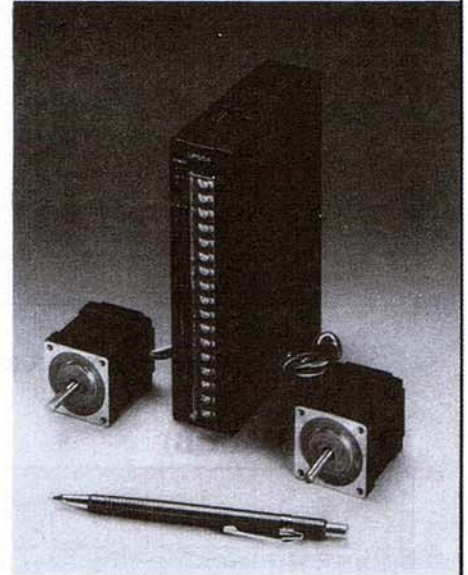


## UPS 54 Series High Resolution/High Speed Type 5-Phase, 5-Lead Stepping Motor and Driver Units\*

### Nema 17

- High resolution.
  - 0.36°/full step (1000 steps/rev)
  - 0.18°/half step (2000 steps/rev)
- High torque output in a compact package.
- Extremely smooth operation.
  - Virtually no low rpm resonance problem.
- Motor and driver are a matched pair.
  - No current adjustment needed.
- Easy hookup with only 5 leads.
- Highly cost effective.



\* Protected by US/Intl. Patents

### UPS 54 Series

(A) after the unit # denotes single shaft configuration. (B) after the unit # denotes thru-shaft configuration.

MOTOR SIZE (mm)	MOTOR AND DRIVER COMBINATION UNIT #	MAX. HOLDING TORQUE oz-in (kg-cm)	ROTOR INERTIA oz-in <sup>2</sup> (g cm <sup>2</sup> )	STEP ANGLE FULL/HALF	PHASE CURRENT (A)	MOTOR WEIGHT oz (kg)	DRIVER TYPE	MOTOR TYPE
1.49 (38)	UPS54-533MA(B)	10.42 (0.75)	0.08 (16)	0.36°/0.18°	0.75	5.9 (0.17)	UPS54-030	PS 533MA(B)
	UPS54-534MA(B)	15.28 (1.1)	0.13 (24)	0.36°/0.18°	0.75	7.76 (0.22)	UPS54-030	PS 534MA(B)
	UPS54-535MA(B)	19.44 (1.4)	0.19 (35)	0.36°/0.18°	0.75	9.52 (0.27)	UPS54-030	PS 535MA(B)

## Other Specifications

### Motor Section

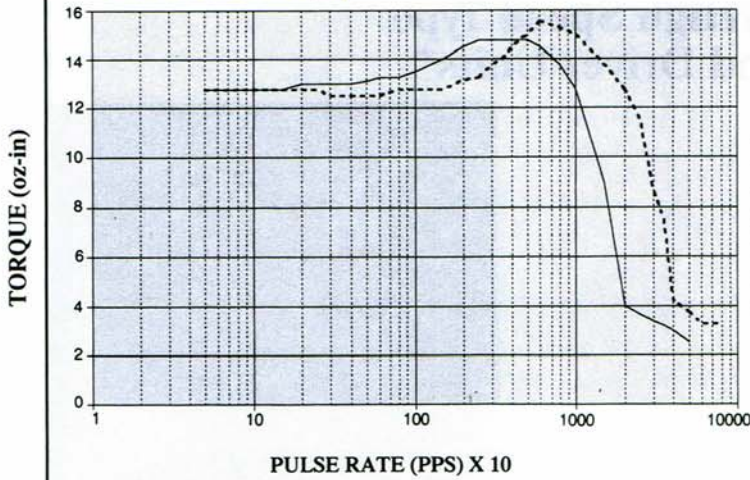
Step Angle Accuracy	± 3 min.
Shaft Radial Play	0.00098 in. max. / 1.1 lbs load
Shaft Axial Play	0.00295 in. max. / 2.2 lbs load
Dielectric Strength	No abnormality detected after the application of 0.5KV at 50Hz between motor windings and frame for duration of one minute.
Insulation Class	Class B
Insulation Resistance	100M ohms or better with 500V potential applied between motor windings and frame at normal ambient temperature and humidity.
Operating Environment Temperature	0°C ~ +50°C

### Driver Section

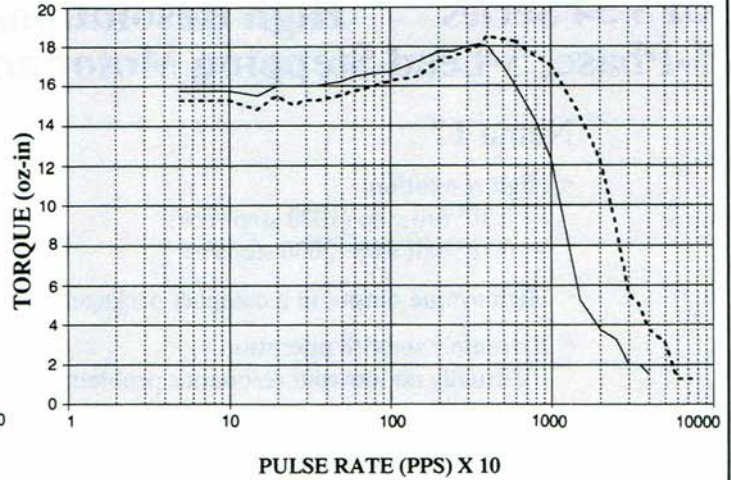
UPS54-030	
Drive Type	Star Bi-Polar, Constant Current Chopper
Power Requirements	85V ~ 132V AC 50 ~ 60 Hz
Power Consumption	1.5 A Max.
Built in Functions	Auto current down at stand still. Current off. Excitation timing signal output.
Input Pulse Types	STEP and DIRECTION or CW/CCW pulse (selectable). All opto-isolated. Voltage H = 4 ~ 5V, L = 0 ~ 0.5V. Resistance 330 ohms.
Dielectric Strength	No abnormality detected after the application of AC 1KV between case and power input terminals, case and signal I/O terminals, signal I/O terminals and power input terminals for duration of one minute.
Insulation Resistance	100M ohms or better with 500V potential applied between case and power input terminals and signal I/O terminals.
Operating Environment Temperature	0°C ~ +40°C

# Performance Characteristics

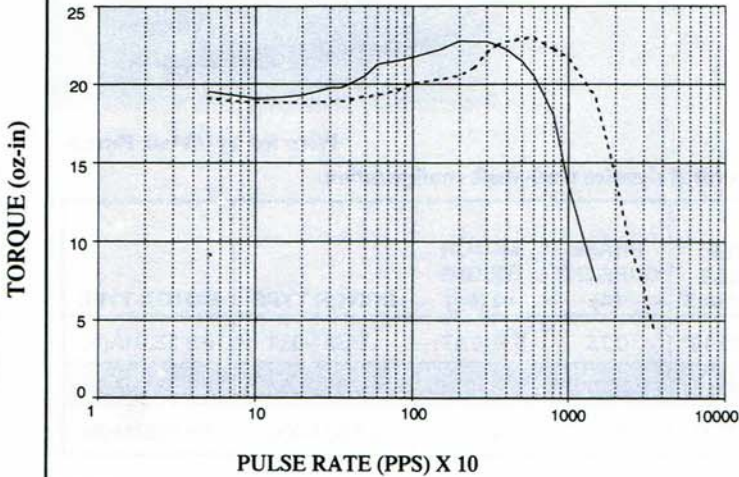
**UPS54-533MA(B)**



**UPS54-534MA(B)**

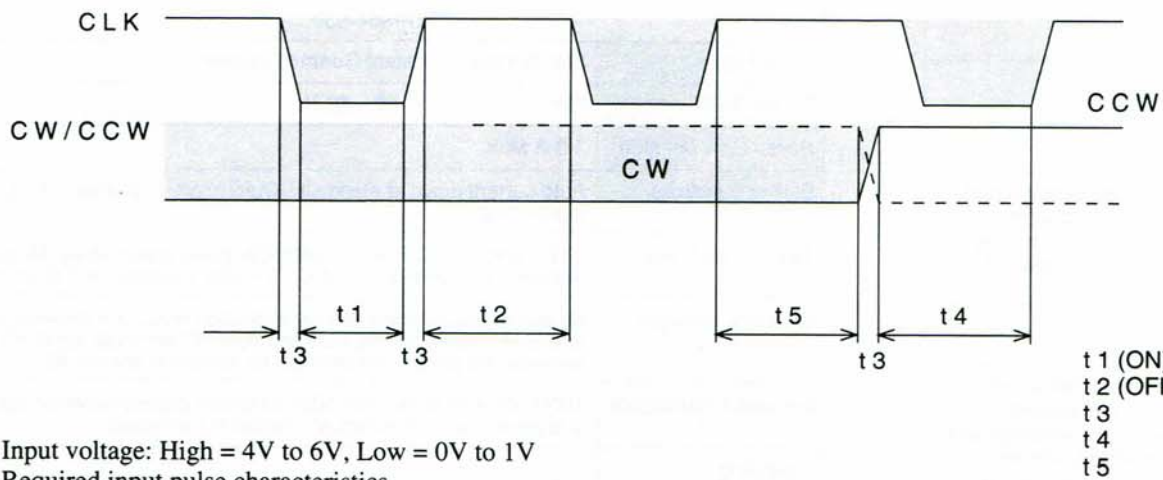


**UPS54-535MA(B)**



\_\_\_\_\_ FULL STEP 0.36%/Step  
 ..... HALF STEP 0.18%/Step

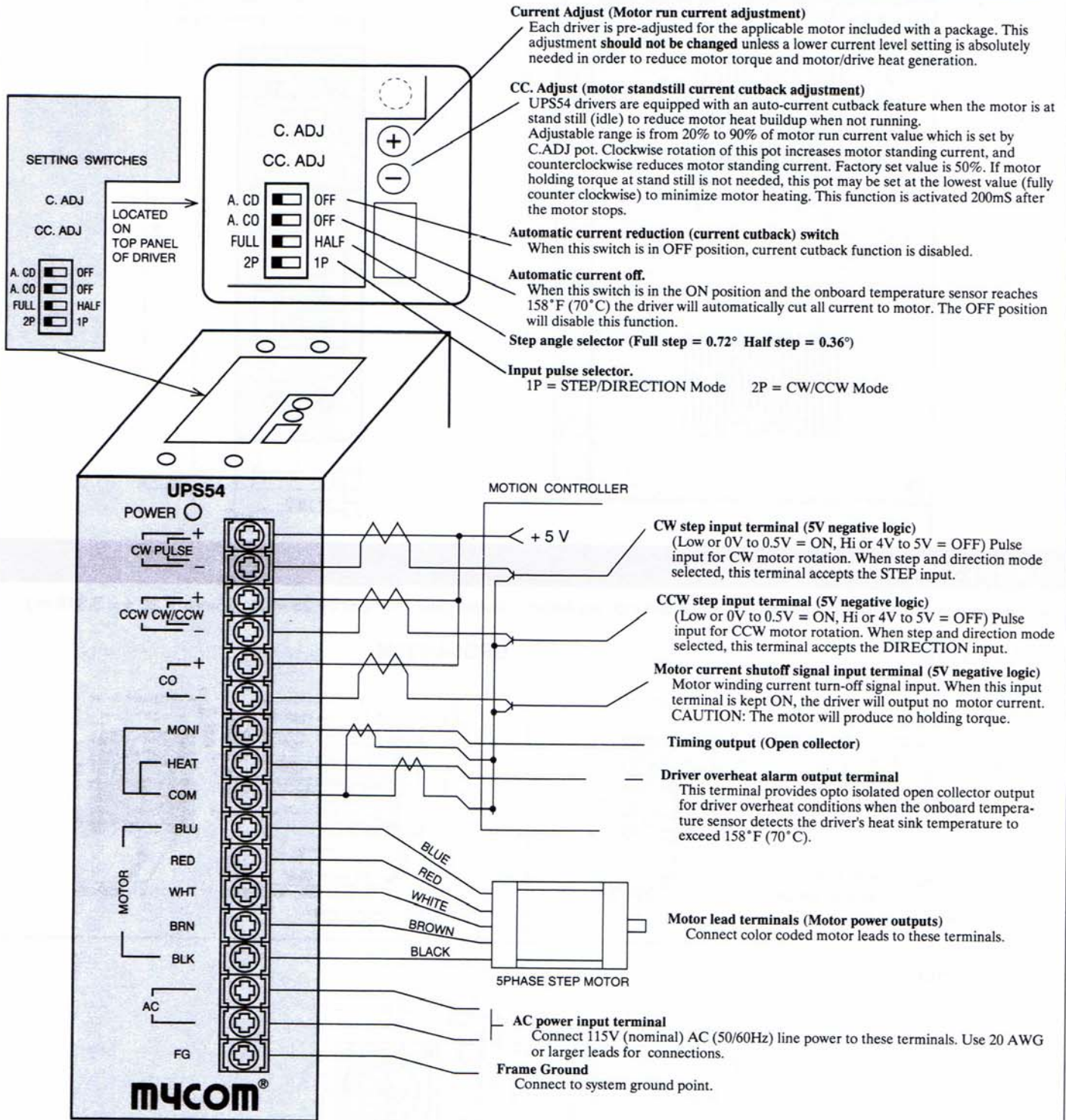
## Input Pulse Waveform



1. Input voltage: High = 4V to 6V, Low = 0V to 1V
2. Required input pulse characteristics  
Pulse duty: 50% or less, Width: 6 micro sec. or more, Rise/Fall time: 2 micro sec. or less.
3. If the input voltage exceeds 5V, use a series resistor or an appropriate value to limit the current flow through the opto-couple LED to 15mA.

# Driver Data

## UPS54 Driver Functions



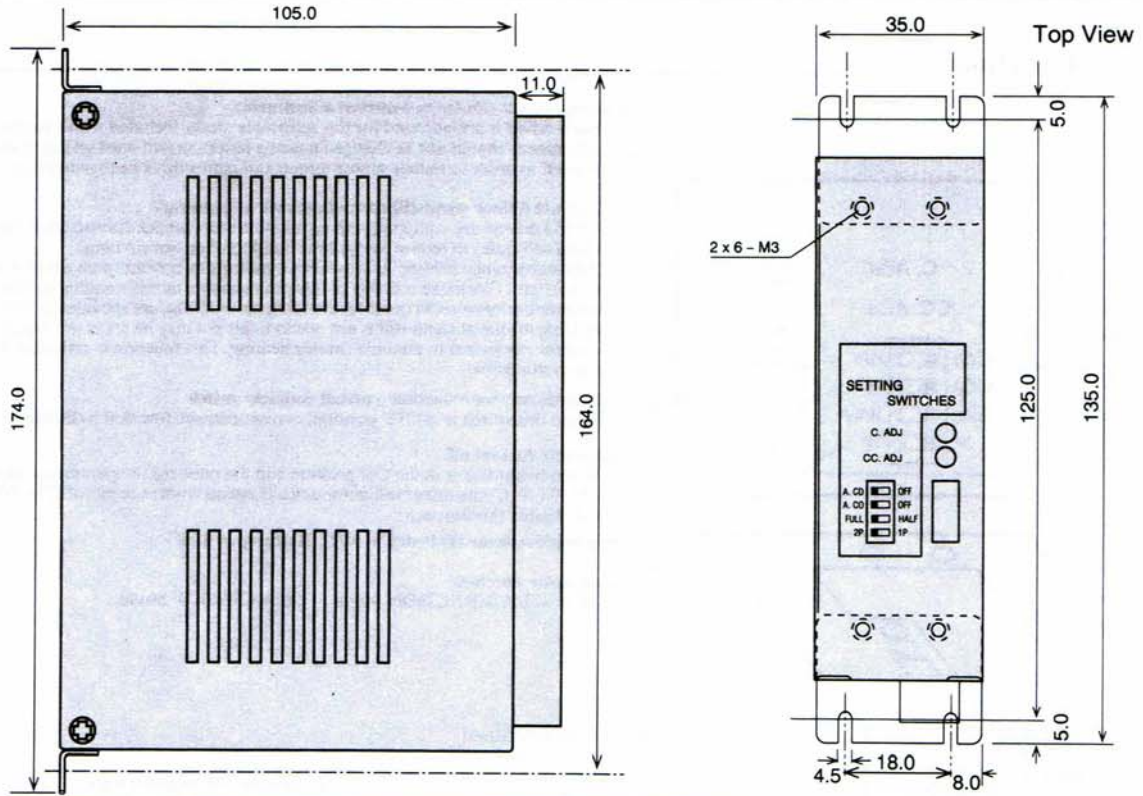
5 PHASE

CAUTION: TO AVOID POSSIBLE SHORT CIRCUIT DAMAGE, DO NOT TOUCH MOTOR LEAD TERMINALS WHEN THE POWER IS ON! MAXIMUM MOTOR CHOPPING VOLTAGE WILL APPROACH 140VDC. NO CONNECTION CHANGES MAY BE MADE WHILE THE DRIVE POWER IS ON. HAZARDOUS VOLTAGES MAY BE PRESENT AT THESE TERMINALS. IF THE MOTOR OUTPUTS ARE SHORT CIRCUITED, SERIOUS DAMAGE TO THE DRIVER WILL RESULT. THIS WILL NOT BE COVERED UNDER WARRANTY, AND WILL VOID REMAINDER OF THE ORIGINAL FACTORY WARRANTY. IF MOTOR LEAD TO TERMINAL CONNECTION IS TO BE MADE VIA A CONNECTOR SET, DO NOT USE MALE CONNECTORS OF ANY TYPE TO TERMINATE DRIVER OUTPUTS TO THE MOTOR. ALWAYS USE FEMALE CONNECTOR ON DRIVER OUTPUT TO AVOID POSSIBLE SHORT CIRCUIT ACCIDENTS.

CAUTION: MAXIMUM CURRENT IS ON. DAMAGE TO PRODUCT WILL OCCUR IF CONNECTED TO SIDE TERMINALS.

# UPS54 Series Driver External Dimensions

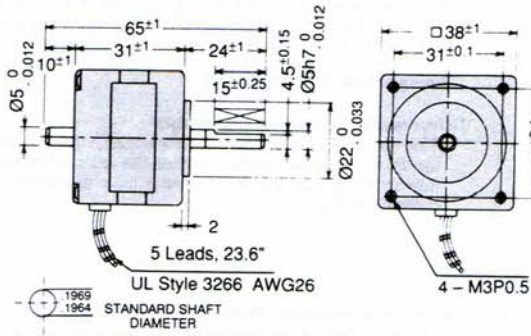
Unit: (mm)



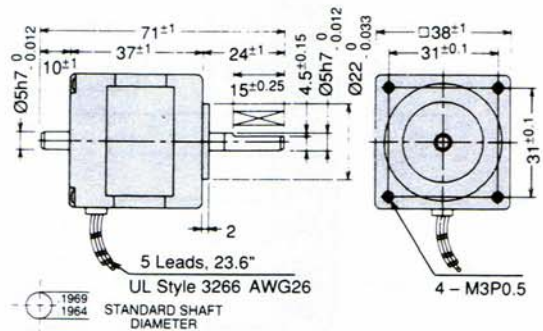
# UPS54 Series Motor Dimensions

All dimensions are shown in millimeters. To obtain inch equivalent, divide given number by 25.4 (ex. 85mm ÷ 25.4 = 3.346 in.)

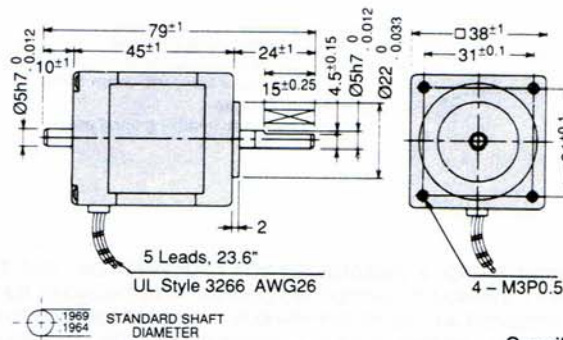
## UPS54-533M



## UPS54-534M



## UPS54-535M



Specifications are subject to change without notice.

Standard shafts available for all 5-phase motors.