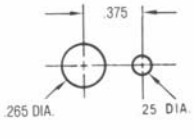


3851/3852/3856

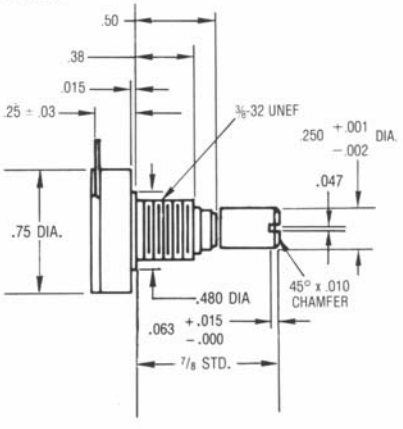
A, B & H BUSHINGS



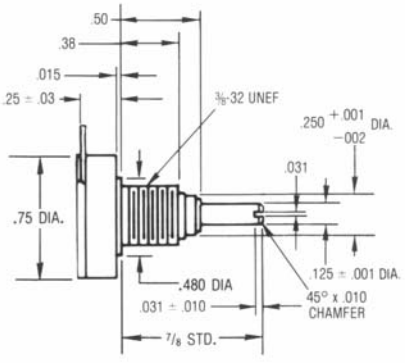
C & E BUSHINGS



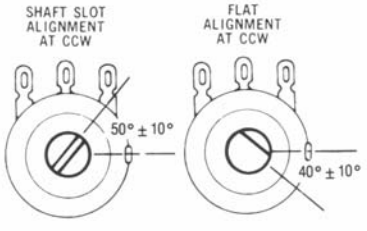
3856A



3856H



Shaft End Detail 3850 Family



TOLERANCES EXCEPT AS NOTED:
DECIMALS: .XXX ± .005, .XX ± .015
FRACTIONS: ± 1/64
ANGLE: ± 3°

Specifications are subject to change without notice.

BOURNS

HOW TO ORDER
3800 Series Panel Controls

PART NUMBERING SYSTEM

3852	A - 28	2 - 103	A

SHAFT LENGTH (FMS) & DIAMETER		AVAILABLE ONLY IN MODELS	BUSHINGS
12	3/8"L x 1/8"D	3851, 3852, 3862	C
16	1/2"L x 1/4"D	3851, 3852	A
16	1/2"L x 1/8"D	3851, 3852	C, E
		3862	C
20	5/8"L x 1/4"D	3851, 3852	A, B
20	5/8"L x 1/8"D	3851, 3852	C, E
		3862	C, E, N, T
28	7/8"L x 1/4"D	3851, 3852	A, B
		3856	A
28	7/8"L x 1/8"D	3851, 3852	C, E
		3856	H
		3862	C, E, N, T

Consult factory for lengths not shown.

	BUSHING	APPLICABLE MODELS
A	Plain 3/8"D x 3/8"L	3851, 3852, 3856
B	Locking 3/8"D x 1/2"L	3851, 3852
C	Plain 1/4"D x 1/4"L	3851, 3852, 3862
E	Locking 1/4"D x 3/8"L	3851, 3852
E	Locking 1/4"D x 1/2"L	3862
H	Plain 3/8"D x 3/8"L	3856 (1/8" Dia. Shaft)
N	Plain 1/4"D x 3/8"L	3862 (Consult Factory)
T	Locking 1/4"D x 3/8"L	3862 (Consult Factory)

MODEL	
3851	3/4"D Single-Turn C.P.
3852	3/4"D Single-Turn Cermet
3856	3/4"D 3 3/4-Turn Cermet
3862	1/2"D Single-Turn Cermet

TERMINAL STYLE AND SHAFT TYPE		NOT RECOMMENDED FOR BUSHING/SHAFT COMBINATIONS SHOWN
1	Solder Lugs*, Plain End	A16, C12, E16 (Consult Factory)
2	Solder Lugs*, Slotted End	
3	Solder Lugs*, Flatted Shaft	A16, C12, E16 (Consult Factory)
5	PC Pins, Plain End	A16, C12, E16 (Consult Factory)
6	PC Pins, Slotted End	
7	PC Pins, Flatted Shaft	A16, C12, E16 (Consult Factory)

*Model 3862 comes with J-hook solder lugs.

RESISTANCE CODE/VALUE (IN OHMS)	
Model 3851	
(102)	1K
(252)	2.5K
(502)	5K
(103)	10K
(253)	25K
(503)	50K
(104)	100K
(254)	250K
(504)	500K
(105)	1M
Models 3852/3856	
(500)	50
(101)	100
(251)	250
(501)	500
(102)	1K
(252)	2.5K
(502)	5K
(103)	10K
(253)	25K
(503)	50K
(104)	100K
(254)	250K
(504)	500K
(105)	1M
(255)	2.5M
(505)	5M
Model 3862	
(101)	100
(251)	250
(501)	500
(102)	1K
(252)	2.5K
(502)	5K
(103)	10K
(253)	25K
(503)	50K
(104)	100K
(254)	250K
(504)	500K
(105)	1M
(255)	2.5M
(505)	5M

ELEMENT TAPER/TOLERANCE		APPLICABLE MODELS
A	Linear ±10%	3852, 3856, 3862
B	Linear ±20%	3851
C	Audio CW ±10%*	3852, 3856
D	Audio CW ±20%*	3851
E	Linear ±10%	3851
F	Audio CCW ±10%*	3852, 3856
G	Audio CCW ±20%*	3851
H	Linear ±5%	3852, 3856, 3862

*The maximum resistance range for audio tapers is 1000 ohms to 2.5 megohms.