

# NKK® SERIES ND ROTARY SWITCHES

## MICRO-SUBMINIATURE/BINARY CODED/DIP ROTARY

### TYPICAL SWITCH ORDERING EXAMPLE

**ND**

**K**

**C**

**10**

**P**

#### ACTUATORS

<b>F</b>	Screwdriver Actuated
<b>K</b>	Shaft Actuated

#### CIRCUITS

<b>R</b>	Real Coded (white actuator)
<b>C</b>	Complement Coded (red actuator)

#### POSITIONS

<b>10</b>	Decimal
<b>16</b>	Hexadecimal

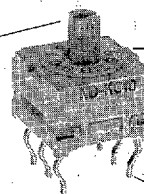
#### PC TERMINALS

<b>P</b>	Straight
<b>H</b>	Right Angle

**DESCRIPTION FOR  
TYPICAL  
ORDERING EXAMPLE  
(NDKC10P):**

**SERIES ND ROTARY**

Shaft Actuated,  
Complement Coded

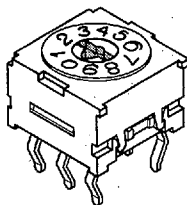


Decimal Positions

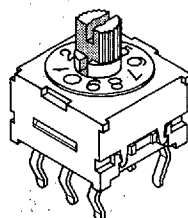
Straight PC Terminals

#### ACTUATORS

**F** Screwdriver Actuated



**K** Shaft Actuated



Actuators are fully rotational in either direction. Actuator colors: white for real coded & red for complement coded.

#### PC TERMINALS

**P** Straight

**H** Right Angle

#### SOLDERING

**Time & Temperature  
Limitations:**

10 seconds @ 260°C

or

5 seconds @ 270°C

#### CIRCUITS & POSITIONS

Additional information in table at right.

**R** Real Coded Circuit

**C** Complement Coded Circuit

**10** Decimal - 10 Positions

**16** Hexadecimal - 16 Positions

#### TRUTH TABLES

Actuator Positions ⊗ = ON		16 Hexadecimal Positions															
		10 Decimal Positions															
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
<b>R</b>	Real Coded	1	⊗		⊗		⊗		⊗		⊗		⊗		⊗		⊗
	Model Numbers: NDFR & NDKR	2		⊗	⊗			⊗	⊗			⊗	⊗			⊗	⊗
		4				⊗	⊗	⊗	⊗					⊗	⊗	⊗	⊗
		8							⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
<b>C</b>	Complement Coded	1	⊗		⊗		⊗		⊗		⊗		⊗		⊗		⊗
	Model Numbers: NDFC & NDKC	2	⊗	⊗			⊗	⊗		⊗	⊗			⊗	⊗		
		4	⊗	⊗	⊗	⊗				⊗	⊗	⊗	⊗				
		8	⊗	⊗	⊗	⊗	⊗	⊗	⊗								

**NKK®  
switches**

• 7850 E. Gelding Dr. • Scottsdale, AZ 85260 • Phone (602) 991-0942 • Fax (602) 998-1435

C9

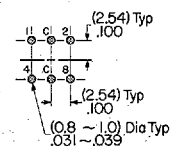
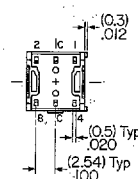
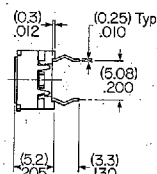
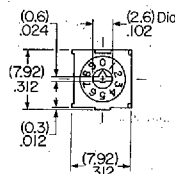
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Rotaries

# NKK® SERIES ND ROTARY SWITCHES

## MICRO-SUBMINIATURE/BINARY CODED/DIP ROTARY

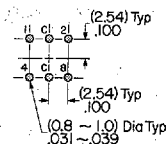
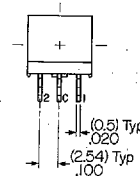
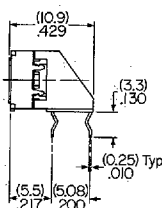
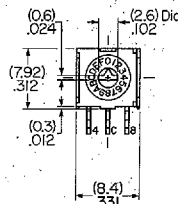
### P Screwdriver Actuated/Straight PC Terminals



NDFR10P Model Shown

Terminal numbers not on switch.

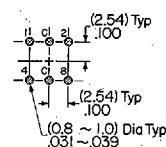
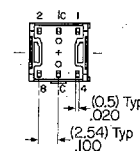
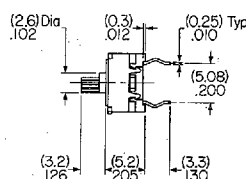
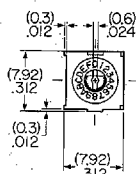
### H Screwdriver Actuated/Right Angle PC Terminals



NDFC16H Model Shown

Terminal numbers on terminal cover.

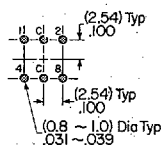
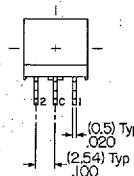
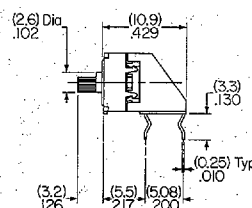
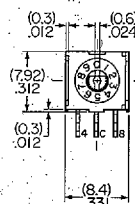
### P Shaft Actuated/Straight PC Terminals



NDKC16P Model Shown

Terminal numbers not on switch.

### H Shaft Actuated/Right Angle PC Terminals



NDKR10H Model Shown

Terminal numbers on terminal cover.

# NKK® SERIES ND

MICRO-SUBMINIATURE/BINARY CODED/DIP ROTARY

A-25-31

## DISTINCTIVE FEATURES

Compact size and interlocking sides for high density, side-by-side mounting.

Sealed construction, prevents contact contamination and allows time- and money-saving automated soldering and washing.

Highly visible legends and choice of screwdriver or shaft actuation to provide trouble-free code setting.

Detent mechanism designed for crisp, positive action for accurate switch setting.

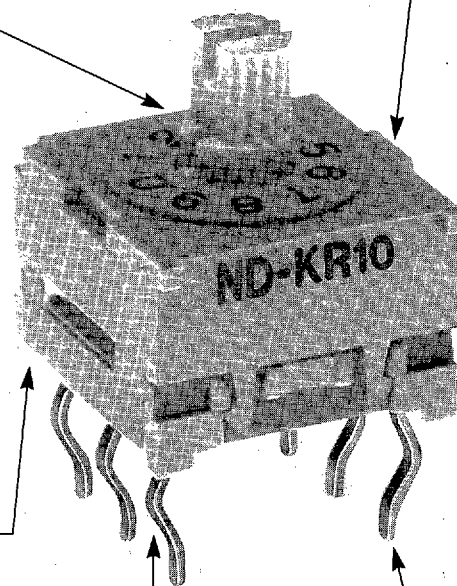
Bifurcated, spring loaded contacts give unmatched logic-level reliability.

Heat tolerant resin used for body meets UL fire resistance rating 94VO and maintains switch reliability through automated soldering process.

Crimped terminals ensure secure PC mounting and prevent dislodging during soldering.

.100" terminal grid spacing between pin centers, plus 3-by-3 terminal arrangement for footprint pattern equivalent to industry standard.

**Actual Size**



Rotaries

# NKK® SERIES ND ROTARY SWITCHES

## MICRO-SUBMINIATURE/BINARY CODED/DIP ROTARY

### GENERAL SPECIFICATIONS

**Electrical Capacity:**  
(Resistive Load)

Nonswitching Rating: 100mA @ 50V DC  
Switching Rating: 100mA @ 5V DC

**Contact Resistance:**

80 milliohms maximum (circuit)  
30 milliohms maximum (contact point)

**Insulation Resistance:**

1,000 megohms minimum @ 250V DC

**Dielectric Strength:**

250V AC minimum

**Mechanical Life:**

20,000 detent operations minimum

**Electrical Life:**

20,000 detent operations minimum

Note: A detent operation is one actuator position operation or stepping. 20,000 detent operations = 1,250 cycles for hexadecimal devices or 2,000 cycles for decimal devices. A cycle is one 360° rotation.

**Operating Torque:**

50 grams-cm (0.70 ounce-in)

**Ambient Temp Range:**

-25°C through +75°C (-13°F through +167°F)

### MATERIALS & FINISHES

Actuator	Glass fiber reinforced polyamide
Housing	Glass fiber reinforced polyamide (UL 94V-0 flammability rating)
O-ring	Nitrile butadiene rubber
Base	Glass fiber reinforced polyamide (UL 94V-0 flammability rating)
Movable Contact	Beryllium copper with gold plating over nickel
Stationary Contacts	Brass with gold plating over nickel
Terminals	Brass with gold plating over nickel

### APPLICATIONS

ND Series answers the ever expanding need for high reliability and versatility in many applications where digital setting is required: programming electronic equipment, in computer peripherals, as data entry devices for address encoding and presetting of microcomputers, as simple PROMs, or for selection of input-output boards.

These rotaries are offered with either screwdriver or shaft type actuators. Real or complement code setting is available with either decimal or hexadecimal positions, and straight or right angle PC terminals with gold contacts. Terminals are spaced to conform to standard .100" grid spacing. Both straight and right angle terminals are spaced .100" X .200" making them DIP socket compatible as well.

### WASHABILITY & UNIVERSAL FOOTPRINT

Sealed construction of these DIP rotary switches is accomplished with seals between the actuator and housing and between the housing and base. Insert molded terminals also prevent entry of contaminants. These combined features make the ND models washable in automated processing techniques. (Alcohol based solvents are recommended.)

A standard footprint pattern with .100" terminal grid and 3-by-3 terminal arrangement match industry standard footprints.