

RTBV 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                                               | Silver             | Gold                      | Environmental Data                                                    |
|---------------------------------------------------------------|--------------------|---------------------------|-----------------------------------------------------------------------|
| SWITCHING MODE:                                               | BBM*               | BBM*                      | OPERATING TEMPERATURE: -25°C to +70°C                                 |
| MAX. SWITCHING POWER:                                         | 5VA                | 0.2VA                     | STORAGE TEMPERATURE: -40°C to +85°C                                   |
| MAX. SWITCHING CURRENT:                                       | 250 mA             | 20 mA                     | TOTALLY SEALED: Immersion test acc. to MIL R22.097 F and NFC 20631/QF |
| MIN. SWITCHING CURRENT:                                       | 10 mA              | 1 mA                      |                                                                       |
| MAX. CARRYING CURRENT:                                        | 5A                 | 1A                        |                                                                       |
| MAX. VOLTAGE:                                                 | 25V                | 25V                       |                                                                       |
| MIN. VOLTAGE:                                                 | 5V                 | 1V                        |                                                                       |
| BOUNCE:                                                       | <5ms               | <5ms                      |                                                                       |
| CONTACT RESISTANCE after life:                                | <100mΩ             | <100mΩ                    |                                                                       |
| DIELECTRIC STRENGTH between contacts or contacts and frame:   | 500 V rms          | 500 V rms                 |                                                                       |
| INSULATION RESISTANCE between contacts or contacts and frame: | >10 <sup>9</sup> Ω | >10 <sup>9</sup> Ω        |                                                                       |
| Mechanical Data                                               |                    |                           |                                                                       |
| NUMBER OF BANKS:                                              |                    | 1 to 10                   |                                                                       |
| OPERATING TORQUE:                                             |                    | 5 Ncm±30% (with 1 module) |                                                                       |
| MECHANICAL STOP RESISTANCE:                                   |                    | >70 Ncm                   |                                                                       |
| BUSHING MOUNTING TORQUE:                                      |                    | 100 Ncm                   |                                                                       |

\* 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.

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-25 thru K-29. For additional options not shown in catalog, consult Customer Service Center.

Build-A-Switch diagram showing options for Designation, Indexing, Number of Banks, Contact Material, Actuator Length, Actuator Option Angle, Shaft Diameter & Style, Seal, and Switch Function.

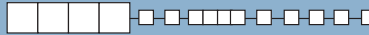
\* For other actuator options please contact Customer Service.
\*\* Several functions can be combined, please contact Customer Service.
\*\*\* Metric diameter shafts are only available with metric diameter bushings, standard 1.250 inch diameter shafts are only available with standard 3/8 diameter bushings.



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

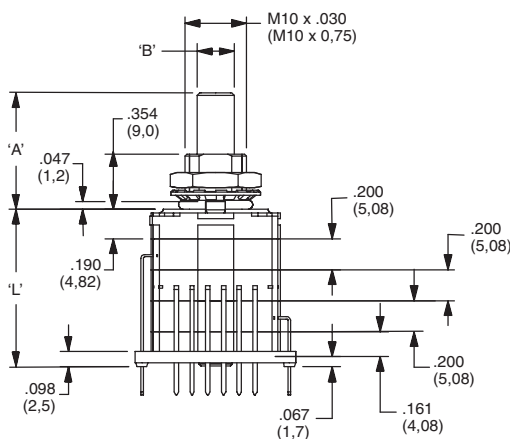
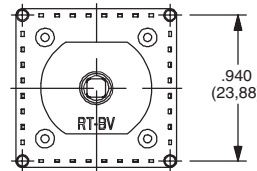
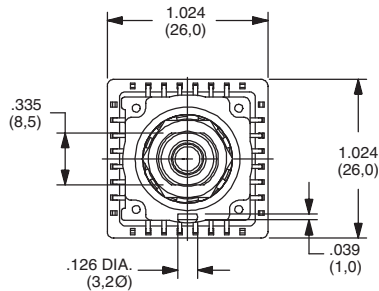
# RTBV Series 1-2 Pole Coded Rotary Switches

## DESIGNATION



**RTBV**

DIMENSIONAL DRAWINGS



### Dimensions L

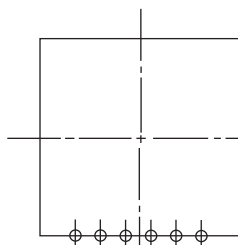
| Number modules | inch  | L mm  |
|----------------|-------|-------|
| <b>1</b>       | 0.419 | 10.65 |
| <b>2</b>       | 0.619 | 15.73 |
| <b>3</b>       | 0.819 | 20.81 |
| <b>4</b>       | 1.02  | 25.89 |

### Dimensions A

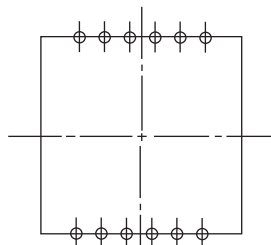
A: (standard)  
0.984 inch (25 mm)

### Dimensions B

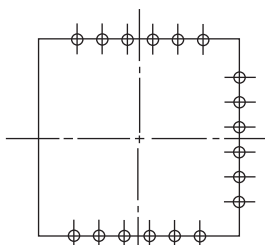
0.236 or 0.250 inch  
(Ø6 or 6.35 mm)



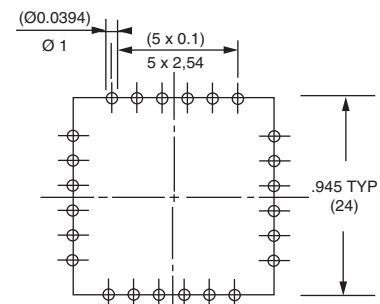
1 module



2 module



3 module



4 module

## INDEXING



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



Third Angle  
Projection

Dimensions are shown: mm  
Specifications and dimensions subject to change

[www.ck-components.com](http://www.ck-components.com)



**K**

Rotary

# RTBV Series

## 1-2 Pole Coded Rotary Switches

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.

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\_

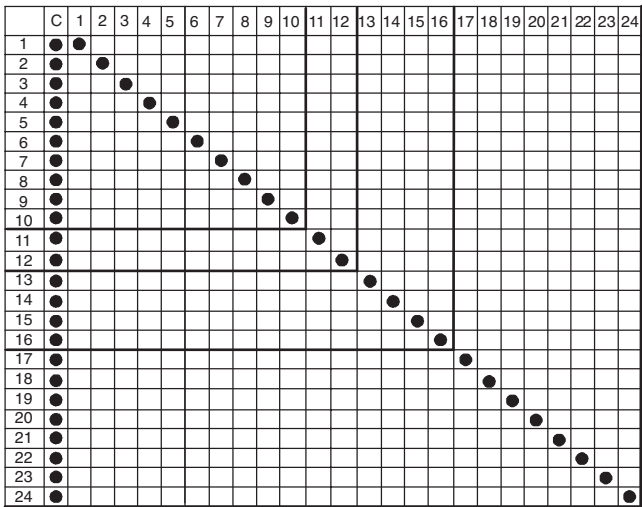
Complement with stop (indicate position)
- CW\_

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

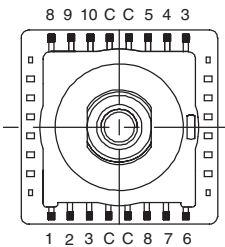
Direct+Complement with stop (indicate position)
- EW\_

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

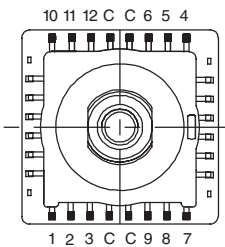
- 1 Single Pole Function 1S10, 1S12, 1S16, 1S24



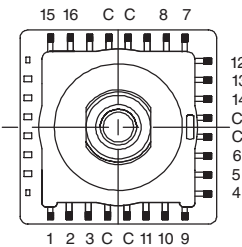
1S10



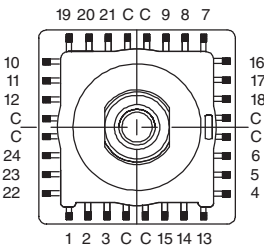
1S12



1S16



1S24



Third Angle  
Projection

Dimensions are shown: Inch (mm)

Specifications and dimensions subject to change



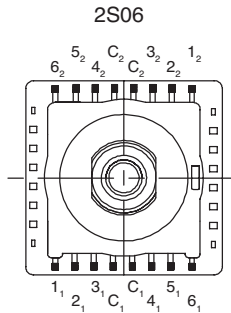
# RTBV Series 1-2 Pole Coded Rotary Switches

## SWITCH FUNCTION



### 2 DOUBLE POLE FUNCTION

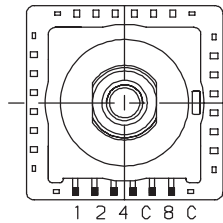
|   | C <sub>1</sub> | 1 <sub>1</sub> | 2 <sub>1</sub> | 3 <sub>1</sub> | 4 <sub>1</sub> | 5 <sub>1</sub> | 6 <sub>1</sub> | C <sub>2</sub> | 1 <sub>2</sub> | 2 <sub>2</sub> | 3 <sub>2</sub> | 4 <sub>2</sub> | 5 <sub>2</sub> | 6 <sub>2</sub> |
|---|----------------|----------------|----------------|----------------|----------------|----------------|-------------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



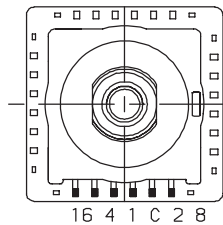
### B BINARY DIRECT CODE

|    | 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



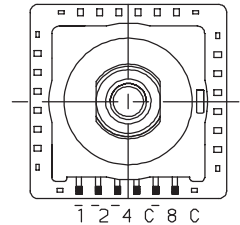
BS24



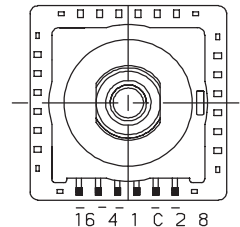
### C COMPLEMENT BINARY CODE

|    | 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



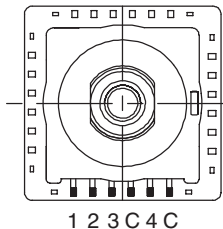
CS24



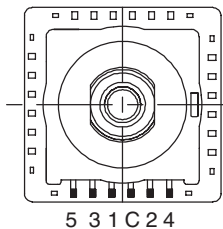
### G GRAY CODE

|    | 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



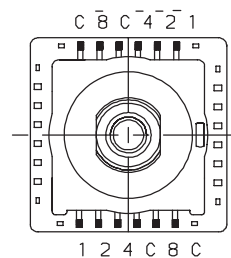
GS24



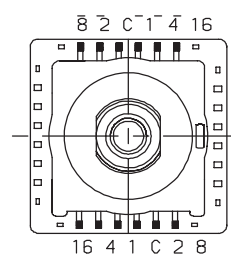
### E DIRECT AND COMPLEMENT BINARY CODE

|    | 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



K

Rotary



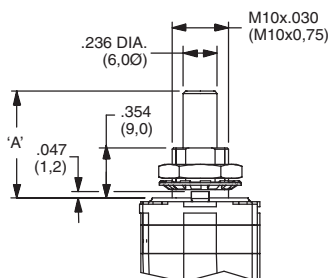
Dimensions are shown: mm  
Specifications and dimensions subject to change

# RTBV Series

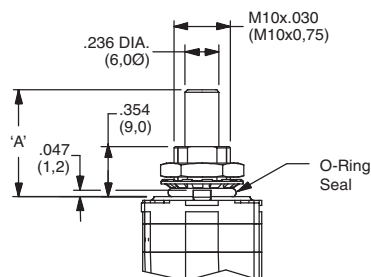
## 1-2 Pole Coded Rotary Switches

### SEAL

#### A STANDARD BUSHING FOR PANEL MOUNT

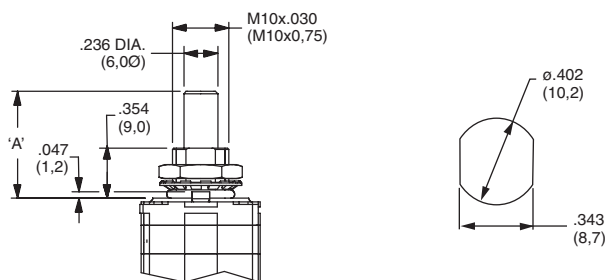


#### D SEALED BUSHING FOR PANEL MOUNT

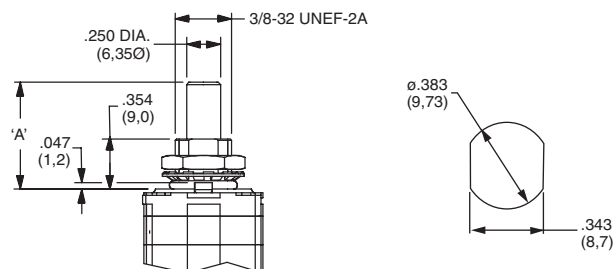


### SHAFT DIAMETER & STYLE

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



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

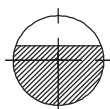


\*\*\*Note: Metric diameter shafts are only available with metric diameter bushings, standard 1.250 inch diameter shafts are only available with standard 3/8 diameter bushings.

### ACTUATOR OPTION ANGLE

SHAFT WITH FLAT OPTIONS

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



0 0 ANGLE

SHAFT WITH SLOT OPTIONS



0 0 ANGLE

### ACTUATOR LENGTH

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

Other lengths available by request.



Third Angle  
Projection

Dimensions are shown: Inch (mm)

Specifications and dimensions subject to change



# RTBV Series 1-2 Pole Coded Rotary Switches

## CONTACT MATERIAL

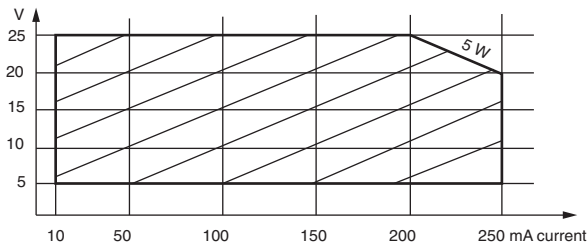


| OPTION CODE | CONTACT AND TERMINAL MATERIAL | RATING                                     |
|-------------|-------------------------------|--------------------------------------------|
| <b>S</b>    | SILVER                        | SWITCH: 250 mA, POWER: 5 VA; CARRY: 5 AMPS |
| <b>P</b>    | GOLD                          | 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.

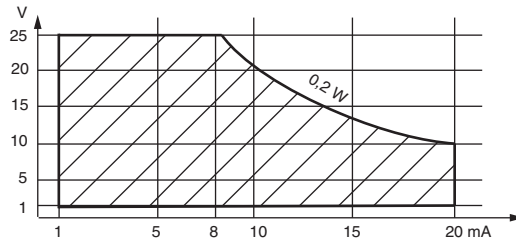
### SWITCHING POWER

**S** (SILVER CONTACTS)



Switching power: 5 W  
Max. voltage: 25 V  
Min. voltage: 5 V  
Max. switching current: 250 mA  
Min. switching current: 10 mA

**P** (GOLD CONTACTS)



Switching power: 0.2 W  
Max. voltage: 25 V  
Min. voltage: 1 V  
Max. switching current: 20 mA  
Min. switching current: 1 mA



**K**

Rotary



Third Angle  
Projection

Dimensions are shown: mm  
Specifications and dimensions subject to change

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