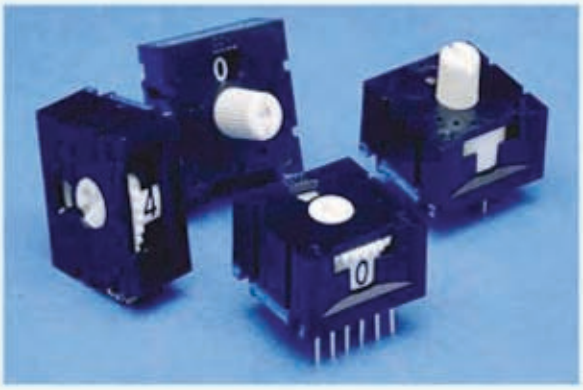
ELITALIA

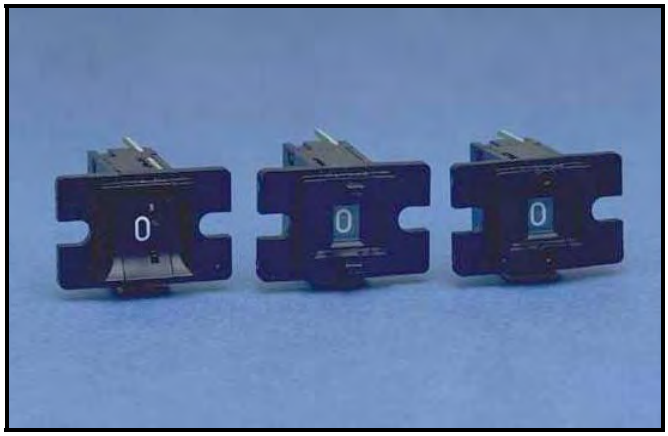
EECO® SWITCHES



1000 SERIES
THUMBWHEEL SWITCHES

If a front panel, pushwheel switch in the smallest possible package is part of your design requirements, EECO's 1000 Series is the ideal solution

The ***1000 Series*** is the smallest rear-mount pushwheel digital switch available today. Actuation methods include thumbwheel, push-set and pen-set models. The pen-set version eliminates the possibility of accidental setting changes, and is ideal for critical "set and forget" applications. The ***1000 Series*** is offered in either binary or decimal code versions, and optional features include stop pins, and provision for diode installation. The ***1000 Series*** is backed by EECO's one-year warranty.



SPECIFICATIONS

MECHANICAL		
	No. of Switching Positions	10
	Life	Minimum 300,000 Detents
	Actuation Force	10.5 Oz.
	Weight	0.11 Oz.
ELECTRICAL		
	Maximum Rated Load, Non-Switching	500 mA Per Common Terminal
	Maximum Rated Load, Switching	100 mA At 50 VAC or 28 VDC
	Contact Resistance (Initial)	200 mΩ Maximum
	Insulation Resistance	10 MΩ Minimum
	Dielectric Withstanding Voltage	500 VAC For 1 Minute
ENVIRONMENTAL		
	Operating Temperature	-20^0C To $+60^0$C
	Storage Temperature	-40^0C To $+80^0$C
	Vibration	50 m/Sec^2 (5-55Hz)
	Shock	100 m/Sec^2 (10G)
	Seal	Dust Resistant
MATERIALS		
	Plastic	Polyacetal Resin
	Circuit Board	
	Base Material	Glass Epoxy
	Plating	Gold Over Nickel Plating
	Termination	Plated Through Holes
	Contacts	Copper Alloy, Gold Over Nickel Plating

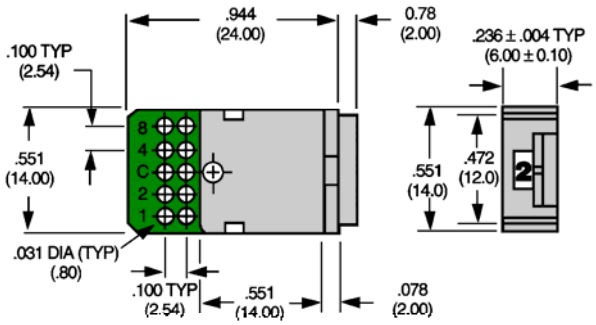
RoHS COMPLIANCE

EECO Switch is fully committed to complying with the European Lead-Free and RoHS directives. The 1000 Series is Lead Free and RoHS compliant.

OUTLINE DIMENSIONS

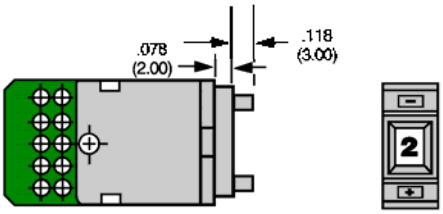
REAR MOUNT

1000 THUMBWHEEL

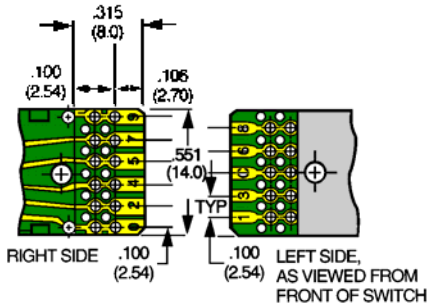


NOTES;
1. Character Height is .126 (3.2)
2. ( ) dimensions in mm.
3. Tolerance on all dimensions .010 unless otherwise specified

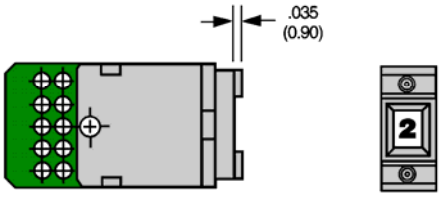
1001 PUSH-SET



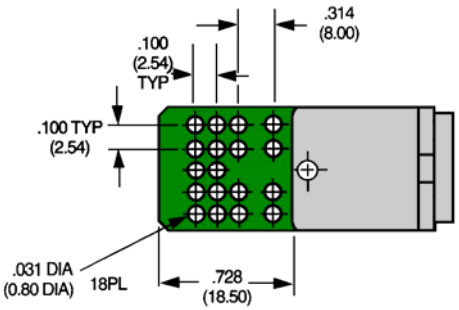
DECIMAL CODE MODELS



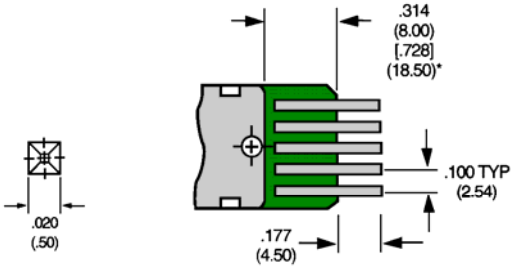
1002 PEN-SET



PCB WITH DIODE PROVISION

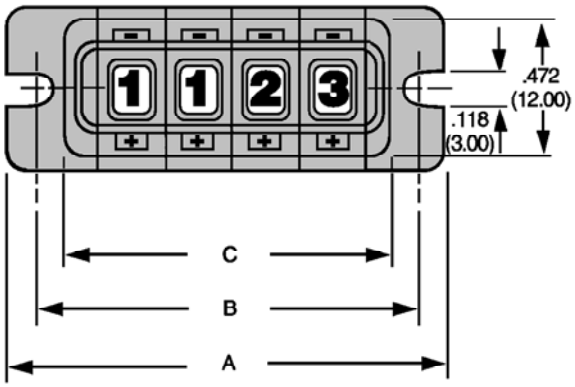


"F" OPTION PIN SPACING

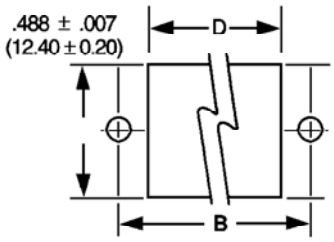


"F" Option Not Available
On Decimal Code Models.

MOUNTING DIMENSIONS



PANEL CUT-OUT

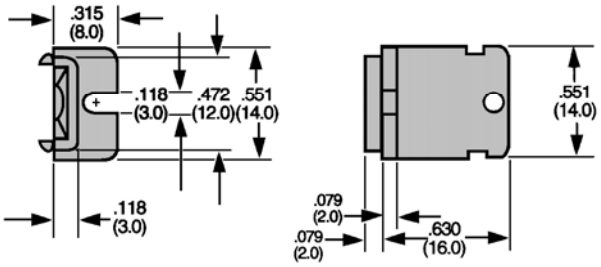


No. Of Switches	A	B	C	D
1	0.866	0.669	0.472	0.480
	(22.0)	(17.0)	(12.0)	(12.2)
2	1.102	0.906	0.709	0.717
	(28.0)	(23.0)	(18.0)	(18.2)
3	1.339	1.142	0.945	0.953
	(34.0)	(29.0)	(24.0)	(24.2)
4	1.575	1.378	1.181	1.189
	(40.0)	(35.0)	(30.0)	(30.2)
5	1.811	1.614	1.417	1.425
	(46.0)	(41.0)	(36.0)	(36.2)
6	2.047	1.850	1.654	1.661
	(52.0)	(47.0)	(42.0)	(42.2)
7	2.283	2.087	1.890	1.898
	(58.0)	(53.0)	(48.0)	(48.2)
8	2.520	2.323	2.126	2.134
	(64.0)	(59.0)	(54.0)	(54.2)
9	2.756	2.559	2.362	2.370
	(70.0)	(65.0)	(60.0)	(60.2)
10	2.992	2.795	2.598	2.606
	(76.0)	(71.0)	(66.0)	(66.2)

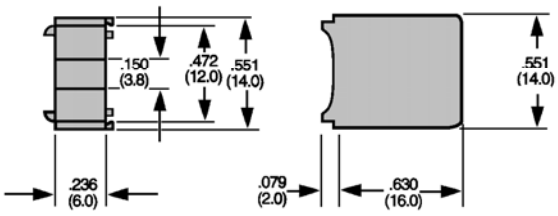
Metric dimensions in ()
"D" Dimensions ±.007 (0.2)

OUTLINE DIMENSIONS- Spacers And Endpieces

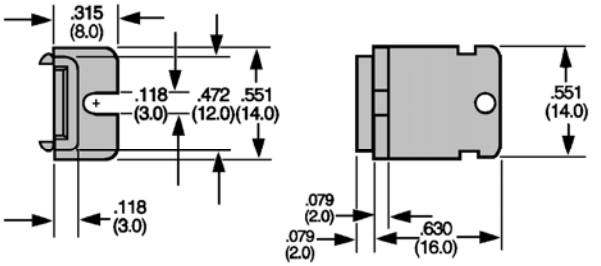
END PIECES
E10SJ (1000 THUMBWHEEL)



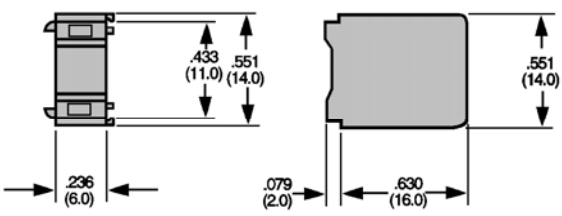
SPACERS
S10SJ (1000 THUMBWHEEL)



E30SJ (1001, 1002 PUSHWHEEL)



S30SJ (1001, 1002 PUSHWHEEL)



NOTE: Endpieces sold as pairs

1000 SERIES STANDARD SWITCHES

THUMBWHEEL	PUSH-SET	PEN-SET	CODE DESCRIPTION	NO. OF POSITIONS	TRUTH TABLE
100001J	100101J	100201J	1 Pole Decimal	10	A02
100002J	100102J	100202J	1 Pole BCD	10	B02
100052J	100152J	100252J	1 Pole BCD w/Diode Provision	10	B02

A02

DECIMAL 1 Pole 10 Position

DIAL	Common (C) Connected To ●									
	0	1	2	3	4	5	6	7	8	9
0	●									
1		●								
2			●							
3				●						
4					●					
5						●				
6							●			
7								●		
8									●	
9										●

B02

BCD 1 Pole 10 Position

DIAL	Common (C) Connected To ●			
	1	2	4	8
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●

AVAILABLE OPTIONS

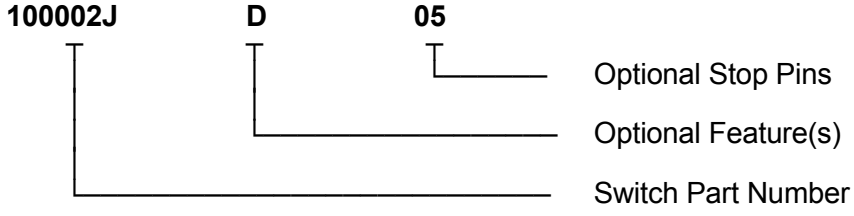
D	Decimal Point
C	Stop Pins (Factory Installed Only)

HARDWARE KITS AND ACCESSORIES

10SJ-X	Hardware Kit: Nuts, Rods (Thumbwheel)
30SJ-X	Hardware Kit: Nuts, Rods (Push Button)
E10SJ	Endpieces (Thumbwheel, Pairs)
E30SJ	Endpieces (Push Button, Pairs)
S10SJ	Spacer (Thumbwheel)
S21SJ	Spacer (Push Button)

Note: Replace "X" With Number of Stations Required When Ordering Hardware Kits

ORDERING EXAMPLE



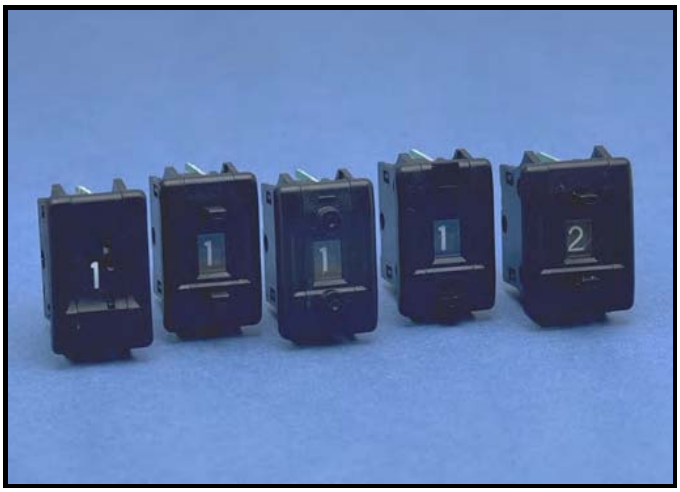
NOTE: 1000 Series Switches And Endpieces Sold Unassembled

EECO®

1100 SERIES
THUMBWHEEL SWITCHES

EECO's 1100 Series switches offer four different actuator styles in a compact, snap-in design.

The ***1100 Series*** snaps in from the front of the panel, making installation fast and easy. The ***1100 Series*** is offered in four different acuator styles, allowing the engineer the greatest design flexibility. Actuator styles include standard thumbwheel, push-set, pen-set and lock-set models. The pen-set and lock-set models eliminate accidental setting changes and are an ideal choice for critical "set and forget" applications. The ***1100 Series*** is offered in either binary or decimal code versions, and optional features include stop pins, and provision for diode installation. The ***1100 Series*** is backed by EECO's one-year warranty.



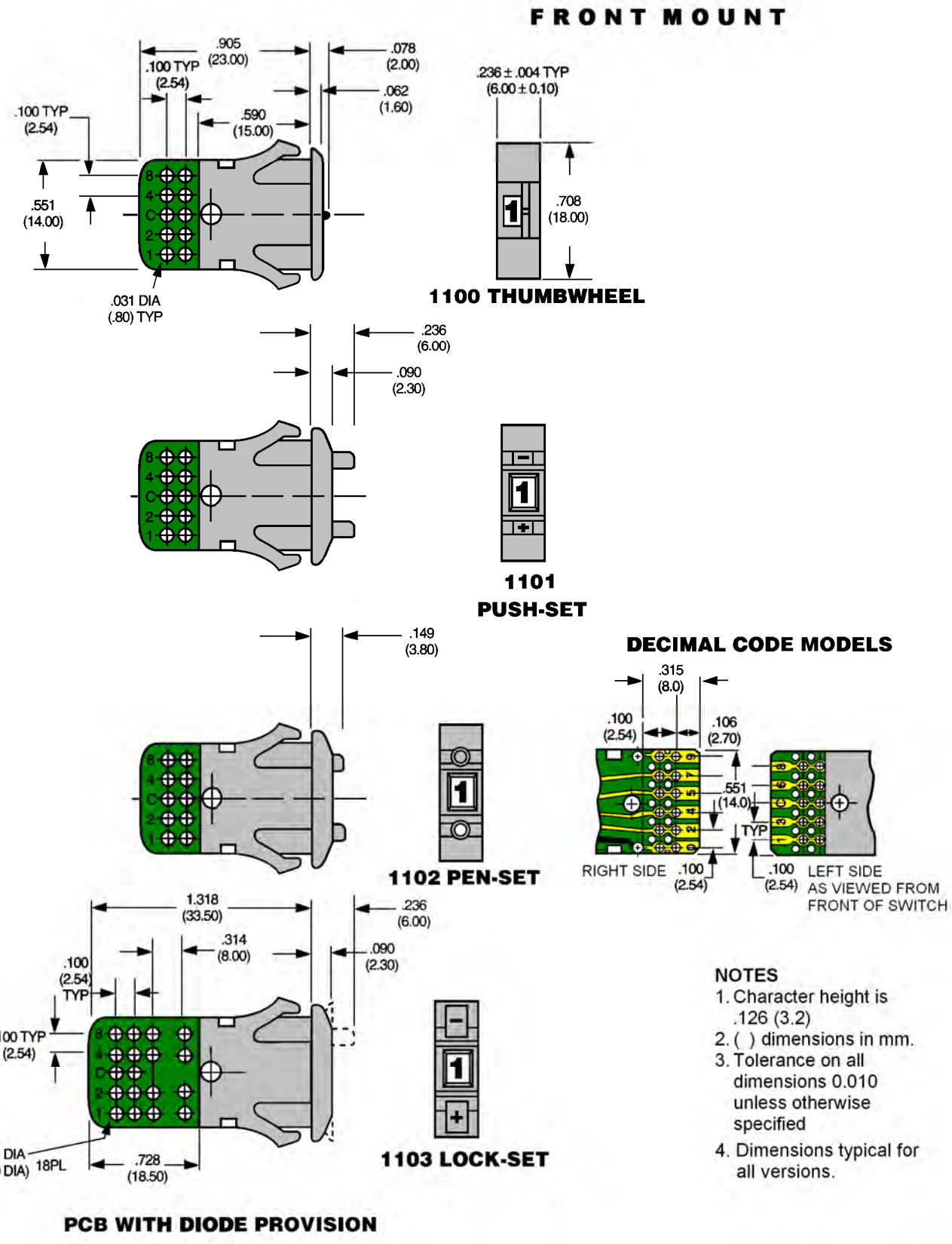
SPECIFICATIONS

MECHANICAL		
	No. of Switching Positions	10
	Life	Minimum 300,000 Detents
	Actuation Force	10.5 Oz.
	Weight	0.11 Oz.
ELECTRICAL		
	Maximum Rated Load, Non-Switching	500 mA Per Common Terminal
	Maximum Rated Load, Switching	100 mA At 50 VAC or 28 VDC
	Contact Resistance (Initial)	200 mΩ Maximum
	Insulation Resistance	10 MΩ Minimum
	Dielectric Withstanding Voltage	500 VAC For 1 Minute
ENVIRONMENTAL		
	Operating Temperature	-20^0C To $+60^0$C
	Storage Temperature	-40^0C To $+80^0$C
	Vibration	50 m/Sec^2 (5-55Hz)
	Shock	100 m/Sec^2 (10G)
	Seal	Dust Resistant
MATERIALS		
	Plastic	Polyacetal Resin
	Circuit Board	
	Base Material	Glass Epoxy
	Plating	Gold Over Nickel Plating
	Termination	Plated Through Holes
	Contacts	Copper Alloy, Gold Over Nickel Plating

RoHS COMPLIANCE

EECO Switch is fully committed to complying with the European Lead-Free and RoHS directives. The 1100 Series is Lead Free and RoHS compliant.

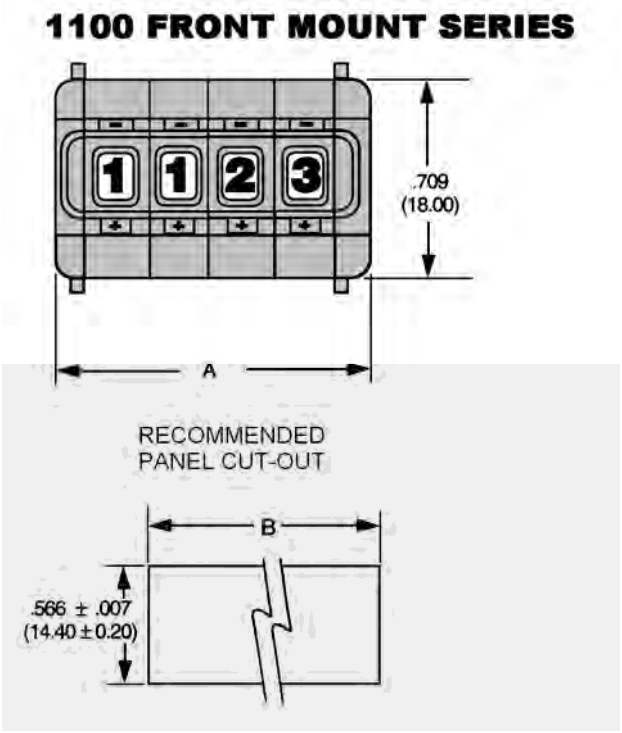
OUTLINE DIMENSIONS



NOTES

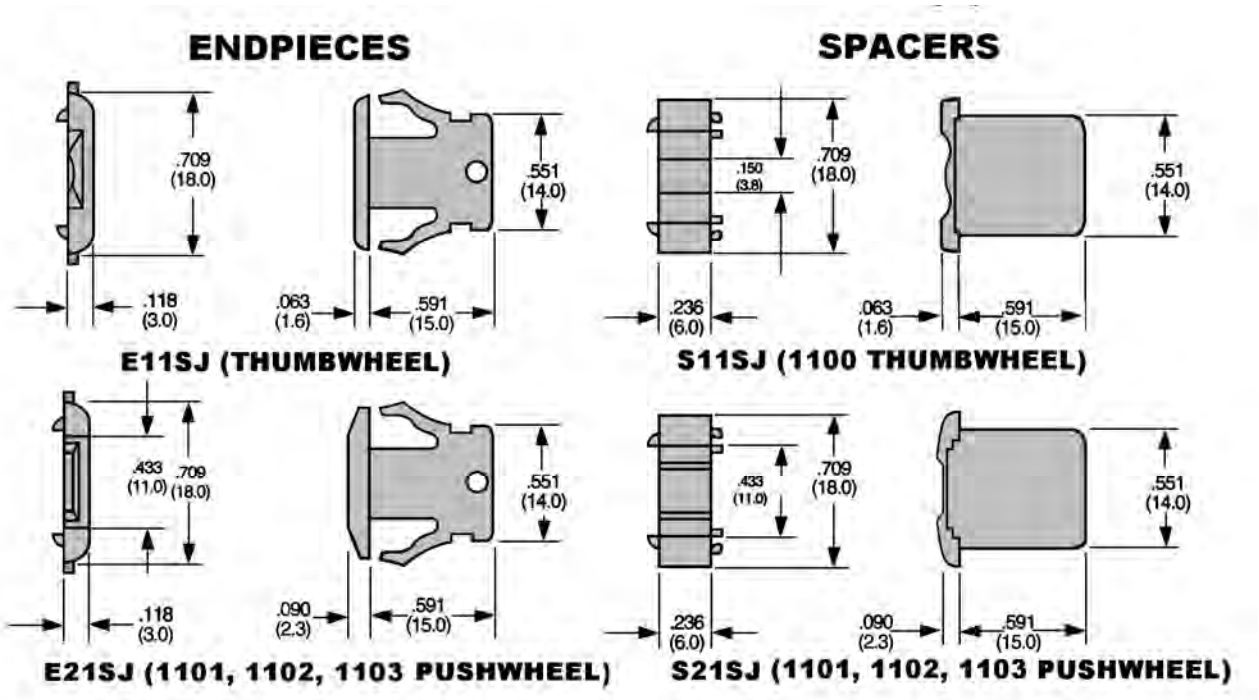
1. Character height is .126 (3.2)
2. ( ) dimensions in mm.
3. Tolerance on all dimensions 0.010 unless otherwise specified
4. Dimensions typical for all versions.

MOUNTING DIMENSIONS



No. Of Switches	A	B
1	0.47 (12.0)	0.32 (8.2)
2	0.71 (18.0)	0.56 (14.2)
3	0.94 (24.0)	0.80 (20.2)
4	1.18 (30.0)	1.03 (26.2)
5	1.42 (36.0)	1.27 (32.2)
6	1.65 (42.0)	1.50 (38.2)
7	1.89 (48.0)	1.74 (44.2)
8	2.13 (54.0)	.98 (50.2)
9	2.36 (60.0)	2.21 (56.2)
10	2.60 (66.0)	2.45 (62.2)

OUTLINE DIMENSIONS - Spacers And Endpieces



1100 SERIES STANDARD SWITCHES

THUMBWHEEL	PUSH-SET	PEN-SET	LOCK-SET	CODE DESCRIPTION	NO. OF POSITIONS	TRUTH TABLE
110001J	110101J	110201J	110301J	1 Pole Decimal	10	A02
110002J	110102J	110202J	110302J	1 Pole BCD	10	B02
110052J	110152J	110252J	110352J	1 Pole BCD w/Diode Provision	10	B02

A02

DECIMAL 1 Pole 10 Position

DIAL	Common (C) Connected To ●									
	0	1	2	3	4	5	6	7	8	9
0	●									
1		●								
2			●							
3				●						
4					●					
5						●				
6							●			
7								●		
8									●	
9										●

B02

BCD 1 Pole 10 Position

DIAL	Common (C) Connected To ●			
	1	2	4	8
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●

AVAILABLE OPTIONS

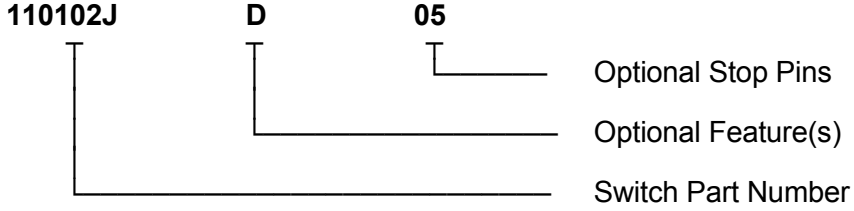
D	Decimal Point
	Stop Pins (Factory Installed Only)l

HARDWARE KITS AND ACCESSORIES

E11SJ	Endpieces (Thumbwheel, Pairs)
E21SJ	Endpieces (Push Button, Pairs)
S11SJ	Spacer (Thumbwheel)
S21SJ	Spacer (Push Button)

Note: Replace "X" With Number of Stations Required When Ordering Hardware Kits

ORDERING EXAMPLE



NOTE: 1100 Series Switches And Endpieces Sold Unassembled

1400 SERIES
THUMBWHEEL SWITCHES

EECO's 1400 Series switches feature snap-in front mounting in a large, easy to use package size.

The ***1400 Series*** snaps in from the front of the panel, allowing the user to create multi-switch assemblies quickly without the need for additional mounting hardware. The ***1400 Series*** is offered in a choice of thumbwheel, push-set and lock-set actuator styles, The lock-set model features hinged actuators which fold flush with the front of the switch, eliminating accidental setting changes, and are an ideal choice for critical "set and forget" applications. The ***1400 Series*** is available as either a 10 position decimal code switch or as a 10 or 16 position binary coded version. Optional features include stop pins, and provision for diode installation. The ***1400 Series*** is backed by EECO's one-year warranty.

SPECIFICATIONS

MECHANICAL		
	No. of Switching Positions	10 and 16
	Life	Minimum 1,000,000 Detents
	Actuation Force	14 Oz.
	Weight	0.16 Oz.
ELECTRICAL		
	Maximum Rated Load, Non-Switching	1.0 A Per Common Terminal
	Maximum Rated Load, Switching	100 mA At 50 VAC or 28 VDC
	Contact Resistance (Initial)	200 mΩ Maximum
	Insulation Resistance	10 MΩ Minimum
	Dielectric Withstanding Voltage	500 VAC For 1 Minute
ENVIRONMENTAL		
	Operating Temperature	-20^0C To $+60^0$C
	Storage Temperature	-40^0C To $+80^0$C
	Vibration	50 m/Sec^2 (5-55Hz)
	Shock	100 m/Sec^2 (10G)
	Seal	Dust Resistant
MATERIALS		
	Plastic	Polyacetal Resin
	Circuit Board	
	Base Material	Glass Epoxy
	Plating	Gold Over Nickel Plating
	Termination	Plated Through Holes
	Contacts	Copper Alloy, Gold Over Nickel Plating

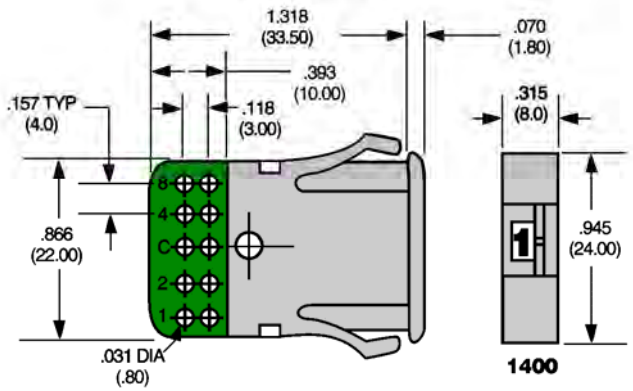
RoHS COMPLIANCE

EECO Switch is fully committed to complying with the European Lead-Free and RoHS directives. The 1400 Series is Lead Free and RoHS compliant.

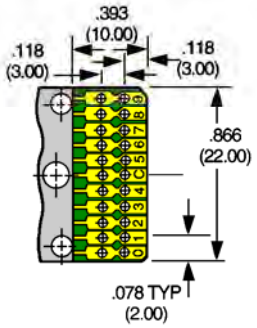
OUTLINE DIMENSIONS

FRONT MOUNT

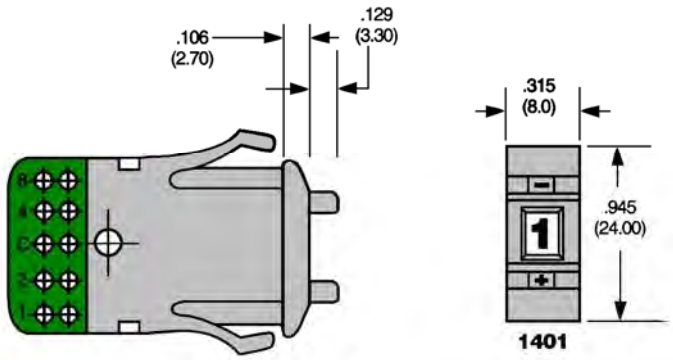
THUMBWHEEL



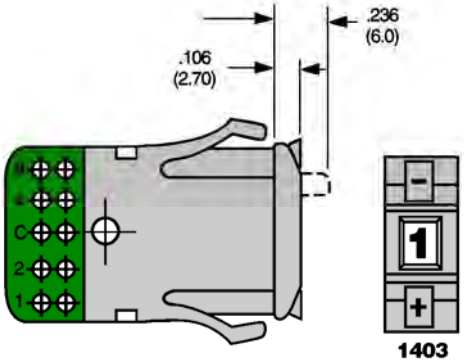
DECIMAL CODE MODELS



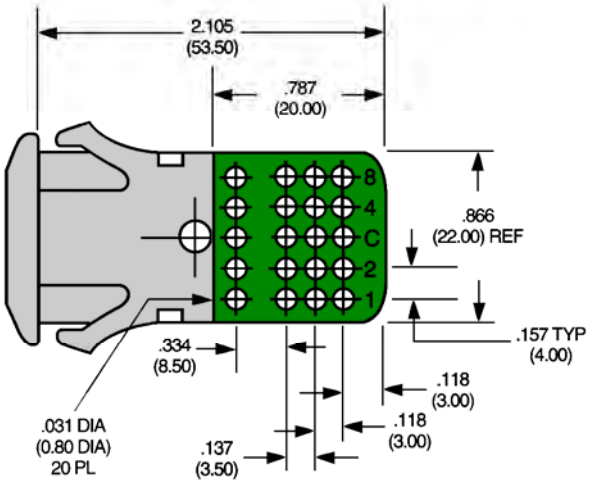
PUSH-SET



LOCK-SET

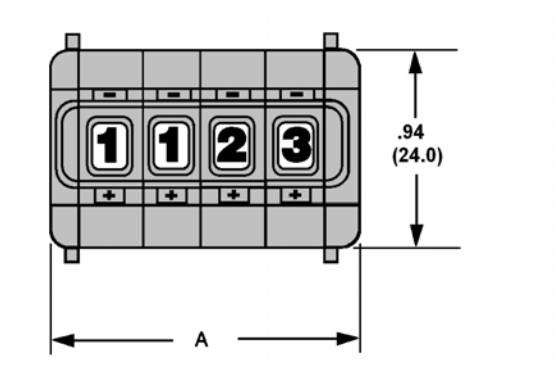


PCB WITH DIODE PROVISION

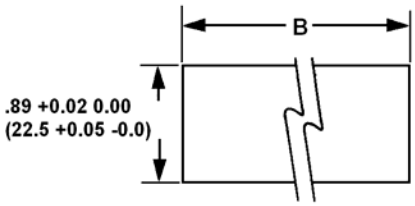


NOTES:
1. Character Height is .190 (4.8)
2. ( ) dimensions in mm.
3. Tolerance on all dimensions .010 unless otherwise specified
4. Dimensions typical all series.

MOUNTING DIMENSIONS



RECOMMENDED PANEL CUT OUT

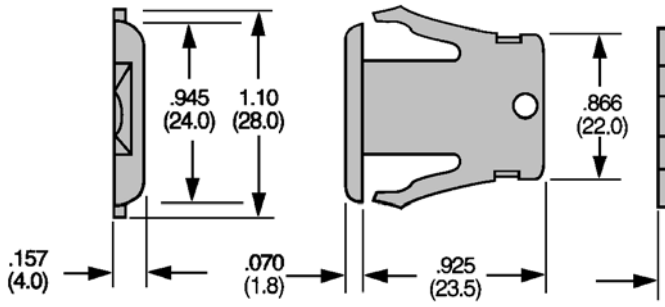


PANEL THICKNESS 0.031 TO 0.118 (0.08 TO 3.0)

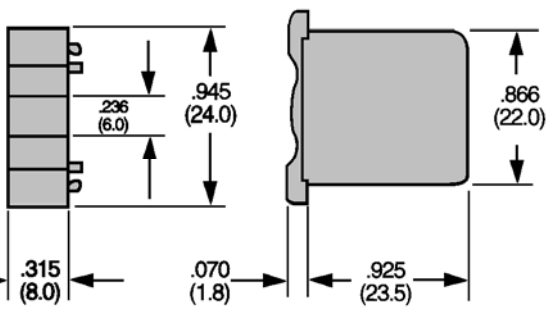
No. Of Switches	A	B
1	0.63 (16.0)	0.45 (11.5)
2	0.94 (24.0)	0.77 (19.5)
3	1.26 (32.0)	1.08 (27.5)
4	1.57 (40.0)	1.40 (35.5)
5	1.89 (48.0)	1.71 (43.5)
6	2.20 (56.0)	2.03 (51.5)
7	2.52 (64.0)	2.34 (59.5)
8	2.83 (72.0)	2.66 (67.5)
9	3.15 (80.0)	2.97 (75.5)
10	3.46 (88.0)	3.29 (83.5)

OUTLINE DIMENSIONS - Spacers And Endpieces

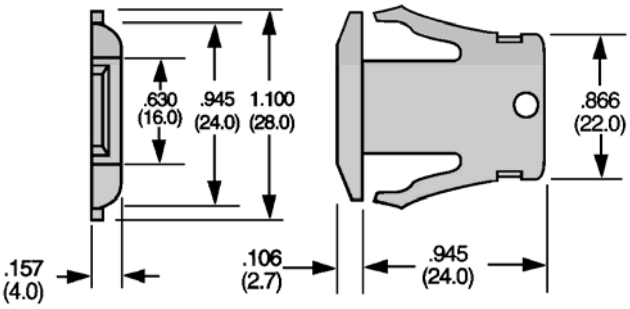
END PIECES (PREFIX "E")
E14SJ (1400 THUMBWHEEL)



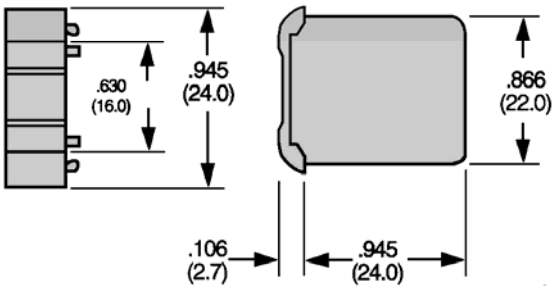
SPACERS (PREFIX "S")
S14SJ (1400 THUMBWHEEL)



E13 SJ (1401, 1403 PUSHWHEEL)



S24SJ (1401, 1403 PUSHWHEEL)



1400 STANDARD MODELS

THUMBWHEEL	PUSH-SET	LOCK-SET	CODE DESCRIPTION	NO. OF POSITIONS	TRUTH TABLE
140001J	140101J	140301J	1 Pole Decimal	10	A02
140002J	140102J	140302J	1 Pole BCD	10	B02
140012J	140012J	140312J	1 Pole BCD Complement	10	C12
140052J	140152J	140352J	1 Pole BCD w/Diode Provision	10	B02
	140134J	140334J	1 Pole Hexadecimal	16	B07
	140184J	140384J	1 Pole Hexadecimal w/Diode Provision	16	B07

TRUTH TABLES

A02

DECIMAL 1 Pole 10 Position

DIAL	Common (C) Connected To ●									
	0	1	2	3	4	5	6	7	8	9
0	●									
1		●								
2			●							
3				●						
4					●					
5						●				
6							●			
7								●		
8									●	
9										●

B02

BCD 1 Pole 10 Position

DIAL	Common (C) Connected To ●			
	1	2	4	8
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●

B07

HEXADECIMAL 1 Pole 16 Position

DIAL	Common (C) Connected To ●			
	1	2	4	8
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●
A		●		●
B	●	●		●
C			●	●
D	●		●	●
E		●	●	●
F	●	●	●	●

C12

BCD Complement 1 Pole 10 Position

DIAL	Common (C) Connected To ●			
	$\overline{1}$	$\overline{2}$	$\overline{4}$	$\overline{8}$
0	●	●	●	●
1		●	●	●
2	●		●	●
3			●	●
4	●	●		●
5		●		●
6	●			●
7				●
8	●	●	●	
9		●	●	

AVAILABLE OPTIONS

D Decimal Point
Stop Pins (Factory Installed Only)l

NOTE: 1400 Series Switches Sold Unassembled

HARDWARE KITS AND ACCESSORIES

E13SJ Endpieces (1400 Push Button, Pairs)
E14SJ Endpieces (1400 Thumbwheel, Pairs)
S14SJ Spacer (1400 Thumbwheel)
S24SJ Spacer (1400 Push Button)

ORDERING EXAMPLE

140102J **D** **05**

- 05 — Optional Stop Pins
- D — Optional Feature(s)
- 140102J — Switch Part Number

1800 SERIES
THUMBWHEEL SWITCHES

EECO's 1800 Series features large, easy to read characters and a snap-in mounting design.

The ***1800 Series*** is a slim .315" (8 MM) wide to conserve front panel space. The ***1800 Series*** is offered in the most popular binary and decimal output codes for design flexibility. Other options include F-pins for attaching an accessory PC board, stop pins, and provision for diode installation. The ***1800 Series*** offers superior performance at a very economical price. The ***1800 Series*** is backed by EECO's one-year warranty.

SPECIFICATIONS

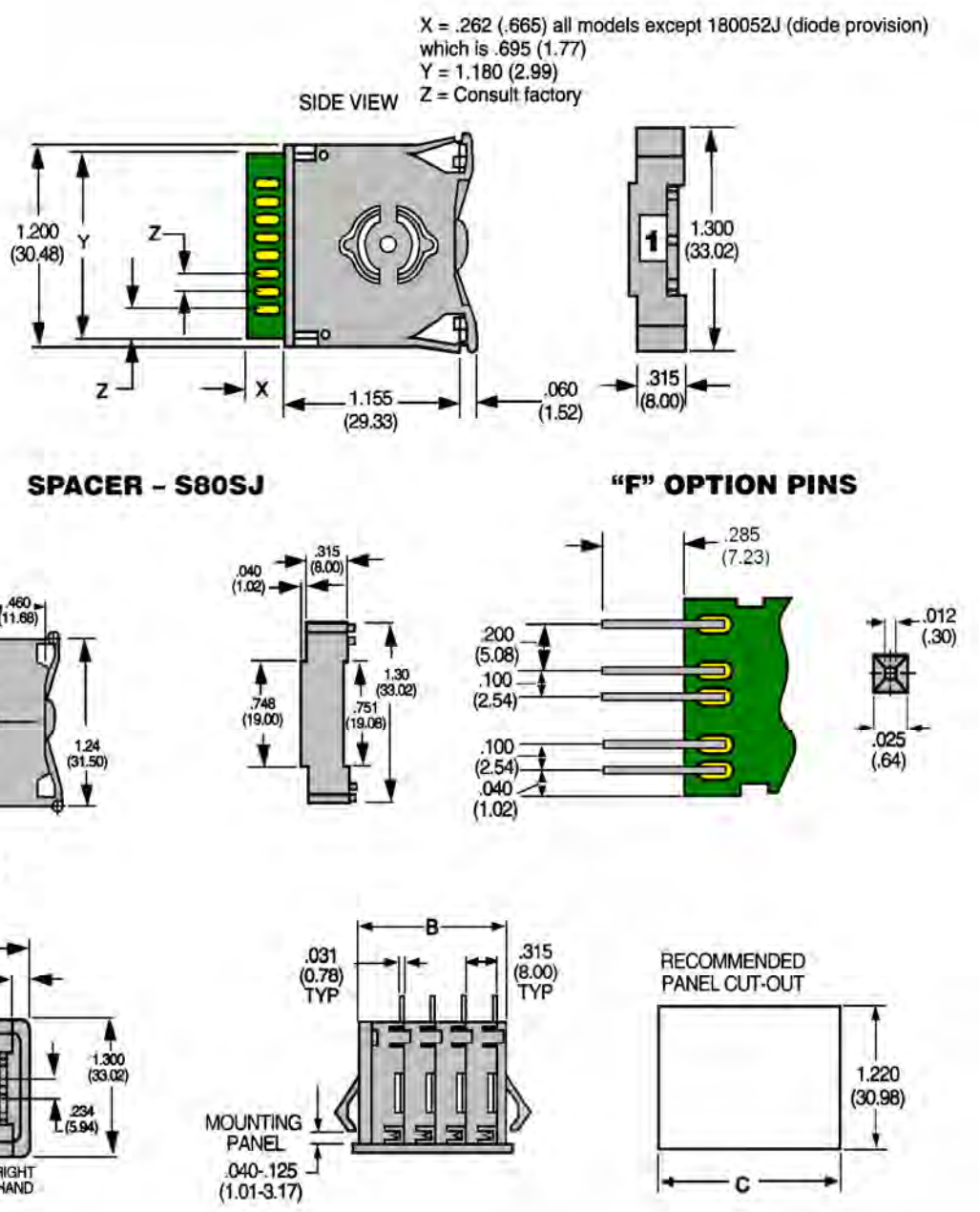
MECHANICAL		
	No. of Switching Positions	10
	Life	Minimum 500,000 Detents @ 10 mA, 5 VDC @ 25^0C
	Tangential Operating Force	4-16 Oz.
	Weight	0.15 Oz.
ELECTRICAL		
	Maximum Rated Load, Non-Switching	1A Per Common Terminal
	Maximum Rated Load, Switching	100 mA at 28 VDC or VAC
	Contact Resistance (Initial)	100 mΩ Maximum
	(After Life)	200 mΩ Maximum
	Insulation Resistance	1,000 MΩ Minimum At 100 VDC
	Dielectric Withstanding Voltage	1000 VAC (Peak To Peak)
ENVIRONMENTAL		
	Operating Temperature	-20^0C To $+65^0$C
	Seal	Dust Resistant
MATERIALS		
	Plastic	Nylon, Self Extinguishing
	Circuit Board	
	Base Material	Glass Epoxy
	Plating	Gold Over Nickel Plating
	Termination	Plated Through Holes
	Contacts	Copper Alloy, Gold Over Nickel Plating

RoHS COMPLIANCE

EECO Switch is fully committed to complying with the European Lead-Free and RoHS directives. The 1800 Series is Lead Free and RoHS compliant.

OUTLINE DIMENSIONS

FRONT MOUNT



MOUNTING DIMENSIONS						
No. Of Stations	Dim A		Dim B		Dim C	
1	0.75	(19.0)	0.63	(15.9)	0.67	(17.0)
2	1.06	(27.0)	0.94	(23.9)	0.99	(25.0)
3	1.38	(35.0)	1.26	(31.9)	1.30	(33.0)
4	1.69	(43.0)	1.57	(39.9)	1.62	(41.0)
5	2.01	(51.0)	1.89	(47.9)	1.93	(49.0)
6	2.32	(59.0)	2.20	(55.9)	2.25	(57.0)
7	2.64	(67.0)	2.52	(63.9)	2.56	(65.0)
8	2.95	(75.0)	2.83	(71.9)	2.88	(73.0)
9	3.27	(83.0)	3.15	(79.9)	3.19	(81.0)
10	3.58	(91.0)	3.46	(87.9)	3.51	(89.0)

Assembly may exhibit expansion of .003" per station before installation, but will compress to recommended panel cutout when installed.

Spacers are counted as switches in this table.

Add .315" (8 mm) per station to each dimension shown for assemblies over 10 stations

Tolerances are :
.XXX ± 0.010" .XX ± 0.030"
( ) Metric equivalents in mm

1800 SERIES STANDARD MODELS

PART NUMBER	PART DESCRIPTION	NO. OF POSITIONS	TRUTH TABLE
180001J	1 Pole Decimal	10	A02
180002J	1 Pole BCD	10	B02
180052J	1 Pole BCD w/Diode Provision	10	B02
180006J	2 Pole BCD w/Complement	10	C02
180012J	1 Pole BCD Complement Only	10	C12
180005J	2 Pole Repeating 0, 5	10	S01
180010J	2 Pole Repeating 0, 1	10	S01
180011J	2 Pole Repeating + / -	10	S01

A02

DECIMAL 1 Pole 10 Position

DIAL	Common (C) Connected To ●									
	0	1	2	3	4	5	6	7	8	9
0	●									
1		●								
2			●							
3				●						
4					●					
5						●				
6							●			
7								●		
8									●	
9										●

B02

BCD 1 Pole 10 Position

DIAL	Common (C) Connected To ●			
	1	2	4	8
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●

C02

BCD w/Complement 1 Pole 10 Position

DIAL	Common (C) Connected To ●							
	1	2	4	8	$\overline{1}$	$\overline{2}$	$\overline{4}$	$\overline{8}$
0					●	●	●	●
1	●					●	●	●
2		●			●		●	●
3	●	●					●	●
4			●		●	●		●
5	●		●			●		●
6		●	●		●			●
7	●	●	●					●
8				●	●	●	●	
9	●			●		●	●	

C12

BCD Complement 1 Pole 10 Position

DIAL	Common (C) Connected To ●			
	$\overline{1}$	$\overline{2}$	$\overline{4}$	$\overline{8}$
0	●	●	●	●
1		●	●	●
2	●		●	●
3			●	●
4	●	●		●
5		●		●
6	●			●
7				●
8	●	●	●	
9		●	●	

S01

A/B Repeating Code Double Pole 10 Position

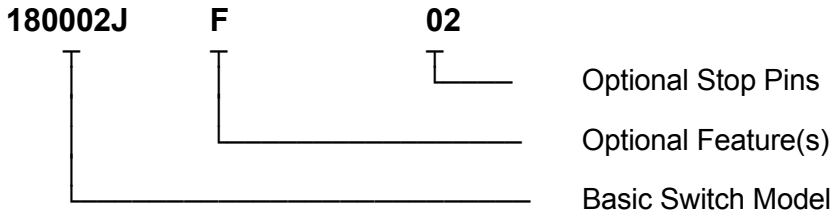
DIAL			Common (C1) and (C2) Connected To ●			
			C1		C2	
			A1	B1	A2	B2
0	0	+		●		●
1	5	-	●		●	
0	0	+		●		●
1	5	-	●		●	
0	0	+		●		●
1	5	-	●		●	
0	0	+		●		●
1	5	-	●		●	
0	0	+		●		●
1	5	-	●		●	

AVAILABLE OPTIONS

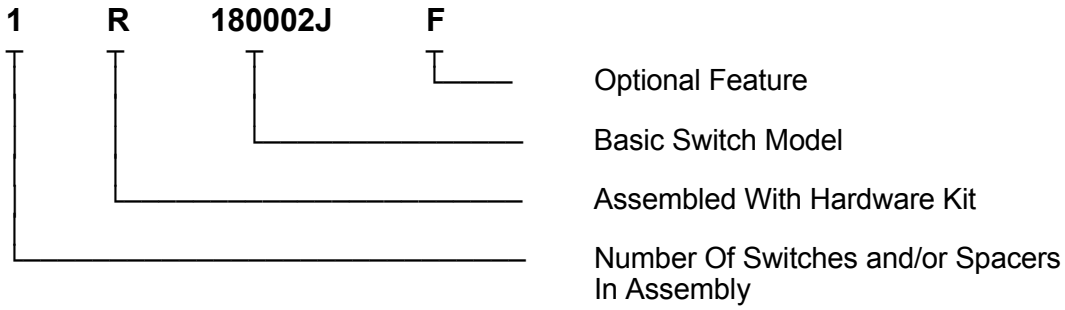
A	Diodes Installed Anode To Common
C	Diodes Installed Cathode To Common
D	Decimal Point
P	+/- Rotor Marking
	Stop Pins

Consult Factory for Custom Rotor Marking, Custom Output Codes and Other Special Requests

ORDERING EXAMPLE - SWITCH



ORDERING EXAMPLE - ASSEMBLY



Certain combinations of switches and options may require a special part number. Consult factory for additional ordering information.

HARDWARE KITS AND ACCESSORIES

80SJ-X	Hardware Kit: Endpieces, Speed Nuts, Aluminum Rod (Factory Assembled Only)
81SJ-X	Hardware Kit: Endpieces, Threaded Rod, Nuts and Washers

Note: Replace "X" With Number of Stations Required When Ordering Separate Hardware Kits.

E80SJ	Endpiece, Right (234147-09)
E81SJ	Endpiece, Left (234146-09)
S80SJ	Spacer (234149-09)

EECO®

2000 SERIES
THUMBWHEEL SWITCHES

EECO's 2000 Series is ideal for demanding industrial control applications. The large size of the switch makes it easy to operate, even if the operator is wearing gloves.

The ***2000 Series*** is available with an optional internal O-ring seal for use in harsh environments. The ***2000 Series*** switch is 500" wide and features PCB termination designed to accept a variety of edge connectors, and also allows direct wiring. Other options such as lighted indicators, custom legends, stops and diode provisions make the ***2000 Series*** an excellent choice for heavy-duty industrial control applications demanding high reliability. The ***2000 Series*** is covered by EECO's one-year warranty.

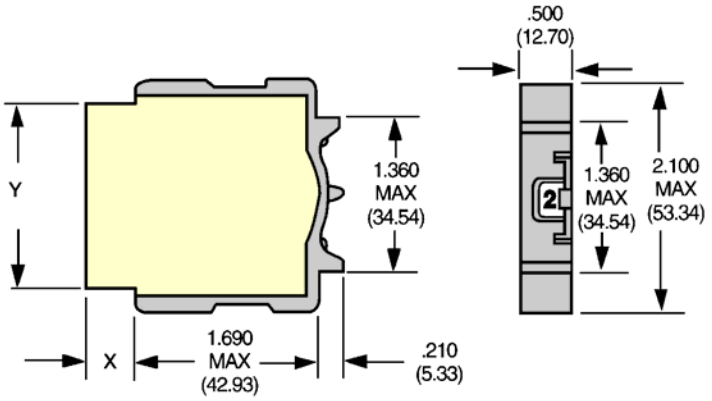
SPECIFICATIONS

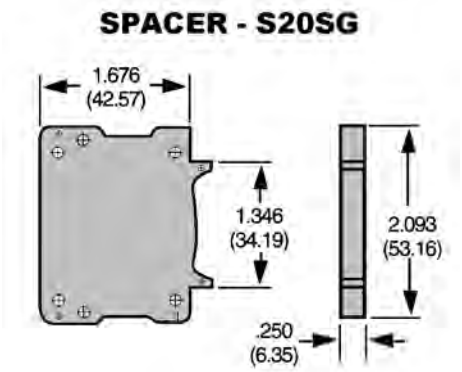
MECHANICAL		
	No. of Switching Positions	8, 10, 12, 16
	Life	Minimum 1,000,000 Detents
	Tangential Operating Force	6-18 Oz
	Weight	0.8 Oz.
ELECTRICAL		
	Maximum Electrical Current, Non-Switching	3A Per Common Terminal
	Maximum Rated Load, Switching	125 mA at 28 VDC or 115 VAC
	Minimum Switching Load	0.01 mA at 0.02 VDC
	Contact Resistance (Initial)	100 mΩ Maximum
	(After Life)	200 mΩ Maximum
	Insulation Resistance	1,000 MΩ Minimum
	Dielectric Withstanding Voltage	1000 VAC (RMS) Single Pole Models
		500 VAC (RMS) Double Pole Models
ENVIRONMENTAL		
	Operating Temperature	-40^0C To $+75^0$C
	Storage Temperature	-65^0C To $+100^0$C
	Seal	Optional O-Ring
MATERIALS		
	Plastic	Polycarbonate per Federal Spec LP-393A
	Metals	Corrosion Resistant
	Circuit Disc - Material	Glass Epoxy
	Plating	Gold Over Nickel Plating
	Terminals	Copper Alloy, Plated for Soldering
	Contacts	Bifurcated Copper Alloy, Gold Over Nickel Plating
	O-Ring	Buna-N

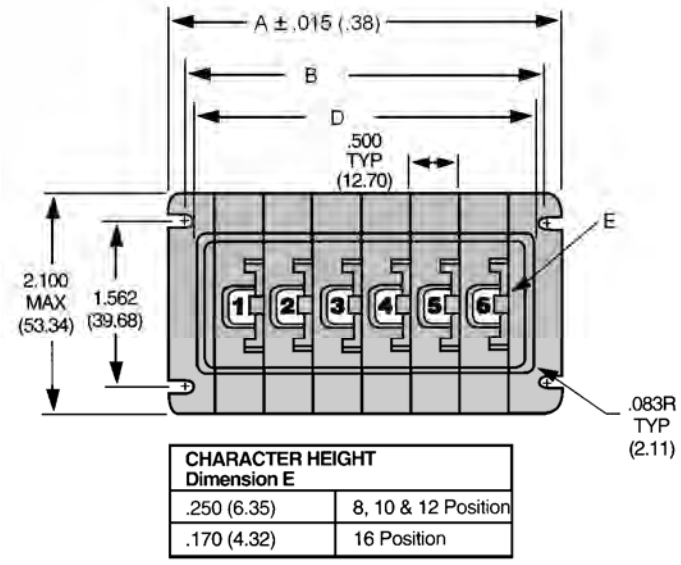
RoHS COMPLIANCE

EECO Switch is fully committed to complying with the European Lead-Free and RoHS directives. The 2000 series is lead free and RoHS compliant.

OUTLINE DIMENSIONS

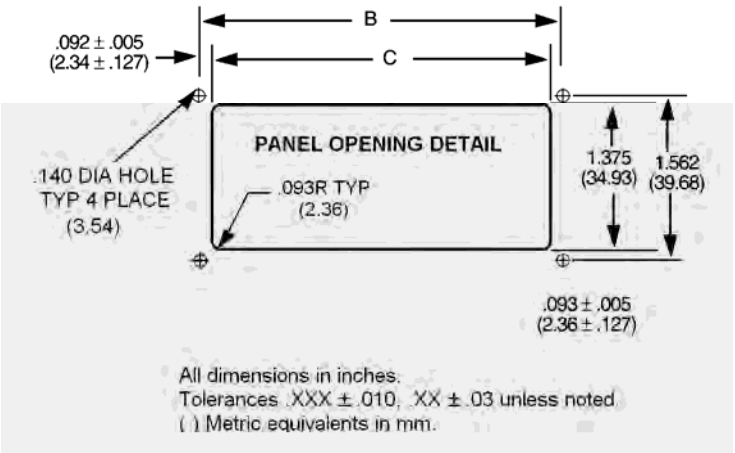






CHARACTER HEIGHT Dimension E	
.250 (6.35)	8, 10 & 12 Position
.170 (4.32)	16 Position

No. Of Stations	A	B	C	D
1	1.38 (34.9)	1.08 (27.4)	0.89 (22.6)	0.88 (22.4)
2	1.88 (47.6)	1.58 (40.1)	1.39 (35.3)	1.38 (35.1)
3	2.38 (60.3)	2.08 (52.8)	1.89 (48.0)	1.88 (47.8)
4	2.88 (73.0)	2.58 (65.5)	2.39 (60.7)	2.38 (60.5)
5	3.38 (85.7)	3.08 (78.2)	2.89 (73.4)	2.88 (73.2)
6	3.88 (98.4)	3.58 (90.9)	3.39 (86.1)	3.38 (85.9)
7	4.38 (111.1)	4.08 (103.6)	3.89 (98.8)	3.88 (98.6)
8	4.88 (123.8)	4.58 (116.3)	4.39 (111.5)	4.38 (111.3)
9	5.38 (136.5)	5.08 (129.0)	4.89 (124.2)	4.88 (124.0)
10	5.88 (149.2)	5.58 (141.7)	5.39 (136.9)	5.38 (136.7)



Assembly may exhibit an expansion of .003" per station before installation but will adjust to recommended panel cutout when installed.
Spacers count as stations. Subtract .250" from each dimension A through D when spacers are used.
Add .500" to dimensions A through D for each additional station over 10.

TRUTH TABLE	PART NUMBER	PART DESCRIPTION	NUMBER OF POSITIONS	PCB TAIL DIMENSIONS X	PCB TAIL DIMENSIONS Y	TERMINATION † TYPE	TERMINATION CONNECTOR CODE*
A01	2284G	1 Pole 8 Pos. Decimal	8	0.34	1.71	E	C
A02	2211G	1 Pole Decimal Shorting	10	0.34	1.08	E	E
A02	2213G	1 Pole Decimal Shorting	10	0.34	2.02	E	E
A02	2222G	1 Pole Decimal Diode Prov.	10	0.98	2.02	E	B
A02	2229G	1 Pole Decimal	10	0.34	2.02	E	E
A03	2281G	1 Pole 12 Pos. Decimal	12	0.45	2.33	E	….
A04	2283G	1 Pole 16 Pos. Decimal	16	0.34	1.71	E	D
A05	2217G	2 Pole Decimal	10	1.40	2.02	E	F
B02	2214G	1 Pole BCD w/Diode Prov.	10	0.98	1.08	E	C
B02	2228G	1 Pole BCD	10	0.34	1.08	E	A
B03	2262G	1 Pole BCD (1-10 Marking)	10	0.34	1.08	E	A
B04	2245G	1 Pole 12 Pos. Binary w/Diode Prov.	12	0.98	1.08	W	….
B05	2249G	1 Pole BCD Odd Bit Parity Diode Prov.	10	0.98	1.08	E	A
B06	2227G	1 Pole BCD w/Even Bit Parity	10	0.34	1.08	E	A
C02	2205G	1 Pole BCD w/Compl Diode Prov.	10	0.98	1.71	E	C
C02	2206G	1 Pole BCD w/Complement	10	0.98	1.71	E	C
C03	2263G	1 Pole BCD w/Compl. Diode Prov. (1-10 Marking)	10	0.98	1.71	E	C
C06	2280G	1 Pole BCH w/Compl. Mkd 0-15	16	0.34	1.71	E	C
C06	2285G	1 Pole BCH w/Compl. Mkd 0-9-A-F	16	0.34	1.71	E	C
C06	2286G	1 Pole BCH w/Diode Prov. Mkd 0-15	16	0.98	1.71	E	C
C06	2296G	1 Pole BCH w/Diode Prov.	16	0.98	1.71	E	C
C07	2274G	1 Pole Excess 3 w/Complement	10	0.34	1.71	E	C
C08	2210G	1 Pole 9's Complement w/Complement	10	0.34	1.71	E	C
C08	2250G	1 Pole 9's Compl. w/Compl Diode Prov.	10	0.98	1.71	E	C
C09	2220G	1 Pole 10's Complement w/Compl.	10	0.34	1.71	E	C
D02	2258G	2 Pole BCD w/Separate Common to Not True Bits	10	0.34	1.71	E	C
D03	2276G	2 Pole BCD Diode Prov.	10	0.98	1.71	E	C
D04	2289G	2 Pole BCH w/Compl. Mkd 0-15	16	0.34	1.71	E	C
D04	2299G	2 Pole BCH w/Compl. Mkd 0-9-A-F	16	0.34	1.71	E	C
D06	2287G	2 Pole BCH w/Separate Common To Not True Bits Mkd 0-9-A-F	16	0.34	1.71	E	C
D06	2288G	2 Pole BCH w/Separate Common To Not True Bits Mkd 0-15	16	0.34	1.71	E	C
E01	2235G	2 Pole BCO w/Complement	8	0.34	1.71	E	C
E02	2257G	2 Pole BCD w/Complement	10	0.34	1.71	E	C
F01	2233G	2 Pole BCD and Decimal	10	0.34	1.71	C	D
S01	2264G	2 Pole 2 Position Marked +/-	2	0.34	1.08	E	A
S01	2266G	2 Pole 2 Position Marked 0-1	2	0.34	1.08	E	A
S05	2208G	Biquinary	10	0.34	1.08	W	….
S06	2253G	NOT/NOR (All Shorted But One) Decimal	12	0.34	2.33	E	….
S07	2234G	Incremental Voltage Divider	10	1.79	1.08	E	A
S08	2216G	Wolff-Poggendorf Voltage Divider	10	1.79	1.08	E	A
S09	2272G	1-2-3-4 Capacitor Decade	10	1.88	1.08	E	A
S10	2268G	1-2-3-6 Resistor Decade	10	2.08	1.08	E	A
S11	2223G	7 Bar Indicator	10	0.34	1.71	C	C
S12	2278G	Kelvin-Varley Voltage Divider Make Before Break	10	1.41	2.02	W	

† **Type Codes:** **C**-Connector Only **E**-Either Connector Or Direct Wire **W**-Direct Wire Only

Replace "**G**" with "**M**" in part number for spray matte finish.

AVAILABLE OPTIONS

A	Diodes Installed Anode To Common
C	Diodes Installed Cathode To Common
D	Decimal Point
K	Lighted Decimal Point
L	Lighted Switch Legend. Black hot-stamped character on white translucent background. 5 Volt lamp standard, consult factory for other voltages
M	Spray Matte Finish
P	+/- Rotor Marking
R	Reverse Lighting. Illuminated white character on black background
S	Sealed Switch
T	Alphabet Marking
U	EMI/RFI Shielding
	Stop Pins

Consult Factory for Custom Rotor Marking, Custom Output Codes and Other Special Requests

2000 HARDWARE AND ACCESSORIES

19SG-X Standard Hardware Kit: Endpieces, Threaded Rods, Screws, Nuts and Washers

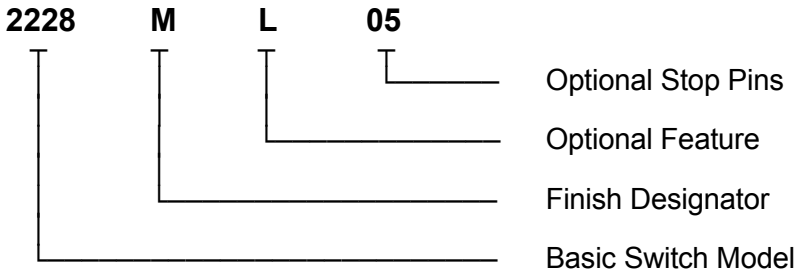
NOTE: **REPLACE "G" WITH "M" TO ORDER SPRAY MATTE HARDWARE**
REPLACE "X" WITH THE APPROPRIATE NUMBER OF SWITCHES IN ASSEMBLY

CATALOG NUMBER	DESCRIPTION	PART NUMBER
E20SG	Endpiece Gloss	197788-01
E20SM	Endpiece Matte	197788-02
S20SG	.250" Spacer Gloss	197787-01
S20SM	.250" Spacer Matte	197787-02

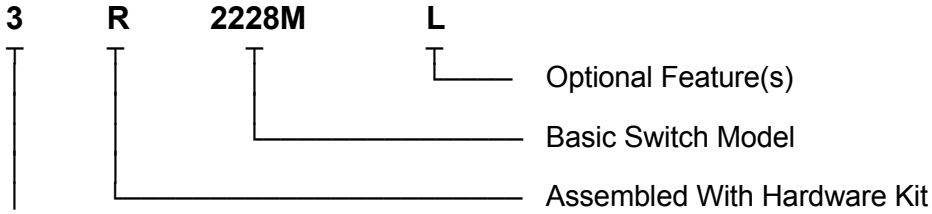
* CONNECTOR CODE	
LETTER	**CINCH PART NUMBER**
A	50-6A-20
B	50-12A-30
C	50-10A-20
D	50-20A-30
E	50-12A-20
F	50-24A-30

NOTE: Cinch connector information is supplied for reference only. Information shown is deemed accurate but not guaranteed. EECO does not supply Cinch or other connectors for this product. Consult an appropriate connector supplier for additional information.

ORDERING EXAMPLE - SWITCH



ORDERING EXAMPLE



EECO SWITCH STANDARD TRUTH TABLES

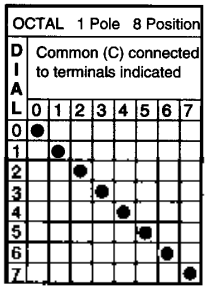
EECO Switch offers over 60 binary, decimal, and special purpose electrical output codes. The code designations (e.g. B02) are common to all EECO Switch products. Not all codes are offered in every switch series.

Using the truth tables on the following pages, select the electrical code that suits your circuit. Then select the corresponding 2000 Series part number from the table on page 4. The most common output codes are highlighted in ***red***

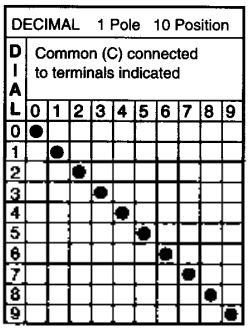
Contact the factory for additional information and availability of other codes and options.

SINGLE POLE DECIMAL CODES

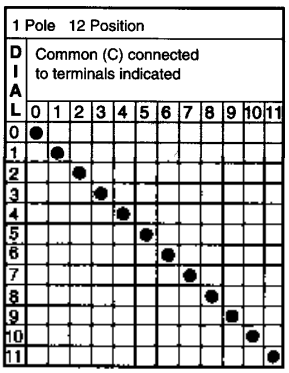
A01



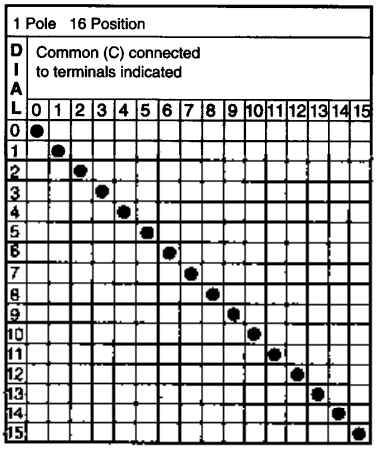
A02



A03

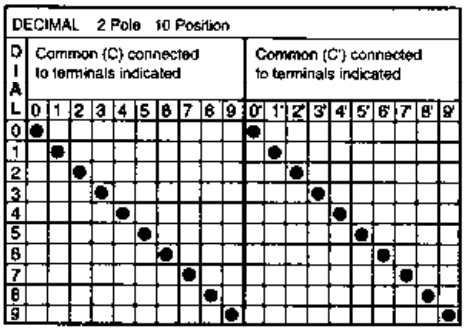


A04

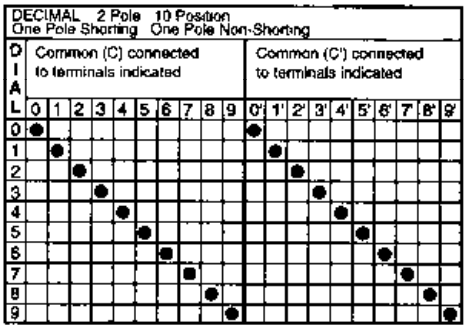


DOUBLE POLE DECIMAL CODES

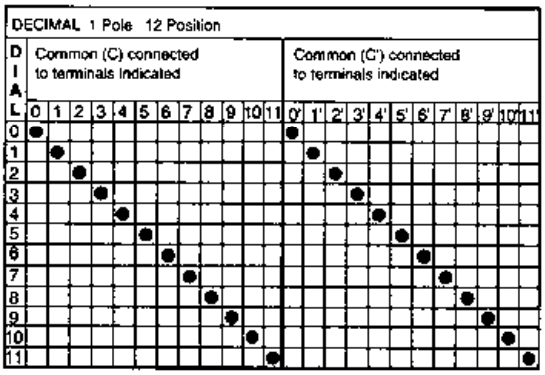
A05



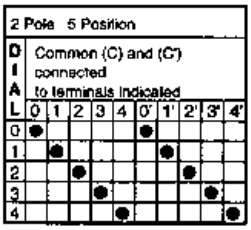
A06



A07



A08



B01

BCD
1 Pole 8 Position

DIAL	Common (C) connected to terminals indicated 1	2	4
0			
1	●		
2		●	
3	●	●	
4			●
5	●		●
6		●	●
7	●	●	●

B02

BCD
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated 1	2	4	8
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●

B03

BCD, binary 10 at 0
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated 1	2	4	8
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●
0		●		●

B04

BINARY CODE
1 Pole 12 Position

DIAL	Common (C) connected to terminals indicated 1	2	4	8
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●
10		●		●
11	●	●		●

B05

BCD, with Odd Bit Parity
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated 1	2	4	8	P
0					●
1	●				
2		●			
3	●	●			●
4			●		
5	●		●		●
6		●	●		●
7	●	●	●		
8				●	
9	●			●	●

B06

BCD, with Even Bit Parity
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated 1	2	4	8	P
0					
1	●				●
2		●			●
3	●	●			
4			●		●
5	●		●		
6		●	●		
7	●	●	●		●
8				●	●
9	●			●	

B07

Binary Code
1-Pole 16-Position

DIAL		Common C connected to terminals indicated 1	2	4	8
0	0				
1	1	●			
2	2		●		
3	3	●	●		
4	4			●	
5	5	●		●	
6	6		●	●	
7	7	●	●	●	
8	8				●
9	9	●			●
A	10		●		●
B	11	●	●		●
C	12			●	●
D	13	●		●	●
E	14		●	●	●
F	15	●	●	●	●

C02

BCD w/Complement
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated 1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0					●	●	●	●
1	●					●	●	●
2		●			●		●	●
3	●	●					●	●
4			●		●	●		●
5	●		●			●		●
6		●	●		●			●
7	●	●	●					●
8				●	●	●	●	
9	●			●		●	●	

C03

BCD w/Complement
Binary 10 at 0
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated 1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
1	●					●	●	●
2		●					●	●
3	●	●						●
4			●			●	●	
5	●		●				●	
6		●	●					●
7	●	●	●					
8				●	●	●	●	
9	●			●		●	●	
0		●		●			●	

C04

Binary Code w/Complement
1 Pole 12 Position

DIAL	Common (C) connected to terminals indicated 1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0						●	●	●
1	●						●	●
2		●				●		●
3	●	●						●
4			●			●	●	
5	●		●				●	
6		●	●			●		
7	●	●	●					
8				●	●	●	●	
9	●			●		●		●
10		●		●		●	●	
11	●	●		●		●		

C06

Binary Code W/complement
1-Pole, 16-Position

DIAL		Common (C) connected to terminals indicated 1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0	0					●	●	●	●
1	1	●					●	●	●
2	2		●			●		●	●
3	3	●	●					●	●
4	4			●		●	●		●
5	5	●		●			●		●
6	6		●	●		●			●
7	7	●	●	●					●
8	8				●	●	●	●	
9	9	●			●		●		●
A	10		●		●		●	●	
B	11	●	●		●		●		●
C	12			●	●	●			●
D	13	●		●	●		●		
E	14		●	●	●	●			
F	15	●	●	●	●				

C07

BCD Excess 3, w/Complement
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated 1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0	●	●					●	●
1			●			●	●	●
2	●		●				●	●
3		●	●			●		●
4	●	●	●					●
5				●	●	●	●	
6	●			●		●	●	
7		●		●	●		●	
8	●	●		●		●		
9			●	●	●	●		

C08

9's Complement BCD,
w/Complement
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated 1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0	●				●		●	●
1				●	●	●	●	
2	●	●	●					●
3		●	●		●			●
4	●		●			●		●
5			●				●	●
6	●	●					●	●
7		●			●		●	●
8	●					●	●	●
9					●	●	●	●

C09

10's Complement BCD,
w/Complement
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated 1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
1	●				●		●	●
2				●	●	●	●	
3	●	●	●					●
4		●	●				●	
5	●		●			●		●
6			●			●	●	
7	●	●					●	●
8		●				●		●
9	●					●	●	●
0					●	●	●	●

C10

BCD Excess 3
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated 1	2	4	8
0	●	●		
1			●	
2	●		●	
3		●	●	
4	●	●	●	
5				●
6	●			●
7		●		●
8	●	●		●
9			●	●

C16

Binary Complement only
1-Pole 16-Position

DIAL		Common (C) connected to terminals indicated $\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0	0	●	●	●	●
1	1		●	●	●
2	2	●		●	●
3	3			●	●
4	4	●	●		●
5	5		●		●
6	6	●			●
7	7				●
8	8	●	●	●	
9	9		●	●	
A	10	●		●	
B	11			●	
C	12	●	●		
D	13		●		
E	14	●			
F	15				

C11

BCD Complement Only
1 Pole 8 Position

DIAL	Common (C) connected to terminals indicated $\bar{1}$	$\bar{2}$	$\bar{4}$
0	●	●	●
1			●
2	●		●
3			●
4	●	●	
5		●	
6	●		
7			

C12

BCD Complement Only
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated $\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0	●	●	●	●
1			●	●
2	●		●	●
3			●	●
4	●	●		●
5		●		●
6	●			●
7				●
8	●	●	●	
9			●	

C13

9's Complement BCD
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated 1	2	4	8
0	●			●
1				●
2	●	●	●	
3		●	●	
4	●		●	
5		●		
6	●	●		
7		●		
8	●			
9				

C14

10's Complement BCD
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated 1	2	4	8
1	●			●
2				●
3	●	●	●	
4		●	●	
5	●		●	
6			●	
7	●	●		
8		●		
9	●			
0				

C15

9's Complement
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated $\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0		●	●	
1	●	●	●	
2				●
3	●			●
4		●		●
5	●	●		●
6			●	●
7	●		●	●
8		●	●	●
9	●	●	●	●

D01

BCD 2 Pole 8 Position w/Sep Com to NT Bits

DIAL	Common C (●) and C (★) connected to terminals indicated					
	1	2	4			
0	★	★	★			
1	●	★	★			
2	★	●	★			
3	●	●	★			
4	★	★	●			
5	●	★	●			
6	★	●	●			
7	●	●	●			

D02

BCD 2 Pole 10 Position Sep Com to NT Bits

DIAL	Common C (●) and C (★) connected to terminals indicated						
	1	2	4	8			
0	★	★	★	★			
1	●	★	★	★			
2	★	●	★	★			
3	●	●	★	★			
4	★	★	●	★			
5	●	★	●	★			
6	★	●	●	★			
7	●	●	●	★			
8	★	★	★	●			
9	●	★	★	●			

D03

BCD Dual, 2 Pole 10 Position

DIAL	Common (C1) and (C2) connected to terminals indicated							
	C1				C2			
	1	2	4	8	1	2	4	8
0								
1	●							
2		●						
3	●	●						
4			●					
5	●		●					
6		●	●					
7	●	●	●					
8				●				
9	●			●				●
					●			
					●	●		
					●		●	
					●	●	●	

D04

Binary Code w/Complement 2 Pole 16 Position

DIAL	Common (C) and (C̄) connected to terminals indicated							
	1	2	4	8	1̄	2̄	4̄	8̄
0	0					●	●	●	●
1	1	●					●	●	●
2	2		●			●		●	●
3	3	●	●					●	●
4	4			●		●	●		●
5	5	●		●			●		●
6	6		●	●		●			●
7	7	●	●	●					●
8	8				●	●	●	●	
9	9	●			●		●	●	
A	10		●		●	●		●	
B	11	●	●		●			●	
C	12			●	●	●	●		
D	13	●		●	●		●		
E	14		●	●	●	●			
F	15	●	●	●	●				

D06

2 Pole Binary with Sep Com to NT Bits

DIAL	Common C (●) and C (★) connected to terminals indicated				
	1	2	4	8	
0	0	★	★	★	★
1	1	●	★	★	★
2	2	★	●	★	★
3	3	●	●	★	★
4	4	★	★	●	★
5	5	●	★	●	★
6	6	★	●	●	★
7	7	●	●	●	★
8	8	★	★	★	●
9	9	●	★	★	●
A	10	★	●	★	●
B	11	●	●	★	●
C	12	★	★	●	●
D	13	●	★	●	●
E	14	★	●	●	●
F	15	●	●	●	●

E01

BCD w/Compement 2 Pole 8 Position

DIAL	Common (C) and (C̄) connected to terminals indicated							
	C				C̄			
	1	2	4		1̄	2̄	4̄	
0					●	●	●	
1	●					●	●	
2		●			●		●	
3	●	●					●	
4			●		●	●		
5	●		●			●		
6		●	●		●			
7	●	●	●					

E02

BCD w/Complement 2 Pole 10 Position

DIAL	Common (C) and (C̄) connected to terminals indicated							
	C				C̄			
	1	2	4	8	1̄	2̄	4̄	8̄
0					●	●	●	●
1	●					●	●	●
2		●			●		●	●
3	●	●					●	●
4			●		●	●		●
5	●		●			●		●
6		●	●		●			●
7	●	●	●					●
8				●	●	●	●	
9	●			●		●	●	

E04

9's Complement BCD, w/Complement 2 Pole 10 Position

DIAL	Common (C) and (C̄) connected to terminals indicated							
	C				C̄			
	1	2	4	8	1̄	2̄	4̄	8̄
0	●			●		●	●	
1				●	●	●	●	
2	●	●	●					●
3		●	●		●			●
4	●		●			●		●
5			●		●			●
6	●	●					●	●
7		●			●		●	●
8	●					●	●	●
9					●	●	●	●

E05

10's Complement BCD, w/Complement 2 Pole 10 Position

DIAL	Common (C) and (C̄) connected to terminals indicated							
	C				C̄			
	1	2	4	8	1̄	2̄	4̄	8̄
1	●			●		●	●	
2				●	●	●	●	
3	●	●	●					●
4		●	●		●			●
5	●		●			●		●
6			●		●	●		●
7	●	●					●	●
8		●			●		●	●
9	●					●	●	●
0					●	●	●	●

E06

Binary Code w/Complement 2 Pole 12 Position

DIAL	Common (C) and (C̄) connected to terminals indicated							
	C				C̄			
	1	2	4	8	1̄	2̄	4̄	8̄
0					●	●	●	●
1	●					●	●	●
2		●			●		●	●
3	●	●					●	●
4			●		●	●		●
5	●		●			●		●
6		●	●		●			●
7	●	●	●					●
8				●	●	●	●	
9	●			●		●	●	
10		●		●	●		●	
11	●	●		●			●	

E07

BCD Excess 3, w/Complement 2 Pole 10 Position

DIAL	Common (C) and (C̄) connected to terminals indicated							
	C				C̄			
	1	2	4	8	1̄	2̄	4̄	8̄
0	●	●					●	●
1			●		●	●		●
2	●		●			●		●
3		●	●		●			●
4	●	●	●					●
5				●	●	●	●	
6	●			●		●	●	
7		●		●	●		●	
8	●	●		●			●	
9			●	●	●	●		

E08

Special 4 Pole, BCD w/Complement

DIAL	Common (C1), (C2), (C3) and (C4) connected to terminals indicated							
	C1		C2		C3		C4	
	1	1̄	2	2̄	4	4̄	8	8̄
0		●		●		●		●
1	●			●		●		●
2		●	●			●		●
3	●		●			●		●
4		●		●	●			●
5	●			●	●			●
6		●	●			●		●
7	●		●			●		●
8		●		●		●	●	
9	●			●		●	●	

F01

BCD and Non-Shorting DECIMAL
2 Pole 10 Position

Common (C1) and (C2) connected to terminals indicated

DIAL	C1 1	C1 2	C1 4	C1 8	C2 0	C2 1	C2 2	C2 3	C2 4	C2 5	C2 6	C2 7	C2 8	C2 9
0					●									
1	●					●								
2		●					●							
3	●	●						●						
4			●						●					
5	●		●							●				
6		●	●								●			
7	●	●	●									●		
8				●									●	
9	●			●										●

G01

1-2-2'-4 Berkeley Code
1 Pole 10 Position

Common (C) connected to terminals indicated

DIAL	1	2	2'	4
0				
1	●			
2		●		
3	●	●		
4			●	●
5	●		●	●
6		●	●	●
7	●	●	●	●
8				
9	●			

G02

1-2-4-2' Berkeley Code
1 Pole 10 Position

Common (C) connected to terminals indicated

DIAL	1	2	4	2'
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●

H01

1-2-4-2' Berkeley Code w/Complement
1 Pole 10 Position

Common (C) connected to terminals indicated

DIAL	1	2	4	2'	$\overline{1}$	$\overline{2}$	$\overline{4}$	$\overline{2'}$
0					●	●	●	●
1	●					●	●	●
2		●			●		●	●
3	●	●					●	●
4			●		●	●		●
5	●		●			●		●
6		●	●		●			●
7	●	●	●					●
8				●	●	●	●	
9	●			●	●	●	●	

S01

1 or 2 Pole 2 Throw

Common (C1) and (C2) connected to terminals indicated

DIAL	C1 A1	C1 B1	C2 A2	C2 B2
0	0	+	●	●
5	1	-	●	●
0	0	+	●	●
5	1	-	●	●
0	0	+	●	●
5	1	-	●	●
0	0	+	●	●
5	1	-	●	●
0	0	+	●	●
5	1	-	●	●

S03

5-Line TELETYPE
1 Pole 10 Position

Common (C) connected to terminals indicated

DIAL	1	2	3	4	5
0		●	●		●
1	●	●	●		●
2	●	●			●
3	●				
4		●		●	
5					●
6	●		●		●
7	●	●	●		
8		●	●		
9				●	●

S04

5-Line TELETYPE
w/even bit parity
1 Pole 10 Position

Common (C) connected to terminals indicated

DIAL	1	2	3	4	5	P
0		●	●		●	●
1	●	●	●		●	
2	●	●			●	●
3	●					●
4		●		●		
5					●	●
6	●		●		●	●
7	●	●	●			●
8		●	●			
9				●	●	

S05

BIQUINARY
1 Pole 10 Position

Common (C) connected to terminals indicated

DIAL	ODD	EVEN	0,1	2,3	4,5	6,7	8,9
0		●	●				
1	●		●				
2		●		●			
3	●			●			
4		●			●		
5	●				●		
6		●				●	
7	●					●	
8		●					●
9	●						●

S06

NOT/NOR SWITCH 1 Pole 12 Position
(All Positions Shorted except Position indicated on Dial)

Common (C) connected to terminals indicated

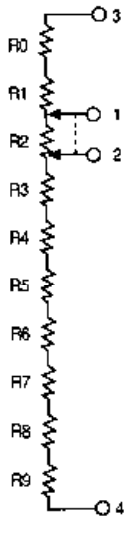
DIAL	0	1	2	3	4	5	6	7	8	9	10	11
0		●	●	●	●	●	●	●	●	●	●	●
1	●		●	●	●	●	●	●	●	●	●	●
2	●	●		●	●	●	●	●	●	●	●	●
3	●	●	●		●	●	●	●	●	●	●	●
4	●	●	●	●		●	●	●	●	●	●	●
5	●	●	●	●	●		●	●	●	●	●	●
6	●	●	●	●	●	●		●	●	●	●	●
7	●	●	●	●	●	●	●		●	●	●	●
8	●	●	●	●	●	●	●	●		●	●	●
9	●	●	●	●	●	●	●	●	●		●	●
10	●	●	●	●	●	●	●	●	●	●		●
11	●	●	●	●	●	●	●	●	●	●	●	

S07

INCREMENTAL Voltage Divider
2 Pole 10 Position

Pins 1 and 2 connected across resistor indicated

DIAL	R0	R1	R2	R3	R4	R5	R6	R7	R8	R9
0	●									
1		●								
2			●							
3				●						
4					●					
5						●				
6							●			
7								●		
8									●	
9										●



SCHEMATIC
Dial set at Position no. 2

S08

WOLFF POGGENDORF Voltage Divider
10 Position

Resistors in circuit

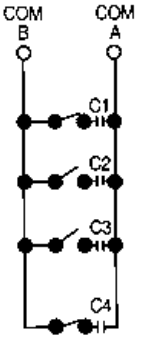
DIAL	1 R1	2 R3	4 R4	2' R7	1 R8	2 R5	4 R6	2' R2	R9
0	●	●	●	●					●
1		●	●	●	●				●
2	●		●	●		●			●
3			●	●	●	●			●
4	●	●		●			●		●
5		●		●	●		●		●
6	●			●		●	●		●
7				●	●	●	●		●
8	●					●	●	●	●
9					●	●	●	●	●

S09

CAPACITOR DECADE
1-2-3-4 Code 10 Position

Capacitors in Circuit

DIAL	C1	C2	C3	C4
0				
1	●			
2		●		
3			●	
4				●
5	●			●
6		●		●
7			●	●
8	●		●	●
9		●	●	●



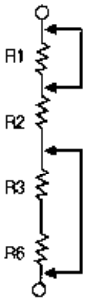
SCHEMATIC
Dial set at Position no. 5
(C1 and C4 Active)

S10

RESISTOR DECADE
1-2-3-6 Code 10 Position

DIAL	Resistors in circuit			
	R1	R2	R3	R6
0				
1	●			
2		●		
3			●	
4	●		●	
5		●	●	
6				●
7	●			●
8		●		●
9			●	●

B COM



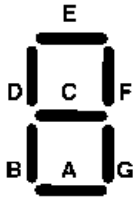
A COM

SCHEMATIC
Dial set at
Position no. 2
(R2 Active)

S11

7 BAR INDICATOR
1 Pole 10 Position

DIAL	Common connected to terminals indicated						
	A	B	C	D	E	F	G
0	●	●		●	●	●	●
1						●	●
2	●	●	●		●	●	
3	●		●		●	●	●
4			●	●		●	●
5	●		●	●	●		●
6	●	●	●	●	●		●
7					●	●	●
8	●	●	●	●	●	●	●
9	●		●	●	●	●	●



S12

KELVIN VARLEY: Voltage Divider
10 Position

DIAL	Pins 1 and 2 connected across resistors indicated									
	R0	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10
0	●	●									
1		●	●								
2			●	●							
3				●	●						
4					●	●					
5						●	●				
6							●	●			
7								●	●		
8									●	●	
9										●	●

S15

Modified 5 Bit
TELETYPE
10 Position

DIAL	Common (C) connected to terminals indicated				
	1	2	3	4	5
0			●	●	●
1		●	●		●
2		●			●
3	●				
4	●	●		●	
5	●				●
6	●		●		●
7	●	●	●		
8		●	●		
9				●	●

S17

Resistor DECADE
1-2-4-2' Code
10 Position

DIAL	Resistors in circuit			
	R1	R2	R4	R2'
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8		●	●	●
9	●	●	●	●

S18

Resistor DECADE
1-2-2-2-2 Code
10 Position

DIAL	Resistors in circuit				
	R1	R2	R3	R4	R5
0					
1	●				
2					●
3	●				●
4				●	●
5	●			●	●
6			●	●	●
7	●		●	●	●
8		●	●	●	●
9	●	●	●	●	●

S19

2 Pole 2 Throw
Commons C(●) and C (*) connected to terminals indicated

DIAL	A	B
0	+	●
1	-	*
0	+	●
1	-	*
0	+	●
1	-	*
0	+	●
1	-	*
0	+	●
1	-	*

S20

2 Pole 1-1'-2-5 with Complement
Commons (C) and (C') connected to terminals indicated

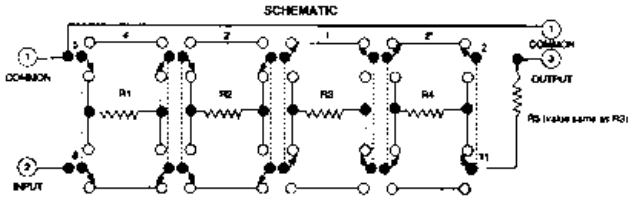
DIAL	C				C'			
	5	2	1'	1	5	2	1'	1
0					●	●	●	●
1			●		●	●		●
2		●			●		●	●
3		●		●	●		●	
4		●	●	●	●			
5	●					●	●	●
6	●		●			●		●
7	●		●	●		●		
8	●	●		●			●	
9	●	●	●	●				

S21

EECO Voltage Divider
(THUMBPOT) 10 Position

DIAL	Resistors in circuit between term 2 & 5				Resistors in circuit between term 8 & 11			
	4	2	1	2'	4	2	1	2'
	R1	R2	R3	R4	R1	R2	R3	R4
0					●	●	●	●
1			●		●	●		●
2		●			●		●	●
3			●	●	●	●		
4	●						●	●
5	●		●				●	
6	●	●						●
7	●	●	●					●
8	●	●		●				●
9	●	●	●	●				

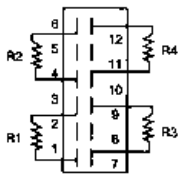
SCHEMATIC



Dial set at position no. 6

Schematic pin numbers in circles are on motherboard. Others are on switch. Italic numbers are switching code.

SWITCH REAR VIEW



S22

1-2-4-5 Code

DIAL	Common (C) connected to terminals indicated			
	1	2	4	5
0				
1	●			
2		●		
3	●	●		
4			●	
5				●
6	●			●
7		●		●
8	●	●		●
9			●	●

S23

JOHNSON CODE

DIAL	Common (C) connected to terminals indicated				
	A	B	C	D	E
0	●	●	●	●	
1	●	●	●		
2	●	●			
3	●				
4					
5					●
6				●	●
7			●	●	●
8		●	●	●	●
9	●	●	●	●	●

Consult factory for additional information.

2100 SERIES
STRIPSWITCH® PRINTED CIRCUIT BOARD SWITCHES

The 2100 Series STRIPSWITCH® is a PCB mounted thumbwheel switch, combining direct decimal to binary conversion in a compact, easy to use package.

The ***2100 Series*** may be configured in assemblies of one to four switches on a single terminal strip, reducing assembly time and cost. Each switch may be a different code. The ***2100 Series*** offers 10 legend locations, screwdriver of thumbwheel adjust, and two optional extended shafts to accommodate any design specification. The ***2100 Series*** offers a wide variety of 10 and 16 position binary and decimal codes. Other ***2100 Series*** features include stop pins and special rotor markings to create a customized yet low cost operator interface. The ***2100 Series*** is covered by EECO's exclusive ***Lifetime Warranty***. All ***2100 Series*** products are **Lead-Free** and fully **RoHS compliant.**

SPECIFICATIONS

MECHANICAL

No. of Switching Positions	10 16
Life	250,000 Detents at +25^{0}C
Rotational Torque (Initial)	1.0 - 4.0 Inch/Ounces
Weight	.170 Oz. (4.8 Gr.)

ELECTRICAL

Maximum Electrical Current, Non-Switching	3A
Maximum Rated Load, Switching	125 mA at 28 VDC Resistive
Switch Circuit Resistance	100 mΩ Maximum
	220 mΩ Maximum After Life
Insulation Resistance	1,000 MΩ Minimum At 100 VDC
Dielectric Withstanding Voltage	250 VAC (RMS)

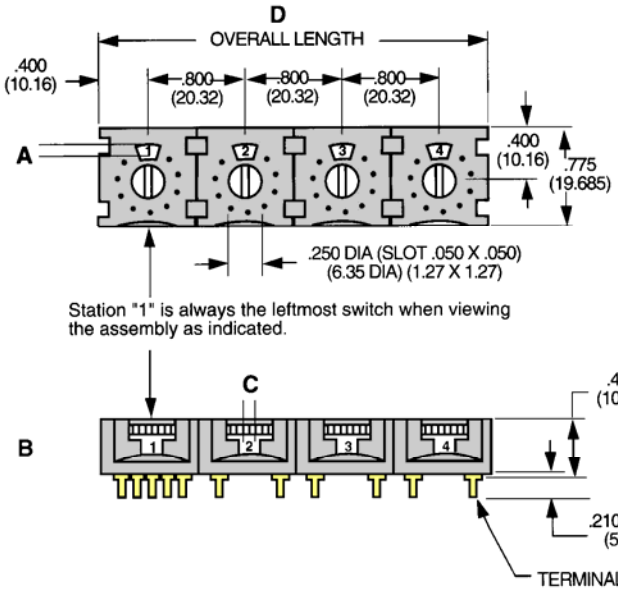
ENVIRONMENTAL

Storage Temperature	-40^{0}C To +100^{0}C
Operating Temperature	-20^{0}C To +75^{0}C

MATERIALS

Housing and Thumbwheel	Glass Reinforced Polyester, UL 94 V0
Terminal Board	Glass Reinforced 6/6 Nylon UL 94 V0
Contact	Copper Alloy Base, Gold Over Nickel Plate
Terminal	Matte Tin With Whisker Inhibitors Over Nickel Plate
Weight	0.03 Oz (.86G)
Circuit Disc	
Base Material	Glass Epoxy Laminate
Plating	Gold Over Nickel Plate

OUTLINE DIMENSIONS



CHARACTER HEIGHT

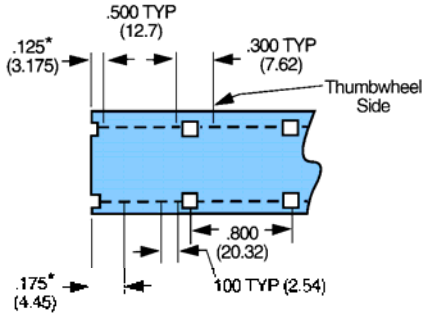
DIMENSION	10 POSITION	16 POSITION
A	.125 (3.18)	.085 (2.16)
B	.125 (3.18)	.085 (2.16)
C	.140 (3.56)	.085 (2.16)

NUMBER STATIONS

	1	2	3	4
D	.80 (20.32)	1.60 (40.64)	2.40 (60.96)	3.20 (81.28)

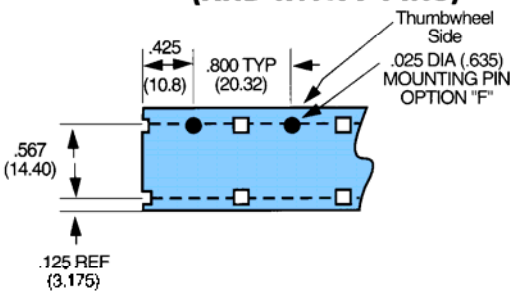
Dimensions are for single unit assemblies.
When butting individual switches, tolerances
(± .025 in.) must be added.

TWO ROWS OF TERMINALS



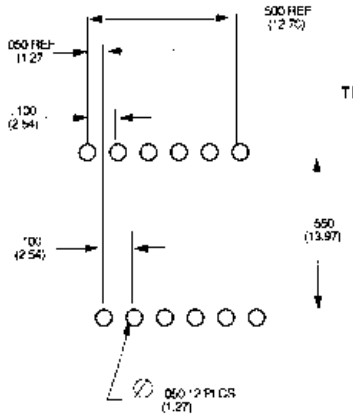
*Terminals are staggered

SINGLE ROW OF TERMINALS (AND WITH F-PINS)

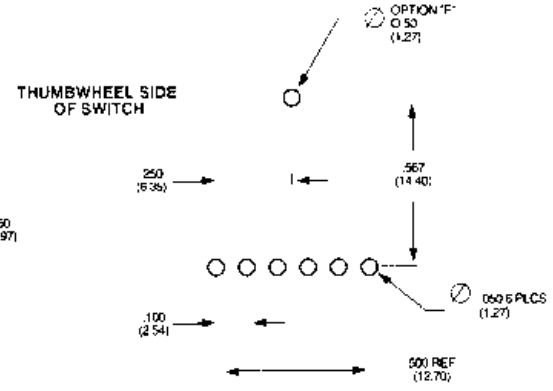


NOTE: Tolerances on all dimensions ± .010"
unless otherwise specified.
( ) Metric dimensions in mm

PCB LAYOUT – BOTTOM VIEW (DOUBLE ROW TERMINALS)

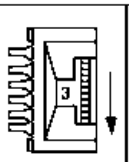
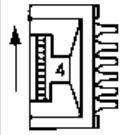
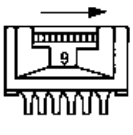
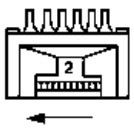
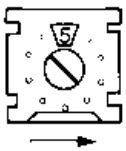
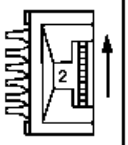
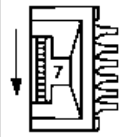
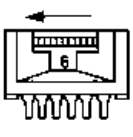
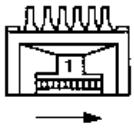


PCB LAYOUT – BOTTOM VIEW (SINGLE ROW TERMINALS)



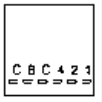
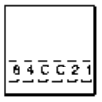
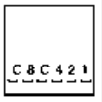
ORIENTATION DESIGNATORS AND PCB LAYOUT INFORMATION

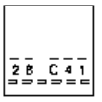
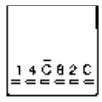
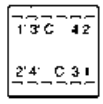
ORIENTATION OF SWITCH

COUNTER CLOCKWISE ROTATION					
ORIENTATION NUMBER	10	40	50	80	90
CLOCKWISE ROTATION					
ORIENTATION NUMBER	20	30	60	70	00

Arrows indicate direction of rotation for increasing numbers. All thumbwheels can be rotated in both directions. Legend is only on the top or side as shown. For marking on top and side, consult factory.

TERMINAL IDENTIFICATION

CODE NUMBER	-01	-02	-11	-12	-17	-19	-28
TRUTH TABLE	A02	B02	S01	C12	C15	C13	C02
CW							
CCW							

CODE NUMBER	-31 & -41	-33 & -34	-56	-57 & -58	-64
TRUTH TABLE	C16	B07	D02	D06	A09
CW					
CCW					

Views shown are of terminal side of switch with thumbwheel opening at top.

CW - Clockwise

CCW - Counter clockwise

Notes:
1. All "C" or "$\overline{C}$" terminals must be connected together external to switch.

Option "F", F-Pin, is recommended on all switches with single-row terminals for added stability. .

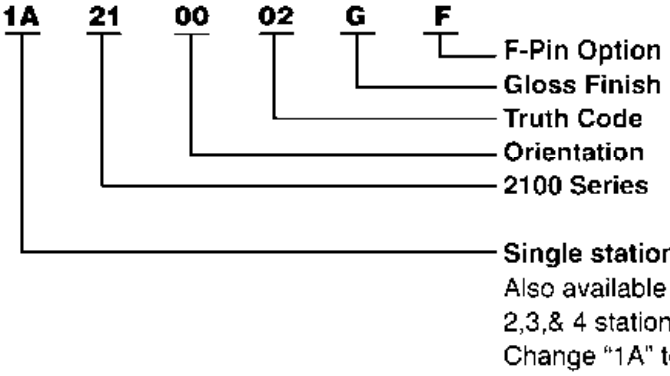
Refer to EECO Switch document "Soldering and Cleaning Specifications" for processing information.

PART NUMBERS AND FEATURES

PART NUMBER	SWITCH DESCRIPTION	NUMBER OF POSITIONS	TRUTH TABLE
	SINGLE POLE DECIMAL		
21XX01G	Decimal	10	A02
	SINGLE POLE BINARY		
21XX02G	BCD 1-2-4-8	10	B02
21XX12G	BCD 1-2-4-8 Complement	10	C12
21XX17G	Complement of 9's Complement	10	C02
21XX19G	9's Complement 1-2-4-8	10	C15
21XX28G	BCD 1-2-4-8 With Complement	10	C02
21XX31G	BCH 1-2-3-8 Complement, 0-15 Marking	16	C16
21XX33G	BCH 1-2-3-8 0-15 Marking	16	B07
21XX34G	BCH 1-2-3-8 0-9-A-F Marking	16	B07
21XX41G	BCH 1-2-3-8 Complement, 0-9-A-F Marking	16	C16
	DOUBLE POLE BINARY		
21XX56G	BCD 1-2-4-8 W/separate common to not true bits	10	D02
21XX57G	BCD 1-2-4-8 W/separate common to not true bits 0-15 marking	16	D06
21XX57G	BCD 1-2-4-8 W/separate common to not true bits 0-9-A-F marking	16	D06
	SPECIAL PURPOSE CODES		
21XX11G	2 Pole repeating, + / -	10	S01
21XX64G	2 Pole 4 position decimal repeating	10	A09

ORDERING INFORMATION

PART NUMBER EXAMPLE



OPTIONS

F-Mounting Pins
T-Alphabet Marking
V-1/2" Extended Shaft (10 pos only)
Y-1/4" Extended Shaft (10 & 16 pos)
Stops, decimal point, or Special marking will require a special part number-consult factory.

RoHS COMPLIANCE

EECO Switch is fully committed to complying with the European Lead-Free and RoHS directives. All EECO 2100 Series switches marked with the "Pb-Free" logo on the body of the part are Lead-Free and RoHS compliant.

2300 SERIES
MICRO-DIP® PRINTED CIRCUIT BOARD SWITCHES

An EECO innovation, the 2300 Series MICRO-DIP® family includes the industry's only double pole rotary DIP switch.

Ideal for CMOS applications, the ***2300 Series*** double pole switch offers a unique output arrangement in which all four bits are always connected to one of the two commons, allowing the use of a single pull-up resistor instead of 4 as required by conventional DIP switches. The ***2300 Series*** includes 10 and 16 position double pole models, plus a 10 single pole right angle version. The double pole switches are available with process seals for wave soldering, and all ***2300 Series*** are color coded for easy identification. The ***2300 Series*** is covered by EECO's exclusive ***Lifetime Warranty***.

All ***2300 Series*** products are **Lead-Free** and fully **RoHS compliant**.

SPECIFICATIONS

MECHANICAL

No. of Switching Positions	10 & 16
Life	10,000 Detents at +25^{0}C
Rotational Torque (Initial)	1.0 - 2.5 Inch/Ounces
Terminal Strength	Pull 3 Pounds, Push 3 Pounds, for 15 Seconds
Weight	0.03 Oz (.85 Gr.).

ELECTRICAL

Maximum Electrical Current, Non-Switching	1A
Maximum Rated Load, Switching	100 mA at 5 VDC Resistive
Contact Resistance (Initial)	100 mΩ Maximum
Insulation Resistance	1,000 MΩ Minimum At 100 VDC
Dielectric Withstanding Voltage	250 VAC (RMS)

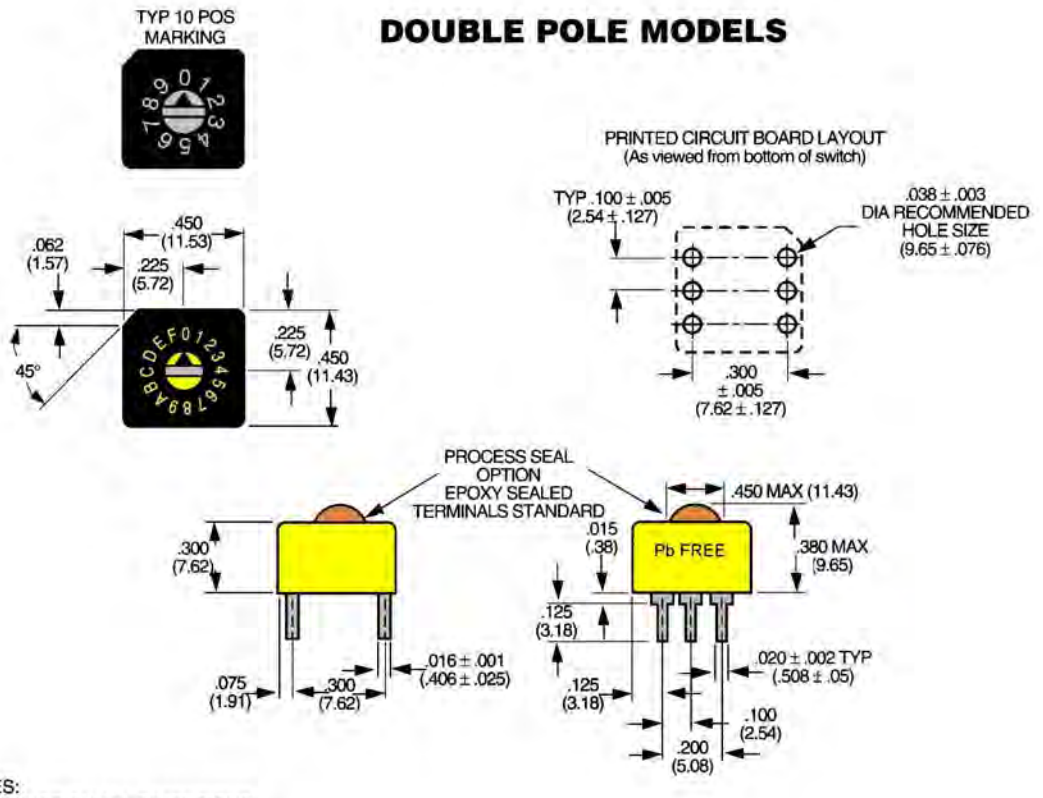
ENVIRONMENTAL

Operating Temperature	-25^{0}C To +85^{0}C
Storage Temperature	-55^{0}C To +100^{0}C
Seal (DP Models)	Top: Removable Plastic Bottom: Epoxy

MATERIALS

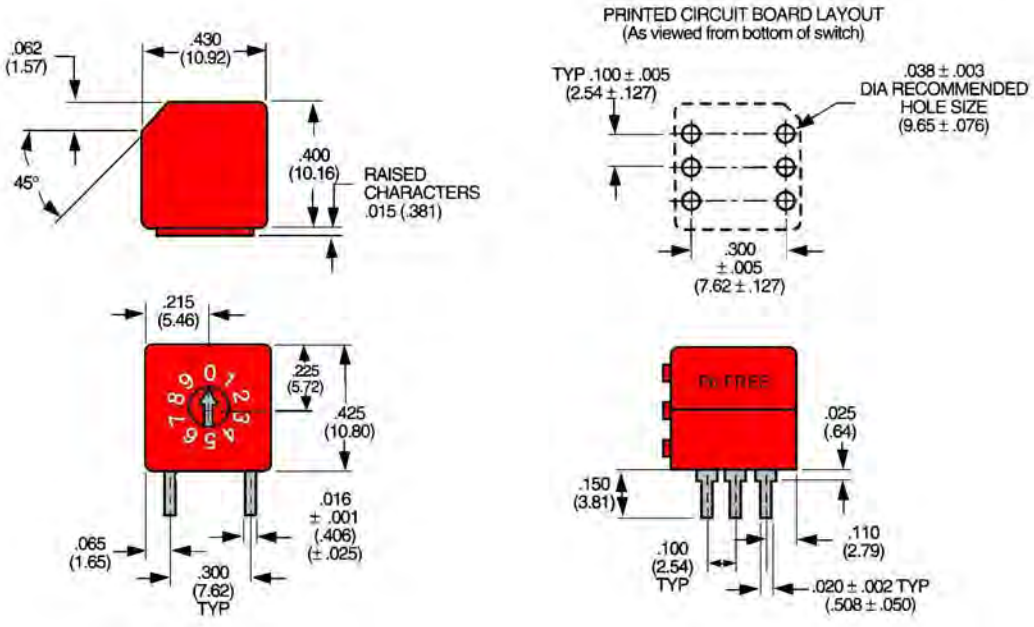
Housing and Base	Glass Reinforced 6/6 Nylon, UL 94 V0
Contact	Copper Alloy Base, Gold Over Nickel Plate
Terminal	Matte Tin With Whisker Inhibitors Over Nickel Plate

DOUBLE POLE MODELS



NOTES:
TOLERANCE ON ALL DIMENSIONS
± .010 UNLESS OTHERWISE SPECIFIED
( ) METRIC DIMENSIONS IN MM

SINGLE POLE, 10 POSITION SIDE ADJUST MODEL



TRUTH TABLES

B02

BCD 1 Pole 10 Position						
DIAL	Common (C) connected to terminals indicated					
	1	2	4	8		
0						
1	●					
2		●				
3	●	●				
4			●			
5	●		●			
6		●	●			
7	●	●	●			
8				●		
9	●			●		

231002G

D02

BCD 2 Pole 10 Position Sep Com to NT Bits						
DIAL	Common C (●) and C (✱) connected to terminals indicated					
	1	2	4	8		
0	✱	✱	✱	✱		
1	●	✱	✱	✱		
2	✱	●	✱	✱		
3	●	●	✱	✱		
4	✱	✱	●	✱		
5	●	✱	●	✱		
6	✱	●	●	✱		
7	●	●	●	✱		
8	✱	✱	✱	●		
9	●	✱	✱	●		

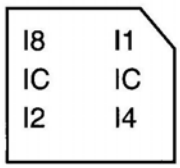
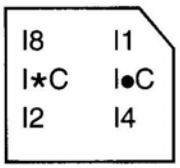
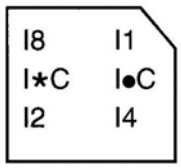
230056GB
230056GP

D06

2 Pole Binary with Sep Com to NT Bits							
DIAL		Common C (●) and C (✱) connected to terminals indicated					
		1	2	4	8		
0	0	✱	✱	✱	✱		
1	1	●	✱	✱	✱		
2	2	✱	●	✱	✱		
3	3	●	●	✱	✱		
4	4	✱	✱	●	✱		
5	5	●	✱	●	✱		
6	6	✱	●	●	✱		
7	7	●	●	●	✱		
8	8	✱	✱	✱	●		
9	9	●	✱	✱	●		
A	10	✱	●	✱	●		
B	11	●	●	✱	●		
C	12	✱	✱	●	●		
D	13	●	✱	●	●		
E	14	✱	●	●	●		
F	15	●	●	●	●		

230057GB
230057GP

TERMINAL IDENTIFICATION

MODEL NUMBER	231002G	230056GB	230057GB
CODE	B02	D02	D06
COLOR	RED	GRAY	YELLOW
TERMINAL I.D. AS VIEWED FROM BOTTOM OF SWITCH			
HOUSING MARKING	0 THRU 9	0 THRU 9	0 THRU 9 A THRU F
NO. OF POSITIONS	10 POSITION	10 POSITION	16 POSITION

NOTES:
1. Views shown are of bottom (Terminal side) of switch.
2. For all single pole codes only. "C" terminals must be connected together external to switch.
3. ● C True Common
4. ✱ C Complement Common

PART NUMBERS AND FEATURES

PART NUMBER	SWITCH DESCRIPTION	NUMBER OF POSITIONS	TRUTH TABLE	COLOR CODE
		SINGLE POLE BINARY		
231002G	Right Angle Mount BCD	10	B02	Red
		DOUBLE POLE BINARY		
230056GB 230056GP	Double Pole Binary With Separate Common To Not True Bits	10	D02	Gray
230057GB 230057GP	Double Pole Binary With Separate Common To Not True Bits	16	D06	Yellow

SEALING PROVISIONS

PART NUMBER	DUST SEAL	BOTTOM EPOXY SEAL	REMOVABLE TOP PROCESS SEAL
231002G	●		
230056GB		●	
230056GP		●	●
230057GB		●	
230057GP		●	●

Refer to EECO Switch document “Soldering and Cleaning Specifications” for additional processing information.

RoHS COMPLIANCE

EECO Switch is fully committed to complying with the European Lead-Free and RoHS directives. All EECO 2300 Series switches marked the “Pb-Free” logo on the body of the part are Lead-Free and RoHS compliant.

2700 SERIES
STRIPSWITCH® PRINTED CIRCUIT BOARD SWITCHES

The 2700 Series STRIPSWITCH® combines the many advanced features of the original 2100 Series into a compact, fully sealed switch design suitable for wave soldiering and automated cleaning processes.

The ***2700 Series*** features legends located on both the top and side of the thumbwheel for maximum design flexibility and user convenience. Available options for the ***2700 Series*** include ¼" and ½" extended shafts, black or white thumbwheels, stops, and a wide variety of 10 and 16 position binary and decimal coded outputs. Custom rotor markings are also available in all ***2700 Series*** versions. The ***2700 Series STRIPSWITCH*** is covered by EECO's exclusive ***Lifetime Warranty***.

All ***2700 Series*** products are **Lead-Free** and fully **RoHS compliant.**

SPECIFICATIONS

MECHANICAL

No. of Switching Positions	10 And 16
Life	100,000 Detents At +25^{0}C
Rotational Torque (Initial)	2.5 – 8.5 Inch/Ounces
Weight	0.173 Oz (4.9 Gr.)

ELECTRICAL

Maximum Electrical Current, Non-Switching	3A
Maximum Rated Load, Switching	125 mA at 28 VDC Resistive
Switch Circuit Resistance (Initial)	100 mΩ Maximum
Insulation Resistance	1,000 MΩ Minimum At 100 VDC
Dielectric Withstanding Voltage	250 VAC (RMS) All 2 Pole And 16 Position 500 VAC (RMS) All Others

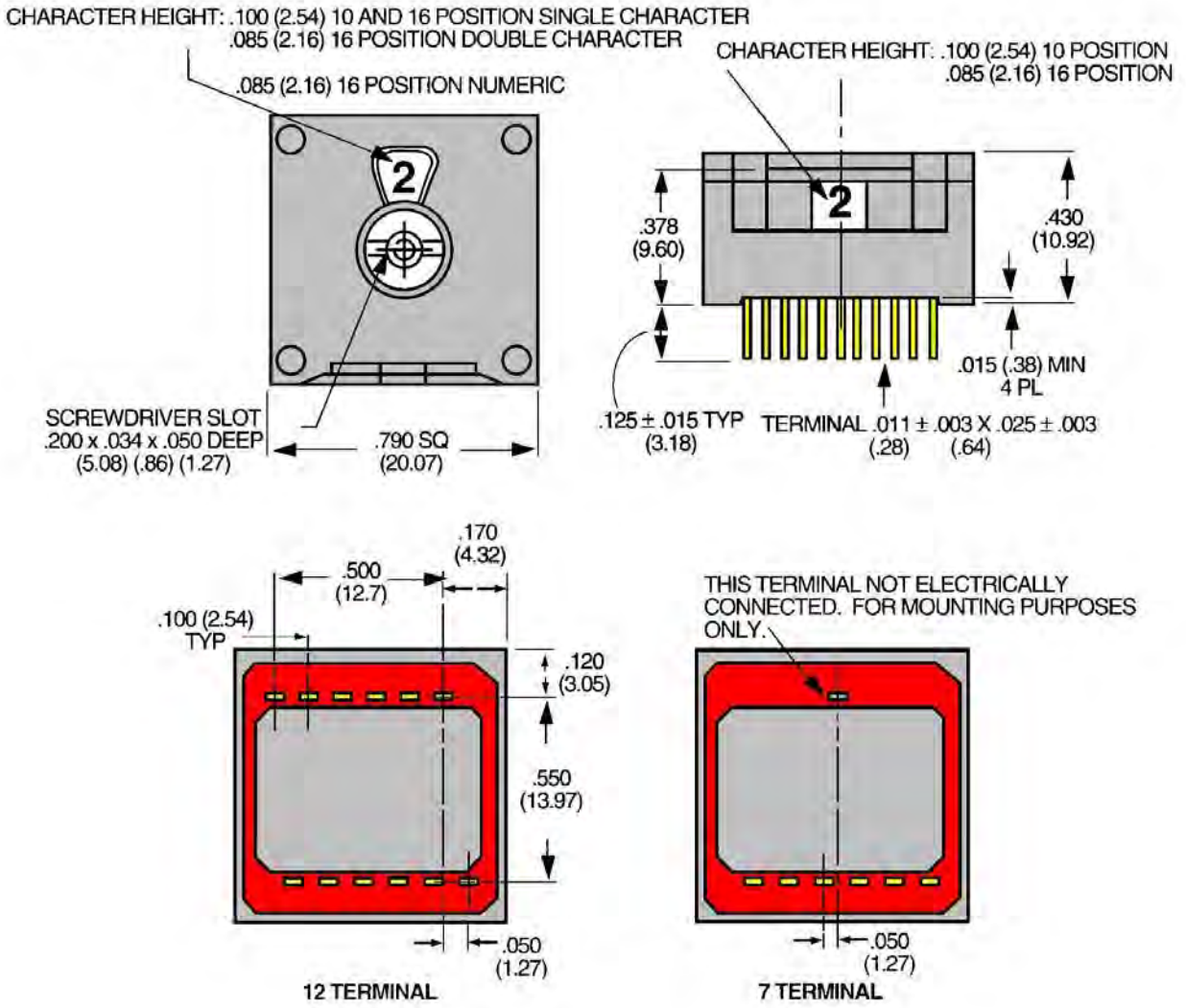
ENVIRONMENTAL

Storage Temperature	-65^{0}C To +125^{0}C
Operating Temperature	-65^{0}C To +85^{0}C
Vibration	15 G, 10 to 2,000 Hz, Method 204 Of Mil-Std 202, Test Condition B
Moisture Resistance	Method 106, Mil-Std 202, 50 VDC
Humidity	Method 103B, Mil-Std 202, Test Condition A, 50 VDC
Solvent Resistance	Method 215, Mil-Std 202
Seal	Top: O-Ring Bottom: Epoxy

MATERIALS

Housing and Thumbwheel	Glass Reinforced Polyester, UL 94 V0
Contact	Copper Alloy Base, Gold Over Nickel Plate
Terminal	Matte Tin With Whisker Inhibitors Over Nickel Plate
O-Ring	Silicone Rubber Per ZZ-R-765B
Circuit Disc	
Base Material	Glass Epoxy Laminate
Plating	Gold Over Nickel Plate

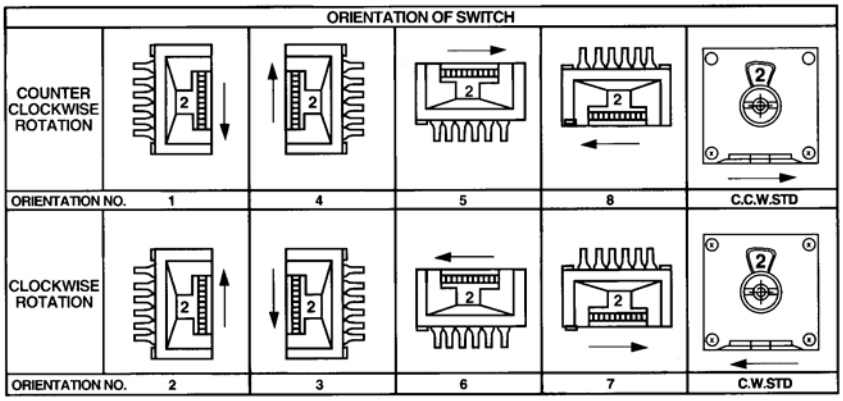
OUTLINE DIMENSIONS



RoHS COMPLIANCE

EECO Switch is fully committed to complying with the European Lead-Free and RoHS directives. All EECO 2700 Series switches marked with the “Pb-Free” logo on the body of the part are 100% lead-free and comply with the relevant RoHS requirements.

ORIENTATION DESIGNATORS AND PCB LAYOUT DATA



CODE NUMBER	-01	-02	-11	-12	-17	-19	-28	-29 & -85
TRUTH TABLE	A02	B02	S01	C12	C15	C13	C02	C06
CW	680C42 79C531	C8C421	BACBCA 211122	$\overline{8}4\overline{C}C\overline{2}\overline{1}$	$\overline{C}8\overline{C}4\overline{2}\overline{1}$	C8C421	$\overline{2}8\overline{1}$ 44 C8C1C2	$\overline{4}2\overline{C}C\overline{8}\overline{1}$ 18C 24
CCW	420C68 31C579	C8C421	BACBCA 211122	$\overline{C}8\overline{C}4\overline{2}\overline{1}$	$\overline{8}4\overline{C}C\overline{2}\overline{1}$	C8C421	$\overline{2}8\overline{1}$ 44 C8C1C2	$\overline{4}2\overline{C}C\overline{8}\overline{1}$ 18C 24

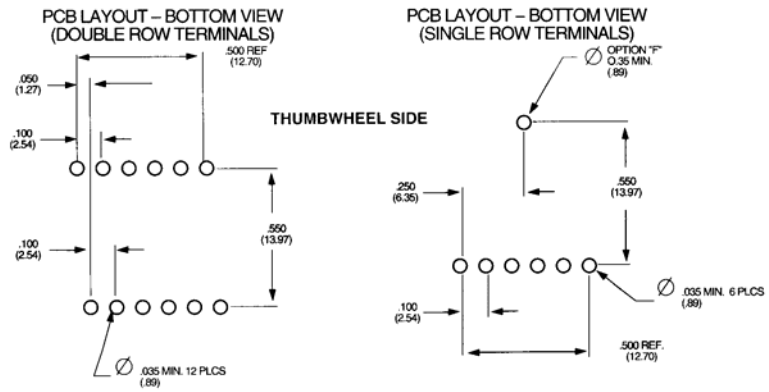
CODE NUMBER	-31 & -41	-33 & -34	-56	-57 & -58	-64
TRUTH TABLE	C16	B07	D02	D06	A09
CW	$\overline{2}8\ \overline{C}4\overline{1}$	28 C41	$\overline{1}4C82\overline{C}$	$\overline{1}4C82\overline{C}$	4'2'C' 13 3'1' C24
CCW	$\overline{2}8\ \overline{C}4\overline{1}$	28 C41	$\overline{1}4C82\overline{C}$	$\overline{1}4C82\overline{C}$	1'3'C' 42 2'4' C31

VIEWS SHOWN ARE OF TERMINAL SIDE OF SWITCH WITH THUMBWHEEL OPENING AT TOP.

CW: CLOCKWISE

CCW: COUNTER-CLOCKWISE

NOTE:
ALL "C" OR "$\overline{C}$" TERMINALS MUST BE CONNECTED TOGETHER EXTERNAL TO SWITCH.



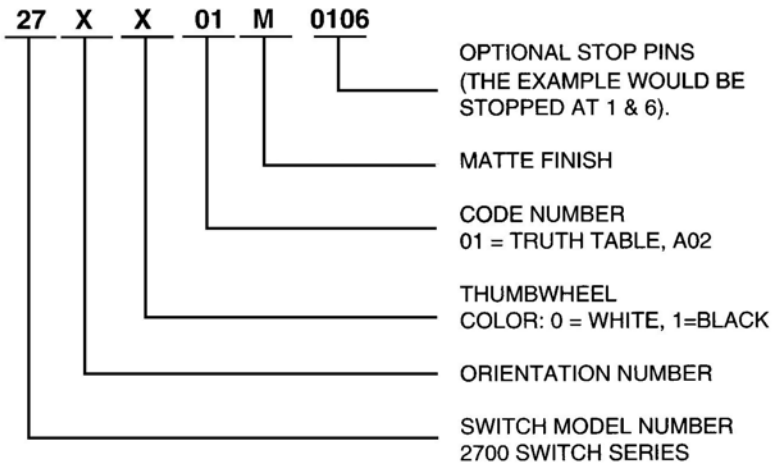
Refer to EECO Switch document "Soldering and Cleaning Specifications" for processing information.

PART NUMBERS AND FEATURES

PART NUMBER	SWITCH DESCRIPTION	NUMBER OF POSITIONS	TRUTH TABLE
	SINGLE POLE DECIMAL		
27XX01M	Decimal	10	A02
	SINGLE POLE BINARY		
27XX02M	BCD 1-2-4-8	10	B02
27XX12M	BCD 1-2-4-8 Complement	10	C12
27XX17M	Complement of 9's Complement	10	C02
27XX19M	9's Complement 1-2-4-8	10	C15
27XX28M	BCD 1-2-4-8 With Complement	10	C02
27XX29M	BCH 1-2-4-8 W With Complement, 0-15 Marking	16	C06
27XX31M	BCH 1-2-3-8 Complement, 0-15 Marking	16	C16
27XX33M	BCH 1-2-3-8 0-15 Marking	16	B07
27XX34M	BCH 1-2-3-8 0-9-A-F Marking	16	B07
27XX41M	BCH 1-2-3-8 Complement, 0-9-A-F Marking	16	C16
27XX85M	BCH 1-2-4-8 W With Complement, 0-9-A-F Marking	16	C06
	DOUBLE POLE BINARY		
27XX56M	BCD 1-2-4-8 W/Separate Common to Not True Bits	10	D02
27XX57M	BCD 1-2-4-8 W/Separate Common to Not True Bits 0-15 Marking	16	D06
27XX58M	BCD 1-2-4-8 W/Separate Common to Not True Bits 0-9-A-F Marking	16	D06
	SPECIAL PURPOSE CODES		
27XX11M	2 Pole Repeating, + / -	10	S01
27XX64M	2 Pole 4 Position Decimal Repeating	10	A09

ORDERING INFORMATION

PART NUMBER EXAMPLE:



XX ... TO COMPLETE PART NUMBER. REPLACE FIRST X WITH ORIENTATION NUMBER FOUND ON PREVIOUS PAGE. REPLACE SECOND X WITH NUMBER DESIGNATING COLOR.

OPTIONS

V–1/2" Extended Shaft
Y–1/4" Extended Shaft
Stops, decimal point, colored rotors, special marking. Consult factory for additional information.

3500 SERIES
MICRO-DIP® PRINTED CIRCUIT BOARD SWITCHES

The 3500 Series MICRO-DIP® is a low profile, fully sealed rotary DIP switch designed for today's automated soldering and cleaning processes!

Featuring direct decimal to binary conversion, the ***3500 Series Micro-DIP*** is a user friendly means of addressing PROM's or setting micro-processor controlled devices. The ***3500 Series*** is offered in six binary and decimal codes, with extended shafts and right angle orientations for maximum design flexibility. The ***3500 Series*** is covered by EECO's exclusive ***Lifetime Warranty***. All ***3500 Series*** products are **Lead-Free** and fully **RoHS compliant**.

SPECIFICATIONS

MECHANICAL

No. of Switching Positions	8, 10 16
Life	20,000 Detents at +25^{0}C
Rotational Torque (Initial)	1.0-4.5 Inch/Ounces
Terminal Strength	Pull 3 Pounds, Push 3 Pounds, for 15 Seconds

ELECTRICAL

Minimum Switching Current	1µA
Minimum Switching Voltage	30 mVDC
Maximum Electrical Current, Non-Switching	1A
Maximum Rated Load, Switching	100 mA at 28 VDC Resistive
Contact Resistance (Initial)	100 mΩ Maximum
Insulation Resistance	1,000 MΩ Minimum At 100 VDC
Dielectric Withstanding Voltage	250 VAC (RMS)

ENVIRONMENTAL

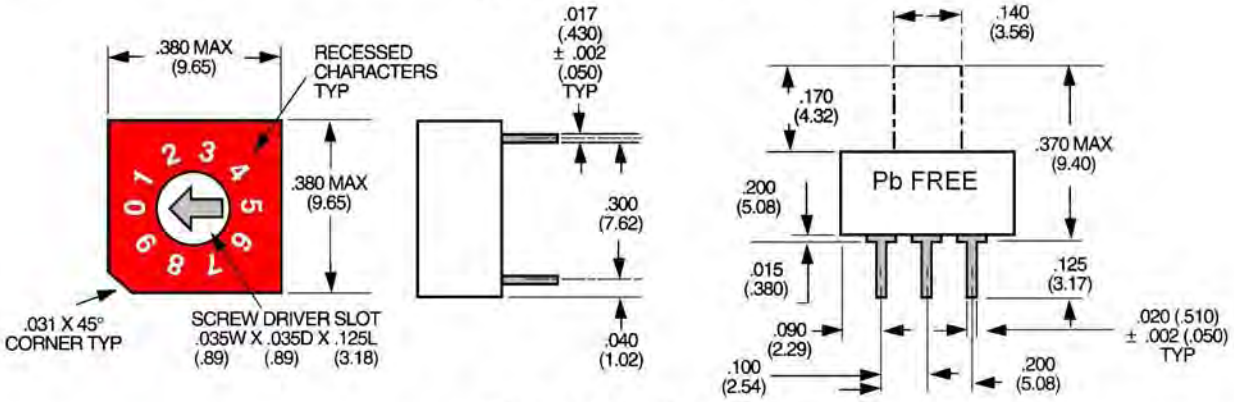
Operating Temperature	-65^{0}C To +85^{0}C
Storage Temperature	-65^{0}C To +125^{0}C
Vibration	15g, 10 to 2,000 Hz, Method 204, Condition B of Mil-Std 202
Moisture Resistance	Method 106, Mil-Std 202, 50 VDC Polarizing Voltage
Seal	Top: O-Ring Bottom: Epoxy
Solderability	Method 208 of Mil-Std 202, 95% Coverage
Solvent Resistance	Method 215 of Mil-Std 202
Humidity	Method 103B of Mil-Std 202, Test Condition A 50 VDC Polarizing Voltage

MATERIALS

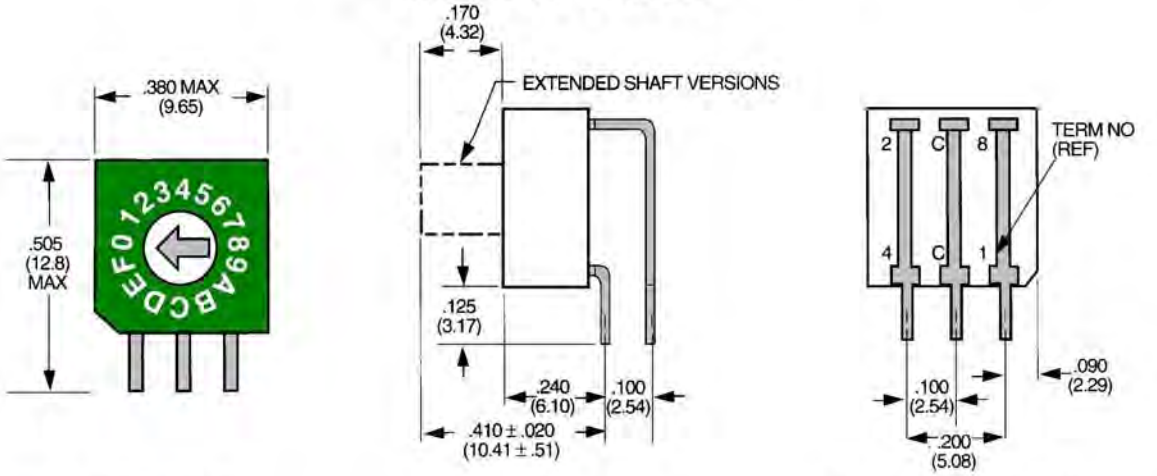
Housing and Base	Glass Reinforced High Temperature 4/6 Nylon, UL 94 V0
Rotor	Glass Reinforced 6/6 Nylon UL 94 V0
O-Ring	Silicon Rubber
Contact	Copper Alloy Base, Gold Over Nickel Plate
Terminal	Matte Tin With Whisker Inhibitors Over Nickel Plate
Weight	0.03 Oz (.86G)
Knobs	
Type B	ABS, UL 94 V0 (Black)
Type K	Glass Reinforced Polyester, 94 V0 (White)
Type V	Glass Reinforced 6/6 Nylon, 94 V0 (Black)

STANDARD MODELS AND OPTIONS

TOP ADJUST MODEL

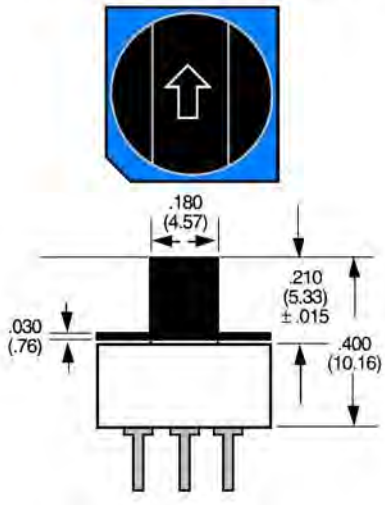


SIDE ADJUST MODEL



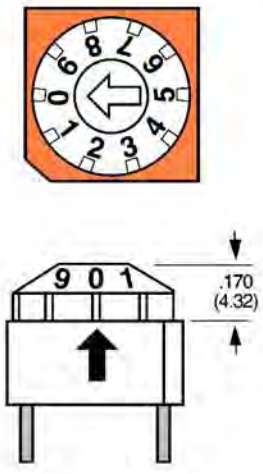
KNOB OPTION B

Available with Extended Shaft Models only



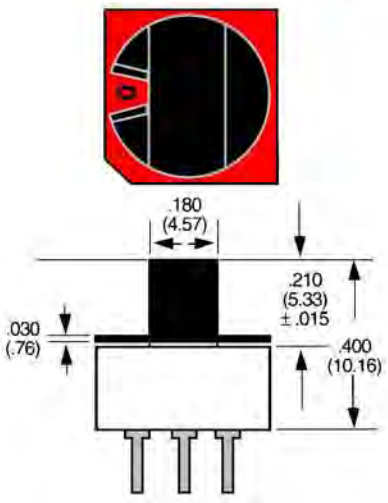
KNOB OPTION K

Available with Extended Shaft Models only



KNOB OPTION V

Available with Extended Shaft Models only



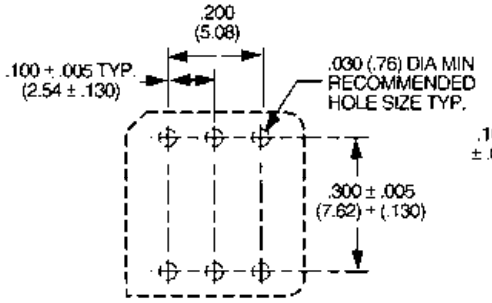
NOTE: Tolerances on all dimensions ± .010 unless otherwise specified.

All switches set to 0 position.
Consult factory for custom knobs.

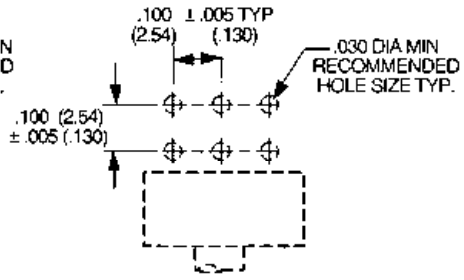
NOTE: "B" and "V" Knobs are Black, "K" Knob is White

PCB DESIGN INFORMATION

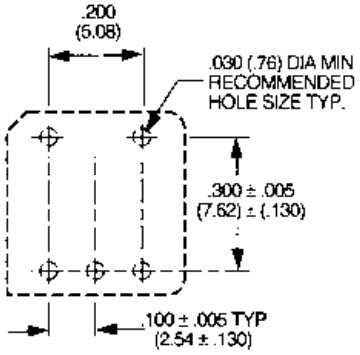
PRINTED CIRCUIT BOARD LAYOUT
As viewed from bottom of switch



MOUNTING HOLE PATTERN
TOP ADJUST MODEL

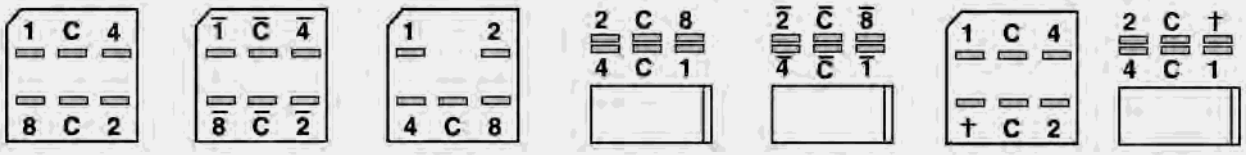


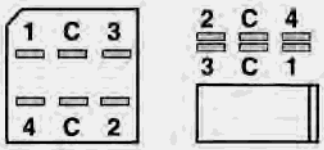
MOUNTING HOLE PATTERN
SIDE ADJUST MODEL



MOUNTING HOLE PATTERN
350X34GS TOP ADJUST MODEL

TERMINAL I.D. AS VIEWED FROM BOTTOM OF SWITCH





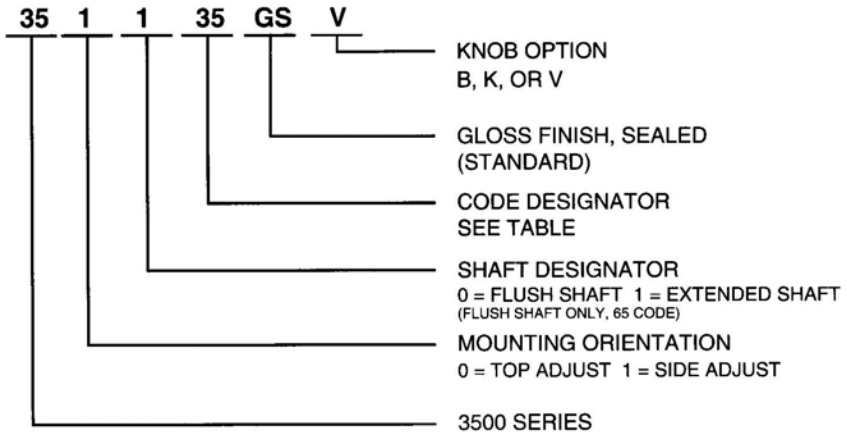
NOTE: "C" terminals must be connected together external to switch. † Not used.

Refer to EECO Switch document “Soldering and Cleaning Specifications” for processing information.

RoHS COMPLIANCE

EECO Switch is fully committed to complying with the European Lead-Free and RoHS directives. All EECO 3500 Series switches marked with the “Pb-Free” logo on the body of the part are Lead-Free and RoHS compliant.

ORDERING INFORMATION



Code Number	Truth Table	Color Code	No. of Positions	Top Adjust	Side Adjust	Terminal I.D. Fig.
02	B02	Red	10	X		1
02	B02	Red	10		X	4
08	B01	Brown	8	X		6
08	B01	Brown	8		X	7
12	C12	Orange	10	X		2
12	C12	Orange	10		X	5
34	B07	Black	16	X		3
35	B07	Green	16	X		1
35	B07	Green	16		X	4
41	C16	Blue	16	X		2
41	C16	Blue	16		X	5
65	S24	Turquoise	10	X		8
65	S24	Turquoise	10		X	9

TRUTH TABLES

B01

BCD 1 Pole 8 Position

DIAL	Common (C) connected to terminals indicated							
	1	2	4					
0								
1	●							
2		●						
3	●	●						
4			●					
5	●		●					
6		●	●					
7	●	●	●					

B02

BCD 1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated							
	1	2	4	8				
0								
1	●							
2		●						
3	●	●						
4			●					
5	●		●					
6		●	●					
7	●	●	●					
8				●				
9	●			●				

B07

Binary Code 1 Pole 16 Position

DIAL		Common (C) connected to terminals indicated			
		1	2	4	8
0	0				
1	1	●			
2	2		●		
3	3	●	●		
4	4			●	
5	5	●		●	
6	6		●	●	
7	7	●	●	●	
8	8				●
9	9	●			●
A	10		●		●
B	11	●	●		●
C	12			●	●
D	13	●		●	●
E	14		●	●	●
F	15	●	●	●	●

C12

BCD Complement Only 1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated			
	$\overline{1}$	$\overline{2}$	$\overline{4}$	$\overline{8}$
0	●	●	●	●
1		●	●	●
2	●		●	●
3			●	●
4	●	●		●
5		●		●
6	●			●
7				●
8	●	●	●	
9		●	●	

C16

Binary Complement Only 1-Pole 16-Position

DIAL		Common (C) connected to terminals indicated			
		$\overline{1}$	$\overline{2}$	$\overline{4}$	$\overline{8}$
0	0	●	●	●	●
1	1		●	●	●
2	2	●		●	●
3	3			●	●
4	4	●	●		●
5	5		●		●
6	6	●			●
7	7				●
8	8	●	●	●	
9	9		●	●	
A	10	●		●	
B	11			●	
C	12	●	●		
D	13		●		
E	14	●			
F	15				

S24

1 Pole 5 Position repeating no output on 0

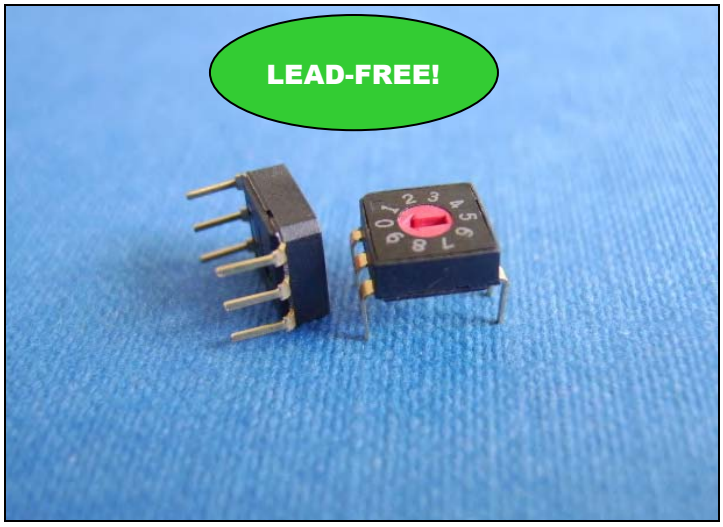
DIAL	Common (C) connected to terminals indicated							
	1	2	3	4				
0								
1	●							
2		●						
3			●					
4				●				
0								
1	●							
2		●						
3			●					
4				●				

4600 SERIES
MICRO-DIP® PRINTED CIRCUIT BOARD SWITCHES

The 4600 Series MICRO-DIP® continues the EECO tradition of innovative switch design.

Like all EECO MICRO-DIPS, the ***4600 Series*** permits direct setting of binary-coded values for PROMs and other user-addressable devices. The ***4600 Series*** features high temperature materials carefully selected to withstand the rigors of today's auto mated soldering and cleaning processes. The ***4600 Series*** is fully sealed, and the compact dimensions of the ***4600 Series*** require minimal board space. The ultra low profile design permits unrestricted heat flow during installation, eliminating the possibility of shadowing adjacent components. The ***4600 Series*** is covered by a one year warranty.

All ***4600 Series*** products are **Lead-Free** and **RoHS compliant**.



SPECIFICATIONS

MECHANICAL		
	No. of Switching Positions	10 16
	Life (Electrical)	10,000 Detents Min at Rated Load
	(Mechanical)	20,000 Detents Min. At No Load
	Rotational Torque (Initial)	2.75 Inch/Ounce Max
ELECTRICAL		
	Minimum Rated Load	1μA At 1 mV, AC/DC
	Maximum Rated Load, Switching	40 mA at 20 VDC
	Contact Resistance (Initial)	100 mΩ Maximum At 10 mA, 2.0 VDC
	Insulation Resistance	1,000 MΩ Minimum At 250 VDC
	Dielectric Withstanding Voltage	250 VAC, 1 Minute
ENVIRONMENTAL		
	Operating Temperature	-30^0C To $+85^0$C
	Storage Temperature	-45^0C To $+100^0$C
	Seal	Full Process Seal
MATERIALS		
	Housing and Base	Polyphenylene Sulfide UL 94 V0
	Rotor	46 Nylon UL 94V0
	O-Ring	Silicon Rubber
	Contact and Terminal	Beryllium Copper, Gold Over Nickel Plate
	Detent	Stainless Steel

RoHS COMPLIANCE

EECO Switch is fully committed to complying with the European Lead-Free and RoHS directives. The 4600 Series is Lead-Free and RoHS compliant.

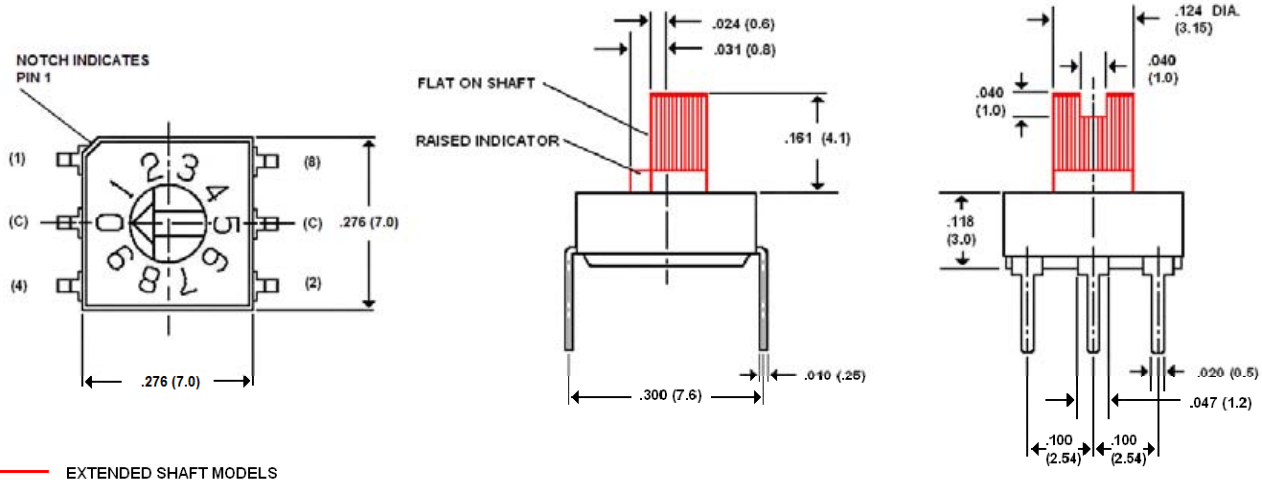
Refer to EECO Switch document "Soldering and Cleaning Specifications" for processing information

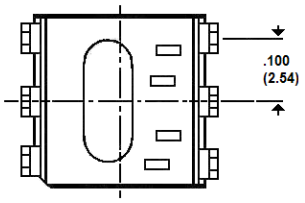
PART NUMBERS AND DIMENSIONS

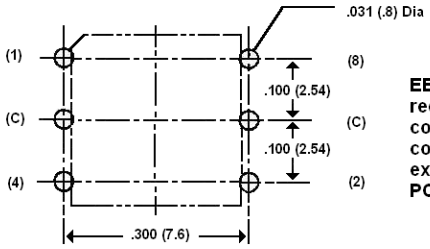
4600 SERIES STANDARD SWITCHES

FLUSH SHAFT	EXTENDED SHAFT	ROTOR COLOR	CODE DESCRIPTION	NO. OF POSITIONS	TRUTH TABLE
460002G	460102G	Red	1 Pole BCD	10	B02
460012G	460112G	Orange	1 Pole BCD Complement	10	C12
460035G	460135G	Green	1 Pole BCH	16	B07
460041G	460141G	White	1 Pole BCH Complement	16	C16

Consult factory for additional ordering information and packaging details for Tape and Reel packaging.







Dimensions: Inch (mm)

EECO recommends connecting the commons externally on the PCB

B02

BCD 1-Pole 10 position

DIAL	1	2	4	8
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●

Common (C) connected to terminals indicated

BCD

B07

BCH 1-Pole 16 position

DIAL	1	2	4	8
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●
A		●		●
B	●	●		●
C			●	●
D	●		●	●
E		●	●	●
F	●	●	●	●

Common (C) connected to terminals indicated

BCH

C12

BCD Complement 1-Pole 10 position

DIAL	1	2	4	8
0	●	●	●	●
1		●	●	●
2	●		●	●
3			●	●
4	●	●		●
5		●		●
6	●			●
7				●
8	●	●	●	
9		●	●	

Common (C) connected to terminals indicated

BCD COMPLEMENT

C16

BCH Complement 16-position

DIAL	1	2	4	8
0	●	●	●	●
1		●	●	●
2	●		●	●
3			●	●
4	●	●		●
5		●		●
6	●			●
7				●
8	●	●	●	
9		●	●	
A	●		●	
B			●	
C	●	●		
D		●		
E	●			
F				

Common (C) connected to terminals indicated

BCH COMPLEMENT

4800 SERIES
MICRO-DIP® SMT PRINTED CIRCUIT BOARD SWITCHES

The 4800 Series MICRO-DIP® is a true SURFACE MOUNT version of our popular MICRO-DIP family.

Like all EECO MICRO-DIPS, the ***4800 Series*** permits direct setting of binary-coded values for PROMs and other user-addressable devices. All materials used in the ***4800 Series*** were carefully selected to withstand the rigors of the surface-mount process, then engineered into an ultra low profile, fully sealed package. The compact dimensions of the ***4800 Series*** require minimal board space and permit closely stacked PCB designs. The ultra low profile design allows unrestricted heat flow during installation, eliminating the possibility of shadowing adjacent components. The ***4800 Series*** is covered by a one year warranty.

All ***4800 Series*** products are **Lead-Free** and **RoHS compliant**.

SPECIFICATIONS

MECHANICAL		
	No. of Switching Positions	10 16
	Life (Electrical)	10,000 Detents Min at Rated Load
	(Mechanical)	20,000 Detents Min. At No Load
	Rotational Torque (Initial)	2.75 Inch/Ounce Max
ELECTRICAL		
	Minimum Rated Load	1μA At 1 mV, AC/DC
	Maximum Rated Load, Switching	40 mA at 20 VDC
	Contact Resistance (Initial)	100 mΩ Maximum At 10 mA, 2.0 VDC
	Insulation Resistance	1,000 MΩ Minimum At 250 VDC
	Dielectric Withstanding Voltage	250 VAC, 1 Minute
ENVIRONMENTAL		
	Operating Temperature	-30^0C To $+85^0$C
	Storage Temperature	-45^0C To $+100^0$C
	Seal	Full Process Seal
MATERIALS		
	Housing and Base	Polyphenylene Sulfide UL-94 V0
	Rotor	46 Nylon UL-94V0
	O-Ring	Silicon Rubber
	Contact and Terminal	Beryllium Copper, Gold Over Nickel Plate
	Detent	Stainless Steel

RoHS COMPLIANCE

EECO Switch is fully committed to complying with the European Lead-Free and RoHS directives. The 4800 Series is Lead-Free and RoHS compliant.

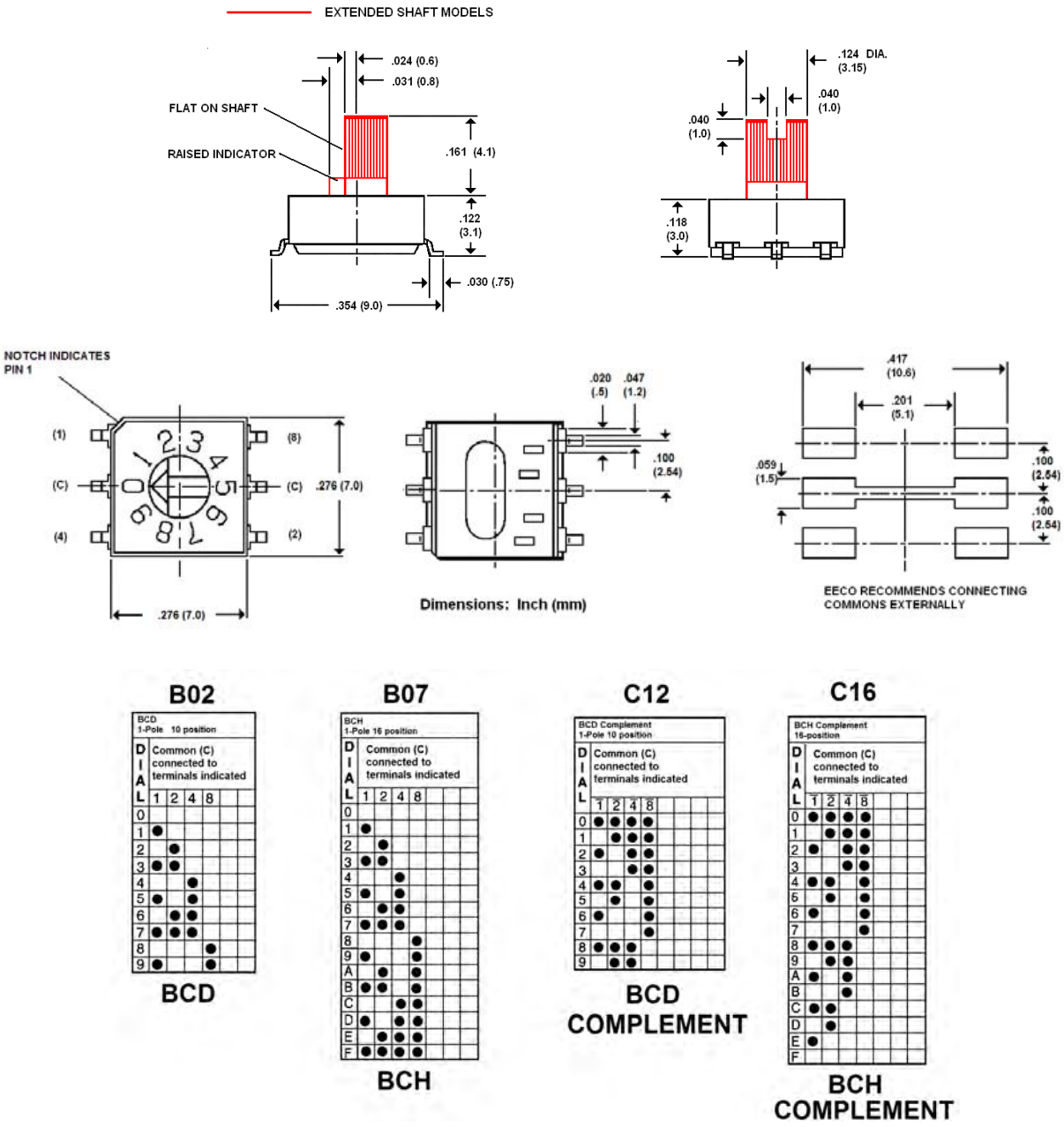
Refer to EECO Switch document “Soldering and Cleaning Specifications” for processing information

PART NUMBERS AND DIMENSIONS

4800 SERIES STANDARD SWITCHES

FLUSH SHAFT	EXTENDED SHAFT	ROTOR COLOR	CODE DESCRIPTION	NO. OF POSITIONS	TRUTH TABLE
480002G	480102G	Red	1 Pole BCD	10	B02
480012G	480112G	Orange	1 Pole BCD Complement	10	C12
480035G	480135G	Green	1 Pole BCH	16	B07
480041G	480141G	White	1 Pole BCH Complement	16	C16

Tape and Reel packaging available. Add "R" to part number to specify, ex. 480002GR.
Consult factory for additional ordering information and packaging details.



EECO®

7000 SERIES
THUMBWHEEL SWITCHES

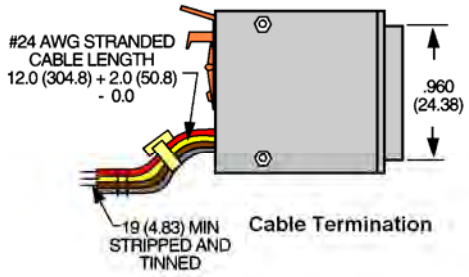
The 7000 Series combines heavy-duty construction and a compact package size.

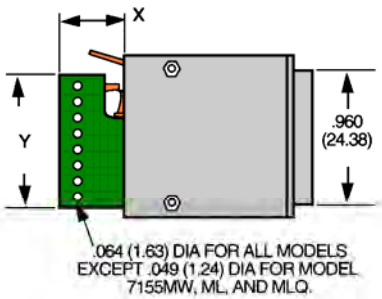
Designed to meet demanding military performance specifications, the ***7000 Series*** switch features a unique one-piece housing design to permanently seal the contacts from moisture, dirt, and dust. The ***7000 Series*** is available in either P.C. board or flexible cable termination styles, and in a variety of decimal or binary output codes. Optional features include lighted legends, EMI/RFI shielding and a doublewide message unit. Lamps are easily replaced without tools on lighted models. Typical applications include military and commercial aircraft, shipboard, and harsh industrial environments. The ***7000 Series*** is backed by EECO's one-year warranty.

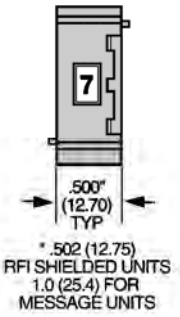
SPECIFICATIONS

MECHANICAL		
No. of Switching Positions		8, 10, 12, 16
Temperature Life Characteristics	Rotational Cycles	Temperature Range
Unlighted	50,000	-65^{0}C To +85^{0}C
Lighted	50,000	-65^{0}C To +71^{0}C
Tangential Operating Force		8,10 and 12 Position 6-20 Oz.
		16 Position: 6-24 Oz.
Weight		0.40 Oz.(Approx.)
Stop Strength (When Applicable)		5 Lbs.
ELECTRICAL		
Maximum Electrical Current, Non-Switching		3A Per Common Terminal
Maximum Rated Load, Switching		125 mA at 28 VDC or 115 VAC
Circuit Resistance (Excluding Cable)		
Initial		100 mΩ Maximum
After Life		1Ω Maximum
Insulation Resistance		1,000 MΩ Minimum
Dielectric Withstanding Voltage (At Atmospheric Pressure)		
8, 10, 12 Position		750 VAC (RMS)
16 Position		500 VAC (RMS)
ENVIRONMENTAL		
Vibration		15 G's, 10-2,000 Hz
Shock		100 G's
Salt Spray		48 Hrs.
Humidity		10 Days
Thermal Shock		-65^{0}C To +85^{0}C
Altitude		70,000 Ft.
Seal		10 +/- 1 PSIG
Acceleration		20 G's
MATERIALS		
Plastic		Polycarbonate per Federal Spec LP-393A
Metals		Corrosion Resistant
O-Ring		Buna-N
Circuit Boards - Material		Glass Epoxy per MIL-P-13949 Type GF
Plating		Gold Over Nickel Plating Per MIL-45204
Contacts		Copper Alloy, Gold Over Nickel Plating
Cable		Per MIL-W-16878 Type B

OUTLINE DIMENSIONS

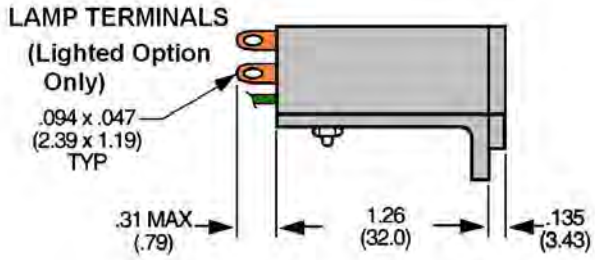


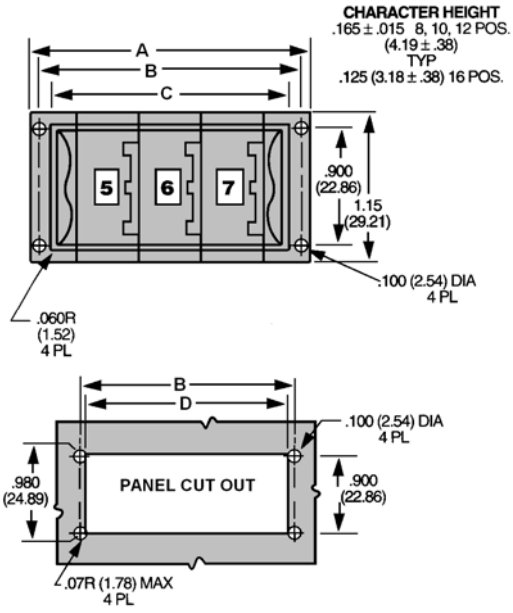




STANDARD CABLE COLORS
#24 AWG cable – 12" (304.8) length –
Stripped and tinned .19" (4.83) min.

Cable Color Code	TRUTH TABLE						
	A02	B02 B07	C02 C04	C12	D01	D02 D06	E01
White/Brown	C	C	C	$\overline{C}$		X	$\overline{C}$
White/Orange							C
White/Black						Y	
Black	0		$\overline{1}$	$\overline{8}$	Y		
Brown	1	1	1		1	1	1
Red	2	2	2		2	2	2
Orange	3		$\overline{4}$	$\overline{4}$			$\overline{4}$
Yellow	4	4	4		4	4	4
Green	5						
Blue	6		$\overline{1}$	$\overline{1}$			$\overline{1}$
Violet	7		$\overline{2}$	$\overline{2}$			$\overline{2}$
Gray	8	8	8			8	
White	9				X		





MOUNTING DIMENSIONS						
	STANDARD SWITCH MODELS				W/RFI SHIELDING (Option U)	
No. Of Stations	A	B	C	D	B	D
1	1.26	1.09	0.90	0.92	1.094	0.926
	(32.0)	(27.7)	(22.9)	(23.4)	(27.8)	(23.5)
2	1.76	1.59	1.40	1.42	1.596	1.428
	(44.7)	(40.4)	(35.6)	(36.1)	(40.5)	(36.3)
3	2.26	2.09	1.90	1.92	2.098	1.930
	(57.4)	(53.1)	(48.3)	(48.8)	(53.3)	(49.0)
4	2.76	2.59	2.40	2.42	2.600	2.432
	(70.1)	(65.8)	(61.0)	(61.5)	(66.0)	(61.8)
5	3.26	3.09	2.90	2.92	3.102	2.934
	(82.8)	(78.5)	(73.7)	(74.2)	(78.8)	(74.5)
6	3.76	3.59	3.40	3.42	3.604	3.436
	(95.5)	(91.2)	(86.4)	(86.9)	(91.5)	(87.3)
7	4.26	4.09	3.90	3.92	4.106	3.938
	(108.2)	(103.9)	(99.1)	(99.6)	(104.3)	(100.0)
8	4.76	4.59	4.40	4.42	4.608	4.440
	(120.9)	(116.6)	(111.8)	(112.3)	(117.0)	(112.8)
9	5.26	5.09	4.90	4.92	5.110	4.942
	(133.6)	(129.3)	(124.5)	(125.0)	(129.8)	(125.5)
10	5.76	5.59	5.40	5.42	5.612	5.444
	(146.3)	(142.0)	(137.2)	(137.7)	(142.5)	(138.3)

( ) Metric equivalents in mm

Tolerances: .XXX ± 0.010" .XX ± 0.030" unless otherwise noted.
Assembly may exhibit an expansion of .003" per station before installation but will adjust to recommended panel cutout when installed.

Spacers count as stations. Subtract .250" from each dimension A through D when spacers are used.
Add .500" to dimensions A through D for each additional station over 10.

STANDARD SWITCH MODELS

TRUTH TABLE	PART NUMBER	PART DESCRIPTION	NO. OF POSITIONS	PCB TAIL DIMS X	PCB TAIL DIMS Y	TYPE
DECIMAL SWITCHES						
A02	7151MW	1 Pole Decimal	10	0.385 (9.8)	1.200 (30.5)	PCB
A02	7251MW	1 Pole Decimal	10			Cable
BINARY CODED SWITCHES						
B02	7154MW	1 Pole BCD	10	0.385 (9.8)	1.200 (30.5)	PCB
B02	7254MW	1 Pole BCD	10			Cable
B02	7354MW	1 Pole BCD Diode Provision	10	0.875 (22.2)	1.146 (29.1)	PCB
B07	7158MW	1 Pole BCH Marked 0-9-A-F	16	0.385 (9.8)	0.950 (24.1)	PCB
B07	7162MW	1 Pole BCH Marked 0-15	16	0.385 (9.8)	0.950 (24.1)	PCB
C02	7156MW	1 Pole BCD w/Complement	10	0.385 (9.8)	1.146 (29.1)	PCB
C02	7256MW	1 Pole BCD w/Complement	10			Cable
C02	7356MW	1 Pole BCD w/Complement Diode Provision	10	0.875 (22.2)	1.146 (29.1)	PCB
C04	7257MW	1 Pole 12 Position BCD w/Complement	12			Cable
C12	7261MW	1 Pole BCD Complement Only	10			Cable
D01	7152MW	2 Pole BCO w/Separate Common To Not True Bits	8	0.385 (9.8)	0.950 (24.1)	PCB
D01	7252MW	2 Pole BCO w/Separate Common To Not True Bits	8			Cable
D02	7155MW	2 Pole BCD w/Separate Common To Not True Bits	10	0.385 (9.8)	0.950 (24.1)	PCB
D02	7255MW	2 Pole BCD w/Separate Common To Not True Bits	10			Cable
D06	7159MW	2 Pole BCH w/Separate Common to Not True Bits 0-9-A-F	16	0.385 (9.8)	0.950 (24.1)	PCB
D06	7163MW	2 Pole BCH w/Separate Common to Not True Bits 0-15	16	0.385 (9.8)	0.950 (24.1)	PCB
E01	7153MW	2 Pole BCO w/Complement	8	0.385 (9.8)	0.950 (24.1)	PCB
E01	7253MW	2 Pole BCO w/Complement	8			Cable
E01	7353MW	2 Pole BCO w/Complement Diode Provision	8	0.875 (22.2)	1.146 (29.1)	PCB
S01	7160MW	1 Pole Repeating Marked +/-	10	0.385 (9.8)	0.950 (24.1)	PCB

Metric equivalents ( ) in mm. Consult factory for other codes and options.

RoHS COMPLIANCE

EECO Switch is fully committed to complying with the European Lead-Free and RoHS directives. The 7000 Series is Lead-Free and RoHS compliant.

AVAILABLE OPTIONS

A	Diodes Installed Anode To Common
C	Diodes Installed Cathode To Common
D	Decimal Point (Stamped)
K	Lighted Decimal Point (Spacer Only)
L	Lighted Switch Legend. Illuminated White Character On Black Background. 5 Volt Lamp Standard, Consult Factory For Other Voltages. N/A Double Wide Units
M	Spray Matte Finish (Standard)
P	+/- Rotor Marking
Q	Aviation Red Lighting. Also Requires Option L
T	Alphabet Marking
U	EMI/RFI Shielding. Factory Assembled Only.
	Stop Pins
	Consult Factory for Custom Rotor Marking, Double Wide Switch Modules, Custom Output Codes and Other Special Requests

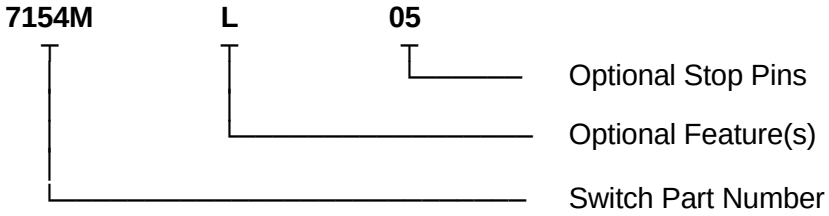
7000 HARDWARE AND ACCESSORIES

70SM-X Standard Hardware Kit: Endpieces, Threaded Rods, Screws, Nuts and Washers

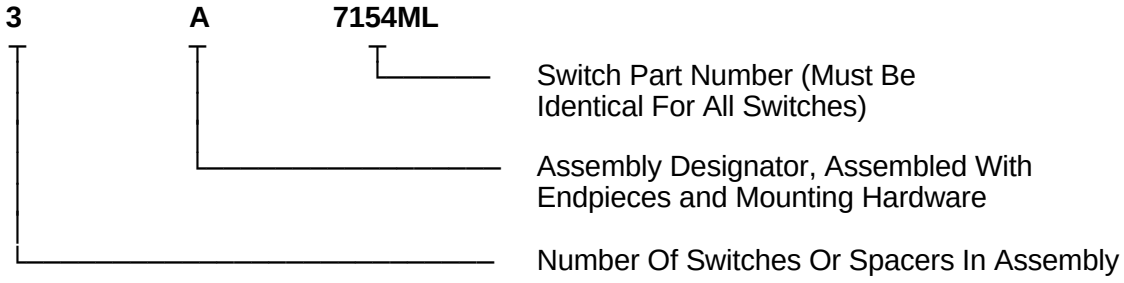
NOTE: REPLACE "X" IN HARDWARE KIT PART NUMBER WITH THE APPROPRIATE NUMBER OF SWITCHES AND SPACERS IN THE ASSEMBLY

CATALOG NUMBER	PART NUMBER	DESCRIPTION
E70SM	235446-02	Endpiece, Matte
S70SM	193263-00	.250" Spacer Matte

ORDERING EXAMPLE - SWITCH



ORDERING EXAMPLE – ASSEMBLY



Assemblies of mixed switches and/or certain options require a special assembly number. Consult factory for additional ordering information.

TRUTH TABLES

A02

DECIMAL 1 Pole 10 Position										
DIAL	Common (C) Connected To ●									
	0	1	2	3	4	5	6	7	8	9
0	●									
1		●								
2			●							
3				●						
4					●					
5						●				
6							●			
7								●		
8									●	
9										●

B02

BCD 1 Pole 10 Position				
DIAL	Common (C) Connected To ●			
	1	2	4	8
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●

B07

HEXADECIMAL 1 Pole 16 Position					
DIAL		Common (C) Connected To ●			
		1	2	4	8
0	0				
1	1	●			
2	2		●		
3	3	●	●		
4	4			●	
5	5	●		●	
6	6		●	●	
7	7	●	●	●	
8	8				●
9	9	●			●
10	A		●		●
11	B	●	●		●
12	C			●	●
13	D	●		●	●
14	E		●	●	●
15	F	●	●	●	●

C02

BCD w/Complement 1 Pole 10 Position								
DIAL	Common (C) Connected To ●							
	1	2	4	8	$\overline{1}$	$\overline{2}$	$\overline{4}$	$\overline{8}$
0					●	●	●	●
1	●					●	●	●
2		●			●		●	●
3	●	●					●	●
4			●		●	●		●
5	●		●			●		●
6		●	●		●			●
7	●	●	●					●
8				●	●	●	●	
9	●			●		●	●	

C04

Binary Code w/Complement 1 Pole 12 Position								
DIAL	Common (C) Connected To ●							
	1	2	4	8	$\overline{1}$	$\overline{2}$	$\overline{4}$	$\overline{8}$
0					●	●	●	●
1	●					●	●	●
2		●			●		●	●
3	●	●					●	●
4			●		●	●		●
5	●		●			●		●
6		●	●		●			●
7	●	●	●					●
8				●	●	●	●	
9	●			●		●	●	
10		●		●	●		●	
11	●	●		●			●	

C12

BCD Complement 1 Pole 10 Position				
DIAL	Common (C) Connected To ●			
	$\overline{1}$	$\overline{2}$	$\overline{4}$	$\overline{8}$
0	●	●	●	●
1		●	●	●
2	●		●	●
3			●	●
4	●	●		●
5		●		●
6	●			●
7				●
8	●	●	●	
9		●	●	

TRUTH TABLES

D01

BCO w/Complement 2 Pole 8 Position			
DIAL	Commons (X) and (Y) Connected To ● and ∗		
	1	2	4
0	∗	∗	∗
1	●	∗	∗
2	∗	●	∗
3	●	●	∗
4	∗	∗	●
5	●	∗	●
6	∗	●	●
7	●	●	●

D02

BCD w/Complement 2 Pole 10 Position				
DIAL	Commons (X) and (Y) Connected To ● and ∗			
	1	2	4	8
0	∗	∗	∗	∗
1	●	∗	∗	∗
2	∗	●	∗	∗
3	●	●	∗	∗
4	∗	∗	●	∗
5	●	∗	●	∗
6	∗	●	●	∗
7	●	●	●	∗
8	∗	∗	∗	●
9	●	∗	∗	●

D06

HEXADECIMAL 2 Pole 16 Position					
DIAL		Commons (X) and (Y) Connected To ● and ∗			
		1	2	4	8
0	0	∗	∗	∗	∗
1	1	●	∗	∗	∗
2	2	∗	●	∗	∗
3	3	●	●	∗	∗
4	4	∗	∗	●	∗
5	5	●	∗	●	∗
6	6	∗	●	●	∗
7	7	●	●	●	∗
8	8	∗	∗	∗	●
9	9	●	∗	∗	●
10	A	∗	●	∗	●
11	B	●	●	∗	●
12	C	∗	∗	●	●
13	D	●	∗	●	●
14	E	∗	●	●	●
15	F	●	●	●	●

E02

BCD w/Complement 1 Pole 10 Position								
DIAL	Common (C) and ($\overline{C}$) Connected To ●							
	1	2	4	8	$\overline{1}$	$\overline{2}$	$\overline{4}$	$\overline{8}$
0					●	●	●	●
1	●					●	●	●
2		●			●		●	●
3	●	●					●	●
4			●		●	●		●
5	●		●			●		●
6		●	●		●			●
7	●	●	●					●
8				●	●	●	●	
9	●			●		●	●	

S01

A/B Repeating Code Double Pole 10 Position				
DIAL	Common (C1) and (C2) Connected To ●			
	C1		C2	
	A1	B1	A2	B2
+		●		●
-	●		●	
+		●		●
-	●		●	
+		●		●
-	●		●	
+		●		●
-	●		●	
+		●		●
-	●		●	

EECO has a large library of special codes and options not listed in this document. Consult the factory with your special requirements.

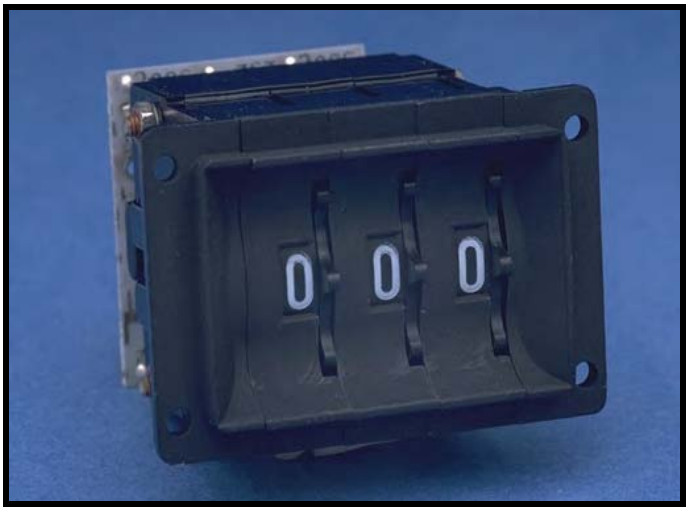
THUMBPOT™ SERIES

THUMBPOT VOLTAGE DIVIDERS

EECO's THUMBPOT ™ is a digital voltage divider which allows the user to set varying voltages while maintaining a constant resistance within the circuit.

Sharing many of the features and options of our ***1776*** and ***1976 Series*** switches, the ***THUMBPOT*** is available in 2, 3, or 4 decade models, with resistance values from 1,000 to 100,000 ohms. The ***THUMBPOT*** is based on a proprietary circuit developed by EECO, using matched resistor pairs. Unlike rotary or dial potentiometers, the ***THUMBPOT*** offers exact setting repeatability, with setting accuracy as precise as ± 0.05% of full scale voltage.

The ***THUMBPOT*** is covered by EECO's one-year warranty.



SPECIFICATIONS

MECHANICAL

No. of Switching Positions	10
Life	Minimum 1,000,000 Detents @ 10 mA, 5VDC, +25^{0}C
Tangential Operating Force	5-18 Oz.
Weight	(Approx.) 0.4 Oz Per Decade

ELECTRICAL

Standard Resistance Range	1,000 to 100,000Ω
Standard Resistance Tolerance	± 1%
Setting Accuracy	To 0.05% of Full Scale Voltage
Standard Input Voltages (Function Of Input Impedance)	
1,000 To 5,000 Ω Input Impedance	16 Volts @ 25^{0}C
10,000 To 50, 000 Ω Input Impedance	50 Volts @ 25^{0}C
100,000 Ω Input Impedance	150 Volts @ 25^{0}C
Insulation Resistance	1,000M Ω Minimum
Dielectric Withstanding Voltage	500 VAC (RMS)

ENVIRONMENTAL

Operating Temperature	-20^{0}C To +75^{0}C
Seal	Dust Resistant

MATERIALS

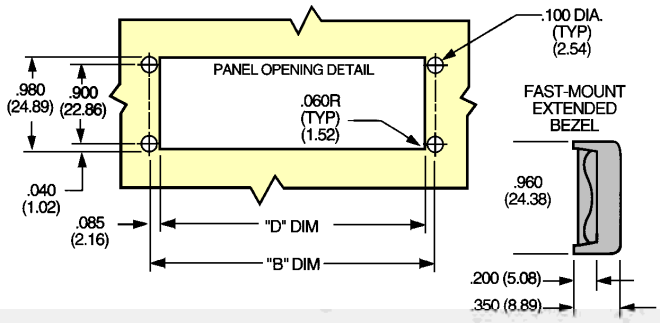
Plastic	Polycarbonate per Federal Spec LP-393A
Metals	Corrosion Resistant
Circuit Disc - Material	Glass Epoxy
Plating	Gold Over Nickel Plating
Terminals	Copper Alloy, Plated for Soldering
Contacts	Copper Alloy, Gold Over Nickel Plating

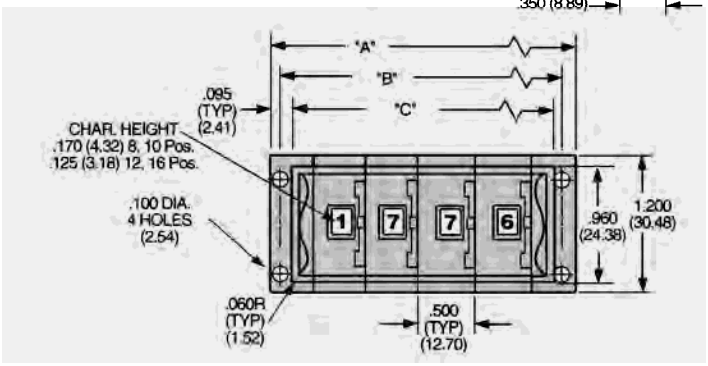
RoHS COMPLIANCE

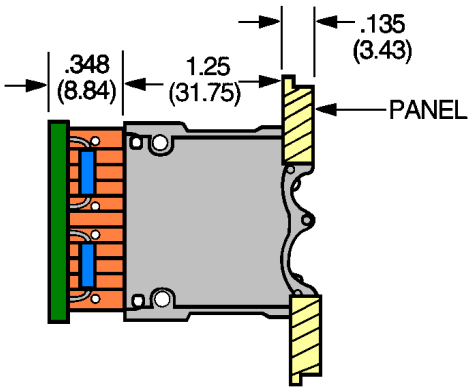
EECO Switch is fully committed to complying with the European Lead-Free and RoHS directives. Consult the factory for the RoHS status of this product.

OUTLINE DIMENSIONS AND PANEL MOUNTING INFORMATION

1776 MODEL





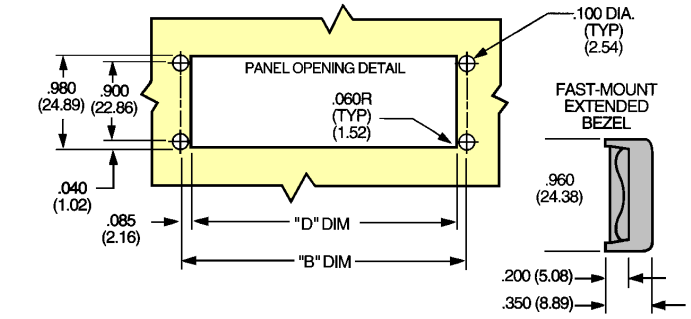


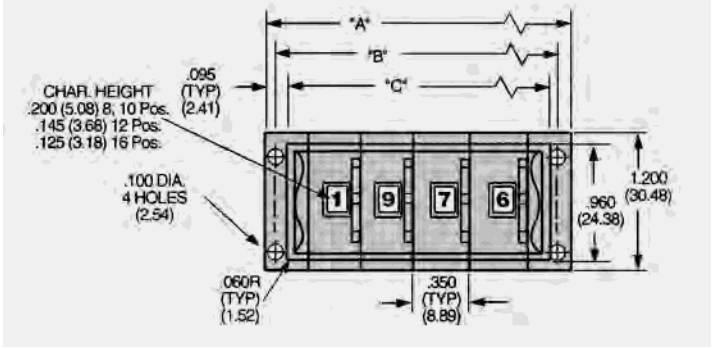
MOUNTING DIMENSIONS 76 SERIES

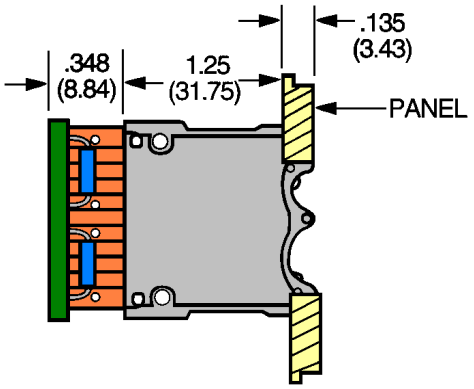
NO. OF DECADES	A	B	C	D
2	1.76	1.59	1.40	1.42
	(44.7)	(40.4)	(35.6)	(36.1)
3	2.26	2.09	1.90	1.92
	(57.4)	(53.1)	(48.3)	(48.8)
4	2.76	2.59	2.40	2.42
	(70.1)	(65.8)	(61.0)	(61.5)

Assembly dimensions may exhibit expansion of 0.003” per station before installation, but will adjust to recommended panel dimensions shown once installed.
Tolerances .XXX ± 0.010”, .XX ± 0.030.
( ) Metric equivalents in mm.

1976 MODEL





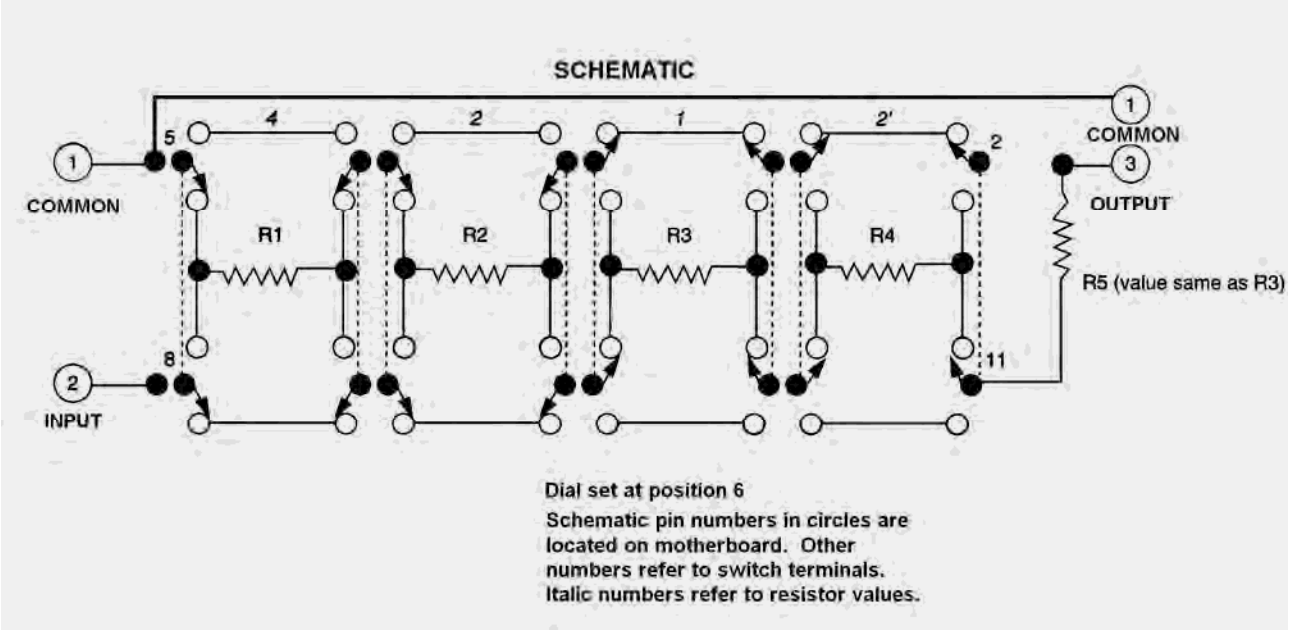


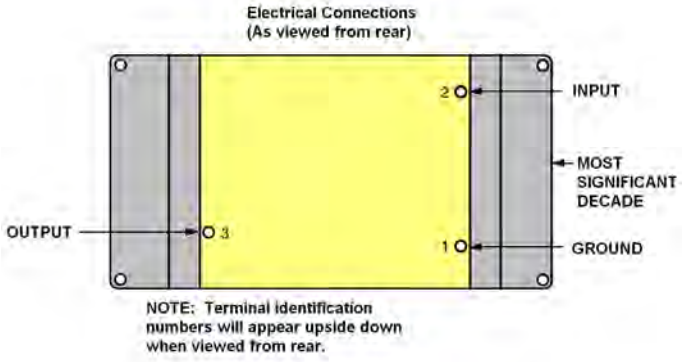
MOUNTING DIMENSIONS 96 SERIES

NO. OF DECADES	A	B	C	D
2	1.46	1.29	1.10	1.12
	(37.1)	(32.8)	(27.9)	(28.4)
3	1.81	1.64	1.45	1.47
	(46.0)	(41.7)	(36.8)	(37.3)
4	2.16	1.99	1.80	1.82
	(54.9)	(50.5)	(45.7)	(46.2)

Assembly dimensions may exhibit expansion of 0.003” per station before installation, but will adjust to recommended panel dimensions shown once installed.
Tolerances .XXX ± 0.010”, .XX ± 0.030.
( ) Metric equivalents in mm.

SCHEMATIC AND TERMINAL INFORMATION





S21

EECO Thumbpot Voltage Divider 10 Position								
DIAL	Resistors in circuit between terminals 2 and 5				Resistors in circuit between terminals 8 and 11			
	4	2	1	2'	4	2	1	2"
	R1	R2	R3	R4	R1	R2	R3	R4
0					●	●	●	●
1			●		●	●		●
2		●			●		●	●
3			●	●	●	●		
4	●					●	●	●
5	●		●			●		●
6	●	●					●	●
7	●	●	●					●
8	●	●		●			●	
9	●	●	●	●				

OPTIONS AND ORDERING INFORMATION

AVAILABLE OPTIONS

D	Decimal Point
G	Gloss Finish (Standard)
M	Spray Matte Finish
P	+/- Rotor Marking
T	Alphabet Marking
U	EMI/RFI Shielding
Y	Fast Mount Hardware (applies to assembly part number)
	Stop Pins
	Consult Factory for Custom Rotor Marking or Other Special Requests

INPUT RESISTANCE	RESISTANCE AND ACCURACY DESIGNATORS SETTING ACCURACY (AS % OF FULL SCALE INPUT VOLTAGE)				
	1%	.5%	.25%†	.10%†	.05%†
100,000 Ω ± 1%	01	05	09	13	17
50,000 Ω ± 1%	29	32	35	38	41
10,000 Ω ± 1%	02	06	10	14	18
5,000 Ω ± 1%	30	33	36	39	42
1,000 Ω ± 1%	03 [1]	07 [1]	11 [1]	15 [1]	19 [1]

DEVICE RESOLUTION	PART NO. PREFIX
1.0 (2 Decades)	2W76 or 2W96
0.1 (3 Decades)	3W76 or 3W96
0.01 (4 Decades)	4W76 or 4W96

THUMBPOT ORDERING NOTES

1. [1] Not available on 4 decade models.
2. † Models are limited availability. Consult factory for additional information.
3. Values shown above are for linearity as defined by VRCI-P-100A. "Terminal-based", "Zero-based" and "Independent" linearity specifications are available. Consult factory for additional information.

ORDERING EXAMPLE – THUMBPOT ASSEMBLY

2W 76 02 G Y

- Y — Optional Feature(s)
- G — Finish Designator
- 02 — Resistance and Accuracy Designator (From Table Above)
- 76 — Switch Series: 76 = 1776, 96 = 1976
- 2W — Number Of Decades (Resolution)

Certain combinations of options may require a special part number. Consult factory for additional information.

EECO®

1776/1976 SERIES
THUMBWHEEL SWITCHES

EECO's 1776 and 1976 Series thumbwheel switches are the standards of the industry. Both Series offer 8, 10, 12 or 16 position binary or decimal output codes for every possible application.

The ***1776 Series*** is a standard .500" wide, while the ***1976 Series*** is .350" wide to save valuable front panel space. Optional notched terminals allow motherboards to be easily attached. The list of available options includes custom legends, lighting options, doublewide message units and fast-mount installation hardware. Many switch models offer mounting provisions for diodes. The ***1776 and 1976 Series*** both offer proven reliability at an economical price, and both are backed by EECO's one-year warranty.

SPECIFICATIONS

MECHANICAL

No. of Switching Positions	8, 10, 12, 16
Life	Minimum 1,000,000 Detents @ 10 mA, 5 VDC, +25^{0}C
Tangential Operating Force	1776 Series: 6-18 Oz., 1976 Series 5-16 Oz.
Weight	0.35 Oz.

ELECTRICAL

Maximum Electrical Current, Non-Switching	3A Per Common Terminal
Maximum Rated Load, Switching	125 mA at 28 VDC or 115 VAC
Contact Resistance (Initial)	100 mΩ Maximum
(After Life)	200 mΩ Maximum
Insulation Resistance	1,000 MΩ Minimum At 100 VDC
Dielectric Withstanding Voltage	1000 VAC (RMS) Single Pole Models
	500 VAC (RMS) Double Pole Models

ENVIRONMENTAL

Operating Temperature	-20^{0}C To +75^{0}C
Storage Temperature	-40^{0}C To +100^{0}C
Seal	Dust Resistant

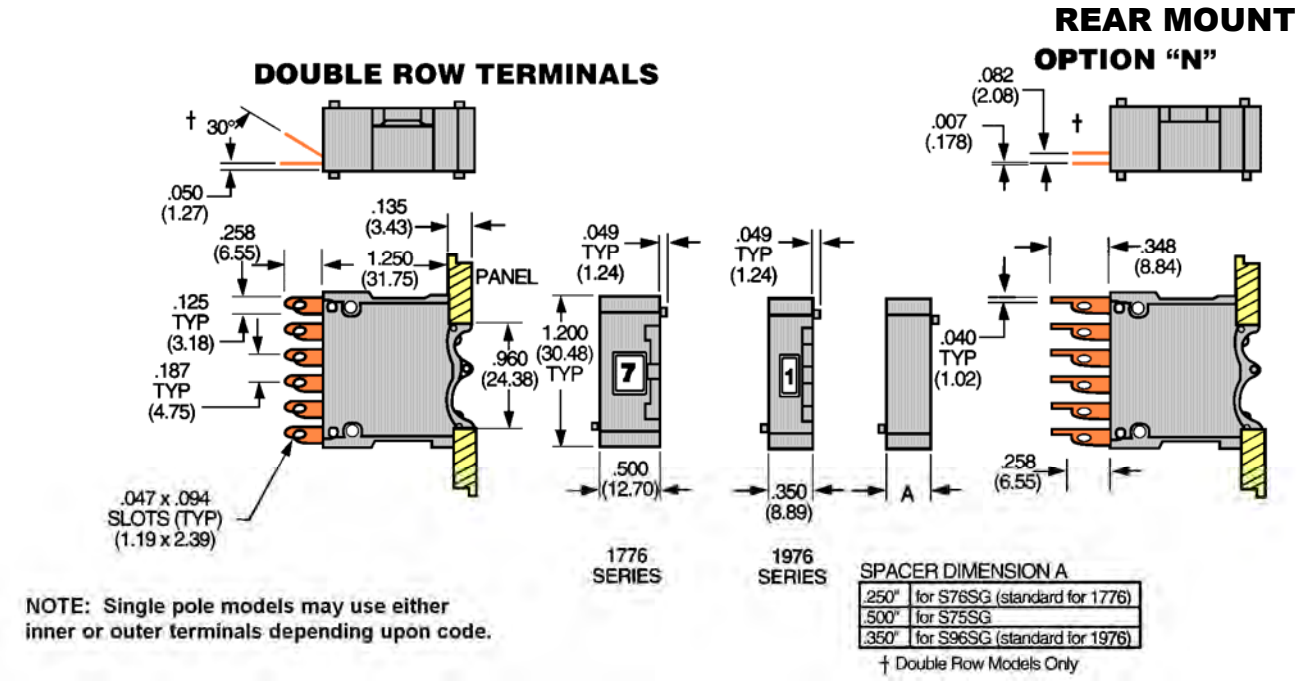
MATERIALS

Plastic	Polycarbonate per Federal Spec LP-393A
Metals	Corrosion Resistant
Circuit Disc - Material	Glass Epoxy
Plating	Gold Over Nickel Plating
Terminals	Copper Alloy, Plated for Soldering
Contacts	Copper Alloy, Gold Over Nickel Plating

RoHS COMPLIANCE

EECO Switch is fully committed to complying with the European Lead-Free and RoHS directives. The 1776 and 1976 series are Lead Free and RoHS compliant.

OUTLINE DIMENSIONS



1776/1976 HARDWARE AND ACCESSORIES

77SG-X/97SG-X Standard Hardware Kit: Endpieces, Threaded Rods, Screws, Nuts and Washers

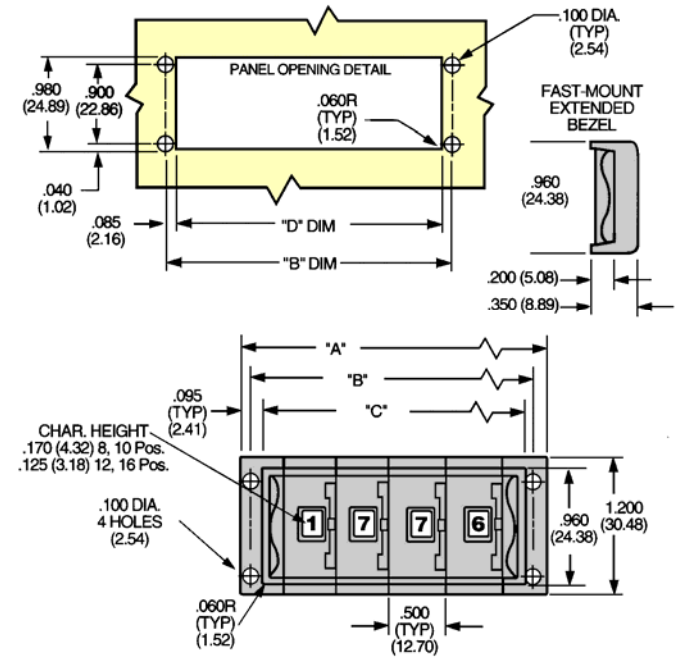
78SG-X/98SG-X Fast Mount Hardware Kit: Endpieces, Bezels Threaded Rods, Screws, Nuts and Washers (Option Y)

NOTE: **REPLACE "G" WITH "M" TO ORDER SPRAY MATTE HARDWARE**
REPLACE "X" WITH THE APPROPRIATE NUMBER OF SWITCHES IN ASSEMBLY

SERIES	CATALOG NUMBER	PART NUMBER	DESCRIPTION
1776/1976	E76SG	195934-00	Endpiece Gloss
1776/1976	E76SM	195970-00	Endpiece Matte
1776/1976	Option Y	233658-01	Fast Mount Endpiece Gloss
1776/1976	Option Y	233659-01	Fast Mount Bezel Gloss
1776/1976	Option Y	233659-02	Fast Mount Bezel Matte
1776	S75SG	233875-01	.500" Spacer Gloss
1776	S75SM	233875-02	.500" Spacer Matte
1776	S76SG	195954-00	.250" Spacer Gloss
1776	S76SM	195972-00	.250" Spacer Matte
1976	S96SG	234104-01	.350" Spacer Gloss
1976	S96SM	234104-03	.350" Spacer Matte
1776	SW7600DP	196992-01	Diode/Resistor Module

PANEL MOUNTING INFORMATION

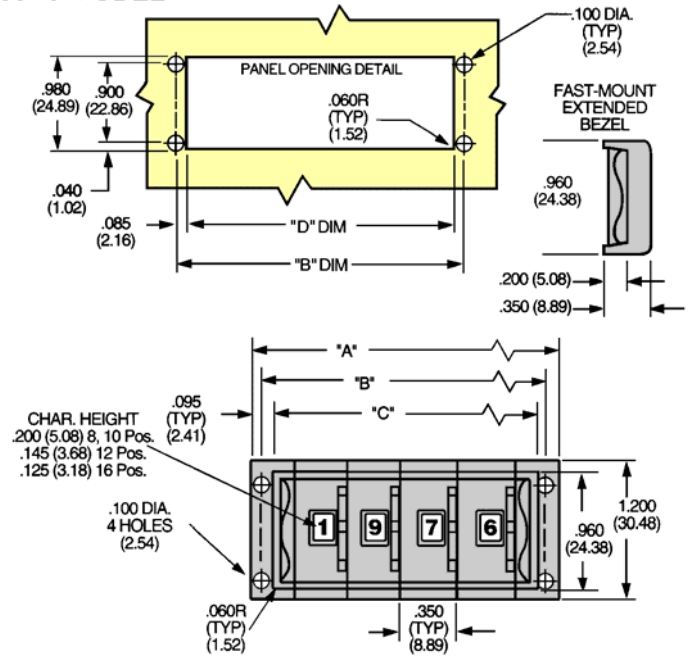
1776 MODEL



NO. OF STATIONS	A	B	C	D
1	1.26	1.09	0.90	0.92
	(32.0)	(27.7)	(22.9)	(23.4)
2	1.76	1.59	1.40	1.42
	(44.7)	(40.4)	(35.6)	(36.1)
3	2.26	2.09	1.90	1.92
	(57.4)	(53.1)	(48.3)	(48.8)
4	2.76	2.59	2.40	2.42
	(70.1)	(65.8)	(61.0)	(61.5)
5	3.26	3.09	2.90	2.92
	(82.8)	(78.5)	(73.7)	(74.2)
6	3.76	3.59	3.40	3.42
	(95.5)	(91.2)	(86.4)	(86.9)
7	4.26	4.09	3.90	3.92
	(108.2)	(103.9)	(99.1)	(99.6)
8	4.76	4.59	4.40	4.42
	(120.9)	(116.6)	(111.8)	(112.3)
9	5.26	5.09	4.90	4.92
	(133.6)	(129.3)	(124.5)	(125.0)
10	5.76	5.59	5.40	5.42
	(146.3)	(142.0)	(137.2)	(137.7)

Assembly dimensions may exhibit expansion of 0.003" per station before installation, but will adjust to recommended panel dimensions shown once installed. Subtract 0.250" from each dimension shown for each S76SG spacer included in the assembly. Add 0.500" to each dimension per switch for assemblies over 10 stations.
Tolerances .XXX ± 0.010", .XX ± 0.030. Metric equivalents shown in ().

1976 MODEL



NO. OF STATIONS	A	B	C	D
1	1.11	0.94	0.75	0.77
	(28.2)	(23.9)	(19.1)	(19.6)
2	1.46	1.29	1.10	1.12
	(37.1)	(32.8)	(27.9)	(28.4)
3	1.81	1.64	1.45	1.47
	(46.0)	(41.7)	(36.8)	(37.3)
4	2.16	1.99	1.80	1.82
	54.9)	(50.5)	(45.7)	(46.2)
5	2.51	2.34	2.15	2.17
	(63.8)	(59.4)	(54.6)	(55.1)
6	2.86	2.69	2.50	2.52
	(72.6)	(68.3)	(63.5)	(64.0)
7	3.21	3.04	2.85	2.87
	(81.5)	(77.2)	(72.4)	(72.9)
8	3.56	3.39	3.20	3.22
	(90.4)	(86.1)	(81.3)	(81.8)
9	3.91	3.74	3.55	3.57
	(99.3)	(95.0)	(90.2)	(90.7)
10	4.26	4.09	3.90	3.92
	(108.2)	(103.9)	(99.1)	(99.6)

Assembly dimensions may exhibit expansion of 0.003" per station before installation, but will adjust to recommended panel dimensions shown once installed. Add 0.350" to each dimension per switch for assemblies over 10 stations.
Tolerances. XXX ± 0.010", .XX ± 0.030. Metric equivalents shown in ( )

STANDARD SWITCH MODELS

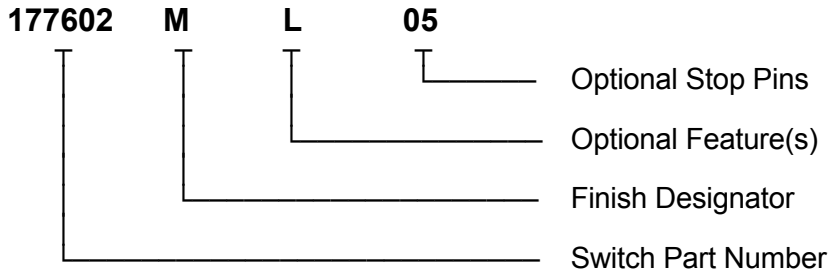
TRUTH TABLE	1776 SERIES	1976 SERIES	PRODUCT DESCRIPTION	NO. Of POSITIONS
A02	177601G	197601G	1 Pole Decimal	10
A02	177641G	197641G	1 Pole Decimal Make-Before Break	10
A08	177640G	197640G	2 Pole 5 Pos. Decimal Mkd. 0-4	5
B01	177608G	197608G	1 Pole BCO	8
B01	177658G†	197658G†	1 Pole BCO w/Diode Provision	8
B02	177602G	197602G	1 Pole BCD	10
B02	177652G†	197652G†	1 Pole BCD Diode Provision	10
B04	177632G	197632G	1 Pole 12 Position Binary	12
B04	177682G†	197682G†	1 Pole 12 Binary w/Diode Provision	12
B07	177633G	197633G	1 Pole BCH Marked 0-15	16
B07	177634G	197634G	1 Pole BCH Marked 0-9-A-F	16
C10	177603G	197603G	1 Pole Excess 3	10
C10	177653G†	197653G†	1 Pole Excess 3 w/Diode Provision	10
C11	177618G	197618G	1 Pole BCO Complement	8
C11	177668G†	197668G†	1 Pole BCO Complement w/Diode Provision	8
C12	177612G	197612G	1 Pole BCD Complement	10
C12	177662G†	197662G†	1 Pole BCD Complement w/Diode Provision	10
C13	177619G	197619G	1 Pole 9's Complement	10
C13	177669G†	197669G†	1 Pole 9's Complement w/Diode Provision	10
C14	177621G	197621G	1 Pole 10's Complement	10
C14	177671G†	197671G†	1 Pole 10's Complement w/Diode Provision	10
C15	177617G	197617G	1 Pole Complement of 9's Complement	10
C15	177667G†	197667G†	1 Pole Complement of 9's Compl. w/Diode Prov.	10
D02	177656G	197656G	2 Pole BCD w/Separate Common to Not True Bits	10
D03	177626G	197626G	2 Pole Dual BCD	10
D04	177637G	197637G	2 Pole BCH Marked 0-15w/Complement	16
D04	177638G	197638G	2 Pole BCH Marked 0-9-A-F w/Complement	16
E01	177609G	197609G	1 Pole BCO w/Complement	8
E02	177606G	197606G	2 Pole BCD w/Complement	10
E04	177620G	197620G	2 Pole 9's Complement w/Complement	10
E05	177622G	197622G	2 Pole 10's Complement w/Complement	10
E05	177623G	197623G	1 Pole Complement of 10's Complement	10
E06	177636G	197636G	2 Pole 12 Pos. Binary w/Complement	12
E07	177614G	197614G	2 Pole Excess 3 w/Complement	10
E08	177646G	197646G	4 Pole Special BCD w/Complement	10
G02	177615G	197615G	1 Pole 1-2-4-2' Code	10
N/A	177691G	197691G	Non Functional Switch	10
S01	177605G	197605G	2 Pole Repeating Marked 0-5	10
S01	177610G	197610G	2 Pole Repeating Marked 0-1	10
S01	177611G	197611G	2 Pole Repeating Marked +/-	10
S08	177616G	197616G	Wolff-Poggendorf Voltage Divider	10
S10	177604G	197604G	Resistor Decade(1-2-3-6)	10
S11	177607G	197607G	7 Bar Indicator	10
S15	177642G	197642G	1 Pole Mod. Teletype Code	10
S17	177624G	197624G	Resistor Decade 1-2-4-2' Code	10
S18	177625G	197625G	Resistor Decade 1-2-2-2-2 Code	10
S20	177645G	197645G	2 Pole 1-1'-2-5 w/Complement	10
S21	177676GN	197676GN	Thumbpot Voltage Divider	10
S22	177627G	197627G	1 Pole 1-2-4-5 Code	10
S23	177674G	197674G	1 Pole Johnson Code	10

NOTE: † Includes row of inactive terminals for mounting components. Consult factory for additional information.

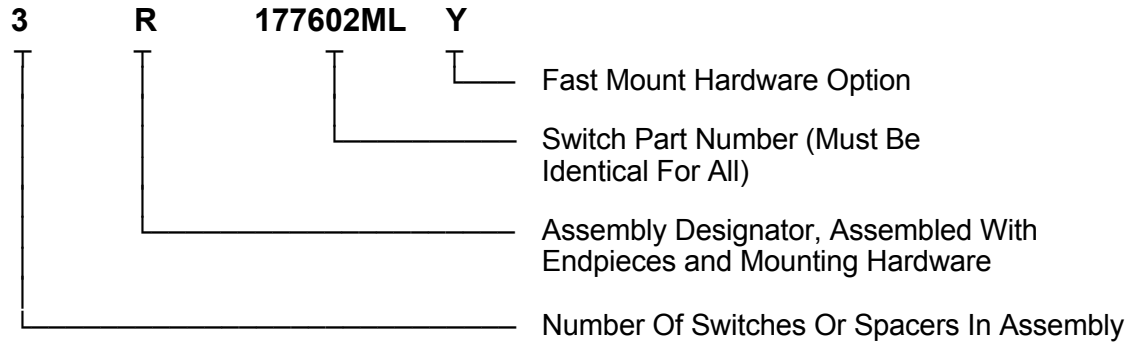
AVAILABLE OPTIONS

A	Diodes Installed Anode To Common
C	Diodes Installed Cathode To Common
D	Decimal Point
G	Gloss Finish (Standard)
K	Lighted Decimal Point
L	Lighted Switch Legend, black hot-stamped character on white translucent background. 5 Volt lamp standard, consult factory for other voltages
M	Spray Matte Finish
N	Notched Terminals – Required to attach PC boards. Also accepts soldered cable connection
P	+/-Rotor Marking
R	Reverse Lighting – Illuminated white character on black background
T	Alphabet Marking
U	EMI/RFI Shielding
Y	Fast Mount Hardware (applies to assembly part number)
	Stop Pins
	Consult Factory for Custom Rotor Marking, Double-Wide Switch Modules, Custom Output Codes and Other Special Requests

ORDERING EXAMPLE - SWITCH



ORDERING EXAMPLE – SWITCH ASSEMBLY



Assemblies of mixed switches and/or certain options require a special assembly number. Consult factory for additional ordering information.

EECO SWITCH STANDARD TRUTH TABLES

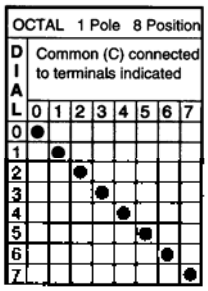
EECO Switch offers over 60 binary, decimal, and special purpose electrical output codes. The code designations (e.g. B02) are common to all EECO Switch products. Not all codes are offered in every switch series.

Using the truth tables on the following pages, select the electrical code that suits your circuit. Then select the corresponding 1776/1976 Series part number from the table on page 4. The most common output codes are highlighted in ***red***

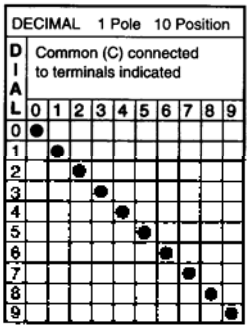
Contact the factory for additional information and availability of other codes and options.

SINGLE POLE DECIMAL CODES

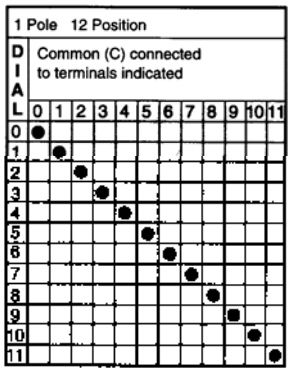
A01



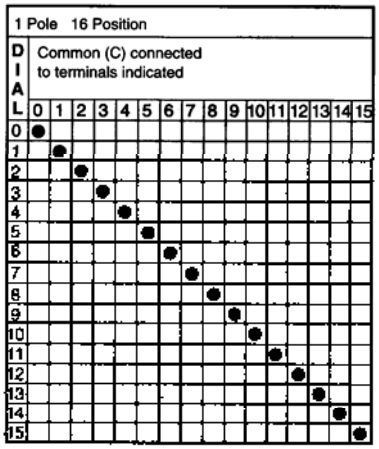
A02



A03

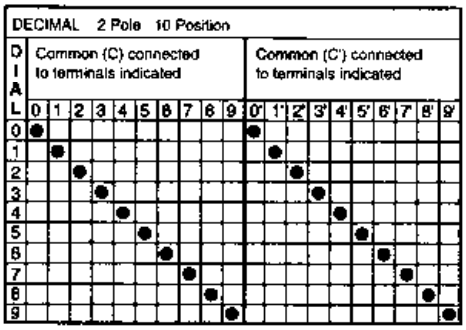


A04

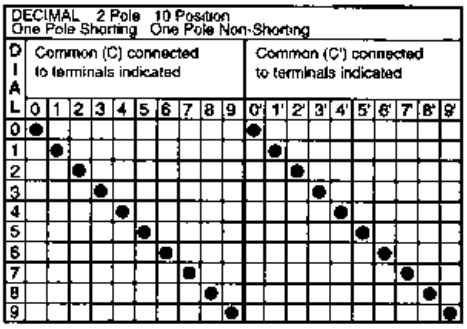


DOUBLE POLE DECIMAL CODES

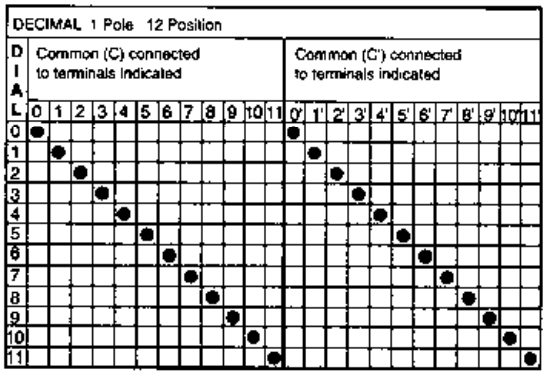
A05



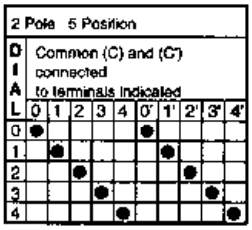
A06



A07



A08



B01

BCD
1 Pole 8 Position

DIAL	Common (C) connected to terminals indicated			
	1	2	4	
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	

B02

BCD
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated			
	1	2	4	8
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●

B03

BCD, binary 10 at 0
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated			
	1	2	4	8
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●
0		●		●

B04

BINARY CODE
1 Pole 12 Position

DIAL	Common (C) connected to terminals indicated			
	1	2	4	8
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●
10		●		●
11	●	●		●

B05

BCD, with Odd Bit Parity
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated				
	1	2	4	8	P
0					●
1	●				
2		●			
3	●	●			●
4			●		
5	●		●		●
6		●	●		●
7	●	●	●		
8				●	
9	●			●	●

B06

BCD, with Even Bit Parity
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated				
	1	2	4	8	P
0					
1	●				●
2		●			●
3	●	●			
4			●		●
5	●		●		
6		●	●		
7	●	●	●		●
8				●	●
9	●			●	

B07

Binary Code
1-Pole 16-Position

DIAL	Common C connected to terminals indicated			
	1	2	4	8
0	0			
1	1	●		
2	2		●	
3	3	●	●	
4	4			●
5	5	●		●
6	6		●	●
7	7	●	●	●
8	8				●
9	9	●			●
A	10		●		●
B	11	●	●		●
C	12			●	●
D	13	●		●	●
E	14		●	●	●
F	15	●	●	●	●

C02

BCD w/Complement
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated							
	1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0					●	●	●	●
1	●					●	●	●
2		●			●		●	●
3	●	●					●	●
4			●		●	●		●
5	●		●			●		●
6		●	●		●			●
7	●	●	●					●
8				●	●	●	●	
9	●			●		●	●	

C03

BCD w/Complement
Binary 10 at 0
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated							
	1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
1	●					●	●	●
2		●			●		●	●
3	●	●					●	●
4			●		●	●		●
5	●		●			●		●
6		●	●		●			●
7	●	●	●					●
8				●	●	●	●	
9	●			●		●	●	
0		●		●	●		●	

C04

Binary Code w/Complement
1 Pole 12 Position

DIAL	Common (C) connected to terminals indicated							
	1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0					●	●	●	●
1	●					●	●	●
2		●			●		●	●
3	●	●					●	●
4			●		●	●		●
5	●		●			●		●
6		●	●		●			●
7	●	●	●					●
8				●	●	●	●	
9	●			●		●	●	
10		●		●	●		●	
11	●	●		●		●	●	

C06

Binary Code W/complement
1-Pole, 16-Position

DIAL	Common (C) connected to terminals indicated							
	1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0	0				●	●	●	●
1	1	●				●	●	●
2	2		●		●		●	●
3	3	●	●				●	●
4	4			●	●	●		●
5	5	●		●		●		●
6	6		●	●	●			●
7	7	●	●	●				●
8	8				●	●	●	●
9	9	●			●		●	●
A	10		●		●	●		
B	11	●	●		●			●
C	12			●	●	●	●	
D	13	●		●	●		●	
E	14		●	●	●	●		
F	15	●	●	●	●			

C07

BCD Excess 3, w/Complement
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated							
	1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0	●	●					●	●
1			●			●	●	●
2	●		●			●		●
3		●	●					●
4	●	●	●					●
5				●	●	●	●	
6	●			●		●	●	
7		●		●	●		●	
8	●	●		●			●	
9			●	●	●	●		

C08

9's Complement BCD, w/Complement
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated							
	1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0	●			●		●	●	
1			●	●	●	●		
2	●	●	●					●
3		●	●			●		●
4	●		●			●		●
5			●			●	●	
6	●	●					●	●
7		●				●	●	●
8	●					●	●	●
9					●	●	●	●

C09

10's Complement BCD, w/Complement
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated							
	1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
1	●				●		●	●
2					●	●	●	
3	●	●	●					●
4		●	●		●			●
5	●		●				●	●
6			●			●	●	
7	●	●					●	●
8		●				●	●	●
9	●				●	●	●	●
0					●	●	●	●

C10

BCD Excess 3
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated			
	1	2	4	8
0	●	●		
1			●	
2	●		●	
3		●	●	
4	●	●	●	
5				●
6	●			●
7		●		●
8	●	●		●
9			●	●

C11

BCD Complement Only
1 Pole 8 Position

DIAL	Common (C) connected to terminals indicated							
	$\bar{1}$	$\bar{2}$	$\bar{4}$					
0	●	●	●					
1			●					
2	●		●					
3			●					
4	●	●						
5		●						
6	●							
7								

C12

BCD Complement Only
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated							
	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$				
0	●	●	●	●				
1			●	●				
2	●		●	●				
3				●				
4	●	●	●					
5		●		●				
6	●			●				
7				●				
8	●	●	●					
9		●	●					

C13

9's Complement BCD
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated			
	1	2	4	8
0	●			●
1				●
2	●	●	●	
3		●	●	
4	●		●	
5			●	
6	●	●		
7		●		
8	●			
9				

C14

10's Complement BCD
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated			
	1	2	4	8
1	●			●
2				●
3	●	●	●	
4		●	●	
5	●		●	
6			●	
7	●	●		
8		●		
9	●			
0				

C15

9's Complement
1 Pole 10 Position

DIAL	Common (C) connected to terminals indicated			
	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0		●	●	
1	●	●	●	
2			●	
3	●		●	
4		●	●	
5	●	●	●	
6			●	
7	●		●	
8		●	●	
9	●	●	●	

C16

Binary Complement only
1-Pole 16-Position

DIAL	Common (C) connected to terminals indicated							
	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$				
0	0	●	●	●	●			
1	1		●	●	●			
2	2	●		●	●			
3	3			●	●			
4	4	●	●		●			
5	5		●		●			
6	6	●			●			
7	7				●			
8	8	●	●	●				
9	9		●	●				
A	10	●		●				
B	11			●				
C	12	●	●					
D	13		●					
E	14	●						
F	15							

D01

BCD 2 Pole 8 Position w/Sep Com to NT Bits

DIAL	1	2	4
0	★	★	★
1	●	★	★
2	★	●	★
3	●	●	★
4	★	★	●
5	●	★	●
6	★	●	●
7	●	●	●

Common C (●) and C (★) connected to terminals indicated

D02

BCD 2 Pole 10 Position Sep Com to NT Bits

DIAL	1	2	4	8
0	★	★	★	★
1	●	★	★	★
2	★	●	★	★
3	●	●	★	★
4	★	★	●	★
5	●	★	●	★
6	★	●	●	★
7	●	●	●	★
8	★	★	★	●
9	●	★	★	●

Common C (●) and C (★) connected to terminals indicated

D03

BCD Dual, 2 Pole 10 Position

DIAL	C1				C2			
	1	2	4	8	1	2	4	8
0								
1	●				●			
2		●				●		
3	●	●			●	●		
4			●				●	
5	●		●		●		●	
6		●	●			●	●	
7	●	●	●		●	●	●	
8				●				●
9	●			●	●			●

Common (C1) and (C2) connected to terminals indicated

D04

Binary Code w/Complement 2 Pole 16 Position

DIAL	1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0	0					●	●	●	●
1	1	●					●	●	●
2	2		●			●		●	●
3	3	●	●					●	●
4	4			●		●	●		●
5	5	●		●			●		●
6	6		●	●		●			●
7	7	●	●	●					●
8	8				●	●	●	●	
9	9	●			●		●	●	
A	10		●		●	●		●	
B	11	●	●		●			●	
C	12			●	●	●	●		
D	13	●		●	●		●		
E	14		●	●	●	●			
F	15	●	●	●	●				

Common (C) and ($\bar{C}$) connected to terminals indicated

D06

2 Pole Binary with Sep Com to NT Bits

DIAL	1	2	4	8
0	★	★	★	★
1	●	★	★	★
2	★	●	★	★
3	●	●	★	★
4	★	★	●	★
5	●	★	●	★
6	★	●	●	★
7	●	●	●	★
8	★	★	★	●
9	●	★	★	●
A	10	★	●	★	●
B	11	●	●	★	●
C	12	★	★	●	●
D	13	●	★	●	●
E	14	★	●	●	●
F	15	●	●	●	●

Common C (●) and C (★) connected to terminals indicated

E01

BCD w/Complement 2 Pole 8 Position

DIAL	C				$\bar{C}$			
	1	2	4		$\bar{1}$	$\bar{2}$	$\bar{4}$	
0					●	●	●	
1	●					●	●	
2		●			●		●	
3	●	●					●	
4			●		●	●		
5	●		●			●		
6		●	●		●			
7	●	●	●					

Common (C) and ($\bar{C}$) connected to terminals indicated

E02

BCD w/Complement 2 Pole 10 Position

DIAL	C				$\bar{C}$			
	1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0					●	●	●	●
1	●					●	●	●
2		●			●		●	●
3	●	●					●	●
4			●		●	●		●
5	●		●			●		●
6		●	●		●			●
7	●	●	●					●
8				●	●	●	●	
9	●			●		●	●	

Common (C) and ($\bar{C}$) connected to terminals indicated

E04

9's Complement BCD, w/Complement 2 Pole 10 Position

DIAL	C				$\bar{C}$			
	1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0	●				●	●		
1					●	●	●	
2	●	●	●					●
3		●	●		●			●
4	●		●			●		●
5			●		●	●		●
6	●	●					●	●
7		●			●		●	●
8	●					●	●	●
9					●	●	●	●

Common (C) and ($\bar{C}$) connected to terminals indicated

E05

10's Complement BCD, w/Complement 2 Pole 10 Position

DIAL	C				$\bar{C}$			
	1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
1	●				●		●	
2					●	●	●	
3	●	●	●					●
4		●	●		●			●
5	●		●			●		●
6			●		●	●		●
7	●	●					●	●
8		●			●		●	●
9	●					●	●	●
0					●	●	●	●

Common (C) and ($\bar{C}$) connected to terminals indicated

E06

Binary Code w/Complement 2 Pole 12 Position

DIAL	C				$\bar{C}$			
	1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0					●	●	●	●
1	●					●	●	●
2		●			●		●	●
3	●	●					●	●
4			●		●	●		●
5	●		●			●		●
6		●	●		●			●
7	●	●	●					●
8				●	●	●	●	
9	●			●		●	●	
10		●		●	●		●	
11	●	●		●			●	

Common (C) and ($\bar{C}$) connected to terminals indicated

E07

BCD Excess 3, w/Complement 2 Pole 10 Position

DIAL	C				$\bar{C}$			
	1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0	●	●					●	●
1			●		●	●		●
2	●		●			●		●
3		●	●		●			●
4	●	●	●					●
5				●	●	●	●	
6	●			●		●	●	
7		●		●	●		●	
8	●	●		●			●	
9			●	●	●	●		

Common (C) and ($\bar{C}$) connected to terminals indicated

E08

Special 4 Pole, BCD w/Complement

DIAL	C1		C2		C3		C4	
	1	$\bar{1}$	2	$\bar{2}$	4	$\bar{4}$	8	$\bar{8}$
0		●		●		●		●
1	●			●		●		●
2		●	●			●		●
3	●		●			●		●
4		●		●	●			●
5	●			●	●			●
6		●	●			●		●
7	●		●		●			●
8		●		●		●	●	
9	●			●		●	●	

Common (C1), (C2), (C3) and (C4) connected to terminals indicated

F01

BCD and Non-Shorting DECIMAL
2 Pole 10 Position

Common (C1) and (C2) connected to terminals indicated

DIAL	C1 1	C1 2	C1 4	C1 8	C2 0	C2 1	C2 2	C2 3	C2 4	C2 5	C2 6	C2 7	C2 8	C2 9
0					●									
1	●					●								
2		●					●							
3	●	●						●						
4			●						●					
5	●		●							●				
6		●	●								●			
7	●	●	●									●		
8				●									●	
9	●			●										●

G01

1-2-2'-4 Berkeley Code
1 Pole 10 Position

Common (C) connected to terminals indicated

DIAL	1	2	2'	4
0				
1	●			
2		●		
3	●	●		
4			●	●
5	●		●	●
6		●	●	●
7	●	●	●	●
8				●
9	●			●

G02

1-2-4-2' Berkeley Code
1 Pole 10 Position

Common (C) connected to terminals indicated

DIAL	1	2	4	2'
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●

H01

1-2-4-2' Berkeley Code
w/Complement
1 Pole 10 Position

Common (C) connected to terminals indicated

DIAL	1	2	4	2'	$\overline{1}$	$\overline{2}$	$\overline{4}$	$\overline{2'}$
0					●	●	●	●
1	●					●	●	●
2		●			●		●	●
3	●	●					●	●
4			●		●	●		●
5	●		●			●		●
6		●	●		●			●
7	●	●	●					●
8				●	●	●	●	
9	●			●				

S01

1 or 2 Pole 2 Throw

Common (C1) and (C2) connected to terminals indicated

DIAL	C1 A1	C1 B1	C2 A2	C2 B2
0	+		●	
1	-	●		●
0	+		●	
1	-	●		●
0	+		●	
1	-	●		●
0	+		●	
1	-	●		●
0	+		●	
1	-	●		●

S03

5-Line TELETYPE
1 Pole 10 Position

Common (C) connected to terminals indicated

DIAL	1	2	3	4	5
0		●	●		●
1	●	●	●		●
2	●	●			●
3	●				
4		●		●	
5					●
6	●		●		●
7	●	●	●		
8		●	●		
9				●	●

S04

5-Line TELETYPE
w/even bit parity
1 Pole 10 Position

Common (C) connected to terminals indicated

DIAL	1	2	3	4	5	P
0		●	●		●	●
1	●	●	●		●	
2	●	●			●	●
3	●					●
4		●		●		
5					●	●
6	●		●		●	●
7	●	●	●			●
8		●	●			
9				●	●	

S05

BIQUINARY
1 Pole 10 Position

Common (C) connected to terminals indicated

DIAL	ODD	EVEN	0,1	2,3	4,5	6,7	8,9
0		●	●				
1	●		●				
2		●		●			
3	●			●			
4		●			●		
5	●				●		
6		●				●	
7	●					●	
8		●					●
9	●						●

S06

NOT/NOR SWITCH 1 Pole 12 Position
(All Positions Shorted except Position indicated on Dial)

Common (C) connected to terminals indicated

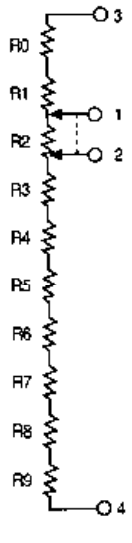
DIAL	0	1	2	3	4	5	6	7	8	9	10	11
0		●	●	●	●	●	●	●	●	●	●	●
1	●		●	●	●	●	●	●	●	●	●	●
2	●	●		●	●	●	●	●	●	●	●	●
3	●	●	●		●	●	●	●	●	●	●	●
4	●	●	●	●		●	●	●	●	●	●	●
5	●	●	●	●	●		●	●	●	●	●	●
6	●	●	●	●	●	●		●	●	●	●	●
7	●	●	●	●	●	●	●		●	●	●	●
8	●	●	●	●	●	●	●	●		●	●	●
9	●	●	●	●	●	●	●	●	●		●	●
10	●	●	●	●	●	●	●	●	●	●		●
11	●	●	●	●	●	●	●	●	●	●	●	

S07

INCREMENTAL Voltage Divider
2 Pole 10 Position

Pins 1 and 2 connected across resistor indicated

DIAL	R0	R1	R2	R3	R4	R5	R6	R7	R8	R9
0	●									
1		●								
2			●							
3				●						
4					●					
5						●				
6							●			
7								●		
8									●	
9										●



SCHEMATIC
Dial set at Position no. 2

S08

WOLFF POGGENDORF Voltage Divider
10 Position

Resistors in circuit

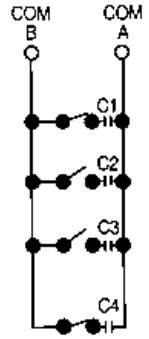
DIAL	1 R1	2 R3	4 R4	2' R7	1 R8	2 R5	4 R6	2' R2	R9
0	●	●	●	●					●
1		●	●	●	●				●
2	●		●	●		●			●
3			●	●	●	●			●
4	●	●		●			●		●
5		●		●	●		●		●
6	●			●		●	●		●
7				●	●	●	●		●
8	●						●	●	●
9					●	●	●	●	●

S09

CAPACITOR DECADE
1-2-3-4 Code 10 Position

Capacitors in Circuit

DIAL	C1	C2	C3	C4
0				
1	●			
2		●		
3			●	
4				●
5	●			●
6		●		●
7			●	●
8	●		●	●
9		●	●	●



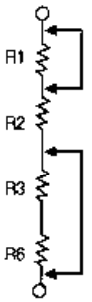
SCHEMATIC
Dial set at Position no. 5
(C1 and C4 Active)

S10

RESISTOR DECADE
1-2-3-6 Code 10 Position

DIAL	R1	R2	R3	R6
0				
1	●			
2		●		
3			●	
4	●		●	
5		●	●	
6				●
7	●			●
8		●		●
9			●	●

B COM



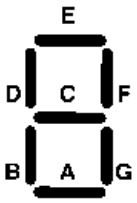
A COM

SCHEMATIC
Dial set at
Position no. 2
(R2 Active)

S11

7 BAR INDICATOR
1 Pole 10 Position

DIAL	A	B	C	D	E	F	G
0	●	●		●	●	●	●
1						●	●
2	●	●	●		●	●	
3	●		●		●	●	●
4			●	●		●	●
5	●		●	●	●		●
6	●	●	●	●	●		●
7					●	●	●
8	●	●	●	●	●	●	●
9	●		●	●	●	●	●



S12

KELVIN VARLEY: Voltage Divider
10 Position

Pins 1 and 2 connected across resistors indicated

DIAL	R0	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10
0	●	●									
1		●	●								
2			●	●							
3				●	●						
4					●	●					
5						●	●				
6							●	●			
7								●	●		
8									●	●	
9										●	●

S15

Modified 5 Bit
TELETYPE
10 Position

Common (C) connected to terminals indicated

DIAL	1	2	3	4	5
0			●	●	●
1		●	●		●
2		●			●
3	●				
4	●	●		●	
5	●				●
6	●		●		●
7	●	●	●		
8		●	●		
9				●	●

S17

Resistor DECADE
1-2-4-2' Code
10 Position

Resistors in circuit

DIAL	R1	R2	R4	R2'
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8			●	●
9	●	●	●	●

S18

Resistor DECADE
1-2-2-2-2 Code
10 Position

Resistors in circuit

DIAL	R1	R2	R3	R4	R5
0					
1	●				
2					●
3	●				●
4				●	●
5	●			●	●
6			●	●	●
7	●		●	●	●
8		●	●	●	●
9	●	●	●	●	●

S19

2 Pole 2 Throw

Commons C(⊖) and C (+) connected to terminals indicated

DIAL			A	B
0	0	+	●	★
1	5	-	★	●
0	0	+	●	★
1	5	-	★	●
0	0	+	●	★
1	5	-	★	●
0	0	+	●	★
1	5	-	★	●
0	0	+	●	★
1	5	-	★	●

S20

2 Pole 1-1'-2-5 with Complement

Commons (C) and ($\bar{C}$) connected to terminals indicated

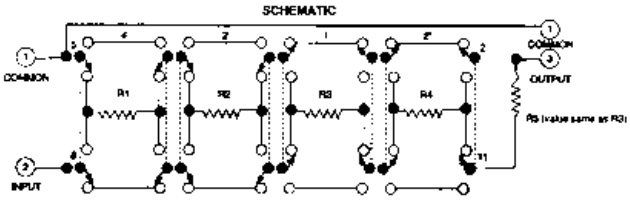
DIAL	C				$\bar{C}$			
	5	2	1'	1	5	2	1'	1
0					●	●	●	●
1			●		●	●		●
2		●			●		●	●
3		●		●	●		●	
4		●	●	●	●			
5	●					●	●	●
6	●			●		●		●
7	●			●	●		●	
8	●	●		●			●	
9	●	●	●	●				

S21

EECO Voltage Divider
(THUMBPOT) 10 Position

DIAL	Resistors in circuit between term 2 & 5				Resistors in circuit between term 8 & 11			
	4	2	1	2'	4	2	1	2'
	R1	R2	R3	R4	R1	R2	R3	R4
0					●	●	●	●
1			●		●	●		●
2		●			●		●	●
3			●	●	●	●		
4	●					●	●	●
5	●		●			●		●
6	●	●					●	●
7	●	●	●					●
8	●	●		●			●	
9	●	●	●	●				

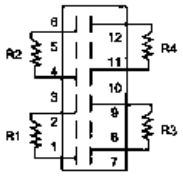
SCHEMATIC



Dial set at position no. 6

Schematic pin numbers in circles are on motherboard. Others are on switch. Italic numbers are switching code.

SWITCH REAR VIEW



S22

1-2-4-5 Code

Common (C) connected to terminals indicated

DIAL	1	2	4	5
0				
1	●			
2		●		
3	●	●		
4			●	
5				●
6	●			●
7		●		●
8	●	●		●
9			●	●

S23

JOHNSON CODE

Common (C) connected to terminals indicated

DIAL	A	B	C	D	E
0	●	●	●	●	
1	●	●	●		
2	●	●			
3	●				
4					
5					●
6				●	●
7			●	●	●
8		●	●	●	●
9	●	●	●	●	●

Consult factory for additional information.