

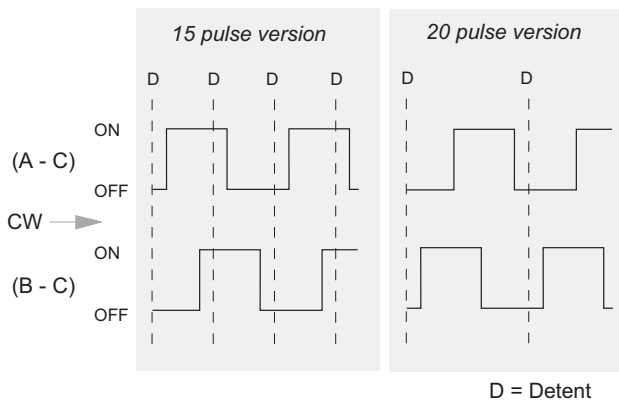
FEATURES

- 2 bit in quadrature code
- Low cost. Compact design
- Contact type
- Threaded or plain bush options
- Push-on switch (optional)
- Available in vertical mount
- Available with or without detents
- Endless rotation
- 15 or 20 pulses per rev.

STANDARD SPECIFICATIONS

Operating Temperature:	-40°C to +85°C
Life (endless rotation):	20.000 cycles
Detent torque:	0.3 to 2 Ncm
Rotational torque (without detents versions)	0.5 Ncm (MAX)
Push on switch:	0.5 mm. travel
Contact Resistance:	100 mΩ Initial (MAX)

GRAPH CODE



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.

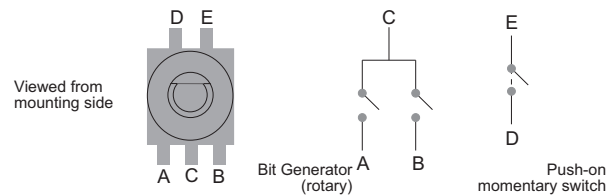
- Multimedia:

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

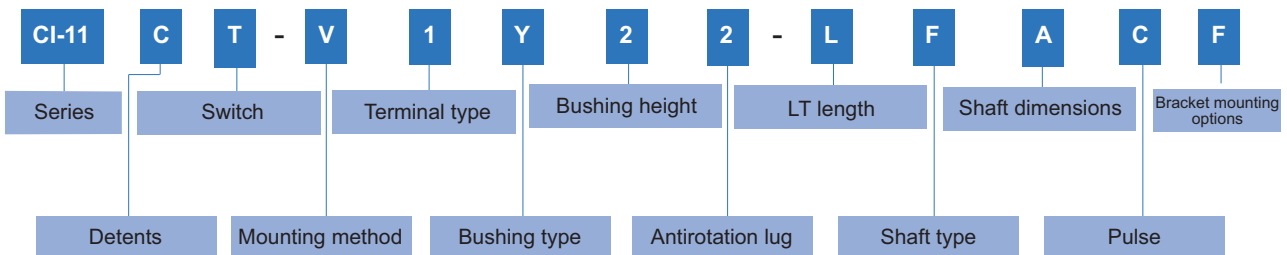
- Professional:

Input/output adjustment for Digital Audio Mixers.

TERMINAL DESIGNATIONS



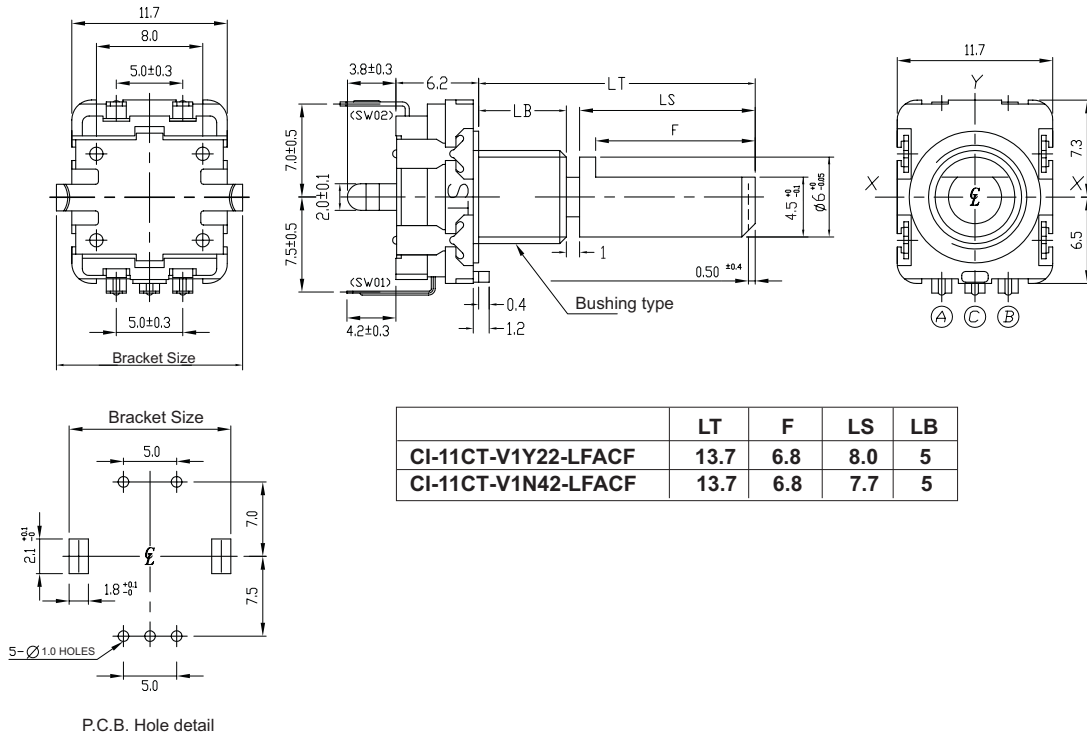
HOW TO ORDER



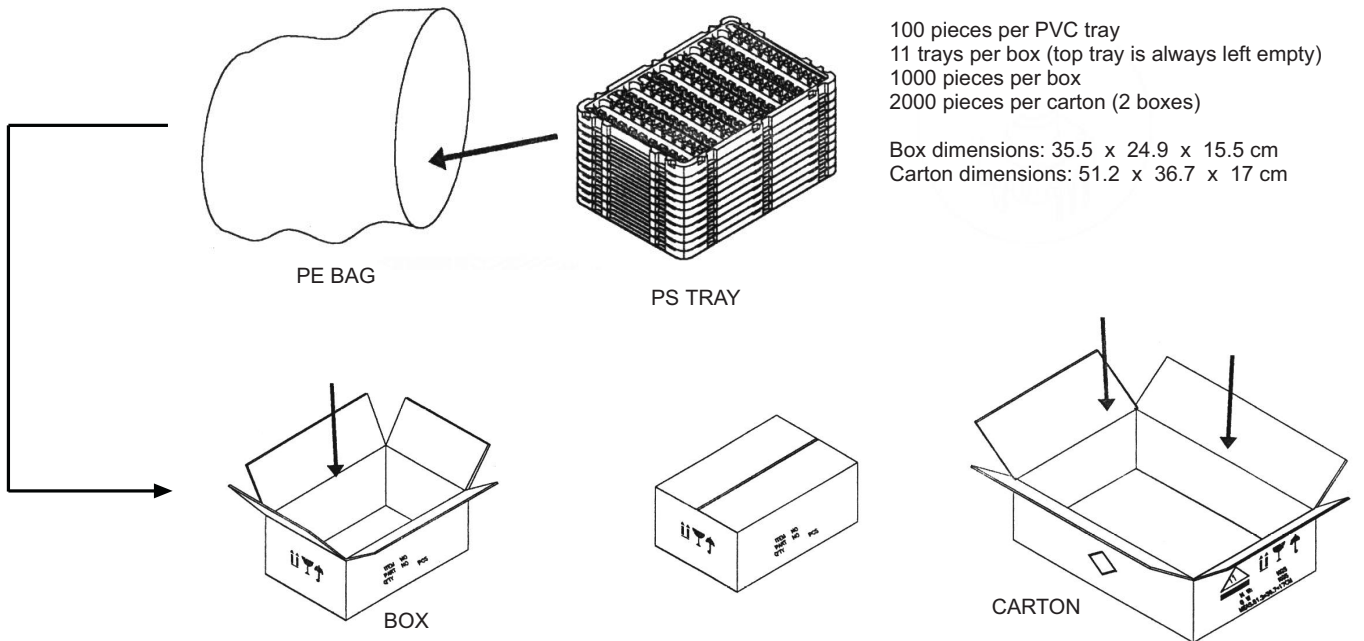
- Standard models:
- CI-11CT-V1Y22-LFACF (threaded bushing, 0.5mm switch, 15/30 pulse/detents)
 - CI-11C0-V1Y22-HF4CF (threaded bushing, without switch, 15/30 pulse/detents)
 - CI-11CT-V1N42-LFACF (bushing without thread, 0.5mm switch, 15/30 pulse/detents)
 - CI-11C0-V1N42-HF4CF (bushing without thread, without switch, 15/30 pulse/detents)

*Other configurations upon request

STANDARD DIMENSIONS (with switch)

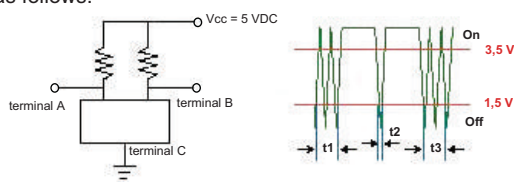


PACKAGING



TEST CIRCUIT DIAGRAM

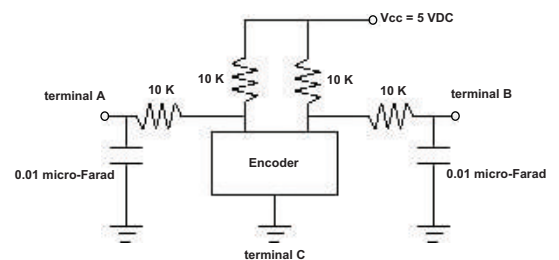
Measurements shall be made under the following conditions.
 (1) Shaft rotational speed: 360 degrees/second
 (2) Test circuit as follows:



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.)
- Contact Resistance: 100 mΩ (max.) @ initial
- Insulation Resistance: 100 MΩ (min.) @ 250 VDC 1 mA
- Dielectric Strength: 300 VAC for 1 min (Leak current 1 mA)
- Sliding Noise: t1, t3 < 3 ms, t2 < 2 mS (under 360°/S test condition)
- Phrase Difference: 0.08T min.
- Electrical Life: 20,000 operations

Mechanical

- Number of Detents: 20 (20-pulse encoder), 30 (15-pulse encoder)
- 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: 20 N(2.0 4kgf)

Switch

- Type: SPST
- Switching Function: (On)-Off
- Contact Resistance: 100 mΩ (max.) @ initial
- Insulation Resistance: 100 MΩ (min.) @ 250 VDC 1 mA
- Dielectric Strength: 300 VAC 1 mA for 1 minute
- Operating Force: 4.5 ± 1.5 N (450±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 100mΩ, 200mΩ after the end of useful life is reached
- Mechanical life: min 20,000 cycles
- Cold: -20 ± 2°C for 96H
- Dry heat: 85 ± 2°C for 96H
- Damp heat: 40 ± 2°C 90 to 95% RH for 96H