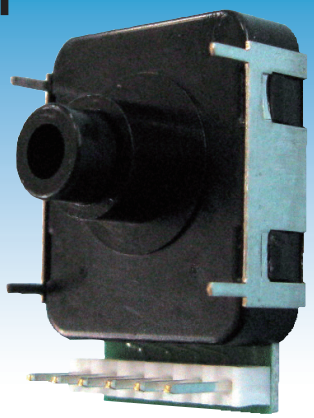
Tokyo Sokuteikizai Co.,Ltd.

Rotary Encoder Catalogue

Ultra Slimline Rotary Encoder with Push Switch

RE29 Series



Outline

RE29 series pack compact rotary encoder with dual-functional resin shaft into the space-saving resin enclosure. RE29 is recommended for wide range of machines including measurement components, medical and telecommunication devices.

Features

- Extremely thin (6.6mm) and lightweight (7g)
- Multi-functional with 2 way acting – push switch function and rotating function – shaft
- Eco friendly:
  1) Low cost and lesser parts by VA design
  2) RoHS compliant
- Designed to be soldered to printed circuit board

Specifications

1. Electrical and Mechanical specifications

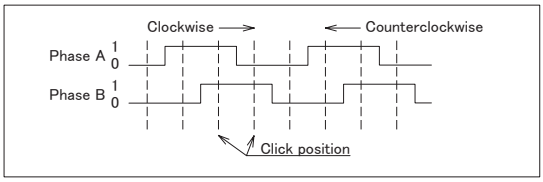
Items			Rated Value
Rotary Encoder	Number of Pulses		6 PPR
	Number of Clicks		24 Clicks
	Supply Voltage		DC3.3V ± 5% ≦ 20mA 6mA TYP
			DC5V ± 5% ≦ 10mA 4mA TYP
	Output Signals		Channel A/B: Square Wave CMOS chip
	Output Voltage	High	(Supply Voltage − 2.5V) ≦
		Low	≦ 0.5V
	Response Frequency		100Hz
	Rotational Torque		4 ± 2 mN・m
Push switch	Rating of contact		≦ DC12V 0.1 ~ 10mA (Resistance load)
	Travel of switch		0.2 ± 0.1 mm
	Operational Force		5 ± 2 N
Weight			7g

2. Reliability and Environmental Specifications

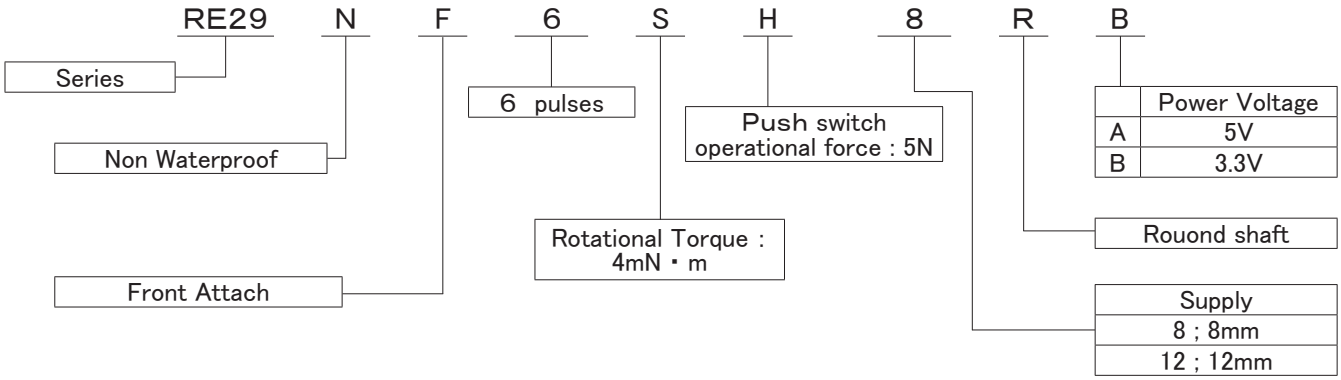
Items			Rated Value
Durability of operating area	Thrust direction	Push	100N
		Pull	50N
	Radial		1N・m
Rotational durability			1 million strokes (No load)
Screw Torque			Not more than 1N・m
Heat resistance of solder	Solder bit temp.: MAX 350℃		Within 3 seconds for each terminal
Operating temperature			-0℃ ~ +55℃ 32F ~ 131F
Storage temperature			− 40℃ ~ +85℃ − 40F ~ 185F

Output Waveform

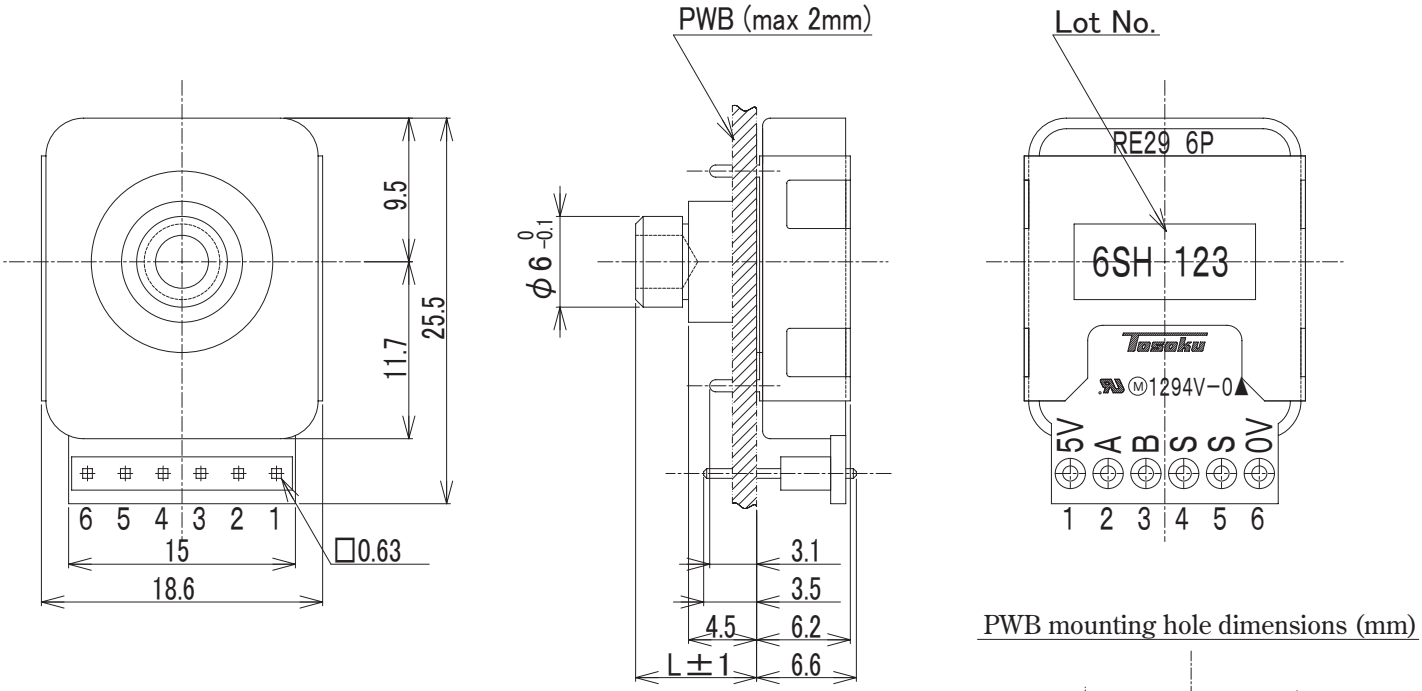
1) Turning the shaft clockwise will generate the signal A when the signal B outputs a low voltage (0);
2) Rotating the shaft counter-clockwise will generate the signal A when the signal B outputs a high voltage(1);
3) Either signal A or B switches from 0→1 or 1→0 for every single click (Quad edge evaluation spec).



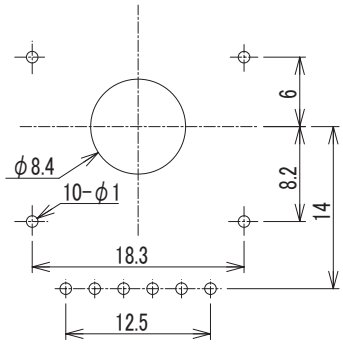
Part Number Designation



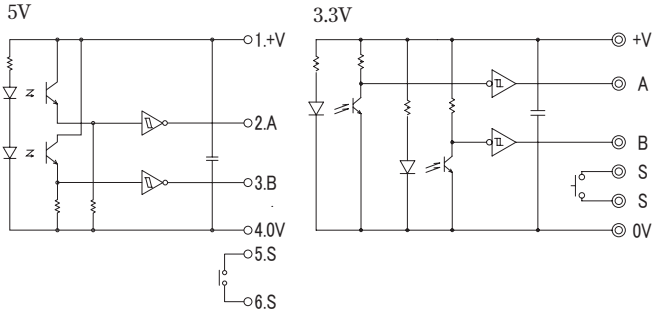
Dimensions (mm)



PWB mounting hole dimensions (mm)



Circuitry



1	3. 3V/5V	Supply
2	A	Signal A
3	B	Signal B
4	S	Push Switch
5	S	Push Switch
6	0V	Ground

Precautions

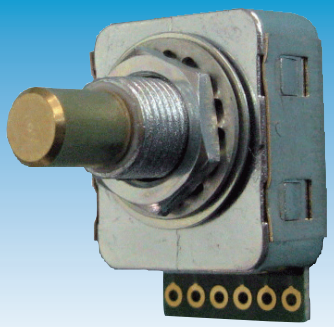
Wiring	Use buffering amplifier when extending lead wire over 30cm.
Soldering	Do not put a load on the terminal area during and immediately after soldering.
Operation	Do not use flow/reflow soldering machines.
Power	Use under specified power voltage and connect properly.

Warranty

- 1 year from the date of shipment

Optical Rotary Encoder

RE25 Series



Outline

RE25 is a VA designed eco friendly – power-saving and low cost with lesser parts – rotary encoder. Its size, mounting procedures and inner-structures have been designed for a wide-array of uses; measurement devices, medical equipments, industrial machineries, telecommunication devices and machine tools.

Features

- Eco friendly:
  1) Power-saving
  2) Low cost and lesser parts by VA design
  3) RoHS compliant
- Thin-line (18.8x25.5x8.9mm) and lightweight (18g)
- Various types of models with options: lead wire with or without connector, clamp for horizontal/vertical mounting
- Long-lasting without “contact chatter” due to its optical switching function
- Waterproofed model available

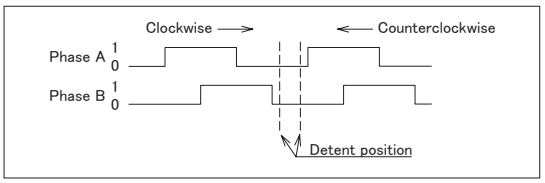
Specifications

1. Electrical and Mechanical specifications			
Items		Rated Value	
Number of pulses		16PPR, 25PPR	
Supply voltage		3.3V±10%	5V±10%
		20mA	10mA
Output signals		Channel A/B: Square Wave CMOS chip	
Output voltage	High	Supply Voltage(3.3V): − 0.3V ≦ , (5V): − 0.5V ≦	
	Low	≦ 0.4V	
Response frequency		200Hz	
Rotational Torque	Light: S	4±1mN・m	
	Standard: C	6±2mN・m	
	Medium: M	10.5±3.5mN・m	
	High: H	16±5mN・m	
Weight		18g	

2. Reliability and Environmental specifications			
Items			Rated Value
Durability of operating area	Thrust direction	Push	100N
		Pull	50N
	Radial		1N・m
Rotational durability	Light: S		1 million strokes (No load)
	Standard: C		
	Medium: M		
	High: H		100 thousand strokes (No load)
Screw Torque			Not more than 1N・m
Heat resistance of solder	Solder bit temp.: MAX 350℃		Within 3 seconds for each terminal
Operating temperature			0℃ ～ +55℃ 32F ～ 131F
Storage temperature			− 40℃ ～ +85℃ − 40F ～ 185F

Output Waveform

1) Turning the shaft clockwise will generate the signal A when the signal B outputs a low voltage (0);
2) Rotating the shaft counter-clockwise will generate the signal A when the signal B outputs a high voltage(1);
3) Detent positions are where both signal A and B are low (0).



Part Number Designation

RE25 | N | S | 25 | C | 20 | R | A

Series

	Waterproof
N	No
P	Yes

	Wiring
S	Standard
C	With wire
F	Front Mount
V	Vortical Mount

	Pulse
16	16PPR
25	25PPR

	Ckick	Rotation Torque
S	With	4mN m
C		6mN・m
M		10.5mN・m
H		16mN・m
Non	W/O	≦ 4mN・m

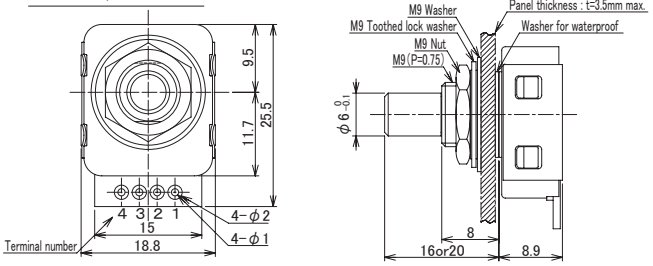
	Power Voltage
A	5V
B	3.3V

	Shaft Shape
R	Round

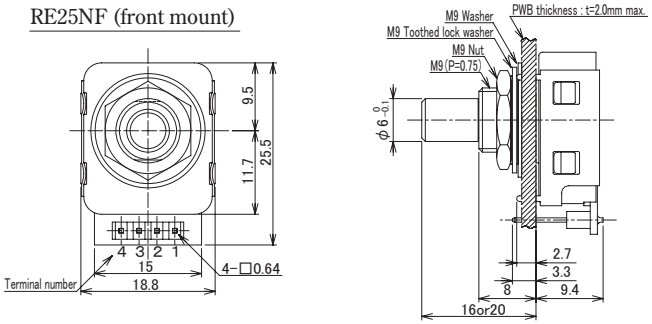
	Shaft length
16	16mm
20	20mm

Dimensions (mm)

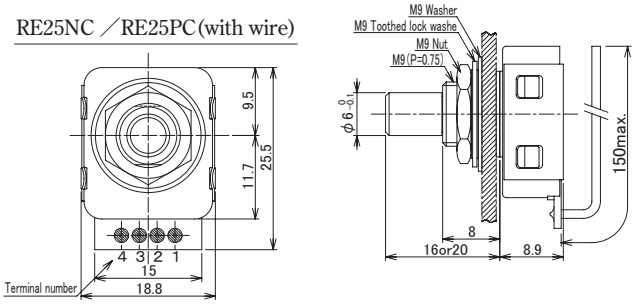
RE25NS／RE25PS



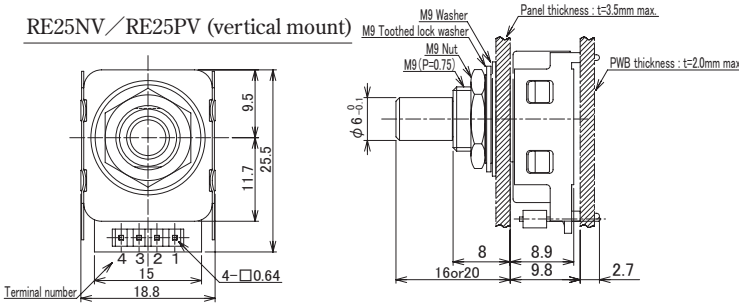
RE25NF (front mount)



RE25NC ／RE25PC (with wire)

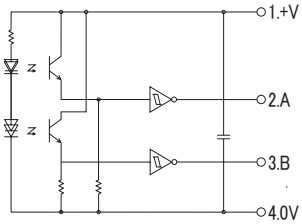


RE25NV／RE25PV (vertical mount)

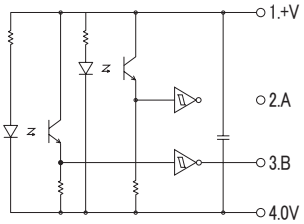


Circuitry

RE25 5V



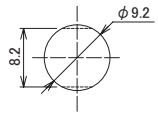
RE25 3.3V



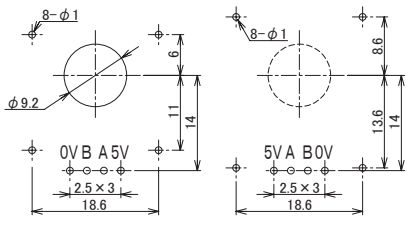
Terminal number

1	3. 3V／5V	Supply
2	A	Signal A
3	B	Signal B
4	0V	Ground

Mounting hole dimensions (mm)



PWB mounting hole dimensions (mm)



RE25NF RE25_V

Precautions

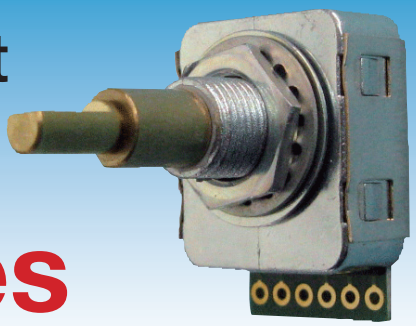
Wiring	Use buffering amplifier when extending lead wire over 30cm.
Soldering	Do not put a load on the terminal area during and immediately after soldering.
Operation	Do not use flow/reflow soldering machines.
Power	Use under specified power voltage and connect properly.
Waterproofing	Do not fasten tighter with the torque of more than 1.5N・m.

Warranty

● 1 year from the date of shipment.

Rotary Encoder with Dual Functional Shaft

RE24 Series



Outline

RE24 rotary encoder series contain unique mechanism for its shaft; its rotational outer axis for rotary encoder and the inner axis for push switch. RE24 is designed for use in various industrial areas: measurement component, medical equipment, industrial machinery, telecommunication device and machine tool.

Features

- Dual inner/outer axes mechanism to help prevent misoperation
- Eco friendly:
  1) Low cost and lesser parts by VA design
  2) RoHS compliant
- Thin-line (18.8x25.5x8.9mm) and lightweight (18g)
- Long-lasting without “contact chatter” due to its optical switching function
- Specially designed knob (GG60) available

Specifications

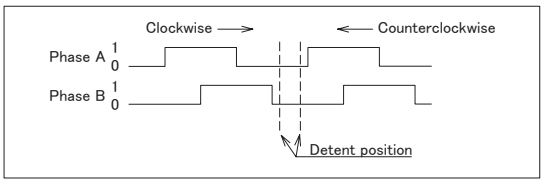
1. Electrical and Mechanical specifications				
Items			Rated Value	
Number of pulses			16PPR, 25PPR	
Supply voltage			3.3V±10%	5V±10%
			20mA	10mA
Output signals			two square wave output (A/B), CMOS chip	
Output voltage		High	(Supply Voltage − 0.5V) ≦	
		Low	≦ 0.5V	
Response frequency			200Hz	
Rotational torque		Light: S	4±1mN・m	
		Standard: C	6±2mN・m	
		Medium: M	10.5±3.5mN・m	
		High: H	16±5mN・m	
Push switch		Rating of contact	≦ DC12V	0.1 ～ 10mA
		Travel of switch	0.2±0.1mm	
	Operational Force	S	3.2±1N	
		M	4.0±1N	
		H	5.0±1N	
Weight			18g	

Note : In case Rotational Torque M or H, Operational Torque should be either M or H.

2. Reliability and Environmental specifications			
Items			Rated Value
Durability of operating area	Thrust direction	Push	100N
		Pull	50N
	Radial		1N・m
Rotational durability	Light: S		1 million strokes (No load)
	Standard: C		
	Medium: M		
	High: H		100 thousand strokes (No load)
Screw Torque			Not more than 1N・m
Heat resistance of solder	Solder bit temp.: MAX 350℃		Within 3 seconds for each terminal
Operating temperature			0℃ ～ +55℃ 32F ～ 131F
Storage temperature			− 40℃ ～ +85℃ − 40F ～ 185F

Output Waveform

1) Turning the shaft clockwise will generate the signal A when the signal B outputs a low voltage (0);
2) Rotating the shaft counter-clockwise will generate the signal A when the signal B outputs a high voltage(1);
3) Detent positions are where both signal A and B are low (0).



Part Number Designation

RE24 N S 25 C S 16/24 R A

Series

	Waterproof
N	No

	Wiring
S	Standard
C	With Code
F	Front Mount
V	Vortical Mount

	Pulse
16	16PPR
25	25PPR

	Ckick	Rotation Torque
S	With	4mN・m
C		6mN・m
M		10.5mN・m
H		16mN・m
Non	W/O	≦ 4mN・m

	Push Switch Force
S	3.2N
H	5N

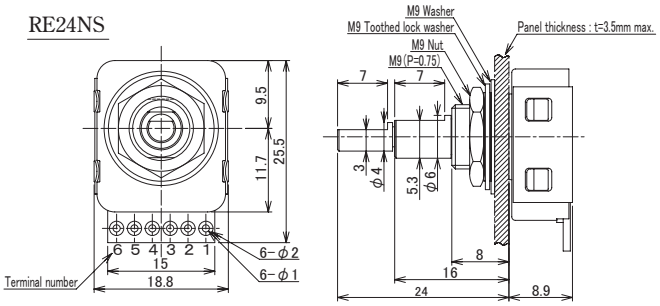
	Power Voltage
A	5V
B	3.3V

	Shaft Shape
F	Flat

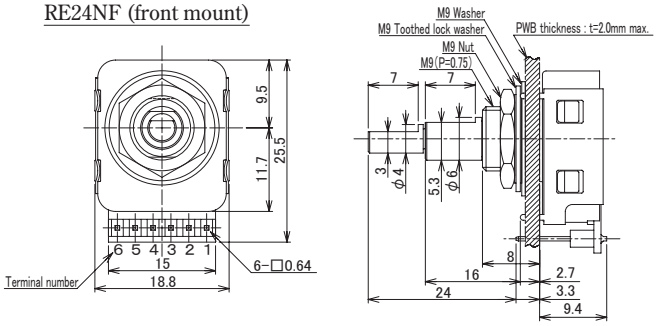
	Shaft length
16	16mm (inner)
20	24mm (outer)

Dimensions (mm)

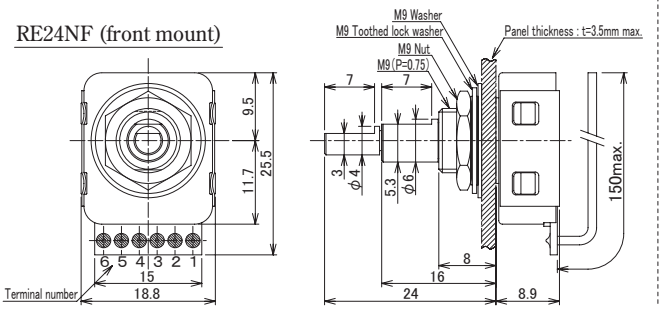
RE24NS



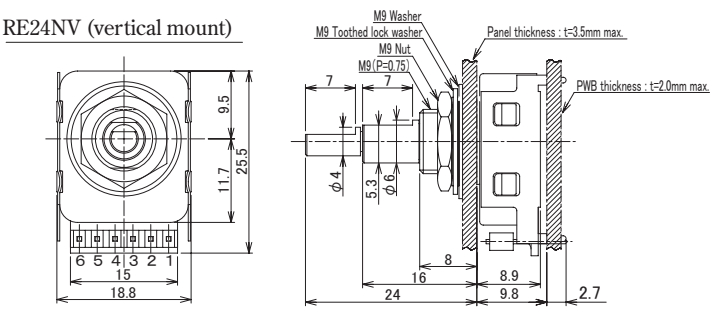
RE24NF (front mount)



RE24NF (front mount)

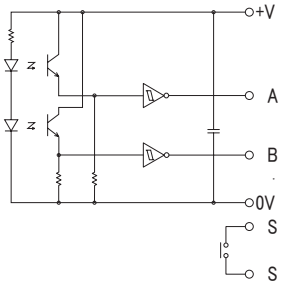


RE24NV (vertical mount)

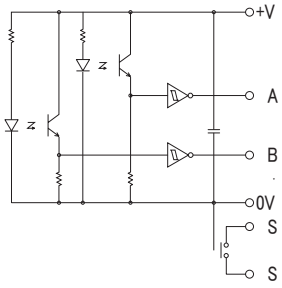


Circuitry

RE24 5V



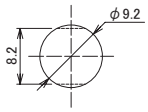
RE24 3.3V



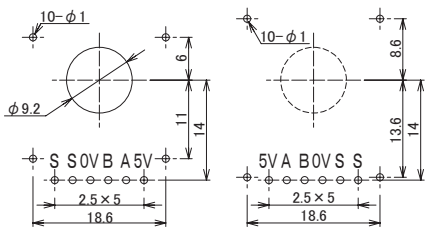
Terminal number

1	3.3V/5V	Supply
2	A	Signal A
3	B	Signal B
4	0V	Ground
5	S	Push Switch
6	S	Push Switch

Mounting hole dimensions (mm)



PWB mounting hole dimensions (mm)



RE24NF RE24NV

Precautions

Wiring	Use buffering amplifier when extending lead wire over 30cm.
Soldering	Do not put a load on the terminal area during and immediately after soldering.
Operation	Do not use flow/reflow soldering machines.
Power	Use under specified power voltage and connect properly.
Waterproofing	Do not fasten tighter with the torque of more than 1.5N・m.

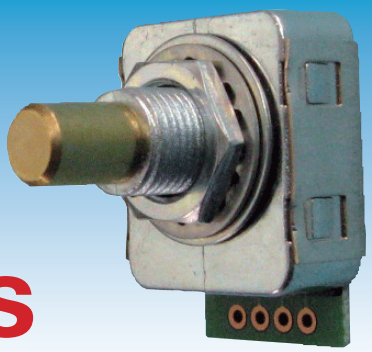
Warranty

● 1 year from the date of shipment.

09.12

Optical Rotary Encoder with Push Switch

RE23 Series



Outline

RE23 series are optical rotary encoders with dual functions of pushing and rotating on its shaft. Its size, mounting procedures and inner-structures have been designed for a wide-array of uses; measurement devices, medical equipments, industrial machineries, telecommunication devices and machine tools.

Features

- Multi-functional with 2 way acting – pushing and rotating – shaft
- Eco friendly:
  1) Low cost and lesser parts by VA design
  2) RoHS compliant
- Thin-line (18.8x25.5x8.9mm) and lightweight (18g)
- Various types of models with options: lead wire with or without connector, clamp for horizontal/vertical mounting
- Long-lasting without “contact chatter” due to its optical switching function

Specifications

1. Electrical and Mechanical specifications

Items			Rated Value	
Number of pulses			16PPR, 25PPR	
Supply voltage			3.3V±10%	5V±10%
			20mA	10mA
Output signals			Channel A/B: Square Wave CMOS chip	
Output voltage	High		(Supply Voltage − 0.5V) ≦	
	Low		≦ 0.5V	
Response frequency			200Hz	
Rotational torque	Light: S		4±1mN・m	
	Standard: C		6±2mN・m	
	Medium: M		10.5±3.5mN・m	
	High: H		16±5mN・m	
Push switch	Rating of contact		≦ DC12V	0.1 ～ 10mA
	Travel of switch		0.2±0.1mm	
	Operational Force	S	3.2±1N	
		M	4.0±1N	
		H	5.0±1N	
Weight			18g	

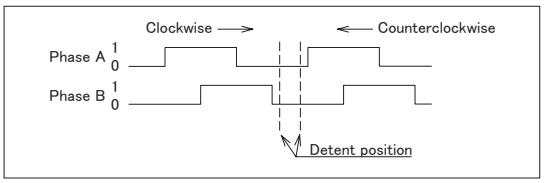
Note : In case Rotational Torque M or H, Operational Torque should be either M or H.

2. Reliability and Environmental specifications

Items			Rated Value
Durability of operating area	Thrust direction	Push	100N
		Pull	50N
	Radial		1N・m
Rotational durability	Light: S		1 million strokes (No load)
	Standard: C		
	Medium: M		
	High: H		100 thousand strokes (No load)
Screw Torque			Not more than 1N・m
Heat resistance of solder	Solder bit temp.: MAX 350℃		Within 3 seconds for each terminal
Operating temperature			0℃ ～ +55℃ 32F ～ 131F
Storage temperature			− 40℃ ～ +85℃ − 40F ～ 185F

Output Waveform

1) Turning the shaft clockwise will generate the signal A when the signal B outputs a low voltage (0);
2) Rotating the shaft counter-clockwise will generate the signal A when the signal B outputs a high voltage(1);
3) Detent positions are where both signal A and B are low (0).



Part Number Designation

RE23 N S 25 C S 20 R A

Series

	Waterproof
N	No

	Wiring
S	Standard
C	With wire
F	Front Mount
V	Vortical Mount

	Pulse
16	16PPR
25	25PPR

	Ckick	Rotation Torque
S	With	4mN・m
C		6mN・m
M		10.5mN・m
H		16mN・m
Non	W/O	≦ 4mN・m

	Push Switch Force
S	3.2N
H	5N

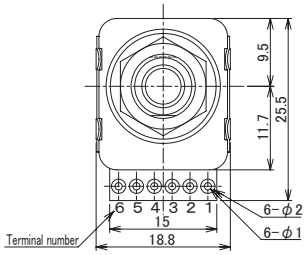
	Power Voltage
A	5V
B	3.3V

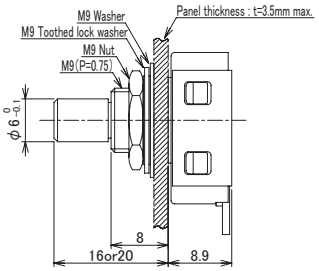
	Shaft Shape
R	Round

	Shaft length
16	16mm
20	20mm

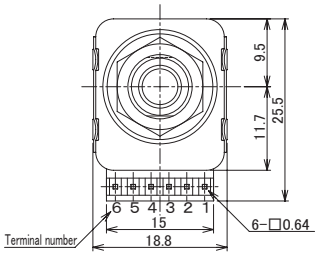
Dimensions (mm)

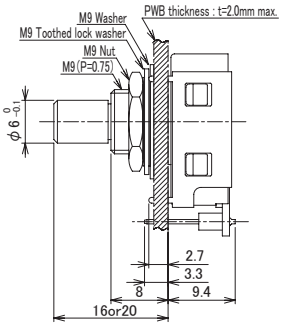
RE23NS



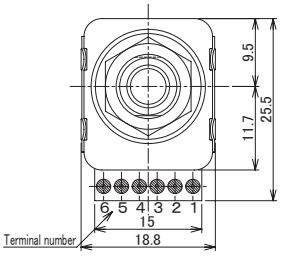


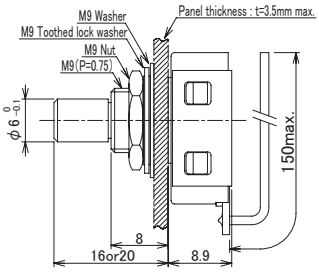
RE23NF (front mount)



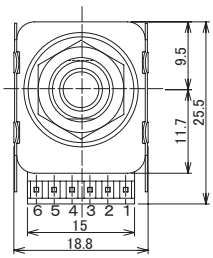


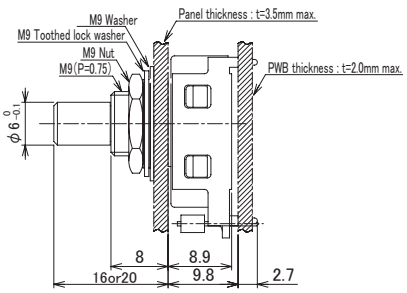
RE23NC (with wire)





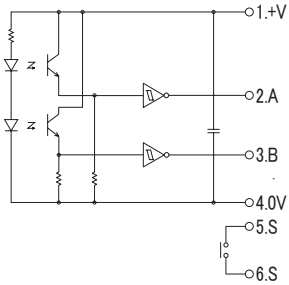
RE23NV (vertical mount)



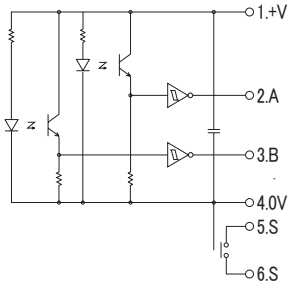


Circuitry

RE23 5V



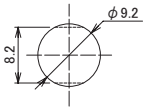
RE23 3.3V



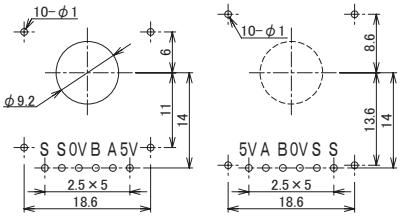
Terminal number

1	3. 3V/5V	Supply
2	A	Signal A
3	B	Signal B
4	0V	Ground
5	S	Push Switch
6	S	Push Switch

Mounting hole dimensions (mm)



PWB mounting hole dimensions (mm)



RE23NF RE23NV

Precautions

Wiring	Use buffering amplifier when extending lead wire over 30cm.
Soldering	Do not put a load on the terminal area during and immediately after soldering.
Operation	Do not use flow/reflow soldering machines.
Power	Use under specified power voltage and connect properly.
Waterproofing	Do not fasten tighter with the torque of more than 1.5N・m.

Warranty

● 1 year from the date of shipment.

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