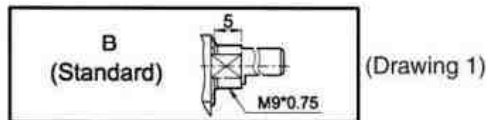




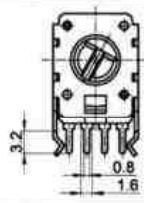
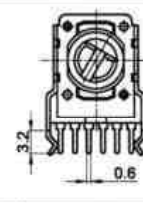
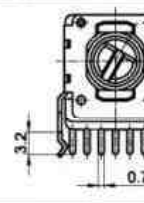
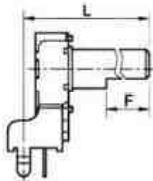
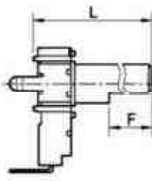
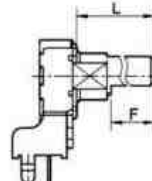
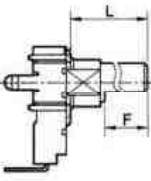
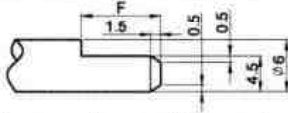
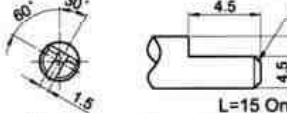
11P, 12P, 14P Series Code Explanation

14P 2 H B F - B □ - 15 F - A 10K - 1C - □□□
 1 2 3 4 5 6 7 8 9 10 11 12 13

- Product Lines of 11P, 12P, 14P (Snap-in Insulated Shaft , 11mm, 12mm, 14mm Size)
- Number of Unit: 1— Single Unit 2— Dual Unit
 11mm Size — Only Single Type
 12mm Size — Only Dual Type
 14mm Size — Only Dual Type
- Horizontal (H) type or Vertical (V) Type
- Type of Bushing



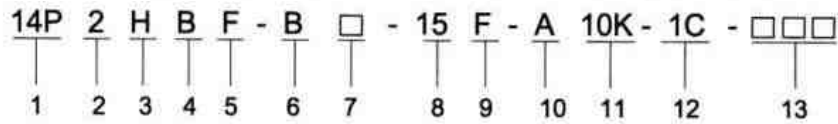
- Type of Frame "F" (Standard)
- Type of Terminal (see Drawing 2) (Drawing 2)

B (P.C.B type)	D (P.C.B Type)											
												
11mm Size	12mm Size	14mm Size										
												
Without Bushing		With Bushing										
Horizontal	Vertical	Horizontal	Vertical									
												
F -Type												
L	15	20	25	30	L	12.5	15	17.5	20	22.5	25	30
F	4.5	7	12	12	F	7	7	12	12	12	12	12

Remark: If the terminal is different from standard type, special code will advised on request.

The drawing and specification are for reference only. For further detail, please contact Top-Up head office.

11P, 12P, 14P Series Code Explanation



Remark:

7. circuit explanation (See Drawing 3)

11mm Size					
A	Single Unit		B	For High - Cut Tone	
12mm Size					
C	Without Tap For Vol.	With Tap For Vol.	D	For Tone	
14mm Size					
E	Without Tap For Vol.	F	G	For Tone	

- 8. Shaft Length "L" (See Drawing 2)
- 9. Shaft Type (See Drawing 2)
- 10. Type of Taper (See Drawing chart Page 149)
- 11. Resistance Value
- 12. number of Clicks
- 13. Serial No.

Common Specifications

1. Mechanical Characteristics

Application	11 mm size	12,14 mm size
	Single-unit	Dual unit
Total rotational angle	300± 5°	300± 5°
Rotational torque	30~200 gf·cm	30~200 gf·cm
Rotation stopper strength	Without bushing 5 kgf·cm with bushing 6 kgf·cm	6 kgf·max.
Pull-push strength	8 kgf max.	8 kgf max.
Shaft inclination Measured at the tip of the shaft	Within 0.35mm	Within 0.35mm
Shaft wobble	Without bushing 0.7xL/20mm p-p max. With bushing 0.7xL/30mm p-p max.	Without bushing 0.7xL/20mm p-p max. With bushing 0.7xL/30mm p-p max.
Bushing nut tightening strength	10 kgf·cm max.	10 kgf·cm max.

2. Electrical Characteristics

Application	11 mm size	12,14 mm size
	Single-unit	Dual unit
Total rotational angle	5kΩ~500kΩ	5kΩ~500kΩ
Total resistance to tolerance	± 20%	± 20%
Resistance taper	A, B, C, D, E, K, W	A, B, C, D, E, K, W, M, N
Rated power	0.05W	0.05W
Max. operating voltage	50V AC 20V DC	50V AC For A.C. only

Note: 11 mm Size High-cut tone for Total resistance is measured when the shaft is turn fully CW.

3. Electrical Characteristics

Application	11 mm size		12,14 mm size
	Single-unit		Dual unit
Residual resistance	$R \leq 10k\Omega$ 20 Ω max. $10k\Omega < R \leq 50k\Omega$ 30 Ω max. $50k\Omega < R \leq 500k\Omega$ 300 Ω max. 0.1% max. of total resistance		$R \leq 30k\Omega$ 30 Ω max. $30k\Omega < R \leq 500k\Omega$ 0.1% max. of total resistance
For volume			5 Ω max (12mm only)
Slide noise	Less than 100mV		
Gang error			For volume control within 3dB at -40 to 0dB For tone control within 2dB at center
Insulation resistance	100M Ω min. at 500V DC	100M Ω min. at 250V DC	
Withstand voltage	For 1 minute or more at 500V AC	For 1 minute or more at 300V AC	

4. Durability

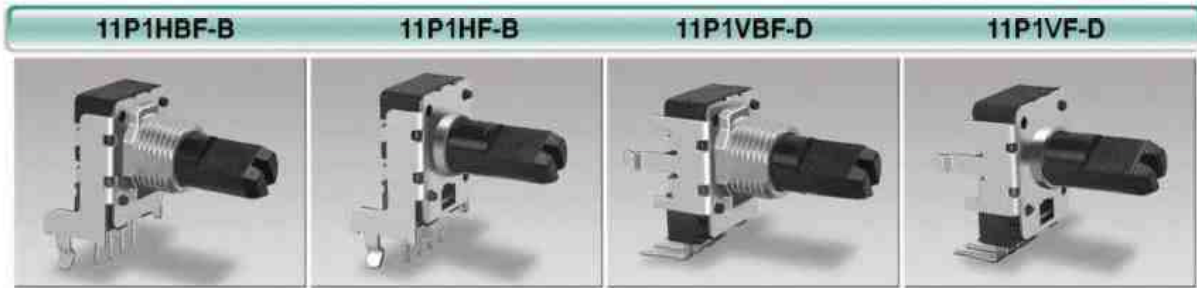
Rotational life	15,000 cycles	10,000 cycles	15,000 cycles
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Notes:

1. For volume control, measurement is made at max. attenuation and insertion loss. For specifications, see max. attenuation and insertion loss.
2. Potentiometers of dual -unit type and for high -cut tone use are for the exclusive use of alternating current. hence avoid using the potentiometer in the circuit where DC voltage is constantly applied.

Maximum Attenuation Level And Insertion Loss

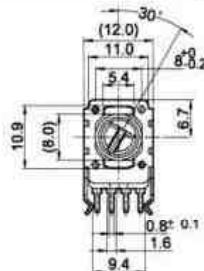
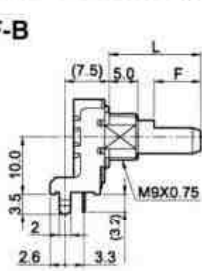
Resistance range	Maximum attenuation level		Insertion loss
	11mm Size	12,14mm Size	
$5\Omega < R \leq 10k\Omega$	60dB min.	60dB min.	0.1dB max.
$10k\Omega < R \leq 50k\Omega$	70dB min.	70dB min.	
$50k\Omega < R \leq 100k\Omega$	80dB min.	80dB min.	
$100k\Omega \leq R$	90dB min.	90dB min.	



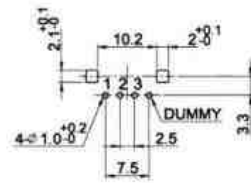
Outline Drawing

Features individual specifications

11P1HBF-B



SHAFT SHOWN IN FULL C.C.W POSITION

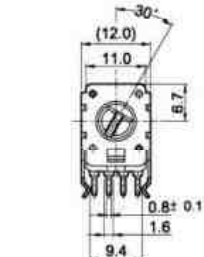
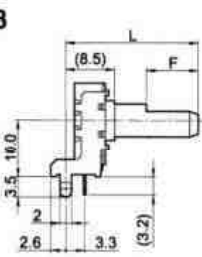


P.C.B MOUNTING HOLES DETAIL

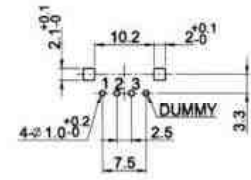


300° ROTATION SINGLE UNIT

11P1HF-B



SHAFT SHOWN IN FULL C.C.W POSITION

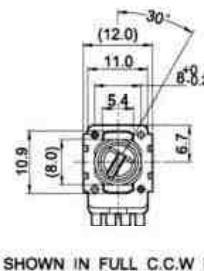
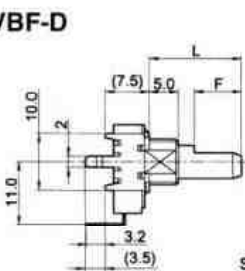


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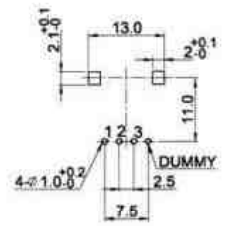


300° ROTATION SINGLE UNIT

11P1VBF-D



SHAFT SHOWN IN FULL C.C.W POSITION

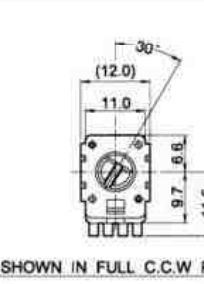
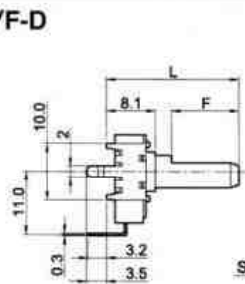


P.C.B MOUNTING HOLES DETAIL

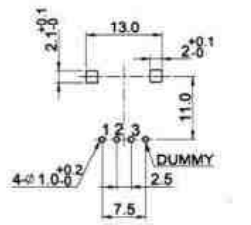


300° ROTATION SINGLE UNIT

11P1VF-D



SHAFT SHOWN IN FULL C.C.W POSITION



P.C.B MOUNTING HOLES DETAIL



300° ROTATION SINGLE UNIT

11mm Size Snap-in, Insulated Shaft Potentiometers

The drawing and specification are for reference only. For further detail, please contact Top-Up head office.