

# thiNcoder™ RT

## Advantages

Increase your design capabilities. Place rotors where you couldn't before with:

### Lowest Profile Encoder Available

- Package thickness below overlay is less than 0.087"

### Flat Panel Integration

- Ultra-thin; non-invasive
- Flex circuit and/or PCB
- Easily integrated with other switch products including PushGate™, MagnaMouse™ and other thiNcode™ products into one thin low cost flex circuit
- Potential for increased PCB real estate and design flexibility

### Simple Design Means Lower Cost And Ease Of Manufacturing

- Integrated panels come fully assembled
- No soldering required
- No parasitic power required as with optical encoders

## Design Customization (Multiple Codes and Indexing Options)

- Encoder/Discrete/Potentiometer
- Dual function rotors (Push, On/Off and Turn)
- Low energy circuit capable – dry circuit compatible
- Shafts, detents/stops, knobs can be customized
- Flex cable or pin mountable

## Reliability/Durability

- Mechanical shock tolerance exceeds 100g's
- Wide operating temperature range

## Environmentally Sealed Circuit

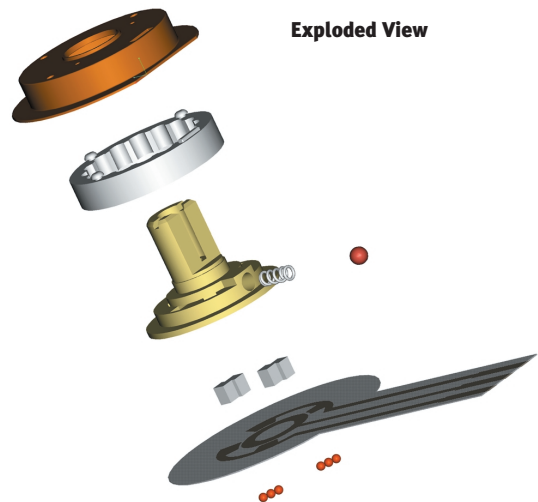
- Eliminates direct holes to circuit

U.S. PAT. Nos. 5,523,730; 5,666,096; 5,867,082; 5,990,772;  
6,023,213; 6,069,552; 6,069,545; 6,130,593; 6,137,387;  
6,262,646

CHINESE PAT. No. ZL96110385.X

TAIWANESE PAT. No. NI090979

AUSTRALIAN PAT. No. 727962



thiNcoder RT™  
Exploded View

## Low Cost Integration

thiNcoder RT



**Nelson  
Nameplate**

## Nelson Nameplate Company

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Los Angeles, California  
90039 - 2942  
(323) 663-3971  
Fax: (323) 661-2137  
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# thiNcoder™ RT SPECIFICATIONS

## Mechanical

Standard Outside Diameter	0.70" / 18mm
Shaft Diameter	0.236" / 6mm
Body Height	0.138" / 3.5mm
Shaft Type	Round with Flat (Custom Available)
Shaft Flat Angle to Location Lug	Custom
Shaft Length	0.300" / 7.6mm (Custom Available)
Length of Flat	0.270" / 6.8mm
Screw Slot	Custom Available
Dimension from Shaft Back to Flat	0.178" / 4.5mm (Custom Available)
Angle of Throw	15°, 22.5° (Custom Available)
Stopper Plate Positions	Custom Available
Stop Strength	≥ 7.5 lb.in. / 0.8Nm
Rotational Life (360°)	≥ 100,000 cycles

## Environment

Storage Temperature	85°C
Operating Temperature	-40°C to 85°C
Thermal Shock	-40°C to 85°C
Humidity Resistance	95% RH
Salt Fog, 5% Solution	24 Hours

## Materials

Rotor / Shaft	Engineering Thermoplastic
Cover	Corrosion Resistant Metal
Magnet Material	Rare Earth

## Mechanical Testing

Shock	To 100 g's
Drop	3 Feet

## Electrical (Switch Type and Codes)

Quadrature (2 Bit Gray Code)	16, 24 Positions Standard (Custom Available)
Binary	Custom Available
Gray Code	16, 24 Positions, Standard (Custom Available)
On/Off Switch	Custom Available
Analog Potentiometer	Custom Available
Analog Potentiometer Resistance	1K - 1 Meg Ohm
Voltage	3 to 50 VDC
Current	10 mA Max
Electrical Life (360°)	> 100,000 Cycles
Maximum Contact Resistance	100 Ohms
Open Circuit and Insulation Resistance	> 20 Meg Ohms (Between Mutually Insulated Parts)
Voltage Breakdown	> 250 VAC (Peak to Peak, Between Mutually Insulated Parts)

## Detent

Number of Positions	16, 24 (Custom Available)
Ball & Spring Detent	Standard
Ball Detent Rotational Torque	3.5 - 6.5 oz. In. / 25mNm - 45mNm
Concentric Shaft Push-Button Switch	Custom Available
Custom Shaft Colors	Custom Available - Black (Standard)
Panel Seal	Yes
Ball Armature Contacts	Standard
Ball Retainer	Custom Available



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