

EC11

11 mm Size Metal Shaft Type

Compact and highly reliable type available in many varieties



■ Typical Specifications

Items	Specifications
Output signal	Two phase of A, B Self-return switch (EC111 / EC11E0B)
Rating	10mA 5V DC
Operating life	15,000 cycles 100,000 cycles (EC11K / EC11J)
Operating temperature range	-40°C to +85°C

⚠ Production to be discontinued. Not recommended for new designs.

● Re-classified as semi-standard following a review of standard products. If you are interested in this product, please inquire.

■ Product Line

Structure	Shaft configuration	Length of the shaft (mm)	Torque (mN·m)	Number of detent	Number of pulse	Push-on switch	Travel of push-on switch (mm)	Operating life (cycles)	Minimum order unit (pcs.)		Product No.	Drawing No.		
									Japan	Export				
Horizontal	Flat	20	12±7	30	15	Without	—	15,000	700	1,400	EC11B15202AN	1	⚠	
Vertical						With	0.5				EC11B15242AZ	2	⚠	
							1.5				EC11B15242B1	3	⚠	
			10±7	18	9	Without	—		1,200	2,400	EC11E09204A4	4	●	
				30	15						EC11E15204A3			EC11E1820402
				36	18						EC11E09244BS			
				18	9	With	0.5				EC11E15244G1	5	●	
			30	15	EC11E153440D									
			7 ⁺³ ₋₄	Without	18						EC11E18244AU			
			10±7	36	EC11E183440C									
			7 ⁺³ ₋₄	Without	9						EC11E09244AQ			
			10±7	30	EC11E15244B2									
			7 ⁺³ ₋₄	Without	15						EC11E1534408			
			10±7	36	EC11E18244A5									
			7 ⁺³ ₋₄	Without	18						EC11E1834403			
			15	10±7	30						15			Without
						With	0.5					EC11N1524402	7	
							1.5					EC11N1525404		
						Without	—					EC11N1520402	6	
						With	0.5					EC11N1524403	7	
1.5	EC11N1525405													
Less shaft wobble	Serrated	25	12±7	Without	—	1,000	2,000	EC11G1560414				8	⚠	
			8.5±5					Without	EC11G1574402	9		⚠		
			12±7					30	EC11G1564411	10		⚠		
			8.5±5					Without	EC11M1565403	9		EC11M1575403	10	⚠
Vertical	Flat	20	12±5	18	9			Without	—	EC11K0920404			11	
				30	15					EC11K1520406				
				18	9			With	0.5	EC11K0924404	12	⚠		
				30	15					EC11K1524406				
				18	9					EC11K0925416				
				30	15					EC11K1525413				

Note

Other varieties are also available. Please inquire.

■ Product Line Production to be discontinued. Not recommended for new designs.

Structure	Shaft configuration	Length of the shaft (mm)	Torque (mN·m)	Number of detent	Number of pulse	Push-on switch	Travel of push-on switch (mm)	Operating life (cycles)	Minimum order unit (pcs.)		Product No.	Drawing No.		
									Japan	Export				
Reflow	Flat	20	12±5 (Initial) 10±4 (After reflow)	18	9	Without	—	100,000	600	600	EC11J0920404	13		
				30	15						EC11J152040F			
				18	9	With	0.5				14	EC11J0924411		
				30	15							EC11J1524413		
				18	9		1.5					EC11J0925403		
												EC11J1525402		
Push lock	20-tooth Serrated	25	10±7	30	15	Without	—		800	1,600		EC11E152T409	15	
		26.4				With	8					EC11E152U402	16	
Self-return switch	Flat	15	3 to 30	Without	Self-return switch	Without	—	15,000	1,200	2,400	EC1110120005	17		
		20				With	0.5				EC111012010H	18		
							1.5						EC1110120201	
Dual-shaft						Inner-shaft=25	10±7				30	15		0.5
	Slotted	Outer-shaft=15	Without	—		20								
	Flat	Inner-shaft=25	With	1.5										
	Slotted	Outer-shaft=15	3 to 30	Without	Self-return switch	Without	—				EC11E0B2LB01			

Note

Other varieties are also available. Please inquire.

■ Packing Specifications

Tray

Product No.	Number of packages (pcs.)		Export package measurements (mm)
	1 case / Japan	1 case / export packing	
EC11B	700	1,400	524×374×201
EC11E09/15/18/EC11N	1,200	2,400	540×360×250
EC11G/EC11K/EC11M	1,000	2,000	
EC11J	600	600	369×283×263
EC11E152T/U	800	1,600	507×363×230
EC111	1,200	2,400	507×363×216
EC11E0B/BB	700	1,400	

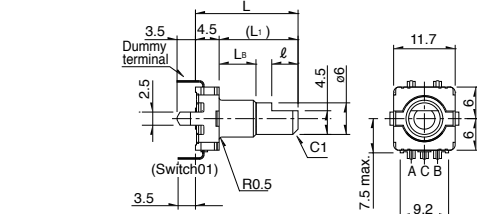
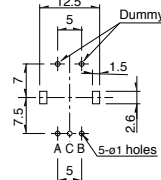
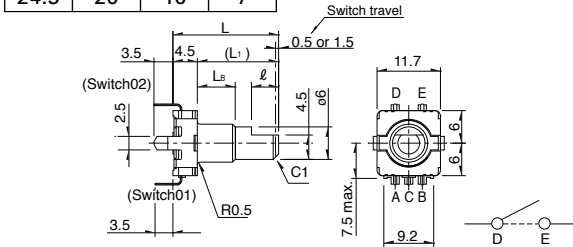
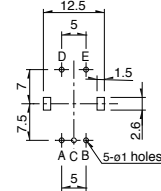
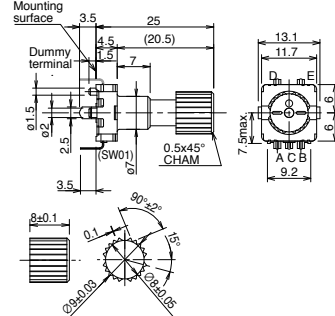
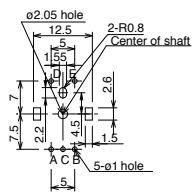
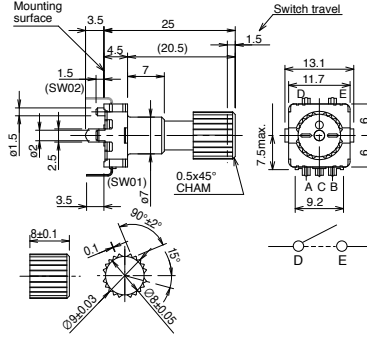
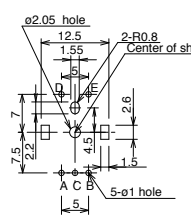
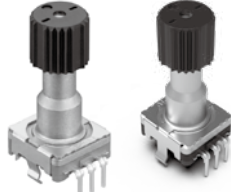
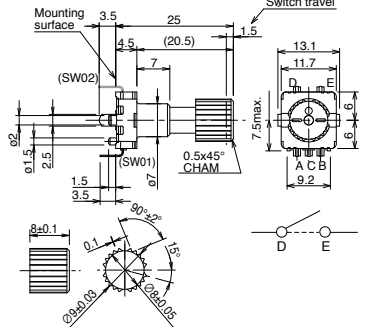
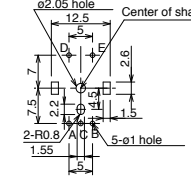
Unit:mm

ALPSALPINE

EC11 11 mm Size Metal Shaft Type

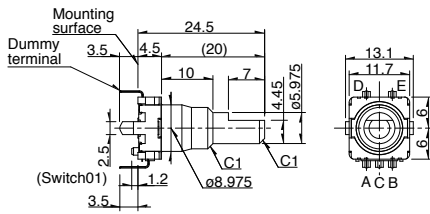
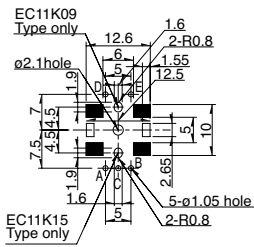
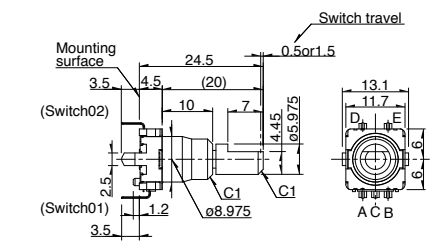
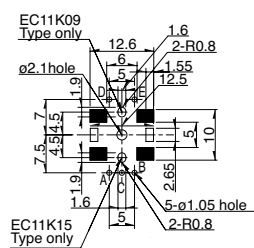
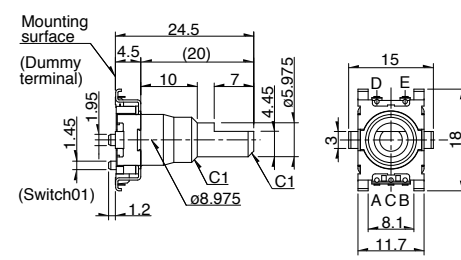
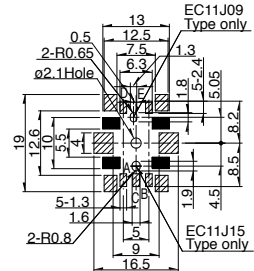
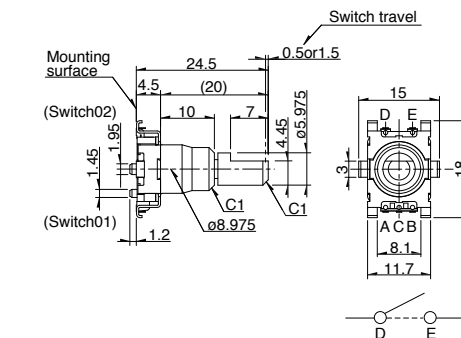
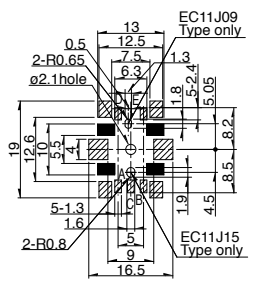
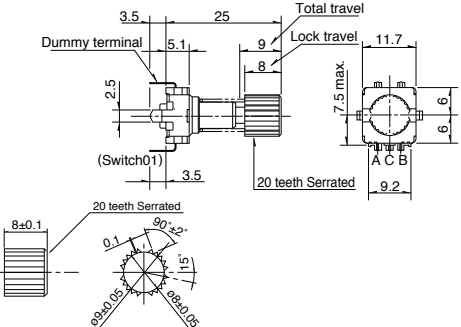
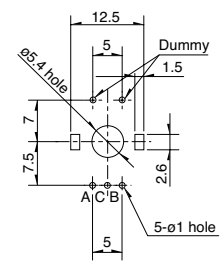
■ Dimensions  Production to be discontinued. Not recommended for new designs.

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)												
6	EC11N Vertical 	<table border="1"> <thead> <tr> <th>L</th><th>L₁</th><th>L_B</th><th>ℓ</th></tr> </thead> <tbody> <tr> <td>19.5</td><td>15</td><td>7</td><td>5</td></tr> <tr> <td>24.5</td><td>20</td><td>10</td><td>7</td></tr> </tbody> </table> 	L	L ₁	L _B	ℓ	19.5	15	7	5	24.5	20	10	7	
L	L ₁	L _B	ℓ												
19.5	15	7	5												
24.5	20	10	7												
7	EC11N Vertical with push-on switch (travel 0.5mm / 1.5mm) 	<table border="1"> <thead> <tr> <th>L</th><th>L₁</th><th>L_B</th><th>ℓ</th></tr> </thead> <tbody> <tr> <td>19.5</td><td>15</td><td>7</td><td>5</td></tr> <tr> <td>24.5</td><td>20</td><td>10</td><td>7</td></tr> </tbody> </table> 	L	L ₁	L _B	ℓ	19.5	15	7	5	24.5	20	10	7	
L	L ₁	L _B	ℓ												
19.5	15	7	5												
24.5	20	10	7												
8	EC11G Vertical  														
9	EC11G, EC11M Vertical with push-on switch (travel 1.5mm) 														
10	EC11G, EC11M Vertical with push-on switch (travel 1.5mm) 														

■ Dimensions  Production to be discontinued. Not recommended for new designs.

Unit:mm

No.	Photo	形状	PC board mounting hole dimensions (Viewed from mounting side)
11	EC11K Vertical  	 Mounting surface Dummy terminal (Switch01) C1 C1 ø8.975 24.5 4.5 10 7 4.45 13.1 11.7 1.6 1.55 12.5 5 10 2.65 5-ø1.05 hole 2-R0.8	 EC11K09 Type only EC11K15 Type only Black part : Do not solder and no wiring for electrical contact.
12	EC11K Vertical with push-on switch (travel 0.5mm / 1.5mm)  	 Mounting surface (Switch02) (Switch01) C1 C1 ø8.975 24.5 4.5 10 7 4.45 13.1 11.7 1.6 1.55 12.5 5 10 2.65 5-ø1.05 hole 2-R0.8 Switch travel 0.5or1.5	 EC11K09 Type only EC11K15 Type only Black part : Do not solder and no wiring for electrical contact.
13	EC11J Reflow  	 Mounting surface (Dummy terminal) (Switch01) C1 C1 ø8.975 24.5 4.5 10 7 4.45 15 18 11.7 8.1 1.6 1.55 12.5 5 10 2.65 5-ø1.05 hole 2-R0.8	 EC11J09 Type only EC11J15 Type only A slant line part: The solder land Black part: Do not solder and wiring for electrical contact
14	EC11J Reflow with push-on switch (travel 0.5mm / 1.5mm)  	 Mounting surface (Switch02) (Switch01) C1 C1 ø8.975 24.5 4.5 10 7 4.45 15 18 11.7 8.1 1.6 1.55 12.5 5 10 2.65 5-ø1.05 hole 2-R0.8 Switch travel 0.5or1.5	 EC11J09 Type only EC11J15 Type only A slant line part: The solder land Black part: Do not solder and wiring for electrical contact
15	EC11E152T Push-lock mechanism with push-lock switch  	 Dummy terminal (Switch01) C1 C1 ø8.975 25 9 8 11.7 7.5 max 6.6 9.2 20 teeth Serrated 8±0.1 0.1 90°±2° 15° ø0.405 ø0.405 Total travel Lock travel 20 teeth Serrated	 Dummy 5-ø1 hole ø5.4 hole 12.5 5 1.5 7.5 7 2.6 5 A C B

Encoders

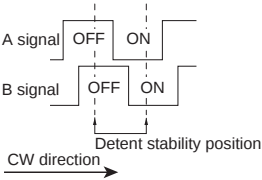
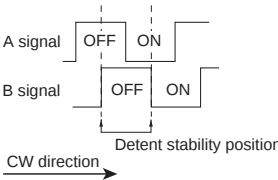
Metal
Shaft

Insulated
Shaft

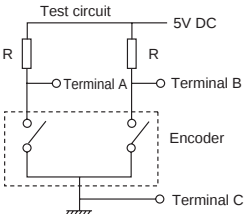
Through
Shaft Type

Ring
Type

Output Wave

EC11E, EC11N, EC11M	EC11E
EC11E 30 detents, 15 pulse EC11N, EC11M 	Detent stability position cannot be specified for B signal EC11E 18 detents 9 pulse EC11E 36 detents 18 pulse 

Sliding Noise



Test circuit

5V DC

R

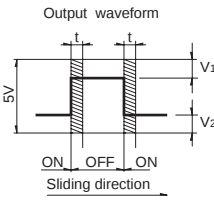
Terminal A

Terminal B

Encoder

Terminal C

Measurement condition : Rotation speed 360°/s t : Masking time to avoid chattering



Output waveform

5V

V₁

V₂

t

t

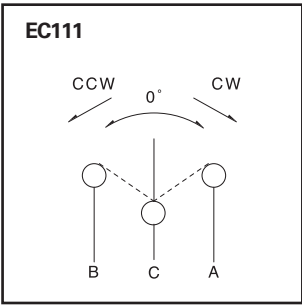
ON OFF ON

Sliding direction

**EC11E/EC11N/
EC11M**

V₁=V₂=1.5V max.
At R = 5kΩ
Chattering : 3ms max.
Bounce : 2ms max.

Circuit Diagram



1 1 mm Size Metal Shaft Type / Product Varieties

In addition to the Product Line, we accommodate the following specifications. Combinations not included in the Product Line are treated as semi-standard products.

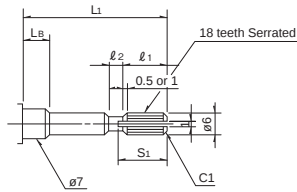
■ Shaft Dimensions

1. Single-shaft Type

1) Serrated Type

Unit:mm

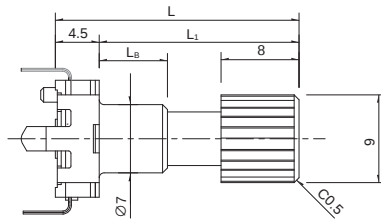
EC11 (Except EC11M) Style (Shaft diameter: $\phi 6$)



● Detailed dimensions

L_1	L_B	l_1	l_2	S_1
20	7	6	1	7
25	10	10	2	11

EC11M Style (Shaft diameter: $\phi 9$)



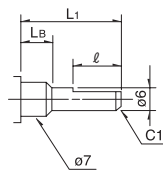
● Detailed dimensions

L	L_1	L_B
18	13.5	5
25	20.5	7
28	23.5	10

2) Flat Type

Unit:mm

EC11 Style (Shaft diameter: $\phi 6$)



● Detailed dimensions

L_1	L_B	l
※1 15	5	7
15	7	5 (6)
20	7	10 (12)
25	10	12

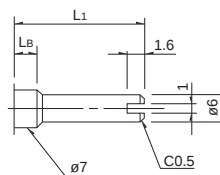
※1 Does not comply with EC111

Values in parentheses apply to products without push-on switch.

3) Slotted Type

Unit:mm

EC11 Style (Shaft diameter: $\phi 6$)



● Detailed dimensions

L_1	L_B
15	7
20	7
25	10

Notes

1. Shaded areas in shaft type details indicate specifications included in the product lineup on P.246
2. Other varieties are also available. Please inquire.

11 mm Size Metal Shaft Type / Switch Specifications

1. EC11E/EC11N/EC111 Series

Switch type		Momentary push switch	
Contact arrangement		Single pole and single throw (Push-on)	
Travel (mm)		0.5±0.3	1.5±0.5
Operating force		6 ^{+2.5} ₋₂ N	4±2N
Operating life		20,000 times	
Electrical performance	Rating	0.1A 5V DC (500μA 5V DC min. ratings)	
	Contact resistance	100mΩ max. for initial period, 200mΩ max. after operating life.	
	Insulation resistance	100MΩ min. 250V DC	
	Voltage proof	300V AC for 1 minute or 360V AC for 2 second	

2. EC11M Series

Switch type		Momentary push switch	
Contact arrangement		Single pole and single throw (Push-on)	
Travel (mm)		1.5±0.35	
Operating force		5±2N	
Operating life		20,000 times	
Electrical performance	Rating	0.15A 5V DC (500μA 5V DC min. ratings)	
	Contact resistance	100mΩ max. for initial period, 200mΩ max. after operating life.	
	Insulation resistance	100MΩ min. 250V DC	
	Voltage proof	300V AC for 1 minute or 360V AC for 2 second	