



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°C To +85°C
Lighted	50,000	-65°C To +71°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)

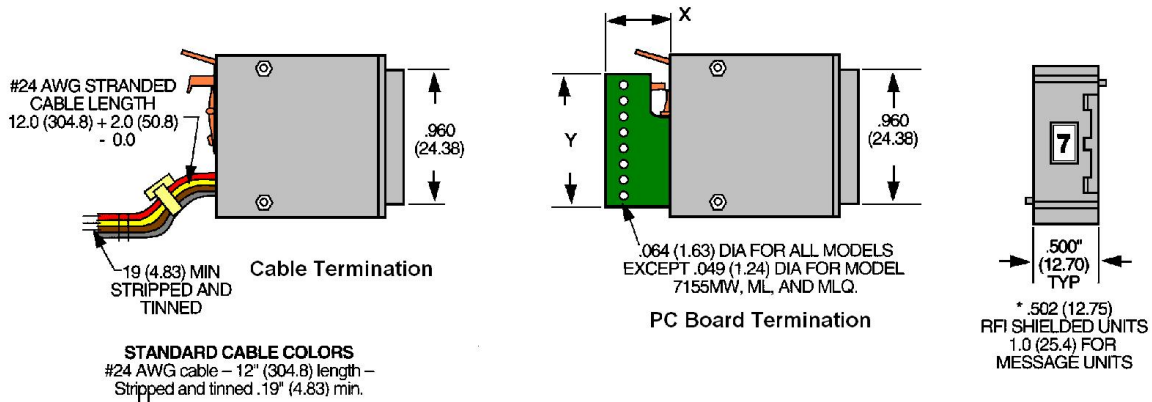
ENVIRONMENTAL

Vibration	15 G's, 10-2,000 Hz
Shock	100 G's
Salt Spray	48 Hrs.
Humidity	10 Days
Thermal Shock	-65°C To +85°C
Altitude	70,000 Ft.
Seal	10 +/- 1 PSIG
Acceleration	20 G's

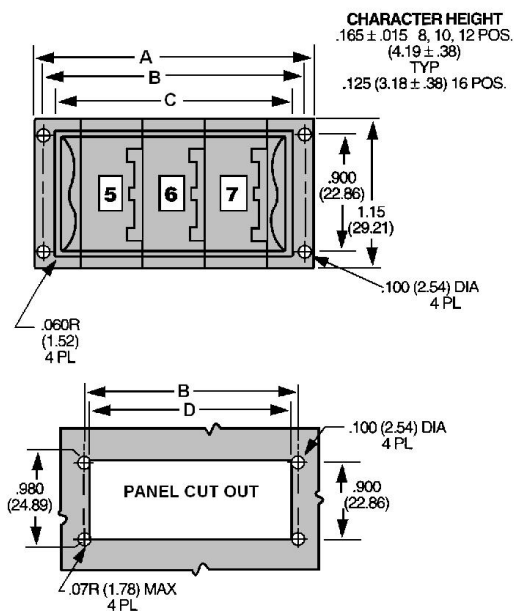
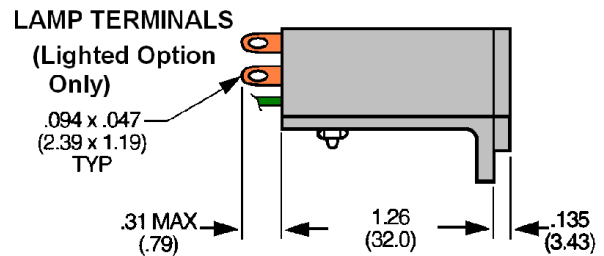
MATERIALS

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



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



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

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.

() Metric equivalents in mm

STANDARD SWITCH MODELS

TRUTH TABLE	PART NUMBER	PART DESCRIPTION	NO. OF POSITIONS	PCB TAIL DIMS		TYPE
				X	Y	
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

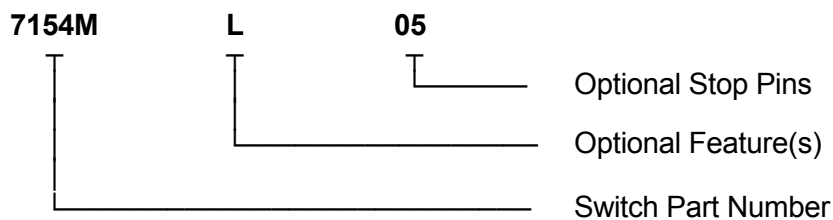
7000 HARDWARE AND ACCESSORIES

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

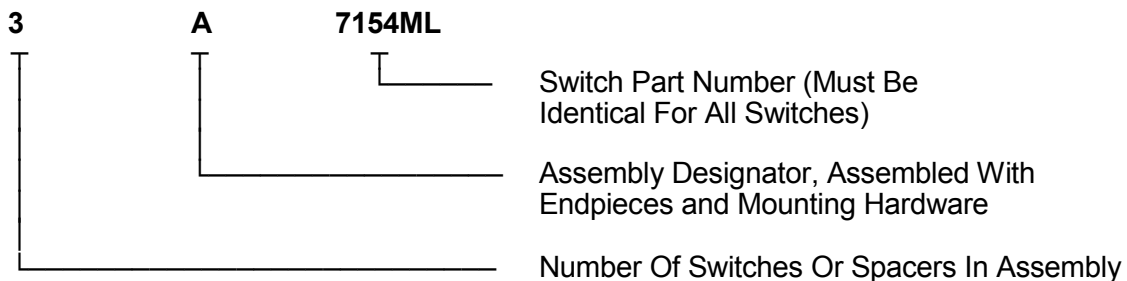
NOTE: REPLACE "X" IN HARDWARE KIT PART NUMBER WITH THE APPROPRIATE NUMBER OF SWITCHES AND SPACERS IN THE ASSEMBLY

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										
D I A L	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				
D I A L	Common (C) Connected To ●			
	1	2	4	8
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●

B07

HEXADECIMAL 1 Pole 16 Position					
D I A L		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								
D I A L	Common (C) Connected To ●							
	1	2	4	8	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0					●	●	●	●
1	●				●	●	●	●
2		●			●		●	●
3	●	●					●	●
4			●		●	●		●
5	●		●			●		●
6		●	●		●			●
7	●	●	●					●
8				●	●	●	●	
9	●			●		●	●	

C04

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

C12

BCD Complement 1 Pole 10 Position				
D I A L	Common (C) Connected To ●			
	$\bar{1}$	$\bar{2}$	$\bar{4}$	$\bar{8}$
0	●	●	●	●
1		●	●	●
2	●		●	●
3			●	●
4	●	●		●
5		●		●
6	●			●
7				●
8	●	●	●	
9		●	●	

TRUTH TABLES

D01

BCO w/Complement 2 Pole 8 Position				
D I A L	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					
D I A L	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						
D I A L		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								
D I A L	Common (C) and (C̄) Connected To ●							
	1	2	4	8	1̄	2̄	4̄	8̄
0					●	●	●	●
1	●					●	●	●
2		●			●		●	●
3	●	●					●	●
4			●		●	●		●
5	●		●			●		●
6		●	●		●			●
7	●	●	●					●
8				●	●	●	●	
9	●			●		●	●	

S01

A/B Repeating Code Double Pole 10 Position				
D I A L	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.