



FEATURES

- Plastic shaft
- 2 bit in quadrature code
- Contact type
- Push-on switch (optional)
- Available with or without detents
- Compact design
- Available in vertical mount
- Endless rotation
- 12 or 24 pulses per rev.

STANDARD SPECIFICATIONS

Operating Temperature:	-40°C to +85°C
Mechanical life (min):	30.000 cycles
Rotational torque:	0.3 to 2 Ncm
Push on switch:	0.5 mm. travel
Contact Resistance:	100 mΩ Initial (max)
Pulses / Detents:	12/00, 12/12, 24/00, 24/24

TYPICAL APPLICATIONS

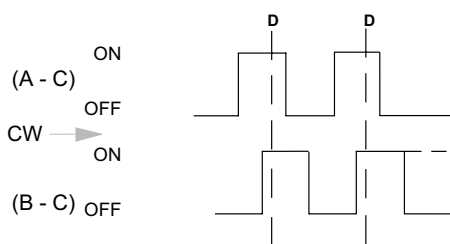
All kind of applications which require a single or multi-function rotary control interfaced with a digital electronic circuit:

- Consumer:
Home appliances: Washing Machine/Microwave Oven timer & temperature programming controls, Hi-Fi, CD, Mini Disc and MP3 players, volume, tone and title search controls.

- Multimedia:
LCD & CRT Monitor multi-function mode select control (using push-on switch option)

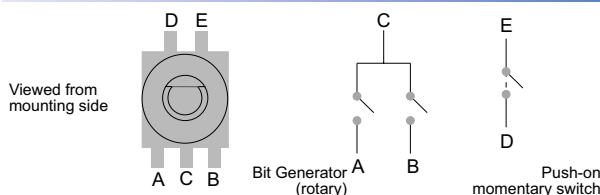
- Professional:
Input/output adjustment for Digital Audio Mixers.

GRAPH CODE

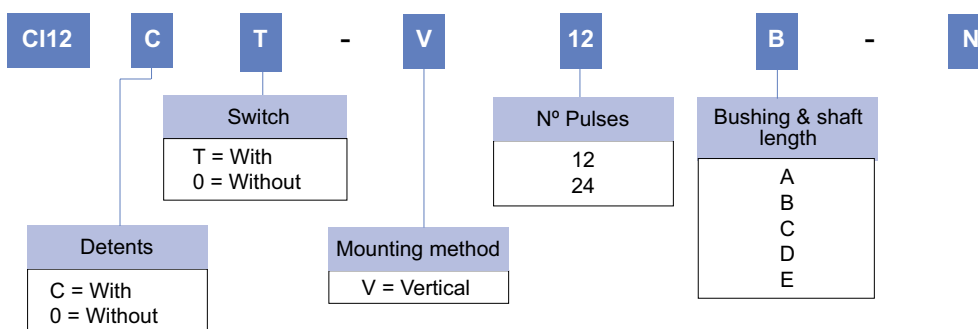


D = Detent

TERMINAL DESIGNATIONS



HOW TO ORDER



BUSHING & SHAFT LENGTH

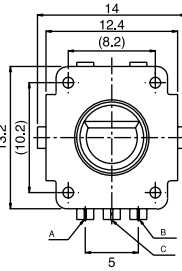
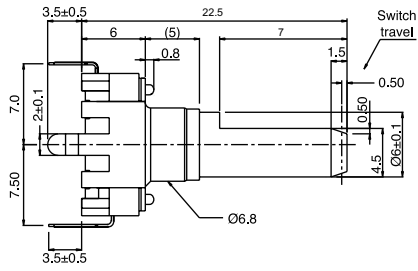
	CODE	LM1	H
	A	17.5	5
	B	20	5
	C	22.5	5
	D	25	5
	E	15	1.6

NOTE: The information contained here should be used for reference purposes only.

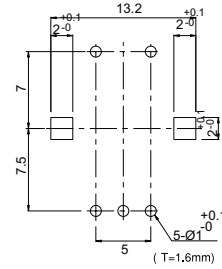
STANDARD DIMENSIONS

With switch

CI12CT-V24C-N

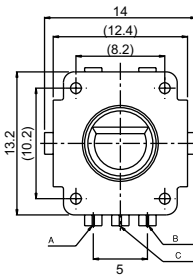
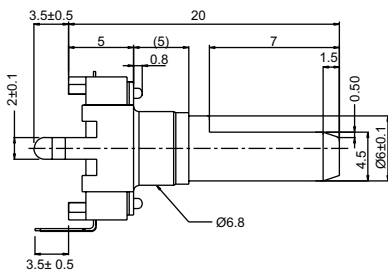


P.C.B. Hole Detail

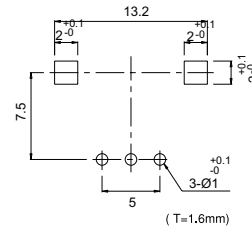


Without switch

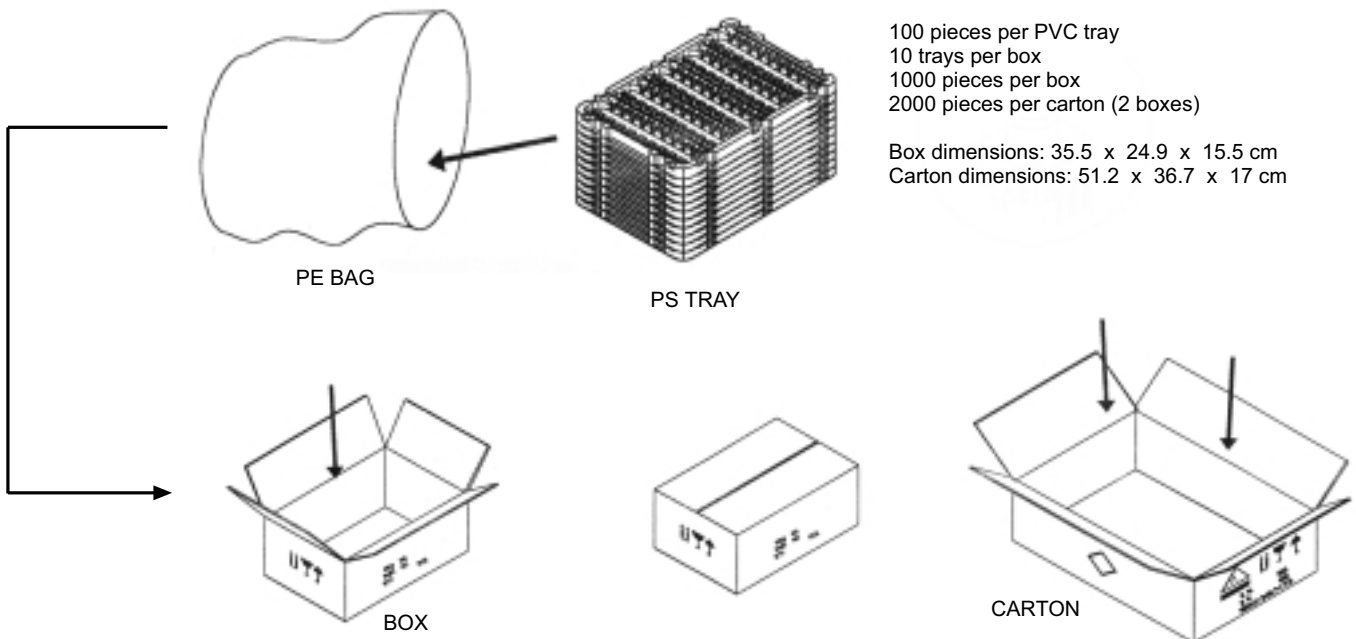
CI12C0-V12B-N



P.C.B. Hole Detail



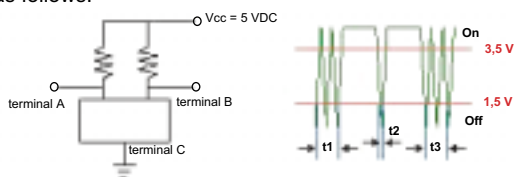
PACKAGING



TEST CIRCUIT DIAGRAM

Measurements shall be made under the following conditions.

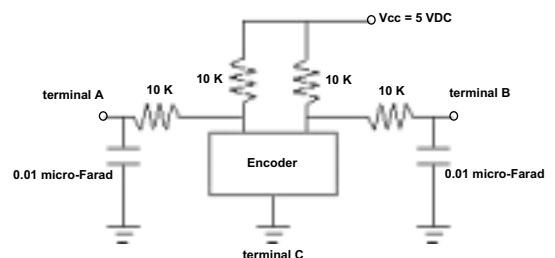
- (1) Shaft rotational speed: 360 degrees/second
- (2) Test circuit as follows:



On area: The area which the voltage is 3.5V or more
Off area: The area which the voltage is 1.5V or less

R/C FILTER TEST CIRCUIT

The R/C filter circuit as shown is recommended in the pulse count process design



SPECIFICATIONS

Electrical

- Resolution: 360°
- Rated Power: 5 VDC 10 mA (1 mA min.)
- Insulation Resistance: 10 M Ω (min.) @ 50 VDC 1 mA
- Dielectric Strength: 1500 VAC for 1 min (Leak current 1 mA)
(between the terminal and the shaft)
- Sliding Noise: $t_1, t_3 \leq 3$ ms, $t_2 \leq 2$ ms (under 360°/S test condition)
- Phrase Difference: 0.08T min.

Mechanical

- Number of Detents: 12, 24
- Rotational Torque: 0.3 to 2 Ncm(with detents)
0.5 Ncm Max. (without detents)
- Shaft play in axial direction: 0.7x l/30 mm p-p max
- Push-Pull Strength of Shaft: 40 N(4kgf)/10 sec

Switch

- Type: SPST
- Switching Function: (On)-Off
- Contact Resistance: 100 m Ω (max.) @ initial
- Insulation Resistance: 100 M Ω (min.) @ 250 VDC 1 mA
- Dielectric Strength: 300 VAC 1 mA for 1 minute
- Operating Force: 4.5 \pm 1.5 N (450 \pm 153 gf)

Durability

- Operating Temperature: -40°C to +85°C
- Storage Temperature: -40°C to +85°C
- Switch type: Circuit single pole and single throw (push on)
- Switch Travel: 0.5mm
- Contact Resistance: initial period 100m Ω , 200m Ω after the end of useful life is reached
- Mechanical life: min 30,000 cycles
- Cold: -40 \pm 3°C for 240 \pm 10H
- Dry heat: 85 \pm 3°C for 240 \pm 10H
- Damp heat: 40 \pm 2°C 90 to 95% RH for 240 \pm 10H