

thiNcoder™ RT

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

LOWEST PROFILE ENCODER AVAILABLE

- Ultra-thin; non-invasive
- Package thickness below overlay is less than 0.085"

LOW COST

- Lower component costs
- Integration eliminates secondary assembly processes
- No soldering required

FLAT PANEL INTEGRATION ON FLEX CIRCUIT

- Easily integrated with other switch products including PushGate™ and MagnaMouse™ as well as dome and membrane switches into one thin panel
- Potential for increased PCB real estate and design flexibility

SAVES POWER

- No parasitic power required as with optical encoders

DESIGN CUSTOMIZATION

(Multiple Codes and Indexing Options)

- Quadrature (Repeating 2-Bit Gray Code)
- Binary (Repeating 2-Bit Code)
- Analog Potentiometer
- Low energy circuit capable – dry circuit compatible
- Detents/stops, knobs can be customized

RELIABILITY/DURABILITY

- Life of 100,000 rotations

ENVIRONMENTALLY SEALED CIRCUIT

- Eliminates through-holes



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incorporated

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DURASWITCH
The world is switching.®

U.S. PAT. Nos. 5,523,730; 5,666,096; 5,867,082; 5,990,772; 6,023,213; 6,069,545; 6,069,552; 6,130,593; 6,137,387; 6,262,646; 6,305,071; 6,369,692

CANADA PAT. No. 2177540

CHINA PAT. No. ZL96110385.X

TAIWAN PAT. No. NI 090979; NI 132948

AUSTRALIA PAT. No. 727962

thiNcoder™ RT

Mechanical

Cover Diameter	0.875" / 22.2mm
Cover Height	0.138" / 3.5mm
Shaft Diameter	0.236" / 6mm
Shaft Type	Round with Flat
Shaft Length	0.285" / 7.24mm
Length of Flat	0.270" / 6.8mm
Dimension from Shaft Back to Flat	0.178" / 4.5mm
Rotational Life	>100,000 cycles
Contacts	Ball Armature
Shear Force of Shaft	12lbs. / 50Nm

Detent

Number of Detents	0, 1, 16(22.5°), 24(15°) Stock Custom Available
Detent	Ball and Spring
Stop Plate Positions	300° Sweep Standard Custom Available
Stop Strength	3.0 in. lb. / .35Nm Nominal
Rotational Torque	2.5 in. oz. / 17mNm Nominal

Material

Rotor / Shaft / Detent Ring	Engineering Thermoplastic
Cover	Plated Brass Alloy
Magnet Material	Rare Earth
Circuit	Polyester Flex
Ball Armature	Gold Plated Stainless Steel

Electrical (Switch Type and Codes)

Quadrature (Repeating 2 Bit Gray Code)	8 (16 Detent), 12 (24 Detent) Pulses / 360°
Binary (Repeating 2 Bit Code)	8 (16 Detent), 12 (24 Detent) Pulses / 360°
On/Off Switch	Available
Analog Potentiometer	Available
Analog Potentiometer Resistance	1K - 10K ohm, 300° Sweep
Voltage	3 to 30 VDC
Current	10mA
Power	100mW Maximum
Electrical Life	>100,000 Cycles
Maximum Contact Resistance	<500 ohms at End of Life
Open Circuit and Insulation Resistance	>20 Meg ohms (Between Mutually Insulated Parts)
Voltage Breakdown	250 VAC (Peak to Peak, Between Mutually Insulated Parts)

Environment

Storage	-40°C to 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
Shock	100g
Drop	8 Feet

Circuit: Analog Potentiometer

Attributes: Used in those applications that require continuous output. Can be used with or without detents.

Example: Temperature Control

Circuit: 16 Position Selection

Attributes: Used in those applications that require a single switch closure at each detent position. Positions can range from 2-24 (16 position shown)

Example: Motor Speed Control

Circuit: Repeating 2-Bit Binary Code

Attributes: Used in those applications to select 1 of 4 possible outputs which require a defined binary output at each detent position.

Example: Replacement for multiple push button switches.

Circuit: Quadrature or repeating 2-Bit Gray Code

Attributes: Increment/Decrement switch that can be used as an encoder or rotary switch. Available in either 16 detent or 24 detent (as shown).

Example: Volume Control