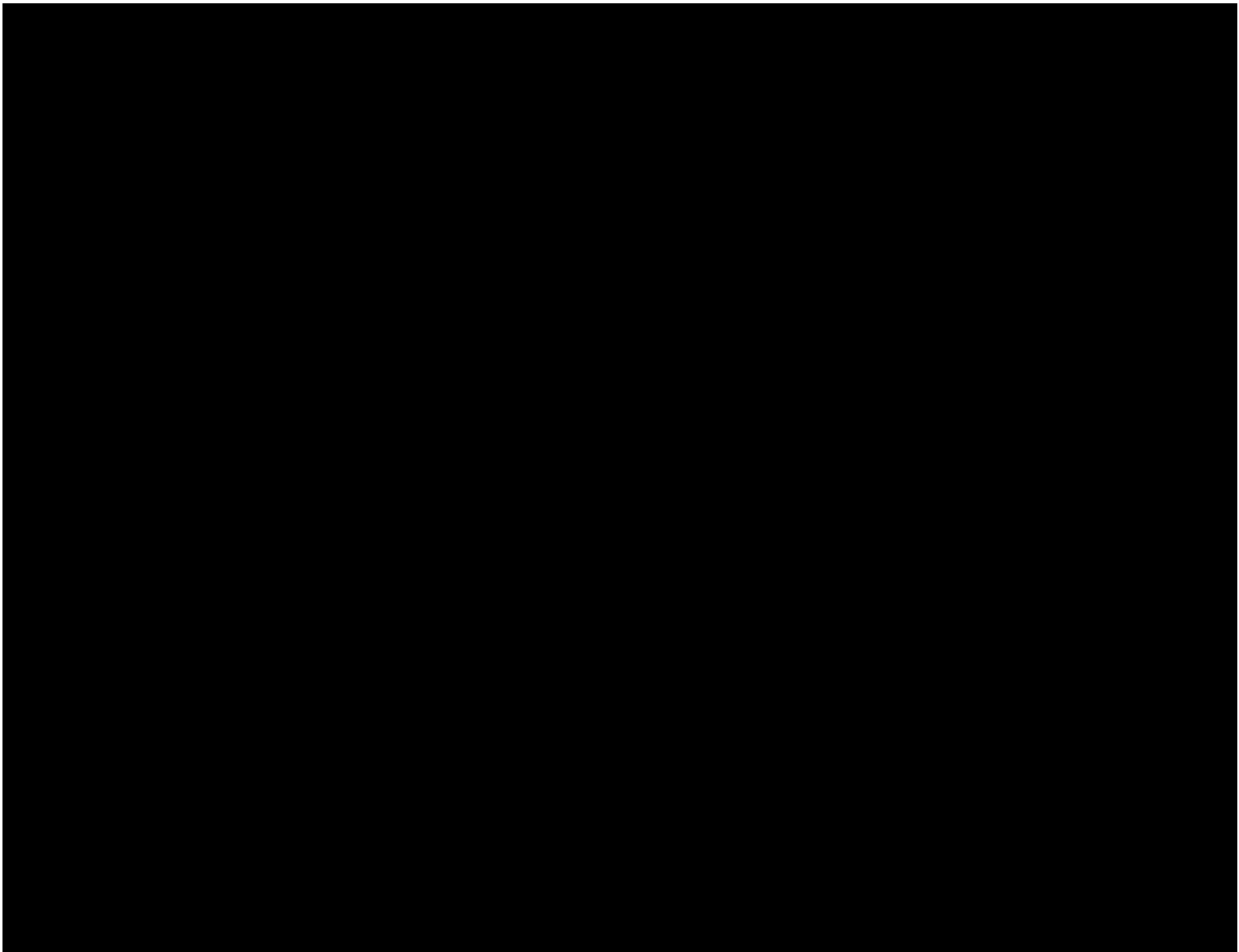
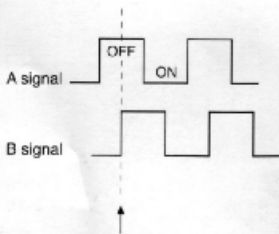
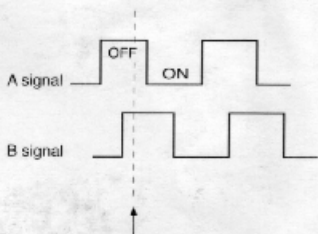




12 mm	ED 12	24	24	phase difference in output of 2 signals. A and B	(Endless)	50,000	/snap-in	with push-on switch
16 mm	ED 16	12	12		360° (Endless)	100,000	Fastened with bushing unit /snap-in	Insulated shaft With push-on switch
		24	24					

■ Electrical characteristics

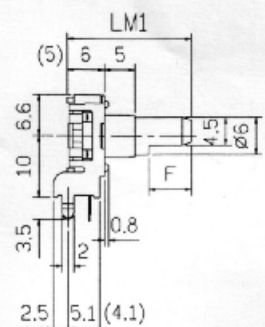
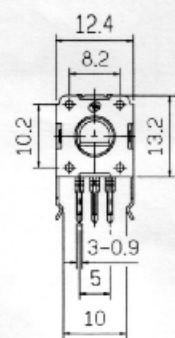
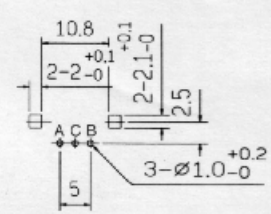
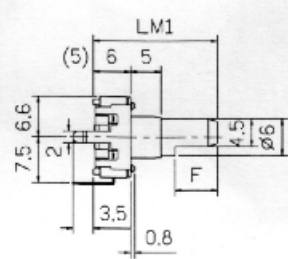
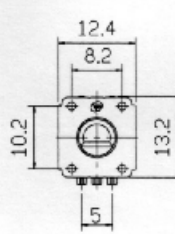
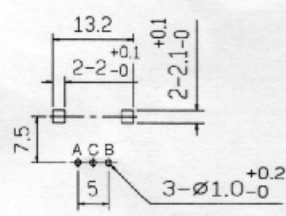
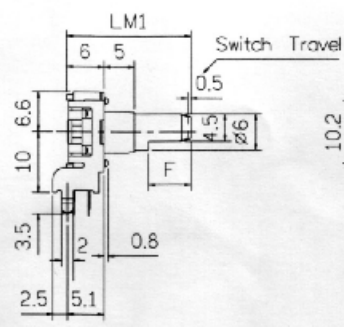
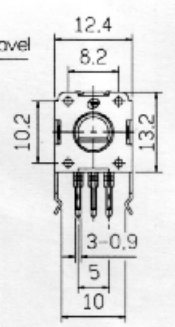
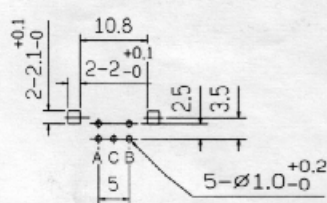
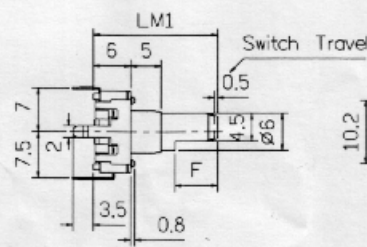
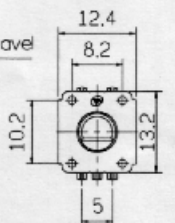
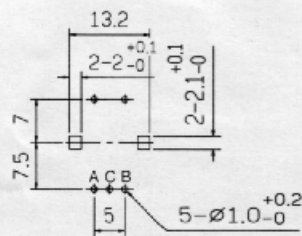
Ratings power	5V DC. 0.5mA (Each Bit)	
Phase-difference	$\Delta T = 0.08T$ min.	$\Delta T = 0.15T \pm 0.1T$ or $0.25T \pm 0.1T$
Insulation resistance	50V DC 100M Ω min	
Voltage proof	50V AC	
Sliding noise	$t_1, t_3 \leq 3\text{ms}$ $t_2 \leq 2\text{ms}$ (Test conditions 360°/s)	
Output signal and rotational direction	 Detent stability point CW direction	 Detent stability point CW direction

■ Push-on switch specifications

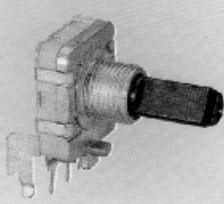
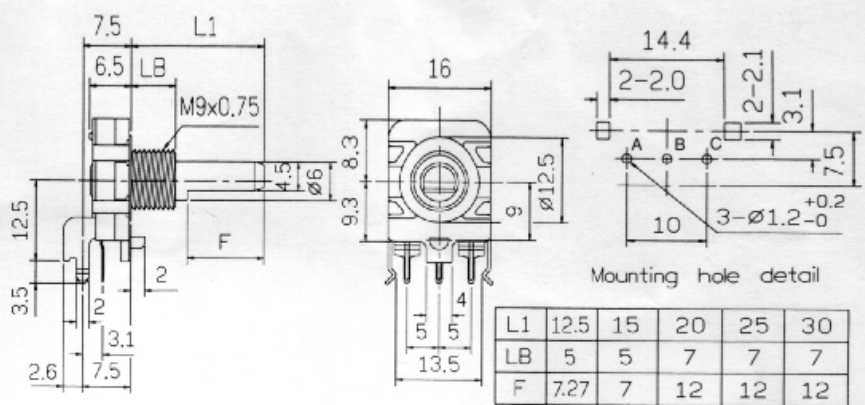
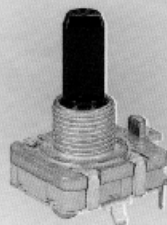
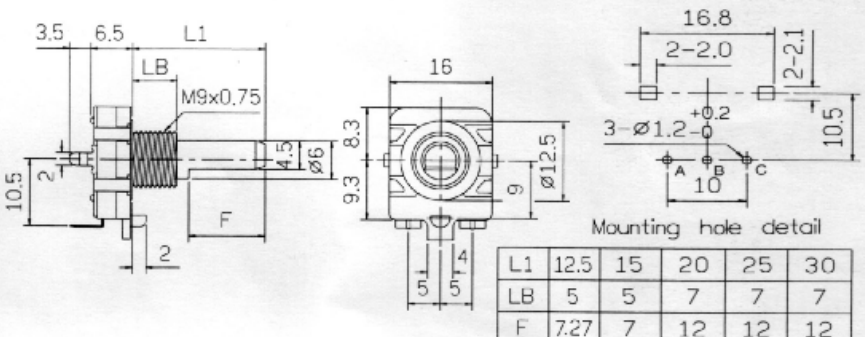
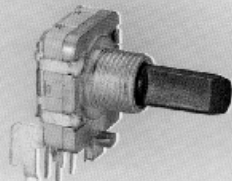
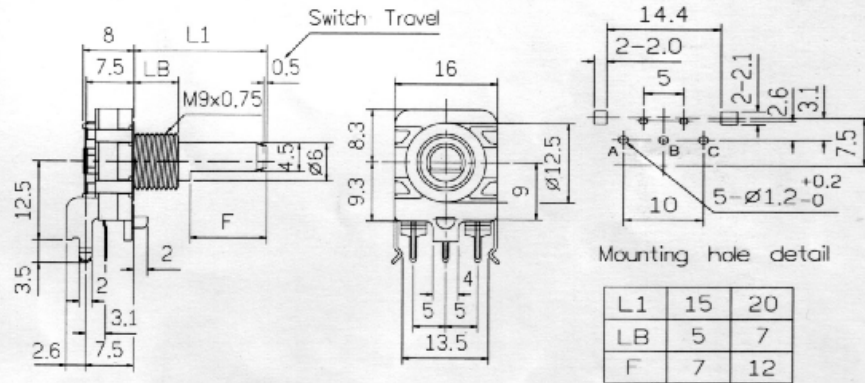
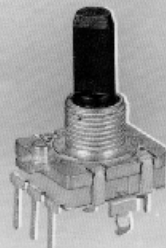
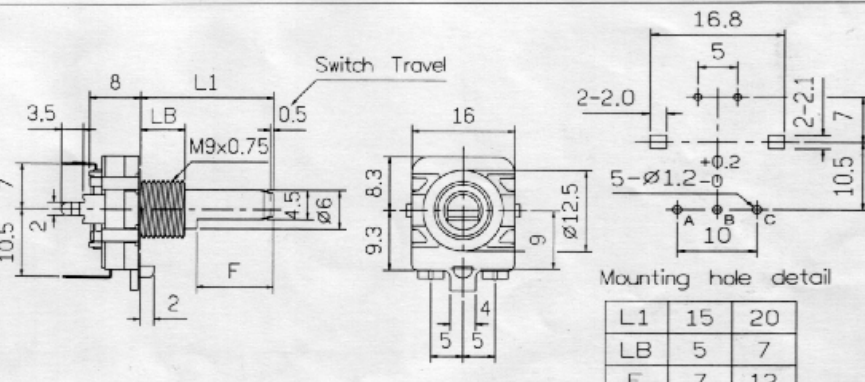
Switch circuit	Single pole and single throw (push on)
Travel of switch (mm)	$0.5 \begin{smallmatrix} +0.4 \\ -0.3 \end{smallmatrix}$
Operating force of switch	$3 \begin{smallmatrix} +1.5 \\ -1.0 \end{smallmatrix} \text{ N} / 360 \begin{smallmatrix} +150 \\ -100 \end{smallmatrix} \text{ gf}$
Ratings power	DC 5V 10mA (minimum ratings DC 5V 1mA)
Contact resistance	First period: 100m Ω , 200m Ω after the end of useful life is reached
Operating life	20,000 cycles min.

INSULATED SHAFT ENCODERS

■ 12mm Size Snap-in Insulated Shaft Encoder

Model	Dimensions													
ED1211 (3) 12mm Size Horizontal Type Encoder			 Mounting hole detail <table border="1"><tr><td>LM1</td><td>17.5</td><td>20</td><td>25</td></tr><tr><td>F</td><td>5.0</td><td>7</td><td>12</td></tr></table>	LM1	17.5	20	25	F	5.0	7	12			
LM1	17.5	20	25											
F	5.0	7	12											
ED1212 (4) 12mm Size Vertical Type Encoder			 Mounting hole detail <table border="1"><tr><td>LM1</td><td>17.5</td><td>20</td><td>25</td></tr><tr><td>F</td><td>5.0</td><td>7</td><td>12</td></tr></table>	LM1	17.5	20	25	F	5.0	7	12			
LM1	17.5	20	25											
F	5.0	7	12											
ED1211S 12mm Size Horizontal Type Encoder With Push-on Switch			 Mounting hole detail <table border="1"><tr><td>LM1</td><td>17.5</td><td>20</td><td>25</td><td>30</td></tr><tr><td>F</td><td>5.0</td><td>7</td><td>12</td><td>12</td></tr></table>	LM1	17.5	20	25	30	F	5.0	7	12	12	
LM1	17.5	20	25	30										
F	5.0	7	12	12										
ED1212S 12mm Size Vertical Type Encoder With Push-on Switch			 Mounting hole detail <table border="1"><tr><td>LM1</td><td>17.5</td><td>20</td><td>25</td><td>30</td></tr><tr><td>F</td><td>5.0</td><td>7</td><td>12</td><td>12</td></tr></table>	LM1	17.5	20	25	30	F	5.0	7	12	12	
LM1	17.5	20	25	30										
F	5.0	7	12	12										

■ 16mm Size Snap-in Insulated Shaft Encoder

Model	Dimensions																		
ED1611 16mm Size Horizontal Type Encoder	  <table><tr><td>L1</td><td>12.5</td><td>15</td><td>20</td><td>25</td><td>30</td></tr><tr><td>LB</td><td>5</td><td>5</td><td>7</td><td>7</td><td>7</td></tr><tr><td>F</td><td>7.27</td><td>7</td><td>12</td><td>12</td><td>12</td></tr></table>	L1	12.5	15	20	25	30	LB	5	5	7	7	7	F	7.27	7	12	12	12
L1	12.5	15	20	25	30														
LB	5	5	7	7	7														
F	7.27	7	12	12	12														
ED1612 16mm Size Vertical Type Encoder	  <table><tr><td>L1</td><td>12.5</td><td>15</td><td>20</td><td>25</td><td>30</td></tr><tr><td>LB</td><td>5</td><td>5</td><td>7</td><td>7</td><td>7</td></tr><tr><td>F</td><td>7.27</td><td>7</td><td>12</td><td>12</td><td>12</td></tr></table>	L1	12.5	15	20	25	30	LB	5	5	7	7	7	F	7.27	7	12	12	12
L1	12.5	15	20	25	30														
LB	5	5	7	7	7														
F	7.27	7	12	12	12														
ED1611S 16mm Size Horizontal Type Encoder With Push-on Switch	  <table><tr><td>L1</td><td>15</td><td>20</td></tr><tr><td>LB</td><td>5</td><td>7</td></tr><tr><td>F</td><td>7</td><td>12</td></tr></table>	L1	15	20	LB	5	7	F	7	12									
L1	15	20																	
LB	5	7																	
F	7	12																	
ED1612S 16mm Size Vertical Type Encoder With Push-on Switch	  <table><tr><td>L1</td><td>15</td><td>20</td></tr><tr><td>LB</td><td>5</td><td>7</td></tr><tr><td>F</td><td>7</td><td>12</td></tr></table>	L1	15	20	LB	5	7	F	7	12									
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