

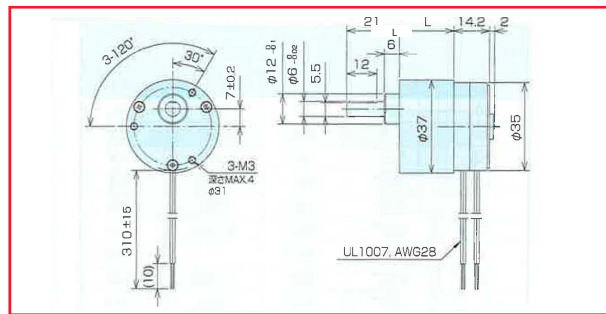
### Specifications

Specifications	Units	PTM-24T
Rated Voltage	V	24 ±10%
Frequency	Hz	50/60
Rated Current	mA	68/70
Revolutions	rpm	250/300
Rotating Direction		Dual Direction (CC/CCW)
Torque @ 60Hz	mN-m	9/9.5
Temperature Rise	K	55
Operating Temp. Range	°C	-10 to +50
Dielectric Strength	V	500Vac for 1 min
Weight	g	77
Capacitor	µF	3.3

Magnet type: Anisotropic

### Geared Models

#### PTM-24TG



### Geared Motor Torque Characteristics

Model	PTM-24TG				RPM	L
Speed	Torque (mN-m)		Gear Ratio			
rpm	50Hz	60Hz	50Hz	60Hz		
60	--	30	--	1/5	60	19.5mm
30	--	60	--	1/10	30	
20	--	72	--	1/15	20	
10	115	145	1/25	1/30	10	21.7mm
5	180	230	1/50	1/60	5	
4	--	290	--	1/75	4	
3	--	300*	--	1/100	3	23.8mm
2	365	465	1/125	1/150	2	
1	--	600*	--	1/300	1	

\*Values regulated by normal gear strength. Do not apply any load exceeding the normal gear strength.

## Dual Direction Synchronous Motors

**PTM(C) - 24 F 3 4 G 1/2**  
 1 2 3 4 5 6 7

### 1 - Series Designation

PTM: Flying lead joint type  
 PTMC: Connector joint type

### 2 - Number of Poles

12: Speed is 500 rpm w/50Hz  
 Speed is 600 rpm w/60Hz  
 24: Speed is 250 rpm w/50Hz  
 Speed is 300 rpm w/60Hz

### 3 - Outer Diameter (Type)

P: 22mm, M: 35mm, T: 35mm  
 (thin), H: 42mm, S: 42mm  
 (thin), F: 55mm, R: 55mm (w/ con-  
 nector)

### 4 - Coil Specification

Blank: Standard Coil  
 (continuous for 24, 100, 200 Vac)  
 1-18: Coil # for specific rating

### 5 - Magnet Type

Blank: Anisotropic  
 3: Isotropic  
 4: Neodymium  
 5: Plastic

### 6 - Gear Head

Blank: No Gear Head  
 G: Gear Head Integrated

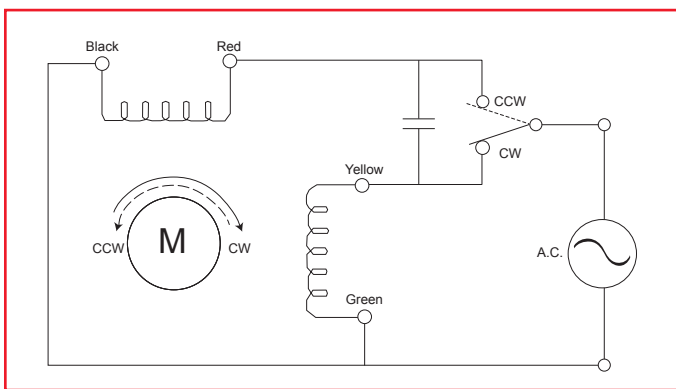
### 7 - Gear Ratio

see chart below

Gear Ratio	rpm w/12 poles		rpm w/24 poles	
	50Hz	60Hz	50Hz	60 Hz
Motor only	500	600	250	300
1/10	50	60	25	30
1/50	10	12	5	6
1/100	5	6	2.5	3

## Dual Direction Synchronous Motors

Motors that move in two directions are capacitor-based phase advancing motors. Because the rotor is moved by shifting the phase current by 90° it is essential for the circuit to have a capacitor. The proper wiring is below.



As viewed from the output shaft of the motor

## About Synchronous Motors

### No Power or Load Fluctuation Effect

Synchronous motors rotate in synch with supplied power frequency. If power frequency is constant, the motor will rotate at a constant speed (synchronized speed).

### Impedance Protected

Unless otherwise stated, these motors provide high electrical resistance, which prevents overcurrent from flowing to the motor, which would in turn burn the coils.

### No Control Circuit Required

Because these motors are AC motors, they start rotating when a power connection is made.

### Excellent Response

The type of magnet used in these motors ensures excellent response and also ensures the motor will start and stop immediately when power is supplied or removed.