

## SPECIFICATIONS:

### ELECTRICAL CAPACITY:

- a. Operating Voltage: 50VAC/28VDC maximum.
  - b. Switching Current: 100mA maximum.
  - c. Carrying Current: 1A maximum (500mA max. for small size series).
- Contact Resistance: (Per Method 307 of Mil-STD-202)  
200m $\Omega$  maximum.

### INSULATION RESISTANCE: (Per Method 302 of Mil-STD-202).

- a. Between common terminal and any output: 10M  $\Omega$  minimum.
- b. Between each output and non-current-carrying part: 1,000M  $\Omega$  minimum.

### DIELECTRIC STRENGTH: (Per Method 301 of Mil-STD-202).

- a. Between common terminal and any output: 800VAC 1 min.
- b. Between each output and non-current-carrying part: 1,000VAC 1 min.

### OPERATING TEMPERATURE: -20°C to + 65°C.

### Life:

- a. Mechanical: 200,000 detent operations.
- b. Electrical: 100,000 detent operations.

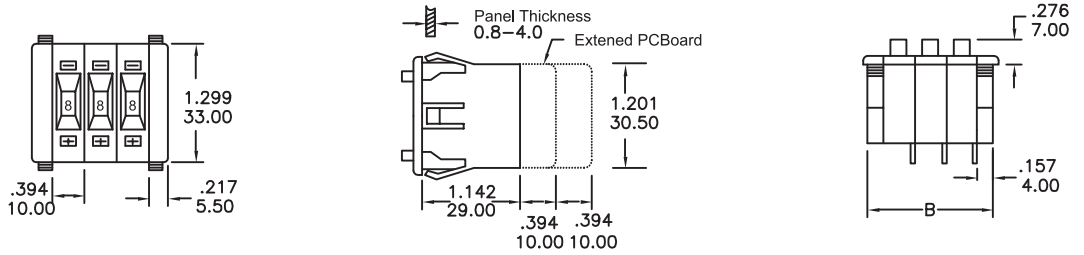
## MATERIALS:

HOUSING, BLANKS ENDCAPS, WHEELS, PUSHKEY: Thermoplastic.

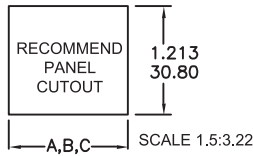
MOVING CONTACTS: Precious metal on phosphor bronze.

PRINTED CIRCUIT BOARDS: Hard gold plated over nickel plated on 0.79mm thickness epoxy laminate.

## PF21



## PANEL MOUNTING



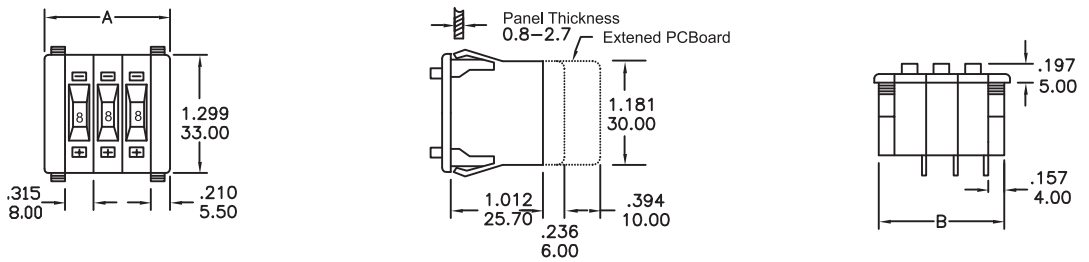
$$A = 10.00(.394) * N + 11.00(.433)$$

$$B = 10.00(.394) * N + 8.00(.315)$$

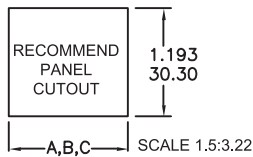
$$C = 10.00(.394) * N + 8.30(.327)$$

N = Number of Sections

## PF31



## PANEL MOUNTING



$$A = 8.00(.315) * N + 11.00(.433)$$

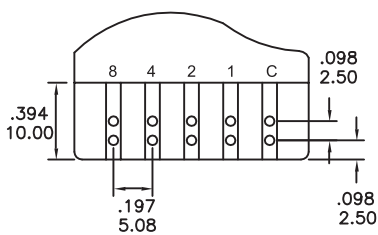
$$B = 8.00(.315) * N + 8.00(.315)$$

$$C = 8.00(.315) * N + 8.30(.327)$$

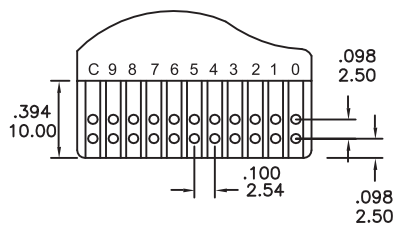
N = Number of Sections

## TERMINATION OPTIONS

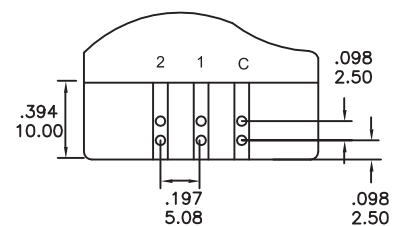
### M1 BCD



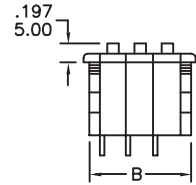
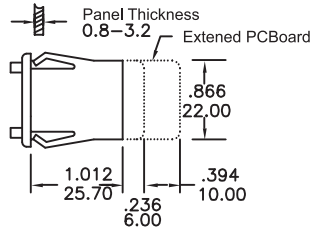
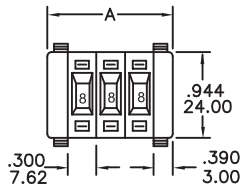
### M2 DECIMAL



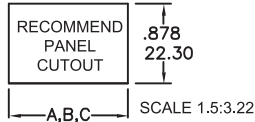
### M3 REPEATING



## PF44



### PANEL MOUNTING



$$A = 7.62(.300) * N + 6.00(.236)$$

$$B = 7.62(.300) * N + 3.00(.118)$$

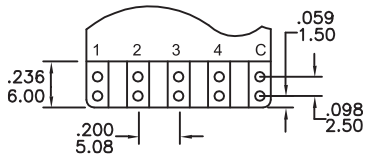
$$C = 7.62(.300) * N + 3.30(.130)$$

N = Number of Sections

## TERMINATION OPTIONS

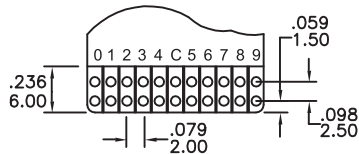
### M1

### BCD



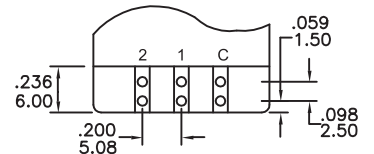
### M2

### DECIMAL

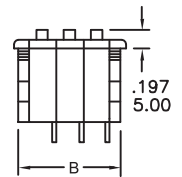
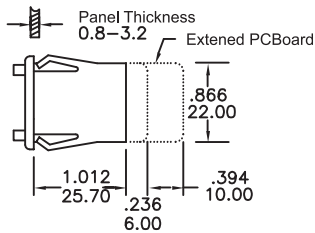
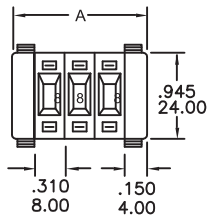


### M3

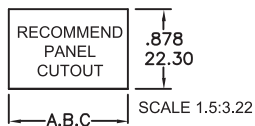
### REPEATING



## PF49



### PANEL MOUNTING



$$A = 8.00(.315) * N + 11.00(.433)$$

$$B = 8.00(.315) * N + 8.00(.315)$$

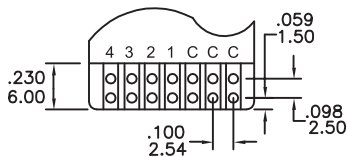
$$C = 8.00(.315) * N + 8.30(.327)$$

N = Number of Sections

## TERMINATION OPTIONS

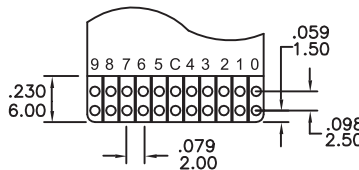
### M1

### BCD



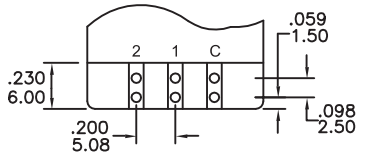
### M2

### DECIMAL

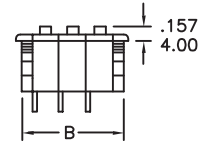
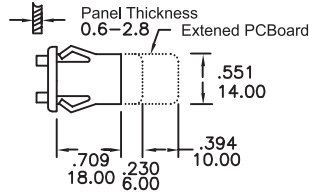
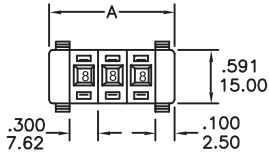


### M3

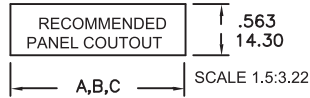
### REPEATING



## PF52



### PANEL MOUNTING



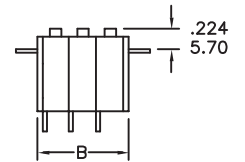
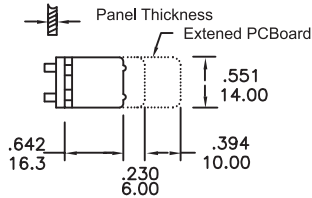
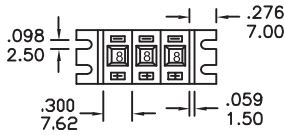
$$A = 7.62(.300) * N + 5.00(.197)$$

$$B = 7.62(.300) * N + 3.00(.118)$$

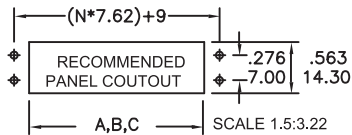
$$C = 7.62(.300) * N + 3.30(.130)$$

N = Number of Sections

## PR52



### PANEL MOUNTING



$$A = 7.62(.300) * N + 15.00(.591)$$

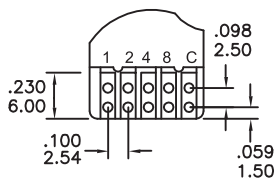
$$B = 7.62(.300) * N + 3.00(.118)$$

$$C = 7.62(.300) * N + 3.30(.130)$$

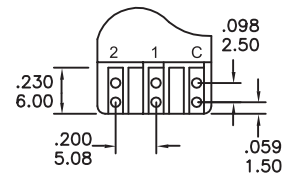
N = Number of Sections

## TERMINATION OPTIONS

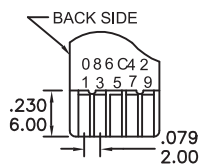
### M1 BCD



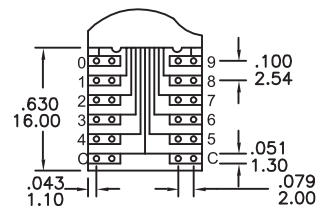
### M2 REPEATING



### M3 DOUBLE SIDED PCB DECIMAL



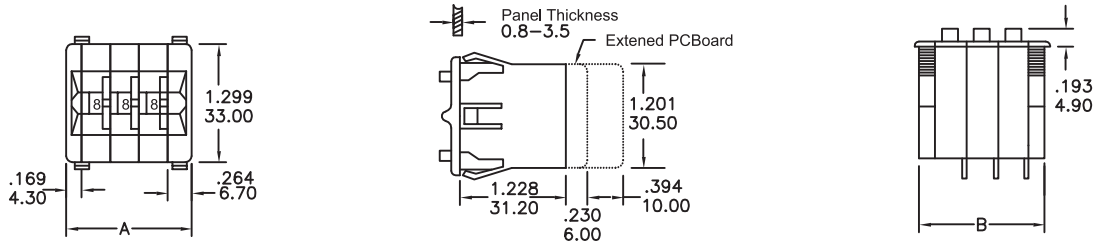
### M4 DECIMAL



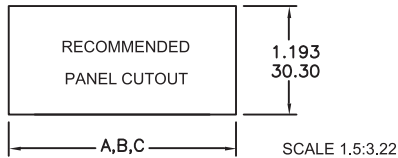
# Series 900

# Thumbwheel & Pushwheel Switches

TF31



### PANEL MOUNTING



$$A = 8.00(.315) * N + 11.00(.433)$$

$$B = 8.00(.315) * N + 8.00(.315)$$

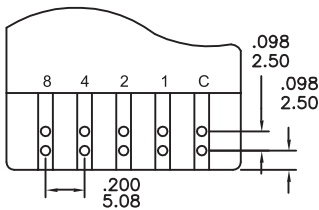
$$C = 8.00(.315) * N + 8.30(.327)$$

N = Number of Sections

## TERMINATION OPTIONS

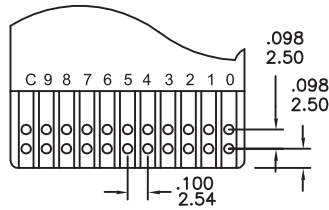
M1

BCD



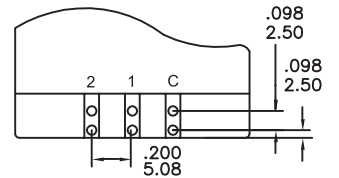
M2

DECIMAL

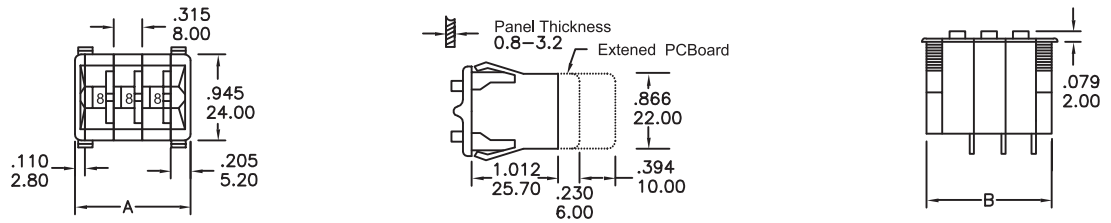


M3

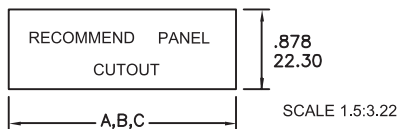
REPEATING



TF41



### PANEL MOUNTING



$$A = 8.00(.315) * N + 8.00(.315)$$

$$B = 8.00(.315) * N + 6.00(.236)$$

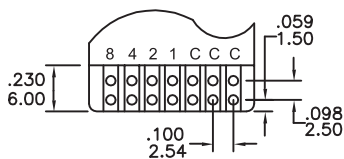
$$C = 8.00(.315) * N + 6.30(.248)$$

N = Number of Sections

## TERMINATION OPTIONS

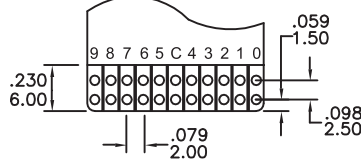
M1

BCD



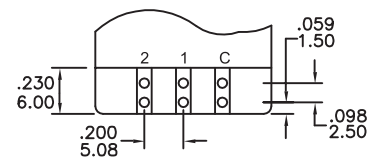
M2

DECIMAL

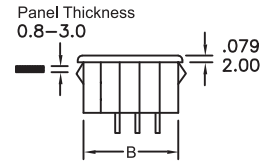
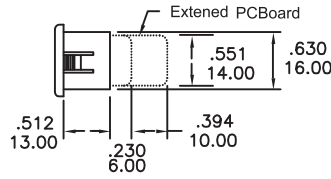
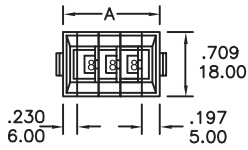


M3

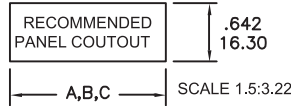
REPEATING



## TF51



### PANEL MOUNTING



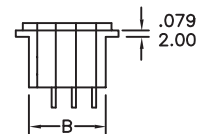
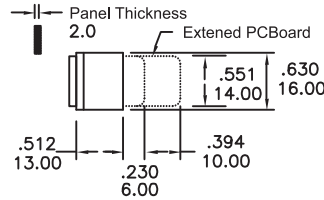
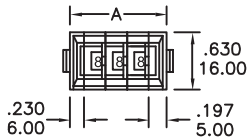
$$A = 6.00(.236) * N + 10.00 \text{ or } 8.00(.394 \text{ or } .315)$$

$$B = 6.00(.236) * N + 8.00 \text{ or } 6.00(.315 \text{ or } .236)$$

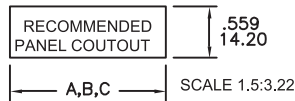
$$C = 6.00(.236) * N + 8.30 \text{ or } 6.30(.327 \text{ or } .248)$$

N = Number of Sections

## TR51



### PANEL MOUNTING



$$A = 6.00(.236) * N + 8.00(.315)$$

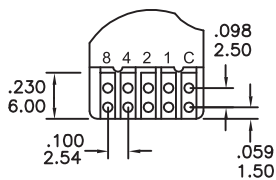
$$B = 6.00(.236) * N + 6.00(.236)$$

$$C = 6.00(.236) * N + 6.30(.248)$$

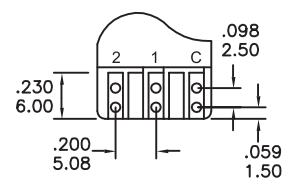
N = Number of Sections

## TERMINATION OPTIONS

### M1 BCD



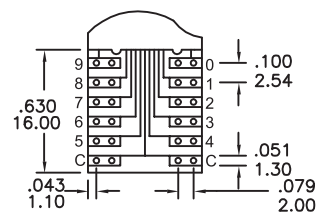
### M2 REPEATING



### M3 DOUBLE SIDED PCB DECIMAL

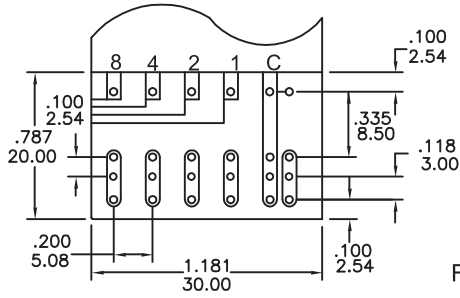


### M4 DECIMAL



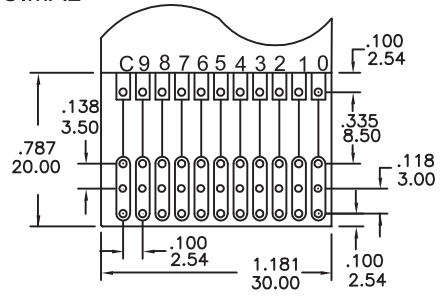
## TERMINATION OPTIONS

M4 BCD

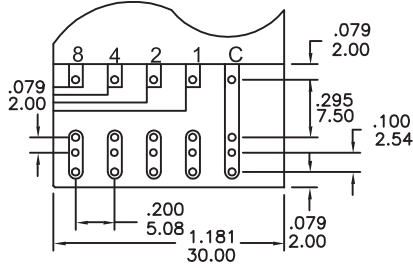


For PF21 Only

M5 DECIMAL

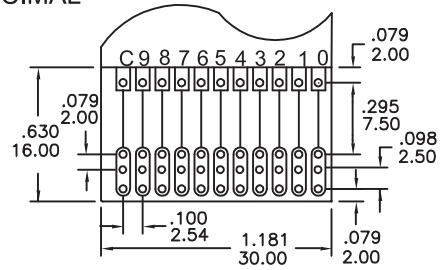


M4 BCD

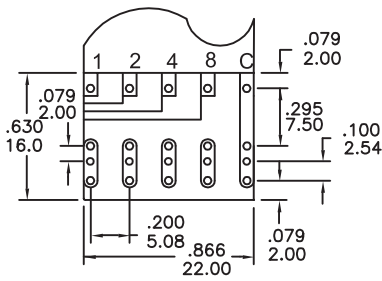


For PF31 TF31 Only

M5 DECIMAL

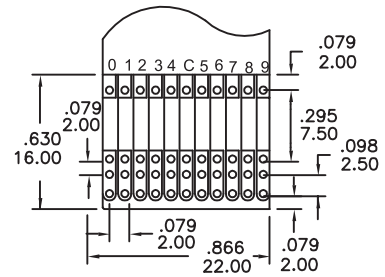


M4 BCD

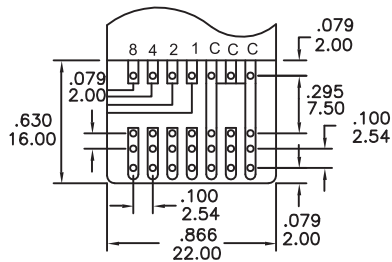


For PF44 Only

M5 DECIMAL

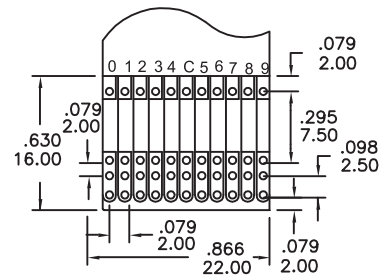


M4 BCD

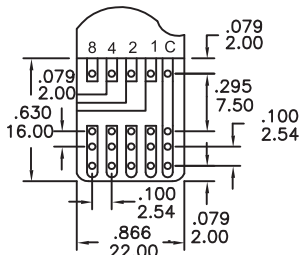


For PF49 TF41 Only

M5 DECIMAL

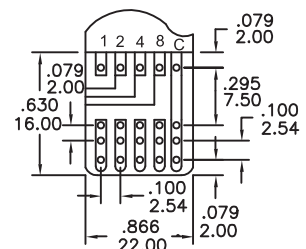


M4 BCD



For TR51 TF51 Only

M5 BCD



For PF52 PR52 Only

## FUNCTION CODES

**10**  
BCD-7 POSITION

WHEEL	C connected to terminals			
	1	2	4	C
0				●
1	●			●
2		●		●
3	●	●		●
4			●	●
5	●		●	●
6		●	●	●

**11**  
BCD-8 POSITION

WHEEL	C connected to terminals			
	1	2	4	C
0				●
1	●			●
2		●		●
3	●	●		●
4			●	●
5	●		●	●
6		●	●	●
7	●	●	●	●

**12**  
BCD-10 POSITION

WHEEL	C connected to terminals				
	1	2	4	8	C
0					●
1	●				●
2		●			●
3	●	●			●
4			●		●
5	●		●		●
6		●	●		●
7	●	●	●		●
8			●		●
9	●		●	●	●

**13**  
BCD-16 POSITION

WHEEL	C connected to terminals				
	1	2	4	8	C
0					●
1	●				●
2		●			●
3	●	●			●
4			●		●
5	●		●		●
6		●	●		●
7	●	●	●		●
8			●		●
9	●		●	●	●
10		●			●
11	●	●			●
12			●		●
13	●		●		●
14		●	●		●
15	●	●	●	●	●

**14**  
BCD-16 POSITION

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

**22**  
DECIMAL-10 POSITION

WHEEL	C connected to terminals										
	0	1	2	3	4	5	6	7	8	9	C
0	●										●
1		●									●
2			●								●
3				●							●
4					●						●
5						●					●
6							●				●
7								●			●
8									●		●
9										●	●

**31**  
BCD-10-COMPLEMENT POS.

WHEEL	C connected to terminals				
	1	2	4	8	C
0	●	●	●	●	●
1		●	●	●	●
2	●		●	●	●
3			●	●	●
4	●	●		●	●
5		●		●	●
6	●			●	●
7			●	●	●
8	●	●	●		●
9		●	●		●

**51**  
+/- REPEATING

WHEEL	C connected to terminals		
	1	2	C
+	●		●
-		●	●
+	●		●
-		●	●
+	●		●
-		●	●
+	●		●
-		●	●
+	●		●
-		●	●

**52**  
0/1 REPEATING

WHEEL	C connected to terminals		
	1	2	C
0	●		●
1		●	●
0	●		●
1		●	●
0	●		●
1		●	●
0	●		●
1		●	●
0	●		●
1		●	●

**53**  
0/5 REPEATING

WHEEL	C connected to terminals		
	1	2	C
0	●		●
5		●	●
0	●		●
5		●	●
0	●		●
5		●	●
0	●		●
5		●	●
0	●		●
5		●	●

## COLOR OPTIONS

Colors Parts	No.									
	1	2	3	4	5	6	7	8	9	0
Housing	B	B	B	G	G	G	I	I	I	
Wheel	B	B	R	B	B	R	B	B	R	
Character	W	W	W	W	W	W	W	W	W	
Push key	B	I	B	B	G	B	I	B	I	

B: Black  
G: Gray  
I: Ivory  
R: Red  
W: White

## HOW TO ORDER

