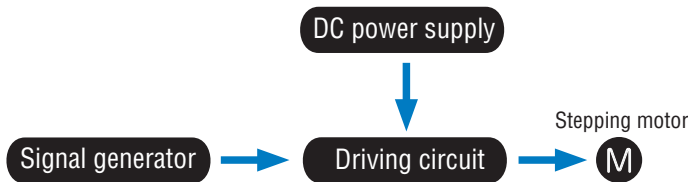
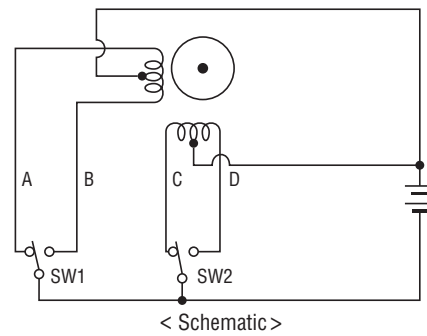


STEPPING MOTORS DRIVING CIRCUIT

Driving circuit configuration



Excitation and sequence



● 1 phase exciting method

This method performs constant excitation of one phase only. The input is small and little temperature increase occurs, so a small power supply is sufficient. The attenuation vibration for each step, however, is large, so hunting can occur easily. (Refer to Fig. 1, 2)

	SW1		SW2	
	A	B	C	D
1	ON			
2			ON	
3		ON		
4				ON
1	ON			

Fig. 1

Sequence

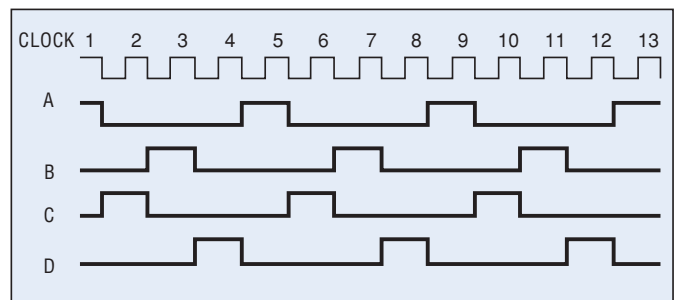


Fig. 2

● 2 phase exciting method

This method performs constant exciting of two phases, and one phase is always exciting during phase switch-over. This results in braking effects during operation, and starting torque is always applied, so hunting decreases and the self starting frequency can be increased. The input is twice that of the 1 phase exciting method. (Refer to Fig. 3, 4)

	SW1		SW2	
	A	B	C	D
1	ON		ON	
2		ON	ON	
3		ON		ON
4	ON			ON
1	ON		ON	

Fig. 3

Sequence

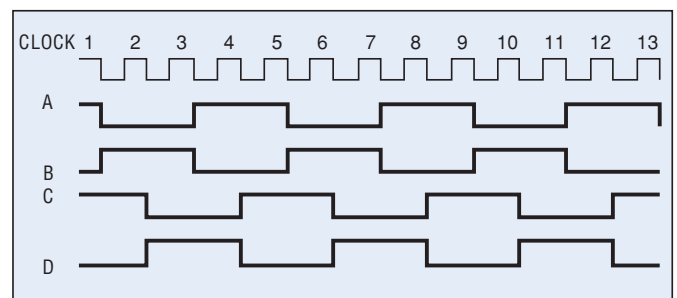


Fig. 4

DRIVING CIRCUIT

STEPPING MOTORS

● 1-2 phase exciting method

This method alternately performs the 1 phase excitation method and the 2 phases excitation method, with the angle deviation being half that of the 1 phase excitation method and the 2 phases excitation method. The response frequency is approximately double. (Refer to Fig. 5, 6)

	SW1		SW2	
	A	B	C	D
1	ON		ON	
2			ON	
3		ON	ON	
4		ON		
5		ON		ON
6				ON
7	ON			ON
8	ON			ON
1	ON		ON	

Fig. 5

Sequence

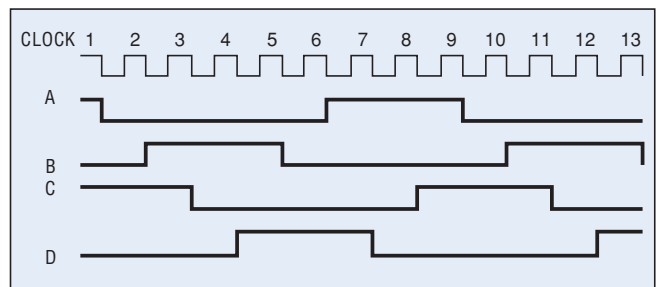


Fig. 6