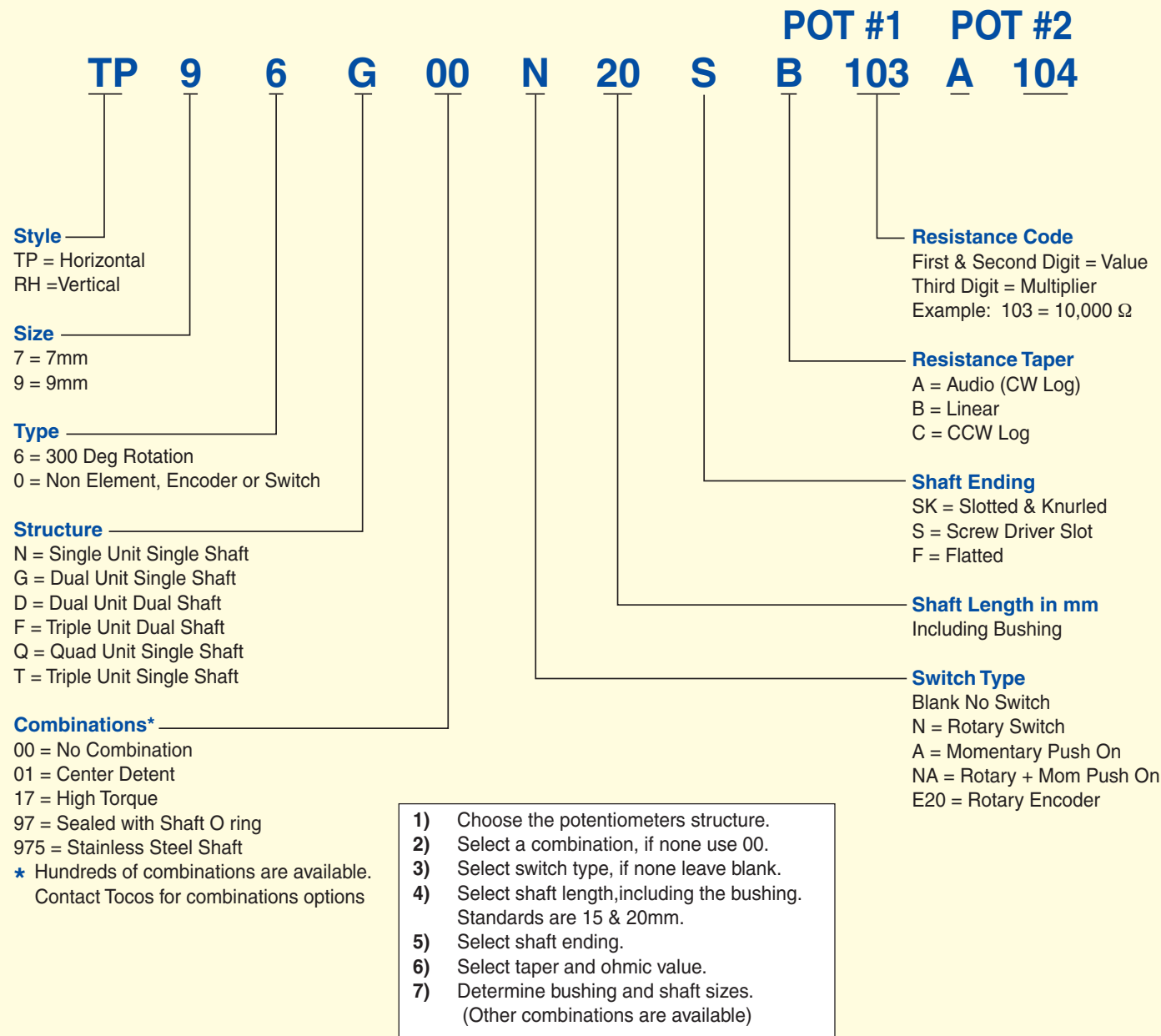


TP7 & 9 Series Part Numbering System

Example: TP96G00N 20S B103 A104
M7-5mm Shaft-6mm dia



TP7 & TP9 Series Potentiometers & Coded Switches

Potentiometers
For volume control

Encoders & Coded Switches
For channel select



ISO9000, ISO14000 Certified

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Tokyo Cosmos Electric Co., Ltd.

World's smallest potentiometers !!



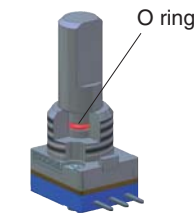
- Compact & light design optimize customers' space saving requirements
- Industry-proven robustness
- Flexibility to custom design (Shaft & Bushing)

■ Features

- **Compactness:**
- **Robustness:** Stainless shafts are optionally available:
1.5 times stronger than brass & aluminum shaft compared to conventional TOCOS shafts. Stainless shafts are ideal for hand-held 2-way radio to avoid accidental drop risks.
- **Variations of switches :**
Either rotary or push-momentary types can be optionally installed. Multifunction: On-off switch function and band selector function can be combined into one unit.
- **Sealed with O ring in between shaft and bushing (Option): Waterproof meets with IP67**
A seal rubber is installed in between a bushing and shaft to prevent water intrusion.
- **High torque models are optionally available**
- **Both vertical mount and horizontal types are available.**
- **Temp. range: Good in use in wide temp. range**
Standard: -20 to +70°C Also optionally available with -30°C



Vertical types



Waterproof (Option)

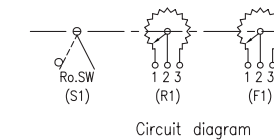
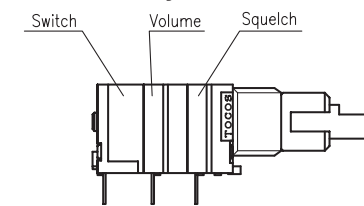


Major Applications For Volume & Encoders / Switches

Potentiometers

1. For Volume + power On-off switches
TP76N00N TP96N00N
2. For Volume + squelch + power On-off switches
TP76D00N TP96D00N

Rotary switch



TP76D00N

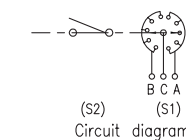
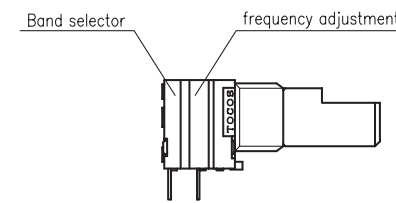


See Page 3 for dwg.

Encoders

1. For random frequency adjustment
TP70N00E20 TP90N00E20
2. For random frequency adjustment + frequency band selector
TP70N00AE20 TP90N00AE20

Push momentary switch



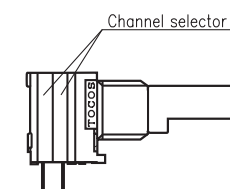
TP70N00AE20



See Page 4 for dwg.

Coded Switches

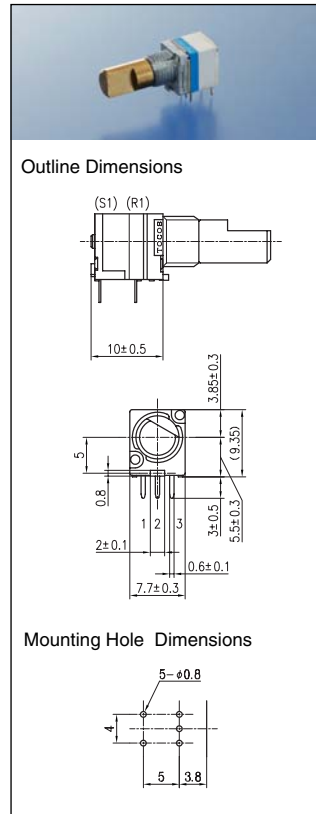
1. For Pro-use: Channel selector preset to assign frequencies, a particular channel is assigned and fixed when other parties are already known. TP70GF (Dual units with 1 shaft, 16 channels)



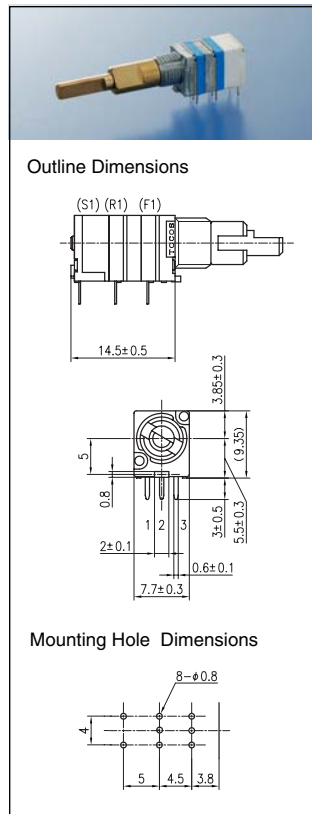
See Page 5 for dwg.

TP7 Series (7mm)

TP76N00N

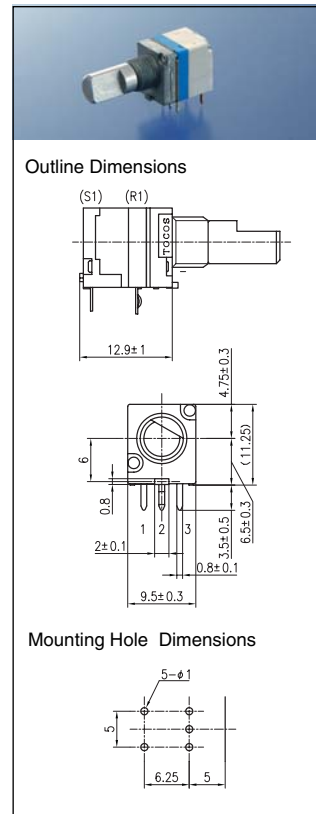


TP76D00N

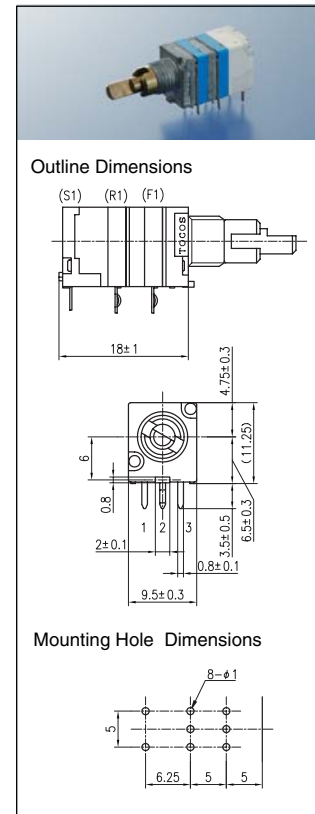


TP9 Series (9mm)

TP96N00N

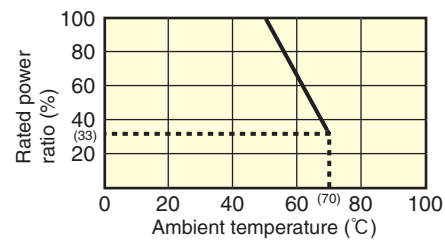


TP96D00N



Electrical

- Nominal total resistance 1,2,5,10,20,50,100,200,500(k Ω)
- Resistance tolerance ±20%
- Resistance taper A • B • C
- End resistance 50Ω max.
- Power rating 0.05W
- Noise 100mV max.
- Insulation resistance 100MΩ min. at DC250V
- Dielectric strength 1 minute at AC300V
- Max. operating voltage DC10V, AC50V
- Derating curve



Environment

- Soldering heat resistance 350±5°C at 3 sec
- Operating temperature range -20 to +70°C
- Rotational life 15,000 cycles without load
- Sealability After mounting a pot on the product. There shall be no leak on shaft & bushing at 9.8kpa (0.1kgf/cm²) by a hydraulic pressure for 30minutes.

Mechanical

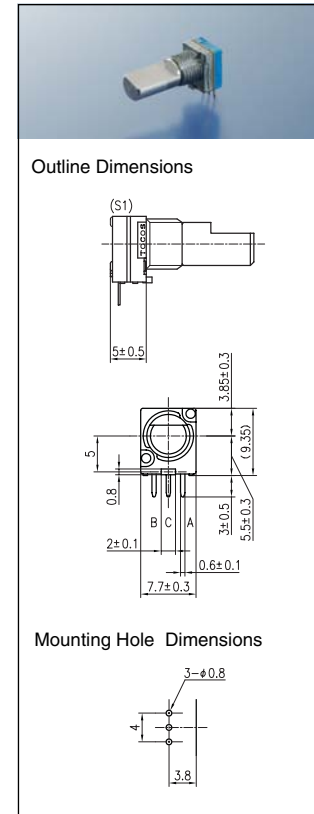
- Total rotational angle 300° (Mechanical)
- Rotational torque 2 to 24.5mN • m at +20°C (20 to 250gf • cm) 49.1mN • m at -20°C (500gf • cm max.)
- Shaft wobble and bend Radial direction 0.5x Shaft length / 30mm max. Thrust direction 0.5mm max.
- Detent position Center, 11, etc.
- Detent torque 2.9-29.4mN • m (30 to 300gf • cm)
- Shaft stopper strength TP7 inner shaft of the dual shaft type 0.3N • m (3kgf • cm) min. TP7 others 0.4N • m (4kgf • cm) min. TP9 0.5N • m (5kgf • cm) min.
- Shaft push- pull strength 98.1 N (10kgf) min.
- Nut tightening strength 0.98N • m (10kgf • cm) min.

Switch Specifications

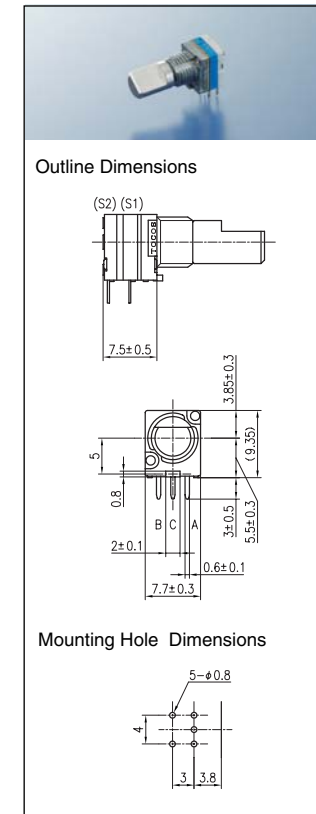
- Rotary switch, N: S.P.S.T.: DC16V-3A; 50° max.
- Momentary push, A: S.P.S.T.:DC12V-0.5A; 0.5mm Stroke
- Switch life 10,000 cycles without load
- Switch contact resistance: Initial 50m Ω max. After 10,000 cycles-200m Ω max.

TP7 Series (7mm)

TP70N00E20

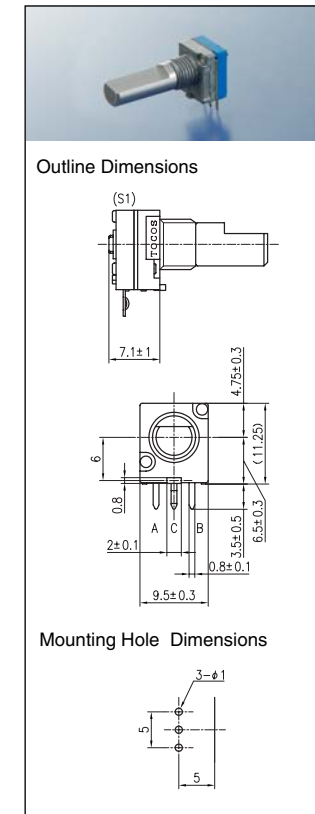


TP70N00AE20

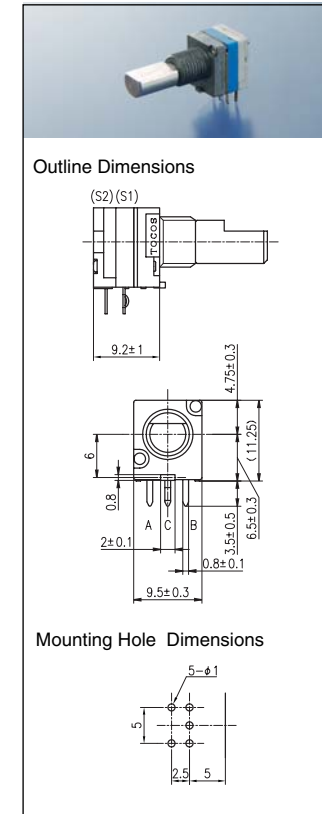


TP9 Series (9mm)

TP90N00E20



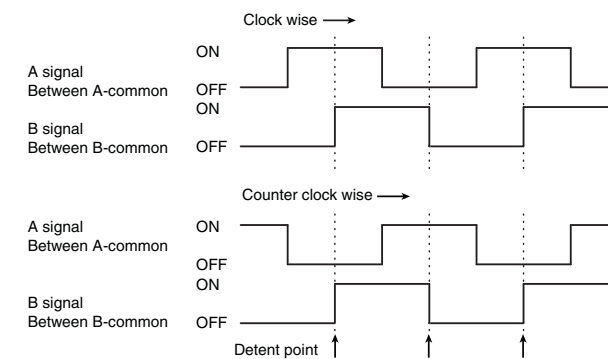
TP90N00AE20



Specifications

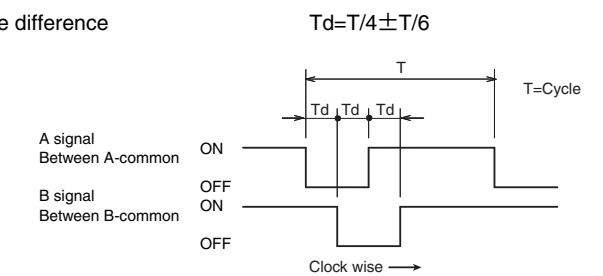
- Voltage rating DC 5V
- Current rating 1mA
- Max. Operating Current 2.5mA
- Chattering 10ms max.(15r.p.m)
- Contact resistance TP7 10Ω max. TP9 200Ω max.

Output signal



- Resolution 10 pulses
- Detent point 20 detents
A-common: ON or OFF
B-common: Non provisions

Phase difference



- Duty ratio 50%±5% (18° ±5.4°)
- Step angle 18° ±3°
- Rotational Life 50,000 cycles
- Rotational torque 2 to 24.5mN • m (0 to +70°C) 49.1mN max. (0 to -20°C) (500gf • cm max.)

• Please refer to Page 3 for other specifications.

