

# RTBH Series

## 1-2 Pole Coded Rotary Switches



### Features/Benefits

- **Totally sealed**
- **Detent angles, 15 , 22.5 , 30 and 36**
- **Multi pole**
- **Coding functions**
- **Robust construction**
- **RoHS Compliant**

### Typical Applications

- **Telecommunications**
- **Military**
- **Instrumentation**
- **Heavy-duty industrial equipment**

### Electrical Data

SWITCHING MODE:  
MAX. SWITCHING POWER:  
Max. SWITCHING CURRENT:  
MIN. SWITCHING CURRENT:  
MAX. CARRYING CURRENT:  
MAX. VOLTAGE:  
MIN. VOLTAGE:  
BOUNCE:  
CONTACT RESISTANCE after life:  
DIELECTRIC STRENGTH between contacts or contacts and frame:  
INSULATION RESISTANCE between contacts or contacts and frame:

### Silver

BBM\*  
5VA  
250 mA  
10 mA  
5A  
25V  
5V  
<5ms  
<100mΩ  
500 V rms  
>10<sup>9</sup>Ω

### Gold

BBM\*  
0.2VA  
20 mA  
1 mA  
1A  
25V  
1V  
<5ms  
<100mΩ  
500 V rms  
>10<sup>9</sup>Ω

### Environmental Data

OPERATING TEMPERATURE: -25°C to +70°C  
STORAGE TEMPERATURE: -40°C to +85°C  
TOTALLY SEALED: Immersion test acc. to MIL R22.097 F and NFC 20631/QF

\* BBM= Break Before Make (non-starting)

### Materials

HOUSING: PBT thermoplastic and PC thermoplastic  
STATIONARY CONTACTS & TERMINALS: Nickel plated Brass with additional Gold or Silver plating, insert molded in PBT thermoplastic.  
ROTOR: Printed circuit, gold or silver plated.  
ACTUATOR: Steel  
BUSHING: Brass  
HARDWARE: Stop pin and spring: Stainless steel  
All models are RoHS compliant and compatible.

**NOTE:** Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

### Mechanical Data

NUMBER OF BANKS: 1 to 4  
OPERATING TORQUE: 5 Ncm±30% (with 1 module)  
MECHANICAL STOP RESISTANCE: >70 Ncm  
BUSHING MOUNTING TORQUE: 100 Ncm

### Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages K-19 thru K-23. For additional options not shown in catalog, consult Customer Service Center.



#### Designation

**RTBH**

#### Indexing

- 1** 15°/24 positions max.
- 2** 22.5°/16 positions max.
- 3** 30°/12 positions max.
- 4** 36°/10 positions max.

#### Number of Banks\*\*

- 1** 1 Bank
- 2** 2 Banks
- 3** 3 Banks
- 4** 4 Banks

**Switch Function Number of Poles or code (binary code = B, complement = C, direct +complement = BC) (first digit), Stop (with=S, without=W), Maximum Position (third & fourth digit)**

- 1S02** SP, 02 positions with stop
- 1S03** SP, 03 positions with stop
- 1S04** SP, 04 positions with stop
- 1S05** SP, 05 positions with stop
- 1S06** SP, 06 positions with stop
- 1S07** SP, 07 positions with stop
- 1S10** SP, 10 positions with stop
- 1W10** SP, 10 positions without stop
- 1S11** SP, 11 positions with stop
- 1S12** SP, 12 positions with stop
- 1W12** SP, 12 positions without stop
- 1S14** SP, 14 positions with stop
- 1S16** SP, 16 positions with stop

- 1W16** SP, 16 positions without stop
- 1S24** SP, 24 positions with stop
- 1W24** SP, 24 positions without stop
- 2S04** DP, 4 positions with stop
- 2S05** DP, 5 positions with stop
- 2S06** DP, 6 positions with stop
- GS\_\_** Gray Code with stop (indicate position)

#### Shaft Diameter & Style\*\*\*

- N** Metric shaft .236 (6,0)
- P** Standard shaft .250 (6,35)

#### Seal

- A** Standard bushing for panel mount
- D** Sealed bushing for panel mount

#### Contact Material

- S** Silver plated, matte-tin terminal
- P** Gold plated, matte-tin terminal

#### Actuator Length

- Z** (.984) 25 mm

#### Actuator Option Angle\*

- N** None for actuators without a flat
- O** 0° angle

- GW\_\_** Gray Code without stop (indicate position) only can be 10,12, 16, 24 based on indexing
- BS\_\_** Binary Code with stop (indicate position)
- BW\_\_** Binary Code without stop (indicate position) only can be 10,12, 16, 24 based on indexing
- CS\_\_** Complement with stop (indicate position)
- CW\_\_** Complement without stop (indicate position) only can be 10,12, 16, 24 based on indexing
- ES\_\_** Direct+Complement with stop (indicate position)
- EW\_\_** Direct+Complement without stop (indicate position) only can be 10,12, 16, 24 based on indexing

\* For other actuator options please contact Customer Service.

\*\* Several functions can be combined, please contact Customer Service.

\*\*\* Metric diameter shafts are only available with metric diameter bushings, standard 1.250 inch diameter shafts are only available with standard 3/8 diameter bushings.

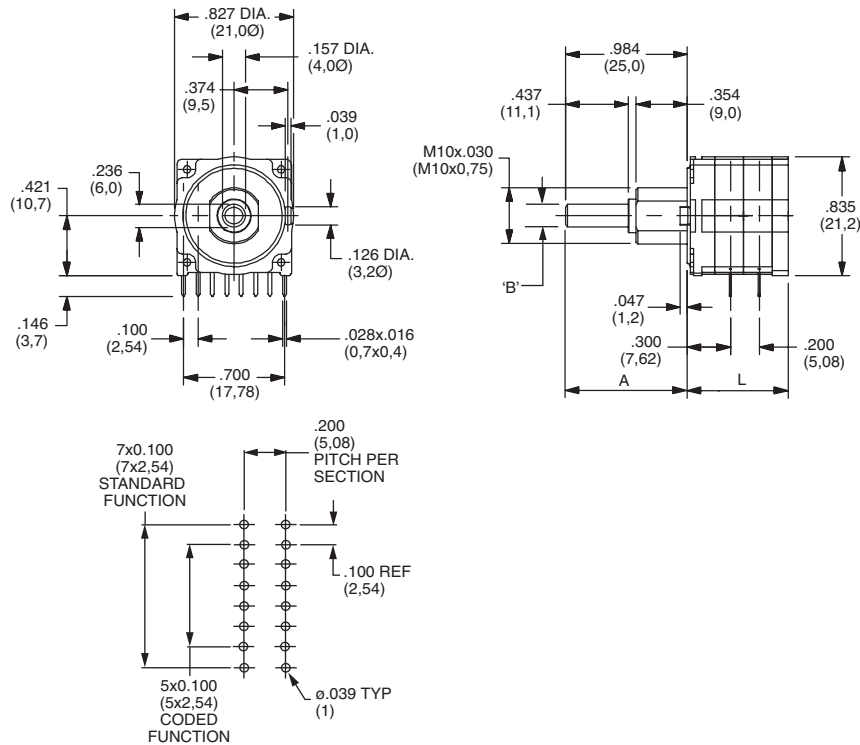


Dimensions are shown: Inch (mm)  
Specifications and dimensions subject to change

## DESIGNATION



## RTBH



Number modules	L	
	inch	mm
<b>1</b>	0.500	12.7
<b>2</b>	0.700	17.78
<b>3</b>	0.900	22.86
<b>4</b>	1.10	27.94

### Dimensions A

A: (standard)  
0.984 inch (25 mm)

### Dimensions B

0.236 or 0.250 inch  
(Ø6 or 6.35 mm)

## INDEXING



- 1 15° index/24 positions
- 2 22.5° index/16 positions
- 3 30° index/12 positions
- 4 36° index/10 positions



K

# Rotary

## NUMBER OF BANKS



- 1 1 BANK
- 2 2 BANKS
- 3 3 BANKS
- 4 4 BANKS

**NOTE:** Several functions can be combined. For more information consult customer service.

# RTBH Series

## 1-2 Pole Coded Rotary Switches

### SWITCH FUNCTION

Switch Function Number of Poles or code (binary code = B, complement = C, direct +complement = BC)  
(first digit), Stop (with=S, without=W), Maximum Position (third & fourth digit)

- 1S02

SP, 02 positions with stop
- 1S03

SP, 03 positions with stop
- 1S04

SP, 04 positions with stop
- 1S05

SP, 05 positions with stop
- 1S06

SP, 06 positions with stop
- 1S07

SP, 07 positions with stop
- 1S10

SP, 10 positions with stop
- 1W10

SP, 10 positions without stop
- 1S11

SP, 11 positions with stop
- 1S12

SP, 12 positions with stop
- 1W12

SP, 12 positions without stop
- 1S14

SP, 14 positions with stop
- 1S16

SP, 16 positions with stop
- 1W16

SP, 16 positions without stop
- 1S24

SP, 24 positions with stop
- 1W24

SP, 24 positions without stop
- 2S04

DP, 4 positions with stop
- 2S05

DP, 5 positions with stop
- 2S06

DP, 6 positions with stop
- GS\_ \_

Gray Code with stop (indicate position)
- GW\_ \_

Gray Code without stop (indicate position) only can be 10,12, 16, 24 based on indexing
- BS\_ \_

Binary Code with stop (indicate position)
- BW\_ \_

Binary Code without stop (indicate position) only can be 10,12, 16, 24 based on indexing
- CS\_ \_

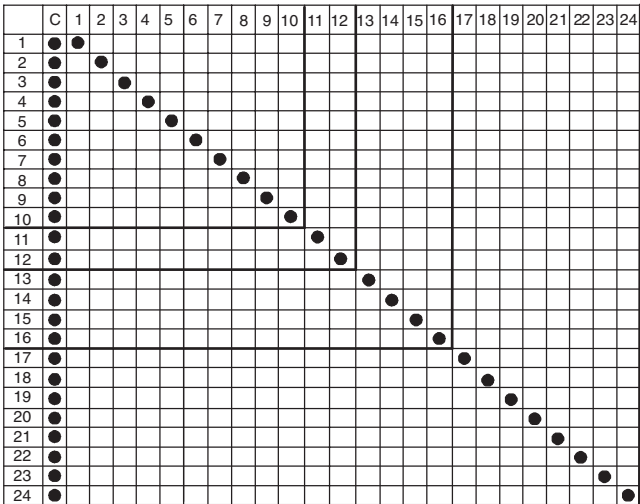
Complement with stop (indicate position)
- CW\_ \_

Complement without stop (indicate position) only can be 10,12, 16, 24 based on indexing
- ES\_ \_

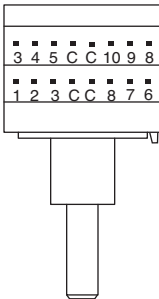
Direct+Complement with stop (indicate position)
- EW\_ \_

Direct+Complement without stop (indicate position) only can be 10,12, 16, 24 based on indexing

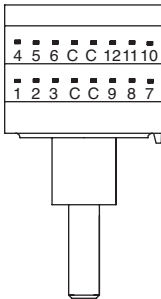
#### 1 Single Pole Function 1S10, 1S12, 1S16, 1S24



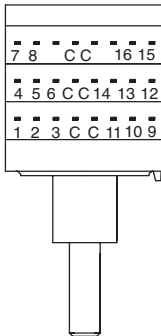
1S10



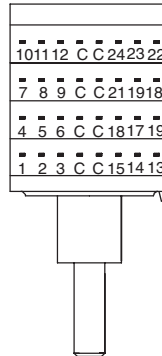
1S12



1S16



1S24



NOTE: Switch depicted from top down onto PCB.



Dimensions are shown: Inch (mm)  
Specifications and dimensions subject to change

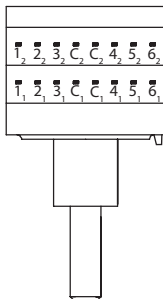
# RTBH Series 1-2 Pole Coded Rotary Switches

## SWITCH FUNCTION

### 2 DOUBLE POLE FUNCTION

	C <sub>1</sub>	1 <sub>1</sub>	2 <sub>1</sub>	3 <sub>1</sub>	4 <sub>1</sub>	5 <sub>1</sub>	6 <sub>1</sub>	C <sub>2</sub>	1 <sub>2</sub>	2 <sub>2</sub>	3 <sub>2</sub>	4 <sub>2</sub>	5 <sub>2</sub>	6 <sub>2</sub>
1	●	●						●	●					
2	●		●					●		●				
3	●			●				●			●			
4	●				●			●				●		
5	●					●		●					●	
6	●						●	●						●

2S06

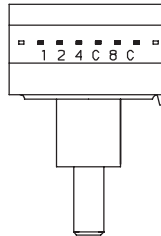


NOTE: Switch depicted from top down onto PCB.

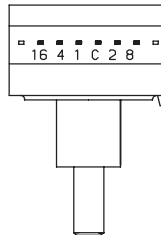
### B BINARY DIRECT CODE

	C	1	2	4	8	16
0	●					
1	●	●				
2	●		●			
3	●	●	●			
4	●			●		
5	●	●		●		
6	●		●	●		
7	●	●	●	●		
8	●				●	
9	●	●			●	
10	●		●		●	
11	●	●	●		●	
12	●			●		
13	●	●		●		
14	●		●	●		
15	●	●	●	●		
16	●					●
17	●	●				●
18	●		●			●
19	●	●	●			●
20	●			●		●
21	●	●		●		●
22	●		●	●		●
23	●	●	●	●		●

BS10 BS12 BS16



BS24

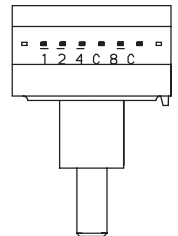


NOTE: Switch depicted from top down onto PCB.

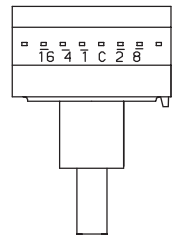
### C COMPLEMENT BINARY CODE

	C	1	2	4	8	16
0	●					
1	●	●				
2	●		●			
3	●	●	●			
4	●			●		
5	●	●		●		
6	●		●	●		
7	●	●	●	●		
8	●				●	
9	●	●			●	
10	●		●		●	
11	●	●	●		●	
12	●			●		
13	●	●		●		
14	●		●	●		
15	●	●	●	●		
16	●					●
17	●	●				●
18	●		●			●
19	●	●	●			●
20	●			●		●
21	●	●		●		●
22	●		●	●		●
23	●	●	●	●		●

CS10 CS12 CS16



CS24

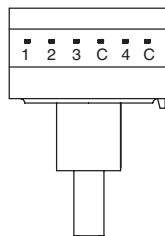


NOTE: Switch depicted from top down onto PCB.

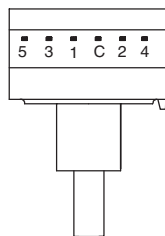
### G GRAY CODE

	C	1	2	3	4	5
1	●					
2	●	●				
3	●		●			
4	●	●	●			
5	●			●		
6	●	●		●		
7	●		●	●		
8	●				●	
9	●	●			●	
10	●		●		●	
11	●	●	●		●	
12	●			●		
13	●	●		●		
14	●		●	●		
15	●				●	
16	●					●
17	●	●				●
18	●		●			●
19	●	●	●			●
20	●			●		●
21	●	●		●		●
22	●		●	●		●
23	●	●	●	●		●
24	●				●	

GS10 GS12 GS16



GS24

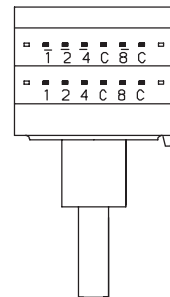


NOTE: Switch depicted from top down onto PCB.

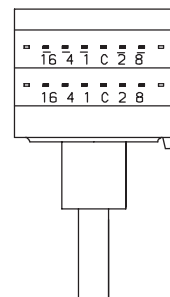
### E DIRECT AND COMPLEMENT BINARY CODE

	C	1	2	4	8	16	C	1	2	4	8	16
0	●						●					
1	●	●					●	●				
2	●		●				●		●			
3	●	●	●				●	●	●			
4	●			●			●			●		
5	●	●			●		●	●			●	
6	●		●				●		●			
7	●	●	●				●	●	●			
8	●				●		●			●		
9	●	●			●		●	●			●	
10	●		●				●		●			
11	●	●	●				●	●	●			
12	●			●			●			●		
13	●	●			●		●	●			●	
14	●		●				●		●			
15	●	●	●				●	●	●			
16	●					●	●				●	
17	●	●					●	●				●
18	●		●				●		●			●
19	●	●	●				●	●	●			●
20	●			●			●			●		
21	●	●			●		●	●			●	
22	●		●				●		●			
23	●	●	●				●	●	●			

ES10 ES12 ES16



ES24



NOTE: Switch depicted from top down onto PCB.



Dimensions are shown: mm  
Specifications and dimensions subject to change



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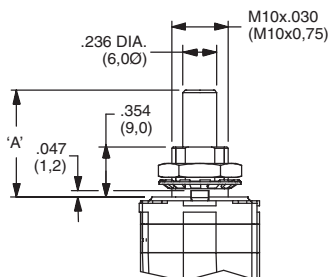
Rotary

# RTBH Series

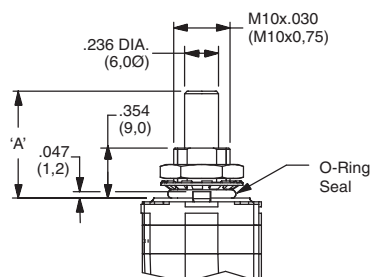
## 1-2 Pole Coded Rotary Switches

### SEAL

#### A STANDARD BUSHING FOR PANEL MOUNT

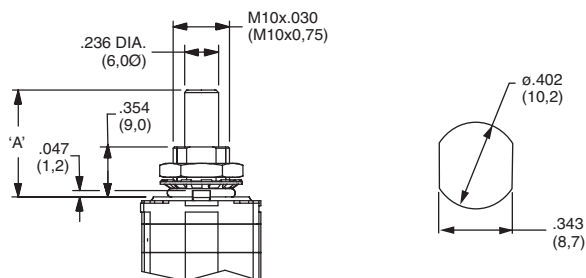


#### D SEALED BUSHING FOR PANEL MOUNT

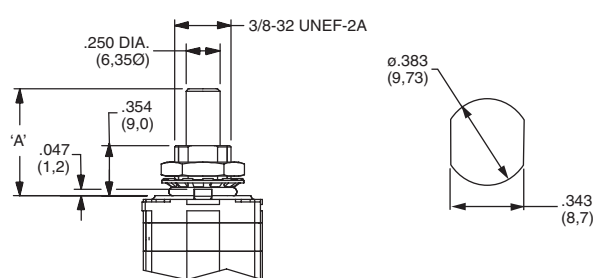


### SHAFT DIAMETER & STYLE

#### N METRIC SHAFT 0.236 (6,0)



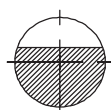
#### P STANDARD SHAFT 0.250 (6,35)



### ACTUATOR OPTION ANGLE

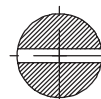
SHAFT WITH FLAT OPTIONS

**N (None)** FOR ACTUATORS WITHOUT A FLAT



**0** 0 ANGLE

SHAFT WITH SLOT OPTIONS



**0** (STD.) 0 ANGLE

### ACTUATOR LENGTH

**Z** (.984) 0,25 mm STANDARD SHAFT

Other lengths available by request.



K

Rotary



Dimensions are shown: Inch (mm)  
Specifications and dimensions subject to change

# C&K RTBH Series 1-2 Pole Coded Rotary Switches

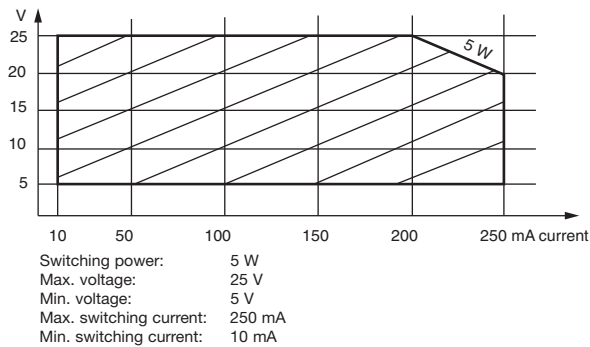
## CONTACT MATERIAL

OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATING
<b>S</b>	SILVER	SWITCH: 250 mA, POWER: 5 VA; CARRY: 5 AMPS
<b>P</b>	GOLD	SWITCH: 20 mA, POWER: 0.2 VA; CARRY: 1 AMP

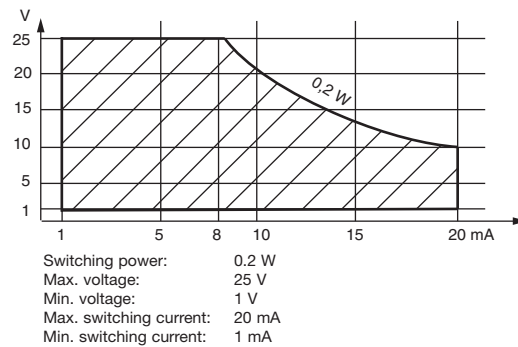
\* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

### SWITCHING POWER

**S** (SILVER CONTACTS)



**P** (GOLD CONTACTS)



**K**

Rotary



Third Angle  
Projection

Dimensions are shown: mm  
 Specifications and dimensions subject to change